COMS 6998: High Performance Machine Learning
Homework Assignment 01 - Due: Oct 01, 11:59pm ET
Completed in Colab Environment w/TPU Runtime

Stephen V. Wright (svw2112)

Final Results (C1-C5):

dp1: Vector size: 1000000 with 1000 measurements.
N: 1000000 T: 0.001678 sec B: 4.440 GB/sec F: 1191738180.203 FLOP/sec

dp1: Vector size: 300000000 with 20 measurements.
N: 300000000 T: 0.496774 sec B: 4.499 GB/sec F: 1207793347.447 FLOP/sec

dp2: Vector size: 1000000 with 1000 measurements.
N: 1000000 T: 0.000777 sec B: 9.591 GB/sec F: 2574610957.554 FLOP/sec

dp2: Vector size: 300000000 with 20 measurements.
N: 300000000 T: 0.259098 sec B: 8.627 GB/sec F: 2315727082.634 FLOP/sec

dp3: Vector size: 1000000 with 1000 measurements.
N: 1000000 T: 0.000412 sec B: 18.085 GB/sec F: 4854645953.298 FLOP/sec

dp3: Vector size: 300000000 with 20 measurements.
N: 300000000 T: 0.243238 sec B: 9.189 GB/sec F: 2466717159.903 FLOP/sec

dp4: Vector size: 1000000 with 1000 measurements.
N: 1000000 T: 0.551437 sec B: 0.014 GB/sec F: 3626885.618 FLOP/sec

dp4: Vector size: 300000000 with 20 measurements.
N: 300000000 T: 164.277968 sec B: 0.014 GB/sec F: 3652346.133 FLOP/sec

dp5: Vector size: 1000000 with 1000 measurements.
N: 1000000 T: 0.000702 sec B: 10.882 GB/sec F: 2921165255.164 FLOP/sec

dp5: Vector size: 300000000 with 20 measurements.
N: 300000000 T: 0.254822 sec B: 8.815 GB/sec F: 2366349779.493 FLOP/sec

Note: There are two implementations for dp1 and dp2 in this notebook; the reported final results include an optimized version of dp1 and dp2 that attempts to mitigate precision losses, while the initial dp1_test and dp2_test implementations included at the end of this notebook contain no such optimization efforts and observe the expected precision losses.

In [ ]:
```
!echo "deb https://apt.repos.intel.com/oneapi all main" | tee /etc/apt/sources.list.d/oneAPI.list
!wget https://apt.repos.intel.com/intel-gpg-keys/GPG-PUB-KEY-INTEL-SW-PRODUCTS-2023.PUB -O- | apt-key add -
!apt-get update
!apt-get install intel-oneapi-mkl-devel -y
```

C1: Write a micro-benchmark that investigates the performance of computing the dot-product in C that takes two arrays of 'float' (32 bit) as input. The dimension of the vector space and the number of repetitions for the measurement are command line arguments, i.e. a call 'dp1 1000 10' performs 10 measurements on a dot product with vectors of size 1000. Initialize fields in the input vectors to 1.0.

```
float dp(long N, float *pA, float *pB) {
  float R = 0.0;
  int j;
  for (j=0;j<N;j++)
    R += pA[j]*pB[j];
  return R; }
```

Name the program dp1.c and compile with gcc -O3 -Wall -o dp1 dp1.c.

Make sure the code is executed on a platform that has enough RAM. The 300000000 size runs should not be killed by the system!

Measure the execution time of the function with clock gettime(CLOCK MONOTONIC).

Measure the time for N=1000000 and N=300000000. Perform 1000 repetitions for the small case and 20 repetitions for the large case. Compute the appropriate mean for the execution time for the second half of the repetitions.

For the average times, compute the bandwidth in GB/sec and throughput in FLOP/sec, print the result as:

N: 1000000 : 9.999999 sec B: 9.999 GB/sec F: 9.999 FLOP/sec N: 300000000 : 9.999999 sec B: 9.999 GB/sec F: 9.999 FLOP/sec

In [52]:
```
%%writefile dp1.c
#include <stdio.h>
#include <stdlib.h>
#include <time.h>

#define GB (1073741824.0) // Constant for gigabyte conversion

// Compute the dot product of two vectors
float dp(long N, float *pA, float *pB)
{
    float R = 0.0;
    for (long j = 0; j < N; j++)
        R += pA[j] * pB[j];
    return R;
```

```c
    }

    // Compute the dot product of two vectors in chunks to avoid precision issues
    float dp_chunked(long N, float *pA, float *pB)
    {
        long chunk_size = 16777216; // size chosen based on precision limit of float
        float R = 0.0;
        for (long i = 0; i < N; i += chunk_size)
        {
            long current_chunk_size = (N - i > chunk_size) ? chunk_size : (N - i);
            R += dp(current_chunk_size, pA + i, pB + i);
        }
        return R;
    }

    // Initialize two vectors with all elements set to 1
    void initialize_vectors(long N, float *vecA, float *vecB)
    {
        for (long i = 0; i < N; i++)
        {
            vecA[i] = 1.0;
            vecB[i] = 1.0;
        }
    }

    int main(int argc, char *argv[])
    {
        // Check for the correct number of command-line arguments
        if (argc < 3)
        {
            printf("Usage: %s [vector size] [number of measurements]\n", argv[0]);
            return 1;
        }

        // Convert command-line arguments to respective data types
        long vec_size = atol(argv[1]);
        int num_measurements = atoi(argv[2]);
        printf("Vector size: %ld with %d measurements.\n", vec_size, num_measurements);

        // Allocate memory for the two vectors
        float *vecA = (float *)malloc(vec_size * sizeof(float));
        float *vecB = (float *)malloc(vec_size * sizeof(float));

        // Initialize vectors to default values
        initialize_vectors(vec_size, vecA, vecB);

        struct timespec start_time, end_time;
        double cumulative_time = 0;
        float dp_result;

        // Perform the dot product multiple times and measure its performance
        for (int i = 0; i < num_measurements; i++)
        {
            clock_gettime(CLOCK_MONOTONIC, &start_time); // Start the timer

            // Chunked version for large vectors, unrolled for smaller vectors
            if (vec_size > 16777216)
                dp_result = dp_chunked(vec_size, vecA, vecB);
            else
                dp_result = dp(vec_size, vecA, vecB);

            clock_gettime(CLOCK_MONOTONIC, &end_time); // Stop the timer

            // Calculate elapsed time
            double elapsed_time = (end_time.tv_sec - start_time.tv_sec) +
                                  (end_time.tv_nsec - start_time.tv_nsec) / 1e9;

            // Accumulate time from the second half measurements for averages
            if (i >= num_measurements / 2)
                cumulative_time += elapsed_time;

            // Compute bandwidth and flops
            double bandwidth = (vec_size * 2 * sizeof(float) / GB) / elapsed_time;
            double flops = vec_size * 2 / elapsed_time;

            printf("R: %ld <T>: %.6f sec B: %.3f GB/sec F: %.3f FLOP/sec\n",
                    (long)dp_result, elapsed_time, bandwidth, flops);
        }

        // Calculate and print the averages for the second half measurements
        double average_time = cumulative_time / (num_measurements / 2);
        double average_bandwidth = (vec_size * 2 * sizeof(float) / GB) / average_time;
        double average_flops = vec_size * 2 / average_time;

        printf("N: %li <T>: %.6f sec B: %.3f GB/sec F: %.3f FLOP/sec\n",
                vec_size, average_time, average_bandwidth, average_flops);

        // Free the allocated memory
        free(vecA);
        free(vecB);

        return 0;
    }
```

Overwriting dp1.c

In [53]: `!gcc -O3 -Wall -o dp1 dp1.c`

In [54]: `!./dp1`

```
Usage: ./dp1 [vector size] [number of measurements]
```

In [55]: `!./dp1 1000000 1000`

```
Usage: ./dp1 [vector size] [number of measurements]
```

In [55]: `!./dp1 1000000 1000`

```
Vector size: 1000000 with 1000 measurements.
R: 1000000 <T>: 0.001648 sec B: 4.521 GB/sec F: 1213579714.287 FLOP/sec
R: 1000000 <T>: 0.001664 sec B: 4.477 GB/sec F: 1201696314.518 FLOP/sec
R: 1000000 <T>: 0.002203 sec B: 3.382 GB/sec F: 907720251.511 FLOP/sec
R: 1000000 <T>: 0.001699 sec B: 4.386 GB/sec F: 1177388951.618 FLOP/sec
R: 1000000 <T>: 0.002072 sec B: 3.596 GB/sec F: 965180160.529 FLOP/sec
R: 1000000 <T>: 0.001965 sec B: 3.792 GB/sec F: 1017975927.923 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.630 GB/sec F: 1242978723.933 FLOP/sec
R: 1000000 <T>: 0.001981 sec B: 3.761 GB/sec F: 1009692543.572 FLOP/sec
R: 1000000 <T>: 0.001613 sec B: 4.620 GB/sec F: 1240211629.712 FLOP/sec
R: 1000000 <T>: 0.001629 sec B: 4.573 GB/sec F: 1227600887.310 FLOP/sec
R: 1000000 <T>: 0.001574 sec B: 4.734 GB/sec F: 1270682744.192 FLOP/sec
R: 1000000 <T>: 0.001628 sec B: 4.575 GB/sec F: 1228176832.900 FLOP/sec
R: 1000000 <T>: 0.001601 sec B: 4.653 GB/sec F: 1248969600.080 FLOP/sec
R: 1000000 <T>: 0.001591 sec B: 4.684 GB/sec F: 1257399797.810 FLOP/sec
R: 1000000 <T>: 0.001568 sec B: 4.753 GB/sec F: 1275856833.553 FLOP/sec
R: 1000000 <T>: 0.001578 sec B: 4.721 GB/sec F: 1267311474.745 FLOP/sec
R: 1000000 <T>: 0.001587 sec B: 4.695 GB/sec F: 1260372868.709 FLOP/sec
R: 1000000 <T>: 0.001616 sec B: 4.611 GB/sec F: 1237825981.472 FLOP/sec
R: 1000000 <T>: 0.001586 sec B: 4.697 GB/sec F: 1260791587.999 FLOP/sec
R: 1000000 <T>: 0.001621 sec B: 4.597 GB/sec F: 1233966152.308 FLOP/sec
R: 1000000 <T>: 0.001604 sec B: 4.646 GB/sec F: 1247208591.272 FLOP/sec
R: 1000000 <T>: 0.001582 sec B: 4.709 GB/sec F: 1264117825.894 FLOP/sec
R: 1000000 <T>: 0.001601 sec B: 4.654 GB/sec F: 1249301172.157 FLOP/sec
R: 1000000 <T>: 0.001616 sec B: 4.610 GB/sec F: 1237619167.256 FLOP/sec
R: 1000000 <T>: 0.001611 sec B: 4.625 GB/sec F: 1241627550.225 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.631 GB/sec F: 1243120107.157 FLOP/sec
R: 1000000 <T>: 0.001620 sec B: 4.600 GB/sec F: 1234724909.464 FLOP/sec
R: 1000000 <T>: 0.001660 sec B: 4.489 GB/sec F: 1204879521.084 FLOP/sec
R: 1000000 <T>: 0.001605 sec B: 4.642 GB/sec F: 1246179680.417 FLOP/sec
R: 1000000 <T>: 0.001578 sec B: 4.721 GB/sec F: 1267370902.431 FLOP/sec
R: 1000000 <T>: 0.001586 sec B: 4.698 GB/sec F: 1261037228.341 FLOP/sec
R: 1000000 <T>: 0.001625 sec B: 4.586 GB/sec F: 1230934365.349 FLOP/sec
R: 1000000 <T>: 0.001816 sec B: 4.103 GB/sec F: 1101414381.278 FLOP/sec
R: 1000000 <T>: 0.001607 sec B: 4.637 GB/sec F: 1244845561.348 FLOP/sec
R: 1000000 <T>: 0.001638 sec B: 4.549 GB/sec F: 1221039984.175 FLOP/sec
R: 1000000 <T>: 0.001580 sec B: 4.714 GB/sec F: 1265432743.199 FLOP/sec
R: 1000000 <T>: 0.001569 sec B: 4.749 GB/sec F: 1274767944.430 FLOP/sec
R: 1000000 <T>: 0.001578 sec B: 4.723 GB/sec F: 1267783034.147 FLOP/sec
R: 1000000 <T>: 0.001600 sec B: 4.657 GB/sec F: 1250010937.596 FLOP/sec
R: 1000000 <T>: 0.001590 sec B: 4.685 GB/sec F: 1257504156.051 FLOP/sec
R: 1000000 <T>: 0.001587 sec B: 4.695 GB/sec F: 1260326802.740 FLOP/sec
R: 1000000 <T>: 0.001580 sec B: 4.715 GB/sec F: 1265611315.578 FLOP/sec
R: 1000000 <T>: 0.001605 sec B: 4.643 GB/sec F: 1246227047.613 FLOP/sec
R: 1000000 <T>: 0.001626 sec B: 4.581 GB/sec F: 1229647791.983 FLOP/sec
R: 1000000 <T>: 0.001710 sec B: 4.356 GB/sec F: 1169384804.195 FLOP/sec
R: 1000000 <T>: 0.001649 sec B: 4.517 GB/sec F: 1212549646.330 FLOP/sec
R: 1000000 <T>: 0.001602 sec B: 4.650 GB/sec F: 1248323345.706 FLOP/sec
R: 1000000 <T>: 0.001583 sec B: 4.706 GB/sec F: 1263314545.741 FLOP/sec
R: 1000000 <T>: 0.001578 sec B: 4.722 GB/sec F: 1267535562.295 FLOP/sec
R: 1000000 <T>: 0.001555 sec B: 4.791 GB/sec F: 1286177769.060 FLOP/sec
R: 1000000 <T>: 0.001605 sec B: 4.641 GB/sec F: 1245773712.680 FLOP/sec
R: 1000000 <T>: 0.001858 sec B: 4.010 GB/sec F: 1076484202.594 FLOP/sec
R: 1000000 <T>: 0.001594 sec B: 4.675 GB/sec F: 1255001967.216 FLOP/sec
R: 1000000 <T>: 0.002185 sec B: 3.410 GB/sec F: 915434453.749 FLOP/sec
R: 1000000 <T>: 0.001668 sec B: 4.467 GB/sec F: 1199200373.191 FLOP/sec
R: 1000000 <T>: 0.001594 sec B: 4.673 GB/sec F: 1254428918.099 FLOP/sec
R: 1000000 <T>: 0.001591 sec B: 4.684 GB/sec F: 1257350787.039 FLOP/sec
R: 1000000 <T>: 0.001606 sec B: 4.641 GB/sec F: 1245685257.689 FLOP/sec
R: 1000000 <T>: 0.001646 sec B: 4.526 GB/sec F: 1215066090.482 FLOP/sec
R: 1000000 <T>: 0.001934 sec B: 3.852 GB/sec F: 1033927290.097 FLOP/sec
R: 1000000 <T>: 0.001622 sec B: 4.594 GB/sec F: 1233070709.823 FLOP/sec
R: 1000000 <T>: 0.002118 sec B: 3.518 GB/sec F: 944302667.891 FLOP/sec
R: 1000000 <T>: 0.001727 sec B: 4.315 GB/sec F: 1158176173.652 FLOP/sec
R: 1000000 <T>: 0.001775 sec B: 4.197 GB/sec F: 1126703434.755 FLOP/sec
R: 1000000 <T>: 0.001625 sec B: 4.585 GB/sec F: 1230838157.706 FLOP/sec
R: 1000000 <T>: 0.001595 sec B: 4.672 GB/sec F: 1254226744.128 FLOP/sec
R: 1000000 <T>: 0.001600 sec B: 4.658 GB/sec F: 1250382148.044 FLOP/sec
R: 1000000 <T>: 0.001718 sec B: 4.337 GB/sec F: 1164289381.797 FLOP/sec
R: 1000000 <T>: 0.001641 sec B: 4.541 GB/sec F: 1219026814.323 FLOP/sec
R: 1000000 <T>: 0.001592 sec B: 4.681 GB/sec F: 1256563186.594 FLOP/sec
R: 1000000 <T>: 0.001704 sec B: 4.374 GB/sec F: 1174018960.406 FLOP/sec
R: 1000000 <T>: 0.001762 sec B: 4.228 GB/sec F: 1135011296.200 FLOP/sec
R: 1000000 <T>: 0.001589 sec B: 4.688 GB/sec F: 1258498007.798 FLOP/sec
R: 1000000 <T>: 0.001645 sec B: 4.528 GB/sec F: 1215538717.643 FLOP/sec
R: 1000000 <T>: 0.001596 sec B: 4.669 GB/sec F: 1253240409.734 FLOP/sec
R: 1000000 <T>: 0.001584 sec B: 4.704 GB/sec F: 1262809625.135 FLOP/sec
R: 1000000 <T>: 0.001598 sec B: 4.662 GB/sec F: 1251527645.933 FLOP/sec
R: 1000000 <T>: 0.001588 sec B: 4.693 GB/sec F: 1259757610.038 FLOP/sec
R: 1000000 <T>: 0.001585 sec B: 4.700 GB/sec F: 1261686370.002 FLOP/sec
R: 1000000 <T>: 0.001596 sec B: 4.668 GB/sec F: 1252956978.469 FLOP/sec
R: 1000000 <T>: 0.001578 sec B: 4.721 GB/sec F: 1267379736.753 FLOP/sec
R: 1000000 <T>: 0.001586 sec B: 4.698 GB/sec F: 1261157300.997 FLOP/sec
R: 1000000 <T>: 0.001827 sec B: 4.078 GB/sec F: 1094714717.345 FLOP/sec
R: 1000000 <T>: 0.001932 sec B: 3.856 GB/sec F: 1035015613.211 FLOP/sec
R: 1000000 <T>: 0.001650 sec B: 4.515 GB/sec F: 1212000012.120 FLOP/sec
R: 1000000 <T>: 0.001703 sec B: 4.375 GB/sec F: 1174449153.986 FLOP/sec
R: 1000000 <T>: 0.001619 sec B: 4.601 GB/sec F: 1235152692.664 FLOP/sec
R: 1000000 <T>: 0.001606 sec B: 4.640 GB/sec F: 1245488218.927 FLOP/sec
R: 1000000 <T>: 0.001606 sec B: 4.641 GB/sec F: 1245703102.860 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.631 GB/sec F: 1243179605.887 FLOP/sec
R: 1000000 <T>: 0.001603 sec B: 4.649 GB/sec F: 1247955692.581 FLOP/sec
R: 1000000 <T>: 0.001598 sec B: 4.663 GB/sec F: 1251687431.118 FLOP/sec
R: 1000000 <T>: 0.001953 sec B: 3.814 GB/sec F: 1023892532.240 FLOP/sec
R: 1000000 <T>: 0.001980 sec B: 3.763 GB/sec F: 1010026023.320 FLOP/sec
R: 1000000 <T>: 0.001758 sec B: 4.239 GB/sec F: 1137963898.095 FLOP/sec
R: 1000000 <T>: 0.001858 sec B: 4.009 GB/sec F: 1076200946.088 FLOP/sec
R: 1000000 <T>: 0.001627 sec B: 4.580 GB/sec F: 1229413471.421 FLOP/sec
R: 1000000 <T>: 0.001652 sec B: 4.511 GB/sec F: 1210788610.838 FLOP/sec
R: 1000000 <T>: 0.001637 sec B: 4.552 GB/sec F: 1222018823.978 FLOP/sec
```

```
R: 1000000 <T>: 0.001613 sec B: 4.618 GB/sec F: 1239739605.093 FLOP/sec
R: 1000000 <T>: 0.001624 sec B: 4.588 GB/sec F: 1231495244.581 FLOP/sec
R: 1000000 <T>: 0.001668 sec B: 4.466 GB/sec F: 1199719527.800 FLOP/sec
R: 1000000 <T>: 0.001663 sec B: 4.481 GB/sec F: 1202762987.134 FLOP/sec
R: 1000000 <T>: 0.001628 sec B: 4.575 GB/sec F: 1228191917.269 FLOP/sec
R: 1000000 <T>: 0.001688 sec B: 4.415 GB/sec F: 1185016649.484 FLOP/sec
R: 1000000 <T>: 0.001662 sec B: 4.482 GB/sec F: 1203021991.242 FLOP/sec
R: 1000000 <T>: 0.001645 sec B: 4.529 GB/sec F: 1215828383.392 FLOP/sec
R: 1000000 <T>: 0.001936 sec B: 3.848 GB/sec F: 1032923933.932 FLOP/sec
R: 1000000 <T>: 0.001709 sec B: 4.359 GB/sec F: 1170077833.577 FLOP/sec
R: 1000000 <T>: 0.001603 sec B: 4.648 GB/sec F: 1247747815.194 FLOP/sec
R: 1000000 <T>: 0.001653 sec B: 4.508 GB/sec F: 1210055317.679 FLOP/sec
R: 1000000 <T>: 0.001610 sec B: 4.627 GB/sec F: 1241977600.934 FLOP/sec
R: 1000000 <T>: 0.001624 sec B: 4.588 GB/sec F: 1231612790.791 FLOP/sec
R: 1000000 <T>: 0.002601 sec B: 2.865 GB/sec F: 769013966.447 FLOP/sec
R: 1000000 <T>: 0.001733 sec B: 4.300 GB/sec F: 1154232599.799 FLOP/sec
R: 1000000 <T>: 0.001633 sec B: 4.564 GB/sec F: 1225067577.790 FLOP/sec
R: 1000000 <T>: 0.001634 sec B: 4.560 GB/sec F: 1224015677.193 FLOP/sec
R: 1000000 <T>: 0.001644 sec B: 4.533 GB/sec F: 1216822572.059 FLOP/sec
R: 1000000 <T>: 0.001604 sec B: 4.646 GB/sec F: 1247119932.406 FLOP/sec
R: 1000000 <T>: 0.001856 sec B: 4.014 GB/sec F: 1077409154.207 FLOP/sec
R: 1000000 <T>: 0.001755 sec B: 4.245 GB/sec F: 1139505693.825 FLOP/sec
R: 1000000 <T>: 0.001630 sec B: 4.570 GB/sec F: 1226874188.346 FLOP/sec
R: 1000000 <T>: 0.002075 sec B: 3.590 GB/sec F: 963764386.593 FLOP/sec
R: 1000000 <T>: 0.001680 sec B: 4.436 GB/sec F: 1190767503.240 FLOP/sec
R: 1000000 <T>: 0.001630 sec B: 4.571 GB/sec F: 1226940421.614 FLOP/sec
R: 1000000 <T>: 0.001654 sec B: 4.504 GB/sec F: 1208982985.378 FLOP/sec
R: 1000000 <T>: 0.001626 sec B: 4.583 GB/sec F: 1230177988.302 FLOP/sec
R: 1000000 <T>: 0.001615 sec B: 4.614 GB/sec F: 1238581823.812 FLOP/sec
R: 1000000 <T>: 0.001847 sec B: 4.033 GB/sec F: 1082669972.419 FLOP/sec
R: 1000000 <T>: 0.001741 sec B: 4.281 GB/sec F: 1149087165.156 FLOP/sec
R: 1000000 <T>: 0.001662 sec B: 4.484 GB/sec F: 1203555543.787 FLOP/sec
R: 1000000 <T>: 0.001763 sec B: 4.225 GB/sec F: 1134181625.577 FLOP/sec
R: 1000000 <T>: 0.001619 sec B: 4.602 GB/sec F: 1235327398.821 FLOP/sec
R: 1000000 <T>: 0.001610 sec B: 4.627 GB/sec F: 1242062444.689 FLOP/sec
R: 1000000 <T>: 0.001694 sec B: 4.397 GB/sec F: 1180312853.725 FLOP/sec
R: 1000000 <T>: 0.001720 sec B: 4.332 GB/sec F: 1162790021.634 FLOP/sec
R: 1000000 <T>: 0.001567 sec B: 4.756 GB/sec F: 1276590583.996 FLOP/sec
R: 1000000 <T>: 0.001565 sec B: 4.761 GB/sec F: 1277935673.830 FLOP/sec
R: 1000000 <T>: 0.001591 sec B: 4.684 GB/sec F: 1257453555.953 FLOP/sec
R: 1000000 <T>: 0.001573 sec B: 4.736 GB/sec F: 1271328926.483 FLOP/sec
R: 1000000 <T>: 0.001573 sec B: 4.736 GB/sec F: 1271428335.306 FLOP/sec
R: 1000000 <T>: 0.001675 sec B: 4.449 GB/sec F: 1194178855.750 FLOP/sec
R: 1000000 <T>: 0.001580 sec B: 4.716 GB/sec F: 1266028714.797 FLOP/sec
R: 1000000 <T>: 0.001867 sec B: 3.990 GB/sec F: 1071030760.003 FLOP/sec
R: 1000000 <T>: 0.001737 sec B: 4.288 GB/sec F: 1151112924.753 FLOP/sec
R: 1000000 <T>: 0.001679 sec B: 4.438 GB/sec F: 1191215736.913 FLOP/sec
R: 1000000 <T>: 0.001646 sec B: 4.528 GB/sec F: 1215390243.576 FLOP/sec
R: 1000000 <T>: 0.001640 sec B: 4.544 GB/sec F: 1219782183.495 FLOP/sec
R: 1000000 <T>: 0.001649 sec B: 4.520 GB/sec F: 1213218991.487 FLOP/sec
R: 1000000 <T>: 0.001595 sec B: 4.670 GB/sec F: 1253709412.725 FLOP/sec
R: 1000000 <T>: 0.001606 sec B: 4.638 GB/sec F: 1245109831.138 FLOP/sec
R: 1000000 <T>: 0.001578 sec B: 4.723 GB/sec F: 1267774194.203 FLOP/sec
R: 1000000 <T>: 0.001778 sec B: 4.190 GB/sec F: 1124720225.844 FLOP/sec
R: 1000000 <T>: 0.001605 sec B: 4.643 GB/sec F: 1246240248.949 FLOP/sec
R: 1000000 <T>: 0.001591 sec B: 4.684 GB/sec F: 1257454346.548 FLOP/sec
R: 1000000 <T>: 0.001606 sec B: 4.639 GB/sec F: 1245259452.920 FLOP/sec
R: 1000000 <T>: 0.001601 sec B: 4.654 GB/sec F: 1249397946.365 FLOP/sec
R: 1000000 <T>: 0.001599 sec B: 4.660 GB/sec F: 1250976543.564 FLOP/sec
R: 1000000 <T>: 0.001652 sec B: 4.510 GB/sec F: 1210579007.834 FLOP/sec
R: 1000000 <T>: 0.001640 sec B: 4.544 GB/sec F: 1219820869.305 FLOP/sec
R: 1000000 <T>: 0.001639 sec B: 4.546 GB/sec F: 1220354537.400 FLOP/sec
R: 1000000 <T>: 0.001613 sec B: 4.620 GB/sec F: 1240257006.057 FLOP/sec
R: 1000000 <T>: 0.001615 sec B: 4.614 GB/sec F: 1238498988.766 FLOP/sec
R: 1000000 <T>: 0.001594 sec B: 4.675 GB/sec F: 1254965742.573 FLOP/sec
R: 1000000 <T>: 0.001571 sec B: 4.742 GB/sec F: 1272929437.066 FLOP/sec
R: 1000000 <T>: 0.001556 sec B: 4.788 GB/sec F: 1285160381.590 FLOP/sec
R: 1000000 <T>: 0.001558 sec B: 4.783 GB/sec F: 1284048141.533 FLOP/sec
R: 1000000 <T>: 0.001587 sec B: 4.693 GB/sec F: 1259859185.539 FLOP/sec
R: 1000000 <T>: 0.001549 sec B: 4.809 GB/sec F: 1290843915.026 FLOP/sec
R: 1000000 <T>: 0.001572 sec B: 4.740 GB/sec F: 1272437041.406 FLOP/sec
R: 1000000 <T>: 0.001564 sec B: 4.764 GB/sec F: 1278811625.932 FLOP/sec
R: 1000000 <T>: 0.001602 sec B: 4.650 GB/sec F: 1248326462.336 FLOP/sec
R: 1000000 <T>: 0.001598 sec B: 4.662 GB/sec F: 1251504934.684 FLOP/sec
R: 1000000 <T>: 0.001659 sec B: 4.490 GB/sec F: 1205342802.506 FLOP/sec
R: 1000000 <T>: 0.001589 sec B: 4.689 GB/sec F: 1258567699.615 FLOP/sec
R: 1000000 <T>: 0.001600 sec B: 4.657 GB/sec F: 1249988281.360 FLOP/sec
R: 1000000 <T>: 0.001564 sec B: 4.765 GB/sec F: 1279160870.469 FLOP/sec
R: 1000000 <T>: 0.002164 sec B: 3.443 GB/sec F: 924355804.885 FLOP/sec
R: 1000000 <T>: 0.001788 sec B: 4.166 GB/sec F: 1118426240.069 FLOP/sec
R: 1000000 <T>: 0.001633 sec B: 4.562 GB/sec F: 1224670747.270 FLOP/sec
R: 1000000 <T>: 0.001607 sec B: 4.636 GB/sec F: 1244478404.877 FLOP/sec
R: 1000000 <T>: 0.001592 sec B: 4.679 GB/sec F: 1256075480.088 FLOP/sec
R: 1000000 <T>: 0.001659 sec B: 4.492 GB/sec F: 1205876961.962 FLOP/sec
R: 1000000 <T>: 0.001611 sec B: 4.625 GB/sec F: 1241462616.767 FLOP/sec
R: 1000000 <T>: 0.001663 sec B: 4.480 GB/sec F: 1202680534.375 FLOP/sec
R: 1000000 <T>: 0.002430 sec B: 3.066 GB/sec F: 823153327.536 FLOP/sec
R: 1000000 <T>: 0.001617 sec B: 4.608 GB/sec F: 1236992253.336 FLOP/sec
R: 1000000 <T>: 0.001642 sec B: 4.538 GB/sec F: 1218083917.455 FLOP/sec
R: 1000000 <T>: 0.001703 sec B: 4.374 GB/sec F: 1174053419.431 FLOP/sec
R: 1000000 <T>: 0.001565 sec B: 4.762 GB/sec F: 1278180688.735 FLOP/sec
R: 1000000 <T>: 0.001608 sec B: 4.633 GB/sec F: 1243760983.964 FLOP/sec
R: 1000000 <T>: 0.001571 sec B: 4.742 GB/sec F: 1272953742.770 FLOP/sec
R: 1000000 <T>: 0.001570 sec B: 4.746 GB/sec F: 1273999766.858 FLOP/sec
R: 1000000 <T>: 0.001570 sec B: 4.747 GB/sec F: 1274257076.268 FLOP/sec
R: 1000000 <T>: 0.001574 sec B: 4.735 GB/sec F: 1270916909.359 FLOP/sec
R: 1000000 <T>: 0.001576 sec B: 4.728 GB/sec F: 1269159549.854 FLOP/sec
R: 1000000 <T>: 0.001566 sec B: 4.757 GB/sec F: 1277027488.655 FLOP/sec
R: 1000000 <T>: 0.001591 sec B: 4.684 GB/sec F: 1257327073.521 FLOP/sec
R: 1000000 <T>: 0.001584 sec B: 4.704 GB/sec F: 1262621479.969 FLOP/sec
```

```
R: 1000000 <T>: 0.001558 sec B: 4.782 GB/sec F: 1283567702.099 FLOP/sec
R: 1000000 <T>: 0.001575 sec B: 4.730 GB/sec F: 1269609112.746 FLOP/sec
R: 1000000 <T>: 0.001545 sec B: 4.822 GB/sec F: 1294392819.744 FLOP/sec
R: 1000000 <T>: 0.001553 sec B: 4.798 GB/sec F: 1288062239.167 FLOP/sec
R: 1000000 <T>: 0.001549 sec B: 4.810 GB/sec F: 1291233108.250 FLOP/sec
R: 1000000 <T>: 0.001618 sec B: 4.605 GB/sec F: 1236252103.947 FLOP/sec
R: 1000000 <T>: 0.001566 sec B: 4.757 GB/sec F: 1276972043.890 FLOP/sec
R: 1000000 <T>: 0.001603 sec B: 4.647 GB/sec F: 1247482424.532 FLOP/sec
R: 1000000 <T>: 0.001677 sec B: 4.443 GB/sec F: 1192729597.466 FLOP/sec
R: 1000000 <T>: 0.001614 sec B: 4.616 GB/sec F: 1239175031.614 FLOP/sec
R: 1000000 <T>: 0.001703 sec B: 4.375 GB/sec F: 1174505019.541 FLOP/sec
R: 1000000 <T>: 0.001695 sec B: 4.397 GB/sec F: 1180189573.851 FLOP/sec
R: 1000000 <T>: 0.002008 sec B: 3.711 GB/sec F: 996116639.282 FLOP/sec
R: 1000000 <T>: 0.001628 sec B: 4.577 GB/sec F: 1228595561.699 FLOP/sec
R: 1000000 <T>: 0.001957 sec B: 3.806 GB/sec F: 1021718673.850 FLOP/sec
R: 1000000 <T>: 0.001647 sec B: 4.525 GB/sec F: 1214639564.819 FLOP/sec
R: 1000000 <T>: 0.001627 sec B: 4.578 GB/sec F: 1228883933.756 FLOP/sec
R: 1000000 <T>: 0.001713 sec B: 4.349 GB/sec F: 1167413519.466 FLOP/sec
R: 1000000 <T>: 0.001657 sec B: 4.495 GB/sec F: 1206685277.776 FLOP/sec
R: 1000000 <T>: 0.001602 sec B: 4.651 GB/sec F: 1248474520.196 FLOP/sec
R: 1000000 <T>: 0.001597 sec B: 4.664 GB/sec F: 1251959316.330 FLOP/sec
R: 1000000 <T>: 0.001676 sec B: 4.444 GB/sec F: 1193051904.320 FLOP/sec
R: 1000000 <T>: 0.001602 sec B: 4.651 GB/sec F: 1248609361.324 FLOP/sec
R: 1000000 <T>: 0.001622 sec B: 4.592 GB/sec F: 1232677795.282 FLOP/sec
R: 1000000 <T>: 0.002009 sec B: 3.709 GB/sec F: 995732291.399 FLOP/sec
R: 1000000 <T>: 0.001676 sec B: 4.444 GB/sec F: 1193035535.756 FLOP/sec
R: 1000000 <T>: 0.001718 sec B: 4.338 GB/sec F: 1164458852.682 FLOP/sec
R: 1000000 <T>: 0.001688 sec B: 4.414 GB/sec F: 1184907828.982 FLOP/sec
R: 1000000 <T>: 0.001682 sec B: 4.430 GB/sec F: 1189260030.516 FLOP/sec
R: 1000000 <T>: 0.001591 sec B: 4.683 GB/sec F: 1257135026.988 FLOP/sec
R: 1000000 <T>: 0.001571 sec B: 4.742 GB/sec F: 1272798202.300 FLOP/sec
R: 1000000 <T>: 0.001584 sec B: 4.703 GB/sec F: 1262432593.990 FLOP/sec
R: 1000000 <T>: 0.001565 sec B: 4.760 GB/sec F: 1277815650.814 FLOP/sec
R: 1000000 <T>: 0.001724 sec B: 4.322 GB/sec F: 1160133856.244 FLOP/sec
R: 1000000 <T>: 0.001597 sec B: 4.664 GB/sec F: 1251972639.390 FLOP/sec
R: 1000000 <T>: 0.001566 sec B: 4.759 GB/sec F: 1277534868.717 FLOP/sec
R: 1000000 <T>: 0.001651 sec B: 4.512 GB/sec F: 1211118552.762 FLOP/sec
R: 1000000 <T>: 0.001569 sec B: 4.748 GB/sec F: 1274404852.934 FLOP/sec
R: 1000000 <T>: 0.001987 sec B: 3.749 GB/sec F: 1006316143.273 FLOP/sec
R: 1000000 <T>: 0.003148 sec B: 2.367 GB/sec F: 635417672.745 FLOP/sec
R: 1000000 <T>: 0.001602 sec B: 4.650 GB/sec F: 1248254783.780 FLOP/sec
R: 1000000 <T>: 0.001668 sec B: 4.466 GB/sec F: 1198810061.133 FLOP/sec
R: 1000000 <T>: 0.001629 sec B: 4.575 GB/sec F: 1228117253.267 FLOP/sec
R: 1000000 <T>: 0.001596 sec B: 4.670 GB/sec F: 1253505113.674 FLOP/sec
R: 1000000 <T>: 0.001654 sec B: 4.505 GB/sec F: 1209296588.453 FLOP/sec
R: 1000000 <T>: 0.001593 sec B: 4.678 GB/sec F: 1255871986.457 FLOP/sec
R: 1000000 <T>: 0.001618 sec B: 4.606 GB/sec F: 1236413362.661 FLOP/sec
R: 1000000 <T>: 0.001680 sec B: 4.435 GB/sec F: 1190385494.439 FLOP/sec
R: 1000000 <T>: 0.001583 sec B: 4.707 GB/sec F: 1263425474.953 FLOP/sec
R: 1000000 <T>: 0.001625 sec B: 4.584 GB/sec F: 1230437580.517 FLOP/sec
R: 1000000 <T>: 0.002284 sec B: 3.263 GB/sec F: 875779443.705 FLOP/sec
R: 1000000 <T>: 0.001984 sec B: 3.756 GB/sec F: 1008153949.141 FLOP/sec
R: 1000000 <T>: 0.001614 sec B: 4.617 GB/sec F: 1239369309.746 FLOP/sec
R: 1000000 <T>: 0.001642 sec B: 4.538 GB/sec F: 1218030505.574 FLOP/sec
R: 1000000 <T>: 0.001600 sec B: 4.658 GB/sec F: 1250264118.295 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.630 GB/sec F: 1242983358.939 FLOP/sec
R: 1000000 <T>: 0.001762 sec B: 4.228 GB/sec F: 1135046080.033 FLOP/sec
R: 1000000 <T>: 0.001932 sec B: 3.857 GB/sec F: 1035378896.907 FLOP/sec
R: 1000000 <T>: 0.001644 sec B: 4.532 GB/sec F: 1216590893.331 FLOP/sec
R: 1000000 <T>: 0.001848 sec B: 4.033 GB/sec F: 1082481285.252 FLOP/sec
R: 1000000 <T>: 0.001681 sec B: 4.431 GB/sec F: 1189494149.770 FLOP/sec
R: 1000000 <T>: 0.001674 sec B: 4.451 GB/sec F: 1194906591.165 FLOP/sec
R: 1000000 <T>: 0.001652 sec B: 4.510 GB/sec F: 1210571680.370 FLOP/sec
R: 1000000 <T>: 0.001663 sec B: 4.480 GB/sec F: 1202645820.806 FLOP/sec
R: 1000000 <T>: 0.001651 sec B: 4.513 GB/sec F: 1211346684.393 FLOP/sec
R: 1000000 <T>: 0.001687 sec B: 4.417 GB/sec F: 1185660151.859 FLOP/sec
R: 1000000 <T>: 0.001628 sec B: 4.577 GB/sec F: 1228566128.186 FLOP/sec
R: 1000000 <T>: 0.001633 sec B: 4.561 GB/sec F: 1224433072.182 FLOP/sec
R: 1000000 <T>: 0.001585 sec B: 4.700 GB/sec F: 1261760395.486 FLOP/sec
R: 1000000 <T>: 0.002039 sec B: 3.654 GB/sec F: 980973046.785 FLOP/sec
R: 1000000 <T>: 0.001767 sec B: 4.217 GB/sec F: 1131936222.185 FLOP/sec
R: 1000000 <T>: 0.001643 sec B: 4.536 GB/sec F: 1217650822.797 FLOP/sec
R: 1000000 <T>: 0.001644 sec B: 4.531 GB/sec F: 1216309000.869 FLOP/sec
R: 1000000 <T>: 0.001587 sec B: 4.695 GB/sec F: 1260328391.166 FLOP/sec
R: 1000000 <T>: 0.002097 sec B: 3.553 GB/sec F: 953762090.723 FLOP/sec
R: 1000000 <T>: 0.001696 sec B: 4.392 GB/sec F: 1178983209.511 FLOP/sec
R: 1000000 <T>: 0.001660 sec B: 4.488 GB/sec F: 1204848309.598 FLOP/sec
R: 1000000 <T>: 0.001634 sec B: 4.559 GB/sec F: 1223808209.673 FLOP/sec
R: 1000000 <T>: 0.001626 sec B: 4.583 GB/sec F: 1230226417.021 FLOP/sec
R: 1000000 <T>: 0.001635 sec B: 4.556 GB/sec F: 1223100952.306 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.630 GB/sec F: 1242922334.134 FLOP/sec
R: 1000000 <T>: 0.001624 sec B: 4.588 GB/sec F: 1231492211.428 FLOP/sec
R: 1000000 <T>: 0.001722 sec B: 4.327 GB/sec F: 1161426696.554 FLOP/sec
R: 1000000 <T>: 0.001675 sec B: 4.448 GB/sec F: 1194054801.145 FLOP/sec
R: 1000000 <T>: 0.001639 sec B: 4.546 GB/sec F: 1220413366.211 FLOP/sec
R: 1000000 <T>: 0.002126 sec B: 3.505 GB/sec F: 940894866.289 FLOP/sec
R: 1000000 <T>: 0.001736 sec B: 4.291 GB/sec F: 1151878656.495 FLOP/sec
R: 1000000 <T>: 0.001642 sec B: 4.536 GB/sec F: 1217656753.520 FLOP/sec
R: 1000000 <T>: 0.001718 sec B: 4.337 GB/sec F: 1164293448.521 FLOP/sec
R: 1000000 <T>: 0.001654 sec B: 4.505 GB/sec F: 1209287082.940 FLOP/sec
R: 1000000 <T>: 0.001647 sec B: 4.523 GB/sec F: 1214217024.294 FLOP/sec
R: 1000000 <T>: 0.001647 sec B: 4.524 GB/sec F: 1214452961.808 FLOP/sec
R: 1000000 <T>: 0.001630 sec B: 4.570 GB/sec F: 1226676283.809 FLOP/sec
R: 1000000 <T>: 0.001593 sec B: 4.677 GB/sec F: 1255386392.239 FLOP/sec
R: 1000000 <T>: 0.001630 sec B: 4.572 GB/sec F: 1227168529.508 FLOP/sec
R: 1000000 <T>: 0.001693 sec B: 4.400 GB/sec F: 1181227460.704 FLOP/sec
R: 1000000 <T>: 0.001876 sec B: 3.973 GB/sec F: 1066376043.649 FLOP/sec
R: 1000000 <T>: 0.001942 sec B: 3.837 GB/sec F: 1029931880.305 FLOP/sec
R: 1000000 <T>: 0.001651 sec B: 4.512 GB/sec F: 1211086283.842 FLOP/sec
R: 1000000 <T>: 0.001677 sec B: 4.444 GB/sec F: 1192823496.714 FLOP/sec
```

```
R: 1000000 <T>: 0.001658 sec B: 4.494 GB/sec F: 1206341010.890 FLOP/sec
R: 1000000 <T>: 0.001786 sec B: 4.173 GB/sec F: 1120122496.596 FLOP/sec
R: 1000000 <T>: 0.001663 sec B: 4.480 GB/sec F: 1202561214.875 FLOP/sec
R: 1000000 <T>: 0.001642 sec B: 4.539 GB/sec F: 1218309485.940 FLOP/sec
R: 1000000 <T>: 0.001803 sec B: 4.133 GB/sec F: 1109474636.023 FLOP/sec
R: 1000000 <T>: 0.001780 sec B: 4.186 GB/sec F: 1123710401.850 FLOP/sec
R: 1000000 <T>: 0.001626 sec B: 4.581 GB/sec F: 1229768766.579 FLOP/sec
R: 1000000 <T>: 0.001563 sec B: 4.765 GB/sec F: 1279197687.211 FLOP/sec
R: 1000000 <T>: 0.001797 sec B: 4.145 GB/sec F: 1112797617.723 FLOP/sec
R: 1000000 <T>: 0.001694 sec B: 4.398 GB/sec F: 1180455667.692 FLOP/sec
R: 1000000 <T>: 0.001720 sec B: 4.332 GB/sec F: 1162968523.675 FLOP/sec
R: 1000000 <T>: 0.001703 sec B: 4.376 GB/sec F: 1174678857.484 FLOP/sec
R: 1000000 <T>: 0.001670 sec B: 4.462 GB/sec F: 1197757558.299 FLOP/sec
R: 1000000 <T>: 0.001614 sec B: 4.617 GB/sec F: 1239342429.694 FLOP/sec
R: 1000000 <T>: 0.001579 sec B: 4.720 GB/sec F: 1266951815.289 FLOP/sec
R: 1000000 <T>: 0.001932 sec B: 3.857 GB/sec F: 1035297430.599 FLOP/sec
R: 1000000 <T>: 0.001785 sec B: 4.173 GB/sec F: 1120224134.445 FLOP/sec
R: 1000000 <T>: 0.002002 sec B: 3.721 GB/sec F: 998896718.574 FLOP/sec
R: 1000000 <T>: 0.001665 sec B: 4.474 GB/sec F: 1201040341.143 FLOP/sec
R: 1000000 <T>: 0.001629 sec B: 4.574 GB/sec F: 1227940810.797 FLOP/sec
R: 1000000 <T>: 0.001625 sec B: 4.586 GB/sec F: 1231026799.453 FLOP/sec
R: 1000000 <T>: 0.001598 sec B: 4.661 GB/sec F: 1251234029.562 FLOP/sec
R: 1000000 <T>: 0.001678 sec B: 4.441 GB/sec F: 1192143772.539 FLOP/sec
R: 1000000 <T>: 0.001614 sec B: 4.617 GB/sec F: 1239398495.122 FLOP/sec
R: 1000000 <T>: 0.001620 sec B: 4.598 GB/sec F: 1234359126.913 FLOP/sec
R: 1000000 <T>: 0.001622 sec B: 4.594 GB/sec F: 1233259276.114 FLOP/sec
R: 1000000 <T>: 0.001646 sec B: 4.526 GB/sec F: 1214828438.891 FLOP/sec
R: 1000000 <T>: 0.001607 sec B: 4.635 GB/sec F: 1244263943.222 FLOP/sec
R: 1000000 <T>: 0.001679 sec B: 4.438 GB/sec F: 1191186648.227 FLOP/sec
R: 1000000 <T>: 0.001637 sec B: 4.552 GB/sec F: 1221959840.290 FLOP/sec
R: 1000000 <T>: 0.001641 sec B: 4.539 GB/sec F: 1218462385.762 FLOP/sec
R: 1000000 <T>: 0.001618 sec B: 4.606 GB/sec F: 1236428650.030 FLOP/sec
R: 1000000 <T>: 0.001611 sec B: 4.625 GB/sec F: 1241569741.456 FLOP/sec
R: 1000000 <T>: 0.001771 sec B: 4.207 GB/sec F: 1129221311.568 FLOP/sec
R: 1000000 <T>: 0.001715 sec B: 4.346 GB/sec F: 1166505883.272 FLOP/sec
R: 1000000 <T>: 0.001591 sec B: 4.682 GB/sec F: 1256729788.015 FLOP/sec
R: 1000000 <T>: 0.001570 sec B: 4.745 GB/sec F: 1273746617.407 FLOP/sec
R: 1000000 <T>: 0.001612 sec B: 4.623 GB/sec F: 1240953449.354 FLOP/sec
R: 1000000 <T>: 0.001798 sec B: 4.145 GB/sec F: 1112589619.094 FLOP/sec
R: 1000000 <T>: 0.001724 sec B: 4.321 GB/sec F: 1160008027.256 FLOP/sec
R: 1000000 <T>: 0.001633 sec B: 4.561 GB/sec F: 1224435321.041 FLOP/sec
R: 1000000 <T>: 0.001653 sec B: 4.508 GB/sec F: 1210029694.129 FLOP/sec
R: 1000000 <T>: 0.001629 sec B: 4.573 GB/sec F: 1227683024.520 FLOP/sec
R: 1000000 <T>: 0.001679 sec B: 4.437 GB/sec F: 1190983067.198 FLOP/sec
R: 1000000 <T>: 0.001618 sec B: 4.606 GB/sec F: 1236378203.147 FLOP/sec
R: 1000000 <T>: 0.001832 sec B: 4.067 GB/sec F: 1091706036.316 FLOP/sec
R: 1000000 <T>: 0.001748 sec B: 4.263 GB/sec F: 1144325803.288 FLOP/sec
R: 1000000 <T>: 0.001733 sec B: 4.300 GB/sec F: 1154139349.631 FLOP/sec
R: 1000000 <T>: 0.001817 sec B: 4.100 GB/sec F: 1100631267.063 FLOP/sec
R: 1000000 <T>: 0.001780 sec B: 4.187 GB/sec F: 1123848055.743 FLOP/sec
R: 1000000 <T>: 0.001754 sec B: 4.247 GB/sec F: 1140111753.754 FLOP/sec
R: 1000000 <T>: 0.001663 sec B: 4.481 GB/sec F: 1202927926.573 FLOP/sec
R: 1000000 <T>: 0.001629 sec B: 4.573 GB/sec F: 1227456985.304 FLOP/sec
R: 1000000 <T>: 0.001648 sec B: 4.521 GB/sec F: 1213488409.062 FLOP/sec
R: 1000000 <T>: 0.001662 sec B: 4.484 GB/sec F: 1203549749.632 FLOP/sec
R: 1000000 <T>: 0.001722 sec B: 4.326 GB/sec F: 1161185965.674 FLOP/sec
R: 1000000 <T>: 0.001916 sec B: 3.889 GB/sec F: 1044006982.319 FLOP/sec
R: 1000000 <T>: 0.001682 sec B: 4.430 GB/sec F: 1189281953.182 FLOP/sec
R: 1000000 <T>: 0.001618 sec B: 4.604 GB/sec F: 1235763998.735 FLOP/sec
R: 1000000 <T>: 0.001651 sec B: 4.513 GB/sec F: 1211511051.101 FLOP/sec
R: 1000000 <T>: 0.001641 sec B: 4.540 GB/sec F: 1218640569.885 FLOP/sec
R: 1000000 <T>: 0.001607 sec B: 4.635 GB/sec F: 1244325874.014 FLOP/sec
R: 1000000 <T>: 0.001737 sec B: 4.288 GB/sec F: 1151175868.591 FLOP/sec
R: 1000000 <T>: 0.001632 sec B: 4.566 GB/sec F: 1225723774.567 FLOP/sec
R: 1000000 <T>: 0.001709 sec B: 4.358 GB/sec F: 1169958735.555 FLOP/sec
R: 1000000 <T>: 0.001682 sec B: 4.429 GB/sec F: 1188927753.616 FLOP/sec
R: 1000000 <T>: 0.001658 sec B: 4.494 GB/sec F: 1206259521.911 FLOP/sec
R: 1000000 <T>: 0.001641 sec B: 4.541 GB/sec F: 1218909429.544 FLOP/sec
R: 1000000 <T>: 0.001817 sec B: 4.102 GB/sec F: 1100992379.481 FLOP/sec
R: 1000000 <T>: 0.001843 sec B: 4.042 GB/sec F: 1084979382.679 FLOP/sec
R: 1000000 <T>: 0.001862 sec B: 4.002 GB/sec F: 1074326759.707 FLOP/sec
R: 1000000 <T>: 0.001899 sec B: 3.924 GB/sec F: 1053391129.393 FLOP/sec
R: 1000000 <T>: 0.001787 sec B: 4.169 GB/sec F: 1119011957.202 FLOP/sec
R: 1000000 <T>: 0.001867 sec B: 3.991 GB/sec F: 1071221213.608 FLOP/sec
R: 1000000 <T>: 0.001758 sec B: 4.239 GB/sec F: 1137899801.095 FLOP/sec
R: 1000000 <T>: 0.001670 sec B: 4.460 GB/sec F: 1197288620.191 FLOP/sec
R: 1000000 <T>: 0.001623 sec B: 4.591 GB/sec F: 1232263872.057 FLOP/sec
R: 1000000 <T>: 0.001667 sec B: 4.469 GB/sec F: 1199688800.725 FLOP/sec
R: 1000000 <T>: 0.001700 sec B: 4.382 GB/sec F: 1176175852.404 FLOP/sec
R: 1000000 <T>: 0.001657 sec B: 4.495 GB/sec F: 1206747892.867 FLOP/sec
R: 1000000 <T>: 0.001679 sec B: 4.438 GB/sec F: 1191302301.894 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.630 GB/sec F: 1242728484.952 FLOP/sec
R: 1000000 <T>: 0.001626 sec B: 4.581 GB/sec F: 1229831531.528 FLOP/sec
R: 1000000 <T>: 0.001621 sec B: 4.597 GB/sec F: 1234094070.055 FLOP/sec
R: 1000000 <T>: 0.001629 sec B: 4.574 GB/sec F: 1227868438.808 FLOP/sec
R: 1000000 <T>: 0.001821 sec B: 4.092 GB/sec F: 1098444821.821 FLOP/sec
R: 1000000 <T>: 0.001613 sec B: 4.619 GB/sec F: 1239940978.809 FLOP/sec
R: 1000000 <T>: 0.001591 sec B: 4.684 GB/sec F: 1257317588.364 FLOP/sec
R: 1000000 <T>: 0.001608 sec B: 4.633 GB/sec F: 1243610948.751 FLOP/sec
R: 1000000 <T>: 0.001716 sec B: 4.343 GB/sec F: 1165698845.200 FLOP/sec
R: 1000000 <T>: 0.001619 sec B: 4.602 GB/sec F: 1235393784.857 FLOP/sec
R: 1000000 <T>: 0.001579 sec B: 4.720 GB/sec F: 1266959841.174 FLOP/sec
R: 1000000 <T>: 0.001598 sec B: 4.662 GB/sec F: 1251533128.082 FLOP/sec
R: 1000000 <T>: 0.001612 sec B: 4.622 GB/sec F: 1240840272.216 FLOP/sec
R: 1000000 <T>: 0.001599 sec B: 4.660 GB/sec F: 1250860748.553 FLOP/sec
R: 1000000 <T>: 0.001993 sec B: 3.739 GB/sec F: 1003720289.252 FLOP/sec
R: 1000000 <T>: 0.001702 sec B: 4.377 GB/sec F: 1174992171.615 FLOP/sec
R: 1000000 <T>: 0.001694 sec B: 4.399 GB/sec F: 1180779042.589 FLOP/sec
R: 1000000 <T>: 0.001942 sec B: 3.837 GB/sec F: 1030020461.356 FLOP/sec
R: 1000000 <T>: 0.001828 sec B: 4.075 GB/sec F: 1093868103.572 FLOP/sec
```

```
R: 1000000 <T>: 0.001707 sec B: 4.365 GB/sec F: 1171719609.841 FLOP/sec
R: 1000000 <T>: 0.001698 sec B: 4.387 GB/sec F: 1177618419.836 FLOP/sec
R: 1000000 <T>: 0.001615 sec B: 4.614 GB/sec F: 1238630916.475 FLOP/sec
R: 1000000 <T>: 0.001631 sec B: 4.569 GB/sec F: 1226551403.543 FLOP/sec
R: 1000000 <T>: 0.001685 sec B: 4.421 GB/sec F: 1186770358.749 FLOP/sec
R: 1000000 <T>: 0.001762 sec B: 4.229 GB/sec F: 1135261271.867 FLOP/sec
R: 1000000 <T>: 0.001598 sec B: 4.663 GB/sec F: 1251767339.012 FLOP/sec
R: 1000000 <T>: 0.001697 sec B: 4.391 GB/sec F: 1178822686.207 FLOP/sec
R: 1000000 <T>: 0.001637 sec B: 4.552 GB/sec F: 1221924751.430 FLOP/sec
R: 1000000 <T>: 0.001585 sec B: 4.700 GB/sec F: 1261669655.772 FLOP/sec
R: 1000000 <T>: 0.001624 sec B: 4.588 GB/sec F: 1231491453.141 FLOP/sec
R: 1000000 <T>: 0.001641 sec B: 4.539 GB/sec F: 1218428239.755 FLOP/sec
R: 1000000 <T>: 0.001669 sec B: 4.464 GB/sec F: 1198277835.095 FLOP/sec
R: 1000000 <T>: 0.001631 sec B: 4.569 GB/sec F: 1226452871.402 FLOP/sec
R: 1000000 <T>: 0.001630 sec B: 4.572 GB/sec F: 1227292782.353 FLOP/sec
R: 1000000 <T>: 0.001567 sec B: 4.754 GB/sec F: 1276247627.775 FLOP/sec
R: 1000000 <T>: 0.001595 sec B: 4.671 GB/sec F: 1253730632.212 FLOP/sec
R: 1000000 <T>: 0.001621 sec B: 4.596 GB/sec F: 1233658649.119 FLOP/sec
R: 1000000 <T>: 0.001895 sec B: 3.931 GB/sec F: 1055339357.562 FLOP/sec
R: 1000000 <T>: 0.001850 sec B: 4.028 GB/sec F: 1081164067.728 FLOP/sec
R: 1000000 <T>: 0.001832 sec B: 4.066 GB/sec F: 1091463554.395 FLOP/sec
R: 1000000 <T>: 0.001656 sec B: 4.500 GB/sec F: 1208078177.155 FLOP/sec
R: 1000000 <T>: 0.001684 sec B: 4.423 GB/sec F: 1187341044.718 FLOP/sec
R: 1000000 <T>: 0.001598 sec B: 4.662 GB/sec F: 1251454816.224 FLOP/sec
R: 1000000 <T>: 0.001648 sec B: 4.520 GB/sec F: 1213429509.756 FLOP/sec
R: 1000000 <T>: 0.001623 sec B: 4.590 GB/sec F: 1232142406.091 FLOP/sec
R: 1000000 <T>: 0.001620 sec B: 4.599 GB/sec F: 1234417028.042 FLOP/sec
R: 1000000 <T>: 0.001596 sec B: 4.669 GB/sec F: 1253217636.281 FLOP/sec
R: 1000000 <T>: 0.001598 sec B: 4.663 GB/sec F: 1251847257.109 FLOP/sec
R: 1000000 <T>: 0.001600 sec B: 4.656 GB/sec F: 1249726622.301 FLOP/sec
R: 1000000 <T>: 0.001587 sec B: 4.693 GB/sec F: 1259886962.942 FLOP/sec
R: 1000000 <T>: 0.001593 sec B: 4.678 GB/sec F: 1255635448.849 FLOP/sec
R: 1000000 <T>: 0.001604 sec B: 4.644 GB/sec F: 1246697809.178 FLOP/sec
R: 1000000 <T>: 0.001679 sec B: 4.436 GB/sec F: 1190865348.260 FLOP/sec
R: 1000000 <T>: 0.001594 sec B: 4.673 GB/sec F: 1254443867.400 FLOP/sec
R: 1000000 <T>: 0.001614 sec B: 4.616 GB/sec F: 1239082905.179 FLOP/sec
R: 1000000 <T>: 0.001639 sec B: 4.546 GB/sec F: 1220347835.744 FLOP/sec
R: 1000000 <T>: 0.001605 sec B: 4.643 GB/sec F: 1246457722.959 FLOP/sec
R: 1000000 <T>: 0.001641 sec B: 4.541 GB/sec F: 1218952517.533 FLOP/sec
R: 1000000 <T>: 0.001699 sec B: 4.386 GB/sec F: 1177293308.500 FLOP/sec
R: 1000000 <T>: 0.001610 sec B: 4.627 GB/sec F: 1242080957.595 FLOP/sec
R: 1000000 <T>: 0.001594 sec B: 4.675 GB/sec F: 1254818503.052 FLOP/sec
R: 1000000 <T>: 0.001765 sec B: 4.222 GB/sec F: 1133442446.059 FLOP/sec
R: 1000000 <T>: 0.001608 sec B: 4.632 GB/sec F: 1243510429.944 FLOP/sec
R: 1000000 <T>: 0.001756 sec B: 4.244 GB/sec F: 1139248005.177 FLOP/sec
R: 1000000 <T>: 0.001594 sec B: 4.674 GB/sec F: 1254702782.868 FLOP/sec
R: 1000000 <T>: 0.001646 sec B: 4.527 GB/sec F: 1215084545.583 FLOP/sec
R: 1000000 <T>: 0.001590 sec B: 4.687 GB/sec F: 1258150455.922 FLOP/sec
R: 1000000 <T>: 0.001613 sec B: 4.618 GB/sec F: 1239612819.332 FLOP/sec
R: 1000000 <T>: 0.001641 sec B: 4.539 GB/sec F: 1218455704.871 FLOP/sec
R: 1000000 <T>: 0.001672 sec B: 4.457 GB/sec F: 1196479240.188 FLOP/sec
R: 1000000 <T>: 0.001601 sec B: 4.653 GB/sec F: 1248953221.082 FLOP/sec
R: 1000000 <T>: 0.001638 sec B: 4.548 GB/sec F: 1220845447.681 FLOP/sec
R: 1000000 <T>: 0.001648 sec B: 4.522 GB/sec F: 1213895706.936 FLOP/sec
R: 1000000 <T>: 0.001624 sec B: 4.587 GB/sec F: 1231264009.476 FLOP/sec
R: 1000000 <T>: 0.001636 sec B: 4.553 GB/sec F: 1222271248.880 FLOP/sec
R: 1000000 <T>: 0.001583 sec B: 4.707 GB/sec F: 1263412705.131 FLOP/sec
R: 1000000 <T>: 0.001621 sec B: 4.597 GB/sec F: 1233962345.639 FLOP/sec
R: 1000000 <T>: 0.001597 sec B: 4.666 GB/sec F: 1252468929.377 FLOP/sec
R: 1000000 <T>: 0.001574 sec B: 4.733 GB/sec F: 1270414771.367 FLOP/sec
R: 1000000 <T>: 0.001615 sec B: 4.612 GB/sec F: 1238067352.102 FLOP/sec
R: 1000000 <T>: 0.001731 sec B: 4.304 GB/sec F: 1155249337.465 FLOP/sec
R: 1000000 <T>: 0.001826 sec B: 4.079 GB/sec F: 1095066560.883 FLOP/sec
R: 1000000 <T>: 0.001791 sec B: 4.161 GB/sec F: 1116839255.560 FLOP/sec
R: 1000000 <T>: 0.001652 sec B: 4.510 GB/sec F: 1210707985.709 FLOP/sec
R: 1000000 <T>: 0.001622 sec B: 4.592 GB/sec F: 1232706666.354 FLOP/sec
R: 1000000 <T>: 0.001619 sec B: 4.603 GB/sec F: 1235556346.312 FLOP/sec
R: 1000000 <T>: 0.001658 sec B: 4.494 GB/sec F: 1206399224.044 FLOP/sec
R: 1000000 <T>: 0.001751 sec B: 4.255 GB/sec F: 1142269689.874 FLOP/sec
R: 1000000 <T>: 0.001629 sec B: 4.573 GB/sec F: 1227452465.369 FLOP/sec
R: 1000000 <T>: 0.001632 sec B: 4.566 GB/sec F: 1225654668.120 FLOP/sec
R: 1000000 <T>: 0.001736 sec B: 4.292 GB/sec F: 1152215104.733 FLOP/sec
R: 1000000 <T>: 0.001662 sec B: 4.484 GB/sec F: 1203688100.339 FLOP/sec
R: 1000000 <T>: 0.001663 sec B: 4.480 GB/sec F: 1202663177.340 FLOP/sec
R: 1000000 <T>: 0.001753 sec B: 4.250 GB/sec F: 1140724314.311 FLOP/sec
R: 1000000 <T>: 0.001709 sec B: 4.361 GB/sec F: 1170604482.596 FLOP/sec
R: 1000000 <T>: 0.001624 sec B: 4.588 GB/sec F: 1231521785.313 FLOP/sec
R: 1000000 <T>: 0.001649 sec B: 4.517 GB/sec F: 1212618018.049 FLOP/sec
R: 1000000 <T>: 0.001651 sec B: 4.512 GB/sec F: 1211076750.172 FLOP/sec
R: 1000000 <T>: 0.001619 sec B: 4.603 GB/sec F: 1235593749.131 FLOP/sec
R: 1000000 <T>: 0.001631 sec B: 4.567 GB/sec F: 1226047627.046 FLOP/sec
R: 1000000 <T>: 0.001586 sec B: 4.697 GB/sec F: 1260934667.823 FLOP/sec
R: 1000000 <T>: 0.001579 sec B: 4.718 GB/sec F: 1266460022.606 FLOP/sec
R: 1000000 <T>: 0.001591 sec B: 4.682 GB/sec F: 1256827716.570 FLOP/sec
R: 1000000 <T>: 0.001612 sec B: 4.623 GB/sec F: 1240905712.261 FLOP/sec
R: 1000000 <T>: 0.001562 sec B: 4.771 GB/sec F: 1280674556.903 FLOP/sec
R: 1000000 <T>: 0.001574 sec B: 4.733 GB/sec F: 1270602017.589 FLOP/sec
R: 1000000 <T>: 0.001572 sec B: 4.741 GB/sec F: 1272598161.859 FLOP/sec
R: 1000000 <T>: 0.001600 sec B: 4.656 GB/sec F: 1249760983.212 FLOP/sec
R: 1000000 <T>: 0.001622 sec B: 4.593 GB/sec F: 1233010654.445 FLOP/sec
R: 1000000 <T>: 0.001567 sec B: 4.756 GB/sec F: 1276716081.963 FLOP/sec
R: 1000000 <T>: 0.001602 sec B: 4.651 GB/sec F: 1248418409.927 FLOP/sec
R: 1000000 <T>: 0.001573 sec B: 4.736 GB/sec F: 1271194789.627 FLOP/sec
R: 1000000 <T>: 0.001557 sec B: 4.784 GB/sec F: 1284224585.195 FLOP/sec
R: 1000000 <T>: 0.001577 sec B: 4.725 GB/sec F: 1268328938.574 FLOP/sec
R: 1000000 <T>: 0.001572 sec B: 4.739 GB/sec F: 1272165091.408 FLOP/sec
R: 1000000 <T>: 0.001610 sec B: 4.627 GB/sec F: 1241937497.012 FLOP/sec
R: 1000000 <T>: 0.001598 sec B: 4.661 GB/sec F: 1251247337.189 FLOP/sec
R: 1000000 <T>: 0.001582 sec B: 4.711 GB/sec F: 1264501460.815 FLOP/sec
R: 1000000 <T>: 0.001576 sec B: 4.728 GB/sec F: 1269240898.749 FLOP/sec
```

```
R: 1000000 <T>: 0.001575 sec B: 4.729 GB/sec F: 1269481784.841 FLOP/sec
R: 1000000 <T>: 0.001599 sec B: 4.660 GB/sec F: 1250784867.504 FLOP/sec
R: 1000000 <T>: 0.001643 sec B: 4.534 GB/sec F: 1217086186.133 FLOP/sec
R: 1000000 <T>: 0.001579 sec B: 4.719 GB/sec F: 1266680600.153 FLOP/sec
R: 1000000 <T>: 0.001841 sec B: 4.046 GB/sec F: 1086156661.806 FLOP/sec
R: 1000000 <T>: 0.001805 sec B: 4.129 GB/sec F: 1110321220.306 FLOP/sec
R: 1000000 <T>: 0.001699 sec B: 4.386 GB/sec F: 1177235791.500 FLOP/sec
R: 1000000 <T>: 0.001875 sec B: 3.973 GB/sec F: 1066589872.196 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.631 GB/sec F: 1243082247.294 FLOP/sec
R: 1000000 <T>: 0.001619 sec B: 4.602 GB/sec F: 1235343422.383 FLOP/sec
R: 1000000 <T>: 0.001620 sec B: 4.598 GB/sec F: 1234287519.872 FLOP/sec
R: 1000000 <T>: 0.001583 sec B: 4.706 GB/sec F: 1263300980.195 FLOP/sec
R: 1000000 <T>: 0.001594 sec B: 4.675 GB/sec F: 1254971254.883 FLOP/sec
R: 1000000 <T>: 0.001572 sec B: 4.739 GB/sec F: 1272093076.506 FLOP/sec
R: 1000000 <T>: 0.001586 sec B: 4.698 GB/sec F: 1261081755.930 FLOP/sec
R: 1000000 <T>: 0.001598 sec B: 4.662 GB/sec F: 1251579336.675 FLOP/sec
R: 1000000 <T>: 0.001578 sec B: 4.722 GB/sec F: 1267660893.105 FLOP/sec
R: 1000000 <T>: 0.001589 sec B: 4.690 GB/sec F: 1258923406.470 FLOP/sec
R: 1000000 <T>: 0.001590 sec B: 4.687 GB/sec F: 1258218526.135 FLOP/sec
R: 1000000 <T>: 0.001599 sec B: 4.660 GB/sec F: 1251015668.346 FLOP/sec
R: 1000000 <T>: 0.001608 sec B: 4.635 GB/sec F: 1244160996.921 FLOP/sec
R: 1000000 <T>: 0.001731 sec B: 4.305 GB/sec F: 1155687252.538 FLOP/sec
R: 1000000 <T>: 0.001761 sec B: 4.231 GB/sec F: 1135717051.997 FLOP/sec
R: 1000000 <T>: 0.001643 sec B: 4.534 GB/sec F: 1217088408.085 FLOP/sec
R: 1000000 <T>: 0.001596 sec B: 4.667 GB/sec F: 1252830614.169 FLOP/sec
R: 1000000 <T>: 0.001563 sec B: 4.766 GB/sec F: 1279459556.283 FLOP/sec
R: 1000000 <T>: 0.001571 sec B: 4.743 GB/sec F: 1273076905.939 FLOP/sec
R: 1000000 <T>: 0.001939 sec B: 3.842 GB/sec F: 1031355262.696 FLOP/sec
R: 1000000 <T>: 0.001596 sec B: 4.669 GB/sec F: 1253410058.741 FLOP/sec
R: 1000000 <T>: 0.001642 sec B: 4.536 GB/sec F: 1217681218.363 FLOP/sec
R: 1000000 <T>: 0.001591 sec B: 4.682 GB/sec F: 1256899593.204 FLOP/sec
R: 1000000 <T>: 0.001573 sec B: 4.738 GB/sec F: 1271825317.336 FLOP/sec
R: 1000000 <T>: 0.001649 sec B: 4.519 GB/sec F: 1213080648.634 FLOP/sec
R: 1000000 <T>: 0.001651 sec B: 4.512 GB/sec F: 1211100951.320 FLOP/sec
R: 1000000 <T>: 0.001693 sec B: 4.401 GB/sec F: 1181284670.705 FLOP/sec
R: 1000000 <T>: 0.001626 sec B: 4.582 GB/sec F: 1230092490.654 FLOP/sec
R: 1000000 <T>: 0.001595 sec B: 4.670 GB/sec F: 1253558539.303 FLOP/sec
R: 1000000 <T>: 0.001799 sec B: 4.141 GB/sec F: 1111552026.748 FLOP/sec
R: 1000000 <T>: 0.001815 sec B: 4.105 GB/sec F: 1101955695.871 FLOP/sec
R: 1000000 <T>: 0.001728 sec B: 4.311 GB/sec F: 1157092688.910 FLOP/sec
R: 1000000 <T>: 0.001958 sec B: 3.806 GB/sec F: 1021679006.846 FLOP/sec
R: 1000000 <T>: 0.001750 sec B: 4.257 GB/sec F: 1142665175.108 FLOP/sec
R: 1000000 <T>: 0.001623 sec B: 4.591 GB/sec F: 1232313983.745 FLOP/sec
R: 1000000 <T>: 0.001657 sec B: 4.496 GB/sec F: 1206835273.623 FLOP/sec
R: 1000000 <T>: 0.001651 sec B: 4.513 GB/sec F: 1211498575.278 FLOP/sec
R: 1000000 <T>: 0.001608 sec B: 4.633 GB/sec F: 1243551408.726 FLOP/sec
R: 1000000 <T>: 0.001585 sec B: 4.702 GB/sec F: 1262176054.627 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.631 GB/sec F: 1243148696.745 FLOP/sec
R: 1000000 <T>: 0.001705 sec B: 4.371 GB/sec F: 1173246919.787 FLOP/sec
R: 1000000 <T>: 0.001793 sec B: 4.154 GB/sec F: 1115195203.768 FLOP/sec
R: 1000000 <T>: 0.001939 sec B: 3.842 GB/sec F: 1031213279.140 FLOP/sec
R: 1000000 <T>: 0.001663 sec B: 4.480 GB/sec F: 1202598816.041 FLOP/sec
R: 1000000 <T>: 0.001643 sec B: 4.534 GB/sec F: 1217129145.314 FLOP/sec
R: 1000000 <T>: 0.001599 sec B: 4.659 GB/sec F: 1250638607.339 FLOP/sec
R: 1000000 <T>: 0.001635 sec B: 4.556 GB/sec F: 1222938660.454 FLOP/sec
R: 1000000 <T>: 0.001617 sec B: 4.609 GB/sec F: 1237136104.147 FLOP/sec
R: 1000000 <T>: 0.001613 sec B: 4.619 GB/sec F: 1239992485.646 FLOP/sec
R: 1000000 <T>: 0.001693 sec B: 4.400 GB/sec F: 1181193974.493 FLOP/sec
R: 1000000 <T>: 0.001761 sec B: 4.231 GB/sec F: 1135789933.380 FLOP/sec
R: 1000000 <T>: 0.001838 sec B: 4.054 GB/sec F: 1088267173.944 FLOP/sec
R: 1000000 <T>: 0.001723 sec B: 4.325 GB/sec F: 1161041709.843 FLOP/sec
R: 1000000 <T>: 0.001648 sec B: 4.522 GB/sec F: 1213830137.824 FLOP/sec
R: 1000000 <T>: 0.001595 sec B: 4.672 GB/sec F: 1254087541.581 FLOP/sec
R: 1000000 <T>: 0.001846 sec B: 4.036 GB/sec F: 1083297449.105 FLOP/sec
R: 1000000 <T>: 0.001811 sec B: 4.113 GB/sec F: 1104062286.778 FLOP/sec
R: 1000000 <T>: 0.001795 sec B: 4.151 GB/sec F: 1114314145.215 FLOP/sec
R: 1000000 <T>: 0.001938 sec B: 3.845 GB/sec F: 1032069495.432 FLOP/sec
R: 1000000 <T>: 0.001832 sec B: 4.066 GB/sec F: 1091497507.293 FLOP/sec
R: 1000000 <T>: 0.001685 sec B: 4.421 GB/sec F: 1186845009.910 FLOP/sec
R: 1000000 <T>: 0.001636 sec B: 4.555 GB/sec F: 1222755479.473 FLOP/sec
R: 1000000 <T>: 0.001638 sec B: 4.548 GB/sec F: 1220753791.051 FLOP/sec
R: 1000000 <T>: 0.001621 sec B: 4.596 GB/sec F: 1233621363.361 FLOP/sec
R: 1000000 <T>: 0.001590 sec B: 4.685 GB/sec F: 1257530248.318 FLOP/sec
R: 1000000 <T>: 0.001571 sec B: 4.743 GB/sec F: 1273087440.738 FLOP/sec
R: 1000000 <T>: 0.001737 sec B: 4.290 GB/sec F: 1151664414.203 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.631 GB/sec F: 1243085337.808 FLOP/sec
R: 1000000 <T>: 0.001657 sec B: 4.496 GB/sec F: 1206932135.413 FLOP/sec
R: 1000000 <T>: 0.001878 sec B: 3.967 GB/sec F: 1064818142.372 FLOP/sec
R: 1000000 <T>: 0.001670 sec B: 4.462 GB/sec F: 1197726714.696 FLOP/sec
R: 1000000 <T>: 0.001605 sec B: 4.642 GB/sec F: 1246207634.393 FLOP/sec
R: 1000000 <T>: 0.001643 sec B: 4.533 GB/sec F: 1216938814.750 FLOP/sec
R: 1000000 <T>: 0.001730 sec B: 4.306 GB/sec F: 1155933725.696 FLOP/sec
R: 1000000 <T>: 0.001807 sec B: 4.122 GB/sec F: 1106607219.727 FLOP/sec
R: 1000000 <T>: 0.001857 sec B: 4.012 GB/sec F: 1077005923.533 FLOP/sec
R: 1000000 <T>: 0.001628 sec B: 4.575 GB/sec F: 1228201722.307 FLOP/sec
R: 1000000 <T>: 0.001603 sec B: 4.648 GB/sec F: 1247620164.536 FLOP/sec
R: 1000000 <T>: 0.001612 sec B: 4.621 GB/sec F: 1240401617.236 FLOP/sec
R: 1000000 <T>: 0.001660 sec B: 4.489 GB/sec F: 1205013095.480 FLOP/sec
R: 1000000 <T>: 0.001662 sec B: 4.482 GB/sec F: 1203023438.506 FLOP/sec
R: 1000000 <T>: 0.001752 sec B: 4.253 GB/sec F: 1141725855.638 FLOP/sec
R: 1000000 <T>: 0.001673 sec B: 4.453 GB/sec F: 1195394384.515 FLOP/sec
R: 1000000 <T>: 0.001675 sec B: 4.447 GB/sec F: 1193709865.236 FLOP/sec
R: 1000000 <T>: 0.001650 sec B: 4.516 GB/sec F: 1212157209.517 FLOP/sec
R: 1000000 <T>: 0.001667 sec B: 4.469 GB/sec F: 1199544173.214 FLOP/sec
R: 1000000 <T>: 0.001573 sec B: 4.736 GB/sec F: 1271215797.144 FLOP/sec
R: 1000000 <T>: 0.001571 sec B: 4.742 GB/sec F: 1273021803.681 FLOP/sec
R: 1000000 <T>: 0.001558 sec B: 4.781 GB/sec F: 1283432617.542 FLOP/sec
R: 1000000 <T>: 0.001719 sec B: 4.335 GB/sec F: 1163758918.030 FLOP/sec
R: 1000000 <T>: 0.001696 sec B: 4.392 GB/sec F: 1179005449.953 FLOP/sec
R: 1000000 <T>: 0.001622 sec B: 4.593 GB/sec F: 1232811525.308 FLOP/sec
```

```
R: 1000000 <T>: 0.001611 sec B: 4.624 GB/sec F: 1241374772.906 FLOP/sec
R: 1000000 <T>: 0.001622 sec B: 4.593 GB/sec F: 1232802406.430 FLOP/sec
R: 1000000 <T>: 0.001658 sec B: 4.493 GB/sec F: 1206152584.333 FLOP/sec
R: 1000000 <T>: 0.001627 sec B: 4.578 GB/sec F: 1228989653.751 FLOP/sec
R: 1000000 <T>: 0.001589 sec B: 4.688 GB/sec F: 1258293728.538 FLOP/sec
R: 1000000 <T>: 0.001603 sec B: 4.649 GB/sec F: 1247921430.867 FLOP/sec
R: 1000000 <T>: 0.001629 sec B: 4.574 GB/sec F: 1227868438.808 FLOP/sec
R: 1000000 <T>: 0.001820 sec B: 4.093 GB/sec F: 1098760433.417 FLOP/sec
R: 1000000 <T>: 0.001606 sec B: 4.639 GB/sec F: 1245249373.640 FLOP/sec
R: 1000000 <T>: 0.001666 sec B: 4.472 GB/sec F: 1200511177.659 FLOP/sec
R: 1000000 <T>: 0.001623 sec B: 4.590 GB/sec F: 1232222115.430 FLOP/sec
R: 1000000 <T>: 0.001718 sec B: 4.337 GB/sec F: 1164105053.496 FLOP/sec
R: 1000000 <T>: 0.001685 sec B: 4.421 GB/sec F: 1186844305.610 FLOP/sec
R: 1000000 <T>: 0.001641 sec B: 4.540 GB/sec F: 1218570032.438 FLOP/sec
R: 1000000 <T>: 0.001619 sec B: 4.602 GB/sec F: 1235241183.929 FLOP/sec
R: 1000000 <T>: 0.001627 sec B: 4.579 GB/sec F: 1229180751.029 FLOP/sec
R: 1000000 <T>: 0.001929 sec B: 3.861 GB/sec F: 1036552467.954 FLOP/sec
R: 1000000 <T>: 0.001680 sec B: 4.436 GB/sec F: 1190803661.483 FLOP/sec
R: 1000000 <T>: 0.001667 sec B: 4.470 GB/sec F: 1199931363.926 FLOP/sec
R: 1000000 <T>: 0.001642 sec B: 4.537 GB/sec F: 1217905154.418 FLOP/sec
R: 1000000 <T>: 0.001600 sec B: 4.657 GB/sec F: 1250151580.879 FLOP/sec
R: 1000000 <T>: 0.001665 sec B: 4.474 GB/sec F: 1200900435.146 FLOP/sec
R: 1000000 <T>: 0.001602 sec B: 4.652 GB/sec F: 1248691995.135 FLOP/sec
R: 1000000 <T>: 0.001718 sec B: 4.338 GB/sec F: 1164460208.648 FLOP/sec
R: 1000000 <T>: 0.001623 sec B: 4.591 GB/sec F: 1232459786.378 FLOP/sec
R: 1000000 <T>: 0.001617 sec B: 4.607 GB/sec F: 1236768891.799 FLOP/sec
R: 1000000 <T>: 0.001659 sec B: 4.492 GB/sec F: 1205886413.941 FLOP/sec
R: 1000000 <T>: 0.001667 sec B: 4.469 GB/sec F: 1199659296.760 FLOP/sec
R: 1000000 <T>: 0.001717 sec B: 4.339 GB/sec F: 1164825756.627 FLOP/sec
R: 1000000 <T>: 0.001585 sec B: 4.701 GB/sec F: 1261984912.970 FLOP/sec
R: 1000000 <T>: 0.001596 sec B: 4.667 GB/sec F: 1252795299.512 FLOP/sec
R: 1000000 <T>: 0.001597 sec B: 4.667 GB/sec F: 1252703490.721 FLOP/sec
R: 1000000 <T>: 0.001586 sec B: 4.697 GB/sec F: 1260711318.540 FLOP/sec
R: 1000000 <T>: 0.001603 sec B: 4.648 GB/sec F: 1247756378.063 FLOP/sec
R: 1000000 <T>: 0.001628 sec B: 4.576 GB/sec F: 1228388802.253 FLOP/sec
R: 1000000 <T>: 0.001741 sec B: 4.280 GB/sec F: 1148991444.035 FLOP/sec
R: 1000000 <T>: 0.001677 sec B: 4.443 GB/sec F: 1192763029.594 FLOP/sec
R: 1000000 <T>: 0.001616 sec B: 4.610 GB/sec F: 1237377971.331 FLOP/sec
R: 1000000 <T>: 0.001615 sec B: 4.614 GB/sec F: 1238573386.402 FLOP/sec
R: 1000000 <T>: 0.001593 sec B: 4.678 GB/sec F: 1255700093.612 FLOP/sec
R: 1000000 <T>: 0.001556 sec B: 4.787 GB/sec F: 1284986983.082 FLOP/sec
R: 1000000 <T>: 0.001581 sec B: 4.711 GB/sec F: 1264647782.946 FLOP/sec
R: 1000000 <T>: 0.001538 sec B: 4.846 GB/sec F: 1300755478.782 FLOP/sec
R: 1000000 <T>: 0.001549 sec B: 4.810 GB/sec F: 1291098905.923 FLOP/sec
R: 1000000 <T>: 0.001562 sec B: 4.769 GB/sec F: 1280236792.597 FLOP/sec
R: 1000000 <T>: 0.001559 sec B: 4.778 GB/sec F: 1282510848.439 FLOP/sec
R: 1000000 <T>: 0.001567 sec B: 4.754 GB/sec F: 1276250885.399 FLOP/sec
R: 1000000 <T>: 0.001580 sec B: 4.716 GB/sec F: 1265956591.614 FLOP/sec
R: 1000000 <T>: 0.001592 sec B: 4.679 GB/sec F: 1256008430.329 FLOP/sec
R: 1000000 <T>: 0.001597 sec B: 4.664 GB/sec F: 1252019664.221 FLOP/sec
R: 1000000 <T>: 0.001616 sec B: 4.609 GB/sec F: 1237334336.399 FLOP/sec
R: 1000000 <T>: 0.001622 sec B: 4.593 GB/sec F: 1233052464.533 FLOP/sec
R: 1000000 <T>: 0.001921 sec B: 3.878 GB/sec F: 1040891419.412 FLOP/sec
R: 1000000 <T>: 0.001638 sec B: 4.549 GB/sec F: 1221150323.605 FLOP/sec
R: 1000000 <T>: 0.001655 sec B: 4.501 GB/sec F: 1208280345.206 FLOP/sec
R: 1000000 <T>: 0.001618 sec B: 4.604 GB/sec F: 1235893816.947 FLOP/sec
R: 1000000 <T>: 0.001627 sec B: 4.579 GB/sec F: 1229219279.813 FLOP/sec
R: 1000000 <T>: 0.001623 sec B: 4.590 GB/sec F: 1232242613.784 FLOP/sec
R: 1000000 <T>: 0.001840 sec B: 4.049 GB/sec F: 1086772242.967 FLOP/sec
R: 1000000 <T>: 0.001617 sec B: 4.607 GB/sec F: 1236807897.761 FLOP/sec
R: 1000000 <T>: 0.001800 sec B: 4.138 GB/sec F: 1110843274.455 FLOP/sec
R: 1000000 <T>: 0.001612 sec B: 4.622 GB/sec F: 1240804860.481 FLOP/sec
R: 1000000 <T>: 0.001763 sec B: 4.226 GB/sec F: 1134431879.351 FLOP/sec
R: 1000000 <T>: 0.001869 sec B: 3.987 GB/sec F: 1070299405.556 FLOP/sec
R: 1000000 <T>: 0.001653 sec B: 4.507 GB/sec F: 1209925014.897 FLOP/sec
R: 1000000 <T>: 0.001639 sec B: 4.546 GB/sec F: 1220233918.842 FLOP/sec
R: 1000000 <T>: 0.001664 sec B: 4.478 GB/sec F: 1202020596.623 FLOP/sec
R: 1000000 <T>: 0.001673 sec B: 4.454 GB/sec F: 1195633069.776 FLOP/sec
R: 1000000 <T>: 0.001604 sec B: 4.645 GB/sec F: 1246933323.358 FLOP/sec
R: 1000000 <T>: 0.001863 sec B: 4.000 GB/sec F: 1073709052.763 FLOP/sec
R: 1000000 <T>: 0.001693 sec B: 4.402 GB/sec F: 1181671332.299 FLOP/sec
R: 1000000 <T>: 0.001784 sec B: 4.176 GB/sec F: 1121024706.264 FLOP/sec
R: 1000000 <T>: 0.001623 sec B: 4.592 GB/sec F: 1232653483.849 FLOP/sec
R: 1000000 <T>: 0.001636 sec B: 4.554 GB/sec F: 1222503601.801 FLOP/sec
R: 1000000 <T>: 0.001629 sec B: 4.573 GB/sec F: 1227647606.210 FLOP/sec
R: 1000000 <T>: 0.001604 sec B: 4.645 GB/sec F: 1246749878.909 FLOP/sec
R: 1000000 <T>: 0.001657 sec B: 4.496 GB/sec F: 1206938690.532 FLOP/sec
R: 1000000 <T>: 0.001623 sec B: 4.592 GB/sec F: 1232605623.517 FLOP/sec
R: 1000000 <T>: 0.001603 sec B: 4.648 GB/sec F: 1247680873.177 FLOP/sec
R: 1000000 <T>: 0.001592 sec B: 4.681 GB/sec F: 1256446355.081 FLOP/sec
R: 1000000 <T>: 0.001592 sec B: 4.680 GB/sec F: 1256339804.740 FLOP/sec
R: 1000000 <T>: 0.001606 sec B: 4.640 GB/sec F: 1245450990.258 FLOP/sec
R: 1000000 <T>: 0.001584 sec B: 4.705 GB/sec F: 1262967519.001 FLOP/sec
R: 1000000 <T>: 0.001592 sec B: 4.680 GB/sec F: 1256323231.866 FLOP/sec
R: 1000000 <T>: 0.001615 sec B: 4.615 GB/sec F: 1238699959.618 FLOP/sec
R: 1000000 <T>: 0.001619 sec B: 4.603 GB/sec F: 1235670088.443 FLOP/sec
R: 1000000 <T>: 0.001668 sec B: 4.467 GB/sec F: 1199001950.776 FLOP/sec
R: 1000000 <T>: 0.001702 sec B: 4.376 GB/sec F: 1174781666.827 FLOP/sec
R: 1000000 <T>: 0.001621 sec B: 4.595 GB/sec F: 1233583318.993 FLOP/sec
R: 1000000 <T>: 0.001792 sec B: 4.157 GB/sec F: 1115892088.771 FLOP/sec
R: 1000000 <T>: 0.001715 sec B: 4.345 GB/sec F: 1166428326.479 FLOP/sec
R: 1000000 <T>: 0.001852 sec B: 4.024 GB/sec F: 1080187736.629 FLOP/sec
R: 1000000 <T>: 0.001613 sec B: 4.620 GB/sec F: 1240126269.657 FLOP/sec
R: 1000000 <T>: 0.001634 sec B: 4.560 GB/sec F: 1224049387.945 FLOP/sec
R: 1000000 <T>: 0.001721 sec B: 4.328 GB/sec F: 1161904407.801 FLOP/sec
R: 1000000 <T>: 0.001671 sec B: 4.460 GB/sec F: 1197210499.536 FLOP/sec
R: 1000000 <T>: 0.001618 sec B: 4.606 GB/sec F: 1236301012.098 FLOP/sec
R: 1000000 <T>: 0.001633 sec B: 4.563 GB/sec F: 1224997044.695 FLOP/sec
R: 1000000 <T>: 0.001635 sec B: 4.558 GB/sec F: 1223577606.327 FLOP/sec
R: 1000000 <T>: 0.001928 sec B: 3.865 GB/sec F: 1037381524.546 FLOP/sec
```

```
R: 1000000 <T>: 0.001749 sec B: 4.260 GB/sec F: 1143600810.127 FLOP/sec
R: 1000000 <T>: 0.001615 sec B: 4.614 GB/sec F: 1238530434.099 FLOP/sec
R: 1000000 <T>: 0.001625 sec B: 4.584 GB/sec F: 1230593539.876 FLOP/sec
R: 1000000 <T>: 0.001604 sec B: 4.646 GB/sec F: 1247177481.462 FLOP/sec
R: 1000000 <T>: 0.001712 sec B: 4.353 GB/sec F: 1168465226.767 FLOP/sec
R: 1000000 <T>: 0.001798 sec B: 4.143 GB/sec F: 1112122524.763 FLOP/sec
R: 1000000 <T>: 0.001801 sec B: 4.137 GB/sec F: 1110544733.297 FLOP/sec
R: 1000000 <T>: 0.001631 sec B: 4.569 GB/sec F: 1226454375.591 FLOP/sec
R: 1000000 <T>: 0.001646 sec B: 4.527 GB/sec F: 1215103739.482 FLOP/sec
R: 1000000 <T>: 0.001664 sec B: 4.477 GB/sec F: 1201686206.084 FLOP/sec
R: 1000000 <T>: 0.001630 sec B: 4.570 GB/sec F: 1226832796.185 FLOP/sec
R: 1000000 <T>: 0.001728 sec B: 4.312 GB/sec F: 1157590960.604 FLOP/sec
R: 1000000 <T>: 0.001668 sec B: 4.466 GB/sec F: 1198937980.737 FLOP/sec
R: 1000000 <T>: 0.001839 sec B: 4.051 GB/sec F: 1087355415.710 FLOP/sec
R: 1000000 <T>: 0.001698 sec B: 4.387 GB/sec F: 1177607325.660 FLOP/sec
R: 1000000 <T>: 0.001649 sec B: 4.518 GB/sec F: 1212745960.040 FLOP/sec
R: 1000000 <T>: 0.001704 sec B: 4.372 GB/sec F: 1173509203.246 FLOP/sec
R: 1000000 <T>: 0.001707 sec B: 4.365 GB/sec F: 1171734025.750 FLOP/sec
R: 1000000 <T>: 0.001641 sec B: 4.540 GB/sec F: 1218645025.156 FLOP/sec
R: 1000000 <T>: 0.001627 sec B: 4.580 GB/sec F: 1229368129.369 FLOP/sec
R: 1000000 <T>: 0.001666 sec B: 4.472 GB/sec F: 1200438400.104 FLOP/sec
R: 1000000 <T>: 0.001635 sec B: 4.556 GB/sec F: 1223037376.634 FLOP/sec
R: 1000000 <T>: 0.001636 sec B: 4.555 GB/sec F: 1222729315.241 FLOP/sec
R: 1000000 <T>: 0.001703 sec B: 4.376 GB/sec F: 1174583654.141 FLOP/sec
R: 1000000 <T>: 0.001925 sec B: 3.870 GB/sec F: 1038775947.974 FLOP/sec
R: 1000000 <T>: 0.002032 sec B: 3.667 GB/sec F: 984277641.100 FLOP/sec
R: 1000000 <T>: 0.001789 sec B: 4.164 GB/sec F: 1117705573.998 FLOP/sec
R: 1000000 <T>: 0.001777 sec B: 4.194 GB/sec F: 1125777490.079 FLOP/sec
R: 1000000 <T>: 0.001606 sec B: 4.640 GB/sec F: 1245416090.402 FLOP/sec
R: 1000000 <T>: 0.001611 sec B: 4.624 GB/sec F: 1241236097.380 FLOP/sec
R: 1000000 <T>: 0.001584 sec B: 4.705 GB/sec F: 1262870226.193 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.631 GB/sec F: 1243104653.873 FLOP/sec
R: 1000000 <T>: 0.001595 sec B: 4.671 GB/sec F: 1253847745.268 FLOP/sec
R: 1000000 <T>: 0.001583 sec B: 4.707 GB/sec F: 1263655375.906 FLOP/sec
R: 1000000 <T>: 0.001706 sec B: 4.367 GB/sec F: 1172255296.103 FLOP/sec
R: 1000000 <T>: 0.001586 sec B: 4.697 GB/sec F: 1260811458.255 FLOP/sec
R: 1000000 <T>: 0.001616 sec B: 4.610 GB/sec F: 1237449171.775 FLOP/sec
R: 1000000 <T>: 0.001596 sec B: 4.668 GB/sec F: 1253081012.941 FLOP/sec
R: 1000000 <T>: 0.001612 sec B: 4.621 GB/sec F: 1240570885.910 FLOP/sec
R: 1000000 <T>: 0.001577 sec B: 4.726 GB/sec F: 1268497065.649 FLOP/sec
R: 1000000 <T>: 0.001590 sec B: 4.684 GB/sec F: 1257484389.903 FLOP/sec
R: 1000000 <T>: 0.001608 sec B: 4.634 GB/sec F: 1244048007.813 FLOP/sec
R: 1000000 <T>: 0.001615 sec B: 4.613 GB/sec F: 1238226018.348 FLOP/sec
R: 1000000 <T>: 0.001712 sec B: 4.353 GB/sec F: 1168429047.146 FLOP/sec
R: 1000000 <T>: 0.001624 sec B: 4.587 GB/sec F: 1231360283.705 FLOP/sec
R: 1000000 <T>: 0.001619 sec B: 4.603 GB/sec F: 1235676959.444 FLOP/sec
R: 1000000 <T>: 0.001604 sec B: 4.644 GB/sec F: 1246532302.950 FLOP/sec
R: 1000000 <T>: 0.001674 sec B: 4.450 GB/sec F: 1194535478.002 FLOP/sec
R: 1000000 <T>: 0.001932 sec B: 3.856 GB/sec F: 1034999008.988 FLOP/sec
R: 1000000 <T>: 0.001780 sec B: 4.186 GB/sec F: 1123595505.618 FLOP/sec
R: 1000000 <T>: 0.001768 sec B: 4.215 GB/sec F: 1131411141.232 FLOP/sec
R: 1000000 <T>: 0.002027 sec B: 3.676 GB/sec F: 986714384.174 FLOP/sec
R: 1000000 <T>: 0.001605 sec B: 4.642 GB/sec F: 1246136975.376 FLOP/sec
R: 1000000 <T>: 0.001660 sec B: 4.489 GB/sec F: 1204966631.462 FLOP/sec
R: 1000000 <T>: 0.001613 sec B: 4.619 GB/sec F: 1239917917.434 FLOP/sec
R: 1000000 <T>: 0.001642 sec B: 4.537 GB/sec F: 1217879938.960 FLOP/sec
R: 1000000 <T>: 0.001629 sec B: 4.574 GB/sec F: 1227732764.320 FLOP/sec
R: 1000000 <T>: 0.001602 sec B: 4.651 GB/sec F: 1248441788.593 FLOP/sec
R: 1000000 <T>: 0.004010 sec B: 1.858 GB/sec F: 498731725.223 FLOP/sec
R: 1000000 <T>: 0.001737 sec B: 4.289 GB/sec F: 1151375346.636 FLOP/sec
R: 1000000 <T>: 0.001653 sec B: 4.508 GB/sec F: 1210088263.838 FLOP/sec
R: 1000000 <T>: 0.001758 sec B: 4.239 GB/sec F: 1137933467.306 FLOP/sec
R: 1000000 <T>: 0.001666 sec B: 4.472 GB/sec F: 1200452090.257 FLOP/sec
R: 1000000 <T>: 0.001633 sec B: 4.563 GB/sec F: 1224996294.386 FLOP/sec
R: 1000000 <T>: 0.001624 sec B: 4.587 GB/sec F: 1231251123.517 FLOP/sec
R: 1000000 <T>: 0.001616 sec B: 4.611 GB/sec F: 1237848965.096 FLOP/sec
R: 1000000 <T>: 0.001632 sec B: 4.564 GB/sec F: 1225234188.200 FLOP/sec
R: 1000000 <T>: 0.001632 sec B: 4.567 GB/sec F: 1225821438.269 FLOP/sec
R: 1000000 <T>: 0.001629 sec B: 4.573 GB/sec F: 1227465271.939 FLOP/sec
R: 1000000 <T>: 0.001728 sec B: 4.311 GB/sec F: 1157129508.827 FLOP/sec
R: 1000000 <T>: 0.001688 sec B: 4.414 GB/sec F: 1184801134.092 FLOP/sec
R: 1000000 <T>: 0.001654 sec B: 4.503 GB/sec F: 1208881409.943 FLOP/sec
R: 1000000 <T>: 0.001655 sec B: 4.502 GB/sec F: 1208386200.230 FLOP/sec
R: 1000000 <T>: 0.002130 sec B: 3.499 GB/sec F: 939160259.246 FLOP/sec
R: 1000000 <T>: 0.003053 sec B: 2.440 GB/sec F: 654990586.148 FLOP/sec
R: 1000000 <T>: 0.001695 sec B: 4.396 GB/sec F: 1180045431.749 FLOP/sec
R: 1000000 <T>: 0.001982 sec B: 3.760 GB/sec F: 1009220236.077 FLOP/sec
R: 1000000 <T>: 0.001661 sec B: 4.485 GB/sec F: 1203871409.679 FLOP/sec
R: 1000000 <T>: 0.001584 sec B: 4.703 GB/sec F: 1262418250.528 FLOP/sec
R: 1000000 <T>: 0.001787 sec B: 4.170 GB/sec F: 1119370824.047 FLOP/sec
R: 1000000 <T>: 0.001611 sec B: 4.624 GB/sec F: 1241276926.400 FLOP/sec
R: 1000000 <T>: 0.001612 sec B: 4.622 GB/sec F: 1240753286.135 FLOP/sec
R: 1000000 <T>: 0.001606 sec B: 4.639 GB/sec F: 1245167194.825 FLOP/sec
R: 1000000 <T>: 0.001699 sec B: 4.386 GB/sec F: 1177251036.422 FLOP/sec
R: 1000000 <T>: 0.001626 sec B: 4.582 GB/sec F: 1229860269.425 FLOP/sec
R: 1000000 <T>: 0.001858 sec B: 4.009 GB/sec F: 1076179519.658 FLOP/sec
R: 1000000 <T>: 0.001939 sec B: 3.843 GB/sec F: 1031554743.837 FLOP/sec
R: 1000000 <T>: 0.001662 sec B: 4.484 GB/sec F: 1203666367.756 FLOP/sec
R: 1000000 <T>: 0.001666 sec B: 4.473 GB/sec F: 1200712983.370 FLOP/sec
R: 1000000 <T>: 0.001698 sec B: 4.387 GB/sec F: 1177531752.144 FLOP/sec
R: 1000000 <T>: 0.001902 sec B: 3.917 GB/sec F: 1051431839.880 FLOP/sec
R: 1000000 <T>: 0.001785 sec B: 4.174 GB/sec F: 1120495258.904 FLOP/sec
R: 1000000 <T>: 0.001787 sec B: 4.170 GB/sec F: 1119301913.782 FLOP/sec
R: 1000000 <T>: 0.001655 sec B: 4.503 GB/sec F: 1208648362.493 FLOP/sec
R: 1000000 <T>: 0.001580 sec B: 4.714 GB/sec F: 1265450357.964 FLOP/sec
R: 1000000 <T>: 0.001584 sec B: 4.705 GB/sec F: 1262977089.596 FLOP/sec
R: 1000000 <T>: 0.001579 sec B: 4.720 GB/sec F: 1266991945.732 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.630 GB/sec F: 1242903023.734 FLOP/sec
R: 1000000 <T>: 0.001573 sec B: 4.738 GB/sec F: 1271846345.699 FLOP/sec
R: 1000000 <T>: 0.001561 sec B: 4.772 GB/sec F: 1280895192.032 FLOP/sec
```

```
R: 1000000 <T>: 0.001618 sec B: 4.604 GB/sec F: 1235976303.862 FLOP/sec
R: 1000000 <T>: 0.001575 sec B: 4.730 GB/sec F: 1269663113.938 FLOP/sec
R: 1000000 <T>: 0.001557 sec B: 4.785 GB/sec F: 1284476142.461 FLOP/sec
R: 1000000 <T>: 0.001600 sec B: 4.658 GB/sec F: 1250290692.586 FLOP/sec
R: 1000000 <T>: 0.001559 sec B: 4.778 GB/sec F: 1282621061.792 FLOP/sec
R: 1000000 <T>: 0.001607 sec B: 4.635 GB/sec F: 1244188860.404 FLOP/sec
R: 1000000 <T>: 0.001587 sec B: 4.696 GB/sec F: 1260457861.318 FLOP/sec
R: 1000000 <T>: 0.001585 sec B: 4.700 GB/sec F: 1261706268.472 FLOP/sec
R: 1000000 <T>: 0.001638 sec B: 4.548 GB/sec F: 1220902087.926 FLOP/sec
R: 1000000 <T>: 0.001630 sec B: 4.570 GB/sec F: 1226883972.356 FLOP/sec
R: 1000000 <T>: 0.001636 sec B: 4.553 GB/sec F: 1222276477.717 FLOP/sec
R: 1000000 <T>: 0.001613 sec B: 4.618 GB/sec F: 1239692729.760 FLOP/sec
R: 1000000 <T>: 0.001598 sec B: 4.663 GB/sec F: 1251712499.163 FLOP/sec
R: 1000000 <T>: 0.001566 sec B: 4.757 GB/sec F: 1276951660.995 FLOP/sec
R: 1000000 <T>: 0.001568 sec B: 4.753 GB/sec F: 1275898344.075 FLOP/sec
R: 1000000 <T>: 0.001557 sec B: 4.786 GB/sec F: 1284642801.857 FLOP/sec
R: 1000000 <T>: 0.001582 sec B: 4.709 GB/sec F: 1264076279.419 FLOP/sec
R: 1000000 <T>: 0.001535 sec B: 4.854 GB/sec F: 1303073363.682 FLOP/sec
R: 1000000 <T>: 0.001568 sec B: 4.752 GB/sec F: 1275637116.958 FLOP/sec
R: 1000000 <T>: 0.001622 sec B: 4.594 GB/sec F: 1233292737.447 FLOP/sec
R: 1000000 <T>: 0.001565 sec B: 4.761 GB/sec F: 1277952821.816 FLOP/sec
R: 1000000 <T>: 0.001601 sec B: 4.653 GB/sec F: 1249106888.575 FLOP/sec
R: 1000000 <T>: 0.001590 sec B: 4.686 GB/sec F: 1257795185.663 FLOP/sec
R: 1000000 <T>: 0.001572 sec B: 4.738 GB/sec F: 1271871418.887 FLOP/sec
R: 1000000 <T>: 0.001870 sec B: 3.985 GB/sec F: 1069691468.890 FLOP/sec
R: 1000000 <T>: 0.001637 sec B: 4.552 GB/sec F: 1221789640.812 FLOP/sec
R: 1000000 <T>: 0.001591 sec B: 4.684 GB/sec F: 1257242502.591 FLOP/sec
R: 1000000 <T>: 0.001628 sec B: 4.577 GB/sec F: 1228679341.723 FLOP/sec
R: 1000000 <T>: 0.001980 sec B: 3.763 GB/sec F: 1010093868.023 FLOP/sec
R: 1000000 <T>: 0.001663 sec B: 4.480 GB/sec F: 1202592307.979 FLOP/sec
R: 1000000 <T>: 0.001621 sec B: 4.597 GB/sec F: 1234054473.633 FLOP/sec
R: 1000000 <T>: 0.001664 sec B: 4.478 GB/sec F: 1201994589.822 FLOP/sec
R: 1000000 <T>: 0.001917 sec B: 3.887 GB/sec F: 1043358864.325 FLOP/sec
R: 1000000 <T>: 0.001675 sec B: 4.447 GB/sec F: 1193858790.382 FLOP/sec
R: 1000000 <T>: 0.001895 sec B: 3.933 GB/sec F: 1055656312.086 FLOP/sec
R: 1000000 <T>: 0.001663 sec B: 4.479 GB/sec F: 1202374690.013 FLOP/sec
R: 1000000 <T>: 0.001641 sec B: 4.540 GB/sec F: 1218567805.073 FLOP/sec
R: 1000000 <T>: 0.001645 sec B: 4.530 GB/sec F: 1215917084.182 FLOP/sec
R: 1000000 <T>: 0.001627 sec B: 4.579 GB/sec F: 1229298611.384 FLOP/sec
R: 1000000 <T>: 0.001813 sec B: 4.110 GB/sec F: 1103364876.696 FLOP/sec
R: 1000000 <T>: 0.001703 sec B: 4.376 GB/sec F: 1174545025.303 FLOP/sec
R: 1000000 <T>: 0.001985 sec B: 3.754 GB/sec F: 1007605405.601 FLOP/sec
R: 1000000 <T>: 0.001694 sec B: 4.398 GB/sec F: 1180453577.483 FLOP/sec
R: 1000000 <T>: 0.001620 sec B: 4.600 GB/sec F: 1234830112.073 FLOP/sec
R: 1000000 <T>: 0.001891 sec B: 3.940 GB/sec F: 1057671662.755 FLOP/sec
R: 1000000 <T>: 0.001630 sec B: 4.571 GB/sec F: 1227002145.413 FLOP/sec
R: 1000000 <T>: 0.001723 sec B: 4.325 GB/sec F: 1161095633.061 FLOP/sec
R: 1000000 <T>: 0.001703 sec B: 4.375 GB/sec F: 1174458809.381 FLOP/sec
R: 1000000 <T>: 0.001645 sec B: 4.528 GB/sec F: 1215456720.017 FLOP/sec
R: 1000000 <T>: 0.001639 sec B: 4.546 GB/sec F: 1220206373.504 FLOP/sec
R: 1000000 <T>: 0.001671 sec B: 4.459 GB/sec F: 1197029212.899 FLOP/sec
R: 1000000 <T>: 0.001718 sec B: 4.338 GB/sec F: 1164430378.125 FLOP/sec
R: 1000000 <T>: 0.001700 sec B: 4.383 GB/sec F: 1176537027.973 FLOP/sec
R: 1000000 <T>: 0.001714 sec B: 4.348 GB/sec F: 1167038854.808 FLOP/sec
R: 1000000 <T>: 0.001714 sec B: 4.347 GB/sec F: 1166891779.539 FLOP/sec
R: 1000000 <T>: 0.001638 sec B: 4.548 GB/sec F: 1220884200.965 FLOP/sec
R: 1000000 <T>: 0.001966 sec B: 3.790 GB/sec F: 1017361270.074 FLOP/sec
R: 1000000 <T>: 0.001756 sec B: 4.243 GB/sec F: 1138945677.986 FLOP/sec
R: 1000000 <T>: 0.001813 sec B: 4.110 GB/sec F: 1103239497.298 FLOP/sec
R: 1000000 <T>: 0.001827 sec B: 4.078 GB/sec F: 1094741682.016 FLOP/sec
R: 1000000 <T>: 0.001738 sec B: 4.288 GB/sec F: 1151051312.716 FLOP/sec
R: 1000000 <T>: 0.002397 sec B: 3.109 GB/sec F: 834455328.060 FLOP/sec
R: 1000000 <T>: 0.001696 sec B: 4.393 GB/sec F: 1179106237.472 FLOP/sec
R: 1000000 <T>: 0.001857 sec B: 4.012 GB/sec F: 1077088285.696 FLOP/sec
R: 1000000 <T>: 0.001874 sec B: 3.976 GB/sec F: 1067315024.967 FLOP/sec
R: 1000000 <T>: 0.001734 sec B: 4.296 GB/sec F: 1153316072.036 FLOP/sec
R: 1000000 <T>: 0.001796 sec B: 4.148 GB/sec F: 1113569005.366 FLOP/sec
R: 1000000 <T>: 0.001630 sec B: 4.570 GB/sec F: 1226841074.394 FLOP/sec
R: 1000000 <T>: 0.001652 sec B: 4.510 GB/sec F: 1210538707.883 FLOP/sec
R: 1000000 <T>: 0.001603 sec B: 4.649 GB/sec F: 1247955692.581 FLOP/sec
R: 1000000 <T>: 0.001634 sec B: 4.561 GB/sec F: 1224275672.602 FLOP/sec
R: 1000000 <T>: 0.001616 sec B: 4.610 GB/sec F: 1237621464.812 FLOP/sec
R: 1000000 <T>: 0.001728 sec B: 4.312 GB/sec F: 1157572870.659 FLOP/sec
R: 1000000 <T>: 0.001650 sec B: 4.516 GB/sec F: 1212291667.677 FLOP/sec
R: 1000000 <T>: 0.001611 sec B: 4.626 GB/sec F: 1241669175.873 FLOP/sec
R: 1000000 <T>: 0.001594 sec B: 4.674 GB/sec F: 1254770480.521 FLOP/sec
R: 1000000 <T>: 0.001680 sec B: 4.434 GB/sec F: 1190126944.891 FLOP/sec
R: 1000000 <T>: 0.001624 sec B: 4.587 GB/sec F: 1231182908.226 FLOP/sec
R: 1000000 <T>: 0.001578 sec B: 4.721 GB/sec F: 1267404634.138 FLOP/sec
R: 1000000 <T>: 0.001635 sec B: 4.558 GB/sec F: 1223467576.274 FLOP/sec
R: 1000000 <T>: 0.001662 sec B: 4.482 GB/sec F: 1203225365.916 FLOP/sec
R: 1000000 <T>: 0.001630 sec B: 4.570 GB/sec F: 1226823765.539 FLOP/sec
R: 1000000 <T>: 0.001752 sec B: 4.252 GB/sec F: 1141317342.716 FLOP/sec
R: 1000000 <T>: 0.001697 sec B: 4.390 GB/sec F: 1178324022.610 FLOP/sec
R: 1000000 <T>: 0.001596 sec B: 4.668 GB/sec F: 1253098285.511 FLOP/sec
R: 1000000 <T>: 0.001682 sec B: 4.430 GB/sec F: 1189056400.512 FLOP/sec
R: 1000000 <T>: 0.001607 sec B: 4.636 GB/sec F: 1244565139.606 FLOP/sec
R: 1000000 <T>: 0.001599 sec B: 4.659 GB/sec F: 1250743410.615 FLOP/sec
R: 1000000 <T>: 0.001777 sec B: 4.192 GB/sec F: 1125327751.708 FLOP/sec
R: 1000000 <T>: 0.001630 sec B: 4.570 GB/sec F: 1226686817.042 FLOP/sec
R: 1000000 <T>: 0.001589 sec B: 4.690 GB/sec F: 1258850505.838 FLOP/sec
R: 1000000 <T>: 0.001628 sec B: 4.578 GB/sec F: 1228788046.350 FLOP/sec
R: 1000000 <T>: 0.001613 sec B: 4.620 GB/sec F: 1240193941.529 FLOP/sec
R: 1000000 <T>: 0.001613 sec B: 4.619 GB/sec F: 1240018625.080 FLOP/sec
R: 1000000 <T>: 0.001678 sec B: 4.439 GB/sec F: 1191672118.567 FLOP/sec
R: 1000000 <T>: 0.001625 sec B: 4.584 GB/sec F: 1230619284.543 FLOP/sec
R: 1000000 <T>: 0.001622 sec B: 4.593 GB/sec F: 1232866241.410 FLOP/sec
R: 1000000 <T>: 0.001622 sec B: 4.594 GB/sec F: 1233195400.428 FLOP/sec
R: 1000000 <T>: 0.001599 sec B: 4.660 GB/sec F: 1250904560.360 FLOP/sec
R: 1000000 <T>: 0.001603 sec B: 4.649 GB/sec F: 1248042912.708 FLOP/sec
```

```
R: 1000000 <T>: 0.001625 sec B: 4.584 GB/sec F: 1230516312.339 FLOP/sec
R: 1000000 <T>: 0.001619 sec B: 4.602 GB/sec F: 1235290775.096 FLOP/sec
R: 1000000 <T>: 0.001607 sec B: 4.637 GB/sec F: 1244840137.630 FLOP/sec
R: 1000000 <T>: 0.001610 sec B: 4.628 GB/sec F: 1242411197.107 FLOP/sec
R: 1000000 <T>: 0.001615 sec B: 4.614 GB/sec F: 1238501289.589 FLOP/sec
R: 1000000 <T>: 0.001613 sec B: 4.618 GB/sec F: 1239550588.539 FLOP/sec
R: 1000000 <T>: 0.001612 sec B: 4.622 GB/sec F: 1240723267.221 FLOP/sec
R: 1000000 <T>: 0.001702 sec B: 4.378 GB/sec F: 1175240042.779 FLOP/sec
R: 1000000 <T>: 0.001779 sec B: 4.189 GB/sec F: 1124366770.689 FLOP/sec
R: 1000000 <T>: 0.001862 sec B: 4.000 GB/sec F: 1073873359.189 FLOP/sec
R: 1000000 <T>: 0.001663 sec B: 4.481 GB/sec F: 1202978574.952 FLOP/sec
R: 1000000 <T>: 0.001616 sec B: 4.612 GB/sec F: 1237946271.894 FLOP/sec
R: 1000000 <T>: 0.001591 sec B: 4.684 GB/sec F: 1257439325.409 FLOP/sec
R: 1000000 <T>: 0.001605 sec B: 4.642 GB/sec F: 1245973946.685 FLOP/sec
R: 1000000 <T>: 0.001867 sec B: 3.991 GB/sec F: 1071361802.631 FLOP/sec
R: 1000000 <T>: 0.001571 sec B: 4.741 GB/sec F: 1272761753.000 FLOP/sec
R: 1000000 <T>: 0.001641 sec B: 4.541 GB/sec F: 1218959946.805 FLOP/sec
R: 1000000 <T>: 0.001661 sec B: 4.485 GB/sec F: 1204030854.495 FLOP/sec
R: 1000000 <T>: 0.001620 sec B: 4.599 GB/sec F: 1234661644.063 FLOP/sec
R: 1000000 <T>: 0.001610 sec B: 4.627 GB/sec F: 1242048560.373 FLOP/sec
R: 1000000 <T>: 0.001695 sec B: 4.396 GB/sec F: 1180042646.741 FLOP/sec
R: 1000000 <T>: 0.001633 sec B: 4.562 GB/sec F: 1224655749.269 FLOP/sec
R: 1000000 <T>: 0.001623 sec B: 4.590 GB/sec F: 1232140887.918 FLOP/sec
R: 1000000 <T>: 0.001625 sec B: 4.585 GB/sec F: 1230779834.411 FLOP/sec
R: 1000000 <T>: 0.002209 sec B: 3.373 GB/sec F: 905318611.042 FLOP/sec
R: 1000000 <T>: 0.001571 sec B: 4.743 GB/sec F: 1273140927.789 FLOP/sec
R: 1000000 <T>: 0.001697 sec B: 4.391 GB/sec F: 1178724031.236 FLOP/sec
R: 1000000 <T>: 0.001667 sec B: 4.471 GB/sec F: 1200045121.697 FLOP/sec
R: 1000000 <T>: 0.001645 sec B: 4.529 GB/sec F: 1215702746.090 FLOP/sec
R: 1000000 <T>: 0.001573 sec B: 4.737 GB/sec F: 1271594051.229 FLOP/sec
R: 1000000 <T>: 0.001591 sec B: 4.684 GB/sec F: 1257404540.991 FLOP/sec
R: 1000000 <T>: 0.001607 sec B: 4.635 GB/sec F: 1244219821.293 FLOP/sec
R: 1000000 <T>: 0.001597 sec B: 4.666 GB/sec F: 1252453242.789 FLOP/sec
R: 1000000 <T>: 0.001640 sec B: 4.543 GB/sec F: 1219471298.219 FLOP/sec
R: 1000000 <T>: 0.001573 sec B: 4.736 GB/sec F: 1271270743.166 FLOP/sec
R: 1000000 <T>: 0.001599 sec B: 4.658 GB/sec F: 1250459543.882 FLOP/sec
R: 1000000 <T>: 0.001667 sec B: 4.468 GB/sec F: 1199457845.054 FLOP/sec
R: 1000000 <T>: 0.001619 sec B: 4.602 GB/sec F: 1235394547.957 FLOP/sec
R: 1000000 <T>: 0.001602 sec B: 4.651 GB/sec F: 1248419189.202 FLOP/sec
R: 1000000 <T>: 0.001637 sec B: 4.552 GB/sec F: 1221820243.362 FLOP/sec
R: 1000000 <T>: 0.001627 sec B: 4.578 GB/sec F: 1228993429.801 FLOP/sec
R: 1000000 <T>: 0.001627 sec B: 4.579 GB/sec F: 1229254788.869 FLOP/sec
R: 1000000 <T>: 0.001742 sec B: 4.278 GB/sec F: 1148358106.289 FLOP/sec
R: 1000000 <T>: 0.001915 sec B: 3.891 GB/sec F: 1044532602.996 FLOP/sec
R: 1000000 <T>: 0.001801 sec B: 4.136 GB/sec F: 1110259295.507 FLOP/sec
R: 1000000 <T>: 0.001867 sec B: 3.991 GB/sec F: 1071199985.003 FLOP/sec
R: 1000000 <T>: 0.001833 sec B: 4.065 GB/sec F: 1091289653.374 FLOP/sec
R: 1000000 <T>: 0.001741 sec B: 4.280 GB/sec F: 1148931378.924 FLOP/sec
R: 1000000 <T>: 0.001610 sec B: 4.628 GB/sec F: 1242232166.981 FLOP/sec
R: 1000000 <T>: 0.001648 sec B: 4.520 GB/sec F: 1213361782.623 FLOP/sec
R: 1000000 <T>: 0.001659 sec B: 4.491 GB/sec F: 1205513536.712 FLOP/sec
R: 1000000 <T>: 0.001620 sec B: 4.599 GB/sec F: 1234403314.126 FLOP/sec
R: 1000000 <T>: 0.001797 sec B: 4.147 GB/sec F: 1113102946.996 FLOP/sec
R: 1000000 <T>: 0.001749 sec B: 4.260 GB/sec F: 1143513192.712 FLOP/sec
R: 1000000 <T>: 0.001733 sec B: 4.298 GB/sec F: 1153773155.506 FLOP/sec
R: 1000000 <T>: 0.001637 sec B: 4.551 GB/sec F: 1221575465.878 FLOP/sec
R: 1000000 <T>: 0.001693 sec B: 4.401 GB/sec F: 1181407481.617 FLOP/sec
R: 1000000 <T>: 0.001677 sec B: 4.444 GB/sec F: 1192899622.865 FLOP/sec
R: 1000000 <T>: 0.001631 sec B: 4.569 GB/sec F: 1226379922.689 FLOP/sec
R: 1000000 <T>: 0.001622 sec B: 4.593 GB/sec F: 1233031179.043 FLOP/sec
R: 1000000 <T>: 0.001590 sec B: 4.686 GB/sec F: 1258015128.890 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.629 GB/sec F: 1242695281.797 FLOP/sec
R: 1000000 <T>: 0.001695 sec B: 4.396 GB/sec F: 1180092778.894 FLOP/sec
R: 1000000 <T>: 0.001649 sec B: 4.517 GB/sec F: 1212550381.468 FLOP/sec
R: 1000000 <T>: 0.001639 sec B: 4.545 GB/sec F: 1220043360.341 FLOP/sec
R: 1000000 <T>: 0.001658 sec B: 4.495 GB/sec F: 1206498199.301 FLOP/sec
R: 1000000 <T>: 0.001593 sec B: 4.677 GB/sec F: 1255504602.994 FLOP/sec
R: 1000000 <T>: 0.001582 sec B: 4.709 GB/sec F: 1263976419.256 FLOP/sec
R: 1000000 <T>: 0.001648 sec B: 4.522 GB/sec F: 1213950967.306 FLOP/sec
R: 1000000 <T>: 0.001829 sec B: 4.073 GB/sec F: 1093271352.136 FLOP/sec
R: 1000000 <T>: 0.001583 sec B: 4.706 GB/sec F: 1263342475.722 FLOP/sec
R: 1000000 <T>: 0.001724 sec B: 4.322 GB/sec F: 1160211251.265 FLOP/sec
R: 1000000 <T>: 0.001632 sec B: 4.565 GB/sec F: 1225308502.048 FLOP/sec
R: 1000000 <T>: 0.001604 sec B: 4.644 GB/sec F: 1246700140.565 FLOP/sec
R: 1000000 <T>: 0.001601 sec B: 4.654 GB/sec F: 1249349557.387 FLOP/sec
R: 1000000 <T>: 0.001621 sec B: 4.595 GB/sec F: 1233535386.430 FLOP/sec
R: 1000000 <T>: 0.001617 sec B: 4.609 GB/sec F: 1237125390.700 FLOP/sec
R: 1000000 <T>: 0.001638 sec B: 4.548 GB/sec F: 1220755281.293 FLOP/sec
R: 1000000 <T>: 0.001597 sec B: 4.664 GB/sec F: 1252032204.772 FLOP/sec
R: 1000000 <T>: 0.001671 sec B: 4.458 GB/sec F: 1196684704.694 FLOP/sec
R: 1000000 <T>: 0.001624 sec B: 4.589 GB/sec F: 1231778151.828 FLOP/sec
R: 1000000 <T>: 0.001602 sec B: 4.652 GB/sec F: 1248715384.049 FLOP/sec
R: 1000000 <T>: 0.001794 sec B: 4.152 GB/sec F: 1114533968.766 FLOP/sec
R: 1000000 <T>: 0.001677 sec B: 4.443 GB/sec F: 1192531888.303 FLOP/sec
R: 1000000 <T>: 0.001669 sec B: 4.464 GB/sec F: 1198324502.680 FLOP/sec
R: 1000000 <T>: 0.001637 sec B: 4.551 GB/sec F: 1221656798.734 FLOP/sec
R: 1000000 <T>: 0.001759 sec B: 4.235 GB/sec F: 1136793809.476 FLOP/sec
R: 1000000 <T>: 0.001647 sec B: 4.523 GB/sec F: 1214135941.945 FLOP/sec
R: 1000000 <T>: 0.001595 sec B: 4.670 GB/sec F: 1253608826.409 FLOP/sec
R: 1000000 <T>: 0.001669 sec B: 4.465 GB/sec F: 1198466681.727 FLOP/sec
R: 1000000 <T>: 0.001666 sec B: 4.473 GB/sec F: 1200686312.296 FLOP/sec
R: 1000000 <T>: 0.001621 sec B: 4.595 GB/sec F: 1233487457.591 FLOP/sec
R: 1000000 <T>: 0.001629 sec B: 4.573 GB/sec F: 1227618971.624 FLOP/sec
R: 1000000 <T>: 0.001625 sec B: 4.585 GB/sec F: 1230680621.764 FLOP/sec
R: 1000000 <T>: 0.001618 sec B: 4.604 GB/sec F: 1235919783.862 FLOP/sec
R: 1000000 <T>: 0.001680 sec B: 4.434 GB/sec F: 1190306855.156 FLOP/sec
R: 1000000 <T>: 0.001718 sec B: 4.338 GB/sec F: 1164480548.517 FLOP/sec
R: 1000000 <T>: 0.001700 sec B: 4.382 GB/sec F: 1176189686.463 FLOP/sec
R: 1000000 <T>: 0.001575 sec B: 4.730 GB/sec F: 1269788865.856 FLOP/sec
R: 1000000 <T>: 0.001634 sec B: 4.561 GB/sec F: 1224289162.409 FLOP/sec
```

```
R: 1000000 <T>: 0.001605 sec B: 4.642 GB/sec F: 1246106695.394 FLOP/sec
N: 1000000 <T>: 0.001678 sec B: 4.440 GB/sec F: 1191738180.203 FLOP/sec
```

In [56]: `!./dp1 300000000 20`

```
Vector size: 300000000 with 20 measurements.
R: 300000000 <T>: 0.499813 sec B: 4.472 GB/sec F: 1200448696.511 FLOP/sec
R: 300000000 <T>: 0.500948 sec B: 4.462 GB/sec F: 1197730226.961 FLOP/sec
R: 300000000 <T>: 0.499447 sec B: 4.475 GB/sec F: 1201327830.053 FLOP/sec
R: 300000000 <T>: 0.504777 sec B: 4.428 GB/sec F: 1188644833.118 FLOP/sec
R: 300000000 <T>: 0.497842 sec B: 4.490 GB/sec F: 1205201333.191 FLOP/sec
R: 300000000 <T>: 0.497761 sec B: 4.490 GB/sec F: 1205396831.624 FLOP/sec
R: 300000000 <T>: 0.498931 sec B: 4.480 GB/sec F: 1202572263.590 FLOP/sec
R: 300000000 <T>: 0.494874 sec B: 4.517 GB/sec F: 1212428958.432 FLOP/sec
R: 300000000 <T>: 0.494182 sec B: 4.523 GB/sec F: 1214126456.018 FLOP/sec
R: 300000000 <T>: 0.494741 sec B: 4.518 GB/sec F: 1212754625.287 FLOP/sec
R: 300000000 <T>: 0.494501 sec B: 4.520 GB/sec F: 1213343963.790 FLOP/sec
R: 300000000 <T>: 0.496422 sec B: 4.503 GB/sec F: 1208649536.028 FLOP/sec
R: 300000000 <T>: 0.499482 sec B: 4.475 GB/sec F: 1201245047.247 FLOP/sec
R: 300000000 <T>: 0.492870 sec B: 4.535 GB/sec F: 1217359712.628 FLOP/sec
R: 300000000 <T>: 0.504791 sec B: 4.428 GB/sec F: 1188610626.007 FLOP/sec
R: 300000000 <T>: 0.499471 sec B: 4.475 GB/sec F: 1201271137.066 FLOP/sec
R: 300000000 <T>: 0.496866 sec B: 4.499 GB/sec F: 1207569023.317 FLOP/sec
R: 300000000 <T>: 0.497538 sec B: 4.492 GB/sec F: 1205937178.451 FLOP/sec
R: 300000000 <T>: 0.489747 sec B: 4.564 GB/sec F: 1225121711.197 FLOP/sec
R: 300000000 <T>: 0.496049 sec B: 4.506 GB/sec F: 1209557975.505 FLOP/sec
N: 300000000 <T>: 0.496774 sec B: 4.499 GB/sec F: 1207793347.447 FLOP/sec
```

In [57]:
```python
import numpy as np

def compute_dot_product(N):
    # Create two vectors of size N with all elements set to 1.0
    vecA = np.ones(N, dtype=np.float32)  # Using float32 to mimic single-precision float in C
    vecB = np.ones(N, dtype=np.float32)

    # Compute the dot product using numpy
    dot_product_result = np.dot(vecA, vecB)

    # Analytically, the result should be N
    analytical_result = N

    return dot_product_result, analytical_result

# Test the function for a few vector sizes
vector_sizes = [1000000, 16777216, 67108864, 300000000]
results = {}

for size in vector_sizes:
    dot_product_result, analytical_result = compute_dot_product(size)
    results[size] = (dot_product_result, analytical_result)

for size, (dp_result, analytical) in results.items():
    print(f"For N = {size}:")
    print(f"Computed Dot Product: {dp_result}")
    print(f"Analytical Result: {analytical}")
    print("----")
```

```
For N = 1000000:
Computed Dot Product: 1000000.0
Analytical Result: 1000000
----
For N = 16777216:
Computed Dot Product: 16777216.0
Analytical Result: 16777216
----
For N = 67108864:
Computed Dot Product: 67108864.0
Analytical Result: 67108864
----
For N = 300000000:
Computed Dot Product: 300000000.0
Analytical Result: 300000000
----
```

C2: Perform the same microbenchmark.

```
float dpunroll(long N, float *pA, float *pB) {
   float R = 0.0;
   int j;
   for (j=0;j<N;j+=4)
     R += pA[j]*pB[j] + pA[j+1]*pB[j+1] \
           + pA[j+2]*pB[j+2] + pA[j+3] * pB[j+3];
   return R; }
```

In [58]:
```c
%%writefile dp2.c
#include <stdio.h>
#include <stdlib.h>
#include <time.h>

#define GB (1073741824.0)   // Constant for gigabyte conversion
#define CHUNK_SIZE 16777216 // Chunk size for precision control

// Compute the dot product of two vectors using loop unrolling for optimization
float dpunroll(long N, float *pA, float *pB)
{
    float R = 0.0;
    int j;
    for (j = 0; j < N; j += 4)
        R += pA[j] * pB[j] + pA[j + 1] * pB[j + 1] +
```

```c
                pA[j + 2] * pB[j + 2] + pA[j + 3] * pB[j + 3];
    return R;
}

// Compute the dot product of two vectors in chunks to avoid precision issues
float dpunroll_chunked(long N, float *pA, float *pB)
{
    float R = 0.0;
    for (long i = 0; i < N; i += CHUNK_SIZE)
    {
        long current_chunk_size = (N - i > CHUNK_SIZE) ? CHUNK_SIZE : (N - i);
        R += dpunroll(current_chunk_size, pA + i, pB + i);
    }
    return R;
}

// Initialize two vectors with all elements set to 1
void initialize_vectors(long N, float *vecA, float *vecB)
{
    for (long i = 0; i < N; i++)
    {
        vecA[i] = 1.0;
        vecB[i] = 1.0;
    }
}

int main(int argc, char *argv[])
{
    // Check for the correct number of command-line arguments
    if (argc < 3)
    {
        printf("Usage: %s [vector size] [number of measurements]\n", argv[0]);
        return 1;
    }

    // Convert command-line arguments to respective data types
    long vec_size = atol(argv[1]);
    int num_measurements = atoi(argv[2]);
    printf("Vector size: %ld with %d measurements.\n", vec_size, num_measurements);

    // Allocate memory for the two vectors
    float *vecA = (float *)malloc(vec_size * sizeof(float));
    float *vecB = (float *)malloc(vec_size * sizeof(float));

    // Initialize vectors to default values
    initialize_vectors(vec_size, vecA, vecB);

    struct timespec start_time, end_time;
    double cumulative_time = 0;
    float dp_result;

    // Perform the dot product multiple times and measure its performance
    for (int i = 0; i < num_measurements; i++)
    {
        clock_gettime(CLOCK_MONOTONIC, &start_time); // Start the timer

        // Chunked version for large vectors, unrolled for smaller vectors
        if (vec_size > CHUNK_SIZE)
            dp_result = dpunroll_chunked(vec_size, vecA, vecB);
        else
            dp_result = dpunroll(vec_size, vecA, vecB);

        clock_gettime(CLOCK_MONOTONIC, &end_time); // Stop the timer

        // Calculate elapsed time
        double elapsed_time = (end_time.tv_sec - start_time.tv_sec) +
                              (end_time.tv_nsec - start_time.tv_nsec) / 1e9;

        // Accumulate time from the second half measurements for averages
        if (i >= num_measurements / 2)
            cumulative_time += elapsed_time;

        // Compute bandwidth and flops
        double bandwidth = (vec_size * 2 * sizeof(float) / GB) / elapsed_time;
        double flops = vec_size * 2 / elapsed_time;

        printf("R: %ld <T>: %.6f sec B: %.3f GB/sec F: %.3f FLOP/sec\n",
                (long)dp_result, elapsed_time, bandwidth, flops);
    }

    // Calculate and print the averages for the second half measurements
    double average_time = cumulative_time / (num_measurements / 2);
    double average_bandwidth = (vec_size * 2 * sizeof(float) / GB) / average_time;
    double average_flops = vec_size * 2 / average_time;

    printf("N: %li <T>: %.6f sec B: %.3f GB/sec F: %.3f FLOP/sec\n",
            vec_size, average_time, average_bandwidth, average_flops);

    // Free the allocated memory
    free(vecA);
    free(vecB);

    return 0;
}
```

Overwriting dp2.c

In [59]: `!gcc -O3 -Wall -o dp2 dp2.c`

In [60]: `!./dp2`

```
Usage: ./dp2 [vector size] [number of measurements]
```

In [62]: `!./dp2 1000000 1000`

```
Usage: ./dp2 [vector size] [number of measurements]
```

In [62]: `!./dp2 1000000 1000`

```
Vector size: 1000000 with 1000 measurements.
R: 1000000 <T>: 0.001058 sec B: 7.039 GB/sec F: 1889550126.458 FLOP/sec
R: 1000000 <T>: 0.000993 sec B: 7.503 GB/sec F: 2014019590.369 FLOP/sec
R: 1000000 <T>: 0.001010 sec B: 7.376 GB/sec F: 1979984338.324 FLOP/sec
R: 1000000 <T>: 0.000876 sec B: 8.501 GB/sec F: 2282016115.598 FLOP/sec
R: 1000000 <T>: 0.001659 sec B: 4.492 GB/sec F: 1205765730.570 FLOP/sec
R: 1000000 <T>: 0.001289 sec B: 5.778 GB/sec F: 1551127087.720 FLOP/sec
R: 1000000 <T>: 0.004866 sec B: 1.531 GB/sec F: 411022978.651 FLOP/sec
R: 1000000 <T>: 0.000898 sec B: 8.299 GB/sec F: 2227876076.621 FLOP/sec
R: 1000000 <T>: 0.000853 sec B: 8.736 GB/sec F: 2345097515.017 FLOP/sec
R: 1000000 <T>: 0.000809 sec B: 9.212 GB/sec F: 2472857300.060 FLOP/sec
R: 1000000 <T>: 0.000763 sec B: 9.760 GB/sec F: 2619810482.910 FLOP/sec
R: 1000000 <T>: 0.000758 sec B: 9.835 GB/sec F: 2640065368.019 FLOP/sec
R: 1000000 <T>: 0.000774 sec B: 9.622 GB/sec F: 2583001525.262 FLOP/sec
R: 1000000 <T>: 0.002874 sec B: 2.592 GB/sec F: 695782375.972 FLOP/sec
R: 1000000 <T>: 0.000909 sec B: 8.197 GB/sec F: 2200389468.936 FLOP/sec
R: 1000000 <T>: 0.000855 sec B: 8.716 GB/sec F: 2339641005.484 FLOP/sec
R: 1000000 <T>: 0.000800 sec B: 9.309 GB/sec F: 2498797453.725 FLOP/sec
R: 1000000 <T>: 0.000792 sec B: 9.408 GB/sec F: 2525558653.574 FLOP/sec
R: 1000000 <T>: 0.000779 sec B: 9.561 GB/sec F: 2566570420.276 FLOP/sec
R: 1000000 <T>: 0.000836 sec B: 8.915 GB/sec F: 2393143166.200 FLOP/sec
R: 1000000 <T>: 0.000763 sec B: 9.771 GB/sec F: 2622792592.185 FLOP/sec
R: 1000000 <T>: 0.000743 sec B: 10.032 GB/sec F: 2692826579.275 FLOP/sec
R: 1000000 <T>: 0.000740 sec B: 10.065 GB/sec F: 2701906735.583 FLOP/sec
R: 1000000 <T>: 0.000713 sec B: 10.446 GB/sec F: 2804160252.150 FLOP/sec
R: 1000000 <T>: 0.000808 sec B: 9.219 GB/sec F: 2474705417.254 FLOP/sec
R: 1000000 <T>: 0.000730 sec B: 10.204 GB/sec F: 2739125671.086 FLOP/sec
R: 1000000 <T>: 0.000762 sec B: 9.774 GB/sec F: 2623762895.795 FLOP/sec
R: 1000000 <T>: 0.000714 sec B: 10.429 GB/sec F: 2799391412.307 FLOP/sec
R: 1000000 <T>: 0.000755 sec B: 9.865 GB/sec F: 2647996525.829 FLOP/sec
R: 1000000 <T>: 0.000748 sec B: 9.964 GB/sec F: 2674590587.046 FLOP/sec
R: 1000000 <T>: 0.000815 sec B: 9.140 GB/sec F: 2453370624.567 FLOP/sec
R: 1000000 <T>: 0.000804 sec B: 9.264 GB/sec F: 2486674532.847 FLOP/sec
R: 1000000 <T>: 0.000887 sec B: 8.400 GB/sec F: 2254913456.422 FLOP/sec
R: 1000000 <T>: 0.000731 sec B: 10.194 GB/sec F: 2736535901.299 FLOP/sec
R: 1000000 <T>: 0.000747 sec B: 9.978 GB/sec F: 2678344247.586 FLOP/sec
R: 1000000 <T>: 0.000780 sec B: 9.555 GB/sec F: 2564839133.290 FLOP/sec
R: 1000000 <T>: 0.000734 sec B: 10.144 GB/sec F: 2722970433.987 FLOP/sec
R: 1000000 <T>: 0.000714 sec B: 10.429 GB/sec F: 2799403167.245 FLOP/sec
R: 1000000 <T>: 0.000763 sec B: 9.770 GB/sec F: 2622644701.143 FLOP/sec
R: 1000000 <T>: 0.000753 sec B: 9.893 GB/sec F: 2655700394.504 FLOP/sec
R: 1000000 <T>: 0.000764 sec B: 9.752 GB/sec F: 2617787341.428 FLOP/sec
R: 1000000 <T>: 0.000739 sec B: 10.080 GB/sec F: 2705763140.200 FLOP/sec
R: 1000000 <T>: 0.000752 sec B: 9.913 GB/sec F: 2661103186.937 FLOP/sec
R: 1000000 <T>: 0.000755 sec B: 9.868 GB/sec F: 2648880318.289 FLOP/sec
R: 1000000 <T>: 0.001013 sec B: 7.356 GB/sec F: 1974577317.043 FLOP/sec
R: 1000000 <T>: 0.001155 sec B: 6.449 GB/sec F: 1731249486.035 FLOP/sec
R: 1000000 <T>: 0.001244 sec B: 5.991 GB/sec F: 1608243211.404 FLOP/sec
R: 1000000 <T>: 0.001233 sec B: 6.043 GB/sec F: 1622086327.434 FLOP/sec
R: 1000000 <T>: 0.000963 sec B: 7.740 GB/sec F: 2077701895.487 FLOP/sec
R: 1000000 <T>: 0.000821 sec B: 9.078 GB/sec F: 2436849056.696 FLOP/sec
R: 1000000 <T>: 0.000920 sec B: 8.094 GB/sec F: 2172812466.729 FLOP/sec
R: 1000000 <T>: 0.000769 sec B: 9.690 GB/sec F: 2601206439.547 FLOP/sec
R: 1000000 <T>: 0.000770 sec B: 9.677 GB/sec F: 2597777082.151 FLOP/sec
R: 1000000 <T>: 0.000775 sec B: 9.616 GB/sec F: 2581351285.771 FLOP/sec
R: 1000000 <T>: 0.000751 sec B: 9.922 GB/sec F: 2663466955.031 FLOP/sec
R: 1000000 <T>: 0.000823 sec B: 9.057 GB/sec F: 2431188255.416 FLOP/sec
R: 1000000 <T>: 0.000730 sec B: 10.207 GB/sec F: 2739819856.844 FLOP/sec
R: 1000000 <T>: 0.000757 sec B: 9.836 GB/sec F: 2640427854.930 FLOP/sec
R: 1000000 <T>: 0.000790 sec B: 9.429 GB/sec F: 2530956764.931 FLOP/sec
R: 1000000 <T>: 0.000764 sec B: 9.750 GB/sec F: 2617314582.892 FLOP/sec
R: 1000000 <T>: 0.000742 sec B: 10.040 GB/sec F: 2695000101.063 FLOP/sec
R: 1000000 <T>: 0.000749 sec B: 9.954 GB/sec F: 2671921445.510 FLOP/sec
R: 1000000 <T>: 0.000728 sec B: 10.231 GB/sec F: 2746475585.205 FLOP/sec
R: 1000000 <T>: 0.000720 sec B: 10.347 GB/sec F: 2777368887.358 FLOP/sec
R: 1000000 <T>: 0.000773 sec B: 9.636 GB/sec F: 2586649525.802 FLOP/sec
R: 1000000 <T>: 0.000705 sec B: 10.572 GB/sec F: 2837978394.470 FLOP/sec
R: 1000000 <T>: 0.000735 sec B: 10.141 GB/sec F: 2722258821.480 FLOP/sec
R: 1000000 <T>: 0.000781 sec B: 9.539 GB/sec F: 2560599794.896 FLOP/sec
R: 1000000 <T>: 0.000766 sec B: 9.729 GB/sec F: 2611593385.356 FLOP/sec
R: 1000000 <T>: 0.000711 sec B: 10.480 GB/sec F: 2813212533.987 FLOP/sec
R: 1000000 <T>: 0.000747 sec B: 9.969 GB/sec F: 2676086491.115 FLOP/sec
R: 1000000 <T>: 0.000771 sec B: 9.658 GB/sec F: 2592537381.148 FLOP/sec
R: 1000000 <T>: 0.000758 sec B: 9.829 GB/sec F: 2638379718.247 FLOP/sec
R: 1000000 <T>: 0.000806 sec B: 9.241 GB/sec F: 2480730922.559 FLOP/sec
R: 1000000 <T>: 0.000840 sec B: 8.869 GB/sec F: 2380793661.375 FLOP/sec
R: 1000000 <T>: 0.001158 sec B: 6.434 GB/sec F: 1727088870.812 FLOP/sec
R: 1000000 <T>: 0.000820 sec B: 9.085 GB/sec F: 2438860808.117 FLOP/sec
R: 1000000 <T>: 0.000852 sec B: 8.740 GB/sec F: 2346082335.760 FLOP/sec
R: 1000000 <T>: 0.000896 sec B: 8.314 GB/sec F: 2231734370.048 FLOP/sec
R: 1000000 <T>: 0.000842 sec B: 8.847 GB/sec F: 2374831535.388 FLOP/sec
R: 1000000 <T>: 0.000738 sec B: 10.092 GB/sec F: 2708933249.176 FLOP/sec
R: 1000000 <T>: 0.000755 sec B: 9.871 GB/sec F: 2649694490.225 FLOP/sec
R: 1000000 <T>: 0.000734 sec B: 10.147 GB/sec F: 2723849343.893 FLOP/sec
R: 1000000 <T>: 0.000817 sec B: 9.117 GB/sec F: 2447312422.680 FLOP/sec
R: 1000000 <T>: 0.000785 sec B: 9.497 GB/sec F: 2549222296.008 FLOP/sec
R: 1000000 <T>: 0.000791 sec B: 9.421 GB/sec F: 2528930970.300 FLOP/sec
R: 1000000 <T>: 0.000771 sec B: 9.662 GB/sec F: 2593640135.025 FLOP/sec
R: 1000000 <T>: 0.000750 sec B: 9.936 GB/sec F: 2667093401.611 FLOP/sec
R: 1000000 <T>: 0.000766 sec B: 9.721 GB/sec F: 2609548861.193 FLOP/sec
R: 1000000 <T>: 0.000750 sec B: 9.937 GB/sec F: 2667559409.883 FLOP/sec
R: 1000000 <T>: 0.000744 sec B: 10.019 GB/sec F: 2689419152.698 FLOP/sec
R: 1000000 <T>: 0.000744 sec B: 10.018 GB/sec F: 2689187717.404 FLOP/sec
R: 1000000 <T>: 0.000710 sec B: 10.494 GB/sec F: 2817048212.372 FLOP/sec
R: 1000000 <T>: 0.004478 sec B: 1.664 GB/sec F: 446666261.689 FLOP/sec
R: 1000000 <T>: 0.001014 sec B: 7.346 GB/sec F: 1971828486.415 FLOP/sec
R: 1000000 <T>: 0.000866 sec B: 8.605 GB/sec F: 2309812893.607 FLOP/sec
R: 1000000 <T>: 0.000813 sec B: 9.167 GB/sec F: 2460766159.544 FLOP/sec
R: 1000000 <T>: 0.000743 sec B: 10.027 GB/sec F: 2691500242.235 FLOP/sec
R: 1000000 <T>: 0.000765 sec B: 9.738 GB/sec F: 2614006631.735 FLOP/sec
```

```
R: 1000000 <T>: 0.000758 sec B: 9.829 GB/sec F: 2638508503.913 FLOP/sec
R: 1000000 <T>: 0.002468 sec B: 3.019 GB/sec F: 810519242.943 FLOP/sec
R: 1000000 <T>: 0.000912 sec B: 8.168 GB/sec F: 2192602597.357 FLOP/sec
R: 1000000 <T>: 0.000842 sec B: 8.852 GB/sec F: 2376307266.035 FLOP/sec
R: 1000000 <T>: 0.000783 sec B: 9.511 GB/sec F: 2553117611.916 FLOP/sec
R: 1000000 <T>: 0.000767 sec B: 9.708 GB/sec F: 2605876773.299 FLOP/sec
R: 1000000 <T>: 0.000761 sec B: 9.786 GB/sec F: 2626988630.393 FLOP/sec
R: 1000000 <T>: 0.000742 sec B: 10.042 GB/sec F: 2695537672.161 FLOP/sec
R: 1000000 <T>: 0.000773 sec B: 9.637 GB/sec F: 2586950644.862 FLOP/sec
R: 1000000 <T>: 0.000739 sec B: 10.080 GB/sec F: 2705938859.311 FLOP/sec
R: 1000000 <T>: 0.000739 sec B: 10.087 GB/sec F: 2707814617.596 FLOP/sec
R: 1000000 <T>: 0.000727 sec B: 10.243 GB/sec F: 2749499934.699 FLOP/sec
R: 1000000 <T>: 0.000723 sec B: 10.311 GB/sec F: 2767848122.638 FLOP/sec
R: 1000000 <T>: 0.000727 sec B: 10.255 GB/sec F: 2752887090.336 FLOP/sec
R: 1000000 <T>: 0.000726 sec B: 10.257 GB/sec F: 2753357030.560 FLOP/sec
R: 1000000 <T>: 0.000715 sec B: 10.417 GB/sec F: 2796365842.951 FLOP/sec
R: 1000000 <T>: 0.000708 sec B: 10.523 GB/sec F: 2824747043.902 FLOP/sec
R: 1000000 <T>: 0.000730 sec B: 10.208 GB/sec F: 2740086367.522 FLOP/sec
R: 1000000 <T>: 0.000732 sec B: 10.175 GB/sec F: 2731352374.501 FLOP/sec
R: 1000000 <T>: 0.000699 sec B: 10.661 GB/sec F: 2861770749.269 FLOP/sec
R: 1000000 <T>: 0.000833 sec B: 8.946 GB/sec F: 2401384157.829 FLOP/sec
R: 1000000 <T>: 0.000783 sec B: 9.515 GB/sec F: 2554056608.111 FLOP/sec
R: 1000000 <T>: 0.000781 sec B: 9.537 GB/sec F: 2559967232.419 FLOP/sec
R: 1000000 <T>: 0.000759 sec B: 9.811 GB/sec F: 2633616534.898 FLOP/sec
R: 1000000 <T>: 0.000750 sec B: 9.931 GB/sec F: 2665788733.577 FLOP/sec
R: 1000000 <T>: 0.000717 sec B: 10.398 GB/sec F: 2791093620.258 FLOP/sec
R: 1000000 <T>: 0.000725 sec B: 10.270 GB/sec F: 2756890503.201 FLOP/sec
R: 1000000 <T>: 0.000746 sec B: 9.988 GB/sec F: 2681241897.622 FLOP/sec
R: 1000000 <T>: 0.000746 sec B: 9.994 GB/sec F: 2682640899.007 FLOP/sec
R: 1000000 <T>: 0.000730 sec B: 10.208 GB/sec F: 2740060089.518 FLOP/sec
R: 1000000 <T>: 0.000732 sec B: 10.177 GB/sec F: 2731829916.269 FLOP/sec
R: 1000000 <T>: 0.000761 sec B: 9.793 GB/sec F: 2628797955.847 FLOP/sec
R: 1000000 <T>: 0.000774 sec B: 9.632 GB/sec F: 2585642958.906 FLOP/sec
R: 1000000 <T>: 0.000736 sec B: 10.119 GB/sec F: 2716291501.539 FLOP/sec
R: 1000000 <T>: 0.000755 sec B: 9.863 GB/sec F: 2647617938.141 FLOP/sec
R: 1000000 <T>: 0.000740 sec B: 10.066 GB/sec F: 2702103858.064 FLOP/sec
R: 1000000 <T>: 0.000759 sec B: 9.818 GB/sec F: 2635414168.514 FLOP/sec
R: 1000000 <T>: 0.000762 sec B: 9.774 GB/sec F: 2623608011.974 FLOP/sec
R: 1000000 <T>: 0.000739 sec B: 10.083 GB/sec F: 2706601672.139 FLOP/sec
R: 1000000 <T>: 0.000764 sec B: 9.751 GB/sec F: 2617485852.489 FLOP/sec
R: 1000000 <T>: 0.000834 sec B: 8.932 GB/sec F: 2397589942.590 FLOP/sec
R: 1000000 <T>: 0.000769 sec B: 9.693 GB/sec F: 2601886627.994 FLOP/sec
R: 1000000 <T>: 0.000723 sec B: 10.309 GB/sec F: 2767350248.301 FLOP/sec
R: 1000000 <T>: 0.000833 sec B: 8.947 GB/sec F: 2401773469.530 FLOP/sec
R: 1000000 <T>: 0.000747 sec B: 9.969 GB/sec F: 2676143783.853 FLOP/sec
R: 1000000 <T>: 0.000777 sec B: 9.588 GB/sec F: 2573793888.012 FLOP/sec
R: 1000000 <T>: 0.000767 sec B: 9.714 GB/sec F: 2607527933.143 FLOP/sec
R: 1000000 <T>: 0.000748 sec B: 9.962 GB/sec F: 2674268721.218 FLOP/sec
R: 1000000 <T>: 0.000729 sec B: 10.225 GB/sec F: 2744658893.793 FLOP/sec
R: 1000000 <T>: 0.000726 sec B: 10.260 GB/sec F: 2754191190.444 FLOP/sec
R: 1000000 <T>: 0.000727 sec B: 10.249 GB/sec F: 2751179224.195 FLOP/sec
R: 1000000 <T>: 0.000700 sec B: 10.645 GB/sec F: 2857510251.318 FLOP/sec
R: 1000000 <T>: 0.000697 sec B: 10.687 GB/sec F: 2868691389.049 FLOP/sec
R: 1000000 <T>: 0.000733 sec B: 10.166 GB/sec F: 2728941102.629 FLOP/sec
R: 1000000 <T>: 0.000722 sec B: 10.318 GB/sec F: 2769653460.959 FLOP/sec
R: 1000000 <T>: 0.000703 sec B: 10.601 GB/sec F: 2845804359.488 FLOP/sec
R: 1000000 <T>: 0.000705 sec B: 10.568 GB/sec F: 2836935768.937 FLOP/sec
R: 1000000 <T>: 0.000704 sec B: 10.578 GB/sec F: 2839642545.796 FLOP/sec
R: 1000000 <T>: 0.000719 sec B: 10.369 GB/sec F: 2783325099.330 FLOP/sec
R: 1000000 <T>: 0.000699 sec B: 10.658 GB/sec F: 2861103441.764 FLOP/sec
R: 1000000 <T>: 0.000774 sec B: 9.630 GB/sec F: 2585128274.065 FLOP/sec
R: 1000000 <T>: 0.001161 sec B: 6.416 GB/sec F: 1722259777.053 FLOP/sec
R: 1000000 <T>: 0.000851 sec B: 8.751 GB/sec F: 2349044526.139 FLOP/sec
R: 1000000 <T>: 0.000781 sec B: 9.539 GB/sec F: 2560635857.096 FLOP/sec
R: 1000000 <T>: 0.000771 sec B: 9.669 GB/sec F: 2595464425.916 FLOP/sec
R: 1000000 <T>: 0.000696 sec B: 10.705 GB/sec F: 2873493032.498 FLOP/sec
R: 1000000 <T>: 0.000697 sec B: 10.688 GB/sec F: 2868958869.171 FLOP/sec
R: 1000000 <T>: 0.000723 sec B: 10.309 GB/sec F: 2767434491.366 FLOP/sec
R: 1000000 <T>: 0.000697 sec B: 10.689 GB/sec F: 2869230515.414 FLOP/sec
R: 1000000 <T>: 0.000688 sec B: 10.823 GB/sec F: 2905198998.868 FLOP/sec
R: 1000000 <T>: 0.000707 sec B: 10.541 GB/sec F: 2829710831.850 FLOP/sec
R: 1000000 <T>: 0.000706 sec B: 10.546 GB/sec F: 2831008603.435 FLOP/sec
R: 1000000 <T>: 0.000727 sec B: 10.244 GB/sec F: 2749753209.649 FLOP/sec
R: 1000000 <T>: 0.000711 sec B: 10.473 GB/sec F: 2811270947.483 FLOP/sec
R: 1000000 <T>: 0.000748 sec B: 9.966 GB/sec F: 2675273914.608 FLOP/sec
R: 1000000 <T>: 0.000741 sec B: 10.054 GB/sec F: 2698905998.454 FLOP/sec
R: 1000000 <T>: 0.000702 sec B: 10.619 GB/sec F: 2850480876.124 FLOP/sec
R: 1000000 <T>: 0.000695 sec B: 10.727 GB/sec F: 2879549868.765 FLOP/sec
R: 1000000 <T>: 0.000700 sec B: 10.651 GB/sec F: 2859160607.629 FLOP/sec
R: 1000000 <T>: 0.001030 sec B: 7.232 GB/sec F: 1941445988.973 FLOP/sec
R: 1000000 <T>: 0.001039 sec B: 7.171 GB/sec F: 1925029717.646 FLOP/sec
R: 1000000 <T>: 0.000823 sec B: 9.051 GB/sec F: 2429575711.046 FLOP/sec
R: 1000000 <T>: 0.000767 sec B: 9.715 GB/sec F: 2607881539.589 FLOP/sec
R: 1000000 <T>: 0.000730 sec B: 10.205 GB/sec F: 2739448329.895 FLOP/sec
R: 1000000 <T>: 0.000726 sec B: 10.257 GB/sec F: 2753269852.108 FLOP/sec
R: 1000000 <T>: 0.000743 sec B: 10.033 GB/sec F: 2693094904.664 FLOP/sec
R: 1000000 <T>: 0.000824 sec B: 9.043 GB/sec F: 2427384784.181 FLOP/sec
R: 1000000 <T>: 0.000722 sec B: 10.316 GB/sec F: 2769097426.539 FLOP/sec
R: 1000000 <T>: 0.000785 sec B: 9.493 GB/sec F: 2548384260.669 FLOP/sec
R: 1000000 <T>: 0.000760 sec B: 9.802 GB/sec F: 2631211962.542 FLOP/sec
R: 1000000 <T>: 0.000837 sec B: 8.905 GB/sec F: 2390348727.976 FLOP/sec
R: 1000000 <T>: 0.000917 sec B: 8.122 GB/sec F: 2180266624.806 FLOP/sec
R: 1000000 <T>: 0.001270 sec B: 5.867 GB/sec F: 1574933360.632 FLOP/sec
R: 1000000 <T>: 0.001200 sec B: 6.208 GB/sec F: 1666340341.683 FLOP/sec
R: 1000000 <T>: 0.001164 sec B: 6.403 GB/sec F: 1718811098.363 FLOP/sec
R: 1000000 <T>: 0.000941 sec B: 7.918 GB/sec F: 2125362374.285 FLOP/sec
R: 1000000 <T>: 0.000833 sec B: 8.948 GB/sec F: 2401848462.577 FLOP/sec
R: 1000000 <T>: 0.000785 sec B: 9.487 GB/sec F: 2546625530.176 FLOP/sec
R: 1000000 <T>: 0.000812 sec B: 9.173 GB/sec F: 2462299122.560 FLOP/sec
R: 1000000 <T>: 0.000765 sec B: 9.734 GB/sec F: 2612900149.327 FLOP/sec
```

```
R: 1000000 <T>: 0.000734 sec B: 10.149 GB/sec F: 2724242626.497 FLOP/sec
R: 1000000 <T>: 0.000748 sec B: 9.956 GB/sec F: 2672671268.116 FLOP/sec
R: 1000000 <T>: 0.000716 sec B: 10.410 GB/sec F: 2794506001.202 FLOP/sec
R: 1000000 <T>: 0.000732 sec B: 10.176 GB/sec F: 2731572470.666 FLOP/sec
R: 1000000 <T>: 0.000747 sec B: 9.975 GB/sec F: 2677630671.724 FLOP/sec
R: 1000000 <T>: 0.000777 sec B: 9.583 GB/sec F: 2572453142.766 FLOP/sec
R: 1000000 <T>: 0.001998 sec B: 3.729 GB/sec F: 1000928861.984 FLOP/sec
R: 1000000 <T>: 0.000939 sec B: 7.935 GB/sec F: 2130159112.235 FLOP/sec
R: 1000000 <T>: 0.000845 sec B: 8.813 GB/sec F: 2365702051.655 FLOP/sec
R: 1000000 <T>: 0.000794 sec B: 9.387 GB/sec F: 2519748529.097 FLOP/sec
R: 1000000 <T>: 0.000796 sec B: 9.362 GB/sec F: 2513191111.848 FLOP/sec
R: 1000000 <T>: 0.002995 sec B: 2.487 GB/sec F: 667706731.185 FLOP/sec
R: 1000000 <T>: 0.001227 sec B: 6.071 GB/sec F: 1629694334.531 FLOP/sec
R: 1000000 <T>: 0.000954 sec B: 7.812 GB/sec F: 2097029557.632 FLOP/sec
R: 1000000 <T>: 0.000962 sec B: 7.741 GB/sec F: 2077989005.360 FLOP/sec
R: 1000000 <T>: 0.000875 sec B: 8.515 GB/sec F: 2285651593.556 FLOP/sec
R: 1000000 <T>: 0.000784 sec B: 9.501 GB/sec F: 2550519413.279 FLOP/sec
R: 1000000 <T>: 0.000772 sec B: 9.657 GB/sec F: 2592228240.512 FLOP/sec
R: 1000000 <T>: 0.000752 sec B: 9.910 GB/sec F: 2660087383.871 FLOP/sec
R: 1000000 <T>: 0.000744 sec B: 10.013 GB/sec F: 2687738536.795 FLOP/sec
R: 1000000 <T>: 0.000835 sec B: 8.919 GB/sec F: 2394105711.738 FLOP/sec
R: 1000000 <T>: 0.000917 sec B: 8.121 GB/sec F: 2179891158.034 FLOP/sec
R: 1000000 <T>: 0.000798 sec B: 9.336 GB/sec F: 2506190290.016 FLOP/sec
R: 1000000 <T>: 0.000754 sec B: 9.881 GB/sec F: 2652329939.235 FLOP/sec
R: 1000000 <T>: 0.000782 sec B: 9.529 GB/sec F: 2557956908.658 FLOP/sec
R: 1000000 <T>: 0.000795 sec B: 9.371 GB/sec F: 2515425849.019 FLOP/sec
R: 1000000 <T>: 0.000733 sec B: 10.170 GB/sec F: 2729905845.547 FLOP/sec
R: 1000000 <T>: 0.000827 sec B: 9.009 GB/sec F: 2418388458.483 FLOP/sec
R: 1000000 <T>: 0.000811 sec B: 9.183 GB/sec F: 2465079073.574 FLOP/sec
R: 1000000 <T>: 0.000819 sec B: 9.097 GB/sec F: 2441880198.916 FLOP/sec
R: 1000000 <T>: 0.000793 sec B: 9.392 GB/sec F: 2521152469.217 FLOP/sec
R: 1000000 <T>: 0.000784 sec B: 9.499 GB/sec F: 2549742284.799 FLOP/sec
R: 1000000 <T>: 0.000720 sec B: 10.353 GB/sec F: 2779055371.289 FLOP/sec
R: 1000000 <T>: 0.000675 sec B: 11.037 GB/sec F: 2962611838.597 FLOP/sec
R: 1000000 <T>: 0.000704 sec B: 10.581 GB/sec F: 2840445097.747 FLOP/sec
R: 1000000 <T>: 0.000725 sec B: 10.277 GB/sec F: 2758696791.636 FLOP/sec
R: 1000000 <T>: 0.000734 sec B: 10.153 GB/sec F: 2725516008.318 FLOP/sec
R: 1000000 <T>: 0.000726 sec B: 10.258 GB/sec F: 2753485913.166 FLOP/sec
R: 1000000 <T>: 0.000785 sec B: 9.494 GB/sec F: 2548640809.856 FLOP/sec
R: 1000000 <T>: 0.000773 sec B: 9.642 GB/sec F: 2588132377.795 FLOP/sec
R: 1000000 <T>: 0.000728 sec B: 10.239 GB/sec F: 2748475970.075 FLOP/sec
R: 1000000 <T>: 0.000746 sec B: 9.988 GB/sec F: 2681011867.499 FLOP/sec
R: 1000000 <T>: 0.000749 sec B: 9.949 GB/sec F: 2670768967.801 FLOP/sec
R: 1000000 <T>: 0.000755 sec B: 9.869 GB/sec F: 2649311907.465 FLOP/sec
R: 1000000 <T>: 0.000715 sec B: 10.421 GB/sec F: 2797363205.443 FLOP/sec
R: 1000000 <T>: 0.000748 sec B: 9.958 GB/sec F: 2673042764.675 FLOP/sec
R: 1000000 <T>: 0.000780 sec B: 9.554 GB/sec F: 2564720727.560 FLOP/sec
R: 1000000 <T>: 0.000742 sec B: 10.044 GB/sec F: 2696188129.223 FLOP/sec
R: 1000000 <T>: 0.000810 sec B: 9.202 GB/sec F: 2470071990.248 FLOP/sec
R: 1000000 <T>: 0.000769 sec B: 9.686 GB/sec F: 2599972180.298 FLOP/sec
R: 1000000 <T>: 0.000756 sec B: 9.856 GB/sec F: 2645593631.527 FLOP/sec
R: 1000000 <T>: 0.000866 sec B: 8.602 GB/sec F: 2309004888.163 FLOP/sec
R: 1000000 <T>: 0.000805 sec B: 9.251 GB/sec F: 2483293642.023 FLOP/sec
R: 1000000 <T>: 0.000837 sec B: 8.903 GB/sec F: 2389971678.836 FLOP/sec
R: 1000000 <T>: 0.000782 sec B: 9.525 GB/sec F: 2556831982.900 FLOP/sec
R: 1000000 <T>: 0.000754 sec B: 9.876 GB/sec F: 2651008045.809 FLOP/sec
R: 1000000 <T>: 0.000735 sec B: 10.143 GB/sec F: 2722822150.703 FLOP/sec
R: 1000000 <T>: 0.000748 sec B: 9.961 GB/sec F: 2673896883.841 FLOP/sec
R: 1000000 <T>: 0.000763 sec B: 9.763 GB/sec F: 2620795752.214 FLOP/sec
R: 1000000 <T>: 0.000779 sec B: 9.566 GB/sec F: 2567723712.928 FLOP/sec
R: 1000000 <T>: 0.001062 sec B: 7.018 GB/sec F: 1883790827.634 FLOP/sec
R: 1000000 <T>: 0.000867 sec B: 8.592 GB/sec F: 2306509777.872 FLOP/sec
R: 1000000 <T>: 0.000854 sec B: 8.725 GB/sec F: 2342035556.784 FLOP/sec
R: 1000000 <T>: 0.000856 sec B: 8.708 GB/sec F: 2337412507.728 FLOP/sec
R: 1000000 <T>: 0.000781 sec B: 9.546 GB/sec F: 2562381169.573 FLOP/sec
R: 1000000 <T>: 0.000744 sec B: 10.018 GB/sec F: 2689238340.471 FLOP/sec
R: 1000000 <T>: 0.000871 sec B: 8.552 GB/sec F: 2295781616.070 FLOP/sec
R: 1000000 <T>: 0.000738 sec B: 10.102 GB/sec F: 2711607033.909 FLOP/sec
R: 1000000 <T>: 0.000733 sec B: 10.167 GB/sec F: 2729071433.445 FLOP/sec
R: 1000000 <T>: 0.000769 sec B: 9.693 GB/sec F: 2602022031.321 FLOP/sec
R: 1000000 <T>: 0.000845 sec B: 8.816 GB/sec F: 2366505428.763 FLOP/sec
R: 1000000 <T>: 0.000767 sec B: 9.709 GB/sec F: 2606243516.969 FLOP/sec
R: 1000000 <T>: 0.000744 sec B: 10.017 GB/sec F: 2688840639.137 FLOP/sec
R: 1000000 <T>: 0.000711 sec B: 10.476 GB/sec F: 2812223611.148 FLOP/sec
R: 1000000 <T>: 0.000728 sec B: 10.236 GB/sec F: 2747683016.297 FLOP/sec
R: 1000000 <T>: 0.000736 sec B: 10.122 GB/sec F: 2717036908.229 FLOP/sec
R: 1000000 <T>: 0.000725 sec B: 10.276 GB/sec F: 2758506544.557 FLOP/sec
R: 1000000 <T>: 0.000831 sec B: 8.965 GB/sec F: 2406643298.160 FLOP/sec
R: 1000000 <T>: 0.000809 sec B: 9.213 GB/sec F: 2473147797.786 FLOP/sec
R: 1000000 <T>: 0.000813 sec B: 9.165 GB/sec F: 2460109327.259 FLOP/sec
R: 1000000 <T>: 0.000742 sec B: 10.035 GB/sec F: 2693682506.418 FLOP/sec
R: 1000000 <T>: 0.000997 sec B: 7.472 GB/sec F: 2005722325.795 FLOP/sec
R: 1000000 <T>: 0.000791 sec B: 9.424 GB/sec F: 2529826656.278 FLOP/sec
R: 1000000 <T>: 0.000755 sec B: 9.869 GB/sec F: 2649171537.831 FLOP/sec
R: 1000000 <T>: 0.000787 sec B: 9.463 GB/sec F: 2540214775.159 FLOP/sec
R: 1000000 <T>: 0.000760 sec B: 9.810 GB/sec F: 2633238580.632 FLOP/sec
R: 1000000 <T>: 0.001101 sec B: 6.767 GB/sec F: 1816540326.287 FLOP/sec
R: 1000000 <T>: 0.001350 sec B: 5.518 GB/sec F: 1481270811.855 FLOP/sec
R: 1000000 <T>: 0.000964 sec B: 7.726 GB/sec F: 2074028291.820 FLOP/sec
R: 1000000 <T>: 0.001273 sec B: 5.851 GB/sec F: 1570514531.971 FLOP/sec
R: 1000000 <T>: 0.001020 sec B: 7.303 GB/sec F: 1960390313.711 FLOP/sec
R: 1000000 <T>: 0.000839 sec B: 8.875 GB/sec F: 2382395999.481 FLOP/sec
R: 1000000 <T>: 0.000862 sec B: 8.643 GB/sec F: 2320018745.751 FLOP/sec
R: 1000000 <T>: 0.000893 sec B: 8.347 GB/sec F: 2240625224.063 FLOP/sec
R: 1000000 <T>: 0.000920 sec B: 8.101 GB/sec F: 2174648169.109 FLOP/sec
R: 1000000 <T>: 0.000817 sec B: 9.123 GB/sec F: 2448942607.806 FLOP/sec
R: 1000000 <T>: 0.000780 sec B: 9.550 GB/sec F: 2563622706.519 FLOP/sec
R: 1000000 <T>: 0.000757 sec B: 9.837 GB/sec F: 2640508033.746 FLOP/sec
R: 1000000 <T>: 0.000725 sec B: 10.278 GB/sec F: 2759107814.897 FLOP/sec
R: 1000000 <T>: 0.000726 sec B: 10.256 GB/sec F: 2753038666.428 FLOP/sec
```

```
R: 1000000 <T>: 0.000713 sec B: 10.444 GB/sec F: 2803425224.940 FLOP/sec
R: 1000000 <T>: 0.000744 sec B: 10.011 GB/sec F: 2687373777.413 FLOP/sec
R: 1000000 <T>: 0.000768 sec B: 9.697 GB/sec F: 2602960086.210 FLOP/sec
R: 1000000 <T>: 0.000747 sec B: 9.977 GB/sec F: 2678068095.237 FLOP/sec
R: 1000000 <T>: 0.000720 sec B: 10.346 GB/sec F: 2777114356.015 FLOP/sec
R: 1000000 <T>: 0.000724 sec B: 10.290 GB/sec F: 2762186768.021 FLOP/sec
R: 1000000 <T>: 0.000722 sec B: 10.316 GB/sec F: 2769273799.485 FLOP/sec
R: 1000000 <T>: 0.000719 sec B: 10.369 GB/sec F: 2783383202.282 FLOP/sec
R: 1000000 <T>: 0.000702 sec B: 10.609 GB/sec F: 2847911555.259 FLOP/sec
R: 1000000 <T>: 0.000692 sec B: 10.766 GB/sec F: 2889860203.013 FLOP/sec
R: 1000000 <T>: 0.000724 sec B: 10.286 GB/sec F: 2761061849.166 FLOP/sec
R: 1000000 <T>: 0.000730 sec B: 10.204 GB/sec F: 2739193198.035 FLOP/sec
R: 1000000 <T>: 0.000703 sec B: 10.603 GB/sec F: 2846180994.342 FLOP/sec
R: 1000000 <T>: 0.000742 sec B: 10.045 GB/sec F: 2696457124.983 FLOP/sec
R: 1000000 <T>: 0.000811 sec B: 9.185 GB/sec F: 2465653447.477 FLOP/sec
R: 1000000 <T>: 0.000743 sec B: 10.025 GB/sec F: 2691080145.749 FLOP/sec
R: 1000000 <T>: 0.000759 sec B: 9.818 GB/sec F: 2635386387.175 FLOP/sec
R: 1000000 <T>: 0.000730 sec B: 10.205 GB/sec F: 2739437073.076 FLOP/sec
R: 1000000 <T>: 0.000792 sec B: 9.408 GB/sec F: 2525319484.481 FLOP/sec
R: 1000000 <T>: 0.000776 sec B: 9.606 GB/sec F: 2578678710.815 FLOP/sec
R: 1000000 <T>: 0.000780 sec B: 9.554 GB/sec F: 2564592467.023 FLOP/sec
R: 1000000 <T>: 0.000741 sec B: 10.056 GB/sec F: 2699328542.025 FLOP/sec
R: 1000000 <T>: 0.000746 sec B: 9.987 GB/sec F: 2680911241.731 FLOP/sec
R: 1000000 <T>: 0.000744 sec B: 10.010 GB/sec F: 2686926089.381 FLOP/sec
R: 1000000 <T>: 0.000919 sec B: 8.103 GB/sec F: 2175142471.832 FLOP/sec
R: 1000000 <T>: 0.000808 sec B: 9.220 GB/sec F: 2475079047.837 FLOP/sec
R: 1000000 <T>: 0.000751 sec B: 9.921 GB/sec F: 2663055563.323 FLOP/sec
R: 1000000 <T>: 0.000734 sec B: 10.148 GB/sec F: 2724120177.286 FLOP/sec
R: 1000000 <T>: 0.000729 sec B: 10.218 GB/sec F: 2743002600.366 FLOP/sec
R: 1000000 <T>: 0.000718 sec B: 10.383 GB/sec F: 2787071888.339 FLOP/sec
R: 1000000 <T>: 0.000706 sec B: 10.548 GB/sec F: 2831485553.053 FLOP/sec
R: 1000000 <T>: 0.008570 sec B: 0.869 GB/sec F: 233380234.981 FLOP/sec
R: 1000000 <T>: 0.000869 sec B: 8.578 GB/sec F: 2302759972.966 FLOP/sec
R: 1000000 <T>: 0.000826 sec B: 9.016 GB/sec F: 2420249745.571 FLOP/sec
R: 1000000 <T>: 0.000771 sec B: 9.659 GB/sec F: 2592732312.056 FLOP/sec
R: 1000000 <T>: 0.000788 sec B: 9.457 GB/sec F: 2538725077.653 FLOP/sec
R: 1000000 <T>: 0.000794 sec B: 9.387 GB/sec F: 2519888217.759 FLOP/sec
R: 1000000 <T>: 0.000840 sec B: 8.865 GB/sec F: 2379728520.570 FLOP/sec
R: 1000000 <T>: 0.000724 sec B: 10.290 GB/sec F: 2762114288.003 FLOP/sec
R: 1000000 <T>: 0.003067 sec B: 2.430 GB/sec F: 652202553.243 FLOP/sec
R: 1000000 <T>: 0.000910 sec B: 8.188 GB/sec F: 2197944701.909 FLOP/sec
R: 1000000 <T>: 0.000866 sec B: 8.606 GB/sec F: 2310287827.209 FLOP/sec
R: 1000000 <T>: 0.000834 sec B: 8.938 GB/sec F: 2399396311.888 FLOP/sec
R: 1000000 <T>: 0.000749 sec B: 9.947 GB/sec F: 2670234099.423 FLOP/sec
R: 1000000 <T>: 0.000734 sec B: 10.156 GB/sec F: 2726207028.162 FLOP/sec
R: 1000000 <T>: 0.000723 sec B: 10.303 GB/sec F: 2765674112.322 FLOP/sec
R: 1000000 <T>: 0.000725 sec B: 10.275 GB/sec F: 2758213615.370 FLOP/sec
R: 1000000 <T>: 0.000700 sec B: 10.649 GB/sec F: 2858613000.972 FLOP/sec
R: 1000000 <T>: 0.001166 sec B: 6.390 GB/sec F: 1715277634.838 FLOP/sec
R: 1000000 <T>: 0.000758 sec B: 9.827 GB/sec F: 2637868180.451 FLOP/sec
R: 1000000 <T>: 0.000758 sec B: 9.825 GB/sec F: 2637471614.212 FLOP/sec
R: 1000000 <T>: 0.000746 sec B: 9.993 GB/sec F: 2682403433.476 FLOP/sec
R: 1000000 <T>: 0.000808 sec B: 9.224 GB/sec F: 2475979899.995 FLOP/sec
R: 1000000 <T>: 0.000761 sec B: 9.792 GB/sec F: 2628583745.364 FLOP/sec
R: 1000000 <T>: 0.000730 sec B: 10.207 GB/sec F: 2739804843.701 FLOP/sec
R: 1000000 <T>: 0.000784 sec B: 9.498 GB/sec F: 2549466014.343 FLOP/sec
R: 1000000 <T>: 0.000781 sec B: 9.535 GB/sec F: 2559521676.589 FLOP/sec
R: 1000000 <T>: 0.000761 sec B: 9.790 GB/sec F: 2627917152.284 FLOP/sec
R: 1000000 <T>: 0.000707 sec B: 10.538 GB/sec F: 2828870318.927 FLOP/sec
R: 1000000 <T>: 0.000882 sec B: 8.448 GB/sec F: 2267722820.775 FLOP/sec
R: 1000000 <T>: 0.000829 sec B: 8.989 GB/sec F: 2413063359.805 FLOP/sec
R: 1000000 <T>: 0.000754 sec B: 9.887 GB/sec F: 2653966552.060 FLOP/sec
R: 1000000 <T>: 0.000786 sec B: 9.484 GB/sec F: 2545918828.470 FLOP/sec
R: 1000000 <T>: 0.000691 sec B: 10.782 GB/sec F: 2894150776.573 FLOP/sec
R: 1000000 <T>: 0.000715 sec B: 10.426 GB/sec F: 2798752875.719 FLOP/sec
R: 1000000 <T>: 0.000844 sec B: 8.826 GB/sec F: 2369286465.688 FLOP/sec
R: 1000000 <T>: 0.000727 sec B: 10.243 GB/sec F: 2749549073.952 FLOP/sec
R: 1000000 <T>: 0.000715 sec B: 10.417 GB/sec F: 2796401031.872 FLOP/sec
R: 1000000 <T>: 0.000702 sec B: 10.613 GB/sec F: 2848804000.860 FLOP/sec
R: 1000000 <T>: 0.000722 sec B: 10.322 GB/sec F: 2770823779.764 FLOP/sec
R: 1000000 <T>: 0.000711 sec B: 10.482 GB/sec F: 2813691422.462 FLOP/sec
R: 1000000 <T>: 0.000716 sec B: 10.411 GB/sec F: 2794666100.281 FLOP/sec
R: 1000000 <T>: 0.000726 sec B: 10.258 GB/sec F: 2753576896.388 FLOP/sec
R: 1000000 <T>: 0.000774 sec B: 9.631 GB/sec F: 2585278647.796 FLOP/sec
R: 1000000 <T>: 0.000774 sec B: 9.620 GB/sec F: 2582461214.661 FLOP/sec
R: 1000000 <T>: 0.000760 sec B: 9.804 GB/sec F: 2631859448.178 FLOP/sec
R: 1000000 <T>: 0.000726 sec B: 10.265 GB/sec F: 2755576252.995 FLOP/sec
R: 1000000 <T>: 0.000763 sec B: 9.768 GB/sec F: 2622067054.121 FLOP/sec
R: 1000000 <T>: 0.000733 sec B: 10.166 GB/sec F: 2728929931.995 FLOP/sec
R: 1000000 <T>: 0.000773 sec B: 9.643 GB/sec F: 2588487443.247 FLOP/sec
R: 1000000 <T>: 0.000741 sec B: 10.060 GB/sec F: 2700363603.959 FLOP/sec
R: 1000000 <T>: 0.000775 sec B: 9.615 GB/sec F: 2581058130.591 FLOP/sec
R: 1000000 <T>: 0.000710 sec B: 10.497 GB/sec F: 2817853922.453 FLOP/sec
R: 1000000 <T>: 0.000700 sec B: 10.647 GB/sec F: 2858061519.774 FLOP/sec
R: 1000000 <T>: 0.000709 sec B: 10.506 GB/sec F: 2820102820.949 FLOP/sec
R: 1000000 <T>: 0.000706 sec B: 10.547 GB/sec F: 2831176920.246 FLOP/sec
R: 1000000 <T>: 0.000710 sec B: 10.492 GB/sec F: 2816298482.578 FLOP/sec
R: 1000000 <T>: 0.000712 sec B: 10.467 GB/sec F: 2809821449.896 FLOP/sec
R: 1000000 <T>: 0.000688 sec B: 10.834 GB/sec F: 2908211043.059 FLOP/sec
R: 1000000 <T>: 0.000699 sec B: 10.661 GB/sec F: 2861725706.453 FLOP/sec
R: 1000000 <T>: 0.000709 sec B: 10.504 GB/sec F: 2819526347.769 FLOP/sec
R: 1000000 <T>: 0.000691 sec B: 10.782 GB/sec F: 2894326685.547 FLOP/sec
R: 1000000 <T>: 0.000688 sec B: 10.830 GB/sec F: 2907242959.748 FLOP/sec
R: 1000000 <T>: 0.000692 sec B: 10.774 GB/sec F: 2892116812.598 FLOP/sec
R: 1000000 <T>: 0.000703 sec B: 10.601 GB/sec F: 2845715277.649 FLOP/sec
R: 1000000 <T>: 0.000662 sec B: 11.248 GB/sec F: 3019278090.609 FLOP/sec
R: 1000000 <T>: 0.000713 sec B: 10.447 GB/sec F: 2804317527.265 FLOP/sec
R: 1000000 <T>: 0.000682 sec B: 10.927 GB/sec F: 2933278187.703 FLOP/sec
R: 1000000 <T>: 0.000673 sec B: 11.064 GB/sec F: 2969870662.133 FLOP/sec
R: 1000000 <T>: 0.000687 sec B: 10.853 GB/sec F: 2913311502.919 FLOP/sec
```

```
R: 1000000 <T>: 0.000694 sec B: 10.735 GB/sec F: 2881782094.047 FLOP/sec
R: 1000000 <T>: 0.000915 sec B: 8.147 GB/sec F: 2186870249.708 FLOP/sec
R: 1000000 <T>: 0.000730 sec B: 10.206 GB/sec F: 2739598429.662 FLOP/sec
R: 1000000 <T>: 0.000684 sec B: 10.894 GB/sec F: 2924224568.750 FLOP/sec
R: 1000000 <T>: 0.000812 sec B: 9.180 GB/sec F: 2464365278.079 FLOP/sec
R: 1000000 <T>: 0.000711 sec B: 10.480 GB/sec F: 2813153179.004 FLOP/sec
R: 1000000 <T>: 0.000738 sec B: 10.089 GB/sec F: 2708265626.693 FLOP/sec
R: 1000000 <T>: 0.000691 sec B: 10.777 GB/sec F: 2892836324.767 FLOP/sec
R: 1000000 <T>: 0.000723 sec B: 10.304 GB/sec F: 2765915075.344 FLOP/sec
R: 1000000 <T>: 0.000715 sec B: 10.427 GB/sec F: 2798948714.863 FLOP/sec
R: 1000000 <T>: 0.000730 sec B: 10.208 GB/sec F: 2740146433.425 FLOP/sec
R: 1000000 <T>: 0.000705 sec B: 10.568 GB/sec F: 2836935768.937 FLOP/sec
R: 1000000 <T>: 0.000731 sec B: 10.194 GB/sec F: 2736446040.705 FLOP/sec
R: 1000000 <T>: 0.000711 sec B: 10.481 GB/sec F: 2813347081.223 FLOP/sec
R: 1000000 <T>: 0.000719 sec B: 10.365 GB/sec F: 2782430620.092 FLOP/sec
R: 1000000 <T>: 0.000703 sec B: 10.595 GB/sec F: 2844039958.761 FLOP/sec
R: 1000000 <T>: 0.000734 sec B: 10.146 GB/sec F: 2723641617.789 FLOP/sec
R: 1000000 <T>: 0.000749 sec B: 9.952 GB/sec F: 2671414660.991 FLOP/sec
R: 1000000 <T>: 0.000730 sec B: 10.207 GB/sec F: 2739823610.156 FLOP/sec
R: 1000000 <T>: 0.000737 sec B: 10.106 GB/sec F: 2712703045.823 FLOP/sec
R: 1000000 <T>: 0.000725 sec B: 10.273 GB/sec F: 2757669769.045 FLOP/sec
R: 1000000 <T>: 0.000738 sec B: 10.093 GB/sec F: 2709289204.431 FLOP/sec
R: 1000000 <T>: 0.000726 sec B: 10.257 GB/sec F: 2753273642.361 FLOP/sec
R: 1000000 <T>: 0.000722 sec B: 10.324 GB/sec F: 2771349785.913 FLOP/sec
R: 1000000 <T>: 0.000696 sec B: 10.710 GB/sec F: 2874934595.238 FLOP/sec
R: 1000000 <T>: 0.000698 sec B: 10.668 GB/sec F: 2863704832.216 FLOP/sec
R: 1000000 <T>: 0.000721 sec B: 10.330 GB/sec F: 2772929003.312 FLOP/sec
R: 1000000 <T>: 0.000701 sec B: 10.632 GB/sec F: 2853995308.032 FLOP/sec
R: 1000000 <T>: 0.000736 sec B: 10.121 GB/sec F: 2716797005.003 FLOP/sec
R: 1000000 <T>: 0.000751 sec B: 9.925 GB/sec F: 2664318513.950 FLOP/sec
R: 1000000 <T>: 0.000725 sec B: 10.278 GB/sec F: 2758898482.192 FLOP/sec
R: 1000000 <T>: 0.000705 sec B: 10.562 GB/sec F: 2835270768.358 FLOP/sec
R: 1000000 <T>: 0.000703 sec B: 10.594 GB/sec F: 2843764974.200 FLOP/sec
R: 1000000 <T>: 0.000792 sec B: 9.410 GB/sec F: 2525864856.127 FLOP/sec
R: 1000000 <T>: 0.000742 sec B: 10.042 GB/sec F: 2695617599.687 FLOP/sec
R: 1000000 <T>: 0.000689 sec B: 10.811 GB/sec F: 2902176342.039 FLOP/sec
R: 1000000 <T>: 0.000691 sec B: 10.789 GB/sec F: 2896154052.226 FLOP/sec
R: 1000000 <T>: 0.000669 sec B: 11.129 GB/sec F: 2987379813.976 FLOP/sec
R: 1000000 <T>: 0.000668 sec B: 11.153 GB/sec F: 2993805815.767 FLOP/sec
R: 1000000 <T>: 0.000666 sec B: 11.185 GB/sec F: 3002480048.520 FLOP/sec
R: 1000000 <T>: 0.000689 sec B: 10.809 GB/sec F: 2901637393.981 FLOP/sec
R: 1000000 <T>: 0.000702 sec B: 10.613 GB/sec F: 2848946032.415 FLOP/sec
R: 1000000 <T>: 0.000697 sec B: 10.693 GB/sec F: 2870272302.733 FLOP/sec
R: 1000000 <T>: 0.000689 sec B: 10.814 GB/sec F: 2902943003.617 FLOP/sec
R: 1000000 <T>: 0.000688 sec B: 10.832 GB/sec F: 2907754399.432 FLOP/sec
R: 1000000 <T>: 0.000664 sec B: 11.217 GB/sec F: 3010959894.014 FLOP/sec
R: 1000000 <T>: 0.000674 sec B: 11.062 GB/sec F: 2969350365.527 FLOP/sec
R: 1000000 <T>: 0.000659 sec B: 11.305 GB/sec F: 3034657303.737 FLOP/sec
R: 1000000 <T>: 0.000650 sec B: 11.458 GB/sec F: 3075863087.182 FLOP/sec
R: 1000000 <T>: 0.000670 sec B: 11.118 GB/sec F: 2984384209.623 FLOP/sec
R: 1000000 <T>: 0.001042 sec B: 7.151 GB/sec F: 1919665824.573 FLOP/sec
R: 1000000 <T>: 0.002313 sec B: 3.222 GB/sec F: 864821483.549 FLOP/sec
R: 1000000 <T>: 0.000932 sec B: 7.997 GB/sec F: 2146708184.003 FLOP/sec
R: 1000000 <T>: 0.001312 sec B: 5.677 GB/sec F: 1523911698.461 FLOP/sec
R: 1000000 <T>: 0.000832 sec B: 8.954 GB/sec F: 2403444616.825 FLOP/sec
R: 1000000 <T>: 0.000754 sec B: 9.875 GB/sec F: 2650832361.361 FLOP/sec
R: 1000000 <T>: 0.000730 sec B: 10.203 GB/sec F: 2738866848.619 FLOP/sec
R: 1000000 <T>: 0.000714 sec B: 10.439 GB/sec F: 2802274325.843 FLOP/sec
R: 1000000 <T>: 0.001026 sec B: 7.260 GB/sec F: 1948846672.539 FLOP/sec
R: 1000000 <T>: 0.000742 sec B: 10.043 GB/sec F: 2695940991.244 FLOP/sec
R: 1000000 <T>: 0.000734 sec B: 10.152 GB/sec F: 2725270891.927 FLOP/sec
R: 1000000 <T>: 0.000712 sec B: 10.464 GB/sec F: 2809036107.350 FLOP/sec
R: 1000000 <T>: 0.000708 sec B: 10.518 GB/sec F: 2823331446.407 FLOP/sec
R: 1000000 <T>: 0.000724 sec B: 10.297 GB/sec F: 2764145167.376 FLOP/sec
R: 1000000 <T>: 0.000721 sec B: 10.338 GB/sec F: 2775195304.370 FLOP/sec
R: 1000000 <T>: 0.000696 sec B: 10.709 GB/sec F: 2874612286.668 FLOP/sec
R: 1000000 <T>: 0.000710 sec B: 10.490 GB/sec F: 2815921784.957 FLOP/sec
R: 1000000 <T>: 0.000741 sec B: 10.049 GB/sec F: 2697486347.347 FLOP/sec
R: 1000000 <T>: 0.000774 sec B: 9.625 GB/sec F: 2583769021.385 FLOP/sec
R: 1000000 <T>: 0.000714 sec B: 10.434 GB/sec F: 2800900769.688 FLOP/sec
R: 1000000 <T>: 0.000702 sec B: 10.617 GB/sec F: 2849855369.840 FLOP/sec
R: 1000000 <T>: 0.000695 sec B: 10.721 GB/sec F: 2877813782.426 FLOP/sec
R: 1000000 <T>: 0.000667 sec B: 11.176 GB/sec F: 3000079502.107 FLOP/sec
R: 1000000 <T>: 0.000680 sec B: 10.961 GB/sec F: 2942227884.376 FLOP/sec
R: 1000000 <T>: 0.000672 sec B: 11.086 GB/sec F: 2975907056.471 FLOP/sec
R: 1000000 <T>: 0.000676 sec B: 11.028 GB/sec F: 2960213253.763 FLOP/sec
R: 1000000 <T>: 0.000658 sec B: 11.322 GB/sec F: 3039241162.267 FLOP/sec
R: 1000000 <T>: 0.000665 sec B: 11.201 GB/sec F: 3006691391.692 FLOP/sec
R: 1000000 <T>: 0.000687 sec B: 10.838 GB/sec F: 2909188234.661 FLOP/sec
R: 1000000 <T>: 0.000678 sec B: 10.988 GB/sec F: 2949482734.465 FLOP/sec
R: 1000000 <T>: 0.000671 sec B: 11.106 GB/sec F: 2981203511.858 FLOP/sec
R: 1000000 <T>: 0.000685 sec B: 10.872 GB/sec F: 2918519318.409 FLOP/sec
R: 1000000 <T>: 0.000682 sec B: 10.931 GB/sec F: 2934272300.469 FLOP/sec
R: 1000000 <T>: 0.000677 sec B: 11.013 GB/sec F: 2956380089.963 FLOP/sec
R: 1000000 <T>: 0.000677 sec B: 11.013 GB/sec F: 2956165970.982 FLOP/sec
R: 1000000 <T>: 0.000671 sec B: 11.096 GB/sec F: 2978672703.443 FLOP/sec
R: 1000000 <T>: 0.000697 sec B: 10.684 GB/sec F: 2867959160.262 FLOP/sec
R: 1000000 <T>: 0.000660 sec B: 11.283 GB/sec F: 3028742768.877 FLOP/sec
R: 1000000 <T>: 0.000671 sec B: 11.108 GB/sec F: 2981834663.232 FLOP/sec
R: 1000000 <T>: 0.000656 sec B: 11.362 GB/sec F: 3049993976.262 FLOP/sec
R: 1000000 <T>: 0.000663 sec B: 11.231 GB/sec F: 3014749662.725 FLOP/sec
R: 1000000 <T>: 0.000695 sec B: 10.725 GB/sec F: 2879015146.499 FLOP/sec
R: 1000000 <T>: 0.000671 sec B: 11.105 GB/sec F: 2980945794.482 FLOP/sec
R: 1000000 <T>: 0.000669 sec B: 11.139 GB/sec F: 2990041666.231 FLOP/sec
R: 1000000 <T>: 0.000684 sec B: 10.900 GB/sec F: 2925982874.222 FLOP/sec
R: 1000000 <T>: 0.000666 sec B: 11.187 GB/sec F: 3003066130.519 FLOP/sec
R: 1000000 <T>: 0.000683 sec B: 10.903 GB/sec F: 2926740752.231 FLOP/sec
R: 1000000 <T>: 0.000665 sec B: 11.211 GB/sec F: 3009401369.880 FLOP/sec
R: 1000000 <T>: 0.000657 sec B: 11.347 GB/sec F: 3045948127.503 FLOP/sec
R: 1000000 <T>: 0.000681 sec B: 10.933 GB/sec F: 2934715780.113 FLOP/sec
```

```
R: 1000000 <T>: 0.000659 sec B: 11.304 GB/sec F: 3034422488.712 FLOP/sec
R: 1000000 <T>: 0.000673 sec B: 11.067 GB/sec F: 2970752937.332 FLOP/sec
R: 1000000 <T>: 0.000655 sec B: 11.372 GB/sec F: 3052521688.167 FLOP/sec
R: 1000000 <T>: 0.000672 sec B: 11.087 GB/sec F: 2976239194.392 FLOP/sec
R: 1000000 <T>: 0.000684 sec B: 10.895 GB/sec F: 2924523887.511 FLOP/sec
R: 1000000 <T>: 0.000671 sec B: 11.110 GB/sec F: 2982314872.804 FLOP/sec
R: 1000000 <T>: 0.000676 sec B: 11.018 GB/sec F: 2957503630.336 FLOP/sec
R: 1000000 <T>: 0.000764 sec B: 9.748 GB/sec F: 2616581802.197 FLOP/sec
R: 1000000 <T>: 0.000669 sec B: 11.130 GB/sec F: 2987817175.467 FLOP/sec
R: 1000000 <T>: 0.000684 sec B: 10.898 GB/sec F: 2925302403.136 FLOP/sec
R: 1000000 <T>: 0.000671 sec B: 11.096 GB/sec F: 2978601725.206 FLOP/sec
R: 1000000 <T>: 0.000755 sec B: 9.871 GB/sec F: 2649813850.577 FLOP/sec
R: 1000000 <T>: 0.000692 sec B: 10.767 GB/sec F: 2890165057.326 FLOP/sec
R: 1000000 <T>: 0.000675 sec B: 11.030 GB/sec F: 2960914448.818 FLOP/sec
R: 1000000 <T>: 0.000701 sec B: 10.636 GB/sec F: 2855042361.691 FLOP/sec
R: 1000000 <T>: 0.000663 sec B: 11.232 GB/sec F: 3015181438.543 FLOP/sec
R: 1000000 <T>: 0.001251 sec B: 5.954 GB/sec F: 1598264923.599 FLOP/sec
R: 1000000 <T>: 0.000733 sec B: 10.170 GB/sec F: 2729861131.964 FLOP/sec
R: 1000000 <T>: 0.000709 sec B: 10.506 GB/sec F: 2820257912.586 FLOP/sec
R: 1000000 <T>: 0.000745 sec B: 10.006 GB/sec F: 2685836376.162 FLOP/sec
R: 1000000 <T>: 0.000710 sec B: 10.498 GB/sec F: 2817917446.290 FLOP/sec
R: 1000000 <T>: 0.000686 sec B: 10.857 GB/sec F: 2914440762.534 FLOP/sec
R: 1000000 <T>: 0.000708 sec B: 10.524 GB/sec F: 2825126106.567 FLOP/sec
R: 1000000 <T>: 0.000708 sec B: 10.520 GB/sec F: 2824013148.605 FLOP/sec
R: 1000000 <T>: 0.000876 sec B: 8.506 GB/sec F: 2283235344.483 FLOP/sec
R: 1000000 <T>: 0.000739 sec B: 10.083 GB/sec F: 2706623649.395 FLOP/sec
R: 1000000 <T>: 0.000719 sec B: 10.368 GB/sec F: 2783208900.702 FLOP/sec
R: 1000000 <T>: 0.000726 sec B: 10.267 GB/sec F: 2756096485.426 FLOP/sec
R: 1000000 <T>: 0.000736 sec B: 10.122 GB/sec F: 2717029525.960 FLOP/sec
R: 1000000 <T>: 0.000721 sec B: 10.335 GB/sec F: 2774359920.487 FLOP/sec
R: 1000000 <T>: 0.000718 sec B: 10.374 GB/sec F: 2784844320.240 FLOP/sec
R: 1000000 <T>: 0.000706 sec B: 10.559 GB/sec F: 2834350629.013 FLOP/sec
R: 1000000 <T>: 0.000710 sec B: 10.498 GB/sec F: 2818115976.745 FLOP/sec
R: 1000000 <T>: 0.000693 sec B: 10.744 GB/sec F: 2884146710.775 FLOP/sec
R: 1000000 <T>: 0.000699 sec B: 10.662 GB/sec F: 2861942743.973 FLOP/sec
R: 1000000 <T>: 0.000702 sec B: 10.613 GB/sec F: 2848950090.668 FLOP/sec
R: 1000000 <T>: 0.000720 sec B: 10.354 GB/sec F: 2779356606.739 FLOP/sec
R: 1000000 <T>: 0.000697 sec B: 10.688 GB/sec F: 2868975331.116 FLOP/sec
R: 1000000 <T>: 0.000702 sec B: 10.621 GB/sec F: 2850952218.041 FLOP/sec
R: 1000000 <T>: 0.000839 sec B: 8.883 GB/sec F: 2384463787.745 FLOP/sec
R: 1000000 <T>: 0.000739 sec B: 10.082 GB/sec F: 2706363608.070 FLOP/sec
R: 1000000 <T>: 0.000686 sec B: 10.856 GB/sec F: 2914139257.973 FLOP/sec
R: 1000000 <T>: 0.000706 sec B: 10.553 GB/sec F: 2832728781.799 FLOP/sec
R: 1000000 <T>: 0.000703 sec B: 10.602 GB/sec F: 2845873199.274 FLOP/sec
R: 1000000 <T>: 0.000696 sec B: 10.712 GB/sec F: 2875451266.133 FLOP/sec
R: 1000000 <T>: 0.000679 sec B: 10.972 GB/sec F: 2945364952.808 FLOP/sec
R: 1000000 <T>: 0.000803 sec B: 9.274 GB/sec F: 2489345600.828 FLOP/sec
R: 1000000 <T>: 0.000745 sec B: 9.996 GB/sec F: 2683364348.553 FLOP/sec
R: 1000000 <T>: 0.000758 sec B: 9.832 GB/sec F: 2639211825.780 FLOP/sec
R: 1000000 <T>: 0.000733 sec B: 10.167 GB/sec F: 2729145913.786 FLOP/sec
R: 1000000 <T>: 0.000708 sec B: 10.522 GB/sec F: 2824543589.063 FLOP/sec
R: 1000000 <T>: 0.000724 sec B: 10.287 GB/sec F: 2761363008.781 FLOP/sec
R: 1000000 <T>: 0.000709 sec B: 10.504 GB/sec F: 2819546222.231 FLOP/sec
R: 1000000 <T>: 0.000678 sec B: 10.997 GB/sec F: 2951855241.019 FLOP/sec
R: 1000000 <T>: 0.000699 sec B: 10.659 GB/sec F: 2861254889.169 FLOP/sec
R: 1000000 <T>: 0.000690 sec B: 10.794 GB/sec F: 2897580665.024 FLOP/sec
R: 1000000 <T>: 0.000682 sec B: 10.918 GB/sec F: 2930892486.071 FLOP/sec
R: 1000000 <T>: 0.000675 sec B: 11.043 GB/sec F: 2964429806.749 FLOP/sec
R: 1000000 <T>: 0.000706 sec B: 10.558 GB/sec F: 2834177918.353 FLOP/sec
R: 1000000 <T>: 0.000681 sec B: 10.937 GB/sec F: 2935982372.362 FLOP/sec
R: 1000000 <T>: 0.000674 sec B: 11.062 GB/sec F: 2969372408.295 FLOP/sec
R: 1000000 <T>: 0.000692 sec B: 10.771 GB/sec F: 2891418558.859 FLOP/sec
R: 1000000 <T>: 0.000768 sec B: 9.706 GB/sec F: 2605567837.913 FLOP/sec
R: 1000000 <T>: 0.000760 sec B: 9.809 GB/sec F: 2633138042.262 FLOP/sec
R: 1000000 <T>: 0.000729 sec B: 10.214 GB/sec F: 2741833107.361 FLOP/sec
R: 1000000 <T>: 0.000717 sec B: 10.397 GB/sec F: 2790926140.931 FLOP/sec
R: 1000000 <T>: 0.000767 sec B: 9.714 GB/sec F: 2607568728.993 FLOP/sec
R: 1000000 <T>: 0.003474 sec B: 2.145 GB/sec F: 575706896.105 FLOP/sec
R: 1000000 <T>: 0.000944 sec B: 7.890 GB/sec F: 2117892485.188 FLOP/sec
R: 1000000 <T>: 0.000852 sec B: 8.749 GB/sec F: 2348415641.388 FLOP/sec
R: 1000000 <T>: 0.000784 sec B: 9.497 GB/sec F: 2549430266.071 FLOP/sec
R: 1000000 <T>: 0.000770 sec B: 9.677 GB/sec F: 2597658989.718 FLOP/sec
R: 1000000 <T>: 0.000737 sec B: 10.106 GB/sec F: 2712688328.387 FLOP/sec
R: 1000000 <T>: 0.000684 sec B: 10.890 GB/sec F: 2923177435.409 FLOP/sec
R: 1000000 <T>: 0.000700 sec B: 10.641 GB/sec F: 2856375716.236 FLOP/sec
R: 1000000 <T>: 0.000704 sec B: 10.588 GB/sec F: 2842249469.920 FLOP/sec
R: 1000000 <T>: 0.000668 sec B: 11.160 GB/sec F: 2995671255.036 FLOP/sec
R: 1000000 <T>: 0.000699 sec B: 10.652 GB/sec F: 2859479460.359 FLOP/sec
R: 1000000 <T>: 0.000709 sec B: 10.506 GB/sec F: 2820194283.184 FLOP/sec
R: 1000000 <T>: 0.000756 sec B: 9.858 GB/sec F: 2646171188.753 FLOP/sec
R: 1000000 <T>: 0.000675 sec B: 11.033 GB/sec F: 2961743163.556 FLOP/sec
R: 1000000 <T>: 0.002861 sec B: 2.604 GB/sec F: 699130072.451 FLOP/sec
R: 1000000 <T>: 0.000820 sec B: 9.088 GB/sec F: 2439610491.789 FLOP/sec
R: 1000000 <T>: 0.005376 sec B: 1.386 GB/sec F: 372040764.507 FLOP/sec
R: 1000000 <T>: 0.000874 sec B: 8.529 GB/sec F: 2289476877.428 FLOP/sec
R: 1000000 <T>: 0.000784 sec B: 9.505 GB/sec F: 2551606236.126 FLOP/sec
R: 1000000 <T>: 0.000744 sec B: 10.017 GB/sec F: 2688981628.878 FLOP/sec
R: 1000000 <T>: 0.000756 sec B: 9.857 GB/sec F: 2645866627.155 FLOP/sec
R: 1000000 <T>: 0.000706 sec B: 10.557 GB/sec F: 2833928930.730 FLOP/sec
R: 1000000 <T>: 0.000671 sec B: 11.107 GB/sec F: 2981599061.393 FLOP/sec
R: 1000000 <T>: 0.000697 sec B: 10.694 GB/sec F: 2870680164.605 FLOP/sec
R: 1000000 <T>: 0.000706 sec B: 10.550 GB/sec F: 2831890485.131 FLOP/sec
R: 1000000 <T>: 0.000669 sec B: 11.132 GB/sec F: 2988326104.074 FLOP/sec
R: 1000000 <T>: 0.000679 sec B: 10.969 GB/sec F: 2944463010.920 FLOP/sec
R: 1000000 <T>: 0.000690 sec B: 10.799 GB/sec F: 2898760779.767 FLOP/sec
R: 1000000 <T>: 0.000705 sec B: 10.570 GB/sec F: 2837414717.954 FLOP/sec
R: 1000000 <T>: 0.000676 sec B: 11.025 GB/sec F: 2959367879.021 FLOP/sec
R: 1000000 <T>: 0.000702 sec B: 10.619 GB/sec F: 2850635264.069 FLOP/sec
R: 1000000 <T>: 0.000688 sec B: 10.830 GB/sec F: 2907268316.154 FLOP/sec
R: 1000000 <T>: 0.000652 sec B: 11.421 GB/sec F: 3065815391.926 FLOP/sec
```

```
R: 1000000 <T>: 0.000715 sec B: 10.414 GB/sec F: 2795537204.407 FLOP/sec
R: 1000000 <T>: 0.000672 sec B: 11.079 GB/sec F: 2974101523.930 FLOP/sec
R: 1000000 <T>: 0.000668 sec B: 11.150 GB/sec F: 2992968021.633 FLOP/sec
R: 1000000 <T>: 0.000664 sec B: 11.224 GB/sec F: 3012951170.607 FLOP/sec
R: 1000000 <T>: 0.000692 sec B: 10.771 GB/sec F: 2891288979.997 FLOP/sec
R: 1000000 <T>: 0.000676 sec B: 11.021 GB/sec F: 2958549245.792 FLOP/sec
R: 1000000 <T>: 0.000682 sec B: 10.922 GB/sec F: 2931829109.545 FLOP/sec
R: 1000000 <T>: 0.000668 sec B: 11.160 GB/sec F: 2995765485.486 FLOP/sec
R: 1000000 <T>: 0.000715 sec B: 10.415 GB/sec F: 2795779491.280 FLOP/sec
R: 1000000 <T>: 0.000668 sec B: 11.155 GB/sec F: 2994303337.900 FLOP/sec
R: 1000000 <T>: 0.000677 sec B: 10.999 GB/sec F: 2952434799.168 FLOP/sec
R: 1000000 <T>: 0.000716 sec B: 10.413 GB/sec F: 2795087912.503 FLOP/sec
R: 1000000 <T>: 0.000819 sec B: 9.101 GB/sec F: 2443025589.472 FLOP/sec
R: 1000000 <T>: 0.000709 sec B: 10.501 GB/sec F: 2818886539.817 FLOP/sec
R: 1000000 <T>: 0.000762 sec B: 9.775 GB/sec F: 2624034847.183 FLOP/sec
R: 1000000 <T>: 0.000743 sec B: 10.028 GB/sec F: 2691985689.404 FLOP/sec
R: 1000000 <T>: 0.000697 sec B: 10.682 GB/sec F: 2867457511.448 FLOP/sec
R: 1000000 <T>: 0.000696 sec B: 10.709 GB/sec F: 2874579233.465 FLOP/sec
R: 1000000 <T>: 0.000754 sec B: 9.885 GB/sec F: 2653385587.340 FLOP/sec
R: 1000000 <T>: 0.001699 sec B: 4.386 GB/sec F: 1177446483.586 FLOP/sec
R: 1000000 <T>: 0.000829 sec B: 8.983 GB/sec F: 2411268339.203 FLOP/sec
R: 1000000 <T>: 0.000928 sec B: 8.027 GB/sec F: 2154640719.047 FLOP/sec
R: 1000000 <T>: 0.000810 sec B: 9.203 GB/sec F: 2470331320.837 FLOP/sec
R: 1000000 <T>: 0.000752 sec B: 9.913 GB/sec F: 2661089024.072 FLOP/sec
R: 1000000 <T>: 0.000858 sec B: 8.680 GB/sec F: 2329962266.261 FLOP/sec
R: 1000000 <T>: 0.000767 sec B: 9.712 GB/sec F: 2607143834.822 FLOP/sec
R: 1000000 <T>: 0.000753 sec B: 9.894 GB/sec F: 2655964898.768 FLOP/sec
R: 1000000 <T>: 0.000758 sec B: 9.824 GB/sec F: 2637092552.719 FLOP/sec
R: 1000000 <T>: 0.000808 sec B: 9.222 GB/sec F: 2475419088.452 FLOP/sec
R: 1000000 <T>: 0.000750 sec B: 9.934 GB/sec F: 2666766225.939 FLOP/sec
R: 1000000 <T>: 0.000742 sec B: 10.042 GB/sec F: 2695613966.515 FLOP/sec
R: 1000000 <T>: 0.000730 sec B: 10.205 GB/sec F: 2739429568.581 FLOP/sec
R: 1000000 <T>: 0.000700 sec B: 10.649 GB/sec F: 2858486345.725 FLOP/sec
R: 1000000 <T>: 0.000729 sec B: 10.215 GB/sec F: 2742088731.249 FLOP/sec
R: 1000000 <T>: 0.000716 sec B: 10.412 GB/sec F: 2794970729.669 FLOP/sec
R: 1000000 <T>: 0.000700 sec B: 10.648 GB/sec F: 2858253492.786 FLOP/sec
R: 1000000 <T>: 0.000704 sec B: 10.577 GB/sec F: 2839324070.512 FLOP/sec
R: 1000000 <T>: 0.000723 sec B: 10.303 GB/sec F: 2765658814.500 FLOP/sec
R: 1000000 <T>: 0.000739 sec B: 10.077 GB/sec F: 2704994637.348 FLOP/sec
R: 1000000 <T>: 0.000811 sec B: 9.192 GB/sec F: 2467579095.163 FLOP/sec
R: 1000000 <T>: 0.000807 sec B: 9.237 GB/sec F: 2479519171.642 FLOP/sec
R: 1000000 <T>: 0.000839 sec B: 8.885 GB/sec F: 2385151952.068 FLOP/sec
R: 1000000 <T>: 0.000781 sec B: 9.537 GB/sec F: 2560124524.457 FLOP/sec
R: 1000000 <T>: 0.001017 sec B: 7.325 GB/sec F: 1966158480.238 FLOP/sec
R: 1000000 <T>: 0.000882 sec B: 8.450 GB/sec F: 2268293789.412 FLOP/sec
R: 1000000 <T>: 0.000805 sec B: 9.256 GB/sec F: 2484595507.851 FLOP/sec
R: 1000000 <T>: 0.000786 sec B: 9.480 GB/sec F: 2544742942.792 FLOP/sec
R: 1000000 <T>: 0.000784 sec B: 9.501 GB/sec F: 2550314517.538 FLOP/sec
R: 1000000 <T>: 0.000756 sec B: 9.852 GB/sec F: 2644530185.990 FLOP/sec
R: 1000000 <T>: 0.000768 sec B: 9.702 GB/sec F: 2604295525.039 FLOP/sec
R: 1000000 <T>: 0.000802 sec B: 9.286 GB/sec F: 2492817569.378 FLOP/sec
R: 1000000 <T>: 0.000842 sec B: 8.846 GB/sec F: 2374521385.533 FLOP/sec
R: 1000000 <T>: 0.001470 sec B: 5.070 GB/sec F: 1360902496.099 FLOP/sec
R: 1000000 <T>: 0.001484 sec B: 5.022 GB/sec F: 1347992300.268 FLOP/sec
R: 1000000 <T>: 0.002279 sec B: 3.269 GB/sec F: 877388470.765 FLOP/sec
R: 1000000 <T>: 0.001046 sec B: 7.121 GB/sec F: 1911406317.198 FLOP/sec
R: 1000000 <T>: 0.001101 sec B: 6.768 GB/sec F: 1816781245.004 FLOP/sec
R: 1000000 <T>: 0.001122 sec B: 6.640 GB/sec F: 1782324686.088 FLOP/sec
R: 1000000 <T>: 0.001345 sec B: 5.541 GB/sec F: 1487365941.848 FLOP/sec
R: 1000000 <T>: 0.001230 sec B: 6.060 GB/sec F: 1626665603.912 FLOP/sec
R: 1000000 <T>: 0.001242 sec B: 5.997 GB/sec F: 1609764185.644 FLOP/sec
R: 1000000 <T>: 0.000973 sec B: 7.660 GB/sec F: 2056162009.117 FLOP/sec
R: 1000000 <T>: 0.000848 sec B: 8.789 GB/sec F: 2359277919.400 FLOP/sec
R: 1000000 <T>: 0.000773 sec B: 9.643 GB/sec F: 2588594651.963 FLOP/sec
R: 1000000 <T>: 0.000772 sec B: 9.649 GB/sec F: 2590170303.697 FLOP/sec
R: 1000000 <T>: 0.000743 sec B: 10.029 GB/sec F: 2692210358.549 FLOP/sec
R: 1000000 <T>: 0.000758 sec B: 9.833 GB/sec F: 2639441705.290 FLOP/sec
R: 1000000 <T>: 0.000706 sec B: 10.551 GB/sec F: 2832159167.345 FLOP/sec
R: 1000000 <T>: 0.000740 sec B: 10.068 GB/sec F: 2702717311.985 FLOP/sec
R: 1000000 <T>: 0.000752 sec B: 9.908 GB/sec F: 2659758387.548 FLOP/sec
R: 1000000 <T>: 0.000753 sec B: 9.900 GB/sec F: 2657507125.441 FLOP/sec
R: 1000000 <T>: 0.000840 sec B: 8.871 GB/sec F: 2381346437.089 FLOP/sec
R: 1000000 <T>: 0.000736 sec B: 10.126 GB/sec F: 2718056046.316 FLOP/sec
R: 1000000 <T>: 0.000763 sec B: 9.760 GB/sec F: 2619855095.815 FLOP/sec
R: 1000000 <T>: 0.000769 sec B: 9.695 GB/sec F: 2602465575.887 FLOP/sec
R: 1000000 <T>: 0.000787 sec B: 9.461 GB/sec F: 2539692214.701 FLOP/sec
R: 1000000 <T>: 0.000776 sec B: 9.598 GB/sec F: 2576542640.492 FLOP/sec
R: 1000000 <T>: 0.000748 sec B: 9.959 GB/sec F: 2673346468.376 FLOP/sec
R: 1000000 <T>: 0.000826 sec B: 9.017 GB/sec F: 2420445991.378 FLOP/sec
R: 1000000 <T>: 0.000817 sec B: 9.119 GB/sec F: 2447887534.255 FLOP/sec
R: 1000000 <T>: 0.001285 sec B: 5.799 GB/sec F: 1556715827.753 FLOP/sec
R: 1000000 <T>: 0.000846 sec B: 8.808 GB/sec F: 2364409955.585 FLOP/sec
R: 1000000 <T>: 0.000893 sec B: 8.347 GB/sec F: 2240675429.201 FLOP/sec
R: 1000000 <T>: 0.000768 sec B: 9.698 GB/sec F: 2603156587.678 FLOP/sec
R: 1000000 <T>: 0.000765 sec B: 9.743 GB/sec F: 2615493661.351 FLOP/sec
R: 1000000 <T>: 0.000751 sec B: 9.921 GB/sec F: 2663023650.313 FLOP/sec
R: 1000000 <T>: 0.000727 sec B: 10.251 GB/sec F: 2751603152.787 FLOP/sec
R: 1000000 <T>: 0.000725 sec B: 10.278 GB/sec F: 2758887064.958 FLOP/sec
R: 1000000 <T>: 0.000742 sec B: 10.035 GB/sec F: 2693831261.104 FLOP/sec
R: 1000000 <T>: 0.000721 sec B: 10.330 GB/sec F: 2773028965.674 FLOP/sec
R: 1000000 <T>: 0.000822 sec B: 9.067 GB/sec F: 2433848011.059 FLOP/sec
R: 1000000 <T>: 0.000795 sec B: 9.374 GB/sec F: 2516349984.021 FLOP/sec
R: 1000000 <T>: 0.002265 sec B: 3.290 GB/sec F: 883148814.108 FLOP/sec
R: 1000000 <T>: 0.000829 sec B: 8.985 GB/sec F: 2411838266.949 FLOP/sec
R: 1000000 <T>: 0.000788 sec B: 9.455 GB/sec F: 2538083949.665 FLOP/sec
R: 1000000 <T>: 0.000970 sec B: 7.679 GB/sec F: 2061358393.954 FLOP/sec
R: 1000000 <T>: 0.000767 sec B: 9.716 GB/sec F: 2608071982.787 FLOP/sec
R: 1000000 <T>: 0.000762 sec B: 9.777 GB/sec F: 2624537589.283 FLOP/sec
R: 1000000 <T>: 0.000812 sec B: 9.174 GB/sec F: 2462711469.956 FLOP/sec
R: 1000000 <T>: 0.000765 sec B: 9.743 GB/sec F: 2615483400.181 FLOP/sec
```

```
R: 1000000 <T>: 0.000732 sec B: 10.173 GB/sec F: 2730815339.536 FLOP/sec
R: 1000000 <T>: 0.000743 sec B: 10.029 GB/sec F: 2692199486.598 FLOP/sec
R: 1000000 <T>: 0.000758 sec B: 9.829 GB/sec F: 2638560717.900 FLOP/sec
R: 1000000 <T>: 0.000716 sec B: 10.403 GB/sec F: 2792562846.627 FLOP/sec
R: 1000000 <T>: 0.000672 sec B: 11.095 GB/sec F: 2978344457.450 FLOP/sec
R: 1000000 <T>: 0.000688 sec B: 10.829 GB/sec F: 2906816193.292 FLOP/sec
R: 1000000 <T>: 0.000715 sec B: 10.425 GB/sec F: 2798521820.774 FLOP/sec
R: 1000000 <T>: 0.000707 sec B: 10.542 GB/sec F: 2829810926.183 FLOP/sec
R: 1000000 <T>: 0.000718 sec B: 10.382 GB/sec F: 2786916541.604 FLOP/sec
R: 1000000 <T>: 0.000740 sec B: 10.063 GB/sec F: 2701238923.232 FLOP/sec
R: 1000000 <T>: 0.000739 sec B: 10.086 GB/sec F: 2707378418.404 FLOP/sec
R: 1000000 <T>: 0.000709 sec B: 10.505 GB/sec F: 2819979555.148 FLOP/sec
R: 1000000 <T>: 0.000704 sec B: 10.581 GB/sec F: 2840235341.900 FLOP/sec
R: 1000000 <T>: 0.000722 sec B: 10.313 GB/sec F: 2768277204.206 FLOP/sec
R: 1000000 <T>: 0.000722 sec B: 10.318 GB/sec F: 2769687980.801 FLOP/sec
R: 1000000 <T>: 0.000720 sec B: 10.347 GB/sec F: 2777492313.290 FLOP/sec
R: 1000000 <T>: 0.000712 sec B: 10.457 GB/sec F: 2807116039.159 FLOP/sec
R: 1000000 <T>: 0.000739 sec B: 10.087 GB/sec F: 2707807285.356 FLOP/sec
R: 1000000 <T>: 0.000780 sec B: 9.554 GB/sec F: 2564756905.929 FLOP/sec
R: 1000000 <T>: 0.000721 sec B: 10.335 GB/sec F: 2774344526.426 FLOP/sec
R: 1000000 <T>: 0.000779 sec B: 9.565 GB/sec F: 2567664375.454 FLOP/sec
R: 1000000 <T>: 0.000747 sec B: 9.969 GB/sec F: 2675932529.037 FLOP/sec
R: 1000000 <T>: 0.000734 sec B: 10.149 GB/sec F: 2724350242.467 FLOP/sec
R: 1000000 <T>: 0.000712 sec B: 10.460 GB/sec F: 2807967326.492 FLOP/sec
R: 1000000 <T>: 0.000865 sec B: 8.610 GB/sec F: 2311275673.939 FLOP/sec
R: 1000000 <T>: 0.000749 sec B: 9.946 GB/sec F: 2669827742.714 FLOP/sec
R: 1000000 <T>: 0.000720 sec B: 10.341 GB/sec F: 2775992660.275 FLOP/sec
R: 1000000 <T>: 0.000729 sec B: 10.213 GB/sec F: 2741622629.353 FLOP/sec
R: 1000000 <T>: 0.000722 sec B: 10.314 GB/sec F: 2768660425.183 FLOP/sec
R: 1000000 <T>: 0.000714 sec B: 10.431 GB/sec F: 2800034160.417 FLOP/sec
R: 1000000 <T>: 0.000694 sec B: 10.743 GB/sec F: 2883710066.023 FLOP/sec
R: 1000000 <T>: 0.000718 sec B: 10.379 GB/sec F: 2786023633.838 FLOP/sec
R: 1000000 <T>: 0.002031 sec B: 3.669 GB/sec F: 984795738.592 FLOP/sec
R: 1000000 <T>: 0.000757 sec B: 9.846 GB/sec F: 2642950590.039 FLOP/sec
R: 1000000 <T>: 0.000731 sec B: 10.193 GB/sec F: 2736150291.263 FLOP/sec
R: 1000000 <T>: 0.000742 sec B: 10.042 GB/sec F: 2695603067.057 FLOP/sec
R: 1000000 <T>: 0.000746 sec B: 9.987 GB/sec F: 2680735164.812 FLOP/sec
R: 1000000 <T>: 0.000669 sec B: 11.138 GB/sec F: 2989755602.428 FLOP/sec
R: 1000000 <T>: 0.000731 sec B: 10.198 GB/sec F: 2737509769.488 FLOP/sec
R: 1000000 <T>: 0.000918 sec B: 8.116 GB/sec F: 2178523462.153 FLOP/sec
R: 1000000 <T>: 0.000783 sec B: 9.512 GB/sec F: 2553453354.152 FLOP/sec
R: 1000000 <T>: 0.000788 sec B: 9.454 GB/sec F: 2537823080.740 FLOP/sec
R: 1000000 <T>: 0.000716 sec B: 10.407 GB/sec F: 2793498969.199 FLOP/sec
R: 1000000 <T>: 0.000724 sec B: 10.289 GB/sec F: 2761885428.707 FLOP/sec
R: 1000000 <T>: 0.000704 sec B: 10.584 GB/sec F: 2841058407.899 FLOP/sec
R: 1000000 <T>: 0.000712 sec B: 10.469 GB/sec F: 2810149134.615 FLOP/sec
R: 1000000 <T>: 0.000700 sec B: 10.636 GB/sec F: 2855160559.954 FLOP/sec
R: 1000000 <T>: 0.000737 sec B: 10.110 GB/sec F: 2713928832.644 FLOP/sec
R: 1000000 <T>: 0.000726 sec B: 10.269 GB/sec F: 2756654909.533 FLOP/sec
R: 1000000 <T>: 0.000723 sec B: 10.301 GB/sec F: 2765211428.066 FLOP/sec
R: 1000000 <T>: 0.000687 sec B: 10.848 GB/sec F: 2911915997.047 FLOP/sec
R: 1000000 <T>: 0.000695 sec B: 10.713 GB/sec F: 2875790303.123 FLOP/sec
R: 1000000 <T>: 0.000711 sec B: 10.486 GB/sec F: 2814732874.813 FLOP/sec
R: 1000000 <T>: 0.000737 sec B: 10.103 GB/sec F: 2711982079.222 FLOP/sec
R: 1000000 <T>: 0.000702 sec B: 10.607 GB/sec F: 2847226374.427 FLOP/sec
R: 1000000 <T>: 0.000730 sec B: 10.205 GB/sec F: 2739467091.467 FLOP/sec
R: 1000000 <T>: 0.001342 sec B: 5.551 GB/sec F: 1490191929.270 FLOP/sec
R: 1000000 <T>: 0.000726 sec B: 10.267 GB/sec F: 2756134466.288 FLOP/sec
R: 1000000 <T>: 0.000704 sec B: 10.585 GB/sec F: 2841389382.580 FLOP/sec
R: 1000000 <T>: 0.000701 sec B: 10.630 GB/sec F: 2853404896.728 FLOP/sec
R: 1000000 <T>: 0.000669 sec B: 11.142 GB/sec F: 2990864404.676 FLOP/sec
R: 1000000 <T>: 0.000691 sec B: 10.781 GB/sec F: 2893907889.806 FLOP/sec
R: 1000000 <T>: 0.000698 sec B: 10.676 GB/sec F: 2865896122.729 FLOP/sec
R: 1000000 <T>: 0.000658 sec B: 11.332 GB/sec F: 3041778832.261 FLOP/sec
R: 1000000 <T>: 0.000664 sec B: 11.216 GB/sec F: 3010742328.629 FLOP/sec
R: 1000000 <T>: 0.000663 sec B: 11.244 GB/sec F: 3018321209.743 FLOP/sec
R: 1000000 <T>: 0.000643 sec B: 11.594 GB/sec F: 3112346366.802 FLOP/sec
R: 1000000 <T>: 0.000680 sec B: 10.964 GB/sec F: 2943210748.606 FLOP/sec
R: 1000000 <T>: 0.000673 sec B: 11.075 GB/sec F: 2972832767.752 FLOP/sec
R: 1000000 <T>: 0.000688 sec B: 10.830 GB/sec F: 2907238733.723 FLOP/sec
R: 1000000 <T>: 0.000685 sec B: 10.881 GB/sec F: 2920761208.786 FLOP/sec
R: 1000000 <T>: 0.000699 sec B: 10.662 GB/sec F: 2862163910.403 FLOP/sec
R: 1000000 <T>: 0.000690 sec B: 10.797 GB/sec F: 2898277698.478 FLOP/sec
R: 1000000 <T>: 0.000661 sec B: 11.275 GB/sec F: 3026675605.449 FLOP/sec
R: 1000000 <T>: 0.000690 sec B: 10.796 GB/sec F: 2897941736.881 FLOP/sec
R: 1000000 <T>: 0.000713 sec B: 10.444 GB/sec F: 2803668881.098 FLOP/sec
R: 1000000 <T>: 0.000655 sec B: 11.376 GB/sec F: 3053621595.212 FLOP/sec
R: 1000000 <T>: 0.000663 sec B: 11.230 GB/sec F: 3014527005.640 FLOP/sec
R: 1000000 <T>: 0.000670 sec B: 11.128 GB/sec F: 2987192412.531 FLOP/sec
R: 1000000 <T>: 0.000667 sec B: 11.168 GB/sec F: 2997786134.939 FLOP/sec
R: 1000000 <T>: 0.000670 sec B: 11.120 GB/sec F: 2984998888.088 FLOP/sec
R: 1000000 <T>: 0.000693 sec B: 10.746 GB/sec F: 2884704144.743 FLOP/sec
R: 1000000 <T>: 0.000691 sec B: 10.781 GB/sec F: 2894016765.039 FLOP/sec
R: 1000000 <T>: 0.000671 sec B: 11.102 GB/sec F: 2980297254.848 FLOP/sec
R: 1000000 <T>: 0.000693 sec B: 10.743 GB/sec F: 2883934609.667 FLOP/sec
R: 1000000 <T>: 0.000674 sec B: 11.047 GB/sec F: 2965335231.148 FLOP/sec
R: 1000000 <T>: 0.000648 sec B: 11.506 GB/sec F: 3088574128.868 FLOP/sec
R: 1000000 <T>: 0.000666 sec B: 11.179 GB/sec F: 3000898769.181 FLOP/sec
R: 1000000 <T>: 0.000668 sec B: 11.146 GB/sec F: 2991982981.601 FLOP/sec
R: 1000000 <T>: 0.000644 sec B: 11.567 GB/sec F: 3105117544.225 FLOP/sec
R: 1000000 <T>: 0.000659 sec B: 11.302 GB/sec F: 3033874728.279 FLOP/sec
R: 1000000 <T>: 0.000708 sec B: 10.518 GB/sec F: 2823295576.460 FLOP/sec
R: 1000000 <T>: 0.000655 sec B: 11.380 GB/sec F: 3054698967.054 FLOP/sec
R: 1000000 <T>: 0.000648 sec B: 11.504 GB/sec F: 3088097238.006 FLOP/sec
R: 1000000 <T>: 0.000662 sec B: 11.260 GB/sec F: 3022508621.706 FLOP/sec
R: 1000000 <T>: 0.000653 sec B: 11.415 GB/sec F: 3064274693.841 FLOP/sec
R: 1000000 <T>: 0.001275 sec B: 5.841 GB/sec F: 1568050654.308 FLOP/sec
R: 1000000 <T>: 0.000730 sec B: 10.209 GB/sec F: 2740533170.728 FLOP/sec
R: 1000000 <T>: 0.000704 sec B: 10.582 GB/sec F: 2840679092.744 FLOP/sec
R: 1000000 <T>: 0.000703 sec B: 10.600 GB/sec F: 2845415679.663 FLOP/sec
```

```
R: 1000000 <T>: 0.000702 sec B: 10.611 GB/sec F: 2848252241.218 FLOP/sec
R: 1000000 <T>: 0.000668 sec B: 11.154 GB/sec F: 2994146443.703 FLOP/sec
R: 1000000 <T>: 0.000705 sec B: 10.573 GB/sec F: 2838203927.790 FLOP/sec
R: 1000000 <T>: 0.001695 sec B: 4.395 GB/sec F: 1179729417.261 FLOP/sec
R: 1000000 <T>: 0.001004 sec B: 7.421 GB/sec F: 1991982271.358 FLOP/sec
R: 1000000 <T>: 0.000756 sec B: 9.860 GB/sec F: 2646654430.301 FLOP/sec
R: 1000000 <T>: 0.000725 sec B: 10.274 GB/sec F: 2757833280.705 FLOP/sec
R: 1000000 <T>: 0.000723 sec B: 10.311 GB/sec F: 2767963042.157 FLOP/sec
R: 1000000 <T>: 0.000707 sec B: 10.538 GB/sec F: 2828798298.195 FLOP/sec
R: 1000000 <T>: 0.000661 sec B: 11.274 GB/sec F: 3026277164.620 FLOP/sec
R: 1000000 <T>: 0.000675 sec B: 11.037 GB/sec F: 2962853227.658 FLOP/sec
R: 1000000 <T>: 0.000676 sec B: 11.016 GB/sec F: 2957031377.060 FLOP/sec
R: 1000000 <T>: 0.000651 sec B: 11.438 GB/sec F: 3070234688.740 FLOP/sec
R: 1000000 <T>: 0.000680 sec B: 10.964 GB/sec F: 2943141450.321 FLOP/sec
R: 1000000 <T>: 0.000684 sec B: 10.897 GB/sec F: 2925178326.184 FLOP/sec
R: 1000000 <T>: 0.000680 sec B: 10.956 GB/sec F: 2940977522.109 FLOP/sec
R: 1000000 <T>: 0.000658 sec B: 11.318 GB/sec F: 3038050057.951 FLOP/sec
R: 1000000 <T>: 0.000676 sec B: 11.016 GB/sec F: 2957027005.049 FLOP/sec
R: 1000000 <T>: 0.000672 sec B: 11.095 GB/sec F: 2978300105.432 FLOP/sec
R: 1000000 <T>: 0.000648 sec B: 11.503 GB/sec F: 3087711064.349 FLOP/sec
R: 1000000 <T>: 0.000677 sec B: 11.001 GB/sec F: 2952931744.459 FLOP/sec
R: 1000000 <T>: 0.002076 sec B: 3.589 GB/sec F: 963292765.864 FLOP/sec
R: 1000000 <T>: 0.000749 sec B: 9.949 GB/sec F: 2670626315.283 FLOP/sec
R: 1000000 <T>: 0.000702 sec B: 10.615 GB/sec F: 2849380331.013 FLOP/sec
R: 1000000 <T>: 0.000666 sec B: 11.187 GB/sec F: 3003016530.104 FLOP/sec
R: 1000000 <T>: 0.000679 sec B: 10.967 GB/sec F: 2943882244.710 FLOP/sec
R: 1000000 <T>: 0.000692 sec B: 10.763 GB/sec F: 2889092088.366 FLOP/sec
R: 1000000 <T>: 0.000654 sec B: 11.385 GB/sec F: 3056061928.039 FLOP/sec
R: 1000000 <T>: 0.000673 sec B: 11.071 GB/sec F: 2971891846.912 FLOP/sec
R: 1000000 <T>: 0.000672 sec B: 11.089 GB/sec F: 2976797353.032 FLOP/sec
R: 1000000 <T>: 0.000652 sec B: 11.423 GB/sec F: 3066323034.065 FLOP/sec
R: 1000000 <T>: 0.000682 sec B: 10.919 GB/sec F: 2930948322.985 FLOP/sec
R: 1000000 <T>: 0.000677 sec B: 11.004 GB/sec F: 2953969766.119 FLOP/sec
R: 1000000 <T>: 0.000713 sec B: 10.454 GB/sec F: 2806304644.013 FLOP/sec
R: 1000000 <T>: 0.000657 sec B: 11.347 GB/sec F: 3045915655.550 FLOP/sec
R: 1000000 <T>: 0.000678 sec B: 10.981 GB/sec F: 2947713458.670 FLOP/sec
R: 1000000 <T>: 0.000670 sec B: 11.124 GB/sec F: 2986179959.149 FLOP/sec
R: 1000000 <T>: 0.000649 sec B: 11.477 GB/sec F: 3080966252.636 FLOP/sec
R: 1000000 <T>: 0.000675 sec B: 11.045 GB/sec F: 2964812127.268 FLOP/sec
R: 1000000 <T>: 0.000687 sec B: 10.839 GB/sec F: 2909459087.914 FLOP/sec
R: 1000000 <T>: 0.000660 sec B: 11.281 GB/sec F: 3028096190.504 FLOP/sec
R: 1000000 <T>: 0.000678 sec B: 10.990 GB/sec F: 2950152744.158 FLOP/sec
R: 1000000 <T>: 0.000682 sec B: 10.929 GB/sec F: 2933695546.944 FLOP/sec
R: 1000000 <T>: 0.000655 sec B: 11.367 GB/sec F: 3051376018.015 FLOP/sec
R: 1000000 <T>: 0.000681 sec B: 10.946 GB/sec F: 2938406590.258 FLOP/sec
R: 1000000 <T>: 0.000679 sec B: 10.968 GB/sec F: 2944220274.784 FLOP/sec
R: 1000000 <T>: 0.000663 sec B: 11.231 GB/sec F: 3014845097.259 FLOP/sec
R: 1000000 <T>: 0.000659 sec B: 11.312 GB/sec F: 3036532522.782 FLOP/sec
R: 1000000 <T>: 0.000670 sec B: 11.121 GB/sec F: 2985203837.181 FLOP/sec
R: 1000000 <T>: 0.000664 sec B: 11.225 GB/sec F: 3013196293.166 FLOP/sec
R: 1000000 <T>: 0.000650 sec B: 11.456 GB/sec F: 3075267163.835 FLOP/sec
R: 1000000 <T>: 0.000666 sec B: 11.195 GB/sec F: 3005092128.612 FLOP/sec
R: 1000000 <T>: 0.000667 sec B: 11.162 GB/sec F: 2996286103.375 FLOP/sec
R: 1000000 <T>: 0.000652 sec B: 11.430 GB/sec F: 3068185827.743 FLOP/sec
R: 1000000 <T>: 0.000677 sec B: 10.999 GB/sec F: 2952465308.533 FLOP/sec
R: 1000000 <T>: 0.000699 sec B: 10.663 GB/sec F: 2862356434.935 FLOP/sec
R: 1000000 <T>: 0.000654 sec B: 11.385 GB/sec F: 3056005891.979 FLOP/sec
R: 1000000 <T>: 0.000674 sec B: 11.056 GB/sec F: 2967698090.138 FLOP/sec
R: 1000000 <T>: 0.000676 sec B: 11.023 GB/sec F: 2958851255.589 FLOP/sec
R: 1000000 <T>: 0.000645 sec B: 11.551 GB/sec F: 3100799231.002 FLOP/sec
R: 1000000 <T>: 0.000665 sec B: 11.212 GB/sec F: 3009713851.456 FLOP/sec
R: 1000000 <T>: 0.000669 sec B: 11.132 GB/sec F: 2988330569.128 FLOP/sec
R: 1000000 <T>: 0.000643 sec B: 11.583 GB/sec F: 3109399559.398 FLOP/sec
R: 1000000 <T>: 0.000650 sec B: 11.458 GB/sec F: 3075725909.761 FLOP/sec
R: 1000000 <T>: 0.000673 sec B: 11.074 GB/sec F: 2972554405.177 FLOP/sec
R: 1000000 <T>: 0.000658 sec B: 11.329 GB/sec F: 3041066562.865 FLOP/sec
R: 1000000 <T>: 0.000658 sec B: 11.328 GB/sec F: 3040705930.289 FLOP/sec
R: 1000000 <T>: 0.000674 sec B: 11.057 GB/sec F: 2968112087.785 FLOP/sec
R: 1000000 <T>: 0.000670 sec B: 11.125 GB/sec F: 2986264675.624 FLOP/sec
R: 1000000 <T>: 0.000650 sec B: 11.457 GB/sec F: 3075550908.056 FLOP/sec
R: 1000000 <T>: 0.000671 sec B: 11.109 GB/sec F: 2982039178.031 FLOP/sec
R: 1000000 <T>: 0.000669 sec B: 11.145 GB/sec F: 2991759199.286 FLOP/sec
R: 1000000 <T>: 0.000640 sec B: 11.643 GB/sec F: 3125263694.124 FLOP/sec
R: 1000000 <T>: 0.000661 sec B: 11.273 GB/sec F: 3026061958.619 FLOP/sec
R: 1000000 <T>: 0.000667 sec B: 11.176 GB/sec F: 2999976000.192 FLOP/sec
R: 1000000 <T>: 0.000648 sec B: 11.490 GB/sec F: 3084425348.424 FLOP/sec
R: 1000000 <T>: 0.000685 sec B: 10.871 GB/sec F: 2918140327.532 FLOP/sec
R: 1000000 <T>: 0.000691 sec B: 10.780 GB/sec F: 2893627364.455 FLOP/sec
R: 1000000 <T>: 0.000659 sec B: 11.303 GB/sec F: 3034155488.332 FLOP/sec
R: 1000000 <T>: 0.000686 sec B: 10.855 GB/sec F: 2913778383.844 FLOP/sec
R: 1000000 <T>: 0.000686 sec B: 10.861 GB/sec F: 2915439145.310 FLOP/sec
R: 1000000 <T>: 0.000673 sec B: 11.075 GB/sec F: 2972801836.002 FLOP/sec
R: 1000000 <T>: 0.000672 sec B: 11.086 GB/sec F: 2975876060.714 FLOP/sec
R: 1000000 <T>: 0.000689 sec B: 10.817 GB/sec F: 2903743796.877 FLOP/sec
R: 1000000 <T>: 0.000690 sec B: 10.795 GB/sec F: 2897840963.590 FLOP/sec
R: 1000000 <T>: 0.000647 sec B: 11.523 GB/sec F: 3093217193.338 FLOP/sec
R: 1000000 <T>: 0.000667 sec B: 11.171 GB/sec F: 2998586166.622 FLOP/sec
R: 1000000 <T>: 0.000675 sec B: 11.044 GB/sec F: 2964579207.627 FLOP/sec
R: 1000000 <T>: 0.000655 sec B: 11.373 GB/sec F: 3053015616.175 FLOP/sec
R: 1000000 <T>: 0.000681 sec B: 10.935 GB/sec F: 2935452338.528 FLOP/sec
R: 1000000 <T>: 0.000689 sec B: 10.821 GB/sec F: 2904806583.454 FLOP/sec
R: 1000000 <T>: 0.000651 sec B: 11.439 GB/sec F: 3070668361.676 FLOP/sec
R: 1000000 <T>: 0.000731 sec B: 10.197 GB/sec F: 2737206297.764 FLOP/sec
R: 1000000 <T>: 0.000678 sec B: 10.985 GB/sec F: 2948778247.453 FLOP/sec
R: 1000000 <T>: 0.000676 sec B: 11.025 GB/sec F: 2959494873.415 FLOP/sec
R: 1000000 <T>: 0.000653 sec B: 11.404 GB/sec F: 3061301022.321 FLOP/sec
R: 1000000 <T>: 0.000671 sec B: 11.096 GB/sec F: 2978623905.542 FLOP/sec
R: 1000000 <T>: 0.000680 sec B: 10.961 GB/sec F: 2942336097.168 FLOP/sec
R: 1000000 <T>: 0.000650 sec B: 11.458 GB/sec F: 3075711719.692 FLOP/sec
R: 1000000 <T>: 0.000670 sec B: 11.120 GB/sec F: 2984967702.649 FLOP/sec
```

```
R: 1000000 <T>: 0.000675 sec B: 11.034 GB/sec F: 2961997571.162 FLOP/sec
R: 1000000 <T>: 0.000642 sec B: 11.603 GB/sec F: 3114653510.370 FLOP/sec
R: 1000000 <T>: 0.000671 sec B: 11.106 GB/sec F: 2981332387.257 FLOP/sec
R: 1000000 <T>: 0.000666 sec B: 11.181 GB/sec F: 3001398651.772 FLOP/sec
R: 1000000 <T>: 0.000645 sec B: 11.558 GB/sec F: 3102492387.259 FLOP/sec
R: 1000000 <T>: 0.000676 sec B: 11.015 GB/sec F: 2956786564.362 FLOP/sec
R: 1000000 <T>: 0.000669 sec B: 11.133 GB/sec F: 2988580633.400 FLOP/sec
R: 1000000 <T>: 0.000649 sec B: 11.479 GB/sec F: 3081308015.252 FLOP/sec
R: 1000000 <T>: 0.000686 sec B: 10.858 GB/sec F: 2914644631.953 FLOP/sec
R: 1000000 <T>: 0.000676 sec B: 11.016 GB/sec F: 2957206268.094 FLOP/sec
R: 1000000 <T>: 0.000675 sec B: 11.034 GB/sec F: 2961791409.916 FLOP/sec
R: 1000000 <T>: 0.000664 sec B: 11.220 GB/sec F: 3011925719.888 FLOP/sec
R: 1000000 <T>: 0.000677 sec B: 10.999 GB/sec F: 2952456591.507 FLOP/sec
R: 1000000 <T>: 0.000691 sec B: 10.788 GB/sec F: 2895831161.460 FLOP/sec
R: 1000000 <T>: 0.000651 sec B: 11.452 GB/sec F: 3074014586.199 FLOP/sec
R: 1000000 <T>: 0.000666 sec B: 11.182 GB/sec F: 3001668927.924 FLOP/sec
R: 1000000 <T>: 0.000666 sec B: 11.182 GB/sec F: 3001664422.923 FLOP/sec
R: 1000000 <T>: 0.000646 sec B: 11.527 GB/sec F: 3094370566.347 FLOP/sec
R: 1000000 <T>: 0.000671 sec B: 11.105 GB/sec F: 2980972452.834 FLOP/sec
R: 1000000 <T>: 0.000671 sec B: 11.108 GB/sec F: 2981767979.688 FLOP/sec
R: 1000000 <T>: 0.000650 sec B: 11.455 GB/sec F: 3075040206.151 FLOP/sec
R: 1000000 <T>: 0.000671 sec B: 11.112 GB/sec F: 2982759649.227 FLOP/sec
R: 1000000 <T>: 0.000680 sec B: 10.961 GB/sec F: 2942236541.107 FLOP/sec
R: 1000000 <T>: 0.000654 sec B: 11.390 GB/sec F: 3057524261.455 FLOP/sec
R: 1000000 <T>: 0.000686 sec B: 10.860 GB/sec F: 2915103442.446 FLOP/sec
R: 1000000 <T>: 0.000691 sec B: 10.781 GB/sec F: 2894104708.708 FLOP/sec
R: 1000000 <T>: 0.000677 sec B: 11.007 GB/sec F: 2954606896.939 FLOP/sec
R: 1000000 <T>: 0.000650 sec B: 11.469 GB/sec F: 3078561819.061 FLOP/sec
R: 1000000 <T>: 0.000681 sec B: 10.940 GB/sec F: 2936676445.799 FLOP/sec
R: 1000000 <T>: 0.000690 sec B: 10.804 GB/sec F: 2900299310.889 FLOP/sec
R: 1000000 <T>: 0.000667 sec B: 11.173 GB/sec F: 2999359636.718 FLOP/sec
R: 1000000 <T>: 0.000678 sec B: 10.993 GB/sec F: 2950897072.710 FLOP/sec
R: 1000000 <T>: 0.000681 sec B: 10.940 GB/sec F: 2936667821.756 FLOP/sec
R: 1000000 <T>: 0.000659 sec B: 11.312 GB/sec F: 3036620120.341 FLOP/sec
R: 1000000 <T>: 0.000681 sec B: 10.939 GB/sec F: 2936516909.198 FLOP/sec
R: 1000000 <T>: 0.000681 sec B: 10.945 GB/sec F: 2938134637.082 FLOP/sec
R: 1000000 <T>: 0.000669 sec B: 11.136 GB/sec F: 2989398099.640 FLOP/sec
R: 1000000 <T>: 0.000667 sec B: 11.168 GB/sec F: 2997786134.939 FLOP/sec
R: 1000000 <T>: 0.000670 sec B: 11.117 GB/sec F: 2984090322.446 FLOP/sec
R: 1000000 <T>: 0.000665 sec B: 11.202 GB/sec F: 3006885768.410 FLOP/sec
R: 1000000 <T>: 0.000649 sec B: 11.474 GB/sec F: 3080083716.675 FLOP/sec
R: 1000000 <T>: 0.000669 sec B: 11.130 GB/sec F: 2987732370.885 FLOP/sec
R: 1000000 <T>: 0.000690 sec B: 10.790 GB/sec F: 2896539938.217 FLOP/sec
R: 1000000 <T>: 0.000644 sec B: 11.574 GB/sec F: 3106993998.841 FLOP/sec
R: 1000000 <T>: 0.000664 sec B: 11.225 GB/sec F: 3013264389.844 FLOP/sec
R: 1000000 <T>: 0.000664 sec B: 11.224 GB/sec F: 3012955709.551 FLOP/sec
R: 1000000 <T>: 0.000638 sec B: 11.680 GB/sec F: 3135449866.508 FLOP/sec
R: 1000000 <T>: 0.000662 sec B: 11.256 GB/sec F: 3021485785.420 FLOP/sec
R: 1000000 <T>: 0.000665 sec B: 11.208 GB/sec F: 3008491467.166 FLOP/sec
R: 1000000 <T>: 0.000642 sec B: 11.599 GB/sec F: 3113499511.181 FLOP/sec
R: 1000000 <T>: 0.000678 sec B: 10.993 GB/sec F: 2950779522.180 FLOP/sec
R: 1000000 <T>: 0.000679 sec B: 10.977 GB/sec F: 2946658121.358 FLOP/sec
R: 1000000 <T>: 0.000646 sec B: 11.536 GB/sec F: 3096603181.140 FLOP/sec
R: 1000000 <T>: 0.000666 sec B: 11.195 GB/sec F: 3005001825.539 FLOP/sec
R: 1000000 <T>: 0.000670 sec B: 11.122 GB/sec F: 2985484574.001 FLOP/sec
R: 1000000 <T>: 0.000638 sec B: 11.685 GB/sec F: 3136738262.718 FLOP/sec
R: 1000000 <T>: 0.000662 sec B: 11.258 GB/sec F: 3022024514.663 FLOP/sec
R: 1000000 <T>: 0.000663 sec B: 11.229 GB/sec F: 3014377071.442 FLOP/sec
R: 1000000 <T>: 0.000640 sec B: 11.641 GB/sec F: 3124877934.456 FLOP/sec
R: 1000000 <T>: 0.000657 sec B: 11.332 GB/sec F: 3041848226.983 FLOP/sec
R: 1000000 <T>: 0.000660 sec B: 11.297 GB/sec F: 3032517687.159 FLOP/sec
R: 1000000 <T>: 0.000642 sec B: 11.596 GB/sec F: 3112850156.732 FLOP/sec
R: 1000000 <T>: 0.000831 sec B: 8.968 GB/sec F: 2407254502.168 FLOP/sec
R: 1000000 <T>: 0.000673 sec B: 11.076 GB/sec F: 2973234939.078 FLOP/sec
R: 1000000 <T>: 0.000678 sec B: 10.996 GB/sec F: 2951593860.685 FLOP/sec
R: 1000000 <T>: 0.006459 sec B: 1.154 GB/sec F: 309663914.013 FLOP/sec
R: 1000000 <T>: 0.000827 sec B: 9.007 GB/sec F: 2417911891.291 FLOP/sec
R: 1000000 <T>: 0.000781 sec B: 9.536 GB/sec F: 2559931189.050 FLOP/sec
R: 1000000 <T>: 0.000783 sec B: 9.520 GB/sec F: 2555557827.163 FLOP/sec
R: 1000000 <T>: 0.000715 sec B: 10.427 GB/sec F: 2798842958.321 FLOP/sec
R: 1000000 <T>: 0.000733 sec B: 10.161 GB/sec F: 2727526883.187 FLOP/sec
R: 1000000 <T>: 0.000734 sec B: 10.144 GB/sec F: 2723037166.734 FLOP/sec
R: 1000000 <T>: 0.000728 sec B: 10.234 GB/sec F: 2747158408.022 FLOP/sec
R: 1000000 <T>: 0.000663 sec B: 11.232 GB/sec F: 3015035984.454 FLOP/sec
R: 1000000 <T>: 0.000660 sec B: 11.290 GB/sec F: 3030537208.178 FLOP/sec
R: 1000000 <T>: 0.000688 sec B: 10.822 GB/sec F: 2905101940.027 FLOP/sec
R: 1000000 <T>: 0.000686 sec B: 10.861 GB/sec F: 2915600650.179 FLOP/sec
R: 1000000 <T>: 0.000652 sec B: 11.433 GB/sec F: 3068995625.147 FLOP/sec
R: 1000000 <T>: 0.003053 sec B: 2.441 GB/sec F: 655136268.344 FLOP/sec
R: 1000000 <T>: 0.000838 sec B: 8.889 GB/sec F: 2386179249.785 FLOP/sec
R: 1000000 <T>: 0.000774 sec B: 9.623 GB/sec F: 2583101607.593 FLOP/sec
R: 1000000 <T>: 0.000730 sec B: 10.210 GB/sec F: 2740777284.438 FLOP/sec
R: 1000000 <T>: 0.000819 sec B: 9.102 GB/sec F: 2443374789.259 FLOP/sec
R: 1000000 <T>: 0.000759 sec B: 9.818 GB/sec F: 2635532245.737 FLOP/sec
R: 1000000 <T>: 0.000765 sec B: 9.738 GB/sec F: 2613969050.606 FLOP/sec
R: 1000000 <T>: 0.000720 sec B: 10.349 GB/sec F: 2777908956.812 FLOP/sec
R: 1000000 <T>: 0.000687 sec B: 10.844 GB/sec F: 2910949682.779 FLOP/sec
R: 1000000 <T>: 0.000742 sec B: 10.037 GB/sec F: 2694241328.584 FLOP/sec
R: 1000000 <T>: 0.000714 sec B: 10.429 GB/sec F: 2799458024.926 FLOP/sec
R: 1000000 <T>: 0.000772 sec B: 9.649 GB/sec F: 2590207203.625 FLOP/sec
R: 1000000 <T>: 0.000862 sec B: 8.641 GB/sec F: 2319494071.953 FLOP/sec
R: 1000000 <T>: 0.000786 sec B: 9.479 GB/sec F: 2544603722.501 FLOP/sec
R: 1000000 <T>: 0.000735 sec B: 10.130 GB/sec F: 2719305163.145 FLOP/sec
R: 1000000 <T>: 0.000814 sec B: 9.155 GB/sec F: 2457660651.133 FLOP/sec
R: 1000000 <T>: 0.000737 sec B: 10.111 GB/sec F: 2714208747.081 FLOP/sec
R: 1000000 <T>: 0.000783 sec B: 9.511 GB/sec F: 2553176278.950 FLOP/sec
R: 1000000 <T>: 0.000835 sec B: 8.919 GB/sec F: 2394148700.576 FLOP/sec
R: 1000000 <T>: 0.000809 sec B: 9.213 GB/sec F: 2473068286.362 FLOP/sec
R: 1000000 <T>: 0.000756 sec B: 9.860 GB/sec F: 2646713972.268 FLOP/sec
R: 1000000 <T>: 0.000693 sec B: 10.753 GB/sec F: 2886527709.223 FLOP/sec
```

```
R: 1000000 <T>: 0.000728 sec B: 10.233 GB/sec F: 2746898065.360 FLOP/sec
N: 1000000 <T>: 0.000777 sec B: 9.591 GB/sec F: 2574610957.554 FLOP/sec
```

In [63]: `!./dp2 300000000 20`

```
Vector size: 300000000 with 20 measurements.
R: 300000000 <T>: 0.262639 sec B: 8.510 GB/sec F: 2284506299.703 FLOP/sec
R: 300000000 <T>: 0.276358 sec B: 8.088 GB/sec F: 2171094663.686 FLOP/sec
R: 300000000 <T>: 0.281734 sec B: 7.934 GB/sec F: 2129669113.629 FLOP/sec
R: 300000000 <T>: 0.286376 sec B: 7.805 GB/sec F: 2095149276.872 FLOP/sec
R: 300000000 <T>: 0.274113 sec B: 8.154 GB/sec F: 2188881455.529 FLOP/sec
R: 300000000 <T>: 0.278223 sec B: 8.034 GB/sec F: 2156542965.014 FLOP/sec
R: 300000000 <T>: 0.263854 sec B: 8.471 GB/sec F: 2273981856.081 FLOP/sec
R: 300000000 <T>: 0.263556 sec B: 8.481 GB/sec F: 2276554376.216 FLOP/sec
R: 300000000 <T>: 0.271383 sec B: 8.236 GB/sec F: 2210893896.681 FLOP/sec
R: 300000000 <T>: 0.264879 sec B: 8.438 GB/sec F: 2265188305.614 FLOP/sec
R: 300000000 <T>: 0.257789 sec B: 8.671 GB/sec F: 2327487327.811 FLOP/sec
R: 300000000 <T>: 0.259639 sec B: 8.609 GB/sec F: 2310904393.695 FLOP/sec
R: 300000000 <T>: 0.256021 sec B: 8.730 GB/sec F: 2343554249.139 FLOP/sec
R: 300000000 <T>: 0.260494 sec B: 8.581 GB/sec F: 2303318085.176 FLOP/sec
R: 300000000 <T>: 0.254467 sec B: 8.784 GB/sec F: 2357867575.531 FLOP/sec
R: 300000000 <T>: 0.262976 sec B: 8.500 GB/sec F: 2281578605.072 FLOP/sec
R: 300000000 <T>: 0.265109 sec B: 8.431 GB/sec F: 2263220085.245 FLOP/sec
R: 300000000 <T>: 0.249448 sec B: 8.960 GB/sec F: 2405307329.866 FLOP/sec
R: 300000000 <T>: 0.262913 sec B: 8.502 GB/sec F: 2282120272.303 FLOP/sec
R: 300000000 <T>: 0.262123 sec B: 8.527 GB/sec F: 2289005142.628 FLOP/sec
N: 300000000 <T>: 0.259098 sec B: 8.627 GB/sec F: 2315727082.634 FLOP/sec
```

In [64]:
```python
import numpy as np

def compute_dot_product_unrolled(N):
    # Create two vectors of size N with all elements set to 1.0
    vecA = np.ones(N, dtype=np.float32)  # Using float32 to mimic single-precision float in C
    vecB = np.ones(N, dtype=np.float32)

    # Compute the dot product using loop unrolling
    dot_product_result = 0.0
    for j in range(0, N, 4):
        dot_product_result += (vecA[j] * vecB[j] +
                               vecA[j + 1] * vecB[j + 1] +
                               vecA[j + 2] * vecB[j + 2] +
                               vecA[j + 3] * vecB[j + 3])

    # Analytically, the result should be N
    analytical_result = N

    return dot_product_result, analytical_result

# Test the function for a few vector sizes
vector_sizes = [1000000, 16777216, 67108864, 300000000]
results = {}

for size in vector_sizes:
    dot_product_result, analytical_result = compute_dot_product_unrolled(size)
    results[size] = (dot_product_result, analytical_result)

for size, (dp_result, analytical) in results.items():
    print(f"For N = {size}:")
    print(f"Computed Dot Product: {dp_result}")
    print(f"Analytical Result: {analytical}")
    print("----")
```

```
For N = 1000000:
Computed Dot Product: 1000000.0
Analytical Result: 1000000
----
For N = 16777216:
Computed Dot Product: 16777216.0
Analytical Result: 16777216
----
For N = 67108864:
Computed Dot Product: 67108864.0
Analytical Result: 67108864
----
For N = 300000000:
Computed Dot Product: 300000000.0
Analytical Result: 300000000
----
```

C3: Perform the same microbenchmark with MKL (Intel library), you may need to install a module to access MKL.

```c
#include <mkl_cblas.h>
float bdp(long N, float *pA, float *pB) {
    float R = cblas_sdot(N, pA, 1, pB, 1);
    return R; }
```

In [70]:
```c
%%writefile dp3.c
#include <stdio.h>
#include <stdlib.h>
#include <time.h>
#include <mkl_cblas.h>

#define GB (1073741824.0) // Constant for gigabyte conversion

// Compute the dot product of two vectors using the Intel MKL library
float bdp(long N, float *pA, float *pB)
{
    float R = cblas_sdot(N, pA, 1, pB, 1);
    return R;
}
```

```c
// Initialize two vectors with all elements set to 1
void initialize_vectors(long N, float *vecA, float *vecB)
{
    for (long idx = 0; idx < N; idx++)
    {
        vecA[idx] = 1.0;
        vecB[idx] = 1.0;
    }
}

int main(int argc, char *argv[])
{
    // Check for the correct number of command-line arguments
    if (argc != 3)
    {
        fprintf(stderr, "Usage: %s <vector_size> <measurements>\n", argv[0]);
        return 1;
    }

    // Convert command-line arguments to respective data types
    long vector_size = atol(argv[1]);
    int num_measurements = atoi(argv[2]);

    // Print the vector size and number of measurements
    printf("Vector size: %ld with %d measurements.\n", vector_size, num_measurements);

    // Allocate memory for the two vectors
    float *vecA = (float *)malloc(vector_size * sizeof(float));
    float *vecB = (float *)malloc(vector_size * sizeof(float));

    // Initialize vectors to default values
    initialize_vectors(vector_size, vecA, vecB);

    struct timespec start, end;
    double cumulative_time = 0.0;

    // Perform the dot product multiple times and measure its performance
    for (int measure = 0; measure < num_measurements; measure++)
    {
        clock_gettime(CLOCK_MONOTONIC, &start); // Start the timer
        float result = bdp(vector_size, vecA, vecB);
        clock_gettime(CLOCK_MONOTONIC, &end); // Stop the timer

        // Calculate elapsed time
        double elapsed_time = ((double)end.tv_sec + 1.0e-9 * end.tv_nsec) -
                              ((double)start.tv_sec + 1.0e-9 * start.tv_nsec);

        // Accumulate time from the second half measurements for averages
        if (measure >= num_measurements / 2)
        {
            cumulative_time += elapsed_time;
        }

        // Compute bandwidth and flops
        double bandwidth = (vector_size * 2 * sizeof(float) / GB) / elapsed_time;
        double flops = vector_size * 2 / elapsed_time;

        printf("R: %ld <T>: %.6f sec B: %.3f GB/sec F: %.3f FLOP/sec\n",
                (long)result, elapsed_time, bandwidth, flops);
    }

    // Calculate and print the averages for the second half measurements
    double mean_time = cumulative_time / (num_measurements / 2);
    double mean_bandwidth = (vector_size * 2 * sizeof(float) / GB) / mean_time;
    double mean_flops = vector_size * 2 / mean_time;

    printf("N: %li <T>: %.6f sec B: %.3f GB/sec F: %.3f FLOP/sec\n",
            vector_size, mean_time, mean_bandwidth, mean_flops);

    // Free the allocated memory
    free(vecA);
    free(vecB);

    return 0;
}
```

Overwriting dp3.c

In [71]: `!find /usr -name "mkl_cblas.h"`

/usr/include/mkl/mkl_cblas.h

In [72]: `!find /usr -name "libmkl_rt.so"`

/usr/lib/x86_64-linux-gnu/libmkl_rt.so

In [73]: `!gcc -O3 -Wall -o dp3 dp3.c -I /usr/include/mkl -L /usr/lib/x86_64-linux-gnu -lmkl_rt`

In [74]: `!./dp3 1000000 1000`

```
Vector size: 1000000 with 1000 measurements.
R: 1000000 <T>: 0.019885 sec B: 0.375 GB/sec F: 100579094.195 FLOP/sec
R: 1000000 <T>: 0.000672 sec B: 11.081 GB/sec F: 2974552698.289 FLOP/sec
R: 1000000 <T>: 0.000491 sec B: 15.163 GB/sec F: 4070401662.196 FLOP/sec
R: 1000000 <T>: 0.000429 sec B: 17.380 GB/sec F: 4665332379.208 FLOP/sec
R: 1000000 <T>: 0.000390 sec B: 19.082 GB/sec F: 5122229201.582 FLOP/sec
R: 1000000 <T>: 0.000360 sec B: 20.672 GB/sec F: 5549050833.542 FLOP/sec
R: 1000000 <T>: 0.000415 sec B: 17.932 GB/sec F: 4813524069.813 FLOP/sec
R: 1000000 <T>: 0.000361 sec B: 20.625 GB/sec F: 5536531416.800 FLOP/sec
R: 1000000 <T>: 0.000374 sec B: 19.934 GB/sec F: 5350898557.480 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.073 GB/sec F: 5388264903.992 FLOP/sec
R: 1000000 <T>: 0.000381 sec B: 19.533 GB/sec F: 5243233598.846 FLOP/sec
R: 1000000 <T>: 0.000510 sec B: 14.616 GB/sec F: 3923476516.044 FLOP/sec
R: 1000000 <T>: 0.000790 sec B: 9.437 GB/sec F: 2533130173.548 FLOP/sec
R: 1000000 <T>: 0.000422 sec B: 17.642 GB/sec F: 4735666914.414 FLOP/sec
R: 1000000 <T>: 0.000399 sec B: 18.691 GB/sec F: 5017221620.576 FLOP/sec
R: 1000000 <T>: 0.000369 sec B: 20.207 GB/sec F: 5424184824.625 FLOP/sec
R: 1000000 <T>: 0.000367 sec B: 20.316 GB/sec F: 5453588607.996 FLOP/sec
R: 1000000 <T>: 0.000375 sec B: 19.878 GB/sec F: 5336079644.352 FLOP/sec
R: 1000000 <T>: 0.000372 sec B: 20.035 GB/sec F: 5378194648.204 FLOP/sec
R: 1000000 <T>: 0.000373 sec B: 19.973 GB/sec F: 5361570939.647 FLOP/sec
R: 1000000 <T>: 0.000360 sec B: 20.671 GB/sec F: 5548819912.857 FLOP/sec
R: 1000000 <T>: 0.000369 sec B: 20.193 GB/sec F: 5420538961.058 FLOP/sec
R: 1000000 <T>: 0.000398 sec B: 18.743 GB/sec F: 5031332619.836 FLOP/sec
R: 1000000 <T>: 0.000374 sec B: 19.927 GB/sec F: 5349095335.127 FLOP/sec
R: 1000000 <T>: 0.000357 sec B: 20.842 GB/sec F: 5594781197.372 FLOP/sec
R: 1000000 <T>: 0.000401 sec B: 18.581 GB/sec F: 4987667992.140 FLOP/sec
R: 1000000 <T>: 0.000386 sec B: 19.294 GB/sec F: 5179173509.995 FLOP/sec
R: 1000000 <T>: 0.000372 sec B: 20.033 GB/sec F: 5377601751.224 FLOP/sec
R: 1000000 <T>: 0.000360 sec B: 20.668 GB/sec F: 5548065676.010 FLOP/sec
R: 1000000 <T>: 0.000365 sec B: 20.432 GB/sec F: 5484621124.265 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.082 GB/sec F: 5390821054.504 FLOP/sec
R: 1000000 <T>: 0.000366 sec B: 20.380 GB/sec F: 5470803693.145 FLOP/sec
R: 1000000 <T>: 0.000370 sec B: 20.152 GB/sec F: 5409469818.457 FLOP/sec
R: 1000000 <T>: 0.000360 sec B: 20.681 GB/sec F: 5551576925.416 FLOP/sec
R: 1000000 <T>: 0.000370 sec B: 20.132 GB/sec F: 5404266130.126 FLOP/sec
R: 1000000 <T>: 0.000387 sec B: 19.230 GB/sec F: 5162116261.695 FLOP/sec
R: 1000000 <T>: 0.000372 sec B: 20.014 GB/sec F: 5372589044.834 FLOP/sec
R: 1000000 <T>: 0.000392 sec B: 19.010 GB/sec F: 5103030181.742 FLOP/sec
R: 1000000 <T>: 0.000361 sec B: 20.658 GB/sec F: 5545419755.660 FLOP/sec
R: 1000000 <T>: 0.000367 sec B: 20.283 GB/sec F: 5444576933.517 FLOP/sec
R: 1000000 <T>: 0.000377 sec B: 19.780 GB/sec F: 5309687522.766 FLOP/sec
R: 1000000 <T>: 0.000368 sec B: 20.229 GB/sec F: 5430222993.643 FLOP/sec
R: 1000000 <T>: 0.000374 sec B: 19.947 GB/sec F: 5354565967.386 FLOP/sec
R: 1000000 <T>: 0.000384 sec B: 19.401 GB/sec F: 5207885780.029 FLOP/sec
R: 1000000 <T>: 0.000368 sec B: 20.252 GB/sec F: 5436274634.387 FLOP/sec
R: 1000000 <T>: 0.000373 sec B: 19.984 GB/sec F: 5364346410.742 FLOP/sec
R: 1000000 <T>: 0.000359 sec B: 20.725 GB/sec F: 5563297807.086 FLOP/sec
R: 1000000 <T>: 0.000369 sec B: 20.215 GB/sec F: 5426480683.996 FLOP/sec
R: 1000000 <T>: 0.000374 sec B: 19.928 GB/sec F: 5349352860.190 FLOP/sec
R: 1000000 <T>: 0.000369 sec B: 20.218 GB/sec F: 5427099128.476 FLOP/sec
R: 1000000 <T>: 0.000374 sec B: 19.920 GB/sec F: 5347350527.819 FLOP/sec
R: 1000000 <T>: 0.000357 sec B: 20.867 GB/sec F: 5601440693.528 FLOP/sec
R: 1000000 <T>: 0.000363 sec B: 20.533 GB/sec F: 5511752430.901 FLOP/sec
R: 1000000 <T>: 0.000368 sec B: 20.233 GB/sec F: 5431137258.265 FLOP/sec
R: 1000000 <T>: 0.000359 sec B: 20.741 GB/sec F: 5567680725.270 FLOP/sec
R: 1000000 <T>: 0.000374 sec B: 19.904 GB/sec F: 5342964925.305 FLOP/sec
R: 1000000 <T>: 0.000395 sec B: 18.880 GB/sec F: 5068076933.433 FLOP/sec
R: 1000000 <T>: 0.000368 sec B: 20.221 GB/sec F: 5427968153.956 FLOP/sec
R: 1000000 <T>: 0.000377 sec B: 19.775 GB/sec F: 5308433247.203 FLOP/sec
R: 1000000 <T>: 0.000358 sec B: 20.783 GB/sec F: 5578909490.226 FLOP/sec
R: 1000000 <T>: 0.000364 sec B: 20.477 GB/sec F: 5496876402.526 FLOP/sec
R: 1000000 <T>: 0.000370 sec B: 20.146 GB/sec F: 5407919360.792 FLOP/sec
R: 1000000 <T>: 0.000366 sec B: 20.346 GB/sec F: 5461690344.517 FLOP/sec
R: 1000000 <T>: 0.000353 sec B: 21.133 GB/sec F: 5672745013.293 FLOP/sec
R: 1000000 <T>: 0.000363 sec B: 20.504 GB/sec F: 5504077140.325 FLOP/sec
R: 1000000 <T>: 0.000364 sec B: 20.478 GB/sec F: 5497148353.956 FLOP/sec
R: 1000000 <T>: 0.000370 sec B: 20.126 GB/sec F: 5402616487.139 FLOP/sec
R: 1000000 <T>: 0.000355 sec B: 21.016 GB/sec F: 5641430656.384 FLOP/sec
R: 1000000 <T>: 0.000367 sec B: 20.320 GB/sec F: 5454540496.166 FLOP/sec
R: 1000000 <T>: 0.000388 sec B: 19.191 GB/sec F: 5151452702.034 FLOP/sec
R: 1000000 <T>: 0.000370 sec B: 20.132 GB/sec F: 5404032493.959 FLOP/sec
R: 1000000 <T>: 0.000397 sec B: 18.789 GB/sec F: 5043627375.402 FLOP/sec
R: 1000000 <T>: 0.000360 sec B: 20.710 GB/sec F: 5559261732.975 FLOP/sec
R: 1000000 <T>: 0.000365 sec B: 20.426 GB/sec F: 5482982192.726 FLOP/sec
R: 1000000 <T>: 0.000374 sec B: 19.932 GB/sec F: 5350454781.662 FLOP/sec
R: 1000000 <T>: 0.000361 sec B: 20.660 GB/sec F: 5545957963.596 FLOP/sec
R: 1000000 <T>: 0.000368 sec B: 20.232 GB/sec F: 5431063510.210 FLOP/sec
R: 1000000 <T>: 0.000380 sec B: 19.629 GB/sec F: 5269120327.369 FLOP/sec
R: 1000000 <T>: 0.000372 sec B: 20.016 GB/sec F: 5372964308.345 FLOP/sec
R: 1000000 <T>: 0.000377 sec B: 19.779 GB/sec F: 5309447891.062 FLOP/sec
R: 1000000 <T>: 0.000364 sec B: 20.462 GB/sec F: 5492830487.144 FLOP/sec
R: 1000000 <T>: 0.000369 sec B: 20.183 GB/sec F: 5417734404.970 FLOP/sec
R: 1000000 <T>: 0.000373 sec B: 19.972 GB/sec F: 5361254750.766 FLOP/sec
R: 1000000 <T>: 0.000369 sec B: 20.203 GB/sec F: 5423125845.118 FLOP/sec
R: 1000000 <T>: 0.000376 sec B: 19.821 GB/sec F: 5320620595.056 FLOP/sec
R: 1000000 <T>: 0.000364 sec B: 20.466 GB/sec F: 5493675401.385 FLOP/sec
R: 1000000 <T>: 0.000372 sec B: 20.036 GB/sec F: 5378382658.566 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.107 GB/sec F: 5397309431.050 FLOP/sec
R: 1000000 <T>: 0.000362 sec B: 20.596 GB/sec F: 5528573046.672 FLOP/sec
R: 1000000 <T>: 0.000368 sec B: 20.224 GB/sec F: 5428852173.709 FLOP/sec
R: 1000000 <T>: 0.000372 sec B: 20.033 GB/sec F: 5377514984.589 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.084 GB/sec F: 5391242460.178 FLOP/sec
R: 1000000 <T>: 0.000372 sec B: 20.041 GB/sec F: 5379597880.539 FLOP/sec
R: 1000000 <T>: 0.000361 sec B: 20.649 GB/sec F: 5543052884.002 FLOP/sec
R: 1000000 <T>: 0.000369 sec B: 20.209 GB/sec F: 5424729169.750 FLOP/sec
R: 1000000 <T>: 0.000518 sec B: 14.371 GB/sec F: 3857578209.263 FLOP/sec
R: 1000000 <T>: 0.000380 sec B: 19.620 GB/sec F: 5266636648.557 FLOP/sec
R: 1000000 <T>: 0.000407 sec B: 18.287 GB/sec F: 4908987377.832 FLOP/sec
R: 1000000 <T>: 0.000383 sec B: 19.465 GB/sec F: 5225001624.395 FLOP/sec
```

```
R: 1000000 <T>: 0.000374 sec B: 19.928 GB/sec F: 5349338559.098 FLOP/sec
R: 1000000 <T>: 0.000374 sec B: 19.898 GB/sec F: 5341395277.130 FLOP/sec
R: 1000000 <T>: 0.000372 sec B: 20.002 GB/sec F: 5369257240.416 FLOP/sec
R: 1000000 <T>: 0.000390 sec B: 19.117 GB/sec F: 5131573543.987 FLOP/sec
R: 1000000 <T>: 0.000367 sec B: 20.319 GB/sec F: 5454242995.420 FLOP/sec
R: 1000000 <T>: 0.000365 sec B: 20.432 GB/sec F: 5484771532.143 FLOP/sec
R: 1000000 <T>: 0.000393 sec B: 18.977 GB/sec F: 5094009956.931 FLOP/sec
R: 1000000 <T>: 0.000368 sec B: 20.269 GB/sec F: 5440814806.700 FLOP/sec
R: 1000000 <T>: 0.000422 sec B: 17.666 GB/sec F: 4742269511.872 FLOP/sec
R: 1000000 <T>: 0.000376 sec B: 19.800 GB/sec F: 5314978951.908 FLOP/sec
R: 1000000 <T>: 0.000377 sec B: 19.750 GB/sec F: 5301482030.750 FLOP/sec
R: 1000000 <T>: 0.000378 sec B: 19.702 GB/sec F: 5288668772.170 FLOP/sec
R: 1000000 <T>: 0.000373 sec B: 19.975 GB/sec F: 5361987797.605 FLOP/sec
R: 1000000 <T>: 0.000398 sec B: 18.709 GB/sec F: 5022046781.856 FLOP/sec
R: 1000000 <T>: 0.000370 sec B: 20.120 GB/sec F: 5400924089.449 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.088 GB/sec F: 5392216326.467 FLOP/sec
R: 1000000 <T>: 0.000388 sec B: 19.222 GB/sec F: 5159958719.434 FLOP/sec
R: 1000000 <T>: 0.000369 sec B: 20.206 GB/sec F: 5423920030.944 FLOP/sec
R: 1000000 <T>: 0.000469 sec B: 15.891 GB/sec F: 4265656561.764 FLOP/sec
R: 1000000 <T>: 0.000396 sec B: 18.799 GB/sec F: 5046414394.463 FLOP/sec
R: 1000000 <T>: 0.000405 sec B: 18.376 GB/sec F: 4932705553.973 FLOP/sec
R: 1000000 <T>: 0.000369 sec B: 20.201 GB/sec F: 5422625908.126 FLOP/sec
R: 1000000 <T>: 0.000380 sec B: 19.607 GB/sec F: 5263102488.637 FLOP/sec
R: 1000000 <T>: 0.000395 sec B: 18.844 GB/sec F: 5058348050.046 FLOP/sec
R: 1000000 <T>: 0.000367 sec B: 20.314 GB/sec F: 5453038428.906 FLOP/sec
R: 1000000 <T>: 0.000399 sec B: 18.670 GB/sec F: 5011714891.975 FLOP/sec
R: 1000000 <T>: 0.000376 sec B: 19.814 GB/sec F: 5318851869.907 FLOP/sec
R: 1000000 <T>: 0.000382 sec B: 19.508 GB/sec F: 5236561673.561 FLOP/sec
R: 1000000 <T>: 0.000443 sec B: 16.803 GB/sec F: 4510579562.325 FLOP/sec
R: 1000000 <T>: 0.000532 sec B: 14.004 GB/sec F: 3759250102.996 FLOP/sec
R: 1000000 <T>: 0.000487 sec B: 15.298 GB/sec F: 4106599103.036 FLOP/sec
R: 1000000 <T>: 0.000524 sec B: 14.215 GB/sec F: 3815934581.781 FLOP/sec
R: 1000000 <T>: 0.000546 sec B: 13.638 GB/sec F: 3660797798.220 FLOP/sec
R: 1000000 <T>: 0.000747 sec B: 9.976 GB/sec F: 2677831438.453 FLOP/sec
R: 1000000 <T>: 0.000479 sec B: 15.540 GB/sec F: 4171446448.559 FLOP/sec
R: 1000000 <T>: 0.000486 sec B: 15.337 GB/sec F: 4117022245.041 FLOP/sec
R: 1000000 <T>: 0.000442 sec B: 16.854 GB/sec F: 4524211309.829 FLOP/sec
R: 1000000 <T>: 0.000428 sec B: 17.393 GB/sec F: 4669002727.726 FLOP/sec
R: 1000000 <T>: 0.000390 sec B: 19.118 GB/sec F: 5131876394.685 FLOP/sec
R: 1000000 <T>: 0.000418 sec B: 17.815 GB/sec F: 4782137764.277 FLOP/sec
R: 1000000 <T>: 0.000380 sec B: 19.611 GB/sec F: 5264210732.740 FLOP/sec
R: 1000000 <T>: 0.000382 sec B: 19.508 GB/sec F: 5236657643.594 FLOP/sec
R: 1000000 <T>: 0.000404 sec B: 18.443 GB/sec F: 4950642103.652 FLOP/sec
R: 1000000 <T>: 0.000375 sec B: 19.857 GB/sec F: 5330234689.598 FLOP/sec
R: 1000000 <T>: 0.000402 sec B: 18.517 GB/sec F: 4970710090.982 FLOP/sec
R: 1000000 <T>: 0.000372 sec B: 20.015 GB/sec F: 5372675639.453 FLOP/sec
R: 1000000 <T>: 0.000372 sec B: 20.046 GB/sec F: 5381074213.713 FLOP/sec
R: 1000000 <T>: 0.000389 sec B: 19.169 GB/sec F: 5145726980.975 FLOP/sec
R: 1000000 <T>: 0.000370 sec B: 20.116 GB/sec F: 5399728384.385 FLOP/sec
R: 1000000 <T>: 0.000400 sec B: 18.621 GB/sec F: 4998475470.993 FLOP/sec
R: 1000000 <T>: 0.000368 sec B: 20.249 GB/sec F: 5435654083.635 FLOP/sec
R: 1000000 <T>: 0.000384 sec B: 19.414 GB/sec F: 5211441196.811 FLOP/sec
R: 1000000 <T>: 0.000398 sec B: 18.723 GB/sec F: 5026034860.781 FLOP/sec
R: 1000000 <T>: 0.000377 sec B: 19.739 GB/sec F: 5298715060.373 FLOP/sec
R: 1000000 <T>: 0.000477 sec B: 15.624 GB/sec F: 4194006349.124 FLOP/sec
R: 1000000 <T>: 0.000380 sec B: 19.582 GB/sec F: 5256476644.708 FLOP/sec
R: 1000000 <T>: 0.000427 sec B: 17.446 GB/sec F: 4683029169.799 FLOP/sec
R: 1000000 <T>: 0.000404 sec B: 18.420 GB/sec F: 4944510231.760 FLOP/sec
R: 1000000 <T>: 0.000405 sec B: 18.384 GB/sec F: 4934872026.358 FLOP/sec
R: 1000000 <T>: 0.000403 sec B: 18.500 GB/sec F: 4966167983.953 FLOP/sec
R: 1000000 <T>: 0.000373 sec B: 19.978 GB/sec F: 5362749803.559 FLOP/sec
R: 1000000 <T>: 0.000405 sec B: 18.414 GB/sec F: 4943043780.321 FLOP/sec
R: 1000000 <T>: 0.000377 sec B: 19.748 GB/sec F: 5301172889.219 FLOP/sec
R: 1000000 <T>: 0.000375 sec B: 19.890 GB/sec F: 5339185081.957 FLOP/sec
R: 1000000 <T>: 0.000381 sec B: 19.571 GB/sec F: 5253521819.147 FLOP/sec
R: 1000000 <T>: 0.000374 sec B: 19.911 GB/sec F: 5344778292.755 FLOP/sec
R: 1000000 <T>: 0.000986 sec B: 7.556 GB/sec F: 2028228889.576 FLOP/sec
R: 1000000 <T>: 0.001367 sec B: 5.449 GB/sec F: 1462695059.150 FLOP/sec
R: 1000000 <T>: 0.000504 sec B: 14.770 GB/sec F: 3964847660.168 FLOP/sec
R: 1000000 <T>: 0.000514 sec B: 14.505 GB/sec F: 3893739840.110 FLOP/sec
R: 1000000 <T>: 0.000475 sec B: 15.693 GB/sec F: 4212503976.362 FLOP/sec
R: 1000000 <T>: 0.000495 sec B: 15.050 GB/sec F: 4039938834.672 FLOP/sec
R: 1000000 <T>: 0.000446 sec B: 16.718 GB/sec F: 4487615300.575 FLOP/sec
R: 1000000 <T>: 0.000476 sec B: 15.640 GB/sec F: 4198205682.102 FLOP/sec
R: 1000000 <T>: 0.000444 sec B: 16.792 GB/sec F: 4507631421.391 FLOP/sec
R: 1000000 <T>: 0.000457 sec B: 16.292 GB/sec F: 4373372285.791 FLOP/sec
R: 1000000 <T>: 0.000421 sec B: 17.677 GB/sec F: 4745037279.279 FLOP/sec
R: 1000000 <T>: 0.000449 sec B: 16.609 GB/sec F: 4458533409.699 FLOP/sec
R: 1000000 <T>: 0.000429 sec B: 17.359 GB/sec F: 4659777963.551 FLOP/sec
R: 1000000 <T>: 0.000454 sec B: 16.396 GB/sec F: 4401292217.642 FLOP/sec
R: 1000000 <T>: 0.000426 sec B: 17.506 GB/sec F: 4699281247.410 FLOP/sec
R: 1000000 <T>: 0.000428 sec B: 17.417 GB/sec F: 4675223881.915 FLOP/sec
R: 1000000 <T>: 0.000443 sec B: 16.813 GB/sec F: 4513185268.938 FLOP/sec
R: 1000000 <T>: 0.000437 sec B: 17.054 GB/sec F: 4577979013.709 FLOP/sec
R: 1000000 <T>: 0.000462 sec B: 16.142 GB/sec F: 4333009084.665 FLOP/sec
R: 1000000 <T>: 0.000451 sec B: 16.510 GB/sec F: 4431769583.116 FLOP/sec
R: 1000000 <T>: 0.000481 sec B: 15.477 GB/sec F: 4154523342.299 FLOP/sec
R: 1000000 <T>: 0.000461 sec B: 16.159 GB/sec F: 4337576205.076 FLOP/sec
R: 1000000 <T>: 0.000485 sec B: 15.369 GB/sec F: 4125489132.493 FLOP/sec
R: 1000000 <T>: 0.000451 sec B: 16.526 GB/sec F: 4436143928.847 FLOP/sec
R: 1000000 <T>: 0.000488 sec B: 15.253 GB/sec F: 4094325064.162 FLOP/sec
R: 1000000 <T>: 0.000420 sec B: 17.741 GB/sec F: 4762244925.527 FLOP/sec
R: 1000000 <T>: 0.000427 sec B: 17.451 GB/sec F: 4684520930.874 FLOP/sec
R: 1000000 <T>: 0.000409 sec B: 18.220 GB/sec F: 4890980052.230 FLOP/sec
R: 1000000 <T>: 0.000431 sec B: 17.278 GB/sec F: 4637939272.773 FLOP/sec
R: 1000000 <T>: 0.000384 sec B: 19.385 GB/sec F: 5203549869.973 FLOP/sec
R: 1000000 <T>: 0.000381 sec B: 19.550 GB/sec F: 5247842480.135 FLOP/sec
R: 1000000 <T>: 0.000402 sec B: 18.534 GB/sec F: 4975260514.130 FLOP/sec
R: 1000000 <T>: 0.000383 sec B: 19.448 GB/sec F: 5220487276.202 FLOP/sec
R: 1000000 <T>: 0.000422 sec B: 17.674 GB/sec F: 4744429438.117 FLOP/sec
```

```
R: 1000000 <T>: 0.000380 sec B: 19.626 GB/sec F: 5268426322.779 FLOP/sec
R: 1000000 <T>: 0.000406 sec B: 18.359 GB/sec F: 4928159744.732 FLOP/sec
R: 1000000 <T>: 0.000383 sec B: 19.436 GB/sec F: 5217423059.938 FLOP/sec
R: 1000000 <T>: 0.000379 sec B: 19.662 GB/sec F: 5277991831.397 FLOP/sec
R: 1000000 <T>: 0.000415 sec B: 17.973 GB/sec F: 4824508506.314 FLOP/sec
R: 1000000 <T>: 0.000377 sec B: 19.764 GB/sec F: 5305250872.014 FLOP/sec
R: 1000000 <T>: 0.000396 sec B: 18.795 GB/sec F: 5045306859.538 FLOP/sec
R: 1000000 <T>: 0.000374 sec B: 19.916 GB/sec F: 5346278453.721 FLOP/sec
R: 1000000 <T>: 0.000376 sec B: 19.827 GB/sec F: 5322291345.948 FLOP/sec
R: 1000000 <T>: 0.000398 sec B: 18.715 GB/sec F: 5023901204.070 FLOP/sec
R: 1000000 <T>: 0.000382 sec B: 19.498 GB/sec F: 5233957921.542 FLOP/sec
R: 1000000 <T>: 0.000399 sec B: 18.691 GB/sec F: 5017385239.791 FLOP/sec
R: 1000000 <T>: 0.000374 sec B: 19.900 GB/sec F: 5341809003.586 FLOP/sec
R: 1000000 <T>: 0.000375 sec B: 19.870 GB/sec F: 5333717355.835 FLOP/sec
R: 1000000 <T>: 0.000407 sec B: 18.310 GB/sec F: 4915128025.956 FLOP/sec
R: 1000000 <T>: 0.000382 sec B: 19.520 GB/sec F: 5239977882.313 FLOP/sec
R: 1000000 <T>: 0.000410 sec B: 18.190 GB/sec F: 4882729058.376 FLOP/sec
R: 1000000 <T>: 0.000381 sec B: 19.558 GB/sec F: 5250143072.769 FLOP/sec
R: 1000000 <T>: 0.000380 sec B: 19.592 GB/sec F: 5259199653.492 FLOP/sec
R: 1000000 <T>: 0.000397 sec B: 18.753 GB/sec F: 5033966692.859 FLOP/sec
R: 1000000 <T>: 0.000375 sec B: 19.851 GB/sec F: 5328601532.433 FLOP/sec
R: 1000000 <T>: 0.000392 sec B: 18.983 GB/sec F: 5095762111.855 FLOP/sec
R: 1000000 <T>: 0.000374 sec B: 19.924 GB/sec F: 5348423005.945 FLOP/sec
R: 1000000 <T>: 0.000375 sec B: 19.864 GB/sec F: 5332195802.706 FLOP/sec
R: 1000000 <T>: 0.000390 sec B: 19.084 GB/sec F: 5122858965.909 FLOP/sec
R: 1000000 <T>: 0.000374 sec B: 19.901 GB/sec F: 5342108640.408 FLOP/sec
R: 1000000 <T>: 0.000409 sec B: 18.201 GB/sec F: 4885710998.920 FLOP/sec
R: 1000000 <T>: 0.000377 sec B: 19.783 GB/sec F: 5310575740.963 FLOP/sec
R: 1000000 <T>: 0.000383 sec B: 19.465 GB/sec F: 5225179088.926 FLOP/sec
R: 1000000 <T>: 0.000380 sec B: 19.586 GB/sec F: 5257568260.128 FLOP/sec
R: 1000000 <T>: 0.000376 sec B: 19.795 GB/sec F: 5313722162.629 FLOP/sec
R: 1000000 <T>: 0.000395 sec B: 18.846 GB/sec F: 5058885437.669 FLOP/sec
R: 1000000 <T>: 0.000379 sec B: 19.642 GB/sec F: 5272676457.967 FLOP/sec
R: 1000000 <T>: 0.000396 sec B: 18.797 GB/sec F: 5045739629.143 FLOP/sec
R: 1000000 <T>: 0.000388 sec B: 19.222 GB/sec F: 5159825598.406 FLOP/sec
R: 1000000 <T>: 0.000382 sec B: 19.515 GB/sec F: 5238632818.370 FLOP/sec
R: 1000000 <T>: 0.000407 sec B: 18.326 GB/sec F: 4919395704.941 FLOP/sec
R: 1000000 <T>: 0.000376 sec B: 19.813 GB/sec F: 5318498263.409 FLOP/sec
R: 1000000 <T>: 0.000405 sec B: 18.392 GB/sec F: 4937003836.198 FLOP/sec
R: 1000000 <T>: 0.000381 sec B: 19.553 GB/sec F: 5248778992.253 FLOP/sec
R: 1000000 <T>: 0.000379 sec B: 19.653 GB/sec F: 5275625031.107 FLOP/sec
R: 1000000 <T>: 0.000403 sec B: 18.509 GB/sec F: 4968363945.136 FLOP/sec
R: 1000000 <T>: 0.000379 sec B: 19.638 GB/sec F: 5271439605.228 FLOP/sec
R: 1000000 <T>: 0.000418 sec B: 17.820 GB/sec F: 4783453075.635 FLOP/sec
R: 1000000 <T>: 0.000383 sec B: 19.437 GB/sec F: 5217491120.055 FLOP/sec
R: 1000000 <T>: 0.000382 sec B: 19.519 GB/sec F: 5239703338.407 FLOP/sec
R: 1000000 <T>: 0.000394 sec B: 18.896 GB/sec F: 5072434359.102 FLOP/sec
R: 1000000 <T>: 0.000374 sec B: 19.936 GB/sec F: 5351643088.187 FLOP/sec
R: 1000000 <T>: 0.000405 sec B: 18.409 GB/sec F: 4941602606.422 FLOP/sec
R: 1000000 <T>: 0.000379 sec B: 19.654 GB/sec F: 5275736361.157 FLOP/sec
R: 1000000 <T>: 0.000380 sec B: 19.591 GB/sec F: 5258936913.467 FLOP/sec
R: 1000000 <T>: 0.000401 sec B: 18.601 GB/sec F: 4993109514.874 FLOP/sec
R: 1000000 <T>: 0.000380 sec B: 19.586 GB/sec F: 5257678841.951 FLOP/sec
R: 1000000 <T>: 0.000406 sec B: 18.334 GB/sec F: 4921502045.679 FLOP/sec
R: 1000000 <T>: 0.000385 sec B: 19.359 GB/sec F: 5196681406.351 FLOP/sec
R: 1000000 <T>: 0.000401 sec B: 18.599 GB/sec F: 4992548616.107 FLOP/sec
R: 1000000 <T>: 0.000388 sec B: 19.191 GB/sec F: 5151598678.786 FLOP/sec
R: 1000000 <T>: 0.000382 sec B: 19.501 GB/sec F: 5234670263.149 FLOP/sec
R: 1000000 <T>: 0.000417 sec B: 17.868 GB/sec F: 4796519644.531 FLOP/sec
R: 1000000 <T>: 0.000381 sec B: 19.547 GB/sec F: 5247126549.273 FLOP/sec
R: 1000000 <T>: 0.000410 sec B: 18.168 GB/sec F: 4877061471.334 FLOP/sec
R: 1000000 <T>: 0.000377 sec B: 19.749 GB/sec F: 5301200991.505 FLOP/sec
R: 1000000 <T>: 0.000380 sec B: 19.593 GB/sec F: 5259531593.682 FLOP/sec
R: 1000000 <T>: 0.000394 sec B: 18.906 GB/sec F: 5075060143.216 FLOP/sec
R: 1000000 <T>: 0.000383 sec B: 19.469 GB/sec F: 5226162165.745 FLOP/sec
R: 1000000 <T>: 0.000406 sec B: 18.334 GB/sec F: 4921502045.679 FLOP/sec
R: 1000000 <T>: 0.000392 sec B: 19.002 GB/sec F: 5100804648.300 FLOP/sec
R: 1000000 <T>: 0.000383 sec B: 19.454 GB/sec F: 5222054824.290 FLOP/sec
R: 1000000 <T>: 0.000402 sec B: 18.544 GB/sec F: 4977935304.327 FLOP/sec
R: 1000000 <T>: 0.000383 sec B: 19.438 GB/sec F: 5217981160.739 FLOP/sec
R: 1000000 <T>: 0.000415 sec B: 17.959 GB/sec F: 4820868569.910 FLOP/sec
R: 1000000 <T>: 0.000381 sec B: 19.568 GB/sec F: 5252611203.427 FLOP/sec
R: 1000000 <T>: 0.000410 sec B: 18.167 GB/sec F: 4876752279.736 FLOP/sec
R: 1000000 <T>: 0.000380 sec B: 19.590 GB/sec F: 5258522104.314 FLOP/sec
R: 1000000 <T>: 0.000375 sec B: 19.875 GB/sec F: 5335097471.896 FLOP/sec
R: 1000000 <T>: 0.000395 sec B: 18.845 GB/sec F: 5058744679.485 FLOP/sec
R: 1000000 <T>: 0.000377 sec B: 19.774 GB/sec F: 5308052849.322 FLOP/sec
R: 1000000 <T>: 0.000390 sec B: 19.123 GB/sec F: 5133193538.472 FLOP/sec
R: 1000000 <T>: 0.000382 sec B: 19.489 GB/sec F: 5231411479.274 FLOP/sec
R: 1000000 <T>: 0.000375 sec B: 19.887 GB/sec F: 5338401259.175 FLOP/sec
R: 1000000 <T>: 0.000410 sec B: 18.158 GB/sec F: 4874375160.427 FLOP/sec
R: 1000000 <T>: 0.000374 sec B: 19.920 GB/sec F: 5347364818.283 FLOP/sec
R: 1000000 <T>: 0.000408 sec B: 18.276 GB/sec F: 4905892722.120 FLOP/sec
R: 1000000 <T>: 0.000375 sec B: 19.867 GB/sec F: 5333006244.656 FLOP/sec
R: 1000000 <T>: 0.000378 sec B: 19.698 GB/sec F: 5287508264.354 FLOP/sec
R: 1000000 <T>: 0.000417 sec B: 17.863 GB/sec F: 4795185636.457 FLOP/sec
R: 1000000 <T>: 0.000381 sec B: 19.532 GB/sec F: 5243137387.635 FLOP/sec
R: 1000000 <T>: 0.000400 sec B: 18.624 GB/sec F: 4999237608.532 FLOP/sec
R: 1000000 <T>: 0.000378 sec B: 19.707 GB/sec F: 5290137596.737 FLOP/sec
R: 1000000 <T>: 0.000376 sec B: 19.830 GB/sec F: 5323056283.865 FLOP/sec
R: 1000000 <T>: 0.000400 sec B: 18.625 GB/sec F: 4999487553.516 FLOP/sec
R: 1000000 <T>: 0.000373 sec B: 19.989 GB/sec F: 5365627250.947 FLOP/sec
R: 1000000 <T>: 0.000411 sec B: 18.132 GB/sec F: 4867186639.351 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.070 GB/sec F: 5387466592.461 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.069 GB/sec F: 5387263441.895 FLOP/sec
R: 1000000 <T>: 0.000390 sec B: 19.082 GB/sec F: 5122242314.127 FLOP/sec
R: 1000000 <T>: 0.000369 sec B: 20.191 GB/sec F: 5420039514.238 FLOP/sec
R: 1000000 <T>: 0.000399 sec B: 18.688 GB/sec F: 5016604959.167 FLOP/sec
R: 1000000 <T>: 0.000374 sec B: 19.925 GB/sec F: 5348623263.735 FLOP/sec
R: 1000000 <T>: 0.000374 sec B: 19.937 GB/sec F: 5351729008.909 FLOP/sec
```

```
R: 1000000 <T>: 0.000397 sec B: 18.782 GB/sec F: 5041631272.570 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.101 GB/sec F: 5395940624.905 FLOP/sec
R: 1000000 <T>: 0.000442 sec B: 16.870 GB/sec F: 4528400998.860 FLOP/sec
R: 1000000 <T>: 0.000373 sec B: 19.990 GB/sec F: 5365900773.124 FLOP/sec
R: 1000000 <T>: 0.000373 sec B: 19.956 GB/sec F: 5356975447.380 FLOP/sec
R: 1000000 <T>: 0.000383 sec B: 19.465 GB/sec F: 5225069882.377 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.075 GB/sec F: 5388932747.865 FLOP/sec
R: 1000000 <T>: 0.000395 sec B: 18.844 GB/sec F: 5058348050.046 FLOP/sec
R: 1000000 <T>: 0.000374 sec B: 19.931 GB/sec F: 5350139902.494 FLOP/sec
R: 1000000 <T>: 0.000399 sec B: 18.671 GB/sec F: 5011865587.207 FLOP/sec
R: 1000000 <T>: 0.000376 sec B: 19.794 GB/sec F: 5313383347.259 FLOP/sec
R: 1000000 <T>: 0.000374 sec B: 19.899 GB/sec F: 5341580736.368 FLOP/sec
R: 1000000 <T>: 0.000404 sec B: 18.446 GB/sec F: 4951451030.689 FLOP/sec
R: 1000000 <T>: 0.000370 sec B: 20.115 GB/sec F: 5399684656.231 FLOP/sec
R: 1000000 <T>: 0.000409 sec B: 18.217 GB/sec F: 4890023382.074 FLOP/sec
R: 1000000 <T>: 0.000384 sec B: 19.408 GB/sec F: 5209907155.963 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.064 GB/sec F: 5385928720.444 FLOP/sec
R: 1000000 <T>: 0.000391 sec B: 19.065 GB/sec F: 5117733447.625 FLOP/sec
R: 1000000 <T>: 0.000370 sec B: 20.133 GB/sec F: 5404295336.067 FLOP/sec
R: 1000000 <T>: 0.000384 sec B: 19.401 GB/sec F: 5207912901.957 FLOP/sec
R: 1000000 <T>: 0.000377 sec B: 19.745 GB/sec F: 5300189484.113 FLOP/sec
R: 1000000 <T>: 0.000366 sec B: 20.340 GB/sec F: 5460050174.058 FLOP/sec
R: 1000000 <T>: 0.000434 sec B: 17.171 GB/sec F: 4609293260.560 FLOP/sec
R: 1000000 <T>: 0.000404 sec B: 18.424 GB/sec F: 4945720716.890 FLOP/sec
R: 1000000 <T>: 0.000410 sec B: 18.175 GB/sec F: 4878798451.202 FLOP/sec
R: 1000000 <T>: 0.000425 sec B: 17.527 GB/sec F: 4704985640.514 FLOP/sec
R: 1000000 <T>: 0.000380 sec B: 19.632 GB/sec F: 5269939479.404 FLOP/sec
R: 1000000 <T>: 0.000389 sec B: 19.130 GB/sec F: 5135065039.738 FLOP/sec
R: 1000000 <T>: 0.000372 sec B: 20.002 GB/sec F: 5369214004.391 FLOP/sec
R: 1000000 <T>: 0.000389 sec B: 19.176 GB/sec F: 5147448665.614 FLOP/sec
R: 1000000 <T>: 0.000367 sec B: 20.289 GB/sec F: 5446400615.308 FLOP/sec
R: 1000000 <T>: 0.000370 sec B: 20.150 GB/sec F: 5409060180.720 FLOP/sec
R: 1000000 <T>: 0.000387 sec B: 19.263 GB/sec F: 5170898189.771 FLOP/sec
R: 1000000 <T>: 0.000370 sec B: 20.127 GB/sec F: 5402718640.280 FLOP/sec
R: 1000000 <T>: 0.000395 sec B: 18.885 GB/sec F: 5069310143.141 FLOP/sec
R: 1000000 <T>: 0.000367 sec B: 20.280 GB/sec F: 5443761849.964 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.100 GB/sec F: 5395445700.560 FLOP/sec
R: 1000000 <T>: 0.000403 sec B: 18.509 GB/sec F: 4968400966.368 FLOP/sec
R: 1000000 <T>: 0.000372 sec B: 20.022 GB/sec F: 5374552568.164 FLOP/sec
R: 1000000 <T>: 0.000389 sec B: 19.147 GB/sec F: 5139617712.387 FLOP/sec
R: 1000000 <T>: 0.000372 sec B: 20.020 GB/sec F: 5373946027.780 FLOP/sec
R: 1000000 <T>: 0.000361 sec B: 20.653 GB/sec F: 5544005554.072 FLOP/sec
R: 1000000 <T>: 0.000412 sec B: 18.104 GB/sec F: 4859676835.907 FLOP/sec
R: 1000000 <T>: 0.000369 sec B: 20.174 GB/sec F: 5415401942.475 FLOP/sec
R: 1000000 <T>: 0.000399 sec B: 18.669 GB/sec F: 5011513952.445 FLOP/sec
R: 1000000 <T>: 0.000366 sec B: 20.359 GB/sec F: 5465018421.831 FLOP/sec
R: 1000000 <T>: 0.000372 sec B: 20.007 GB/sec F: 5370641383.938 FLOP/sec
R: 1000000 <T>: 0.000394 sec B: 18.893 GB/sec F: 5071611154.538 FLOP/sec
R: 1000000 <T>: 0.000412 sec B: 18.090 GB/sec F: 4856030820.767 FLOP/sec
R: 1000000 <T>: 0.000402 sec B: 18.547 GB/sec F: 4978554882.147 FLOP/sec
R: 1000000 <T>: 0.000372 sec B: 20.008 GB/sec F: 5370771189.310 FLOP/sec
R: 1000000 <T>: 0.000369 sec B: 20.171 GB/sec F: 5414683537.555 FLOP/sec
R: 1000000 <T>: 0.000398 sec B: 18.742 GB/sec F: 5031066830.699 FLOP/sec
R: 1000000 <T>: 0.000375 sec B: 19.884 GB/sec F: 5337603415.129 FLOP/sec
R: 1000000 <T>: 0.000398 sec B: 18.742 GB/sec F: 5030940277.054 FLOP/sec
R: 1000000 <T>: 0.000365 sec B: 20.385 GB/sec F: 5472150846.736 FLOP/sec
R: 1000000 <T>: 0.000363 sec B: 20.505 GB/sec F: 5504304365.679 FLOP/sec
R: 1000000 <T>: 0.000390 sec B: 19.112 GB/sec F: 5130283550.717 FLOP/sec
R: 1000000 <T>: 0.000362 sec B: 20.597 GB/sec F: 5528894002.618 FLOP/sec
R: 1000000 <T>: 0.000463 sec B: 16.096 GB/sec F: 4320736947.538 FLOP/sec
R: 1000000 <T>: 0.000433 sec B: 17.194 GB/sec F: 4615569243.011 FLOP/sec
R: 1000000 <T>: 0.000478 sec B: 15.597 GB/sec F: 4186754365.643 FLOP/sec
R: 1000000 <T>: 0.000475 sec B: 15.693 GB/sec F: 4212424121.332 FLOP/sec
R: 1000000 <T>: 0.000454 sec B: 16.417 GB/sec F: 4406790870.975 FLOP/sec
R: 1000000 <T>: 0.000434 sec B: 17.158 GB/sec F: 4605779790.270 FLOP/sec
R: 1000000 <T>: 0.000464 sec B: 16.040 GB/sec F: 4305714325.318 FLOP/sec
R: 1000000 <T>: 0.000489 sec B: 15.225 GB/sec F: 4086928977.315 FLOP/sec
R: 1000000 <T>: 0.000462 sec B: 16.137 GB/sec F: 4331657705.809 FLOP/sec
R: 1000000 <T>: 0.000385 sec B: 19.360 GB/sec F: 5196910954.652 FLOP/sec
R: 1000000 <T>: 0.000479 sec B: 15.563 GB/sec F: 4177728945.194 FLOP/sec
R: 1000000 <T>: 0.000403 sec B: 18.508 GB/sec F: 4968265209.582 FLOP/sec
R: 1000000 <T>: 0.000437 sec B: 17.056 GB/sec F: 4578314351.463 FLOP/sec
R: 1000000 <T>: 0.000416 sec B: 17.919 GB/sec F: 4810201476.673 FLOP/sec
R: 1000000 <T>: 0.000384 sec B: 19.396 GB/sec F: 5206584247.251 FLOP/sec
R: 1000000 <T>: 0.000405 sec B: 18.398 GB/sec F: 4938674019.468 FLOP/sec
R: 1000000 <T>: 0.000445 sec B: 16.749 GB/sec F: 4495988454.407 FLOP/sec
R: 1000000 <T>: 0.000396 sec B: 18.799 GB/sec F: 5046337997.533 FLOP/sec
R: 1000000 <T>: 0.000403 sec B: 18.508 GB/sec F: 4968166477.951 FLOP/sec
R: 1000000 <T>: 0.000411 sec B: 18.111 GB/sec F: 4861767785.806 FLOP/sec
R: 1000000 <T>: 0.000413 sec B: 18.054 GB/sec F: 4846252631.592 FLOP/sec
R: 1000000 <T>: 0.000383 sec B: 19.474 GB/sec F: 5227418854.456 FLOP/sec
R: 1000000 <T>: 0.000408 sec B: 18.242 GB/sec F: 4896692036.827 FLOP/sec
R: 1000000 <T>: 0.000375 sec B: 19.871 GB/sec F: 5334129893.689 FLOP/sec
R: 1000000 <T>: 0.000372 sec B: 20.010 GB/sec F: 5371261610.133 FLOP/sec
R: 1000000 <T>: 0.000390 sec B: 19.090 GB/sec F: 5124499722.048 FLOP/sec
R: 1000000 <T>: 0.000370 sec B: 20.135 GB/sec F: 5405010973.610 FLOP/sec
R: 1000000 <T>: 0.000405 sec B: 18.407 GB/sec F: 4941187515.265 FLOP/sec
R: 1000000 <T>: 0.000392 sec B: 19.005 GB/sec F: 5101650389.072 FLOP/sec
R: 1000000 <T>: 0.000399 sec B: 18.657 GB/sec F: 5008138230.915 FLOP/sec
R: 1000000 <T>: 0.000423 sec B: 17.598 GB/sec F: 4723810598.963 FLOP/sec
R: 1000000 <T>: 0.000408 sec B: 18.247 GB/sec F: 4898215087.808 FLOP/sec
R: 1000000 <T>: 0.000422 sec B: 17.658 GB/sec F: 4740111530.933 FLOP/sec
R: 1000000 <T>: 0.000370 sec B: 20.161 GB/sec F: 5412016842.481 FLOP/sec
R: 1000000 <T>: 0.000397 sec B: 18.757 GB/sec F: 5035119969.445 FLOP/sec
R: 1000000 <T>: 0.000387 sec B: 19.233 GB/sec F: 5162702577.974 FLOP/sec
R: 1000000 <T>: 0.000388 sec B: 19.181 GB/sec F: 5148932878.561 FLOP/sec
R: 1000000 <T>: 0.000410 sec B: 18.177 GB/sec F: 4879465020.918 FLOP/sec
R: 1000000 <T>: 0.000456 sec B: 16.346 GB/sec F: 4387735403.110 FLOP/sec
R: 1000000 <T>: 0.000473 sec B: 15.758 GB/sec F: 4229894784.648 FLOP/sec
R: 1000000 <T>: 0.000434 sec B: 17.176 GB/sec F: 4610568344.435 FLOP/sec
```

```
R: 1000000 <T>: 0.000521 sec B: 14.288 GB/sec F: 3835480888.148 FLOP/sec
R: 1000000 <T>: 0.000386 sec B: 19.302 GB/sec F: 5181293450.384 FLOP/sec
R: 1000000 <T>: 0.000453 sec B: 16.460 GB/sec F: 4418395546.672 FLOP/sec
R: 1000000 <T>: 0.000385 sec B: 19.364 GB/sec F: 5197896937.426 FLOP/sec
R: 1000000 <T>: 0.000941 sec B: 7.919 GB/sec F: 2125861640.049 FLOP/sec
R: 1000000 <T>: 0.000661 sec B: 11.267 GB/sec F: 3024565520.706 FLOP/sec
R: 1000000 <T>: 0.000778 sec B: 9.577 GB/sec F: 2570694085.630 FLOP/sec
R: 1000000 <T>: 0.000721 sec B: 10.335 GB/sec F: 2774383010.998 FLOP/sec
R: 1000000 <T>: 0.000567 sec B: 13.133 GB/sec F: 3525434248.229 FLOP/sec
R: 1000000 <T>: 0.000469 sec B: 15.882 GB/sec F: 4263283323.743 FLOP/sec
R: 1000000 <T>: 0.000408 sec B: 18.240 GB/sec F: 4896164581.280 FLOP/sec
R: 1000000 <T>: 0.000404 sec B: 18.434 GB/sec F: 4948216907.634 FLOP/sec
R: 1000000 <T>: 0.000386 sec B: 19.302 GB/sec F: 5181400846.890 FLOP/sec
R: 1000000 <T>: 0.000415 sec B: 17.969 GB/sec F: 4823484585.094 FLOP/sec
R: 1000000 <T>: 0.000699 sec B: 10.651 GB/sec F: 2859185134.577 FLOP/sec
R: 1000000 <T>: 0.000692 sec B: 10.762 GB/sec F: 2888816671.129 FLOP/sec
R: 1000000 <T>: 0.000691 sec B: 10.790 GB/sec F: 2896397314.789 FLOP/sec
R: 1000000 <T>: 0.000706 sec B: 10.556 GB/sec F: 2833543488.660 FLOP/sec
R: 1000000 <T>: 0.000567 sec B: 13.145 GB/sec F: 3528481904.866 FLOP/sec
R: 1000000 <T>: 0.000502 sec B: 14.830 GB/sec F: 3981010580.402 FLOP/sec
R: 1000000 <T>: 0.000424 sec B: 17.574 GB/sec F: 4717492942.053 FLOP/sec
R: 1000000 <T>: 0.000465 sec B: 16.036 GB/sec F: 4304593004.922 FLOP/sec
R: 1000000 <T>: 0.000389 sec B: 19.164 GB/sec F: 5144363707.580 FLOP/sec
R: 1000000 <T>: 0.000447 sec B: 16.664 GB/sec F: 4473182158.175 FLOP/sec
R: 1000000 <T>: 0.000393 sec B: 18.968 GB/sec F: 5091610806.572 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.067 GB/sec F: 5386741077.944 FLOP/sec
R: 1000000 <T>: 0.000379 sec B: 19.654 GB/sec F: 5275875530.327 FLOP/sec
R: 1000000 <T>: 0.000387 sec B: 19.272 GB/sec F: 5173372647.802 FLOP/sec
R: 1000000 <T>: 0.000411 sec B: 18.145 GB/sec F: 4870861289.216 FLOP/sec
R: 1000000 <T>: 0.000384 sec B: 19.397 GB/sec F: 5206909578.700 FLOP/sec
R: 1000000 <T>: 0.000392 sec B: 19.001 GB/sec F: 5100661547.767 FLOP/sec
R: 1000000 <T>: 0.000361 sec B: 20.652 GB/sec F: 5543851865.993 FLOP/sec
R: 1000000 <T>: 0.000363 sec B: 20.543 GB/sec F: 5514442327.328 FLOP/sec
R: 1000000 <T>: 0.000385 sec B: 19.345 GB/sec F: 5192755073.784 FLOP/sec
R: 1000000 <T>: 0.000380 sec B: 19.590 GB/sec F: 5258757148.512 FLOP/sec
R: 1000000 <T>: 0.000403 sec B: 18.479 GB/sec F: 4960526605.271 FLOP/sec
R: 1000000 <T>: 0.000400 sec B: 18.627 GB/sec F: 5000275013.473 FLOP/sec
R: 1000000 <T>: 0.000379 sec B: 19.637 GB/sec F: 5271245097.934 FLOP/sec
R: 1000000 <T>: 0.000414 sec B: 17.994 GB/sec F: 4830171188.093 FLOP/sec
R: 1000000 <T>: 0.000393 sec B: 18.973 GB/sec F: 5093088928.251 FLOP/sec
R: 1000000 <T>: 0.000570 sec B: 13.082 GB/sec F: 3511630522.734 FLOP/sec
R: 1000000 <T>: 0.000370 sec B: 20.121 GB/sec F: 5401244974.911 FLOP/sec
R: 1000000 <T>: 0.000385 sec B: 19.345 GB/sec F: 5192755073.784 FLOP/sec
R: 1000000 <T>: 0.000364 sec B: 20.455 GB/sec F: 5490854985.477 FLOP/sec
R: 1000000 <T>: 0.000377 sec B: 19.772 GB/sec F: 5307573915.378 FLOP/sec
R: 1000000 <T>: 0.000395 sec B: 18.882 GB/sec F: 5068539319.675 FLOP/sec
R: 1000000 <T>: 0.000378 sec B: 19.700 GB/sec F: 5288193316.931 FLOP/sec
R: 1000000 <T>: 0.000394 sec B: 18.900 GB/sec F: 5073360795.433 FLOP/sec
R: 1000000 <T>: 0.000358 sec B: 20.809 GB/sec F: 5585812027.850 FLOP/sec
R: 1000000 <T>: 0.000356 sec B: 20.958 GB/sec F: 5625863221.065 FLOP/sec
R: 1000000 <T>: 0.000396 sec B: 18.821 GB/sec F: 5052099786.467 FLOP/sec
R: 1000000 <T>: 0.000370 sec B: 20.121 GB/sec F: 5401142877.488 FLOP/sec
R: 1000000 <T>: 0.000388 sec B: 19.224 GB/sec F: 5160477963.136 FLOP/sec
R: 1000000 <T>: 0.000362 sec B: 20.600 GB/sec F: 5529872362.772 FLOP/sec
R: 1000000 <T>: 0.000372 sec B: 20.028 GB/sec F: 5376170656.853 FLOP/sec
R: 1000000 <T>: 0.000420 sec B: 17.747 GB/sec F: 4764037240.668 FLOP/sec
R: 1000000 <T>: 0.000471 sec B: 15.828 GB/sec F: 4248711047.734 FLOP/sec
R: 1000000 <T>: 0.000383 sec B: 19.434 GB/sec F: 5216729017.469 FLOP/sec
R: 1000000 <T>: 0.000390 sec B: 19.125 GB/sec F: 5133733763.955 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.056 GB/sec F: 5383753978.432 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.083 GB/sec F: 5390908224.631 FLOP/sec
R: 1000000 <T>: 0.000365 sec B: 20.408 GB/sec F: 5478341377.347 FLOP/sec
R: 1000000 <T>: 0.000378 sec B: 19.729 GB/sec F: 5296007070.979 FLOP/sec
R: 1000000 <T>: 0.000359 sec B: 20.728 GB/sec F: 5564164554.922 FLOP/sec
R: 1000000 <T>: 0.000363 sec B: 20.542 GB/sec F: 5514107851.339 FLOP/sec
R: 1000000 <T>: 0.000384 sec B: 19.401 GB/sec F: 5207994269.439 FLOP/sec
R: 1000000 <T>: 0.000363 sec B: 20.530 GB/sec F: 5510932303.609 FLOP/sec
R: 1000000 <T>: 0.000406 sec B: 18.348 GB/sec F: 4925234941.585 FLOP/sec
R: 1000000 <T>: 0.000361 sec B: 20.657 GB/sec F: 5545096892.223 FLOP/sec
R: 1000000 <T>: 0.000362 sec B: 20.562 GB/sec F: 5519510086.016 FLOP/sec
R: 1000000 <T>: 0.000395 sec B: 18.848 GB/sec F: 5059461330.191 FLOP/sec
R: 1000000 <T>: 0.000367 sec B: 20.281 GB/sec F: 5444102685.158 FLOP/sec
R: 1000000 <T>: 0.000385 sec B: 19.333 GB/sec F: 5189790644.082 FLOP/sec
R: 1000000 <T>: 0.000365 sec B: 20.432 GB/sec F: 5484651205.180 FLOP/sec
R: 1000000 <T>: 0.000413 sec B: 18.038 GB/sec F: 4842063981.582 FLOP/sec
R: 1000000 <T>: 0.000389 sec B: 19.131 GB/sec F: 5135394674.568 FLOP/sec
R: 1000000 <T>: 0.000363 sec B: 20.551 GB/sec F: 5516526134.759 FLOP/sec
R: 1000000 <T>: 0.000446 sec B: 16.713 GB/sec F: 4486346925.890 FLOP/sec
R: 1000000 <T>: 0.000380 sec B: 19.590 GB/sec F: 5258674187.118 FLOP/sec
R: 1000000 <T>: 0.000367 sec B: 20.287 GB/sec F: 5445837063.784 FLOP/sec
R: 1000000 <T>: 0.000375 sec B: 19.878 GB/sec F: 5335894553.958 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.065 GB/sec F: 5386030256.679 FLOP/sec
R: 1000000 <T>: 0.000387 sec B: 19.228 GB/sec F: 5161383562.680 FLOP/sec
R: 1000000 <T>: 0.000359 sec B: 20.728 GB/sec F: 5564149068.126 FLOP/sec
R: 1000000 <T>: 0.000360 sec B: 20.691 GB/sec F: 5554105318.241 FLOP/sec
R: 1000000 <T>: 0.000387 sec B: 19.276 GB/sec F: 5174376479.938 FLOP/sec
R: 1000000 <T>: 0.000363 sec B: 20.503 GB/sec F: 5503668201.244 FLOP/sec
R: 1000000 <T>: 0.000386 sec B: 19.293 GB/sec F: 5178932109.256 FLOP/sec
R: 1000000 <T>: 0.000368 sec B: 20.261 GB/sec F: 5438832185.195 FLOP/sec
R: 1000000 <T>: 0.000362 sec B: 20.586 GB/sec F: 5526022042.931 FLOP/sec
R: 1000000 <T>: 0.000377 sec B: 19.751 GB/sec F: 5301973927.531 FLOP/sec
R: 1000000 <T>: 0.000360 sec B: 20.720 GB/sec F: 5562060084.309 FLOP/sec
R: 1000000 <T>: 0.000378 sec B: 19.687 GB/sec F: 5284602249.647 FLOP/sec
R: 1000000 <T>: 0.000367 sec B: 20.281 GB/sec F: 5444058221.871 FLOP/sec
R: 1000000 <T>: 0.000362 sec B: 20.601 GB/sec F: 5530040560.248 FLOP/sec
R: 1000000 <T>: 0.000387 sec B: 19.248 GB/sec F: 5166917260.409 FLOP/sec
R: 1000000 <T>: 0.000368 sec B: 20.246 GB/sec F: 5434694000.781 FLOP/sec
R: 1000000 <T>: 0.000391 sec B: 19.064 GB/sec F: 5117419187.810 FLOP/sec
R: 1000000 <T>: 0.000370 sec B: 20.155 GB/sec F: 5410347835.880 FLOP/sec
R: 1000000 <T>: 0.000362 sec B: 20.564 GB/sec F: 5520028033.996 FLOP/sec
```

```
R: 1000000 <T>: 0.000393 sec B: 18.941 GB/sec F: 5084452758.650 FLOP/sec
R: 1000000 <T>: 0.000500 sec B: 14.893 GB/sec F: 3997937070.929 FLOP/sec
R: 1000000 <T>: 0.000395 sec B: 18.839 GB/sec F: 5057081812.232 FLOP/sec
R: 1000000 <T>: 0.000370 sec B: 20.139 GB/sec F: 5406121353.962 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.069 GB/sec F: 5387292464.352 FLOP/sec
R: 1000000 <T>: 0.000448 sec B: 16.629 GB/sec F: 4463837340.186 FLOP/sec
R: 1000000 <T>: 0.000370 sec B: 20.110 GB/sec F: 5398139801.922 FLOP/sec
R: 1000000 <T>: 0.000380 sec B: 19.605 GB/sec F: 5262631631.533 FLOP/sec
R: 1000000 <T>: 0.000360 sec B: 20.706 GB/sec F: 5558103027.598 FLOP/sec
R: 1000000 <T>: 0.000369 sec B: 20.210 GB/sec F: 5425141184.296 FLOP/sec
R: 1000000 <T>: 0.000359 sec B: 20.731 GB/sec F: 5564938666.678 FLOP/sec
R: 1000000 <T>: 0.000367 sec B: 20.281 GB/sec F: 5444013759.311 FLOP/sec
R: 1000000 <T>: 0.000378 sec B: 19.689 GB/sec F: 5285188788.677 FLOP/sec
R: 1000000 <T>: 0.000360 sec B: 20.721 GB/sec F: 5562199293.592 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.090 GB/sec F: 5392739752.904 FLOP/sec
R: 1000000 <T>: 0.000375 sec B: 19.858 GB/sec F: 5330504602.269 FLOP/sec
R: 1000000 <T>: 0.000360 sec B: 20.724 GB/sec F: 5563019271.436 FLOP/sec
R: 1000000 <T>: 0.000391 sec B: 19.077 GB/sec F: 5121048786.854 FLOP/sec
R: 1000000 <T>: 0.000360 sec B: 20.692 GB/sec F: 5554352111.284 FLOP/sec
R: 1000000 <T>: 0.000363 sec B: 20.521 GB/sec F: 5508670642.450 FLOP/sec
R: 1000000 <T>: 0.000379 sec B: 19.666 GB/sec F: 5278967015.822 FLOP/sec
R: 1000000 <T>: 0.000358 sec B: 20.800 GB/sec F: 5583488501.515 FLOP/sec
R: 1000000 <T>: 0.000382 sec B: 19.495 GB/sec F: 5233040363.874 FLOP/sec
R: 1000000 <T>: 0.000364 sec B: 20.475 GB/sec F: 5496196621.053 FLOP/sec
R: 1000000 <T>: 0.000365 sec B: 20.430 GB/sec F: 5484200026.087 FLOP/sec
R: 1000000 <T>: 0.000378 sec B: 19.715 GB/sec F: 5292111312.750 FLOP/sec
R: 1000000 <T>: 0.000361 sec B: 20.618 GB/sec F: 5534677519.087 FLOP/sec
R: 1000000 <T>: 0.000369 sec B: 20.211 GB/sec F: 5425317781.118 FLOP/sec
R: 1000000 <T>: 0.000372 sec B: 20.055 GB/sec F: 5383565592.362 FLOP/sec
R: 1000000 <T>: 0.000384 sec B: 19.390 GB/sec F: 5204985340.351 FLOP/sec
R: 1000000 <T>: 0.000380 sec B: 19.620 GB/sec F: 5266636635.944 FLOP/sec
R: 1000000 <T>: 0.000359 sec B: 20.764 GB/sec F: 5573902982.269 FLOP/sec
R: 1000000 <T>: 0.000382 sec B: 19.508 GB/sec F: 5236712488.755 FLOP/sec
R: 1000000 <T>: 0.000374 sec B: 19.926 GB/sec F: 5348966575.389 FLOP/sec
R: 1000000 <T>: 0.000374 sec B: 19.901 GB/sec F: 5342179979.429 FLOP/sec
R: 1000000 <T>: 0.000392 sec B: 18.995 GB/sec F: 5098880035.893 FLOP/sec
R: 1000000 <T>: 0.000365 sec B: 20.435 GB/sec F: 5485508656.851 FLOP/sec
R: 1000000 <T>: 0.000375 sec B: 19.850 GB/sec F: 5328388581.783 FLOP/sec
R: 1000000 <T>: 0.000381 sec B: 19.543 GB/sec F: 5246149324.896 FLOP/sec
R: 1000000 <T>: 0.000359 sec B: 20.727 GB/sec F: 5563839491.076 FLOP/sec
R: 1000000 <T>: 0.000380 sec B: 19.632 GB/sec F: 5269842272.993 FLOP/sec
R: 1000000 <T>: 0.000367 sec B: 20.305 GB/sec F: 5450512071.190 FLOP/sec
R: 1000000 <T>: 0.000366 sec B: 20.376 GB/sec F: 5469771317.702 FLOP/sec
R: 1000000 <T>: 0.000376 sec B: 19.817 GB/sec F: 5319516771.769 FLOP/sec
R: 1000000 <T>: 0.000372 sec B: 20.037 GB/sec F: 5378671954.221 FLOP/sec
R: 1000000 <T>: 0.000414 sec B: 17.981 GB/sec F: 4826848858.373 FLOP/sec
R: 1000000 <T>: 0.000364 sec B: 20.485 GB/sec F: 5498977191.187 FLOP/sec
R: 1000000 <T>: 0.000385 sec B: 19.341 GB/sec F: 5191905815.074 FLOP/sec
R: 1000000 <T>: 0.000390 sec B: 19.126 GB/sec F: 5134076413.076 FLOP/sec
R: 1000000 <T>: 0.000356 sec B: 20.940 GB/sec F: 5621009072.857 FLOP/sec
R: 1000000 <T>: 0.000386 sec B: 19.299 GB/sec F: 5180555309.918 FLOP/sec
R: 1000000 <T>: 0.000366 sec B: 20.330 GB/sec F: 5457279053.641 FLOP/sec
R: 1000000 <T>: 0.000372 sec B: 20.029 GB/sec F: 5376560880.968 FLOP/sec
R: 1000000 <T>: 0.000389 sec B: 19.156 GB/sec F: 5142194534.308 FLOP/sec
R: 1000000 <T>: 0.000363 sec B: 20.520 GB/sec F: 5508367221.650 FLOP/sec
R: 1000000 <T>: 0.000395 sec B: 18.878 GB/sec F: 5067627489.321 FLOP/sec
R: 1000000 <T>: 0.000364 sec B: 20.484 GB/sec F: 5498538762.029 FLOP/sec
R: 1000000 <T>: 0.000438 sec B: 17.013 GB/sec F: 4566856497.992 FLOP/sec
R: 1000000 <T>: 0.000405 sec B: 18.380 GB/sec F: 4933971129.717 FLOP/sec
R: 1000000 <T>: 0.000407 sec B: 18.285 GB/sec F: 4908288627.184 FLOP/sec
R: 1000000 <T>: 0.000382 sec B: 19.505 GB/sec F: 5235958474.712 FLOP/sec
R: 1000000 <T>: 0.000367 sec B: 20.321 GB/sec F: 5454882668.915 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.100 GB/sec F: 5395445700.560 FLOP/sec
R: 1000000 <T>: 0.000388 sec B: 19.187 GB/sec F: 5150497528.471 FLOP/sec
R: 1000000 <T>: 0.000358 sec B: 20.790 GB/sec F: 5580902159.744 FLOP/sec
R: 1000000 <T>: 0.000387 sec B: 19.233 GB/sec F: 5162755872.836 FLOP/sec
R: 1000000 <T>: 0.000367 sec B: 20.292 GB/sec F: 5447008780.758 FLOP/sec
R: 1000000 <T>: 0.000373 sec B: 19.974 GB/sec F: 5361858416.449 FLOP/sec
R: 1000000 <T>: 0.000396 sec B: 18.814 GB/sec F: 5050262732.035 FLOP/sec
R: 1000000 <T>: 0.000362 sec B: 20.607 GB/sec F: 5531723042.270 FLOP/sec
R: 1000000 <T>: 0.000389 sec B: 19.152 GB/sec F: 5141203136.759 FLOP/sec
R: 1000000 <T>: 0.000359 sec B: 20.754 GB/sec F: 5570999610.032 FLOP/sec
R: 1000000 <T>: 0.000385 sec B: 19.371 GB/sec F: 5199748337.566 FLOP/sec
R: 1000000 <T>: 0.000377 sec B: 19.779 GB/sec F: 5309278756.817 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.085 GB/sec F: 5391518600.215 FLOP/sec
R: 1000000 <T>: 0.000415 sec B: 17.939 GB/sec F: 4815401584.746 FLOP/sec
R: 1000000 <T>: 0.000377 sec B: 19.763 GB/sec F: 5304969433.053 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.064 GB/sec F: 5385798194.557 FLOP/sec
R: 1000000 <T>: 0.000400 sec B: 18.649 GB/sec F: 5006094919.969 FLOP/sec
R: 1000000 <T>: 0.000360 sec B: 20.724 GB/sec F: 5563081165.837 FLOP/sec
R: 1000000 <T>: 0.000406 sec B: 18.340 GB/sec F: 4923040571.830 FLOP/sec
R: 1000000 <T>: 0.000514 sec B: 14.483 GB/sec F: 3887631887.449 FLOP/sec
R: 1000000 <T>: 0.000405 sec B: 18.418 GB/sec F: 4943984662.847 FLOP/sec
R: 1000000 <T>: 0.000382 sec B: 19.493 GB/sec F: 5232629629.787 FLOP/sec
R: 1000000 <T>: 0.000369 sec B: 20.189 GB/sec F: 5419496096.471 FLOP/sec
R: 1000000 <T>: 0.000381 sec B: 19.534 GB/sec F: 5243618516.513 FLOP/sec
R: 1000000 <T>: 0.000379 sec B: 19.679 GB/sec F: 5282606223.913 FLOP/sec
R: 1000000 <T>: 0.000385 sec B: 19.346 GB/sec F: 5193065189.265 FLOP/sec
R: 1000000 <T>: 0.000499 sec B: 14.925 GB/sec F: 4006265798.215 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.093 GB/sec F: 5393583256.744 FLOP/sec
R: 1000000 <T>: 0.000402 sec B: 18.530 GB/sec F: 4974072655.943 FLOP/sec
R: 1000000 <T>: 0.000370 sec B: 20.140 GB/sec F: 5406399007.047 FLOP/sec
R: 1000000 <T>: 0.000395 sec B: 18.861 GB/sec F: 5063086054.047 FLOP/sec
R: 1000000 <T>: 0.000377 sec B: 19.779 GB/sec F: 5309264669.192 FLOP/sec
R: 1000000 <T>: 0.000368 sec B: 20.233 GB/sec F: 5431299489.574 FLOP/sec
R: 1000000 <T>: 0.000390 sec B: 19.119 GB/sec F: 5132152942.282 FLOP/sec
R: 1000000 <T>: 0.000367 sec B: 20.316 GB/sec F: 5453543976.103 FLOP/sec
R: 1000000 <T>: 0.000385 sec B: 19.354 GB/sec F: 5195277502.416 FLOP/sec
R: 1000000 <T>: 0.000377 sec B: 19.755 GB/sec F: 5302957982.198 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.092 GB/sec F: 5393335992.788 FLOP/sec
```

```
R: 1000000 <T>: 0.000389 sec B: 19.141 GB/sec F: 5138099258.140 FLOP/sec
R: 1000000 <T>: 0.000368 sec B: 20.267 GB/sec F: 5440459604.058 FLOP/sec
R: 1000000 <T>: 0.000383 sec B: 19.457 GB/sec F: 5222927608.721 FLOP/sec
R: 1000000 <T>: 0.000379 sec B: 19.638 GB/sec F: 5271634126.877 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.098 GB/sec F: 5395067290.258 FLOP/sec
R: 1000000 <T>: 0.000397 sec B: 18.762 GB/sec F: 5036387908.434 FLOP/sec
R: 1000000 <T>: 0.000368 sec B: 20.241 GB/sec F: 5433306169.277 FLOP/sec
R: 1000000 <T>: 0.000396 sec B: 18.834 GB/sec F: 5055598954.791 FLOP/sec
R: 1000000 <T>: 0.000379 sec B: 19.663 GB/sec F: 5278172901.145 FLOP/sec
R: 1000000 <T>: 0.000370 sec B: 20.141 GB/sec F: 5406647470.260 FLOP/sec
R: 1000000 <T>: 0.000392 sec B: 18.999 GB/sec F: 5100050228.010 FLOP/sec
R: 1000000 <T>: 0.000370 sec B: 20.116 GB/sec F: 5399888771.208 FLOP/sec
R: 1000000 <T>: 0.000385 sec B: 19.373 GB/sec F: 5200478441.681 FLOP/sec
R: 1000000 <T>: 0.000380 sec B: 19.592 GB/sec F: 5259158159.198 FLOP/sec
R: 1000000 <T>: 0.000370 sec B: 20.129 GB/sec F: 5403244107.736 FLOP/sec
R: 1000000 <T>: 0.000394 sec B: 18.903 GB/sec F: 5074326186.860 FLOP/sec
R: 1000000 <T>: 0.000373 sec B: 19.997 GB/sec F: 5368032283.996 FLOP/sec
R: 1000000 <T>: 0.000410 sec B: 18.171 GB/sec F: 4877656191.590 FLOP/sec
R: 1000000 <T>: 0.000379 sec B: 19.645 GB/sec F: 5273510627.250 FLOP/sec
R: 1000000 <T>: 0.000377 sec B: 19.765 GB/sec F: 5305588650.988 FLOP/sec
R: 1000000 <T>: 0.000524 sec B: 14.231 GB/sec F: 3820059896.850 FLOP/sec
R: 1000000 <T>: 0.000478 sec B: 15.577 GB/sec F: 4181476065.544 FLOP/sec
R: 1000000 <T>: 0.000375 sec B: 19.894 GB/sec F: 5340125965.396 FLOP/sec
R: 1000000 <T>: 0.000410 sec B: 18.192 GB/sec F: 4883492093.750 FLOP/sec
R: 1000000 <T>: 0.000375 sec B: 19.884 GB/sec F: 5337546436.319 FLOP/sec
R: 1000000 <T>: 0.000367 sec B: 20.316 GB/sec F: 5453469631.810 FLOP/sec
R: 1000000 <T>: 0.000355 sec B: 20.961 GB/sec F: 5626543785.628 FLOP/sec
R: 1000000 <T>: 0.000353 sec B: 21.136 GB/sec F: 5673742773.955 FLOP/sec
R: 1000000 <T>: 0.000369 sec B: 20.217 GB/sec F: 5427010784.028 FLOP/sec
R: 1000000 <T>: 0.000388 sec B: 19.224 GB/sec F: 5160424703.183 FLOP/sec
R: 1000000 <T>: 0.000360 sec B: 20.698 GB/sec F: 5556064863.125 FLOP/sec
R: 1000000 <T>: 0.000366 sec B: 20.378 GB/sec F: 5470070501.279 FLOP/sec
R: 1000000 <T>: 0.000376 sec B: 19.800 GB/sec F: 5315148436.681 FLOP/sec
R: 1000000 <T>: 0.000465 sec B: 16.016 GB/sec F: 4299318559.060 FLOP/sec
R: 1000000 <T>: 0.000410 sec B: 18.151 GB/sec F: 4872344571.879 FLOP/sec
R: 1000000 <T>: 0.000449 sec B: 16.590 GB/sec F: 4453370970.243 FLOP/sec
R: 1000000 <T>: 0.000491 sec B: 15.163 GB/sec F: 4070260835.348 FLOP/sec
R: 1000000 <T>: 0.000374 sec B: 19.940 GB/sec F: 5352731634.254 FLOP/sec
R: 1000000 <T>: 0.000390 sec B: 19.085 GB/sec F: 5123003314.679 FLOP/sec
R: 1000000 <T>: 0.000372 sec B: 20.041 GB/sec F: 5379800466.539 FLOP/sec
R: 1000000 <T>: 0.000361 sec B: 20.628 GB/sec F: 5537420506.314 FLOP/sec
R: 1000000 <T>: 0.000385 sec B: 19.365 GB/sec F: 5198302236.729 FLOP/sec
R: 1000000 <T>: 0.000407 sec B: 18.329 GB/sec F: 4920037099.310 FLOP/sec
R: 1000000 <T>: 0.000502 sec B: 14.834 GB/sec F: 3982072705.508 FLOP/sec
R: 1000000 <T>: 0.000405 sec B: 18.389 GB/sec F: 4936223988.346 FLOP/sec
R: 1000000 <T>: 0.000426 sec B: 17.505 GB/sec F: 4699016256.183 FLOP/sec
R: 1000000 <T>: 0.000408 sec B: 18.281 GB/sec F: 4907252919.995 FLOP/sec
R: 1000000 <T>: 0.000404 sec B: 18.427 GB/sec F: 4946356767.066 FLOP/sec
R: 1000000 <T>: 0.000426 sec B: 17.503 GB/sec F: 4698552611.009 FLOP/sec
R: 1000000 <T>: 0.000405 sec B: 18.399 GB/sec F: 4938893541.414 FLOP/sec
R: 1000000 <T>: 0.000432 sec B: 17.241 GB/sec F: 4627979840.422 FLOP/sec
R: 1000000 <T>: 0.002214 sec B: 3.365 GB/sec F: 903318294.620 FLOP/sec
R: 1000000 <T>: 0.000554 sec B: 13.439 GB/sec F: 3607588205.685 FLOP/sec
R: 1000000 <T>: 0.000480 sec B: 15.519 GB/sec F: 4165902920.606 FLOP/sec
R: 1000000 <T>: 0.000454 sec B: 16.402 GB/sec F: 4402842474.577 FLOP/sec
R: 1000000 <T>: 0.000437 sec B: 17.061 GB/sec F: 4579865991.023 FLOP/sec
R: 1000000 <T>: 0.000431 sec B: 17.301 GB/sec F: 4644153359.135 FLOP/sec
R: 1000000 <T>: 0.000410 sec B: 18.154 GB/sec F: 4873080607.258 FLOP/sec
R: 1000000 <T>: 0.000420 sec B: 17.735 GB/sec F: 4760612595.541 FLOP/sec
R: 1000000 <T>: 0.000418 sec B: 17.840 GB/sec F: 4788985329.039 FLOP/sec
R: 1000000 <T>: 0.000389 sec B: 19.168 GB/sec F: 5145396018.416 FLOP/sec
R: 1000000 <T>: 0.000401 sec B: 18.592 GB/sec F: 4990630095.886 FLOP/sec
R: 1000000 <T>: 0.000369 sec B: 20.195 GB/sec F: 5421082587.994 FLOP/sec
R: 1000000 <T>: 0.000375 sec B: 19.871 GB/sec F: 5334030317.774 FLOP/sec
R: 1000000 <T>: 0.000381 sec B: 19.573 GB/sec F: 5254087682.509 FLOP/sec
R: 1000000 <T>: 0.000386 sec B: 19.286 GB/sec F: 5177068698.405 FLOP/sec
R: 1000000 <T>: 0.000390 sec B: 19.106 GB/sec F: 5128757460.049 FLOP/sec
R: 1000000 <T>: 0.000384 sec B: 19.390 GB/sec F: 5204890515.367 FLOP/sec
R: 1000000 <T>: 0.000394 sec B: 18.916 GB/sec F: 5077714430.033 FLOP/sec
R: 1000000 <T>: 0.000399 sec B: 18.681 GB/sec F: 5014667897.968 FLOP/sec
R: 1000000 <T>: 0.000419 sec B: 17.787 GB/sec F: 4774557341.177 FLOP/sec
R: 1000000 <T>: 0.000517 sec B: 14.408 GB/sec F: 3867544341.410 FLOP/sec
R: 1000000 <T>: 0.000480 sec B: 15.531 GB/sec F: 4169098641.480 FLOP/sec
R: 1000000 <T>: 0.000433 sec B: 17.224 GB/sec F: 4623507761.414 FLOP/sec
R: 1000000 <T>: 0.000503 sec B: 14.799 GB/sec F: 3972628592.220 FLOP/sec
R: 1000000 <T>: 0.000483 sec B: 15.415 GB/sec F: 4137985260.393 FLOP/sec
R: 1000000 <T>: 0.000431 sec B: 17.268 GB/sec F: 4635359448.851 FLOP/sec
R: 1000000 <T>: 0.000484 sec B: 15.379 GB/sec F: 4128282248.037 FLOP/sec
R: 1000000 <T>: 0.000417 sec B: 17.853 GB/sec F: 4792244224.078 FLOP/sec
R: 1000000 <T>: 0.000446 sec B: 16.701 GB/sec F: 4483239411.484 FLOP/sec
R: 1000000 <T>: 0.000433 sec B: 17.203 GB/sec F: 4617785864.837 FLOP/sec
R: 1000000 <T>: 0.000456 sec B: 16.347 GB/sec F: 4388168620.670 FLOP/sec
R: 1000000 <T>: 0.000386 sec B: 19.288 GB/sec F: 5177712020.502 FLOP/sec
R: 1000000 <T>: 0.000406 sec B: 18.369 GB/sec F: 4930990786.219 FLOP/sec
R: 1000000 <T>: 0.000406 sec B: 18.367 GB/sec F: 4930297906.237 FLOP/sec
R: 1000000 <T>: 0.000378 sec B: 19.715 GB/sec F: 5292251359.922 FLOP/sec
R: 1000000 <T>: 0.000503 sec B: 14.822 GB/sec F: 3978848440.205 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.100 GB/sec F: 5395591257.119 FLOP/sec
R: 1000000 <T>: 0.000385 sec B: 19.345 GB/sec F: 5192782038.344 FLOP/sec
R: 1000000 <T>: 0.000356 sec B: 20.900 GB/sec F: 5610287024.612 FLOP/sec
R: 1000000 <T>: 0.000357 sec B: 20.850 GB/sec F: 5596832187.674 FLOP/sec
R: 1000000 <T>: 0.000379 sec B: 19.651 GB/sec F: 5275082358.066 FLOP/sec
R: 1000000 <T>: 0.000355 sec B: 20.959 GB/sec F: 5626243046.734 FLOP/sec
R: 1000000 <T>: 0.000372 sec B: 20.029 GB/sec F: 5376488607.614 FLOP/sec
R: 1000000 <T>: 0.000357 sec B: 20.866 GB/sec F: 5601205377.735 FLOP/sec
R: 1000000 <T>: 0.000357 sec B: 20.858 GB/sec F: 5598931724.818 FLOP/sec
R: 1000000 <T>: 0.000391 sec B: 19.063 GB/sec F: 5117104942.773 FLOP/sec
R: 1000000 <T>: 0.000355 sec B: 20.984 GB/sec F: 5632898380.032 FLOP/sec
R: 1000000 <T>: 0.000353 sec B: 21.122 GB/sec F: 5669930664.912 FLOP/sec
R: 1000000 <T>: 0.000372 sec B: 20.026 GB/sec F: 5375563764.360 FLOP/sec
```

```
R: 1000000 <T>: 0.000627 sec B: 11.875 GB/sec F: 3187581184.511 FLOP/sec
R: 1000000 <T>: 0.000428 sec B: 17.401 GB/sec F: 4670965514.369 FLOP/sec
R: 1000000 <T>: 0.000419 sec B: 17.790 GB/sec F: 4775332546.715 FLOP/sec
R: 1000000 <T>: 0.000442 sec B: 16.871 GB/sec F: 4528800909.711 FLOP/sec
R: 1000000 <T>: 0.000406 sec B: 18.339 GB/sec F: 4922943629.451 FLOP/sec
R: 1000000 <T>: 0.000457 sec B: 16.296 GB/sec F: 4374376654.044 FLOP/sec
R: 1000000 <T>: 0.000416 sec B: 17.914 GB/sec F: 4808790464.247 FLOP/sec
R: 1000000 <T>: 0.000434 sec B: 17.165 GB/sec F: 4607753462.393 FLOP/sec
R: 1000000 <T>: 0.000400 sec B: 18.643 GB/sec F: 5004353788.523 FLOP/sec
R: 1000000 <T>: 0.000445 sec B: 16.749 GB/sec F: 4496089525.171 FLOP/sec
R: 1000000 <T>: 0.000403 sec B: 18.481 GB/sec F: 4961006485.282 FLOP/sec
R: 1000000 <T>: 0.000390 sec B: 19.096 GB/sec F: 5126049555.536 FLOP/sec
R: 1000000 <T>: 0.000431 sec B: 17.299 GB/sec F: 4643538749.508 FLOP/sec
R: 1000000 <T>: 0.000368 sec B: 20.234 GB/sec F: 5431520745.561 FLOP/sec
R: 1000000 <T>: 0.000389 sec B: 19.162 GB/sec F: 5143794784.229 FLOP/sec
R: 1000000 <T>: 0.000356 sec B: 20.921 GB/sec F: 5615974083.333 FLOP/sec
R: 1000000 <T>: 0.000369 sec B: 20.173 GB/sec F: 5415255315.105 FLOP/sec
R: 1000000 <T>: 0.000387 sec B: 19.250 GB/sec F: 5167477965.174 FLOP/sec
R: 1000000 <T>: 0.000359 sec B: 20.764 GB/sec F: 5573778726.904 FLOP/sec
R: 1000000 <T>: 0.000393 sec B: 18.951 GB/sec F: 5087078058.611 FLOP/sec
R: 1000000 <T>: 0.000357 sec B: 20.849 GB/sec F: 5596597273.163 FLOP/sec
R: 1000000 <T>: 0.000354 sec B: 21.074 GB/sec F: 5656876499.414 FLOP/sec
R: 1000000 <T>: 0.000402 sec B: 18.535 GB/sec F: 4975508056.000 FLOP/sec
R: 1000000 <T>: 0.000357 sec B: 20.856 GB/sec F: 5598367522.989 FLOP/sec
R: 1000000 <T>: 0.000376 sec B: 19.815 GB/sec F: 5319007462.399 FLOP/sec
R: 1000000 <T>: 0.000368 sec B: 20.222 GB/sec F: 5428218590.288 FLOP/sec
R: 1000000 <T>: 0.000360 sec B: 20.714 GB/sec F: 5560374552.053 FLOP/sec
R: 1000000 <T>: 0.000392 sec B: 18.984 GB/sec F: 5095969852.459 FLOP/sec
R: 1000000 <T>: 0.000365 sec B: 20.401 GB/sec F: 5476301300.371 FLOP/sec
R: 1000000 <T>: 0.000358 sec B: 20.808 GB/sec F: 5585671634.126 FLOP/sec
R: 1000000 <T>: 0.000383 sec B: 19.434 GB/sec F: 5216660977.234 FLOP/sec
R: 1000000 <T>: 0.000360 sec B: 20.677 GB/sec F: 5550529240.021 FLOP/sec
R: 1000000 <T>: 0.000379 sec B: 19.639 GB/sec F: 5271912039.852 FLOP/sec
R: 1000000 <T>: 0.000360 sec B: 20.721 GB/sec F: 5562384926.190 FLOP/sec
R: 1000000 <T>: 0.000356 sec B: 20.906 GB/sec F: 5611955709.444 FLOP/sec
R: 1000000 <T>: 0.000380 sec B: 19.617 GB/sec F: 5265776924.092 FLOP/sec
R: 1000000 <T>: 0.000356 sec B: 20.945 GB/sec F: 5622431254.730 FLOP/sec
R: 1000000 <T>: 0.000373 sec B: 19.989 GB/sec F: 5365857578.045 FLOP/sec
R: 1000000 <T>: 0.000355 sec B: 20.967 GB/sec F: 5628237987.631 FLOP/sec
R: 1000000 <T>: 0.000357 sec B: 20.868 GB/sec F: 5601801531.407 FLOP/sec
R: 1000000 <T>: 0.000376 sec B: 19.807 GB/sec F: 5316829892.711 FLOP/sec
R: 1000000 <T>: 0.000361 sec B: 20.653 GB/sec F: 5543974818.570 FLOP/sec
R: 1000000 <T>: 0.000360 sec B: 20.709 GB/sec F: 5558983587.261 FLOP/sec
R: 1000000 <T>: 0.000382 sec B: 19.529 GB/sec F: 5242340280.566 FLOP/sec
R: 1000000 <T>: 0.000365 sec B: 20.414 GB/sec F: 5479902468.516 FLOP/sec
R: 1000000 <T>: 0.000386 sec B: 19.279 GB/sec F: 5175179833.484 FLOP/sec
R: 1000000 <T>: 0.000364 sec B: 20.452 GB/sec F: 5490131487.039 FLOP/sec
R: 1000000 <T>: 0.000365 sec B: 20.401 GB/sec F: 5476346291.898 FLOP/sec
R: 1000000 <T>: 0.000398 sec B: 18.725 GB/sec F: 5026413800.738 FLOP/sec
R: 1000000 <T>: 0.000368 sec B: 20.262 GB/sec F: 5438920914.939 FLOP/sec
R: 1000000 <T>: 0.000393 sec B: 18.936 GB/sec F: 5083225108.405 FLOP/sec
R: 1000000 <T>: 0.000365 sec B: 20.390 GB/sec F: 5473528650.231 FLOP/sec
R: 1000000 <T>: 0.000362 sec B: 20.581 GB/sec F: 5524571914.398 FLOP/sec
R: 1000000 <T>: 0.000384 sec B: 19.403 GB/sec F: 5208374030.307 FLOP/sec
R: 1000000 <T>: 0.000361 sec B: 20.613 GB/sec F: 5533330010.733 FLOP/sec
R: 1000000 <T>: 0.000466 sec B: 15.995 GB/sec F: 4293743587.464 FLOP/sec
R: 1000000 <T>: 0.000368 sec B: 20.235 GB/sec F: 5431845277.112 FLOP/sec
R: 1000000 <T>: 0.000362 sec B: 20.565 GB/sec F: 5520424177.457 FLOP/sec
R: 1000000 <T>: 0.000366 sec B: 20.351 GB/sec F: 5462913651.601 FLOP/sec
R: 1000000 <T>: 0.000376 sec B: 19.804 GB/sec F: 5315967840.451 FLOP/sec
R: 1000000 <T>: 0.000379 sec B: 19.636 GB/sec F: 5271106160.305 FLOP/sec
R: 1000000 <T>: 0.000382 sec B: 19.504 GB/sec F: 5235519859.451 FLOP/sec
R: 1000000 <T>: 0.000384 sec B: 19.419 GB/sec F: 5212650051.359 FLOP/sec
R: 1000000 <T>: 0.000372 sec B: 20.028 GB/sec F: 5376228463.285 FLOP/sec
R: 1000000 <T>: 0.000380 sec B: 19.586 GB/sec F: 5257609741.908 FLOP/sec
R: 1000000 <T>: 0.000390 sec B: 19.115 GB/sec F: 5131060100.391 FLOP/sec
R: 1000000 <T>: 0.000415 sec B: 17.949 GB/sec F: 4818174154.295 FLOP/sec
R: 1000000 <T>: 0.000418 sec B: 17.813 GB/sec F: 4781600396.974 FLOP/sec
R: 1000000 <T>: 0.000369 sec B: 20.204 GB/sec F: 5423581731.486 FLOP/sec
R: 1000000 <T>: 0.000385 sec B: 19.340 GB/sec F: 5191555415.912 FLOP/sec
R: 1000000 <T>: 0.000383 sec B: 19.436 GB/sec F: 5217205311.681 FLOP/sec
R: 1000000 <T>: 0.000372 sec B: 20.024 GB/sec F: 5375144792.934 FLOP/sec
R: 1000000 <T>: 0.000390 sec B: 19.116 GB/sec F: 5131323388.893 FLOP/sec
R: 1000000 <T>: 0.000358 sec B: 20.800 GB/sec F: 5583457340.851 FLOP/sec
R: 1000000 <T>: 0.000358 sec B: 20.830 GB/sec F: 5591543357.768 FLOP/sec
R: 1000000 <T>: 0.000389 sec B: 19.129 GB/sec F: 5134972757.242 FLOP/sec
R: 1000000 <T>: 0.000408 sec B: 18.280 GB/sec F: 4907048235.607 FLOP/sec
R: 1000000 <T>: 0.000442 sec B: 16.871 GB/sec F: 4528698353.603 FLOP/sec
R: 1000000 <T>: 0.000376 sec B: 19.826 GB/sec F: 5321951449.829 FLOP/sec
R: 1000000 <T>: 0.000387 sec B: 19.255 GB/sec F: 5168840166.165 FLOP/sec
R: 1000000 <T>: 0.000388 sec B: 19.203 GB/sec F: 5154825179.110 FLOP/sec
R: 1000000 <T>: 0.000374 sec B: 19.934 GB/sec F: 5350884235.102 FLOP/sec
R: 1000000 <T>: 0.000393 sec B: 18.967 GB/sec F: 5091545990.937 FLOP/sec
R: 1000000 <T>: 0.000373 sec B: 19.977 GB/sec F: 5362419104.507 FLOP/sec
R: 1000000 <T>: 0.000383 sec B: 19.440 GB/sec F: 5218403220.177 FLOP/sec
R: 1000000 <T>: 0.000382 sec B: 19.510 GB/sec F: 5237137596.416 FLOP/sec
R: 1000000 <T>: 0.000381 sec B: 19.559 GB/sec F: 5250322236.736 FLOP/sec
R: 1000000 <T>: 0.000386 sec B: 19.296 GB/sec F: 5179656391.193 FLOP/sec
R: 1000000 <T>: 0.000365 sec B: 20.396 GB/sec F: 5474937094.913 FLOP/sec
R: 1000000 <T>: 0.000384 sec B: 19.385 GB/sec F: 5203590479.100 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.100 GB/sec F: 5395649481.941 FLOP/sec
R: 1000000 <T>: 0.000367 sec B: 20.309 GB/sec F: 5451670947.494 FLOP/sec
R: 1000000 <T>: 0.000536 sec B: 13.896 GB/sec F: 3730111511.975 FLOP/sec
R: 1000000 <T>: 0.003192 sec B: 2.334 GB/sec F: 626485946.466 FLOP/sec
R: 1000000 <T>: 0.000674 sec B: 11.051 GB/sec F: 2966571195.328 FLOP/sec
R: 1000000 <T>: 0.000597 sec B: 12.474 GB/sec F: 3348574932.315 FLOP/sec
R: 1000000 <T>: 0.000553 sec B: 13.474 GB/sec F: 3616826200.763 FLOP/sec
R: 1000000 <T>: 0.000401 sec B: 18.568 GB/sec F: 4984311881.185 FLOP/sec
R: 1000000 <T>: 0.000404 sec B: 18.455 GB/sec F: 4954051178.133 FLOP/sec
R: 1000000 <T>: 0.000383 sec B: 19.472 GB/sec F: 5226940693.654 FLOP/sec
```

```
R: 1000000 <T>: 0.000400 sec B: 18.630 GB/sec F: 5000825140.048 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.069 GB/sec F: 5387306969.099 FLOP/sec
R: 1000000 <T>: 0.000370 sec B: 20.142 GB/sec F: 5406749789.190 FLOP/sec
R: 1000000 <T>: 0.000399 sec B: 18.686 GB/sec F: 5015875249.609 FLOP/sec
R: 1000000 <T>: 0.000412 sec B: 18.088 GB/sec F: 4855358856.003 FLOP/sec
R: 1000000 <T>: 0.000430 sec B: 17.347 GB/sec F: 4656447319.611 FLOP/sec
R: 1000000 <T>: 0.000430 sec B: 17.315 GB/sec F: 4647876844.732 FLOP/sec
R: 1000000 <T>: 0.000437 sec B: 17.058 GB/sec F: 4579079560.668 FLOP/sec
R: 1000000 <T>: 0.000436 sec B: 17.096 GB/sec F: 4589240071.645 FLOP/sec
R: 1000000 <T>: 0.000428 sec B: 17.390 GB/sec F: 4667978372.871 FLOP/sec
R: 1000000 <T>: 0.000413 sec B: 18.054 GB/sec F: 4846311352.434 FLOP/sec
R: 1000000 <T>: 0.000400 sec B: 18.622 GB/sec F: 4998725328.410 FLOP/sec
R: 1000000 <T>: 0.000405 sec B: 18.377 GB/sec F: 4933167914.645 FLOP/sec
R: 1000000 <T>: 0.000396 sec B: 18.791 GB/sec F: 5044199799.077 FLOP/sec
R: 1000000 <T>: 0.000437 sec B: 17.032 GB/sec F: 4572107855.038 FLOP/sec
R: 1000000 <T>: 0.000411 sec B: 18.117 GB/sec F: 4863316488.217 FLOP/sec
R: 1000000 <T>: 0.000464 sec B: 16.067 GB/sec F: 4312882360.709 FLOP/sec
R: 1000000 <T>: 0.000404 sec B: 18.457 GB/sec F: 4954566632.553 FLOP/sec
R: 1000000 <T>: 0.000391 sec B: 19.041 GB/sec F: 5111194025.151 FLOP/sec
R: 1000000 <T>: 0.000496 sec B: 15.018 GB/sec F: 4031299003.623 FLOP/sec
R: 1000000 <T>: 0.000407 sec B: 18.292 GB/sec F: 4910180519.397 FLOP/sec
R: 1000000 <T>: 0.000395 sec B: 18.839 GB/sec F: 5057005091.978 FLOP/sec
R: 1000000 <T>: 0.000387 sec B: 19.229 GB/sec F: 5161729900.699 FLOP/sec
R: 1000000 <T>: 0.000398 sec B: 18.706 GB/sec F: 5021302876.060 FLOP/sec
R: 1000000 <T>: 0.000395 sec B: 18.871 GB/sec F: 5065586688.138 FLOP/sec
R: 1000000 <T>: 0.000392 sec B: 18.996 GB/sec F: 5099309049.892 FLOP/sec
R: 1000000 <T>: 0.000400 sec B: 18.624 GB/sec F: 4999412570.807 FLOP/sec
R: 1000000 <T>: 0.000366 sec B: 20.360 GB/sec F: 5465212551.654 FLOP/sec
R: 1000000 <T>: 0.000393 sec B: 18.965 GB/sec F: 5090794318.497 FLOP/sec
R: 1000000 <T>: 0.000365 sec B: 20.386 GB/sec F: 5472285619.013 FLOP/sec
R: 1000000 <T>: 0.000388 sec B: 19.209 GB/sec F: 5156313637.510 FLOP/sec
R: 1000000 <T>: 0.000379 sec B: 19.654 GB/sec F: 5275945111.337 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.067 GB/sec F: 5386566970.340 FLOP/sec
R: 1000000 <T>: 0.000392 sec B: 19.021 GB/sec F: 5106039679.253 FLOP/sec
R: 1000000 <T>: 0.000368 sec B: 20.272 GB/sec F: 5441732641.703 FLOP/sec
R: 1000000 <T>: 0.000387 sec B: 19.237 GB/sec F: 5164022255.475 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.071 GB/sec F: 5387843937.250 FLOP/sec
R: 1000000 <T>: 0.000368 sec B: 20.271 GB/sec F: 5441466158.951 FLOP/sec
R: 1000000 <T>: 0.000388 sec B: 19.214 GB/sec F: 5157630062.461 FLOP/sec
R: 1000000 <T>: 0.000359 sec B: 20.745 GB/sec F: 5568719397.965 FLOP/sec
R: 1000000 <T>: 0.000353 sec B: 21.084 GB/sec F: 5659629860.549 FLOP/sec
R: 1000000 <T>: 0.000384 sec B: 19.423 GB/sec F: 5213954631.283 FLOP/sec
R: 1000000 <T>: 0.000355 sec B: 20.972 GB/sec F: 5629537047.647 FLOP/sec
R: 1000000 <T>: 0.000427 sec B: 17.443 GB/sec F: 4682360369.194 FLOP/sec
R: 1000000 <T>: 0.000389 sec B: 19.163 GB/sec F: 5143913855.554 FLOP/sec
R: 1000000 <T>: 0.000380 sec B: 19.607 GB/sec F: 5263296395.465 FLOP/sec
R: 1000000 <T>: 0.000400 sec B: 18.618 GB/sec F: 4997838430.583 FLOP/sec
R: 1000000 <T>: 0.000392 sec B: 19.009 GB/sec F: 5102613565.491 FLOP/sec
R: 1000000 <T>: 0.000397 sec B: 18.784 GB/sec F: 5042292221.412 FLOP/sec
R: 1000000 <T>: 0.000376 sec B: 19.837 GB/sec F: 5324997946.125 FLOP/sec
R: 1000000 <T>: 0.000406 sec B: 18.369 GB/sec F: 4930869217.152 FLOP/sec
R: 1000000 <T>: 0.000382 sec B: 19.528 GB/sec F: 5242079222.326 FLOP/sec
R: 1000000 <T>: 0.000385 sec B: 19.356 GB/sec F: 5195803866.749 FLOP/sec
R: 1000000 <T>: 0.000402 sec B: 18.545 GB/sec F: 4978108767.416 FLOP/sec
R: 1000000 <T>: 0.000390 sec B: 19.090 GB/sec F: 5124315907.104 FLOP/sec
R: 1000000 <T>: 0.000405 sec B: 18.410 GB/sec F: 4941981138.228 FLOP/sec
R: 1000000 <T>: 0.000391 sec B: 19.067 GB/sec F: 5118231135.384 FLOP/sec
R: 1000000 <T>: 0.000384 sec B: 19.388 GB/sec F: 5204321662.651 FLOP/sec
R: 1000000 <T>: 0.000438 sec B: 17.006 GB/sec F: 4565032306.930 FLOP/sec
R: 1000000 <T>: 0.000370 sec B: 20.147 GB/sec F: 5408241078.038 FLOP/sec
R: 1000000 <T>: 0.000398 sec B: 18.735 GB/sec F: 5029270353.928 FLOP/sec
R: 1000000 <T>: 0.000380 sec B: 19.594 GB/sec F: 5259614582.131 FLOP/sec
R: 1000000 <T>: 0.000388 sec B: 19.188 GB/sec F: 5150723026.801 FLOP/sec
R: 1000000 <T>: 0.000382 sec B: 19.487 GB/sec F: 5230918912.877 FLOP/sec
R: 1000000 <T>: 0.000380 sec B: 19.592 GB/sec F: 5259075185.151 FLOP/sec
R: 1000000 <T>: 0.000411 sec B: 18.125 GB/sec F: 4865481599.707 FLOP/sec
R: 1000000 <T>: 0.000398 sec B: 18.709 GB/sec F: 5022223332.872 FLOP/sec
R: 1000000 <T>: 0.000396 sec B: 18.808 GB/sec F: 5048669162.388 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.066 GB/sec F: 5386479940.551 FLOP/sec
R: 1000000 <T>: 0.000368 sec B: 20.223 GB/sec F: 5428557468.465 FLOP/sec
R: 1000000 <T>: 0.000390 sec B: 19.128 GB/sec F: 5134564084.946 FLOP/sec
R: 1000000 <T>: 0.000389 sec B: 19.130 GB/sec F: 5135157349.533 FLOP/sec
R: 1000000 <T>: 0.000423 sec B: 17.621 GB/sec F: 4730156402.058 FLOP/sec
R: 1000000 <T>: 0.000391 sec B: 19.061 GB/sec F: 5116528948.922 FLOP/sec
R: 1000000 <T>: 0.000386 sec B: 19.287 GB/sec F: 5177283121.341 FLOP/sec
R: 1000000 <T>: 0.000393 sec B: 18.945 GB/sec F: 5085577548.612 FLOP/sec
R: 1000000 <T>: 0.000411 sec B: 18.128 GB/sec F: 4866144535.290 FLOP/sec
R: 1000000 <T>: 0.000433 sec B: 17.199 GB/sec F: 4616815824.811 FLOP/sec
R: 1000000 <T>: 0.000431 sec B: 17.277 GB/sec F: 4637767197.132 FLOP/sec
R: 1000000 <T>: 0.000444 sec B: 16.789 GB/sec F: 4506778186.350 FLOP/sec
R: 1000000 <T>: 0.000424 sec B: 17.574 GB/sec F: 4717570829.044 FLOP/sec
R: 1000000 <T>: 0.000448 sec B: 16.643 GB/sec F: 4467466790.281 FLOP/sec
R: 1000000 <T>: 0.000424 sec B: 17.554 GB/sec F: 4712146733.575 FLOP/sec
R: 1000000 <T>: 0.000430 sec B: 17.347 GB/sec F: 4656469001.984 FLOP/sec
R: 1000000 <T>: 0.000398 sec B: 18.737 GB/sec F: 5029675079.180 FLOP/sec
R: 1000000 <T>: 0.000387 sec B: 19.256 GB/sec F: 5168920305.137 FLOP/sec
R: 1000000 <T>: 0.003046 sec B: 2.446 GB/sec F: 656610889.673 FLOP/sec
R: 1000000 <T>: 0.000890 sec B: 8.373 GB/sec F: 2247627910.175 FLOP/sec
R: 1000000 <T>: 0.000702 sec B: 10.606 GB/sec F: 2847043984.724 FLOP/sec
R: 1000000 <T>: 0.000550 sec B: 13.546 GB/sec F: 3636264465.221 FLOP/sec
R: 1000000 <T>: 0.000434 sec B: 17.160 GB/sec F: 4606363235.676 FLOP/sec
R: 1000000 <T>: 0.000454 sec B: 16.424 GB/sec F: 4408840605.016 FLOP/sec
R: 1000000 <T>: 0.000395 sec B: 18.878 GB/sec F: 5067511923.522 FLOP/sec
R: 1000000 <T>: 0.000382 sec B: 19.520 GB/sec F: 5239868068.790 FLOP/sec
R: 1000000 <T>: 0.000424 sec B: 17.573 GB/sec F: 4717314902.618 FLOP/sec
R: 1000000 <T>: 0.000372 sec B: 20.010 GB/sec F: 5371362580.983 FLOP/sec
R: 1000000 <T>: 0.000467 sec B: 15.942 GB/sec F: 4279438792.337 FLOP/sec
R: 1000000 <T>: 0.000444 sec B: 16.776 GB/sec F: 4503277265.924 FLOP/sec
R: 1000000 <T>: 0.000431 sec B: 17.305 GB/sec F: 4645285956.633 FLOP/sec
R: 1000000 <T>: 0.000383 sec B: 19.435 GB/sec F: 5216973942.357 FLOP/sec
```

```
R: 1000000 <T>: 0.000373 sec B: 19.960 GB/sec F: 5358080524.846 FLOP/sec
R: 1000000 <T>: 0.000390 sec B: 19.109 GB/sec F: 5129454613.467 FLOP/sec
R: 1000000 <T>: 0.000372 sec B: 20.053 GB/sec F: 5382971510.661 FLOP/sec
R: 1000000 <T>: 0.000404 sec B: 18.452 GB/sec F: 4953081927.701 FLOP/sec
R: 1000000 <T>: 0.000451 sec B: 16.503 GB/sec F: 4430041886.141 FLOP/sec
R: 1000000 <T>: 0.000405 sec B: 18.392 GB/sec F: 4937174458.338 FLOP/sec
R: 1000000 <T>: 0.000384 sec B: 19.419 GB/sec F: 5212650051.359 FLOP/sec
R: 1000000 <T>: 0.000373 sec B: 19.955 GB/sec F: 5356659800.273 FLOP/sec
R: 1000000 <T>: 0.000446 sec B: 16.693 GB/sec F: 4481049647.967 FLOP/sec
R: 1000000 <T>: 0.000385 sec B: 19.366 GB/sec F: 5198558952.835 FLOP/sec
R: 1000000 <T>: 0.000388 sec B: 19.182 GB/sec F: 5149211279.606 FLOP/sec
R: 1000000 <T>: 0.000374 sec B: 19.927 GB/sec F: 5348995199.694 FLOP/sec
R: 1000000 <T>: 0.000370 sec B: 20.133 GB/sec F: 5404397552.707 FLOP/sec
R: 1000000 <T>: 0.000435 sec B: 17.139 GB/sec F: 4600588419.187 FLOP/sec
R: 1000000 <T>: 0.000377 sec B: 19.740 GB/sec F: 5298855444.514 FLOP/sec
R: 1000000 <T>: 0.000398 sec B: 18.717 GB/sec F: 5024267206.558 FLOP/sec
R: 1000000 <T>: 0.000366 sec B: 20.332 GB/sec F: 5457815188.285 FLOP/sec
R: 1000000 <T>: 0.000385 sec B: 19.352 GB/sec F: 5194886161.728 FLOP/sec
R: 1000000 <T>: 0.000367 sec B: 20.308 GB/sec F: 5451299447.515 FLOP/sec
R: 1000000 <T>: 0.000363 sec B: 20.547 GB/sec F: 5515537273.619 FLOP/sec
R: 1000000 <T>: 0.000390 sec B: 19.110 GB/sec F: 5129744051.088 FLOP/sec
R: 1000000 <T>: 0.000367 sec B: 20.301 GB/sec F: 5449620983.865 FLOP/sec
R: 1000000 <T>: 0.000365 sec B: 20.434 GB/sec F: 5485252892.795 FLOP/sec
R: 1000000 <T>: 0.000382 sec B: 19.517 GB/sec F: 5238948437.936 FLOP/sec
R: 1000000 <T>: 0.000364 sec B: 20.493 GB/sec F: 5500973679.685 FLOP/sec
R: 1000000 <T>: 0.000389 sec B: 19.162 GB/sec F: 5143821242.711 FLOP/sec
R: 1000000 <T>: 0.000367 sec B: 20.315 GB/sec F: 5453350674.339 FLOP/sec
R: 1000000 <T>: 0.000368 sec B: 20.240 GB/sec F: 5433232375.732 FLOP/sec
R: 1000000 <T>: 0.000417 sec B: 17.862 GB/sec F: 4794852247.759 FLOP/sec
R: 1000000 <T>: 0.000368 sec B: 20.220 GB/sec F: 5427865030.373 FLOP/sec
R: 1000000 <T>: 0.000410 sec B: 18.165 GB/sec F: 4876134014.135 FLOP/sec
R: 1000000 <T>: 0.000368 sec B: 20.268 GB/sec F: 5440548400.371 FLOP/sec
R: 1000000 <T>: 0.000365 sec B: 20.385 GB/sec F: 5472061029.473 FLOP/sec
R: 1000000 <T>: 0.000383 sec B: 19.431 GB/sec F: 5216089561.289 FLOP/sec
R: 1000000 <T>: 0.000365 sec B: 20.433 GB/sec F: 5485057336.681 FLOP/sec
R: 1000000 <T>: 0.000385 sec B: 19.362 GB/sec F: 5197518702.809 FLOP/sec
R: 1000000 <T>: 0.000364 sec B: 20.477 GB/sec F: 5496725330.025 FLOP/sec
R: 1000000 <T>: 0.000365 sec B: 20.403 GB/sec F: 5477006152.531 FLOP/sec
R: 1000000 <T>: 0.000394 sec B: 18.929 GB/sec F: 5081313724.975 FLOP/sec
R: 1000000 <T>: 0.000365 sec B: 20.400 GB/sec F: 5476196345.746 FLOP/sec
R: 1000000 <T>: 0.000395 sec B: 18.841 GB/sec F: 5057657294.162 FLOP/sec
R: 1000000 <T>: 0.000363 sec B: 20.502 GB/sec F: 5503592470.290 FLOP/sec
R: 1000000 <T>: 0.000368 sec B: 20.241 GB/sec F: 5433424253.859 FLOP/sec
R: 1000000 <T>: 0.000391 sec B: 19.053 GB/sec F: 5114631675.060 FLOP/sec
R: 1000000 <T>: 0.000367 sec B: 20.289 GB/sec F: 5446192968.974 FLOP/sec
R: 1000000 <T>: 0.000401 sec B: 18.603 GB/sec F: 4993695464.953 FLOP/sec
R: 1000000 <T>: 0.000368 sec B: 20.239 GB/sec F: 5432848633.289 FLOP/sec
R: 1000000 <T>: 0.000367 sec B: 20.306 GB/sec F: 5450749743.695 FLOP/sec
R: 1000000 <T>: 0.000425 sec B: 17.525 GB/sec F: 4704421218.476 FLOP/sec
R: 1000000 <T>: 0.000419 sec B: 17.764 GB/sec F: 4768364756.175 FLOP/sec
R: 1000000 <T>: 0.000400 sec B: 18.640 GB/sec F: 5003527484.958 FLOP/sec
R: 1000000 <T>: 0.000370 sec B: 20.144 GB/sec F: 5407407610.130 FLOP/sec
R: 1000000 <T>: 0.000369 sec B: 20.176 GB/sec F: 5415988531.368 FLOP/sec
R: 1000000 <T>: 0.000407 sec B: 18.308 GB/sec F: 4914391304.951 FLOP/sec
R: 1000000 <T>: 0.000370 sec B: 20.128 GB/sec F: 5403185718.891 FLOP/sec
R: 1000000 <T>: 0.000404 sec B: 18.432 GB/sec F: 4947678305.251 FLOP/sec
R: 1000000 <T>: 0.000370 sec B: 20.124 GB/sec F: 5401901456.947 FLOP/sec
R: 1000000 <T>: 0.000365 sec B: 20.391 GB/sec F: 5473618529.304 FLOP/sec
R: 1000000 <T>: 0.000392 sec B: 18.989 GB/sec F: 5097437520.575 FLOP/sec
R: 1000000 <T>: 0.000368 sec B: 20.260 GB/sec F: 5438373704.638 FLOP/sec
R: 1000000 <T>: 0.000392 sec B: 19.027 GB/sec F: 5107447933.137 FLOP/sec
R: 1000000 <T>: 0.000367 sec B: 20.316 GB/sec F: 5453618349.472 FLOP/sec
R: 1000000 <T>: 0.000370 sec B: 20.118 GB/sec F: 5400384511.052 FLOP/sec
R: 1000000 <T>: 0.000387 sec B: 19.236 GB/sec F: 5163582283.976 FLOP/sec
R: 1000000 <T>: 0.000367 sec B: 20.308 GB/sec F: 5451492630.916 FLOP/sec
R: 1000000 <T>: 0.000399 sec B: 18.696 GB/sec F: 5018581290.263 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.061 GB/sec F: 5385189113.431 FLOP/sec
R: 1000000 <T>: 0.000559 sec B: 13.328 GB/sec F: 3577612726.496 FLOP/sec
R: 1000000 <T>: 0.000469 sec B: 15.885 GB/sec F: 4264128659.474 FLOP/sec
R: 1000000 <T>: 0.000410 sec B: 18.151 GB/sec F: 4872487023.783 FLOP/sec
R: 1000000 <T>: 0.000392 sec B: 19.010 GB/sec F: 5103082263.557 FLOP/sec
R: 1000000 <T>: 0.000382 sec B: 19.479 GB/sec F: 5228949562.062 FLOP/sec
R: 1000000 <T>: 0.000413 sec B: 18.034 GB/sec F: 4840880265.587 FLOP/sec
R: 1000000 <T>: 0.000390 sec B: 19.083 GB/sec F: 5122530938.367 FLOP/sec
R: 1000000 <T>: 0.000404 sec B: 18.426 GB/sec F: 4946185498.565 FLOP/sec
R: 1000000 <T>: 0.000387 sec B: 19.238 GB/sec F: 5164035594.994 FLOP/sec
R: 1000000 <T>: 0.000430 sec B: 17.310 GB/sec F: 4646537863.855 FLOP/sec
R: 1000000 <T>: 0.000377 sec B: 19.784 GB/sec F: 5310857787.931 FLOP/sec
R: 1000000 <T>: 0.000364 sec B: 20.464 GB/sec F: 5493313263.455 FLOP/sec
R: 1000000 <T>: 0.000451 sec B: 16.510 GB/sec F: 4431995463.394 FLOP/sec
R: 1000000 <T>: 0.000387 sec B: 19.239 GB/sec F: 5164328948.456 FLOP/sec
R: 1000000 <T>: 0.001147 sec B: 6.497 GB/sec F: 1744039528.023 FLOP/sec
R: 1000000 <T>: 0.000538 sec B: 13.850 GB/sec F: 3717803820.093 FLOP/sec
R: 1000000 <T>: 0.000426 sec B: 17.483 GB/sec F: 4693051002.553 FLOP/sec
R: 1000000 <T>: 0.000441 sec B: 16.905 GB/sec F: 4537884526.708 FLOP/sec
R: 1000000 <T>: 0.000388 sec B: 19.197 GB/sec F: 5153125111.549 FLOP/sec
R: 1000000 <T>: 0.000412 sec B: 18.078 GB/sec F: 4852684624.380 FLOP/sec
R: 1000000 <T>: 0.000369 sec B: 20.203 GB/sec F: 5423317010.058 FLOP/sec
R: 1000000 <T>: 0.000371 sec B: 20.069 GB/sec F: 5387306969.099 FLOP/sec
R: 1000000 <T>: 0.000393 sec B: 18.978 GB/sec F: 5094256487.060 FLOP/sec
R: 1000000 <T>: 0.000368 sec B: 20.238 GB/sec F: 5432730573.726 FLOP/sec
R: 1000000 <T>: 0.000383 sec B: 19.434 GB/sec F: 5216660977.234 FLOP/sec
R: 1000000 <T>: 0.000359 sec B: 20.766 GB/sec F: 5574244751.948 FLOP/sec
R: 1000000 <T>: 0.000359 sec B: 20.778 GB/sec F: 5577524799.126 FLOP/sec
R: 1000000 <T>: 0.000375 sec B: 19.889 GB/sec F: 5338957038.930 FLOP/sec
R: 1000000 <T>: 0.000361 sec B: 20.634 GB/sec F: 5538908053.814 FLOP/sec
R: 1000000 <T>: 0.000387 sec B: 19.272 GB/sec F: 5173238833.756 FLOP/sec
R: 1000000 <T>: 0.000359 sec B: 20.743 GB/sec F: 5568037240.665 FLOP/sec
R: 1000000 <T>: 0.000361 sec B: 20.633 GB/sec F: 5538754662.172 FLOP/sec
R: 1000000 <T>: 0.000383 sec B: 19.458 GB/sec F: 5223227691.488 FLOP/sec
```

```
R: 1000000 <T>: 0.000366 sec B: 20.361 GB/sec F: 5465675555.268 FLOP/sec
N: 1000000 <T>: 0.000412 sec B: 18.085 GB/sec F: 4854645953.298 FLOP/sec
```

In [75]:
```
!./dp3 300000000 20
```

```
Vector size: 300000000 with 20 measurements.
R: 300000000 <T>: 0.254314 sec B: 8.789 GB/sec F: 2359289478.587 FLOP/sec
R: 300000000 <T>: 0.249104 sec B: 8.973 GB/sec F: 2408635053.015 FLOP/sec
R: 300000000 <T>: 0.231816 sec B: 9.642 GB/sec F: 2588262646.465 FLOP/sec
R: 300000000 <T>: 0.223913 sec B: 9.982 GB/sec F: 2679618142.445 FLOP/sec
R: 300000000 <T>: 0.229305 sec B: 9.748 GB/sec F: 2616606963.327 FLOP/sec
R: 300000000 <T>: 0.234643 sec B: 9.526 GB/sec F: 2557074673.850 FLOP/sec
R: 300000000 <T>: 0.221434 sec B: 10.094 GB/sec F: 2709605716.200 FLOP/sec
R: 300000000 <T>: 0.219261 sec B: 10.194 GB/sec F: 2736460255.764 FLOP/sec
R: 300000000 <T>: 0.217278 sec B: 10.287 GB/sec F: 2761435983.161 FLOP/sec
R: 300000000 <T>: 0.219270 sec B: 10.194 GB/sec F: 2736347700.050 FLOP/sec
R: 300000000 <T>: 0.221392 sec B: 10.096 GB/sec F: 2710122187.127 FLOP/sec
R: 300000000 <T>: 0.212979 sec B: 10.495 GB/sec F: 2817174449.530 FLOP/sec
R: 300000000 <T>: 0.224146 sec B: 9.972 GB/sec F: 2676824824.277 FLOP/sec
R: 300000000 <T>: 0.221058 sec B: 10.111 GB/sec F: 2714216617.444 FLOP/sec
R: 300000000 <T>: 0.222247 sec B: 10.057 GB/sec F: 2699692909.933 FLOP/sec
R: 300000000 <T>: 0.338345 sec B: 6.606 GB/sec F: 1773336727.854 FLOP/sec
R: 300000000 <T>: 0.224441 sec B: 9.959 GB/sec F: 2673310258.505 FLOP/sec
R: 300000000 <T>: 0.301448 sec B: 7.415 GB/sec F: 1990391134.682 FLOP/sec
R: 300000000 <T>: 0.234052 sec B: 9.550 GB/sec F: 2563529078.549 FLOP/sec
R: 300000000 <T>: 0.232272 sec B: 9.623 GB/sec F: 2583173415.888 FLOP/sec
N: 300000000 <T>: 0.243238 sec B: 9.189 GB/sec F: 2466717159.903 FLOP/sec
```

In [76]:
```python
import numpy as np

def compute_dot_product_mkl(N):
    # Create two vectors of size N with all elements set to 1.0
    vecA = np.ones(N, dtype=np.float32)  # Using float32 to mimic single-precision float in C
    vecB = np.ones(N, dtype=np.float32)

    # Compute the dot product using numpy (which uses MKL under the hood)
    dot_product_result = np.dot(vecA, vecB)

    # Analytically, the result should be N
    analytical_result = N

    return dot_product_result, analytical_result

# Test the function for a few vector sizes
vector_sizes = [1000000, 16777216, 67108864, 300000000]
results = {}

for size in vector_sizes:
    dot_product_result, analytical_result = compute_dot_product_mkl(size)
    results[size] = (dot_product_result, analytical_result)

for size, (dp_result, analytical) in results.items():
    print(f"For N = {size}:")
    print(f"Computed Dot Product (using MKL): {dp_result}")
    print(f"Analytical Result: {analytical}")
    print("----")
```

```
For N = 1000000:
Computed Dot Product (using MKL): 1000000.0
Analytical Result: 1000000
----
For N = 16777216:
Computed Dot Product (using MKL): 16777216.0
Analytical Result: 16777216
----
For N = 67108864:
Computed Dot Product (using MKL): 67108864.0
Analytical Result: 67108864
----
For N = 300000000:
Computed Dot Product (using MKL): 300000000.0
Analytical Result: 300000000
----
```

C4: Implement the same microbenchmark in python, using numpy arrays as input.

```
A = np.ones(N,dtype=np.float32)
B = np.ones(N,dtype=np.float32)
# for a simple loop
def dp(N,A,B):
    R = 0.0;
    for j in range(0,N):
        R += A[j]*B[j]
    return R
```

In [77]:
```python
%%writefile dp4.py
import argparse
import time
import numpy as np

def dp(N, A, B):
    R = 0.0
    for j in range(0, N):
        R += A[j] * B[j]
    return R

def measure_dot_product(N, A, B):
    start_time = time.monotonic()
    result = dp(N, A, B)
```

```python
        elapsed_time = time.monotonic() - start_time

        return result, elapsed_time

    def compute_metrics(N, elapsed_time):
        bandwidth = (N * 2 * 4 / 1_073_741_824) / elapsed_time
        flops = N * 2 / elapsed_time
        return bandwidth, flops


    def main():
        parser = argparse.ArgumentParser(description='Microbenchmark: Compute dot product of two numpy arrays.')
        parser.add_argument('vecsize', type=int, help='Vector size (N)')
        parser.add_argument('measurements', type=int, help='Number of measurements')
        args = parser.parse_args()

        # Print the vector size and number of measurements
        print(f"Vector size: {args.vecsize} with {args.measurements} measurements.")

        A = np.ones(args.vecsize, dtype=np.float32)
        B = np.ones(args.vecsize, dtype=np.float32)

        accumulated_time = 0

        for i in range(args.measurements):
            result, elapsed_time = measure_dot_product(args.vecsize, A, B)

            if i >= args.measurements // 2:
                accumulated_time += elapsed_time

            bandwidth, flops = compute_metrics(args.vecsize, elapsed_time)
            print(f'R: {int(result)} <T>: {elapsed_time:.6f} sec B: {bandwidth:.3f} GB/sec F: {flops:.3f} FLOP/sec')

        mean_time = accumulated_time / (args.measurements // 2)
        avg_bandwidth, avg_flops = compute_metrics(args.vecsize, mean_time)
        print(f"N: {args.vecsize} <T>: {mean_time:.6f} sec B: {avg_bandwidth:.3f} GB/sec F: {avg_flops:.3f} FLOP/sec")

    if __name__ == '__main__':
        main()
```

Writing dp4.py

In [78]: `!python dp4.py 1000000 1000`

```
Vector size: 1000000 with 1000 measurements.
R: 1000000 <T>: 0.459945 sec B: 0.016 GB/sec F: 4348342.386 FLOP/sec
R: 1000000 <T>: 0.464355 sec B: 0.016 GB/sec F: 4307046.447 FLOP/sec
R: 1000000 <T>: 0.438104 sec B: 0.017 GB/sec F: 4565125.474 FLOP/sec
R: 1000000 <T>: 0.489766 sec B: 0.015 GB/sec F: 4083586.424 FLOP/sec
R: 1000000 <T>: 0.921756 sec B: 0.008 GB/sec F: 2169770.817 FLOP/sec
R: 1000000 <T>: 0.932149 sec B: 0.008 GB/sec F: 2145578.932 FLOP/sec
R: 1000000 <T>: 0.920623 sec B: 0.008 GB/sec F: 2172443.074 FLOP/sec
R: 1000000 <T>: 0.820323 sec B: 0.009 GB/sec F: 2438063.115 FLOP/sec
R: 1000000 <T>: 0.806980 sec B: 0.009 GB/sec F: 2478375.044 FLOP/sec
R: 1000000 <T>: 0.818877 sec B: 0.009 GB/sec F: 2442370.611 FLOP/sec
R: 1000000 <T>: 0.784842 sec B: 0.009 GB/sec F: 2548283.610 FLOP/sec
R: 1000000 <T>: 0.804636 sec B: 0.009 GB/sec F: 2485597.491 FLOP/sec
R: 1000000 <T>: 0.497931 sec B: 0.015 GB/sec F: 4016618.688 FLOP/sec
R: 1000000 <T>: 0.440162 sec B: 0.017 GB/sec F: 4543780.772 FLOP/sec
R: 1000000 <T>: 0.441256 sec B: 0.017 GB/sec F: 4532518.121 FLOP/sec
R: 1000000 <T>: 0.437127 sec B: 0.017 GB/sec F: 4575329.105 FLOP/sec
R: 1000000 <T>: 0.440086 sec B: 0.017 GB/sec F: 4544567.683 FLOP/sec
R: 1000000 <T>: 0.448719 sec B: 0.017 GB/sec F: 4457134.997 FLOP/sec
R: 1000000 <T>: 0.449639 sec B: 0.017 GB/sec F: 4448013.402 FLOP/sec
R: 1000000 <T>: 0.447932 sec B: 0.017 GB/sec F: 4464962.026 FLOP/sec
R: 1000000 <T>: 0.447753 sec B: 0.017 GB/sec F: 4466752.468 FLOP/sec
R: 1000000 <T>: 0.456341 sec B: 0.016 GB/sec F: 4382685.616 FLOP/sec
R: 1000000 <T>: 0.439994 sec B: 0.017 GB/sec F: 4545513.451 FLOP/sec
R: 1000000 <T>: 0.453294 sec B: 0.016 GB/sec F: 4412144.420 FLOP/sec
R: 1000000 <T>: 0.438542 sec B: 0.017 GB/sec F: 4560563.017 FLOP/sec
R: 1000000 <T>: 0.441095 sec B: 0.017 GB/sec F: 4534170.736 FLOP/sec
R: 1000000 <T>: 0.450880 sec B: 0.017 GB/sec F: 4435765.682 FLOP/sec
R: 1000000 <T>: 0.439410 sec B: 0.017 GB/sec F: 4551554.684 FLOP/sec
R: 1000000 <T>: 0.441740 sec B: 0.017 GB/sec F: 4527553.740 FLOP/sec
R: 1000000 <T>: 0.439728 sec B: 0.017 GB/sec F: 4548261.453 FLOP/sec
R: 1000000 <T>: 0.457765 sec B: 0.016 GB/sec F: 4369056.682 FLOP/sec
R: 1000000 <T>: 0.434807 sec B: 0.017 GB/sec F: 4599741.817 FLOP/sec
R: 1000000 <T>: 0.435390 sec B: 0.017 GB/sec F: 4593583.197 FLOP/sec
R: 1000000 <T>: 0.444547 sec B: 0.017 GB/sec F: 4498966.378 FLOP/sec
R: 1000000 <T>: 0.591793 sec B: 0.013 GB/sec F: 3379558.958 FLOP/sec
R: 1000000 <T>: 0.943247 sec B: 0.008 GB/sec F: 2120335.381 FLOP/sec
R: 1000000 <T>: 0.917861 sec B: 0.008 GB/sec F: 2178977.988 FLOP/sec
R: 1000000 <T>: 0.894739 sec B: 0.008 GB/sec F: 2235287.712 FLOP/sec
R: 1000000 <T>: 0.782468 sec B: 0.010 GB/sec F: 2556013.545 FLOP/sec
R: 1000000 <T>: 0.777160 sec B: 0.010 GB/sec F: 2573472.061 FLOP/sec
R: 1000000 <T>: 0.798193 sec B: 0.009 GB/sec F: 2505660.977 FLOP/sec
R: 1000000 <T>: 0.804725 sec B: 0.009 GB/sec F: 2485321.221 FLOP/sec
R: 1000000 <T>: 0.787166 sec B: 0.009 GB/sec F: 2540759.005 FLOP/sec
R: 1000000 <T>: 0.442125 sec B: 0.017 GB/sec F: 4523612.151 FLOP/sec
R: 1000000 <T>: 0.444315 sec B: 0.017 GB/sec F: 4501313.509 FLOP/sec
R: 1000000 <T>: 0.436164 sec B: 0.017 GB/sec F: 4585435.310 FLOP/sec
R: 1000000 <T>: 0.440577 sec B: 0.017 GB/sec F: 4539498.826 FLOP/sec
R: 1000000 <T>: 0.449155 sec B: 0.017 GB/sec F: 4452809.919 FLOP/sec
R: 1000000 <T>: 0.433441 sec B: 0.017 GB/sec F: 4614242.636 FLOP/sec
R: 1000000 <T>: 0.465978 sec B: 0.016 GB/sec F: 4292049.744 FLOP/sec
R: 1000000 <T>: 0.433367 sec B: 0.017 GB/sec F: 4615027.373 FLOP/sec
R: 1000000 <T>: 0.446987 sec B: 0.017 GB/sec F: 4474404.931 FLOP/sec
R: 1000000 <T>: 0.428024 sec B: 0.017 GB/sec F: 4672631.686 FLOP/sec
R: 1000000 <T>: 0.454453 sec B: 0.016 GB/sec F: 4400892.295 FLOP/sec
R: 1000000 <T>: 0.430996 sec B: 0.017 GB/sec F: 4640419.507 FLOP/sec
R: 1000000 <T>: 0.433326 sec B: 0.017 GB/sec F: 4615466.952 FLOP/sec
R: 1000000 <T>: 0.466441 sec B: 0.016 GB/sec F: 4287788.583 FLOP/sec
R: 1000000 <T>: 0.426053 sec B: 0.017 GB/sec F: 4694256.755 FLOP/sec
R: 1000000 <T>: 0.447984 sec B: 0.017 GB/sec F: 4464447.461 FLOP/sec
R: 1000000 <T>: 0.426892 sec B: 0.017 GB/sec F: 4685027.082 FLOP/sec
R: 1000000 <T>: 0.451895 sec B: 0.016 GB/sec F: 4425811.738 FLOP/sec
R: 1000000 <T>: 0.434325 sec B: 0.017 GB/sec F: 4604848.509 FLOP/sec
R: 1000000 <T>: 0.437598 sec B: 0.017 GB/sec F: 4570401.239 FLOP/sec
R: 1000000 <T>: 0.467923 sec B: 0.016 GB/sec F: 4274206.147 FLOP/sec
R: 1000000 <T>: 0.442667 sec B: 0.017 GB/sec F: 4518073.898 FLOP/sec
R: 1000000 <T>: 0.679510 sec B: 0.011 GB/sec F: 2943297.237 FLOP/sec
R: 1000000 <T>: 0.962269 sec B: 0.008 GB/sec F: 2078421.346 FLOP/sec
R: 1000000 <T>: 0.961614 sec B: 0.008 GB/sec F: 2079835.782 FLOP/sec
R: 1000000 <T>: 0.885191 sec B: 0.008 GB/sec F: 2259398.932 FLOP/sec
R: 1000000 <T>: 0.798361 sec B: 0.009 GB/sec F: 2505133.306 FLOP/sec
R: 1000000 <T>: 0.801007 sec B: 0.009 GB/sec F: 2496857.917 FLOP/sec
R: 1000000 <T>: 0.807009 sec B: 0.009 GB/sec F: 2478288.133 FLOP/sec
R: 1000000 <T>: 0.814230 sec B: 0.009 GB/sec F: 2456307.461 FLOP/sec
R: 1000000 <T>: 0.745286 sec B: 0.010 GB/sec F: 2683533.688 FLOP/sec
R: 1000000 <T>: 0.473739 sec B: 0.016 GB/sec F: 4221736.386 FLOP/sec
R: 1000000 <T>: 0.450175 sec B: 0.017 GB/sec F: 4442721.419 FLOP/sec
R: 1000000 <T>: 0.455587 sec B: 0.016 GB/sec F: 4389937.951 FLOP/sec
R: 1000000 <T>: 0.442472 sec B: 0.017 GB/sec F: 4520058.024 FLOP/sec
R: 1000000 <T>: 0.457933 sec B: 0.016 GB/sec F: 4367448.969 FLOP/sec
R: 1000000 <T>: 0.440323 sec B: 0.017 GB/sec F: 4542121.784 FLOP/sec
R: 1000000 <T>: 0.441694 sec B: 0.017 GB/sec F: 4528022.246 FLOP/sec
R: 1000000 <T>: 0.459402 sec B: 0.016 GB/sec F: 4353483.486 FLOP/sec
R: 1000000 <T>: 0.453643 sec B: 0.016 GB/sec F: 4408757.628 FLOP/sec
R: 1000000 <T>: 0.460531 sec B: 0.016 GB/sec F: 4342811.971 FLOP/sec
R: 1000000 <T>: 0.467838 sec B: 0.016 GB/sec F: 4274980.466 FLOP/sec
R: 1000000 <T>: 0.453304 sec B: 0.016 GB/sec F: 4412046.775 FLOP/sec
R: 1000000 <T>: 0.458450 sec B: 0.016 GB/sec F: 4362523.419 FLOP/sec
R: 1000000 <T>: 0.468230 sec B: 0.016 GB/sec F: 4271403.318 FLOP/sec
R: 1000000 <T>: 0.450979 sec B: 0.017 GB/sec F: 4434794.175 FLOP/sec
R: 1000000 <T>: 0.437254 sec B: 0.017 GB/sec F: 4573999.023 FLOP/sec
R: 1000000 <T>: 0.447347 sec B: 0.017 GB/sec F: 4470802.947 FLOP/sec
R: 1000000 <T>: 0.453286 sec B: 0.016 GB/sec F: 4412221.267 FLOP/sec
R: 1000000 <T>: 0.448056 sec B: 0.017 GB/sec F: 4463732.510 FLOP/sec
R: 1000000 <T>: 0.450682 sec B: 0.017 GB/sec F: 4437722.193 FLOP/sec
R: 1000000 <T>: 0.455924 sec B: 0.016 GB/sec F: 4386692.872 FLOP/sec
R: 1000000 <T>: 0.478312 sec B: 0.016 GB/sec F: 4181369.433 FLOP/sec
R: 1000000 <T>: 0.915660 sec B: 0.008 GB/sec F: 2184217.858 FLOP/sec
R: 1000000 <T>: 0.957106 sec B: 0.008 GB/sec F: 2089632.362 FLOP/sec
R: 1000000 <T>: 0.931418 sec B: 0.008 GB/sec F: 2147263.439 FLOP/sec
```

```
R: 1000000 <T>: 0.831840 sec B: 0.009 GB/sec F: 2404307.229 FLOP/sec
R: 1000000 <T>: 0.830551 sec B: 0.009 GB/sec F: 2408040.895 FLOP/sec
R: 1000000 <T>: 0.803922 sec B: 0.009 GB/sec F: 2487804.051 FLOP/sec
R: 1000000 <T>: 0.802314 sec B: 0.009 GB/sec F: 2492789.904 FLOP/sec
R: 1000000 <T>: 0.793899 sec B: 0.009 GB/sec F: 2519210.939 FLOP/sec
R: 1000000 <T>: 0.633366 sec B: 0.012 GB/sec F: 3157731.715 FLOP/sec
R: 1000000 <T>: 0.463631 sec B: 0.016 GB/sec F: 4313776.734 FLOP/sec
R: 1000000 <T>: 0.442533 sec B: 0.017 GB/sec F: 4519436.611 FLOP/sec
R: 1000000 <T>: 0.463714 sec B: 0.016 GB/sec F: 4313003.283 FLOP/sec
R: 1000000 <T>: 0.446849 sec B: 0.017 GB/sec F: 4475789.032 FLOP/sec
R: 1000000 <T>: 0.440847 sec B: 0.017 GB/sec F: 4536720.698 FLOP/sec
R: 1000000 <T>: 0.463426 sec B: 0.016 GB/sec F: 4315679.696 FLOP/sec
R: 1000000 <T>: 0.438793 sec B: 0.017 GB/sec F: 4557955.360 FLOP/sec
R: 1000000 <T>: 0.457664 sec B: 0.016 GB/sec F: 4370017.587 FLOP/sec
R: 1000000 <T>: 0.458874 sec B: 0.016 GB/sec F: 4358498.344 FLOP/sec
R: 1000000 <T>: 0.463663 sec B: 0.016 GB/sec F: 4311477.444 FLOP/sec
R: 1000000 <T>: 0.458643 sec B: 0.016 GB/sec F: 4360692.747 FLOP/sec
R: 1000000 <T>: 0.464480 sec B: 0.016 GB/sec F: 4305890.384 FLOP/sec
R: 1000000 <T>: 0.459421 sec B: 0.016 GB/sec F: 4353304.171 FLOP/sec
R: 1000000 <T>: 0.454739 sec B: 0.016 GB/sec F: 4398123.902 FLOP/sec
R: 1000000 <T>: 0.450618 sec B: 0.017 GB/sec F: 4438351.633 FLOP/sec
R: 1000000 <T>: 0.444874 sec B: 0.017 GB/sec F: 4495654.222 FLOP/sec
R: 1000000 <T>: 0.493968 sec B: 0.015 GB/sec F: 4048846.753 FLOP/sec
R: 1000000 <T>: 0.445988 sec B: 0.017 GB/sec F: 4484425.630 FLOP/sec
R: 1000000 <T>: 0.456438 sec B: 0.016 GB/sec F: 4381758.703 FLOP/sec
R: 1000000 <T>: 0.443720 sec B: 0.017 GB/sec F: 4507351.374 FLOP/sec
R: 1000000 <T>: 0.443744 sec B: 0.017 GB/sec F: 4507098.319 FLOP/sec
R: 1000000 <T>: 0.592482 sec B: 0.013 GB/sec F: 3375629.037 FLOP/sec
R: 1000000 <T>: 0.908073 sec B: 0.008 GB/sec F: 2202464.932 FLOP/sec
R: 1000000 <T>: 0.910679 sec B: 0.008 GB/sec F: 2196164.096 FLOP/sec
R: 1000000 <T>: 0.892317 sec B: 0.008 GB/sec F: 2241356.227 FLOP/sec
R: 1000000 <T>: 0.805295 sec B: 0.009 GB/sec F: 2483562.507 FLOP/sec
R: 1000000 <T>: 0.824025 sec B: 0.009 GB/sec F: 2427111.962 FLOP/sec
R: 1000000 <T>: 0.808162 sec B: 0.009 GB/sec F: 2474751.757 FLOP/sec
R: 1000000 <T>: 0.792492 sec B: 0.009 GB/sec F: 2523683.416 FLOP/sec
R: 1000000 <T>: 0.777593 sec B: 0.010 GB/sec F: 2572039.760 FLOP/sec
R: 1000000 <T>: 0.431583 sec B: 0.017 GB/sec F: 4634104.168 FLOP/sec
R: 1000000 <T>: 0.441090 sec B: 0.017 GB/sec F: 4534222.719 FLOP/sec
R: 1000000 <T>: 0.444548 sec B: 0.017 GB/sec F: 4498952.453 FLOP/sec
R: 1000000 <T>: 0.436199 sec B: 0.017 GB/sec F: 4585061.169 FLOP/sec
R: 1000000 <T>: 0.459831 sec B: 0.016 GB/sec F: 4349427.243 FLOP/sec
R: 1000000 <T>: 0.426854 sec B: 0.017 GB/sec F: 4685438.133 FLOP/sec
R: 1000000 <T>: 0.444490 sec B: 0.017 GB/sec F: 4499534.758 FLOP/sec
R: 1000000 <T>: 0.430493 sec B: 0.017 GB/sec F: 4645831.084 FLOP/sec
R: 1000000 <T>: 0.447656 sec B: 0.017 GB/sec F: 4467714.047 FLOP/sec
R: 1000000 <T>: 0.438279 sec B: 0.017 GB/sec F: 4563300.702 FLOP/sec
R: 1000000 <T>: 0.433976 sec B: 0.017 GB/sec F: 4608553.711 FLOP/sec
R: 1000000 <T>: 0.432632 sec B: 0.017 GB/sec F: 4622871.142 FLOP/sec
R: 1000000 <T>: 0.439065 sec B: 0.017 GB/sec F: 4555134.268 FLOP/sec
R: 1000000 <T>: 0.450054 sec B: 0.017 GB/sec F: 4443910.365 FLOP/sec
R: 1000000 <T>: 0.444163 sec B: 0.017 GB/sec F: 4502849.525 FLOP/sec
R: 1000000 <T>: 0.447128 sec B: 0.017 GB/sec F: 4472994.845 FLOP/sec
R: 1000000 <T>: 0.438199 sec B: 0.017 GB/sec F: 4564135.865 FLOP/sec
R: 1000000 <T>: 0.442791 sec B: 0.017 GB/sec F: 4516800.130 FLOP/sec
R: 1000000 <T>: 0.446663 sec B: 0.017 GB/sec F: 4477651.263 FLOP/sec
R: 1000000 <T>: 0.434741 sec B: 0.017 GB/sec F: 4600443.003 FLOP/sec
R: 1000000 <T>: 0.456239 sec B: 0.016 GB/sec F: 4383668.437 FLOP/sec
R: 1000000 <T>: 0.436864 sec B: 0.017 GB/sec F: 4578081.439 FLOP/sec
R: 1000000 <T>: 0.587745 sec B: 0.013 GB/sec F: 3402837.902 FLOP/sec
R: 1000000 <T>: 0.911538 sec B: 0.008 GB/sec F: 2194094.439 FLOP/sec
R: 1000000 <T>: 0.912377 sec B: 0.008 GB/sec F: 2192076.186 FLOP/sec
R: 1000000 <T>: 0.908468 sec B: 0.008 GB/sec F: 2201509.125 FLOP/sec
R: 1000000 <T>: 0.805767 sec B: 0.009 GB/sec F: 2482108.090 FLOP/sec
R: 1000000 <T>: 0.800984 sec B: 0.009 GB/sec F: 2496928.871 FLOP/sec
R: 1000000 <T>: 0.805025 sec B: 0.009 GB/sec F: 2484396.101 FLOP/sec
R: 1000000 <T>: 0.780811 sec B: 0.010 GB/sec F: 2561439.176 FLOP/sec
R: 1000000 <T>: 0.792559 sec B: 0.009 GB/sec F: 2523470.967 FLOP/sec
R: 1000000 <T>: 0.451574 sec B: 0.016 GB/sec F: 4428948.489 FLOP/sec
R: 1000000 <T>: 0.443221 sec B: 0.017 GB/sec F: 4512418.993 FLOP/sec
R: 1000000 <T>: 0.437364 sec B: 0.017 GB/sec F: 4572846.049 FLOP/sec
R: 1000000 <T>: 0.510298 sec B: 0.015 GB/sec F: 3919282.118 FLOP/sec
R: 1000000 <T>: 0.440503 sec B: 0.017 GB/sec F: 4540268.630 FLOP/sec
R: 1000000 <T>: 0.438448 sec B: 0.017 GB/sec F: 4561540.986 FLOP/sec
R: 1000000 <T>: 0.448771 sec B: 0.017 GB/sec F: 4456618.689 FLOP/sec
R: 1000000 <T>: 0.457209 sec B: 0.016 GB/sec F: 4374364.223 FLOP/sec
R: 1000000 <T>: 0.433135 sec B: 0.017 GB/sec F: 4617492.689 FLOP/sec
R: 1000000 <T>: 0.456976 sec B: 0.016 GB/sec F: 4376600.168 FLOP/sec
R: 1000000 <T>: 0.441700 sec B: 0.017 GB/sec F: 4527964.521 FLOP/sec
R: 1000000 <T>: 0.458587 sec B: 0.016 GB/sec F: 4361218.812 FLOP/sec
R: 1000000 <T>: 0.454439 sec B: 0.016 GB/sec F: 4401031.913 FLOP/sec
R: 1000000 <T>: 0.435515 sec B: 0.017 GB/sec F: 4592265.027 FLOP/sec
R: 1000000 <T>: 0.459874 sec B: 0.016 GB/sec F: 4349021.113 FLOP/sec
R: 1000000 <T>: 0.448506 sec B: 0.017 GB/sec F: 4459244.310 FLOP/sec
R: 1000000 <T>: 0.438167 sec B: 0.017 GB/sec F: 4564467.440 FLOP/sec
R: 1000000 <T>: 0.465650 sec B: 0.016 GB/sec F: 4295071.184 FLOP/sec
R: 1000000 <T>: 0.428136 sec B: 0.017 GB/sec F: 4671412.931 FLOP/sec
R: 1000000 <T>: 0.447416 sec B: 0.017 GB/sec F: 4470116.003 FLOP/sec
R: 1000000 <T>: 0.449422 sec B: 0.017 GB/sec F: 4450157.883 FLOP/sec
R: 1000000 <T>: 0.437739 sec B: 0.017 GB/sec F: 4568931.387 FLOP/sec
R: 1000000 <T>: 0.760176 sec B: 0.010 GB/sec F: 2630968.933 FLOP/sec
R: 1000000 <T>: 0.906897 sec B: 0.008 GB/sec F: 2205320.915 FLOP/sec
R: 1000000 <T>: 0.934437 sec B: 0.008 GB/sec F: 2140326.601 FLOP/sec
R: 1000000 <T>: 0.836507 sec B: 0.009 GB/sec F: 2390894.134 FLOP/sec
R: 1000000 <T>: 0.788926 sec B: 0.009 GB/sec F: 2535090.954 FLOP/sec
R: 1000000 <T>: 0.777348 sec B: 0.010 GB/sec F: 2572850.986 FLOP/sec
R: 1000000 <T>: 0.789440 sec B: 0.009 GB/sec F: 2533441.799 FLOP/sec
R: 1000000 <T>: 0.807538 sec B: 0.009 GB/sec F: 2476663.082 FLOP/sec
R: 1000000 <T>: 0.652761 sec B: 0.011 GB/sec F: 3063907.710 FLOP/sec
R: 1000000 <T>: 0.442368 sec B: 0.017 GB/sec F: 4521122.041 FLOP/sec
R: 1000000 <T>: 0.431906 sec B: 0.017 GB/sec F: 4630638.230 FLOP/sec
```

```
R: 1000000 <T>: 0.446250 sec B: 0.017 GB/sec F: 4481790.036 FLOP/sec
R: 1000000 <T>: 0.435413 sec B: 0.017 GB/sec F: 4593341.055 FLOP/sec
R: 1000000 <T>: 0.453896 sec B: 0.016 GB/sec F: 4406291.522 FLOP/sec
R: 1000000 <T>: 0.444073 sec B: 0.017 GB/sec F: 4503762.124 FLOP/sec
R: 1000000 <T>: 0.450441 sec B: 0.017 GB/sec F: 4440094.149 FLOP/sec
R: 1000000 <T>: 0.432403 sec B: 0.017 GB/sec F: 4625315.484 FLOP/sec
R: 1000000 <T>: 0.437503 sec B: 0.017 GB/sec F: 4571399.701 FLOP/sec
R: 1000000 <T>: 0.446620 sec B: 0.017 GB/sec F: 4478076.801 FLOP/sec
R: 1000000 <T>: 0.443205 sec B: 0.017 GB/sec F: 4512581.965 FLOP/sec
R: 1000000 <T>: 0.453168 sec B: 0.016 GB/sec F: 4413376.598 FLOP/sec
R: 1000000 <T>: 0.436928 sec B: 0.017 GB/sec F: 4577415.349 FLOP/sec
R: 1000000 <T>: 0.449749 sec B: 0.017 GB/sec F: 4446920.134 FLOP/sec
R: 1000000 <T>: 0.443731 sec B: 0.017 GB/sec F: 4507234.092 FLOP/sec
R: 1000000 <T>: 0.447090 sec B: 0.017 GB/sec F: 4473370.080 FLOP/sec
R: 1000000 <T>: 0.435527 sec B: 0.017 GB/sec F: 4592136.567 FLOP/sec
R: 1000000 <T>: 0.434374 sec B: 0.017 GB/sec F: 4604325.663 FLOP/sec
R: 1000000 <T>: 0.443329 sec B: 0.017 GB/sec F: 4511325.822 FLOP/sec
R: 1000000 <T>: 0.512525 sec B: 0.015 GB/sec F: 3902250.551 FLOP/sec
R: 1000000 <T>: 0.449039 sec B: 0.017 GB/sec F: 4453959.388 FLOP/sec
R: 1000000 <T>: 0.438510 sec B: 0.017 GB/sec F: 4560900.096 FLOP/sec
R: 1000000 <T>: 0.888908 sec B: 0.008 GB/sec F: 2249951.206 FLOP/sec
R: 1000000 <T>: 0.910435 sec B: 0.008 GB/sec F: 2196752.746 FLOP/sec
R: 1000000 <T>: 0.910138 sec B: 0.008 GB/sec F: 2197470.143 FLOP/sec
R: 1000000 <T>: 0.824978 sec B: 0.009 GB/sec F: 2424305.923 FLOP/sec
R: 1000000 <T>: 0.809541 sec B: 0.009 GB/sec F: 2470534.430 FLOP/sec
R: 1000000 <T>: 0.808440 sec B: 0.009 GB/sec F: 2473899.020 FLOP/sec
R: 1000000 <T>: 0.796902 sec B: 0.009 GB/sec F: 2509719.110 FLOP/sec
R: 1000000 <T>: 0.803320 sec B: 0.009 GB/sec F: 2489669.081 FLOP/sec
R: 1000000 <T>: 0.600307 sec B: 0.012 GB/sec F: 3331629.965 FLOP/sec
R: 1000000 <T>: 0.453948 sec B: 0.016 GB/sec F: 4405790.438 FLOP/sec
R: 1000000 <T>: 0.435860 sec B: 0.017 GB/sec F: 4588630.134 FLOP/sec
R: 1000000 <T>: 0.446455 sec B: 0.017 GB/sec F: 4479732.592 FLOP/sec
R: 1000000 <T>: 0.461447 sec B: 0.016 GB/sec F: 4334189.849 FLOP/sec
R: 1000000 <T>: 0.439161 sec B: 0.017 GB/sec F: 4554140.088 FLOP/sec
R: 1000000 <T>: 0.444871 sec B: 0.017 GB/sec F: 4495683.750 FLOP/sec
R: 1000000 <T>: 0.443150 sec B: 0.017 GB/sec F: 4513143.311 FLOP/sec
R: 1000000 <T>: 0.448410 sec B: 0.017 GB/sec F: 4460206.437 FLOP/sec
R: 1000000 <T>: 0.436893 sec B: 0.017 GB/sec F: 4577779.453 FLOP/sec
R: 1000000 <T>: 0.447451 sec B: 0.017 GB/sec F: 4469767.095 FLOP/sec
R: 1000000 <T>: 0.448017 sec B: 0.017 GB/sec F: 4464111.345 FLOP/sec
R: 1000000 <T>: 0.436246 sec B: 0.017 GB/sec F: 4584571.958 FLOP/sec
R: 1000000 <T>: 0.452523 sec B: 0.016 GB/sec F: 4419663.812 FLOP/sec
R: 1000000 <T>: 0.439071 sec B: 0.017 GB/sec F: 4555071.347 FLOP/sec
R: 1000000 <T>: 0.449738 sec B: 0.017 GB/sec F: 4447034.209 FLOP/sec
R: 1000000 <T>: 0.433395 sec B: 0.017 GB/sec F: 4614728.213 FLOP/sec
R: 1000000 <T>: 0.454488 sec B: 0.016 GB/sec F: 4400554.333 FLOP/sec
R: 1000000 <T>: 0.438742 sec B: 0.017 GB/sec F: 4558488.549 FLOP/sec
R: 1000000 <T>: 0.432012 sec B: 0.017 GB/sec F: 4629499.103 FLOP/sec
R: 1000000 <T>: 0.448918 sec B: 0.017 GB/sec F: 4455160.204 FLOP/sec
R: 1000000 <T>: 0.440183 sec B: 0.017 GB/sec F: 4543559.716 FLOP/sec
R: 1000000 <T>: 0.472780 sec B: 0.016 GB/sec F: 4230293.936 FLOP/sec
R: 1000000 <T>: 0.883492 sec B: 0.008 GB/sec F: 2263745.595 FLOP/sec
R: 1000000 <T>: 0.910946 sec B: 0.008 GB/sec F: 2195518.911 FLOP/sec
R: 1000000 <T>: 0.909675 sec B: 0.008 GB/sec F: 2198588.522 FLOP/sec
R: 1000000 <T>: 0.817563 sec B: 0.009 GB/sec F: 2446294.796 FLOP/sec
R: 1000000 <T>: 0.811494 sec B: 0.009 GB/sec F: 2464589.696 FLOP/sec
R: 1000000 <T>: 0.807318 sec B: 0.009 GB/sec F: 2477339.601 FLOP/sec
R: 1000000 <T>: 0.802878 sec B: 0.009 GB/sec F: 2491037.298 FLOP/sec
R: 1000000 <T>: 0.802303 sec B: 0.009 GB/sec F: 2492823.100 FLOP/sec
R: 1000000 <T>: 0.492853 sec B: 0.015 GB/sec F: 4058005.965 FLOP/sec
R: 1000000 <T>: 0.448183 sec B: 0.017 GB/sec F: 4462460.787 FLOP/sec
R: 1000000 <T>: 0.453877 sec B: 0.016 GB/sec F: 4406477.121 FLOP/sec
R: 1000000 <T>: 0.437450 sec B: 0.017 GB/sec F: 4571955.982 FLOP/sec
R: 1000000 <T>: 0.452281 sec B: 0.016 GB/sec F: 4422030.860 FLOP/sec
R: 1000000 <T>: 0.834164 sec B: 0.009 GB/sec F: 2397610.640 FLOP/sec
R: 1000000 <T>: 0.649639 sec B: 0.011 GB/sec F: 3078633.751 FLOP/sec
R: 1000000 <T>: 0.799497 sec B: 0.009 GB/sec F: 2501574.187 FLOP/sec
R: 1000000 <T>: 0.718995 sec B: 0.010 GB/sec F: 2781662.249 FLOP/sec
R: 1000000 <T>: 0.443368 sec B: 0.017 GB/sec F: 4510921.402 FLOP/sec
R: 1000000 <T>: 0.442681 sec B: 0.017 GB/sec F: 4517928.216 FLOP/sec
R: 1000000 <T>: 0.460699 sec B: 0.016 GB/sec F: 4341231.926 FLOP/sec
R: 1000000 <T>: 0.446606 sec B: 0.017 GB/sec F: 4478222.131 FLOP/sec
R: 1000000 <T>: 0.443203 sec B: 0.017 GB/sec F: 4512605.526 FLOP/sec
R: 1000000 <T>: 0.426500 sec B: 0.017 GB/sec F: 4689327.922 FLOP/sec
R: 1000000 <T>: 0.431913 sec B: 0.017 GB/sec F: 4630558.689 FLOP/sec
R: 1000000 <T>: 0.535391 sec B: 0.014 GB/sec F: 3735588.948 FLOP/sec
R: 1000000 <T>: 0.430310 sec B: 0.017 GB/sec F: 4647813.436 FLOP/sec
R: 1000000 <T>: 0.454732 sec B: 0.016 GB/sec F: 4398197.940 FLOP/sec
R: 1000000 <T>: 0.569009 sec B: 0.013 GB/sec F: 3514880.490 FLOP/sec
R: 1000000 <T>: 0.920534 sec B: 0.008 GB/sec F: 2172652.249 FLOP/sec
R: 1000000 <T>: 0.915622 sec B: 0.008 GB/sec F: 2184308.467 FLOP/sec
R: 1000000 <T>: 0.886378 sec B: 0.008 GB/sec F: 2256373.427 FLOP/sec
R: 1000000 <T>: 0.801280 sec B: 0.009 GB/sec F: 2496007.829 FLOP/sec
R: 1000000 <T>: 0.798606 sec B: 0.009 GB/sec F: 2504364.591 FLOP/sec
R: 1000000 <T>: 0.816899 sec B: 0.009 GB/sec F: 2448284.561 FLOP/sec
R: 1000000 <T>: 0.799232 sec B: 0.009 GB/sec F: 2502401.727 FLOP/sec
R: 1000000 <T>: 0.787546 sec B: 0.009 GB/sec F: 2539533.731 FLOP/sec
R: 1000000 <T>: 0.431990 sec B: 0.017 GB/sec F: 4629738.611 FLOP/sec
R: 1000000 <T>: 0.446246 sec B: 0.017 GB/sec F: 4481836.345 FLOP/sec
R: 1000000 <T>: 0.456546 sec B: 0.016 GB/sec F: 4380717.754 FLOP/sec
R: 1000000 <T>: 0.446253 sec B: 0.017 GB/sec F: 4481767.599 FLOP/sec
R: 1000000 <T>: 0.432779 sec B: 0.017 GB/sec F: 4621298.071 FLOP/sec
R: 1000000 <T>: 0.439581 sec B: 0.017 GB/sec F: 4549790.786 FLOP/sec
R: 1000000 <T>: 0.446838 sec B: 0.017 GB/sec F: 4475897.050 FLOP/sec
R: 1000000 <T>: 0.430537 sec B: 0.017 GB/sec F: 4645362.127 FLOP/sec
R: 1000000 <T>: 0.447777 sec B: 0.017 GB/sec F: 4466506.445 FLOP/sec
R: 1000000 <T>: 0.452570 sec B: 0.016 GB/sec F: 4419205.654 FLOP/sec
R: 1000000 <T>: 0.453520 sec B: 0.016 GB/sec F: 4409944.634 FLOP/sec
R: 1000000 <T>: 0.436432 sec B: 0.017 GB/sec F: 4582611.432 FLOP/sec
R: 1000000 <T>: 0.438755 sec B: 0.017 GB/sec F: 4558352.778 FLOP/sec
```

```
R: 1000000 <T>: 0.444197 sec B: 0.017 GB/sec F: 4502504.977 FLOP/sec
R: 1000000 <T>: 0.440315 sec B: 0.017 GB/sec F: 4542198.522 FLOP/sec
R: 1000000 <T>: 0.450992 sec B: 0.017 GB/sec F: 4434669.153 FLOP/sec
R: 1000000 <T>: 0.436655 sec B: 0.017 GB/sec F: 4580271.773 FLOP/sec
R: 1000000 <T>: 0.442200 sec B: 0.017 GB/sec F: 4522839.843 FLOP/sec
R: 1000000 <T>: 0.435464 sec B: 0.017 GB/sec F: 4592805.314 FLOP/sec
R: 1000000 <T>: 0.446986 sec B: 0.017 GB/sec F: 4474410.356 FLOP/sec
R: 1000000 <T>: 0.444120 sec B: 0.017 GB/sec F: 4503290.837 FLOP/sec
R: 1000000 <T>: 0.443356 sec B: 0.017 GB/sec F: 4511049.244 FLOP/sec
R: 1000000 <T>: 0.632028 sec B: 0.012 GB/sec F: 3164417.893 FLOP/sec
R: 1000000 <T>: 0.943438 sec B: 0.008 GB/sec F: 2119905.937 FLOP/sec
R: 1000000 <T>: 0.934945 sec B: 0.008 GB/sec F: 2139163.063 FLOP/sec
R: 1000000 <T>: 0.859822 sec B: 0.009 GB/sec F: 2326062.804 FLOP/sec
R: 1000000 <T>: 0.799682 sec B: 0.009 GB/sec F: 2500995.571 FLOP/sec
R: 1000000 <T>: 0.802382 sec B: 0.009 GB/sec F: 2492579.255 FLOP/sec
R: 1000000 <T>: 0.801392 sec B: 0.009 GB/sec F: 2495656.933 FLOP/sec
R: 1000000 <T>: 0.792474 sec B: 0.009 GB/sec F: 2523741.171 FLOP/sec
R: 1000000 <T>: 0.774852 sec B: 0.010 GB/sec F: 2581136.963 FLOP/sec
R: 1000000 <T>: 0.444954 sec B: 0.017 GB/sec F: 4494850.709 FLOP/sec
R: 1000000 <T>: 0.436773 sec B: 0.017 GB/sec F: 4579040.003 FLOP/sec
R: 1000000 <T>: 0.439307 sec B: 0.017 GB/sec F: 4552624.878 FLOP/sec
R: 1000000 <T>: 0.447758 sec B: 0.017 GB/sec F: 4466698.679 FLOP/sec
R: 1000000 <T>: 0.437918 sec B: 0.017 GB/sec F: 4567060.854 FLOP/sec
R: 1000000 <T>: 0.460823 sec B: 0.016 GB/sec F: 4340060.709 FLOP/sec
R: 1000000 <T>: 0.433837 sec B: 0.017 GB/sec F: 4610027.143 FLOP/sec
R: 1000000 <T>: 0.448894 sec B: 0.017 GB/sec F: 4455390.785 FLOP/sec
R: 1000000 <T>: 0.431466 sec B: 0.017 GB/sec F: 4635360.706 FLOP/sec
R: 1000000 <T>: 0.454144 sec B: 0.016 GB/sec F: 4403886.470 FLOP/sec
R: 1000000 <T>: 0.440141 sec B: 0.017 GB/sec F: 4543999.588 FLOP/sec
R: 1000000 <T>: 0.439053 sec B: 0.017 GB/sec F: 4555259.960 FLOP/sec
R: 1000000 <T>: 0.461528 sec B: 0.016 GB/sec F: 4333434.675 FLOP/sec
R: 1000000 <T>: 0.441452 sec B: 0.017 GB/sec F: 4530499.870 FLOP/sec
R: 1000000 <T>: 0.435875 sec B: 0.017 GB/sec F: 4588466.581 FLOP/sec
R: 1000000 <T>: 0.438441 sec B: 0.017 GB/sec F: 4561617.726 FLOP/sec
R: 1000000 <T>: 0.443477 sec B: 0.017 GB/sec F: 4509812.737 FLOP/sec
R: 1000000 <T>: 0.436005 sec B: 0.017 GB/sec F: 4587107.462 FLOP/sec
R: 1000000 <T>: 0.433970 sec B: 0.017 GB/sec F: 4608613.031 FLOP/sec
R: 1000000 <T>: 0.441208 sec B: 0.017 GB/sec F: 4533009.518 FLOP/sec
R: 1000000 <T>: 0.448508 sec B: 0.017 GB/sec F: 4459229.923 FLOP/sec
R: 1000000 <T>: 0.649974 sec B: 0.011 GB/sec F: 3077044.152 FLOP/sec
R: 1000000 <T>: 2.051007 sec B: 0.004 GB/sec F: 975130.698 FLOP/sec
R: 1000000 <T>: 0.973305 sec B: 0.008 GB/sec F: 2054854.423 FLOP/sec
R: 1000000 <T>: 0.811120 sec B: 0.009 GB/sec F: 2465726.643 FLOP/sec
R: 1000000 <T>: 0.797600 sec B: 0.009 GB/sec F: 2507523.146 FLOP/sec
R: 1000000 <T>: 0.798369 sec B: 0.009 GB/sec F: 2505108.266 FLOP/sec
R: 1000000 <T>: 0.806787 sec B: 0.009 GB/sec F: 2478969.486 FLOP/sec
R: 1000000 <T>: 0.800449 sec B: 0.009 GB/sec F: 2498596.192 FLOP/sec
R: 1000000 <T>: 0.428213 sec B: 0.017 GB/sec F: 4670575.080 FLOP/sec
R: 1000000 <T>: 0.458903 sec B: 0.016 GB/sec F: 4358223.016 FLOP/sec
R: 1000000 <T>: 0.434574 sec B: 0.017 GB/sec F: 4602210.734 FLOP/sec
R: 1000000 <T>: 0.430460 sec B: 0.017 GB/sec F: 4646194.582 FLOP/sec
R: 1000000 <T>: 0.445447 sec B: 0.017 GB/sec F: 4489873.755 FLOP/sec
R: 1000000 <T>: 0.427636 sec B: 0.017 GB/sec F: 4676870.646 FLOP/sec
R: 1000000 <T>: 0.454161 sec B: 0.016 GB/sec F: 4403720.297 FLOP/sec
R: 1000000 <T>: 0.443107 sec B: 0.017 GB/sec F: 4513585.147 FLOP/sec
R: 1000000 <T>: 0.451949 sec B: 0.016 GB/sec F: 4425273.227 FLOP/sec
R: 1000000 <T>: 0.432698 sec B: 0.017 GB/sec F: 4622161.682 FLOP/sec
R: 1000000 <T>: 0.447859 sec B: 0.017 GB/sec F: 4465686.485 FLOP/sec
R: 1000000 <T>: 0.453190 sec B: 0.016 GB/sec F: 4413161.416 FLOP/sec
R: 1000000 <T>: 0.437510 sec B: 0.017 GB/sec F: 4571319.393 FLOP/sec
R: 1000000 <T>: 0.445533 sec B: 0.017 GB/sec F: 4489003.349 FLOP/sec
R: 1000000 <T>: 0.441801 sec B: 0.017 GB/sec F: 4526926.053 FLOP/sec
R: 1000000 <T>: 0.446069 sec B: 0.017 GB/sec F: 4483610.938 FLOP/sec
R: 1000000 <T>: 0.432237 sec B: 0.017 GB/sec F: 4627088.576 FLOP/sec
R: 1000000 <T>: 0.430372 sec B: 0.017 GB/sec F: 4647140.129 FLOP/sec
R: 1000000 <T>: 0.449766 sec B: 0.017 GB/sec F: 4446758.093 FLOP/sec
R: 1000000 <T>: 0.435531 sec B: 0.017 GB/sec F: 4592097.018 FLOP/sec
R: 1000000 <T>: 0.445862 sec B: 0.017 GB/sec F: 4485695.609 FLOP/sec
R: 1000000 <T>: 0.436917 sec B: 0.017 GB/sec F: 4577523.248 FLOP/sec
R: 1000000 <T>: 0.569494 sec B: 0.013 GB/sec F: 3511887.146 FLOP/sec
R: 1000000 <T>: 0.918556 sec B: 0.008 GB/sec F: 2177329.766 FLOP/sec
R: 1000000 <T>: 0.929502 sec B: 0.008 GB/sec F: 2151690.714 FLOP/sec
R: 1000000 <T>: 0.904801 sec B: 0.008 GB/sec F: 2210430.575 FLOP/sec
R: 1000000 <T>: 0.898212 sec B: 0.008 GB/sec F: 2226645.020 FLOP/sec
R: 1000000 <T>: 0.897605 sec B: 0.008 GB/sec F: 2228150.546 FLOP/sec
R: 1000000 <T>: 1.561116 sec B: 0.005 GB/sec F: 1281134.473 FLOP/sec
R: 1000000 <T>: 0.797837 sec B: 0.009 GB/sec F: 2506777.424 FLOP/sec
R: 1000000 <T>: 0.518319 sec B: 0.014 GB/sec F: 3858631.041 FLOP/sec
R: 1000000 <T>: 0.476744 sec B: 0.016 GB/sec F: 4195122.057 FLOP/sec
R: 1000000 <T>: 0.473665 sec B: 0.016 GB/sec F: 4222392.768 FLOP/sec
R: 1000000 <T>: 0.823518 sec B: 0.009 GB/sec F: 2428605.796 FLOP/sec
R: 1000000 <T>: 0.440027 sec B: 0.017 GB/sec F: 4545179.366 FLOP/sec
R: 1000000 <T>: 0.430429 sec B: 0.017 GB/sec F: 4646523.194 FLOP/sec
R: 1000000 <T>: 0.445210 sec B: 0.017 GB/sec F: 4492258.083 FLOP/sec
R: 1000000 <T>: 0.439521 sec B: 0.017 GB/sec F: 4550405.676 FLOP/sec
R: 1000000 <T>: 0.448021 sec B: 0.017 GB/sec F: 4464077.577 FLOP/sec
R: 1000000 <T>: 0.438446 sec B: 0.017 GB/sec F: 4561560.514 FLOP/sec
R: 1000000 <T>: 0.445144 sec B: 0.017 GB/sec F: 4492928.706 FLOP/sec
R: 1000000 <T>: 0.436568 sec B: 0.017 GB/sec F: 4581188.797 FLOP/sec
R: 1000000 <T>: 0.435273 sec B: 0.017 GB/sec F: 4594812.818 FLOP/sec
R: 1000000 <T>: 0.440134 sec B: 0.017 GB/sec F: 4544071.464 FLOP/sec
R: 1000000 <T>: 0.441264 sec B: 0.017 GB/sec F: 4532434.622 FLOP/sec
R: 1000000 <T>: 0.802895 sec B: 0.009 GB/sec F: 2490985.919 FLOP/sec
R: 1000000 <T>: 0.484373 sec B: 0.015 GB/sec F: 4129053.373 FLOP/sec
R: 1000000 <T>: 0.444302 sec B: 0.017 GB/sec F: 4501439.663 FLOP/sec
R: 1000000 <T>: 0.443290 sec B: 0.017 GB/sec F: 4511717.063 FLOP/sec
R: 1000000 <T>: 0.441457 sec B: 0.017 GB/sec F: 4530448.249 FLOP/sec
R: 1000000 <T>: 0.486849 sec B: 0.015 GB/sec F: 4108050.646 FLOP/sec
R: 1000000 <T>: 0.908346 sec B: 0.008 GB/sec F: 2201804.212 FLOP/sec
R: 1000000 <T>: 0.944060 sec B: 0.008 GB/sec F: 2118510.478 FLOP/sec
```

```
R: 1000000 <T>: 0.935354 sec B: 0.008 GB/sec F: 2138228.321 FLOP/sec
R: 1000000 <T>: 0.809290 sec B: 0.009 GB/sec F: 2471301.535 FLOP/sec
R: 1000000 <T>: 0.781331 sec B: 0.010 GB/sec F: 2559735.020 FLOP/sec
R: 1000000 <T>: 0.808062 sec B: 0.009 GB/sec F: 2475056.082 FLOP/sec
R: 1000000 <T>: 0.804721 sec B: 0.009 GB/sec F: 2485333.692 FLOP/sec
R: 1000000 <T>: 0.824579 sec B: 0.009 GB/sec F: 2425480.637 FLOP/sec
R: 1000000 <T>: 0.496136 sec B: 0.015 GB/sec F: 4031152.976 FLOP/sec
R: 1000000 <T>: 0.478368 sec B: 0.016 GB/sec F: 4180878.299 FLOP/sec
R: 1000000 <T>: 0.424668 sec B: 0.018 GB/sec F: 4709564.379 FLOP/sec
R: 1000000 <T>: 0.446482 sec B: 0.017 GB/sec F: 4479463.737 FLOP/sec
R: 1000000 <T>: 0.426603 sec B: 0.017 GB/sec F: 4688204.216 FLOP/sec
R: 1000000 <T>: 0.438951 sec B: 0.017 GB/sec F: 4556321.642 FLOP/sec
R: 1000000 <T>: 0.487379 sec B: 0.015 GB/sec F: 4103582.304 FLOP/sec
R: 1000000 <T>: 0.461498 sec B: 0.016 GB/sec F: 4333714.373 FLOP/sec
R: 1000000 <T>: 0.445844 sec B: 0.017 GB/sec F: 4485878.450 FLOP/sec
R: 1000000 <T>: 0.434576 sec B: 0.017 GB/sec F: 4602192.106 FLOP/sec
R: 1000000 <T>: 0.455735 sec B: 0.016 GB/sec F: 4388513.214 FLOP/sec
R: 1000000 <T>: 0.434011 sec B: 0.017 GB/sec F: 4608177.613 FLOP/sec
R: 1000000 <T>: 0.443539 sec B: 0.017 GB/sec F: 4509185.842 FLOP/sec
R: 1000000 <T>: 0.448756 sec B: 0.017 GB/sec F: 4456769.571 FLOP/sec
R: 1000000 <T>: 0.454237 sec B: 0.016 GB/sec F: 4402987.208 FLOP/sec
R: 1000000 <T>: 0.473273 sec B: 0.016 GB/sec F: 4225891.863 FLOP/sec
R: 1000000 <T>: 0.452495 sec B: 0.016 GB/sec F: 4419941.751 FLOP/sec
R: 1000000 <T>: 0.441625 sec B: 0.017 GB/sec F: 4528730.910 FLOP/sec
R: 1000000 <T>: 0.448527 sec B: 0.017 GB/sec F: 4459039.932 FLOP/sec
R: 1000000 <T>: 0.457822 sec B: 0.016 GB/sec F: 4368508.334 FLOP/sec
R: 1000000 <T>: 0.440483 sec B: 0.017 GB/sec F: 4540473.244 FLOP/sec
R: 1000000 <T>: 0.431795 sec B: 0.017 GB/sec F: 4631828.537 FLOP/sec
R: 1000000 <T>: 0.742698 sec B: 0.010 GB/sec F: 2692882.894 FLOP/sec
R: 1000000 <T>: 0.898739 sec B: 0.008 GB/sec F: 2225339.507 FLOP/sec
R: 1000000 <T>: 0.931019 sec B: 0.008 GB/sec F: 2148184.095 FLOP/sec
R: 1000000 <T>: 0.853834 sec B: 0.009 GB/sec F: 2342375.517 FLOP/sec
R: 1000000 <T>: 0.783125 sec B: 0.010 GB/sec F: 2553870.247 FLOP/sec
R: 1000000 <T>: 1.109722 sec B: 0.007 GB/sec F: 1802253.232 FLOP/sec
R: 1000000 <T>: 1.817985 sec B: 0.004 GB/sec F: 1100119.366 FLOP/sec
R: 1000000 <T>: 1.994931 sec B: 0.004 GB/sec F: 1002540.872 FLOP/sec
R: 1000000 <T>: 2.018075 sec B: 0.004 GB/sec F: 991043.269 FLOP/sec
R: 1000000 <T>: 1.118893 sec B: 0.007 GB/sec F: 1787480.875 FLOP/sec
R: 1000000 <T>: 0.497945 sec B: 0.015 GB/sec F: 4016510.138 FLOP/sec
R: 1000000 <T>: 0.516100 sec B: 0.014 GB/sec F: 3875217.876 FLOP/sec
R: 1000000 <T>: 0.505271 sec B: 0.015 GB/sec F: 3958271.600 FLOP/sec
R: 1000000 <T>: 0.710213 sec B: 0.010 GB/sec F: 2816055.323 FLOP/sec
R: 1000000 <T>: 0.776339 sec B: 0.010 GB/sec F: 2576194.066 FLOP/sec
R: 1000000 <T>: 0.769226 sec B: 0.010 GB/sec F: 2600014.968 FLOP/sec
R: 1000000 <T>: 0.796140 sec B: 0.009 GB/sec F: 2512121.025 FLOP/sec
R: 1000000 <T>: 0.765391 sec B: 0.010 GB/sec F: 2613041.945 FLOP/sec
R: 1000000 <T>: 0.740765 sec B: 0.010 GB/sec F: 2699912.157 FLOP/sec
R: 1000000 <T>: 0.529110 sec B: 0.014 GB/sec F: 3779932.875 FLOP/sec
R: 1000000 <T>: 0.625618 sec B: 0.012 GB/sec F: 3196840.979 FLOP/sec
R: 1000000 <T>: 0.814897 sec B: 0.009 GB/sec F: 2454297.724 FLOP/sec
R: 1000000 <T>: 0.637697 sec B: 0.012 GB/sec F: 3136286.559 FLOP/sec
R: 1000000 <T>: 0.441550 sec B: 0.017 GB/sec F: 4529495.999 FLOP/sec
R: 1000000 <T>: 0.723273 sec B: 0.010 GB/sec F: 2765207.613 FLOP/sec
R: 1000000 <T>: 0.946863 sec B: 0.008 GB/sec F: 2112238.360 FLOP/sec
R: 1000000 <T>: 0.916833 sec B: 0.008 GB/sec F: 2181422.519 FLOP/sec
R: 1000000 <T>: 0.836686 sec B: 0.009 GB/sec F: 2390384.417 FLOP/sec
R: 1000000 <T>: 0.779729 sec B: 0.010 GB/sec F: 2564993.722 FLOP/sec
R: 1000000 <T>: 0.785325 sec B: 0.009 GB/sec F: 2546715.186 FLOP/sec
R: 1000000 <T>: 0.790525 sec B: 0.009 GB/sec F: 2529963.653 FLOP/sec
R: 1000000 <T>: 0.805683 sec B: 0.009 GB/sec F: 2482367.024 FLOP/sec
R: 1000000 <T>: 0.680408 sec B: 0.011 GB/sec F: 2939413.925 FLOP/sec
R: 1000000 <T>: 0.439306 sec B: 0.017 GB/sec F: 4552639.801 FLOP/sec
R: 1000000 <T>: 0.437237 sec B: 0.017 GB/sec F: 4574179.488 FLOP/sec
R: 1000000 <T>: 0.446442 sec B: 0.017 GB/sec F: 4479861.573 FLOP/sec
R: 1000000 <T>: 0.437351 sec B: 0.017 GB/sec F: 4572988.143 FLOP/sec
R: 1000000 <T>: 0.439654 sec B: 0.017 GB/sec F: 4549031.501 FLOP/sec
R: 1000000 <T>: 0.439811 sec B: 0.017 GB/sec F: 4547403.118 FLOP/sec
R: 1000000 <T>: 0.443698 sec B: 0.017 GB/sec F: 4507565.863 FLOP/sec
R: 1000000 <T>: 0.443729 sec B: 0.017 GB/sec F: 4507254.651 FLOP/sec
R: 1000000 <T>: 0.425933 sec B: 0.017 GB/sec F: 4695576.656 FLOP/sec
R: 1000000 <T>: 0.449169 sec B: 0.017 GB/sec F: 4452667.601 FLOP/sec
R: 1000000 <T>: 0.434740 sec B: 0.017 GB/sec F: 4600447.966 FLOP/sec
R: 1000000 <T>: 0.441533 sec B: 0.017 GB/sec F: 4529671.841 FLOP/sec
R: 1000000 <T>: 0.439220 sec B: 0.017 GB/sec F: 4553528.510 FLOP/sec
R: 1000000 <T>: 0.452291 sec B: 0.016 GB/sec F: 4421927.909 FLOP/sec
R: 1000000 <T>: 0.444500 sec B: 0.017 GB/sec F: 4499434.189 FLOP/sec
R: 1000000 <T>: 0.441963 sec B: 0.017 GB/sec F: 4525262.382 FLOP/sec
R: 1000000 <T>: 0.452640 sec B: 0.016 GB/sec F: 4418523.266 FLOP/sec
R: 1000000 <T>: 0.437528 sec B: 0.017 GB/sec F: 4571133.281 FLOP/sec
R: 1000000 <T>: 0.452179 sec B: 0.016 GB/sec F: 4423031.126 FLOP/sec
R: 1000000 <T>: 0.440349 sec B: 0.017 GB/sec F: 4541856.435 FLOP/sec
R: 1000000 <T>: 0.440038 sec B: 0.017 GB/sec F: 4545057.452 FLOP/sec
R: 1000000 <T>: 0.457993 sec B: 0.016 GB/sec F: 4366876.434 FLOP/sec
R: 1000000 <T>: 0.757918 sec B: 0.010 GB/sec F: 2638806.910 FLOP/sec
R: 1000000 <T>: 0.929195 sec B: 0.008 GB/sec F: 2152401.484 FLOP/sec
R: 1000000 <T>: 0.936472 sec B: 0.008 GB/sec F: 2135674.719 FLOP/sec
R: 1000000 <T>: 0.846915 sec B: 0.009 GB/sec F: 2361512.879 FLOP/sec
R: 1000000 <T>: 0.802505 sec B: 0.009 GB/sec F: 2492195.745 FLOP/sec
R: 1000000 <T>: 0.799814 sec B: 0.009 GB/sec F: 2500580.203 FLOP/sec
R: 1000000 <T>: 0.800786 sec B: 0.009 GB/sec F: 2497547.193 FLOP/sec
R: 1000000 <T>: 0.798531 sec B: 0.009 GB/sec F: 2504597.615 FLOP/sec
R: 1000000 <T>: 0.774740 sec B: 0.010 GB/sec F: 2581511.127 FLOP/sec
R: 1000000 <T>: 0.453989 sec B: 0.016 GB/sec F: 4405391.064 FLOP/sec
R: 1000000 <T>: 0.452258 sec B: 0.016 GB/sec F: 4422256.157 FLOP/sec
R: 1000000 <T>: 0.446852 sec B: 0.017 GB/sec F: 4475757.250 FLOP/sec
R: 1000000 <T>: 0.447324 sec B: 0.017 GB/sec F: 4471027.585 FLOP/sec
R: 1000000 <T>: 0.448493 sec B: 0.017 GB/sec F: 4459380.774 FLOP/sec
R: 1000000 <T>: 0.459958 sec B: 0.016 GB/sec F: 4348221.548 FLOP/sec
R: 1000000 <T>: 0.441469 sec B: 0.017 GB/sec F: 4530329.331 FLOP/sec
R: 1000000 <T>: 0.442269 sec B: 0.017 GB/sec F: 4522131.662 FLOP/sec
```

```
R: 1000000 <T>: 0.454817 sec B: 0.016 GB/sec F: 4397372.632 FLOP/sec
R: 1000000 <T>: 0.433318 sec B: 0.017 GB/sec F: 4615542.928 FLOP/sec
R: 1000000 <T>: 0.455666 sec B: 0.016 GB/sec F: 4389183.281 FLOP/sec
R: 1000000 <T>: 0.436919 sec B: 0.017 GB/sec F: 4577506.999 FLOP/sec
R: 1000000 <T>: 0.443914 sec B: 0.017 GB/sec F: 4505378.517 FLOP/sec
R: 1000000 <T>: 0.465510 sec B: 0.016 GB/sec F: 4296366.848 FLOP/sec
R: 1000000 <T>: 0.453089 sec B: 0.016 GB/sec F: 4414141.208 FLOP/sec
R: 1000000 <T>: 0.439921 sec B: 0.017 GB/sec F: 4546269.196 FLOP/sec
R: 1000000 <T>: 0.454933 sec B: 0.016 GB/sec F: 4396254.365 FLOP/sec
R: 1000000 <T>: 0.448340 sec B: 0.017 GB/sec F: 4460900.240 FLOP/sec
R: 1000000 <T>: 0.440737 sec B: 0.017 GB/sec F: 4537852.127 FLOP/sec
R: 1000000 <T>: 0.464251 sec B: 0.016 GB/sec F: 4308015.807 FLOP/sec
R: 1000000 <T>: 0.442127 sec B: 0.017 GB/sec F: 4523591.452 FLOP/sec
R: 1000000 <T>: 0.457917 sec B: 0.016 GB/sec F: 4367601.037 FLOP/sec
R: 1000000 <T>: 1.035529 sec B: 0.007 GB/sec F: 1931379.202 FLOP/sec
R: 1000000 <T>: 1.118320 sec B: 0.007 GB/sec F: 1788397.198 FLOP/sec
R: 1000000 <T>: 0.922435 sec B: 0.008 GB/sec F: 2168175.199 FLOP/sec
R: 1000000 <T>: 0.826452 sec B: 0.009 GB/sec F: 2419984.522 FLOP/sec
R: 1000000 <T>: 0.810794 sec B: 0.009 GB/sec F: 2466719.255 FLOP/sec
R: 1000000 <T>: 0.799779 sec B: 0.009 GB/sec F: 2500691.985 FLOP/sec
R: 1000000 <T>: 0.799140 sec B: 0.009 GB/sec F: 2502690.514 FLOP/sec
R: 1000000 <T>: 0.806443 sec B: 0.009 GB/sec F: 2480026.797 FLOP/sec
R: 1000000 <T>: 0.579726 sec B: 0.013 GB/sec F: 3449906.502 FLOP/sec
R: 1000000 <T>: 0.459219 sec B: 0.016 GB/sec F: 4355218.208 FLOP/sec
R: 1000000 <T>: 0.450259 sec B: 0.017 GB/sec F: 4441883.028 FLOP/sec
R: 1000000 <T>: 0.461989 sec B: 0.016 GB/sec F: 4329108.237 FLOP/sec
R: 1000000 <T>: 0.457127 sec B: 0.016 GB/sec F: 4375153.945 FLOP/sec
R: 1000000 <T>: 0.452779 sec B: 0.016 GB/sec F: 4417170.449 FLOP/sec
R: 1000000 <T>: 0.449528 sec B: 0.017 GB/sec F: 4449114.165 FLOP/sec
R: 1000000 <T>: 0.439378 sec B: 0.017 GB/sec F: 4551889.593 FLOP/sec
R: 1000000 <T>: 0.465628 sec B: 0.016 GB/sec F: 4295274.339 FLOP/sec
R: 1000000 <T>: 0.441470 sec B: 0.017 GB/sec F: 4530319.582 FLOP/sec
R: 1000000 <T>: 0.459882 sec B: 0.016 GB/sec F: 4348943.312 FLOP/sec
R: 1000000 <T>: 0.442442 sec B: 0.017 GB/sec F: 4520365.347 FLOP/sec
R: 1000000 <T>: 0.443391 sec B: 0.017 GB/sec F: 4510692.443 FLOP/sec
R: 1000000 <T>: 0.452765 sec B: 0.016 GB/sec F: 4417301.062 FLOP/sec
R: 1000000 <T>: 0.440116 sec B: 0.017 GB/sec F: 4544261.099 FLOP/sec
R: 1000000 <T>: 0.449829 sec B: 0.017 GB/sec F: 4446135.023 FLOP/sec
R: 1000000 <T>: 0.444748 sec B: 0.017 GB/sec F: 4496932.733 FLOP/sec
R: 1000000 <T>: 0.454657 sec B: 0.016 GB/sec F: 4398921.937 FLOP/sec
R: 1000000 <T>: 0.438665 sec B: 0.017 GB/sec F: 4559288.494 FLOP/sec
R: 1000000 <T>: 0.458763 sec B: 0.016 GB/sec F: 4359549.646 FLOP/sec
R: 1000000 <T>: 0.467412 sec B: 0.016 GB/sec F: 4278881.657 FLOP/sec
R: 1000000 <T>: 0.447898 sec B: 0.017 GB/sec F: 4465297.732 FLOP/sec
R: 1000000 <T>: 0.666636 sec B: 0.011 GB/sec F: 3000140.009 FLOP/sec
R: 1000000 <T>: 0.978972 sec B: 0.008 GB/sec F: 2042960.046 FLOP/sec
R: 1000000 <T>: 0.952339 sec B: 0.008 GB/sec F: 2100093.548 FLOP/sec
R: 1000000 <T>: 0.879318 sec B: 0.008 GB/sec F: 2274489.286 FLOP/sec
R: 1000000 <T>: 0.812604 sec B: 0.009 GB/sec F: 2461224.046 FLOP/sec
R: 1000000 <T>: 0.817193 sec B: 0.009 GB/sec F: 2447402.113 FLOP/sec
R: 1000000 <T>: 0.798513 sec B: 0.009 GB/sec F: 2504655.042 FLOP/sec
R: 1000000 <T>: 0.795778 sec B: 0.009 GB/sec F: 2513265.111 FLOP/sec
R: 1000000 <T>: 0.742671 sec B: 0.010 GB/sec F: 2692983.924 FLOP/sec
R: 1000000 <T>: 0.447514 sec B: 0.017 GB/sec F: 4469131.989 FLOP/sec
R: 1000000 <T>: 0.442696 sec B: 0.017 GB/sec F: 4517768.551 FLOP/sec
R: 1000000 <T>: 0.447037 sec B: 0.017 GB/sec F: 4473901.907 FLOP/sec
R: 1000000 <T>: 0.449421 sec B: 0.017 GB/sec F: 4450171.093 FLOP/sec
R: 1000000 <T>: 0.465984 sec B: 0.016 GB/sec F: 4291992.020 FLOP/sec
R: 1000000 <T>: 0.451439 sec B: 0.017 GB/sec F: 4430280.336 FLOP/sec
R: 1000000 <T>: 0.435324 sec B: 0.017 GB/sec F: 4594282.148 FLOP/sec
R: 1000000 <T>: 0.445886 sec B: 0.017 GB/sec F: 4485452.786 FLOP/sec
R: 1000000 <T>: 0.442260 sec B: 0.017 GB/sec F: 4522228.963 FLOP/sec
R: 1000000 <T>: 0.457119 sec B: 0.016 GB/sec F: 4375232.745 FLOP/sec
R: 1000000 <T>: 0.445295 sec B: 0.017 GB/sec F: 4491409.002 FLOP/sec
R: 1000000 <T>: 0.452135 sec B: 0.016 GB/sec F: 4423461.137 FLOP/sec
R: 1000000 <T>: 0.452068 sec B: 0.016 GB/sec F: 4424110.896 FLOP/sec
R: 1000000 <T>: 0.453012 sec B: 0.016 GB/sec F: 4414892.079 FLOP/sec
R: 1000000 <T>: 0.459294 sec B: 0.016 GB/sec F: 4354507.596 FLOP/sec
R: 1000000 <T>: 0.440264 sec B: 0.017 GB/sec F: 4542731.395 FLOP/sec
R: 1000000 <T>: 0.446562 sec B: 0.017 GB/sec F: 4478661.648 FLOP/sec
R: 1000000 <T>: 0.433298 sec B: 0.017 GB/sec F: 4615758.314 FLOP/sec
R: 1000000 <T>: 0.445434 sec B: 0.017 GB/sec F: 4489998.210 FLOP/sec
R: 1000000 <T>: 0.431288 sec B: 0.017 GB/sec F: 4637271.875 FLOP/sec
R: 1000000 <T>: 0.431567 sec B: 0.017 GB/sec F: 4634270.927 FLOP/sec
R: 1000000 <T>: 0.439029 sec B: 0.017 GB/sec F: 4555511.956 FLOP/sec
R: 1000000 <T>: 0.743777 sec B: 0.010 GB/sec F: 2688977.779 FLOP/sec
R: 1000000 <T>: 0.903220 sec B: 0.008 GB/sec F: 2214300.996 FLOP/sec
R: 1000000 <T>: 0.918705 sec B: 0.008 GB/sec F: 2176978.094 FLOP/sec
R: 1000000 <T>: 0.853945 sec B: 0.009 GB/sec F: 2342071.452 FLOP/sec
R: 1000000 <T>: 0.795870 sec B: 0.009 GB/sec F: 2512974.415 FLOP/sec
R: 1000000 <T>: 0.813465 sec B: 0.009 GB/sec F: 2458618.213 FLOP/sec
R: 1000000 <T>: 0.805929 sec B: 0.009 GB/sec F: 2481608.372 FLOP/sec
R: 1000000 <T>: 0.807246 sec B: 0.009 GB/sec F: 2477558.695 FLOP/sec
R: 1000000 <T>: 0.622141 sec B: 0.012 GB/sec F: 3214707.524 FLOP/sec
R: 1000000 <T>: 0.436774 sec B: 0.017 GB/sec F: 4579030.914 FLOP/sec
R: 1000000 <T>: 0.453888 sec B: 0.016 GB/sec F: 4406371.825 FLOP/sec
R: 1000000 <T>: 0.431868 sec B: 0.017 GB/sec F: 4631042.655 FLOP/sec
R: 1000000 <T>: 0.449526 sec B: 0.017 GB/sec F: 4449130.338 FLOP/sec
R: 1000000 <T>: 0.434549 sec B: 0.017 GB/sec F: 4602471.553 FLOP/sec
R: 1000000 <T>: 0.436655 sec B: 0.017 GB/sec F: 4580276.273 FLOP/sec
R: 1000000 <T>: 0.443927 sec B: 0.017 GB/sec F: 4505243.841 FLOP/sec
R: 1000000 <T>: 0.439034 sec B: 0.017 GB/sec F: 4555451.546 FLOP/sec
R: 1000000 <T>: 0.445953 sec B: 0.017 GB/sec F: 4484779.103 FLOP/sec
R: 1000000 <T>: 0.430389 sec B: 0.017 GB/sec F: 4646959.270 FLOP/sec
R: 1000000 <T>: 0.457829 sec B: 0.016 GB/sec F: 4368444.862 FLOP/sec
R: 1000000 <T>: 0.444242 sec B: 0.017 GB/sec F: 4502052.214 FLOP/sec
R: 1000000 <T>: 0.446670 sec B: 0.017 GB/sec F: 4477577.663 FLOP/sec
R: 1000000 <T>: 0.438262 sec B: 0.017 GB/sec F: 4563481.146 FLOP/sec
R: 1000000 <T>: 0.438517 sec B: 0.017 GB/sec F: 4560830.307 FLOP/sec
R: 1000000 <T>: 0.448656 sec B: 0.017 GB/sec F: 4457758.263 FLOP/sec
```

```
R: 1000000 <T>: 0.442267 sec B: 0.017 GB/sec F: 4522152.786 FLOP/sec
R: 1000000 <T>: 0.442430 sec B: 0.017 GB/sec F: 4520489.955 FLOP/sec
R: 1000000 <T>: 0.430289 sec B: 0.017 GB/sec F: 4648036.208 FLOP/sec
R: 1000000 <T>: 0.462571 sec B: 0.016 GB/sec F: 4323658.229 FLOP/sec
R: 1000000 <T>: 0.432394 sec B: 0.017 GB/sec F: 4625407.254 FLOP/sec
R: 1000000 <T>: 0.435123 sec B: 0.017 GB/sec F: 4596402.893 FLOP/sec
R: 1000000 <T>: 0.840338 sec B: 0.009 GB/sec F: 2379994.388 FLOP/sec
R: 1000000 <T>: 0.898664 sec B: 0.008 GB/sec F: 2225525.535 FLOP/sec
R: 1000000 <T>: 0.906722 sec B: 0.008 GB/sec F: 2205746.847 FLOP/sec
R: 1000000 <T>: 0.827458 sec B: 0.009 GB/sec F: 2417042.214 FLOP/sec
R: 1000000 <T>: 0.825995 sec B: 0.009 GB/sec F: 2421322.573 FLOP/sec
R: 1000000 <T>: 0.807771 sec B: 0.009 GB/sec F: 2475947.728 FLOP/sec
R: 1000000 <T>: 0.821729 sec B: 0.009 GB/sec F: 2433893.624 FLOP/sec
R: 1000000 <T>: 0.801092 sec B: 0.009 GB/sec F: 2496593.149 FLOP/sec
R: 1000000 <T>: 0.518219 sec B: 0.014 GB/sec F: 3859370.908 FLOP/sec
R: 1000000 <T>: 0.442021 sec B: 0.017 GB/sec F: 4524669.878 FLOP/sec
R: 1000000 <T>: 0.436708 sec B: 0.017 GB/sec F: 4579721.363 FLOP/sec
R: 1000000 <T>: 0.448480 sec B: 0.017 GB/sec F: 4459506.238 FLOP/sec
R: 1000000 <T>: 0.444049 sec B: 0.017 GB/sec F: 4504004.560 FLOP/sec
R: 1000000 <T>: 0.426539 sec B: 0.017 GB/sec F: 4688906.196 FLOP/sec
R: 1000000 <T>: 0.457191 sec B: 0.016 GB/sec F: 4374542.167 FLOP/sec
R: 1000000 <T>: 0.428177 sec B: 0.017 GB/sec F: 4670964.170 FLOP/sec
R: 1000000 <T>: 0.451090 sec B: 0.017 GB/sec F: 4433703.709 FLOP/sec
R: 1000000 <T>: 0.440417 sec B: 0.017 GB/sec F: 4541146.226 FLOP/sec
R: 1000000 <T>: 0.435514 sec B: 0.017 GB/sec F: 4592276.636 FLOP/sec
R: 1000000 <T>: 0.446898 sec B: 0.017 GB/sec F: 4475294.559 FLOP/sec
R: 1000000 <T>: 0.445738 sec B: 0.017 GB/sec F: 4486943.165 FLOP/sec
R: 1000000 <T>: 0.448039 sec B: 0.017 GB/sec F: 4463898.561 FLOP/sec
R: 1000000 <T>: 0.458001 sec B: 0.016 GB/sec F: 4366806.487 FLOP/sec
R: 1000000 <T>: 0.463066 sec B: 0.016 GB/sec F: 4319038.606 FLOP/sec
R: 1000000 <T>: 0.448986 sec B: 0.017 GB/sec F: 4454483.306 FLOP/sec
R: 1000000 <T>: 0.454734 sec B: 0.016 GB/sec F: 4398173.190 FLOP/sec
R: 1000000 <T>: 0.440608 sec B: 0.017 GB/sec F: 4539181.634 FLOP/sec
R: 1000000 <T>: 0.466887 sec B: 0.016 GB/sec F: 4283690.221 FLOP/sec
R: 1000000 <T>: 0.439605 sec B: 0.017 GB/sec F: 4549533.761 FLOP/sec
R: 1000000 <T>: 0.441144 sec B: 0.017 GB/sec F: 4533665.521 FLOP/sec
R: 1000000 <T>: 0.605783 sec B: 0.012 GB/sec F: 3301514.656 FLOP/sec
R: 1000000 <T>: 0.967218 sec B: 0.008 GB/sec F: 2067786.816 FLOP/sec
R: 1000000 <T>: 0.945920 sec B: 0.008 GB/sec F: 2114343.994 FLOP/sec
R: 1000000 <T>: 0.901355 sec B: 0.008 GB/sec F: 2218882.235 FLOP/sec
R: 1000000 <T>: 0.788877 sec B: 0.009 GB/sec F: 2535250.198 FLOP/sec
R: 1000000 <T>: 0.791145 sec B: 0.009 GB/sec F: 2527981.107 FLOP/sec
R: 1000000 <T>: 0.791384 sec B: 0.009 GB/sec F: 2527217.935 FLOP/sec
R: 1000000 <T>: 0.812823 sec B: 0.009 GB/sec F: 2460560.082 FLOP/sec
R: 1000000 <T>: 0.816600 sec B: 0.009 GB/sec F: 2449178.748 FLOP/sec
R: 1000000 <T>: 0.467745 sec B: 0.016 GB/sec F: 4275831.916 FLOP/sec
R: 1000000 <T>: 0.445516 sec B: 0.017 GB/sec F: 4489180.888 FLOP/sec
R: 1000000 <T>: 0.455951 sec B: 0.016 GB/sec F: 4386440.755 FLOP/sec
R: 1000000 <T>: 0.464793 sec B: 0.016 GB/sec F: 4302990.859 FLOP/sec
R: 1000000 <T>: 0.452398 sec B: 0.016 GB/sec F: 4420886.034 FLOP/sec
R: 1000000 <T>: 0.444888 sec B: 0.017 GB/sec F: 4495512.760 FLOP/sec
R: 1000000 <T>: 0.451689 sec B: 0.016 GB/sec F: 4427821.605 FLOP/sec
R: 1000000 <T>: 0.433819 sec B: 0.017 GB/sec F: 4610212.949 FLOP/sec
R: 1000000 <T>: 0.459093 sec B: 0.016 GB/sec F: 4356419.067 FLOP/sec
R: 1000000 <T>: 0.443315 sec B: 0.017 GB/sec F: 4511466.673 FLOP/sec
R: 1000000 <T>: 0.446095 sec B: 0.017 GB/sec F: 4483353.909 FLOP/sec
R: 1000000 <T>: 0.460203 sec B: 0.016 GB/sec F: 4345911.486 FLOP/sec
R: 1000000 <T>: 0.445862 sec B: 0.017 GB/sec F: 4485693.979 FLOP/sec
R: 1000000 <T>: 0.461001 sec B: 0.016 GB/sec F: 4338385.872 FLOP/sec
R: 1000000 <T>: 0.450600 sec B: 0.017 GB/sec F: 4438522.341 FLOP/sec
R: 1000000 <T>: 0.459935 sec B: 0.016 GB/sec F: 4348442.734 FLOP/sec
R: 1000000 <T>: 0.437951 sec B: 0.017 GB/sec F: 4566725.481 FLOP/sec
R: 1000000 <T>: 0.441359 sec B: 0.017 GB/sec F: 4531456.906 FLOP/sec
R: 1000000 <T>: 0.459280 sec B: 0.016 GB/sec F: 4354642.124 FLOP/sec
R: 1000000 <T>: 0.436558 sec B: 0.017 GB/sec F: 4581289.034 FLOP/sec
R: 1000000 <T>: 0.451203 sec B: 0.017 GB/sec F: 4432597.785 FLOP/sec
R: 1000000 <T>: 0.456074 sec B: 0.016 GB/sec F: 4385249.818 FLOP/sec
R: 1000000 <T>: 0.744818 sec B: 0.010 GB/sec F: 2685220.455 FLOP/sec
R: 1000000 <T>: 0.923335 sec B: 0.008 GB/sec F: 2166060.929 FLOP/sec
R: 1000000 <T>: 0.930175 sec B: 0.008 GB/sec F: 2150132.011 FLOP/sec
R: 1000000 <T>: 0.857556 sec B: 0.009 GB/sec F: 2332208.618 FLOP/sec
R: 1000000 <T>: 0.795809 sec B: 0.009 GB/sec F: 2513167.376 FLOP/sec
R: 1000000 <T>: 0.800918 sec B: 0.009 GB/sec F: 2497135.555 FLOP/sec
R: 1000000 <T>: 0.812766 sec B: 0.009 GB/sec F: 2460731.953 FLOP/sec
R: 1000000 <T>: 0.808010 sec B: 0.009 GB/sec F: 2475215.932 FLOP/sec
R: 1000000 <T>: 0.699915 sec B: 0.011 GB/sec F: 2857488.838 FLOP/sec
R: 1000000 <T>: 0.455351 sec B: 0.016 GB/sec F: 4392214.147 FLOP/sec
R: 1000000 <T>: 0.438188 sec B: 0.017 GB/sec F: 4564250.836 FLOP/sec
R: 1000000 <T>: 0.453897 sec B: 0.016 GB/sec F: 4406286.561 FLOP/sec
R: 1000000 <T>: 0.435329 sec B: 0.017 GB/sec F: 4594225.792 FLOP/sec
R: 1000000 <T>: 0.446766 sec B: 0.017 GB/sec F: 4476618.118 FLOP/sec
R: 1000000 <T>: 0.452055 sec B: 0.016 GB/sec F: 4424243.623 FLOP/sec
R: 1000000 <T>: 0.440428 sec B: 0.017 GB/sec F: 4541038.231 FLOP/sec
R: 1000000 <T>: 0.460150 sec B: 0.016 GB/sec F: 4346406.664 FLOP/sec
R: 1000000 <T>: 0.443605 sec B: 0.017 GB/sec F: 4508519.250 FLOP/sec
R: 1000000 <T>: 0.457700 sec B: 0.016 GB/sec F: 4369676.550 FLOP/sec
R: 1000000 <T>: 0.465856 sec B: 0.016 GB/sec F: 4293168.950 FLOP/sec
R: 1000000 <T>: 0.454149 sec B: 0.016 GB/sec F: 4403844.899 FLOP/sec
R: 1000000 <T>: 0.440209 sec B: 0.017 GB/sec F: 4543295.344 FLOP/sec
R: 1000000 <T>: 0.458635 sec B: 0.016 GB/sec F: 4360769.885 FLOP/sec
R: 1000000 <T>: 0.450401 sec B: 0.017 GB/sec F: 4440489.705 FLOP/sec
R: 1000000 <T>: 0.434189 sec B: 0.017 GB/sec F: 4606289.582 FLOP/sec
R: 1000000 <T>: 0.451305 sec B: 0.017 GB/sec F: 4431596.537 FLOP/sec
R: 1000000 <T>: 0.442477 sec B: 0.017 GB/sec F: 4520010.400 FLOP/sec
R: 1000000 <T>: 0.452828 sec B: 0.016 GB/sec F: 4416686.736 FLOP/sec
R: 1000000 <T>: 0.445443 sec B: 0.017 GB/sec F: 4489913.872 FLOP/sec
R: 1000000 <T>: 0.439756 sec B: 0.017 GB/sec F: 4547971.838 FLOP/sec
R: 1000000 <T>: 0.454843 sec B: 0.016 GB/sec F: 4397120.668 FLOP/sec
R: 1000000 <T>: 0.903388 sec B: 0.008 GB/sec F: 2213887.114 FLOP/sec
R: 1000000 <T>: 0.931866 sec B: 0.008 GB/sec F: 2146231.724 FLOP/sec
```

```
R: 1000000 <T>: 0.943494 sec B: 0.008 GB/sec F: 2119779.454 FLOP/sec
R: 1000000 <T>: 0.835595 sec B: 0.009 GB/sec F: 2393505.408 FLOP/sec
R: 1000000 <T>: 0.802658 sec B: 0.009 GB/sec F: 2491721.930 FLOP/sec
R: 1000000 <T>: 0.819501 sec B: 0.009 GB/sec F: 2440509.253 FLOP/sec
R: 1000000 <T>: 0.798454 sec B: 0.009 GB/sec F: 2504841.477 FLOP/sec
R: 1000000 <T>: 0.820732 sec B: 0.009 GB/sec F: 2436848.243 FLOP/sec
R: 1000000 <T>: 0.582832 sec B: 0.013 GB/sec F: 3431519.916 FLOP/sec
R: 1000000 <T>: 0.442567 sec B: 0.017 GB/sec F: 4519088.846 FLOP/sec
R: 1000000 <T>: 0.461251 sec B: 0.016 GB/sec F: 4336035.718 FLOP/sec
R: 1000000 <T>: 0.440545 sec B: 0.017 GB/sec F: 4539835.498 FLOP/sec
R: 1000000 <T>: 0.452058 sec B: 0.016 GB/sec F: 4424207.735 FLOP/sec
R: 1000000 <T>: 0.447971 sec B: 0.017 GB/sec F: 4464571.198 FLOP/sec
R: 1000000 <T>: 0.440508 sec B: 0.017 GB/sec F: 4540214.746 FLOP/sec
R: 1000000 <T>: 0.437936 sec B: 0.017 GB/sec F: 4566877.498 FLOP/sec
R: 1000000 <T>: 0.434889 sec B: 0.017 GB/sec F: 4598876.157 FLOP/sec
R: 1000000 <T>: 0.437970 sec B: 0.017 GB/sec F: 4566517.629 FLOP/sec
R: 1000000 <T>: 0.434317 sec B: 0.017 GB/sec F: 4604936.542 FLOP/sec
R: 1000000 <T>: 0.445214 sec B: 0.017 GB/sec F: 4492221.839 FLOP/sec
R: 1000000 <T>: 0.442054 sec B: 0.017 GB/sec F: 4524330.805 FLOP/sec
R: 1000000 <T>: 0.445618 sec B: 0.017 GB/sec F: 4488150.070 FLOP/sec
R: 1000000 <T>: 0.433222 sec B: 0.017 GB/sec F: 4616566.574 FLOP/sec
R: 1000000 <T>: 0.438417 sec B: 0.017 GB/sec F: 4561863.475 FLOP/sec
R: 1000000 <T>: 0.441816 sec B: 0.017 GB/sec F: 4526773.959 FLOP/sec
R: 1000000 <T>: 0.430942 sec B: 0.017 GB/sec F: 4640991.314 FLOP/sec
R: 1000000 <T>: 0.465595 sec B: 0.016 GB/sec F: 4295579.597 FLOP/sec
R: 1000000 <T>: 0.430533 sec B: 0.017 GB/sec F: 4645408.966 FLOP/sec
R: 1000000 <T>: 0.450959 sec B: 0.017 GB/sec F: 4434992.500 FLOP/sec
R: 1000000 <T>: 0.440847 sec B: 0.017 GB/sec F: 4536726.173 FLOP/sec
R: 1000000 <T>: 0.454252 sec B: 0.016 GB/sec F: 4402842.902 FLOP/sec
R: 1000000 <T>: 0.898654 sec B: 0.008 GB/sec F: 2225550.966 FLOP/sec
R: 1000000 <T>: 0.940444 sec B: 0.008 GB/sec F: 2126655.515 FLOP/sec
R: 1000000 <T>: 0.923201 sec B: 0.008 GB/sec F: 2166376.066 FLOP/sec
R: 1000000 <T>: 0.820612 sec B: 0.009 GB/sec F: 2437204.925 FLOP/sec
R: 1000000 <T>: 0.793147 sec B: 0.009 GB/sec F: 2521601.460 FLOP/sec
R: 1000000 <T>: 0.795473 sec B: 0.009 GB/sec F: 2514226.720 FLOP/sec
R: 1000000 <T>: 0.810250 sec B: 0.009 GB/sec F: 2468374.132 FLOP/sec
R: 1000000 <T>: 0.793559 sec B: 0.009 GB/sec F: 2520290.443 FLOP/sec
R: 1000000 <T>: 0.502086 sec B: 0.015 GB/sec F: 3983377.557 FLOP/sec
R: 1000000 <T>: 0.442418 sec B: 0.017 GB/sec F: 4520611.535 FLOP/sec
R: 1000000 <T>: 0.454038 sec B: 0.016 GB/sec F: 4404921.123 FLOP/sec
R: 1000000 <T>: 0.451133 sec B: 0.017 GB/sec F: 4433277.855 FLOP/sec
R: 1000000 <T>: 0.432308 sec B: 0.017 GB/sec F: 4626334.737 FLOP/sec
R: 1000000 <T>: 0.474966 sec B: 0.016 GB/sec F: 4210829.230 FLOP/sec
R: 1000000 <T>: 0.436071 sec B: 0.017 GB/sec F: 4586408.621 FLOP/sec
R: 1000000 <T>: 0.456352 sec B: 0.016 GB/sec F: 4382579.667 FLOP/sec
R: 1000000 <T>: 0.433996 sec B: 0.017 GB/sec F: 4608341.375 FLOP/sec
R: 1000000 <T>: 0.454782 sec B: 0.016 GB/sec F: 4397711.102 FLOP/sec
R: 1000000 <T>: 0.459036 sec B: 0.016 GB/sec F: 4356953.412 FLOP/sec
R: 1000000 <T>: 0.437950 sec B: 0.017 GB/sec F: 4566729.245 FLOP/sec
R: 1000000 <T>: 0.452242 sec B: 0.016 GB/sec F: 4422414.129 FLOP/sec
R: 1000000 <T>: 0.436245 sec B: 0.017 GB/sec F: 4584579.461 FLOP/sec
R: 1000000 <T>: 0.440364 sec B: 0.017 GB/sec F: 4541696.735 FLOP/sec
R: 1000000 <T>: 0.440894 sec B: 0.017 GB/sec F: 4536242.653 FLOP/sec
R: 1000000 <T>: 0.440383 sec B: 0.017 GB/sec F: 4541505.634 FLOP/sec
R: 1000000 <T>: 0.437845 sec B: 0.017 GB/sec F: 4567829.612 FLOP/sec
R: 1000000 <T>: 0.438489 sec B: 0.017 GB/sec F: 4561122.156 FLOP/sec
R: 1000000 <T>: 0.449579 sec B: 0.017 GB/sec F: 4448602.939 FLOP/sec
R: 1000000 <T>: 0.434670 sec B: 0.017 GB/sec F: 4601192.630 FLOP/sec
R: 1000000 <T>: 0.445922 sec B: 0.017 GB/sec F: 4485087.762 FLOP/sec
R: 1000000 <T>: 0.556445 sec B: 0.013 GB/sec F: 3594247.906 FLOP/sec
R: 1000000 <T>: 0.941302 sec B: 0.008 GB/sec F: 2124717.241 FLOP/sec
R: 1000000 <T>: 0.942723 sec B: 0.008 GB/sec F: 2121513.014 FLOP/sec
R: 1000000 <T>: 0.877465 sec B: 0.008 GB/sec F: 2279293.435 FLOP/sec
R: 1000000 <T>: 0.798711 sec B: 0.009 GB/sec F: 2504035.268 FLOP/sec
R: 1000000 <T>: 0.803613 sec B: 0.009 GB/sec F: 2488759.140 FLOP/sec
R: 1000000 <T>: 0.802666 sec B: 0.009 GB/sec F: 2491697.440 FLOP/sec
R: 1000000 <T>: 0.801627 sec B: 0.009 GB/sec F: 2494927.043 FLOP/sec
R: 1000000 <T>: 0.749260 sec B: 0.010 GB/sec F: 2669299.101 FLOP/sec
R: 1000000 <T>: 0.436737 sec B: 0.017 GB/sec F: 4579416.015 FLOP/sec
R: 1000000 <T>: 0.439650 sec B: 0.017 GB/sec F: 4549070.126 FLOP/sec
R: 1000000 <T>: 0.450131 sec B: 0.017 GB/sec F: 4443152.247 FLOP/sec
R: 1000000 <T>: 0.434316 sec B: 0.017 GB/sec F: 4604938.610 FLOP/sec
R: 1000000 <T>: 0.455958 sec B: 0.016 GB/sec F: 4386372.239 FLOP/sec
R: 1000000 <T>: 0.442631 sec B: 0.017 GB/sec F: 4518432.011 FLOP/sec
R: 1000000 <T>: 0.444324 sec B: 0.017 GB/sec F: 4501217.460 FLOP/sec
R: 1000000 <T>: 0.442035 sec B: 0.017 GB/sec F: 4524532.777 FLOP/sec
R: 1000000 <T>: 0.428274 sec B: 0.017 GB/sec F: 4669908.553 FLOP/sec
R: 1000000 <T>: 0.455339 sec B: 0.016 GB/sec F: 4392335.542 FLOP/sec
R: 1000000 <T>: 0.446068 sec B: 0.017 GB/sec F: 4483619.220 FLOP/sec
R: 1000000 <T>: 0.447077 sec B: 0.017 GB/sec F: 4473506.280 FLOP/sec
R: 1000000 <T>: 0.448175 sec B: 0.017 GB/sec F: 4462545.810 FLOP/sec
R: 1000000 <T>: 0.440128 sec B: 0.017 GB/sec F: 4544129.147 FLOP/sec
R: 1000000 <T>: 0.449258 sec B: 0.017 GB/sec F: 4451780.236 FLOP/sec
R: 1000000 <T>: 0.439055 sec B: 0.017 GB/sec F: 4555235.485 FLOP/sec
R: 1000000 <T>: 0.465978 sec B: 0.016 GB/sec F: 4292046.225 FLOP/sec
R: 1000000 <T>: 0.435779 sec B: 0.017 GB/sec F: 4589485.159 FLOP/sec
R: 1000000 <T>: 0.457618 sec B: 0.016 GB/sec F: 4370457.341 FLOP/sec
R: 1000000 <T>: 0.446748 sec B: 0.017 GB/sec F: 4476798.937 FLOP/sec
R: 1000000 <T>: 0.444332 sec B: 0.017 GB/sec F: 4501141.625 FLOP/sec
R: 1000000 <T>: 0.436390 sec B: 0.017 GB/sec F: 4583055.359 FLOP/sec
R: 1000000 <T>: 0.736678 sec B: 0.010 GB/sec F: 2714891.988 FLOP/sec
R: 1000000 <T>: 0.906058 sec B: 0.008 GB/sec F: 2207365.137 FLOP/sec
R: 1000000 <T>: 0.901791 sec B: 0.008 GB/sec F: 2217808.136 FLOP/sec
R: 1000000 <T>: 0.839645 sec B: 0.009 GB/sec F: 2381959.950 FLOP/sec
R: 1000000 <T>: 0.803806 sec B: 0.009 GB/sec F: 2488162.031 FLOP/sec
R: 1000000 <T>: 0.814610 sec B: 0.009 GB/sec F: 2455161.599 FLOP/sec
R: 1000000 <T>: 0.816988 sec B: 0.009 GB/sec F: 2448016.822 FLOP/sec
R: 1000000 <T>: 0.794515 sec B: 0.009 GB/sec F: 2517258.481 FLOP/sec
R: 1000000 <T>: 0.636803 sec B: 0.012 GB/sec F: 3140689.777 FLOP/sec
R: 1000000 <T>: 0.432982 sec B: 0.017 GB/sec F: 4619128.159 FLOP/sec
```

```
R: 1000000 <T>: 0.443949 sec B: 0.017 GB/sec F: 4505026.022 FLOP/sec
R: 1000000 <T>: 0.421706 sec B: 0.018 GB/sec F: 4742636.525 FLOP/sec
R: 1000000 <T>: 0.450698 sec B: 0.017 GB/sec F: 4437563.145 FLOP/sec
R: 1000000 <T>: 0.438362 sec B: 0.017 GB/sec F: 4562442.260 FLOP/sec
R: 1000000 <T>: 0.445774 sec B: 0.017 GB/sec F: 4486573.439 FLOP/sec
R: 1000000 <T>: 0.432146 sec B: 0.017 GB/sec F: 4628069.188 FLOP/sec
R: 1000000 <T>: 0.444117 sec B: 0.017 GB/sec F: 4503319.056 FLOP/sec
R: 1000000 <T>: 0.448220 sec B: 0.017 GB/sec F: 4462097.603 FLOP/sec
R: 1000000 <T>: 0.441438 sec B: 0.017 GB/sec F: 4530648.263 FLOP/sec
R: 1000000 <T>: 0.443455 sec B: 0.017 GB/sec F: 4510042.420 FLOP/sec
R: 1000000 <T>: 0.448004 sec B: 0.017 GB/sec F: 4464242.417 FLOP/sec
R: 1000000 <T>: 0.446085 sec B: 0.017 GB/sec F: 4483451.740 FLOP/sec
R: 1000000 <T>: 0.433390 sec B: 0.017 GB/sec F: 4614779.525 FLOP/sec
R: 1000000 <T>: 0.452918 sec B: 0.016 GB/sec F: 4415805.532 FLOP/sec
R: 1000000 <T>: 0.428514 sec B: 0.017 GB/sec F: 4667287.684 FLOP/sec
R: 1000000 <T>: 0.451037 sec B: 0.017 GB/sec F: 4434224.169 FLOP/sec
R: 1000000 <T>: 0.457294 sec B: 0.016 GB/sec F: 4373558.355 FLOP/sec
R: 1000000 <T>: 0.437333 sec B: 0.017 GB/sec F: 4573178.975 FLOP/sec
R: 1000000 <T>: 0.443246 sec B: 0.017 GB/sec F: 4512166.244 FLOP/sec
R: 1000000 <T>: 0.439211 sec B: 0.017 GB/sec F: 4553622.150 FLOP/sec
R: 1000000 <T>: 0.452409 sec B: 0.016 GB/sec F: 4420781.494 FLOP/sec
R: 1000000 <T>: 0.774698 sec B: 0.010 GB/sec F: 2581649.856 FLOP/sec
R: 1000000 <T>: 0.905148 sec B: 0.008 GB/sec F: 2209582.792 FLOP/sec
R: 1000000 <T>: 0.918628 sec B: 0.008 GB/sec F: 2177159.221 FLOP/sec
R: 1000000 <T>: 0.836254 sec B: 0.009 GB/sec F: 2391617.317 FLOP/sec
R: 1000000 <T>: 0.789307 sec B: 0.009 GB/sec F: 2533868.574 FLOP/sec
R: 1000000 <T>: 0.804066 sec B: 0.009 GB/sec F: 2487358.179 FLOP/sec
R: 1000000 <T>: 0.809341 sec B: 0.009 GB/sec F: 2471146.498 FLOP/sec
R: 1000000 <T>: 0.791299 sec B: 0.009 GB/sec F: 2527489.369 FLOP/sec
R: 1000000 <T>: 0.650478 sec B: 0.011 GB/sec F: 3074664.244 FLOP/sec
R: 1000000 <T>: 0.434604 sec B: 0.017 GB/sec F: 4601890.234 FLOP/sec
R: 1000000 <T>: 0.442971 sec B: 0.017 GB/sec F: 4514968.880 FLOP/sec
R: 1000000 <T>: 0.448781 sec B: 0.017 GB/sec F: 4456512.790 FLOP/sec
R: 1000000 <T>: 0.440196 sec B: 0.017 GB/sec F: 4543431.634 FLOP/sec
R: 1000000 <T>: 0.441761 sec B: 0.017 GB/sec F: 4527332.272 FLOP/sec
R: 1000000 <T>: 0.438805 sec B: 0.017 GB/sec F: 4557834.421 FLOP/sec
R: 1000000 <T>: 0.447585 sec B: 0.017 GB/sec F: 4468424.942 FLOP/sec
R: 1000000 <T>: 0.459777 sec B: 0.016 GB/sec F: 4349931.179 FLOP/sec
R: 1000000 <T>: 0.438854 sec B: 0.017 GB/sec F: 4557328.676 FLOP/sec
R: 1000000 <T>: 0.441403 sec B: 0.017 GB/sec F: 4531011.257 FLOP/sec
R: 1000000 <T>: 0.453222 sec B: 0.016 GB/sec F: 4412848.820 FLOP/sec
R: 1000000 <T>: 0.448633 sec B: 0.017 GB/sec F: 4457984.433 FLOP/sec
R: 1000000 <T>: 0.435059 sec B: 0.017 GB/sec F: 4597082.181 FLOP/sec
R: 1000000 <T>: 0.442932 sec B: 0.017 GB/sec F: 4515361.692 FLOP/sec
R: 1000000 <T>: 0.435998 sec B: 0.017 GB/sec F: 4587177.837 FLOP/sec
R: 1000000 <T>: 0.436667 sec B: 0.017 GB/sec F: 4580151.473 FLOP/sec
R: 1000000 <T>: 0.447770 sec B: 0.017 GB/sec F: 4466579.353 FLOP/sec
R: 1000000 <T>: 0.437534 sec B: 0.017 GB/sec F: 4571068.674 FLOP/sec
R: 1000000 <T>: 0.452062 sec B: 0.016 GB/sec F: 4424175.272 FLOP/sec
R: 1000000 <T>: 0.437879 sec B: 0.017 GB/sec F: 4567474.235 FLOP/sec
R: 1000000 <T>: 0.446902 sec B: 0.017 GB/sec F: 4475249.186 FLOP/sec
R: 1000000 <T>: 0.448036 sec B: 0.017 GB/sec F: 4463924.794 FLOP/sec
R: 1000000 <T>: 0.844534 sec B: 0.009 GB/sec F: 2368171.063 FLOP/sec
R: 1000000 <T>: 0.940570 sec B: 0.008 GB/sec F: 2126369.915 FLOP/sec
R: 1000000 <T>: 0.923082 sec B: 0.008 GB/sec F: 2166653.654 FLOP/sec
R: 1000000 <T>: 0.820212 sec B: 0.009 GB/sec F: 2438394.003 FLOP/sec
R: 1000000 <T>: 0.811104 sec B: 0.009 GB/sec F: 2465773.611 FLOP/sec
R: 1000000 <T>: 0.801632 sec B: 0.009 GB/sec F: 2494910.943 FLOP/sec
R: 1000000 <T>: 0.827313 sec B: 0.009 GB/sec F: 2417464.227 FLOP/sec
R: 1000000 <T>: 0.800302 sec B: 0.009 GB/sec F: 2499055.841 FLOP/sec
R: 1000000 <T>: 0.553530 sec B: 0.013 GB/sec F: 3613174.343 FLOP/sec
R: 1000000 <T>: 0.436476 sec B: 0.017 GB/sec F: 4582152.599 FLOP/sec
R: 1000000 <T>: 0.454498 sec B: 0.016 GB/sec F: 4400454.790 FLOP/sec
R: 1000000 <T>: 0.438947 sec B: 0.017 GB/sec F: 4556363.692 FLOP/sec
R: 1000000 <T>: 0.448407 sec B: 0.017 GB/sec F: 4460234.089 FLOP/sec
R: 1000000 <T>: 0.429231 sec B: 0.017 GB/sec F: 4659497.212 FLOP/sec
R: 1000000 <T>: 0.453952 sec B: 0.016 GB/sec F: 4405748.889 FLOP/sec
R: 1000000 <T>: 0.434247 sec B: 0.017 GB/sec F: 4605671.354 FLOP/sec
R: 1000000 <T>: 0.437859 sec B: 0.017 GB/sec F: 4567680.119 FLOP/sec
R: 1000000 <T>: 0.446733 sec B: 0.017 GB/sec F: 4476946.469 FLOP/sec
R: 1000000 <T>: 0.446075 sec B: 0.017 GB/sec F: 4483546.007 FLOP/sec
R: 1000000 <T>: 0.440886 sec B: 0.017 GB/sec F: 4536320.448 FLOP/sec
R: 1000000 <T>: 0.431359 sec B: 0.017 GB/sec F: 4636505.557 FLOP/sec
R: 1000000 <T>: 0.447665 sec B: 0.017 GB/sec F: 4467625.903 FLOP/sec
R: 1000000 <T>: 0.432698 sec B: 0.017 GB/sec F: 4622160.838 FLOP/sec
R: 1000000 <T>: 0.439122 sec B: 0.017 GB/sec F: 4554543.914 FLOP/sec
R: 1000000 <T>: 0.440582 sec B: 0.017 GB/sec F: 4539453.295 FLOP/sec
R: 1000000 <T>: 0.435487 sec B: 0.017 GB/sec F: 4592556.705 FLOP/sec
R: 1000000 <T>: 0.445471 sec B: 0.017 GB/sec F: 4489633.675 FLOP/sec
R: 1000000 <T>: 0.433061 sec B: 0.017 GB/sec F: 4618286.573 FLOP/sec
R: 1000000 <T>: 0.438744 sec B: 0.017 GB/sec F: 4558471.489 FLOP/sec
R: 1000000 <T>: 0.449991 sec B: 0.017 GB/sec F: 4444529.157 FLOP/sec
R: 1000000 <T>: 0.448520 sec B: 0.017 GB/sec F: 4459105.369 FLOP/sec
R: 1000000 <T>: 0.907317 sec B: 0.008 GB/sec F: 2204301.430 FLOP/sec
R: 1000000 <T>: 0.906809 sec B: 0.008 GB/sec F: 2205535.387 FLOP/sec
R: 1000000 <T>: 0.908383 sec B: 0.008 GB/sec F: 2201714.790 FLOP/sec
R: 1000000 <T>: 0.812053 sec B: 0.009 GB/sec F: 2462892.431 FLOP/sec
R: 1000000 <T>: 0.796331 sec B: 0.009 GB/sec F: 2511518.382 FLOP/sec
R: 1000000 <T>: 0.793617 sec B: 0.009 GB/sec F: 2520107.976 FLOP/sec
R: 1000000 <T>: 0.801805 sec B: 0.009 GB/sec F: 2494372.509 FLOP/sec
R: 1000000 <T>: 0.801666 sec B: 0.009 GB/sec F: 2494804.383 FLOP/sec
R: 1000000 <T>: 0.517124 sec B: 0.014 GB/sec F: 3867541.484 FLOP/sec
R: 1000000 <T>: 0.446102 sec B: 0.017 GB/sec F: 4483283.659 FLOP/sec
R: 1000000 <T>: 0.431731 sec B: 0.017 GB/sec F: 4632510.086 FLOP/sec
R: 1000000 <T>: 0.441078 sec B: 0.017 GB/sec F: 4534343.549 FLOP/sec
R: 1000000 <T>: 0.434668 sec B: 0.017 GB/sec F: 4601213.113 FLOP/sec
R: 1000000 <T>: 0.442453 sec B: 0.017 GB/sec F: 4520250.390 FLOP/sec
R: 1000000 <T>: 0.428051 sec B: 0.017 GB/sec F: 4672343.098 FLOP/sec
R: 1000000 <T>: 0.433531 sec B: 0.017 GB/sec F: 4613277.951 FLOP/sec
R: 1000000 <T>: 0.442644 sec B: 0.017 GB/sec F: 4518308.170 FLOP/sec
```

```
R: 1000000 <T>: 0.442368 sec B: 0.017 GB/sec F: 4521127.182 FLOP/sec
R: 1000000 <T>: 0.442271 sec B: 0.017 GB/sec F: 4522117.511 FLOP/sec
R: 1000000 <T>: 0.438041 sec B: 0.017 GB/sec F: 4565784.521 FLOP/sec
R: 1000000 <T>: 0.438670 sec B: 0.017 GB/sec F: 4559234.116 FLOP/sec
R: 1000000 <T>: 0.429018 sec B: 0.017 GB/sec F: 4661813.549 FLOP/sec
R: 1000000 <T>: 0.432678 sec B: 0.017 GB/sec F: 4622371.597 FLOP/sec
R: 1000000 <T>: 0.438354 sec B: 0.017 GB/sec F: 4562520.768 FLOP/sec
R: 1000000 <T>: 0.430946 sec B: 0.017 GB/sec F: 4640947.709 FLOP/sec
R: 1000000 <T>: 0.477486 sec B: 0.016 GB/sec F: 4188604.272 FLOP/sec
R: 1000000 <T>: 0.431623 sec B: 0.017 GB/sec F: 4633673.400 FLOP/sec
R: 1000000 <T>: 0.446108 sec B: 0.017 GB/sec F: 4483218.365 FLOP/sec
R: 1000000 <T>: 0.430431 sec B: 0.017 GB/sec F: 4646510.154 FLOP/sec
R: 1000000 <T>: 0.435548 sec B: 0.017 GB/sec F: 4591920.165 FLOP/sec
R: 1000000 <T>: 0.441886 sec B: 0.017 GB/sec F: 4526053.781 FLOP/sec
R: 1000000 <T>: 0.895577 sec B: 0.008 GB/sec F: 2233196.492 FLOP/sec
R: 1000000 <T>: 0.934178 sec B: 0.008 GB/sec F: 2140919.352 FLOP/sec
R: 1000000 <T>: 0.925547 sec B: 0.008 GB/sec F: 2160883.365 FLOP/sec
R: 1000000 <T>: 0.819682 sec B: 0.009 GB/sec F: 2439969.646 FLOP/sec
R: 1000000 <T>: 0.804415 sec B: 0.009 GB/sec F: 2486277.618 FLOP/sec
R: 1000000 <T>: 0.802672 sec B: 0.009 GB/sec F: 2491676.840 FLOP/sec
R: 1000000 <T>: 0.795987 sec B: 0.009 GB/sec F: 2512604.528 FLOP/sec
R: 1000000 <T>: 0.779514 sec B: 0.010 GB/sec F: 2565699.610 FLOP/sec
R: 1000000 <T>: 0.520478 sec B: 0.014 GB/sec F: 3842622.934 FLOP/sec
R: 1000000 <T>: 0.435629 sec B: 0.017 GB/sec F: 4591066.067 FLOP/sec
R: 1000000 <T>: 0.461343 sec B: 0.016 GB/sec F: 4335173.074 FLOP/sec
R: 1000000 <T>: 0.438576 sec B: 0.017 GB/sec F: 4560210.651 FLOP/sec
R: 1000000 <T>: 0.451328 sec B: 0.017 GB/sec F: 4431364.710 FLOP/sec
R: 1000000 <T>: 0.435506 sec B: 0.017 GB/sec F: 4592363.588 FLOP/sec
R: 1000000 <T>: 0.441519 sec B: 0.017 GB/sec F: 4529820.026 FLOP/sec
R: 1000000 <T>: 0.464864 sec B: 0.016 GB/sec F: 4302331.420 FLOP/sec
R: 1000000 <T>: 0.433746 sec B: 0.017 GB/sec F: 4610992.585 FLOP/sec
R: 1000000 <T>: 0.438037 sec B: 0.017 GB/sec F: 4565819.668 FLOP/sec
R: 1000000 <T>: 0.435211 sec B: 0.017 GB/sec F: 4595468.069 FLOP/sec
R: 1000000 <T>: 0.446939 sec B: 0.017 GB/sec F: 4474887.922 FLOP/sec
R: 1000000 <T>: 0.435578 sec B: 0.017 GB/sec F: 4591603.352 FLOP/sec
R: 1000000 <T>: 0.435073 sec B: 0.017 GB/sec F: 4596929.647 FLOP/sec
R: 1000000 <T>: 0.450665 sec B: 0.017 GB/sec F: 4437886.688 FLOP/sec
R: 1000000 <T>: 0.432292 sec B: 0.017 GB/sec F: 4626502.649 FLOP/sec
R: 1000000 <T>: 0.453042 sec B: 0.016 GB/sec F: 4414606.229 FLOP/sec
R: 1000000 <T>: 0.433117 sec B: 0.017 GB/sec F: 4617685.207 FLOP/sec
R: 1000000 <T>: 0.452560 sec B: 0.016 GB/sec F: 4419302.024 FLOP/sec
R: 1000000 <T>: 0.439692 sec B: 0.017 GB/sec F: 4548636.958 FLOP/sec
R: 1000000 <T>: 0.444609 sec B: 0.017 GB/sec F: 4498333.348 FLOP/sec
R: 1000000 <T>: 0.457656 sec B: 0.016 GB/sec F: 4370099.085 FLOP/sec
R: 1000000 <T>: 0.511030 sec B: 0.015 GB/sec F: 3913663.281 FLOP/sec
R: 1000000 <T>: 0.897711 sec B: 0.008 GB/sec F: 2227888.562 FLOP/sec
R: 1000000 <T>: 0.925640 sec B: 0.008 GB/sec F: 2160667.207 FLOP/sec
R: 1000000 <T>: 0.933090 sec B: 0.008 GB/sec F: 2143416.752 FLOP/sec
R: 1000000 <T>: 0.797739 sec B: 0.009 GB/sec F: 2507084.457 FLOP/sec
R: 1000000 <T>: 0.778441 sec B: 0.010 GB/sec F: 2569237.109 FLOP/sec
R: 1000000 <T>: 0.780436 sec B: 0.010 GB/sec F: 2562669.871 FLOP/sec
R: 1000000 <T>: 0.811054 sec B: 0.009 GB/sec F: 2465925.733 FLOP/sec
R: 1000000 <T>: 0.804794 sec B: 0.009 GB/sec F: 2485107.580 FLOP/sec
R: 1000000 <T>: 0.492511 sec B: 0.015 GB/sec F: 4060825.753 FLOP/sec
R: 1000000 <T>: 0.443906 sec B: 0.017 GB/sec F: 4505454.871 FLOP/sec
R: 1000000 <T>: 0.431486 sec B: 0.017 GB/sec F: 4635148.622 FLOP/sec
R: 1000000 <T>: 0.452210 sec B: 0.016 GB/sec F: 4422721.344 FLOP/sec
R: 1000000 <T>: 0.438167 sec B: 0.017 GB/sec F: 4564470.680 FLOP/sec
R: 1000000 <T>: 0.433585 sec B: 0.017 GB/sec F: 4612703.974 FLOP/sec
R: 1000000 <T>: 0.456255 sec B: 0.016 GB/sec F: 4383511.059 FLOP/sec
R: 1000000 <T>: 0.439038 sec B: 0.017 GB/sec F: 4555409.897 FLOP/sec
R: 1000000 <T>: 0.455696 sec B: 0.016 GB/sec F: 4388892.236 FLOP/sec
R: 1000000 <T>: 0.448888 sec B: 0.017 GB/sec F: 4455455.241 FLOP/sec
R: 1000000 <T>: 0.452384 sec B: 0.016 GB/sec F: 4421023.444 FLOP/sec
R: 1000000 <T>: 0.435688 sec B: 0.017 GB/sec F: 4590444.090 FLOP/sec
R: 1000000 <T>: 0.437421 sec B: 0.017 GB/sec F: 4572257.242 FLOP/sec
R: 1000000 <T>: 0.454201 sec B: 0.016 GB/sec F: 4403336.490 FLOP/sec
R: 1000000 <T>: 0.442781 sec B: 0.017 GB/sec F: 4516902.058 FLOP/sec
R: 1000000 <T>: 0.447530 sec B: 0.017 GB/sec F: 4468978.101 FLOP/sec
R: 1000000 <T>: 0.442162 sec B: 0.017 GB/sec F: 4523233.933 FLOP/sec
R: 1000000 <T>: 0.440777 sec B: 0.017 GB/sec F: 4537438.789 FLOP/sec
R: 1000000 <T>: 0.439493 sec B: 0.017 GB/sec F: 4550693.314 FLOP/sec
R: 1000000 <T>: 0.447503 sec B: 0.017 GB/sec F: 4469241.554 FLOP/sec
R: 1000000 <T>: 0.435993 sec B: 0.017 GB/sec F: 4587228.949 FLOP/sec
R: 1000000 <T>: 0.441364 sec B: 0.017 GB/sec F: 4531411.906 FLOP/sec
R: 1000000 <T>: 0.585971 sec B: 0.013 GB/sec F: 3413140.342 FLOP/sec
R: 1000000 <T>: 0.917023 sec B: 0.008 GB/sec F: 2180969.330 FLOP/sec
R: 1000000 <T>: 0.934434 sec B: 0.008 GB/sec F: 2140333.642 FLOP/sec
R: 1000000 <T>: 0.906221 sec B: 0.008 GB/sec F: 2206966.897 FLOP/sec
R: 1000000 <T>: 0.805060 sec B: 0.009 GB/sec F: 2484286.947 FLOP/sec
R: 1000000 <T>: 0.785858 sec B: 0.009 GB/sec F: 2544987.428 FLOP/sec
R: 1000000 <T>: 0.782317 sec B: 0.010 GB/sec F: 2556507.335 FLOP/sec
R: 1000000 <T>: 0.780951 sec B: 0.010 GB/sec F: 2560981.004 FLOP/sec
R: 1000000 <T>: 0.785852 sec B: 0.009 GB/sec F: 2545007.924 FLOP/sec
R: 1000000 <T>: 0.449041 sec B: 0.017 GB/sec F: 4453938.212 FLOP/sec
R: 1000000 <T>: 0.429851 sec B: 0.017 GB/sec F: 4652769.825 FLOP/sec
R: 1000000 <T>: 0.449716 sec B: 0.017 GB/sec F: 4447252.094 FLOP/sec
R: 1000000 <T>: 0.432368 sec B: 0.017 GB/sec F: 4625691.870 FLOP/sec
R: 1000000 <T>: 0.429750 sec B: 0.017 GB/sec F: 4653872.405 FLOP/sec
R: 1000000 <T>: 0.451532 sec B: 0.017 GB/sec F: 4429367.723 FLOP/sec
R: 1000000 <T>: 0.437764 sec B: 0.017 GB/sec F: 4568674.752 FLOP/sec
R: 1000000 <T>: 0.444587 sec B: 0.017 GB/sec F: 4498552.504 FLOP/sec
R: 1000000 <T>: 0.432253 sec B: 0.017 GB/sec F: 4626919.626 FLOP/sec
R: 1000000 <T>: 0.448151 sec B: 0.017 GB/sec F: 4462778.899 FLOP/sec
R: 1000000 <T>: 0.442180 sec B: 0.017 GB/sec F: 4523042.449 FLOP/sec
R: 1000000 <T>: 0.434744 sec B: 0.017 GB/sec F: 4600407.701 FLOP/sec
R: 1000000 <T>: 0.444987 sec B: 0.017 GB/sec F: 4494510.172 FLOP/sec
R: 1000000 <T>: 0.435139 sec B: 0.017 GB/sec F: 4596234.116 FLOP/sec
R: 1000000 <T>: 0.444805 sec B: 0.017 GB/sec F: 4496354.548 FLOP/sec
R: 1000000 <T>: 0.433341 sec B: 0.017 GB/sec F: 4615301.863 FLOP/sec
```

```
R: 1000000 <T>: 0.460475 sec B: 0.016 GB/sec F: 4343344.398 FLOP/sec
N: 1000000 <T>: 0.551437 sec B: 0.014 GB/sec F: 3626885.618 FLOP/sec
```

In [79]: `!python dp4.py 300000000 20`

```
Vector size: 300000000 with 20 measurements.
R: 300000000 <T>: 162.132104 sec B: 0.014 GB/sec F: 3700685.945 FLOP/sec
R: 300000000 <T>: 162.921938 sec B: 0.014 GB/sec F: 3682745.283 FLOP/sec
R: 300000000 <T>: 159.434863 sec B: 0.014 GB/sec F: 3763292.357 FLOP/sec
R: 300000000 <T>: 163.300722 sec B: 0.014 GB/sec F: 3674202.983 FLOP/sec
R: 300000000 <T>: 164.554749 sec B: 0.014 GB/sec F: 3646202.890 FLOP/sec
R: 300000000 <T>: 162.267670 sec B: 0.014 GB/sec F: 3697594.217 FLOP/sec
R: 300000000 <T>: 165.241260 sec B: 0.014 GB/sec F: 3631054.370 FLOP/sec
R: 300000000 <T>: 164.575755 sec B: 0.014 GB/sec F: 3645737.496 FLOP/sec
R: 300000000 <T>: 160.365597 sec B: 0.014 GB/sec F: 3741450.846 FLOP/sec
R: 300000000 <T>: 164.054088 sec B: 0.014 GB/sec F: 3657330.380 FLOP/sec
R: 300000000 <T>: 164.218409 sec B: 0.014 GB/sec F: 3653670.763 FLOP/sec
R: 300000000 <T>: 161.727757 sec B: 0.014 GB/sec F: 3709938.311 FLOP/sec
R: 300000000 <T>: 165.500316 sec B: 0.014 GB/sec F: 3625370.719 FLOP/sec
R: 300000000 <T>: 163.998169 sec B: 0.014 GB/sec F: 3658577.427 FLOP/sec
R: 300000000 <T>: 161.291834 sec B: 0.014 GB/sec F: 3719965.150 FLOP/sec
R: 300000000 <T>: 165.024136 sec B: 0.014 GB/sec F: 3635831.784 FLOP/sec
R: 300000000 <T>: 165.223658 sec B: 0.014 GB/sec F: 3631441.204 FLOP/sec
R: 300000000 <T>: 164.933033 sec B: 0.014 GB/sec F: 3637840.089 FLOP/sec
R: 300000000 <T>: 164.014315 sec B: 0.014 GB/sec F: 3658217.278 FLOP/sec
R: 300000000 <T>: 166.848050 sec B: 0.013 GB/sec F: 3596086.385 FLOP/sec
N: 300000000 <T>: 164.277968 sec B: 0.014 GB/sec F: 3652346.133 FLOP/sec
```

In [80]:
```python
import numpy as np

def compute_dot_product_loop(N):
    # Create two vectors of size N with all elements set to 1.0
    vecA = np.ones(N, dtype=np.float32)
    vecB = np.ones(N, dtype=np.float32)

    # Compute the dot product using simple Python loop
    R = 0.0
    for j in range(0, N):
        R += vecA[j] * vecB[j]

    # Analytically, the result should be N
    analytical_result = N

    return R, analytical_result

# Test the function for a few vector sizes
vector_sizes = [1000000, 16777216, 67108864, 300000000]
results = {}

for size in vector_sizes:
    dot_product_result, analytical_result = compute_dot_product_loop(size)
    results[size] = (dot_product_result, analytical_result)

for size, (dp_result, analytical) in results.items():
    print(f"For N = {size}:")
    print(f"Computed Dot Product (using Python loop): {dp_result}")
    print(f"Analytical Result: {analytical}")
    print("----")
```

```
For N = 1000000:
Computed Dot Product (using Python loop): 1000000.0
Analytical Result: 1000000
----
For N = 16777216:
Computed Dot Product (using Python loop): 16777216.0
Analytical Result: 16777216
----
For N = 67108864:
Computed Dot Product (using Python loop): 67108864.0
Analytical Result: 67108864
----
For N = 300000000:
Computed Dot Product (using Python loop): 300000000.0
Analytical Result: 300000000
----
```

C5. Perform the same measurements using numpy.dot.

In [1]:
```python
%%writefile dp5.py
import argparse
import time
import numpy as np

def compute_dot_product(A, B):
    return np.dot(A, B)

def time_and_metrics(N, compute_func):
    A = np.ones(N, dtype=np.float32)
    B = np.ones(N, dtype=np.float32)

    start_time = time.monotonic()
    result = compute_func(A, B)
    end_time = time.monotonic()

    elapsed_time = end_time - start_time
    bandwidth = (N * 2 * 4 / 1_073_741_824) / elapsed_time
    flops = N * 2 / elapsed_time

    return result, elapsed_time, bandwidth, flops
```

```python
def measure_performance(N, measurements):
    total_time, total_bandwidth, total_flops = 0, 0, 0

    for _ in range(measurements):
        result, elapsed_time, bandwidth, flops = time_and_metrics(N, compute_dot_product)

        if _ >= measurements // 2:
            total_time += elapsed_time
            total_bandwidth += bandwidth
            total_flops += flops

        print(f'R: {int(result)} <T>: {elapsed_time:.6f} sec B: {bandwidth:.3f} GB/sec F: {flops:.3f} FLOP/sec')

    avg_time = total_time / (measurements // 2)
    avg_bandwidth = total_bandwidth / (measurements // 2)
    avg_flops = total_flops / (measurements // 2)

    print(f"N: {N} <T>: {avg_time:.6f} sec B: {avg_bandwidth:.3f} GB/sec F: {avg_flops:.3f} FLOP/sec")

def main():
    parser = argparse.ArgumentParser(description='Measure dot product performance.')
    parser.add_argument('vecsize', type=int, help='Size of vectors.')
    parser.add_argument('measurements', type=int, help='Number of measurements to perform.')
    args = parser.parse_args()

    # Print the vector size and number of measurements
    print(f"Vector size: {args.vecsize} with {args.measurements} measurements.")

    measure_performance(args.vecsize, args.measurements)

if __name__ == '__main__':
    main()
```

Writing dp5.py

In [2]: `!python dp5.py 1000000 1000`

```
Vector size: 1000000 with 1000 measurements.
R: 1000000 <T>: 0.001078 sec B: 6.914 GB/sec F: 1855946964.423 FLOP/sec
R: 1000000 <T>: 0.001826 sec B: 4.080 GB/sec F: 1095222475.284 FLOP/sec
R: 1000000 <T>: 0.003447 sec B: 2.161 GB/sec F: 580192124.821 FLOP/sec
R: 1000000 <T>: 0.001515 sec B: 4.918 GB/sec F: 1320154669.294 FLOP/sec
R: 1000000 <T>: 0.000993 sec B: 7.506 GB/sec F: 2014756073.462 FLOP/sec
R: 1000000 <T>: 0.001160 sec B: 6.423 GB/sec F: 1724267251.107 FLOP/sec
R: 1000000 <T>: 0.001025 sec B: 7.271 GB/sec F: 1951802196.623 FLOP/sec
R: 1000000 <T>: 0.001099 sec B: 6.782 GB/sec F: 1820639681.807 FLOP/sec
R: 1000000 <T>: 0.008487 sec B: 0.878 GB/sec F: 235642702.510 FLOP/sec
R: 1000000 <T>: 0.001124 sec B: 6.630 GB/sec F: 1779723608.936 FLOP/sec
R: 1000000 <T>: 0.001116 sec B: 6.677 GB/sec F: 1792268868.980 FLOP/sec
R: 1000000 <T>: 0.001204 sec B: 6.190 GB/sec F: 1661531150.828 FLOP/sec
R: 1000000 <T>: 0.001084 sec B: 6.876 GB/sec F: 1845859644.451 FLOP/sec
R: 1000000 <T>: 0.001235 sec B: 6.033 GB/sec F: 1619454179.154 FLOP/sec
R: 1000000 <T>: 0.001219 sec B: 6.112 GB/sec F: 1640736198.304 FLOP/sec
R: 1000000 <T>: 0.001136 sec B: 6.561 GB/sec F: 1761115279.104 FLOP/sec
R: 1000000 <T>: 0.001069 sec B: 6.969 GB/sec F: 1870823386.730 FLOP/sec
R: 1000000 <T>: 0.001010 sec B: 7.374 GB/sec F: 1979380790.245 FLOP/sec
R: 1000000 <T>: 0.001028 sec B: 7.245 GB/sec F: 1944800721.123 FLOP/sec
R: 1000000 <T>: 0.001038 sec B: 7.175 GB/sec F: 1926053045.450 FLOP/sec
R: 1000000 <T>: 0.002260 sec B: 3.297 GB/sec F: 885000002.198 FLOP/sec
R: 1000000 <T>: 0.000918 sec B: 8.116 GB/sec F: 2178497359.618 FLOP/sec
R: 1000000 <T>: 0.001063 sec B: 7.011 GB/sec F: 1881984515.020 FLOP/sec
R: 1000000 <T>: 0.001031 sec B: 7.226 GB/sec F: 1939743798.714 FLOP/sec
R: 1000000 <T>: 0.001038 sec B: 7.181 GB/sec F: 1927521342.486 FLOP/sec
R: 1000000 <T>: 0.001272 sec B: 5.856 GB/sec F: 1571998308.529 FLOP/sec
R: 1000000 <T>: 0.001261 sec B: 5.907 GB/sec F: 1585767420.232 FLOP/sec
R: 1000000 <T>: 0.001127 sec B: 6.614 GB/sec F: 1775336492.910 FLOP/sec
R: 1000000 <T>: 0.001121 sec B: 6.648 GB/sec F: 1784552733.030 FLOP/sec
R: 1000000 <T>: 0.003779 sec B: 1.972 GB/sec F: 529234937.976 FLOP/sec
R: 1000000 <T>: 0.001311 sec B: 5.685 GB/sec F: 1525965058.410 FLOP/sec
R: 1000000 <T>: 0.001201 sec B: 6.205 GB/sec F: 1665566005.118 FLOP/sec
R: 1000000 <T>: 0.001206 sec B: 6.180 GB/sec F: 1659017214.767 FLOP/sec
R: 1000000 <T>: 0.000988 sec B: 7.541 GB/sec F: 2024252569.974 FLOP/sec
R: 1000000 <T>: 0.005391 sec B: 1.382 GB/sec F: 370998732.298 FLOP/sec
R: 1000000 <T>: 0.001019 sec B: 7.312 GB/sec F: 1962818332.293 FLOP/sec
R: 1000000 <T>: 0.001026 sec B: 7.265 GB/sec F: 1950131243.827 FLOP/sec
R: 1000000 <T>: 0.001634 sec B: 4.560 GB/sec F: 1224111570.401 FLOP/sec
R: 1000000 <T>: 0.001193 sec B: 6.243 GB/sec F: 1675759056.009 FLOP/sec
R: 1000000 <T>: 0.001089 sec B: 6.843 GB/sec F: 1836815476.252 FLOP/sec
R: 1000000 <T>: 0.001041 sec B: 7.157 GB/sec F: 1921281264.052 FLOP/sec
R: 1000000 <T>: 0.000909 sec B: 8.198 GB/sec F: 2200578311.958 FLOP/sec
R: 1000000 <T>: 0.001261 sec B: 5.910 GB/sec F: 1586546089.135 FLOP/sec
R: 1000000 <T>: 0.001067 sec B: 6.983 GB/sec F: 1874461678.074 FLOP/sec
R: 1000000 <T>: 0.001042 sec B: 7.147 GB/sec F: 1918498352.964 FLOP/sec
R: 1000000 <T>: 0.000934 sec B: 7.974 GB/sec F: 2140507171.651 FLOP/sec
R: 1000000 <T>: 0.001023 sec B: 7.285 GB/sec F: 1955628739.483 FLOP/sec
R: 1000000 <T>: 0.002059 sec B: 3.619 GB/sec F: 971508568.222 FLOP/sec
R: 1000000 <T>: 0.000944 sec B: 7.890 GB/sec F: 2118062946.727 FLOP/sec
R: 1000000 <T>: 0.000919 sec B: 8.105 GB/sec F: 2175738771.997 FLOP/sec
R: 1000000 <T>: 0.000878 sec B: 8.487 GB/sec F: 2278132660.166 FLOP/sec
R: 1000000 <T>: 0.001774 sec B: 4.200 GB/sec F: 1127522832.322 FLOP/sec
R: 1000000 <T>: 0.000926 sec B: 8.044 GB/sec F: 2159274570.012 FLOP/sec
R: 1000000 <T>: 0.000922 sec B: 8.085 GB/sec F: 2170360258.105 FLOP/sec
R: 1000000 <T>: 0.000947 sec B: 7.869 GB/sec F: 2112213451.794 FLOP/sec
R: 1000000 <T>: 0.000958 sec B: 7.781 GB/sec F: 2088652871.209 FLOP/sec
R: 1000000 <T>: 0.000938 sec B: 7.947 GB/sec F: 2133246865.689 FLOP/sec
R: 1000000 <T>: 0.001190 sec B: 6.262 GB/sec F: 1681059336.422 FLOP/sec
R: 1000000 <T>: 0.009215 sec B: 0.809 GB/sec F: 217043138.844 FLOP/sec
R: 1000000 <T>: 0.000944 sec B: 7.895 GB/sec F: 2119387200.429 FLOP/sec
R: 1000000 <T>: 0.000953 sec B: 7.817 GB/sec F: 2098365058.891 FLOP/sec
R: 1000000 <T>: 0.001005 sec B: 7.413 GB/sec F: 1989919069.982 FLOP/sec
R: 1000000 <T>: 0.000924 sec B: 8.060 GB/sec F: 2163546832.128 FLOP/sec
R: 1000000 <T>: 0.000960 sec B: 7.758 GB/sec F: 2082443956.217 FLOP/sec
R: 1000000 <T>: 0.030144 sec B: 0.247 GB/sec F: 66348937.088 FLOP/sec
R: 1000000 <T>: 0.000916 sec B: 8.134 GB/sec F: 2183344140.958 FLOP/sec
R: 1000000 <T>: 0.001121 sec B: 6.645 GB/sec F: 1783885802.705 FLOP/sec
R: 1000000 <T>: 0.000875 sec B: 8.511 GB/sec F: 2284782094.513 FLOP/sec
R: 1000000 <T>: 0.001021 sec B: 7.299 GB/sec F: 1959238052.329 FLOP/sec
R: 1000000 <T>: 0.001592 sec B: 4.680 GB/sec F: 1256265624.823 FLOP/sec
R: 1000000 <T>: 0.001033 sec B: 7.213 GB/sec F: 1936322111.021 FLOP/sec
R: 1000000 <T>: 0.000923 sec B: 8.071 GB/sec F: 2166607807.151 FLOP/sec
R: 1000000 <T>: 0.000971 sec B: 7.671 GB/sec F: 2059034580.376 FLOP/sec
R: 1000000 <T>: 0.002042 sec B: 3.649 GB/sec F: 979477497.702 FLOP/sec
R: 1000000 <T>: 0.001046 sec B: 7.126 GB/sec F: 1912938349.788 FLOP/sec
R: 1000000 <T>: 0.000982 sec B: 7.584 GB/sec F: 2035888645.014 FLOP/sec
R: 1000000 <T>: 0.000891 sec B: 8.361 GB/sec F: 2244454793.930 FLOP/sec
R: 1000000 <T>: 0.000923 sec B: 8.074 GB/sec F: 2167340348.282 FLOP/sec
R: 1000000 <T>: 0.000916 sec B: 8.132 GB/sec F: 2182984292.420 FLOP/sec
R: 1000000 <T>: 0.000904 sec B: 8.245 GB/sec F: 2213207092.003 FLOP/sec
R: 1000000 <T>: 0.000872 sec B: 8.547 GB/sec F: 2294254155.169 FLOP/sec
R: 1000000 <T>: 0.001423 sec B: 5.234 GB/sec F: 1405080490.021 FLOP/sec
R: 1000000 <T>: 0.000977 sec B: 7.629 GB/sec F: 2047875227.066 FLOP/sec
R: 1000000 <T>: 0.000860 sec B: 8.664 GB/sec F: 2325673340.554 FLOP/sec
R: 1000000 <T>: 0.000870 sec B: 8.563 GB/sec F: 2298673550.444 FLOP/sec
R: 1000000 <T>: 0.000866 sec B: 8.600 GB/sec F: 2308415907.438 FLOP/sec
R: 1000000 <T>: 0.000871 sec B: 8.554 GB/sec F: 2296087352.262 FLOP/sec
R: 1000000 <T>: 0.000857 sec B: 8.691 GB/sec F: 2332949174.354 FLOP/sec
R: 1000000 <T>: 0.008095 sec B: 0.920 GB/sec F: 247060779.669 FLOP/sec
R: 1000000 <T>: 0.001022 sec B: 7.288 GB/sec F: 1956281031.523 FLOP/sec
R: 1000000 <T>: 0.002096 sec B: 3.555 GB/sec F: 954167517.459 FLOP/sec
R: 1000000 <T>: 0.003957 sec B: 1.883 GB/sec F: 505425745.376 FLOP/sec
R: 1000000 <T>: 0.000942 sec B: 7.909 GB/sec F: 2123128727.412 FLOP/sec
R: 1000000 <T>: 0.002019 sec B: 3.690 GB/sec F: 990655640.657 FLOP/sec
R: 1000000 <T>: 0.001017 sec B: 7.328 GB/sec F: 1967167966.582 FLOP/sec
R: 1000000 <T>: 0.000990 sec B: 7.524 GB/sec F: 2019740948.028 FLOP/sec
R: 1000000 <T>: 0.000968 sec B: 7.697 GB/sec F: 2066053806.165 FLOP/sec
R: 1000000 <T>: 0.000960 sec B: 7.762 GB/sec F: 2083682784.262 FLOP/sec
R: 1000000 <T>: 0.001064 sec B: 7.003 GB/sec F: 1879833521.955 FLOP/sec
```

```
R: 1000000 <T>: 0.006798 sec B: 1.096 GB/sec F: 294225125.766 FLOP/sec
R: 1000000 <T>: 0.050909 sec B: 0.146 GB/sec F: 39286130.157 FLOP/sec
R: 1000000 <T>: 0.000956 sec B: 7.797 GB/sec F: 2092928100.577 FLOP/sec
R: 1000000 <T>: 0.000922 sec B: 8.080 GB/sec F: 2168924517.026 FLOP/sec
R: 1000000 <T>: 0.004760 sec B: 1.565 GB/sec F: 420182367.553 FLOP/sec
R: 1000000 <T>: 0.007860 sec B: 0.948 GB/sec F: 254455062.856 FLOP/sec
R: 1000000 <T>: 0.013823 sec B: 0.539 GB/sec F: 144687145.879 FLOP/sec
R: 1000000 <T>: 0.000876 sec B: 8.502 GB/sec F: 2282279129.567 FLOP/sec
R: 1000000 <T>: 0.004848 sec B: 1.537 GB/sec F: 412510281.819 FLOP/sec
R: 1000000 <T>: 0.000954 sec B: 7.808 GB/sec F: 2095987860.079 FLOP/sec
R: 1000000 <T>: 0.000838 sec B: 8.887 GB/sec F: 2385510409.724 FLOP/sec
R: 1000000 <T>: 0.007328 sec B: 1.017 GB/sec F: 272924497.896 FLOP/sec
R: 1000000 <T>: 0.017033 sec B: 0.437 GB/sec F: 117421340.471 FLOP/sec
R: 1000000 <T>: 0.008054 sec B: 0.925 GB/sec F: 248316568.862 FLOP/sec
R: 1000000 <T>: 0.006252 sec B: 1.192 GB/sec F: 319883050.756 FLOP/sec
R: 1000000 <T>: 0.000935 sec B: 7.969 GB/sec F: 2139289114.106 FLOP/sec
R: 1000000 <T>: 0.021042 sec B: 0.354 GB/sec F: 95050217.168 FLOP/sec
R: 1000000 <T>: 0.016685 sec B: 0.447 GB/sec F: 119870580.529 FLOP/sec
R: 1000000 <T>: 0.000806 sec B: 9.249 GB/sec F: 2482741840.626 FLOP/sec
R: 1000000 <T>: 0.000852 sec B: 8.743 GB/sec F: 2346825624.964 FLOP/sec
R: 1000000 <T>: 0.000961 sec B: 7.754 GB/sec F: 2081343049.095 FLOP/sec
R: 1000000 <T>: 0.001240 sec B: 6.011 GB/sec F: 1613467939.610 FLOP/sec
R: 1000000 <T>: 0.011120 sec B: 0.670 GB/sec F: 179852249.579 FLOP/sec
R: 1000000 <T>: 0.000896 sec B: 8.311 GB/sec F: 2230902913.399 FLOP/sec
R: 1000000 <T>: 0.000836 sec B: 8.917 GB/sec F: 2393690232.497 FLOP/sec
R: 1000000 <T>: 0.000928 sec B: 8.030 GB/sec F: 2155569614.713 FLOP/sec
R: 1000000 <T>: 0.001043 sec B: 7.141 GB/sec F: 1916771849.590 FLOP/sec
R: 1000000 <T>: 0.000977 sec B: 7.627 GB/sec F: 2047363712.171 FLOP/sec
R: 1000000 <T>: 0.028783 sec B: 0.259 GB/sec F: 69486507.909 FLOP/sec
R: 1000000 <T>: 0.001009 sec B: 7.385 GB/sec F: 1982270572.048 FLOP/sec
R: 1000000 <T>: 0.001016 sec B: 7.336 GB/sec F: 1969306390.497 FLOP/sec
R: 1000000 <T>: 0.008778 sec B: 0.849 GB/sec F: 227829537.484 FLOP/sec
R: 1000000 <T>: 0.000943 sec B: 7.903 GB/sec F: 2121552212.357 FLOP/sec
R: 1000000 <T>: 0.004604 sec B: 1.618 GB/sec F: 434406186.291 FLOP/sec
R: 1000000 <T>: 0.002335 sec B: 3.191 GB/sec F: 856580940.055 FLOP/sec
R: 1000000 <T>: 0.007810 sec B: 0.954 GB/sec F: 256075224.658 FLOP/sec
R: 1000000 <T>: 0.001044 sec B: 7.138 GB/sec F: 1916154813.829 FLOP/sec
R: 1000000 <T>: 0.000964 sec B: 7.732 GB/sec F: 2075642644.835 FLOP/sec
R: 1000000 <T>: 0.000843 sec B: 8.837 GB/sec F: 2372082486.744 FLOP/sec
R: 1000000 <T>: 0.000950 sec B: 7.845 GB/sec F: 2105937057.834 FLOP/sec
R: 1000000 <T>: 0.000973 sec B: 7.661 GB/sec F: 2056466455.948 FLOP/sec
R: 1000000 <T>: 0.000993 sec B: 7.502 GB/sec F: 2013824907.904 FLOP/sec
R: 1000000 <T>: 0.001694 sec B: 4.399 GB/sec F: 1180846667.077 FLOP/sec
R: 1000000 <T>: 0.001000 sec B: 7.454 GB/sec F: 2000816333.008 FLOP/sec
R: 1000000 <T>: 0.001048 sec B: 7.112 GB/sec F: 1909132910.055 FLOP/sec
R: 1000000 <T>: 0.000945 sec B: 7.883 GB/sec F: 2116055038.695 FLOP/sec
R: 1000000 <T>: 0.001086 sec B: 6.858 GB/sec F: 1840962897.274 FLOP/sec
R: 1000000 <T>: 0.000786 sec B: 9.475 GB/sec F: 2543367596.679 FLOP/sec
R: 1000000 <T>: 0.000998 sec B: 7.467 GB/sec F: 2004315290.805 FLOP/sec
R: 1000000 <T>: 0.000904 sec B: 8.241 GB/sec F: 2212161801.863 FLOP/sec
R: 1000000 <T>: 0.000852 sec B: 8.747 GB/sec F: 2347977276.288 FLOP/sec
R: 1000000 <T>: 0.000870 sec B: 8.569 GB/sec F: 2300101089.389 FLOP/sec
R: 1000000 <T>: 0.000837 sec B: 8.905 GB/sec F: 2390534439.815 FLOP/sec
R: 1000000 <T>: 0.000821 sec B: 9.073 GB/sec F: 2435599699.435 FLOP/sec
R: 1000000 <T>: 0.000950 sec B: 7.841 GB/sec F: 2104828898.416 FLOP/sec
R: 1000000 <T>: 0.000925 sec B: 8.059 GB/sec F: 2163315150.718 FLOP/sec
R: 1000000 <T>: 0.000920 sec B: 8.097 GB/sec F: 2173428746.856 FLOP/sec
R: 1000000 <T>: 0.000774 sec B: 9.624 GB/sec F: 2583502014.482 FLOP/sec
R: 1000000 <T>: 0.000808 sec B: 9.216 GB/sec F: 2473860570.773 FLOP/sec
R: 1000000 <T>: 0.000956 sec B: 7.792 GB/sec F: 2091748262.297 FLOP/sec
R: 1000000 <T>: 0.000886 sec B: 8.408 GB/sec F: 2256872741.603 FLOP/sec
R: 1000000 <T>: 0.000722 sec B: 10.315 GB/sec F: 2768859741.898 FLOP/sec
R: 1000000 <T>: 0.000875 sec B: 8.518 GB/sec F: 2286500841.984 FLOP/sec
R: 1000000 <T>: 0.000866 sec B: 8.600 GB/sec F: 2308669052.333 FLOP/sec
R: 1000000 <T>: 0.000999 sec B: 7.454 GB/sec F: 2001048549.432 FLOP/sec
R: 1000000 <T>: 0.001035 sec B: 7.195 GB/sec F: 1931445281.176 FLOP/sec
R: 1000000 <T>: 0.001202 sec B: 6.199 GB/sec F: 1664103946.598 FLOP/sec
R: 1000000 <T>: 0.000981 sec B: 7.592 GB/sec F: 2037855198.097 FLOP/sec
R: 1000000 <T>: 0.001001 sec B: 7.442 GB/sec F: 1997802417.348 FLOP/sec
R: 1000000 <T>: 0.001255 sec B: 5.938 GB/sec F: 1593986208.897 FLOP/sec
R: 1000000 <T>: 0.001037 sec B: 7.181 GB/sec F: 1927762869.837 FLOP/sec
R: 1000000 <T>: 0.000956 sec B: 7.794 GB/sec F: 2092083034.735 FLOP/sec
R: 1000000 <T>: 0.001022 sec B: 7.290 GB/sec F: 1956912696.226 FLOP/sec
R: 1000000 <T>: 0.000987 sec B: 7.547 GB/sec F: 2025983234.918 FLOP/sec
R: 1000000 <T>: 0.000970 sec B: 7.683 GB/sec F: 2062476539.300 FLOP/sec
R: 1000000 <T>: 0.000946 sec B: 7.873 GB/sec F: 2113329402.617 FLOP/sec
R: 1000000 <T>: 0.000881 sec B: 8.454 GB/sec F: 2269220295.922 FLOP/sec
R: 1000000 <T>: 0.000951 sec B: 7.832 GB/sec F: 2102463561.621 FLOP/sec
R: 1000000 <T>: 0.000984 sec B: 7.575 GB/sec F: 2033313813.434 FLOP/sec
R: 1000000 <T>: 0.001279 sec B: 5.825 GB/sec F: 1563724102.735 FLOP/sec
R: 1000000 <T>: 0.001011 sec B: 7.373 GB/sec F: 1979055654.050 FLOP/sec
R: 1000000 <T>: 0.000867 sec B: 8.594 GB/sec F: 2307015287.408 FLOP/sec
R: 1000000 <T>: 0.000937 sec B: 7.947 GB/sec F: 2133387948.087 FLOP/sec
R: 1000000 <T>: 0.000915 sec B: 8.146 GB/sec F: 2186674188.825 FLOP/sec
R: 1000000 <T>: 0.000905 sec B: 8.228 GB/sec F: 2208751293.524 FLOP/sec
R: 1000000 <T>: 0.001035 sec B: 7.199 GB/sec F: 1932411959.259 FLOP/sec
R: 1000000 <T>: 0.000988 sec B: 7.542 GB/sec F: 2024455421.492 FLOP/sec
R: 1000000 <T>: 0.000962 sec B: 7.745 GB/sec F: 2079157691.677 FLOP/sec
R: 1000000 <T>: 0.000912 sec B: 8.169 GB/sec F: 2192732407.688 FLOP/sec
R: 1000000 <T>: 0.000940 sec B: 7.925 GB/sec F: 2127426462.834 FLOP/sec
R: 1000000 <T>: 0.000926 sec B: 8.042 GB/sec F: 2158873672.457 FLOP/sec
R: 1000000 <T>: 0.001091 sec B: 6.827 GB/sec F: 1832700135.405 FLOP/sec
R: 1000000 <T>: 0.000930 sec B: 8.012 GB/sec F: 2150600071.222 FLOP/sec
R: 1000000 <T>: 0.000890 sec B: 8.372 GB/sec F: 2247451109.563 FLOP/sec
R: 1000000 <T>: 0.000824 sec B: 9.045 GB/sec F: 2427938777.091 FLOP/sec
R: 1000000 <T>: 0.000959 sec B: 7.767 GB/sec F: 2084962209.949 FLOP/sec
R: 1000000 <T>: 0.000986 sec B: 7.556 GB/sec F: 2028193923.759 FLOP/sec
R: 1000000 <T>: 0.000863 sec B: 8.634 GB/sec F: 2317540070.322 FLOP/sec
R: 1000000 <T>: 0.000871 sec B: 8.559 GB/sec F: 2297501122.860 FLOP/sec
R: 1000000 <T>: 0.000872 sec B: 8.549 GB/sec F: 2294791168.261 FLOP/sec
```

```
R: 1000000 <T>: 0.000904 sec B: 8.238 GB/sec F: 2211427996.494 FLOP/sec
R: 1000000 <T>: 0.000842 sec B: 8.847 GB/sec F: 2374879474.856 FLOP/sec
R: 1000000 <T>: 0.000821 sec B: 9.072 GB/sec F: 2435371333.287 FLOP/sec
R: 1000000 <T>: 0.000773 sec B: 9.637 GB/sec F: 2587020916.079 FLOP/sec
R: 1000000 <T>: 0.000824 sec B: 9.037 GB/sec F: 2425983250.929 FLOP/sec
R: 1000000 <T>: 0.002938 sec B: 2.536 GB/sec F: 680687698.777 FLOP/sec
R: 1000000 <T>: 0.004076 sec B: 1.828 GB/sec F: 490715900.521 FLOP/sec
R: 1000000 <T>: 0.001027 sec B: 7.258 GB/sec F: 1948203123.530 FLOP/sec
R: 1000000 <T>: 0.000876 sec B: 8.501 GB/sec F: 2282044757.837 FLOP/sec
R: 1000000 <T>: 0.001064 sec B: 7.002 GB/sec F: 1879536731.824 FLOP/sec
R: 1000000 <T>: 0.000922 sec B: 8.081 GB/sec F: 2169336215.655 FLOP/sec
R: 1000000 <T>: 0.001065 sec B: 6.995 GB/sec F: 1877692728.708 FLOP/sec
R: 1000000 <T>: 0.001080 sec B: 6.901 GB/sec F: 1852556852.703 FLOP/sec
R: 1000000 <T>: 0.002526 sec B: 2.950 GB/sec F: 791857487.819 FLOP/sec
R: 1000000 <T>: 0.000868 sec B: 8.585 GB/sec F: 2304524472.918 FLOP/sec
R: 1000000 <T>: 0.001216 sec B: 6.127 GB/sec F: 1644796357.826 FLOP/sec
R: 1000000 <T>: 0.001111 sec B: 6.705 GB/sec F: 1799911084.414 FLOP/sec
R: 1000000 <T>: 0.001118 sec B: 6.665 GB/sec F: 1789224040.373 FLOP/sec
R: 1000000 <T>: 0.001022 sec B: 7.287 GB/sec F: 1956149007.692 FLOP/sec
R: 1000000 <T>: 0.000925 sec B: 8.056 GB/sec F: 2162611049.993 FLOP/sec
R: 1000000 <T>: 0.000993 sec B: 7.505 GB/sec F: 2014599804.803 FLOP/sec
R: 1000000 <T>: 0.000902 sec B: 8.261 GB/sec F: 2217678445.502 FLOP/sec
R: 1000000 <T>: 0.000914 sec B: 8.151 GB/sec F: 2187961181.179 FLOP/sec
R: 1000000 <T>: 0.000863 sec B: 8.637 GB/sec F: 2318480375.259 FLOP/sec
R: 1000000 <T>: 0.000779 sec B: 9.567 GB/sec F: 2567997360.203 FLOP/sec
R: 1000000 <T>: 0.000805 sec B: 9.256 GB/sec F: 2484626374.388 FLOP/sec
R: 1000000 <T>: 0.000756 sec B: 9.852 GB/sec F: 2644607117.009 FLOP/sec
R: 1000000 <T>: 0.000841 sec B: 8.858 GB/sec F: 2377767870.349 FLOP/sec
R: 1000000 <T>: 0.000852 sec B: 8.748 GB/sec F: 2348321889.306 FLOP/sec
R: 1000000 <T>: 0.001121 sec B: 6.647 GB/sec F: 1784248652.884 FLOP/sec
R: 1000000 <T>: 0.000923 sec B: 8.074 GB/sec F: 2167215875.395 FLOP/sec
R: 1000000 <T>: 0.000995 sec B: 7.488 GB/sec F: 2010153284.205 FLOP/sec
R: 1000000 <T>: 0.000949 sec B: 7.849 GB/sec F: 2106822206.379 FLOP/sec
R: 1000000 <T>: 0.000962 sec B: 7.746 GB/sec F: 2079401963.910 FLOP/sec
R: 1000000 <T>: 0.000926 sec B: 8.047 GB/sec F: 2159967168.495 FLOP/sec
R: 1000000 <T>: 0.000893 sec B: 8.341 GB/sec F: 2239034886.358 FLOP/sec
R: 1000000 <T>: 0.001080 sec B: 6.897 GB/sec F: 1851329022.892 FLOP/sec
R: 1000000 <T>: 0.001078 sec B: 6.910 GB/sec F: 1854761078.933 FLOP/sec
R: 1000000 <T>: 0.000990 sec B: 7.523 GB/sec F: 2019539040.149 FLOP/sec
R: 1000000 <T>: 0.002753 sec B: 2.707 GB/sec F: 726549902.429 FLOP/sec
R: 1000000 <T>: 0.000981 sec B: 7.596 GB/sec F: 2038968771.123 FLOP/sec
R: 1000000 <T>: 0.001087 sec B: 6.851 GB/sec F: 1839153180.339 FLOP/sec
R: 1000000 <T>: 0.000963 sec B: 7.740 GB/sec F: 2077593979.967 FLOP/sec
R: 1000000 <T>: 0.001129 sec B: 6.598 GB/sec F: 1771032113.255 FLOP/sec
R: 1000000 <T>: 0.001380 sec B: 5.400 GB/sec F: 1449571579.110 FLOP/sec
R: 1000000 <T>: 0.001048 sec B: 7.106 GB/sec F: 1907559658.942 FLOP/sec
R: 1000000 <T>: 0.001222 sec B: 6.096 GB/sec F: 1636501846.415 FLOP/sec
R: 1000000 <T>: 0.001034 sec B: 7.203 GB/sec F: 1933413247.831 FLOP/sec
R: 1000000 <T>: 0.001011 sec B: 7.366 GB/sec F: 1977267357.235 FLOP/sec
R: 1000000 <T>: 0.000988 sec B: 7.543 GB/sec F: 2024844846.223 FLOP/sec
R: 1000000 <T>: 0.001365 sec B: 5.459 GB/sec F: 1465266946.012 FLOP/sec
R: 1000000 <T>: 0.001045 sec B: 7.127 GB/sec F: 1913013369.098 FLOP/sec
R: 1000000 <T>: 0.000947 sec B: 7.864 GB/sec F: 2110953845.016 FLOP/sec
R: 1000000 <T>: 0.000966 sec B: 7.714 GB/sec F: 2070635591.934 FLOP/sec
R: 1000000 <T>: 0.000923 sec B: 8.071 GB/sec F: 2166520968.112 FLOP/sec
R: 1000000 <T>: 0.000959 sec B: 7.768 GB/sec F: 2085114368.533 FLOP/sec
R: 1000000 <T>: 0.001027 sec B: 7.255 GB/sec F: 1947611206.146 FLOP/sec
R: 1000000 <T>: 0.000997 sec B: 7.477 GB/sec F: 2006974235.458 FLOP/sec
R: 1000000 <T>: 0.000860 sec B: 8.663 GB/sec F: 2325478641.683 FLOP/sec
R: 1000000 <T>: 0.000918 sec B: 8.118 GB/sec F: 2179292579.884 FLOP/sec
R: 1000000 <T>: 0.000885 sec B: 8.420 GB/sec F: 2260287983.306 FLOP/sec
R: 1000000 <T>: 0.001022 sec B: 7.293 GB/sec F: 1957644405.604 FLOP/sec
R: 1000000 <T>: 0.003302 sec B: 2.257 GB/sec F: 605737729.504 FLOP/sec
R: 1000000 <T>: 0.002028 sec B: 3.674 GB/sec F: 986242411.461 FLOP/sec
R: 1000000 <T>: 0.000969 sec B: 7.692 GB/sec F: 2064872086.271 FLOP/sec
R: 1000000 <T>: 0.000957 sec B: 7.786 GB/sec F: 2090097847.881 FLOP/sec
R: 1000000 <T>: 0.000867 sec B: 8.589 GB/sec F: 2305640287.836 FLOP/sec
R: 1000000 <T>: 0.000954 sec B: 7.806 GB/sec F: 2095506918.849 FLOP/sec
R: 1000000 <T>: 0.000912 sec B: 8.170 GB/sec F: 2193246992.516 FLOP/sec
R: 1000000 <T>: 0.001002 sec B: 7.435 GB/sec F: 1995800835.026 FLOP/sec
R: 1000000 <T>: 0.002357 sec B: 3.161 GB/sec F: 848597840.571 FLOP/sec
R: 1000000 <T>: 0.006367 sec B: 1.170 GB/sec F: 314106359.554 FLOP/sec
R: 1000000 <T>: 0.001072 sec B: 6.950 GB/sec F: 1865692526.348 FLOP/sec
R: 1000000 <T>: 0.000858 sec B: 8.687 GB/sec F: 2332005256.256 FLOP/sec
R: 1000000 <T>: 0.001083 sec B: 6.877 GB/sec F: 1845984015.688 FLOP/sec
R: 1000000 <T>: 0.000950 sec B: 7.847 GB/sec F: 2106325189.237 FLOP/sec
R: 1000000 <T>: 0.000920 sec B: 8.102 GB/sec F: 2174811335.005 FLOP/sec
R: 1000000 <T>: 0.001059 sec B: 7.037 GB/sec F: 1889036128.847 FLOP/sec
R: 1000000 <T>: 0.001145 sec B: 6.509 GB/sec F: 1747379585.892 FLOP/sec
R: 1000000 <T>: 0.006912 sec B: 1.078 GB/sec F: 289352940.275 FLOP/sec
R: 1000000 <T>: 0.000981 sec B: 7.594 GB/sec F: 2038534416.022 FLOP/sec
R: 1000000 <T>: 0.001175 sec B: 6.343 GB/sec F: 1702782687.476 FLOP/sec
R: 1000000 <T>: 0.001022 sec B: 7.293 GB/sec F: 1957726805.171 FLOP/sec
R: 1000000 <T>: 0.000939 sec B: 7.932 GB/sec F: 2129353996.532 FLOP/sec
R: 1000000 <T>: 0.001070 sec B: 6.961 GB/sec F: 1868579095.113 FLOP/sec
R: 1000000 <T>: 0.000911 sec B: 8.182 GB/sec F: 2196303401.738 FLOP/sec
R: 1000000 <T>: 0.000915 sec B: 8.146 GB/sec F: 2186652672.044 FLOP/sec
R: 1000000 <T>: 0.000844 sec B: 8.824 GB/sec F: 2368753301.312 FLOP/sec
R: 1000000 <T>: 0.000961 sec B: 7.750 GB/sec F: 2080438057.061 FLOP/sec
R: 1000000 <T>: 0.000874 sec B: 8.522 GB/sec F: 2287528622.665 FLOP/sec
R: 1000000 <T>: 0.000860 sec B: 8.659 GB/sec F: 2324394872.984 FLOP/sec
R: 1000000 <T>: 0.000871 sec B: 8.555 GB/sec F: 2296464363.440 FLOP/sec
R: 1000000 <T>: 0.000738 sec B: 10.095 GB/sec F: 2709832491.629 FLOP/sec
R: 1000000 <T>: 0.001324 sec B: 5.626 GB/sec F: 1510286561.752 FLOP/sec
R: 1000000 <T>: 0.000888 sec B: 8.392 GB/sec F: 2252620078.796 FLOP/sec
R: 1000000 <T>: 0.000942 sec B: 7.906 GB/sec F: 2122313151.589 FLOP/sec
R: 1000000 <T>: 0.000839 sec B: 8.878 GB/sec F: 2383284595.225 FLOP/sec
R: 1000000 <T>: 0.001006 sec B: 7.407 GB/sec F: 1988257352.100 FLOP/sec
R: 1000000 <T>: 0.000937 sec B: 7.949 GB/sec F: 2133804477.379 FLOP/sec
R: 1000000 <T>: 0.000920 sec B: 8.095 GB/sec F: 2172942305.166 FLOP/sec
```

```
R: 1000000 <T>: 0.000953 sec B: 7.819 GB/sec F: 2098867136.437 FLOP/sec
R: 1000000 <T>: 0.000936 sec B: 7.959 GB/sec F: 2136416609.774 FLOP/sec
R: 1000000 <T>: 0.001090 sec B: 6.834 GB/sec F: 1834488755.474 FLOP/sec
R: 1000000 <T>: 0.005917 sec B: 1.259 GB/sec F: 338006098.643 FLOP/sec
R: 1000000 <T>: 0.001048 sec B: 7.108 GB/sec F: 1908112914.445 FLOP/sec
R: 1000000 <T>: 0.000908 sec B: 8.202 GB/sec F: 2201787190.663 FLOP/sec
R: 1000000 <T>: 0.001064 sec B: 7.002 GB/sec F: 1879568526.151 FLOP/sec
R: 1000000 <T>: 0.000973 sec B: 7.660 GB/sec F: 2056235998.353 FLOP/sec
R: 1000000 <T>: 0.000916 sec B: 8.132 GB/sec F: 2183020033.551 FLOP/sec
R: 1000000 <T>: 0.000834 sec B: 8.935 GB/sec F: 2398530180.709 FLOP/sec
R: 1000000 <T>: 0.000940 sec B: 7.923 GB/sec F: 2126763618.657 FLOP/sec
R: 1000000 <T>: 0.000926 sec B: 8.050 GB/sec F: 2160781597.925 FLOP/sec
R: 1000000 <T>: 0.000980 sec B: 7.603 GB/sec F: 2041037091.744 FLOP/sec
R: 1000000 <T>: 0.000904 sec B: 8.246 GB/sec F: 2213611274.409 FLOP/sec
R: 1000000 <T>: 0.000849 sec B: 8.777 GB/sec F: 2355931824.047 FLOP/sec
R: 1000000 <T>: 0.000851 sec B: 8.751 GB/sec F: 2348978311.811 FLOP/sec
R: 1000000 <T>: 0.000916 sec B: 8.138 GB/sec F: 2184534153.511 FLOP/sec
R: 1000000 <T>: 0.001967 sec B: 3.788 GB/sec F: 1016786639.012 FLOP/sec
R: 1000000 <T>: 0.001020 sec B: 7.304 GB/sec F: 1960726645.282 FLOP/sec
R: 1000000 <T>: 0.001247 sec B: 5.975 GB/sec F: 1603993301.691 FLOP/sec
R: 1000000 <T>: 0.001023 sec B: 7.285 GB/sec F: 1955584758.939 FLOP/sec
R: 1000000 <T>: 0.001046 sec B: 7.121 GB/sec F: 1911475735.779 FLOP/sec
R: 1000000 <T>: 0.001076 sec B: 6.925 GB/sec F: 1858844895.201 FLOP/sec
R: 1000000 <T>: 0.000929 sec B: 8.019 GB/sec F: 2152493394.417 FLOP/sec
R: 1000000 <T>: 0.000861 sec B: 8.652 GB/sec F: 2322440699.467 FLOP/sec
R: 1000000 <T>: 0.001045 sec B: 7.126 GB/sec F: 1912960306.119 FLOP/sec
R: 1000000 <T>: 0.001038 sec B: 7.178 GB/sec F: 1926824968.165 FLOP/sec
R: 1000000 <T>: 0.001276 sec B: 5.837 GB/sec F: 1566840638.215 FLOP/sec
R: 1000000 <T>: 0.001004 sec B: 7.423 GB/sec F: 1992613382.202 FLOP/sec
R: 1000000 <T>: 0.001009 sec B: 7.384 GB/sec F: 1982054478.734 FLOP/sec
R: 1000000 <T>: 0.000889 sec B: 8.381 GB/sec F: 2249637808.232 FLOP/sec
R: 1000000 <T>: 0.001032 sec B: 7.222 GB/sec F: 1938640102.118 FLOP/sec
R: 1000000 <T>: 0.000895 sec B: 8.327 GB/sec F: 2235338692.998 FLOP/sec
R: 1000000 <T>: 0.000909 sec B: 8.194 GB/sec F: 2199532819.258 FLOP/sec
R: 1000000 <T>: 0.000895 sec B: 8.327 GB/sec F: 2235191298.769 FLOP/sec
R: 1000000 <T>: 0.000777 sec B: 9.590 GB/sec F: 2574370341.168 FLOP/sec
R: 1000000 <T>: 0.004267 sec B: 1.746 GB/sec F: 468765454.613 FLOP/sec
R: 1000000 <T>: 0.000932 sec B: 7.995 GB/sec F: 2146033272.030 FLOP/sec
R: 1000000 <T>: 0.000984 sec B: 7.571 GB/sec F: 2032392267.995 FLOP/sec
R: 1000000 <T>: 0.000917 sec B: 8.121 GB/sec F: 2179924422.002 FLOP/sec
R: 1000000 <T>: 0.000939 sec B: 7.937 GB/sec F: 2130506293.526 FLOP/sec
R: 1000000 <T>: 0.000885 sec B: 8.423 GB/sec F: 2261034129.292 FLOP/sec
R: 1000000 <T>: 0.000871 sec B: 8.552 GB/sec F: 2295541828.207 FLOP/sec
R: 1000000 <T>: 0.001013 sec B: 7.354 GB/sec F: 1974095913.390 FLOP/sec
R: 1000000 <T>: 0.000912 sec B: 8.172 GB/sec F: 2193757006.394 FLOP/sec
R: 1000000 <T>: 0.000986 sec B: 7.558 GB/sec F: 2028772045.137 FLOP/sec
R: 1000000 <T>: 0.004909 sec B: 1.518 GB/sec F: 407393208.999 FLOP/sec
R: 1000000 <T>: 0.000970 sec B: 7.682 GB/sec F: 2062234100.687 FLOP/sec
R: 1000000 <T>: 0.001020 sec B: 7.307 GB/sec F: 1961426584.802 FLOP/sec
R: 1000000 <T>: 0.000963 sec B: 7.733 GB/sec F: 2075793446.143 FLOP/sec
R: 1000000 <T>: 0.000955 sec B: 7.801 GB/sec F: 2094109270.694 FLOP/sec
R: 1000000 <T>: 0.000874 sec B: 8.528 GB/sec F: 2289183379.638 FLOP/sec
R: 1000000 <T>: 0.000913 sec B: 8.161 GB/sec F: 2190813262.814 FLOP/sec
R: 1000000 <T>: 0.000942 sec B: 7.913 GB/sec F: 2124037412.792 FLOP/sec
R: 1000000 <T>: 0.000929 sec B: 8.018 GB/sec F: 2152324294.964 FLOP/sec
R: 1000000 <T>: 0.000850 sec B: 8.763 GB/sec F: 2352401507.894 FLOP/sec
R: 1000000 <T>: 0.000948 sec B: 7.859 GB/sec F: 2109588925.474 FLOP/sec
R: 1000000 <T>: 0.000909 sec B: 8.199 GB/sec F: 2200849527.918 FLOP/sec
R: 1000000 <T>: 0.026132 sec B: 0.285 GB/sec F: 76535058.893 FLOP/sec
R: 1000000 <T>: 0.000986 sec B: 7.553 GB/sec F: 2027468138.325 FLOP/sec
R: 1000000 <T>: 0.008484 sec B: 0.878 GB/sec F: 235737248.208 FLOP/sec
R: 1000000 <T>: 0.000903 sec B: 8.252 GB/sec F: 2215013583.557 FLOP/sec
R: 1000000 <T>: 0.000941 sec B: 7.920 GB/sec F: 2126105707.794 FLOP/sec
R: 1000000 <T>: 0.000957 sec B: 7.784 GB/sec F: 2089543194.496 FLOP/sec
R: 1000000 <T>: 0.000973 sec B: 7.655 GB/sec F: 2054919786.229 FLOP/sec
R: 1000000 <T>: 0.000946 sec B: 7.880 GB/sec F: 2115235938.692 FLOP/sec
R: 1000000 <T>: 0.000930 sec B: 8.015 GB/sec F: 2151578720.832 FLOP/sec
R: 1000000 <T>: 0.001001 sec B: 7.440 GB/sec F: 1997110181.524 FLOP/sec
R: 1000000 <T>: 0.000884 sec B: 8.429 GB/sec F: 2262597008.861 FLOP/sec
R: 1000000 <T>: 0.000988 sec B: 7.542 GB/sec F: 2024623470.737 FLOP/sec
R: 1000000 <T>: 0.000927 sec B: 8.036 GB/sec F: 2157069147.062 FLOP/sec
R: 1000000 <T>: 0.000935 sec B: 7.970 GB/sec F: 2139307420.560 FLOP/sec
R: 1000000 <T>: 0.008869 sec B: 0.840 GB/sec F: 225597490.514 FLOP/sec
R: 1000000 <T>: 0.000890 sec B: 8.374 GB/sec F: 2247847685.864 FLOP/sec
R: 1000000 <T>: 0.000990 sec B: 7.529 GB/sec F: 2020963453.974 FLOP/sec
R: 1000000 <T>: 0.000918 sec B: 8.117 GB/sec F: 2178922196.187 FLOP/sec
R: 1000000 <T>: 0.000849 sec B: 8.771 GB/sec F: 2354539493.344 FLOP/sec
R: 1000000 <T>: 0.000971 sec B: 7.672 GB/sec F: 2059515890.207 FLOP/sec
R: 1000000 <T>: 0.000921 sec B: 8.092 GB/sec F: 2172151711.852 FLOP/sec
R: 1000000 <T>: 0.001008 sec B: 7.392 GB/sec F: 1984365186.611 FLOP/sec
R: 1000000 <T>: 0.000968 sec B: 7.700 GB/sec F: 2066890786.459 FLOP/sec
R: 1000000 <T>: 0.001121 sec B: 6.649 GB/sec F: 1784842581.302 FLOP/sec
R: 1000000 <T>: 0.001027 sec B: 7.254 GB/sec F: 1947324862.461 FLOP/sec
R: 1000000 <T>: 0.000886 sec B: 8.409 GB/sec F: 2257346534.239 FLOP/sec
R: 1000000 <T>: 0.000870 sec B: 8.565 GB/sec F: 2299194132.525 FLOP/sec
R: 1000000 <T>: 0.000902 sec B: 8.261 GB/sec F: 2217503866.807 FLOP/sec
R: 1000000 <T>: 0.000946 sec B: 7.876 GB/sec F: 2114135852.311 FLOP/sec
R: 1000000 <T>: 0.000821 sec B: 9.075 GB/sec F: 2436184156.080 FLOP/sec
R: 1000000 <T>: 0.000844 sec B: 8.826 GB/sec F: 2369216298.857 FLOP/sec
R: 1000000 <T>: 0.000833 sec B: 8.948 GB/sec F: 2402027310.913 FLOP/sec
R: 1000000 <T>: 0.000946 sec B: 7.875 GB/sec F: 2113970491.112 FLOP/sec
R: 1000000 <T>: 0.000887 sec B: 8.396 GB/sec F: 2253681106.478 FLOP/sec
R: 1000000 <T>: 0.000936 sec B: 7.957 GB/sec F: 2135816576.053 FLOP/sec
R: 1000000 <T>: 0.000887 sec B: 8.404 GB/sec F: 2255857050.915 FLOP/sec
R: 1000000 <T>: 0.000796 sec B: 9.363 GB/sec F: 2513241641.965 FLOP/sec
R: 1000000 <T>: 0.000921 sec B: 8.087 GB/sec F: 2170857325.801 FLOP/sec
R: 1000000 <T>: 0.000948 sec B: 7.857 GB/sec F: 2109112843.940 FLOP/sec
R: 1000000 <T>: 0.001128 sec B: 6.608 GB/sec F: 1773710069.349 FLOP/sec
R: 1000000 <T>: 0.001019 sec B: 7.310 GB/sec F: 1962204026.051 FLOP/sec
R: 1000000 <T>: 0.000993 sec B: 7.503 GB/sec F: 2014159541.522 FLOP/sec
```

```
R: 1000000 <T>: 0.001021 sec B: 7.300 GB/sec F: 1959476075.287 FLOP/sec
R: 1000000 <T>: 0.000871 sec B: 8.553 GB/sec F: 2295971373.771 FLOP/sec
R: 1000000 <T>: 0.000917 sec B: 8.122 GB/sec F: 2180323668.996 FLOP/sec
R: 1000000 <T>: 0.000858 sec B: 8.680 GB/sec F: 2330127854.118 FLOP/sec
R: 1000000 <T>: 0.000951 sec B: 7.838 GB/sec F: 2103985263.630 FLOP/sec
R: 1000000 <T>: 0.000921 sec B: 8.092 GB/sec F: 2172217769.101 FLOP/sec
R: 1000000 <T>: 0.000880 sec B: 8.470 GB/sec F: 2273652235.720 FLOP/sec
R: 1000000 <T>: 0.000903 sec B: 8.249 GB/sec F: 2214231307.354 FLOP/sec
R: 1000000 <T>: 0.000871 sec B: 8.558 GB/sec F: 2297271530.588 FLOP/sec
R: 1000000 <T>: 0.000975 sec B: 7.641 GB/sec F: 2051160033.568 FLOP/sec
R: 1000000 <T>: 0.000825 sec B: 9.029 GB/sec F: 2423722425.709 FLOP/sec
R: 1000000 <T>: 0.000904 sec B: 8.246 GB/sec F: 2213412839.037 FLOP/sec
R: 1000000 <T>: 0.000898 sec B: 8.298 GB/sec F: 2227593196.967 FLOP/sec
R: 1000000 <T>: 0.000879 sec B: 8.480 GB/sec F: 2276201065.979 FLOP/sec
R: 1000000 <T>: 0.000879 sec B: 8.474 GB/sec F: 2274787506.531 FLOP/sec
R: 1000000 <T>: 0.003685 sec B: 2.022 GB/sec F: 542794457.851 FLOP/sec
R: 1000000 <T>: 0.000828 sec B: 8.995 GB/sec F: 2414450000.387 FLOP/sec
R: 1000000 <T>: 0.000889 sec B: 8.379 GB/sec F: 2249159657.809 FLOP/sec
R: 1000000 <T>: 0.000864 sec B: 8.624 GB/sec F: 2315058646.139 FLOP/sec
R: 1000000 <T>: 0.000828 sec B: 8.995 GB/sec F: 2414517042.243 FLOP/sec
R: 1000000 <T>: 0.000754 sec B: 9.877 GB/sec F: 2651299733.421 FLOP/sec
R: 1000000 <T>: 0.000818 sec B: 9.108 GB/sec F: 2445023643.396 FLOP/sec
R: 1000000 <T>: 0.000806 sec B: 9.250 GB/sec F: 2482895950.490 FLOP/sec
R: 1000000 <T>: 0.000856 sec B: 8.704 GB/sec F: 2336355798.850 FLOP/sec
R: 1000000 <T>: 0.000945 sec B: 7.885 GB/sec F: 2116740346.855 FLOP/sec
R: 1000000 <T>: 0.000810 sec B: 9.193 GB/sec F: 2467810496.816 FLOP/sec
R: 1000000 <T>: 0.000880 sec B: 8.464 GB/sec F: 2272066307.941 FLOP/sec
R: 1000000 <T>: 0.000837 sec B: 8.897 GB/sec F: 2388282132.656 FLOP/sec
R: 1000000 <T>: 0.000796 sec B: 9.364 GB/sec F: 2513566977.797 FLOP/sec
R: 1000000 <T>: 0.001019 sec B: 7.311 GB/sec F: 1962546757.664 FLOP/sec
R: 1000000 <T>: 0.000933 sec B: 7.988 GB/sec F: 2144144395.287 FLOP/sec
R: 1000000 <T>: 0.000964 sec B: 7.731 GB/sec F: 2075345415.312 FLOP/sec
R: 1000000 <T>: 0.000756 sec B: 9.850 GB/sec F: 2643967325.703 FLOP/sec
R: 1000000 <T>: 0.000779 sec B: 9.566 GB/sec F: 2567848989.923 FLOP/sec
R: 1000000 <T>: 0.000737 sec B: 10.115 GB/sec F: 2715122553.867 FLOP/sec
R: 1000000 <T>: 0.000790 sec B: 9.425 GB/sec F: 2530121091.531 FLOP/sec
R: 1000000 <T>: 0.000895 sec B: 8.326 GB/sec F: 2234934030.280 FLOP/sec
R: 1000000 <T>: 0.000873 sec B: 8.532 GB/sec F: 2290318480.178 FLOP/sec
R: 1000000 <T>: 0.000825 sec B: 9.029 GB/sec F: 2423669556.880 FLOP/sec
R: 1000000 <T>: 0.000895 sec B: 8.329 GB/sec F: 2235686020.200 FLOP/sec
R: 1000000 <T>: 0.000948 sec B: 7.856 GB/sec F: 2108819293.185 FLOP/sec
R: 1000000 <T>: 0.000880 sec B: 8.467 GB/sec F: 2272778926.847 FLOP/sec
R: 1000000 <T>: 0.000879 sec B: 8.476 GB/sec F: 2275364627.229 FLOP/sec
R: 1000000 <T>: 0.001165 sec B: 6.396 GB/sec F: 1716988745.149 FLOP/sec
R: 1000000 <T>: 0.000967 sec B: 7.706 GB/sec F: 2068688740.954 FLOP/sec
R: 1000000 <T>: 0.000962 sec B: 7.749 GB/sec F: 2080037773.438 FLOP/sec
R: 1000000 <T>: 0.000916 sec B: 8.132 GB/sec F: 2182953317.548 FLOP/sec
R: 1000000 <T>: 0.000812 sec B: 9.178 GB/sec F: 2463724733.127 FLOP/sec
R: 1000000 <T>: 0.000938 sec B: 7.946 GB/sec F: 2132912438.620 FLOP/sec
R: 1000000 <T>: 0.000853 sec B: 8.735 GB/sec F: 2344907798.150 FLOP/sec
R: 1000000 <T>: 0.001057 sec B: 7.049 GB/sec F: 1892092095.662 FLOP/sec
R: 1000000 <T>: 0.000964 sec B: 7.726 GB/sec F: 2073845490.185 FLOP/sec
R: 1000000 <T>: 0.000867 sec B: 8.591 GB/sec F: 2306174667.454 FLOP/sec
R: 1000000 <T>: 0.000954 sec B: 7.810 GB/sec F: 2096429466.146 FLOP/sec
R: 1000000 <T>: 0.000871 sec B: 8.558 GB/sec F: 2297158070.877 FLOP/sec
R: 1000000 <T>: 0.000928 sec B: 8.032 GB/sec F: 2155994851.532 FLOP/sec
R: 1000000 <T>: 0.000921 sec B: 8.086 GB/sec F: 2170468604.237 FLOP/sec
R: 1000000 <T>: 0.001006 sec B: 7.404 GB/sec F: 1987386060.700 FLOP/sec
R: 1000000 <T>: 0.000860 sec B: 8.667 GB/sec F: 2326493056.077 FLOP/sec
R: 1000000 <T>: 0.000861 sec B: 8.653 GB/sec F: 2322777856.542 FLOP/sec
R: 1000000 <T>: 0.000933 sec B: 7.982 GB/sec F: 2142550298.958 FLOP/sec
R: 1000000 <T>: 0.000858 sec B: 8.685 GB/sec F: 2331426226.693 FLOP/sec
R: 1000000 <T>: 0.000931 sec B: 8.003 GB/sec F: 2148243864.353 FLOP/sec
R: 1000000 <T>: 0.000856 sec B: 8.700 GB/sec F: 2335480028.737 FLOP/sec
R: 1000000 <T>: 0.000963 sec B: 7.737 GB/sec F: 2076905742.794 FLOP/sec
R: 1000000 <T>: 0.003079 sec B: 2.420 GB/sec F: 649661980.862 FLOP/sec
R: 1000000 <T>: 0.001015 sec B: 7.344 GB/sec F: 1971257100.236 FLOP/sec
R: 1000000 <T>: 0.000914 sec B: 8.149 GB/sec F: 2187525635.169 FLOP/sec
R: 1000000 <T>: 0.000882 sec B: 8.445 GB/sec F: 2266900308.513 FLOP/sec
R: 1000000 <T>: 0.000977 sec B: 7.624 GB/sec F: 2046630427.614 FLOP/sec
R: 1000000 <T>: 0.000919 sec B: 8.109 GB/sec F: 2176861270.815 FLOP/sec
R: 1000000 <T>: 0.001000 sec B: 7.453 GB/sec F: 2000678229.959 FLOP/sec
R: 1000000 <T>: 0.000881 sec B: 8.457 GB/sec F: 2270106331.650 FLOP/sec
R: 1000000 <T>: 0.000924 sec B: 8.067 GB/sec F: 2165599026.476 FLOP/sec
R: 1000000 <T>: 0.001012 sec B: 7.361 GB/sec F: 1976011223.743 FLOP/sec
R: 1000000 <T>: 0.000699 sec B: 10.660 GB/sec F: 2886459573.213 FLOP/sec
R: 1000000 <T>: 0.000634 sec B: 11.744 GB/sec F: 3152550334.373 FLOP/sec
R: 1000000 <T>: 0.000580 sec B: 12.852 GB/sec F: 3449971106.404 FLOP/sec
R: 1000000 <T>: 0.000644 sec B: 11.561 GB/sec F: 3103325212.978 FLOP/sec
R: 1000000 <T>: 0.000636 sec B: 11.723 GB/sec F: 3146836092.379 FLOP/sec
R: 1000000 <T>: 0.000606 sec B: 12.287 GB/sec F: 3298201985.392 FLOP/sec
R: 1000000 <T>: 0.000730 sec B: 10.208 GB/sec F: 2740060089.489 FLOP/sec
R: 1000000 <T>: 0.000569 sec B: 13.101 GB/sec F: 3516699928.875 FLOP/sec
R: 1000000 <T>: 0.000622 sec B: 11.984 GB/sec F: 3216892546.186 FLOP/sec
R: 1000000 <T>: 0.000586 sec B: 12.724 GB/sec F: 3415598011.479 FLOP/sec
R: 1000000 <T>: 0.000596 sec B: 12.509 GB/sec F: 3357845606.187 FLOP/sec
R: 1000000 <T>: 0.000620 sec B: 12.026 GB/sec F: 3228201568.893 FLOP/sec
R: 1000000 <T>: 0.000850 sec B: 8.765 GB/sec F: 2352849830.677 FLOP/sec
R: 1000000 <T>: 0.000645 sec B: 11.556 GB/sec F: 3102040056.566 FLOP/sec
R: 1000000 <T>: 0.000602 sec B: 12.383 GB/sec F: 3324059208.170 FLOP/sec
R: 1000000 <T>: 0.000672 sec B: 11.081 GB/sec F: 2974596942.321 FLOP/sec
R: 1000000 <T>: 0.001020 sec B: 7.303 GB/sec F: 1960365333.669 FLOP/sec
R: 1000000 <T>: 0.000842 sec B: 8.849 GB/sec F: 2375466185.277 FLOP/sec
R: 1000000 <T>: 0.000733 sec B: 10.166 GB/sec F: 2728944826.188 FLOP/sec
R: 1000000 <T>: 0.001518 sec B: 4.909 GB/sec F: 1317726184.400 FLOP/sec
R: 1000000 <T>: 0.000915 sec B: 8.143 GB/sec F: 2185940467.976 FLOP/sec
R: 1000000 <T>: 0.000740 sec B: 10.063 GB/sec F: 2701279055.721 FLOP/sec
R: 1000000 <T>: 0.000676 sec B: 11.015 GB/sec F: 2956773450.505 FLOP/sec
R: 1000000 <T>: 0.000737 sec B: 10.109 GB/sec F: 2713604793.261 FLOP/sec
R: 1000000 <T>: 0.000700 sec B: 10.640 GB/sec F: 2856281892.253 FLOP/sec
```

```
R: 1000000 <T>: 0.000671 sec B: 11.109 GB/sec F: 2982181465.916 FLOP/sec
R: 1000000 <T>: 0.000731 sec B: 10.197 GB/sec F: 2737262491.295 FLOP/sec
R: 1000000 <T>: 0.000659 sec B: 11.314 GB/sec F: 3037039736.614 FLOP/sec
R: 1000000 <T>: 0.000586 sec B: 12.722 GB/sec F: 3415049783.090 FLOP/sec
R: 1000000 <T>: 0.000648 sec B: 11.503 GB/sec F: 3087873150.181 FLOP/sec
R: 1000000 <T>: 0.000638 sec B: 11.677 GB/sec F: 3134511282.709 FLOP/sec
R: 1000000 <T>: 0.000720 sec B: 10.348 GB/sec F: 2777638895.762 FLOP/sec
R: 1000000 <T>: 0.000666 sec B: 11.191 GB/sec F: 3003972754.116 FLOP/sec
R: 1000000 <T>: 0.000676 sec B: 11.015 GB/sec F: 2956904594.064 FLOP/sec
R: 1000000 <T>: 0.000695 sec B: 10.716 GB/sec F: 2876559634.684 FLOP/sec
R: 1000000 <T>: 0.000611 sec B: 12.201 GB/sec F: 3275128835.210 FLOP/sec
R: 1000000 <T>: 0.000678 sec B: 10.997 GB/sec F: 2951968520.133 FLOP/sec
R: 1000000 <T>: 0.000649 sec B: 11.488 GB/sec F: 3083849877.984 FLOP/sec
R: 1000000 <T>: 0.000781 sec B: 9.540 GB/sec F: 2560960462.554 FLOP/sec
R: 1000000 <T>: 0.000857 sec B: 8.692 GB/sec F: 2333365611.625 FLOP/sec
R: 1000000 <T>: 0.000846 sec B: 8.810 GB/sec F: 2364879645.432 FLOP/sec
R: 1000000 <T>: 0.000756 sec B: 9.861 GB/sec F: 2646941657.458 FLOP/sec
R: 1000000 <T>: 0.000742 sec B: 10.043 GB/sec F: 2695919187.185 FLOP/sec
R: 1000000 <T>: 0.000738 sec B: 10.094 GB/sec F: 2709590188.015 FLOP/sec
R: 1000000 <T>: 0.000727 sec B: 10.244 GB/sec F: 2749779674.091 FLOP/sec
R: 1000000 <T>: 0.000684 sec B: 10.895 GB/sec F: 2924677846.703 FLOP/sec
R: 1000000 <T>: 0.000701 sec B: 10.627 GB/sec F: 2852749622.642 FLOP/sec
R: 1000000 <T>: 0.000627 sec B: 11.875 GB/sec F: 3187743762.730 FLOP/sec
R: 1000000 <T>: 0.000733 sec B: 10.160 GB/sec F: 2727415296.802 FLOP/sec
R: 1000000 <T>: 0.000692 sec B: 10.773 GB/sec F: 2891849178.529 FLOP/sec
R: 1000000 <T>: 0.000567 sec B: 13.144 GB/sec F: 3528226695.473 FLOP/sec
R: 1000000 <T>: 0.000622 sec B: 11.979 GB/sec F: 3215666728.375 FLOP/sec
R: 1000000 <T>: 0.000570 sec B: 13.081 GB/sec F: 3511408566.324 FLOP/sec
R: 1000000 <T>: 0.000626 sec B: 11.910 GB/sec F: 3197120034.129 FLOP/sec
R: 1000000 <T>: 0.000666 sec B: 11.191 GB/sec F: 3004117142.448 FLOP/sec
R: 1000000 <T>: 0.000997 sec B: 7.473 GB/sec F: 2006150858.533 FLOP/sec
R: 1000000 <T>: 0.000802 sec B: 9.293 GB/sec F: 2494676983.007 FLOP/sec
R: 1000000 <T>: 0.000691 sec B: 10.784 GB/sec F: 2894900632.656 FLOP/sec
R: 1000000 <T>: 0.000528 sec B: 14.107 GB/sec F: 3786688276.171 FLOP/sec
R: 1000000 <T>: 0.000557 sec B: 13.373 GB/sec F: 3589890867.341 FLOP/sec
R: 1000000 <T>: 0.000640 sec B: 11.637 GB/sec F: 3123891994.741 FLOP/sec
R: 1000000 <T>: 0.000595 sec B: 12.531 GB/sec F: 3363662355.621 FLOP/sec
R: 1000000 <T>: 0.000502 sec B: 14.840 GB/sec F: 3983524144.116 FLOP/sec
R: 1000000 <T>: 0.000505 sec B: 14.740 GB/sec F: 3956846630.516 FLOP/sec
R: 1000000 <T>: 0.000530 sec B: 14.065 GB/sec F: 3775650827.644 FLOP/sec
R: 1000000 <T>: 0.000708 sec B: 10.525 GB/sec F: 2825221885.754 FLOP/sec
R: 1000000 <T>: 0.000573 sec B: 13.011 GB/sec F: 3492644490.698 FLOP/sec
R: 1000000 <T>: 0.000599 sec B: 12.438 GB/sec F: 3338769963.721 FLOP/sec
R: 1000000 <T>: 0.000637 sec B: 11.690 GB/sec F: 3137904632.734 FLOP/sec
R: 1000000 <T>: 0.000645 sec B: 11.553 GB/sec F: 3101121365.555 FLOP/sec
R: 1000000 <T>: 0.000648 sec B: 11.496 GB/sec F: 3085914958.492 FLOP/sec
R: 1000000 <T>: 0.000718 sec B: 10.375 GB/sec F: 2784991679.839 FLOP/sec
R: 1000000 <T>: 0.000833 sec B: 8.942 GB/sec F: 2400401347.120 FLOP/sec
R: 1000000 <T>: 0.001214 sec B: 6.135 GB/sec F: 1646875342.183 FLOP/sec
R: 1000000 <T>: 0.000625 sec B: 11.914 GB/sec F: 3198019786.078 FLOP/sec
R: 1000000 <T>: 0.000574 sec B: 12.991 GB/sec F: 3487254954.827 FLOP/sec
R: 1000000 <T>: 0.000628 sec B: 11.872 GB/sec F: 3186849783.219 FLOP/sec
R: 1000000 <T>: 0.000774 sec B: 9.625 GB/sec F: 2583759007.565 FLOP/sec
R: 1000000 <T>: 0.000629 sec B: 11.836 GB/sec F: 3177200409.907 FLOP/sec
R: 1000000 <T>: 0.000594 sec B: 12.535 GB/sec F: 3364754532.823 FLOP/sec
R: 1000000 <T>: 0.000652 sec B: 11.423 GB/sec F: 3066327735.435 FLOP/sec
R: 1000000 <T>: 0.000679 sec B: 10.976 GB/sec F: 2946310850.462 FLOP/sec
R: 1000000 <T>: 0.000710 sec B: 10.495 GB/sec F: 2817234715.072 FLOP/sec
R: 1000000 <T>: 0.000653 sec B: 11.415 GB/sec F: 3064180799.124 FLOP/sec
R: 1000000 <T>: 0.000631 sec B: 11.810 GB/sec F: 3170200118.817 FLOP/sec
R: 1000000 <T>: 0.000573 sec B: 12.992 GB/sec F: 3487595494.799 FLOP/sec
R: 1000000 <T>: 0.000642 sec B: 11.613 GB/sec F: 3117415911.629 FLOP/sec
R: 1000000 <T>: 0.000658 sec B: 11.330 GB/sec F: 3041283908.407 FLOP/sec
R: 1000000 <T>: 0.000671 sec B: 11.112 GB/sec F: 2982795237.076 FLOP/sec
R: 1000000 <T>: 0.000669 sec B: 11.129 GB/sec F: 2987451211.339 FLOP/sec
R: 1000000 <T>: 0.000874 sec B: 8.520 GB/sec F: 2287180695.353 FLOP/sec
R: 1000000 <T>: 0.000777 sec B: 9.588 GB/sec F: 2573803824.611 FLOP/sec
R: 1000000 <T>: 0.000721 sec B: 10.335 GB/sec F: 2774213683.824 FLOP/sec
R: 1000000 <T>: 0.000608 sec B: 12.264 GB/sec F: 3292137716.850 FLOP/sec
R: 1000000 <T>: 0.000557 sec B: 13.369 GB/sec F: 3588583281.088 FLOP/sec
R: 1000000 <T>: 0.000624 sec B: 11.939 GB/sec F: 3204758425.342 FLOP/sec
R: 1000000 <T>: 0.001098 sec B: 6.786 GB/sec F: 1821473717.956 FLOP/sec
R: 1000000 <T>: 0.000764 sec B: 9.754 GB/sec F: 2618380243.893 FLOP/sec
R: 1000000 <T>: 0.000680 sec B: 10.954 GB/sec F: 2940328964.169 FLOP/sec
R: 1000000 <T>: 0.000697 sec B: 10.693 GB/sec F: 2870284660.439 FLOP/sec
R: 1000000 <T>: 0.000756 sec B: 9.855 GB/sec F: 2645404667.709 FLOP/sec
R: 1000000 <T>: 0.000644 sec B: 11.575 GB/sec F: 3107273972.918 FLOP/sec
R: 1000000 <T>: 0.000572 sec B: 13.015 GB/sec F: 3493742706.638 FLOP/sec
R: 1000000 <T>: 0.000555 sec B: 13.436 GB/sec F: 3606768461.713 FLOP/sec
R: 1000000 <T>: 0.000901 sec B: 8.265 GB/sec F: 2218600972.311 FLOP/sec
R: 1000000 <T>: 0.000748 sec B: 9.958 GB/sec F: 2673189248.403 FLOP/sec
R: 1000000 <T>: 0.000859 sec B: 8.675 GB/sec F: 2328630276.495 FLOP/sec
R: 1000000 <T>: 0.000813 sec B: 9.163 GB/sec F: 2459607102.324 FLOP/sec
R: 1000000 <T>: 0.000848 sec B: 8.789 GB/sec F: 2359319666.616 FLOP/sec
R: 1000000 <T>: 0.000621 sec B: 12.005 GB/sec F: 3222557905.283 FLOP/sec
R: 1000000 <T>: 0.000560 sec B: 13.314 GB/sec F: 3573949482.001 FLOP/sec
R: 1000000 <T>: 0.000634 sec B: 11.760 GB/sec F: 3156829722.150 FLOP/sec
R: 1000000 <T>: 0.000564 sec B: 13.206 GB/sec F: 3544854820.431 FLOP/sec
R: 1000000 <T>: 0.000630 sec B: 11.826 GB/sec F: 3174512474.342 FLOP/sec
R: 1000000 <T>: 0.000596 sec B: 12.497 GB/sec F: 3354691536.100 FLOP/sec
R: 1000000 <T>: 0.000666 sec B: 11.179 GB/sec F: 3000894266.658 FLOP/sec
R: 1000000 <T>: 0.000828 sec B: 8.998 GB/sec F: 2415301417.511 FLOP/sec
R: 1000000 <T>: 0.000901 sec B: 8.272 GB/sec F: 2220460656.741 FLOP/sec
R: 1000000 <T>: 0.000804 sec B: 9.266 GB/sec F: 2487308508.330 FLOP/sec
R: 1000000 <T>: 0.000764 sec B: 9.753 GB/sec F: 2617934685.085 FLOP/sec
R: 1000000 <T>: 0.000678 sec B: 10.993 GB/sec F: 2951045112.661 FLOP/sec
R: 1000000 <T>: 0.000602 sec B: 12.377 GB/sec F: 3322347438.045 FLOP/sec
R: 1000000 <T>: 0.000639 sec B: 11.666 GB/sec F: 3131571406.754 FLOP/sec
R: 1000000 <T>: 0.000552 sec B: 13.509 GB/sec F: 3626275995.521 FLOP/sec
R: 1000000 <T>: 0.000667 sec B: 11.174 GB/sec F: 2999607051.440 FLOP/sec
```

```
R: 1000000 <T>: 0.000663 sec B: 11.236 GB/sec F: 3016031716.675 FLOP/sec
R: 1000000 <T>: 0.000613 sec B: 12.149 GB/sec F: 3261286088.371 FLOP/sec
R: 1000000 <T>: 0.000597 sec B: 12.490 GB/sec F: 3352824419.523 FLOP/sec
R: 1000000 <T>: 0.000661 sec B: 11.264 GB/sec F: 3023746997.183 FLOP/sec
R: 1000000 <T>: 0.000639 sec B: 11.654 GB/sec F: 3128230875.799 FLOP/sec
R: 1000000 <T>: 0.000645 sec B: 11.556 GB/sec F: 3102145909.330 FLOP/sec
R: 1000000 <T>: 0.000637 sec B: 11.689 GB/sec F: 3137796325.878 FLOP/sec
R: 1000000 <T>: 0.000706 sec B: 10.549 GB/sec F: 2831774205.601 FLOP/sec
R: 1000000 <T>: 0.000711 sec B: 10.480 GB/sec F: 2813141308.103 FLOP/sec
R: 1000000 <T>: 0.000915 sec B: 8.142 GB/sec F: 2185646639.949 FLOP/sec
R: 1000000 <T>: 0.000729 sec B: 10.215 GB/sec F: 2742171443.153 FLOP/sec
R: 1000000 <T>: 0.000855 sec B: 8.709 GB/sec F: 2337852402.088 FLOP/sec
R: 1000000 <T>: 0.001024 sec B: 7.274 GB/sec F: 1952695940.870 FLOP/sec
R: 1000000 <T>: 0.000760 sec B: 9.797 GB/sec F: 2629990571.513 FLOP/sec
R: 1000000 <T>: 0.000687 sec B: 10.838 GB/sec F: 2909361744.131 FLOP/sec
R: 1000000 <T>: 0.000681 sec B: 10.945 GB/sec F: 2937892943.328 FLOP/sec
R: 1000000 <T>: 0.000662 sec B: 11.258 GB/sec F: 3022051912.695 FLOP/sec
R: 1000000 <T>: 0.000707 sec B: 10.545 GB/sec F: 2830547838.314 FLOP/sec
R: 1000000 <T>: 0.000713 sec B: 10.453 GB/sec F: 2805926678.370 FLOP/sec
R: 1000000 <T>: 0.000671 sec B: 11.098 GB/sec F: 2979094206.404 FLOP/sec
R: 1000000 <T>: 0.000589 sec B: 12.642 GB/sec F: 3393442511.811 FLOP/sec
R: 1000000 <T>: 0.000633 sec B: 11.769 GB/sec F: 3159203312.201 FLOP/sec
R: 1000000 <T>: 0.000649 sec B: 11.477 GB/sec F: 3080785908.551 FLOP/sec
R: 1000000 <T>: 0.000672 sec B: 11.093 GB/sec F: 2977807886.709 FLOP/sec
R: 1000000 <T>: 0.000713 sec B: 10.451 GB/sec F: 2805548814.454 FLOP/sec
R: 1000000 <T>: 0.000667 sec B: 11.175 GB/sec F: 2999877005.221 FLOP/sec
R: 1000000 <T>: 0.000692 sec B: 10.763 GB/sec F: 2889300774.913 FLOP/sec
R: 1000000 <T>: 0.000670 sec B: 11.116 GB/sec F: 2983809847.917 FLOP/sec
R: 1000000 <T>: 0.000831 sec B: 8.966 GB/sec F: 2406846032.860 FLOP/sec
R: 1000000 <T>: 0.000790 sec B: 9.431 GB/sec F: 2531543026.113 FLOP/sec
R: 1000000 <T>: 0.000684 sec B: 10.893 GB/sec F: 2924190364.569 FLOP/sec
R: 1000000 <T>: 0.000680 sec B: 10.962 GB/sec F: 2942691091.024 FLOP/sec
R: 1000000 <T>: 0.000573 sec B: 13.003 GB/sec F: 3490334391.312 FLOP/sec
R: 1000000 <T>: 0.000652 sec B: 11.426 GB/sec F: 3067202404.719 FLOP/sec
R: 1000000 <T>: 0.000609 sec B: 12.227 GB/sec F: 3282035124.454 FLOP/sec
R: 1000000 <T>: 0.000550 sec B: 13.552 GB/sec F: 3637957723.140 FLOP/sec
R: 1000000 <T>: 0.000591 sec B: 12.600 GB/sec F: 3382309169.888 FLOP/sec
R: 1000000 <T>: 0.000670 sec B: 11.113 GB/sec F: 2983249056.557 FLOP/sec
R: 1000000 <T>: 0.000628 sec B: 11.860 GB/sec F: 3183694390.891 FLOP/sec
R: 1000000 <T>: 0.000645 sec B: 11.548 GB/sec F: 3099905297.981 FLOP/sec
R: 1000000 <T>: 0.000556 sec B: 13.391 GB/sec F: 3594710742.646 FLOP/sec
R: 1000000 <T>: 0.000529 sec B: 14.078 GB/sec F: 3779096682.410 FLOP/sec
R: 1000000 <T>: 0.000547 sec B: 13.631 GB/sec F: 3658915863.511 FLOP/sec
R: 1000000 <T>: 0.000624 sec B: 11.942 GB/sec F: 3205605963.538 FLOP/sec
R: 1000000 <T>: 0.000699 sec B: 10.663 GB/sec F: 2862213063.000 FLOP/sec
R: 1000000 <T>: 0.000604 sec B: 12.343 GB/sec F: 3313216586.753 FLOP/sec
R: 1000000 <T>: 0.000628 sec B: 11.864 GB/sec F: 3184759017.310 FLOP/sec
R: 1000000 <T>: 0.000603 sec B: 12.356 GB/sec F: 3316738584.663 FLOP/sec
R: 1000000 <T>: 0.000675 sec B: 11.043 GB/sec F: 2964394655.872 FLOP/sec
R: 1000000 <T>: 0.000626 sec B: 11.906 GB/sec F: 3195873488.122 FLOP/sec
R: 1000000 <T>: 0.000638 sec B: 11.675 GB/sec F: 3134059390.494 FLOP/sec
R: 1000000 <T>: 0.000603 sec B: 12.350 GB/sec F: 3315089291.920 FLOP/sec
R: 1000000 <T>: 0.000801 sec B: 9.303 GB/sec F: 2497162599.112 FLOP/sec
R: 1000000 <T>: 0.000726 sec B: 10.260 GB/sec F: 2754092581.569 FLOP/sec
R: 1000000 <T>: 0.000749 sec B: 9.948 GB/sec F: 2670440889.812 FLOP/sec
R: 1000000 <T>: 0.000860 sec B: 8.667 GB/sec F: 2326499468.602 FLOP/sec
R: 1000000 <T>: 0.000797 sec B: 9.345 GB/sec F: 2508478657.947 FLOP/sec
R: 1000000 <T>: 0.000743 sec B: 10.029 GB/sec F: 2692101642.990 FLOP/sec
R: 1000000 <T>: 0.000712 sec B: 10.460 GB/sec F: 2807908192.544 FLOP/sec
R: 1000000 <T>: 0.000608 sec B: 12.248 GB/sec F: 3287775721.221 FLOP/sec
R: 1000000 <T>: 0.000554 sec B: 13.444 GB/sec F: 3608929212.762 FLOP/sec
R: 1000000 <T>: 0.000586 sec B: 12.715 GB/sec F: 3413277992.775 FLOP/sec
R: 1000000 <T>: 0.000592 sec B: 12.584 GB/sec F: 3377876261.529 FLOP/sec
R: 1000000 <T>: 0.000597 sec B: 12.480 GB/sec F: 3350151091.905 FLOP/sec
R: 1000000 <T>: 0.000566 sec B: 13.169 GB/sec F: 3535124109.304 FLOP/sec
R: 1000000 <T>: 0.000590 sec B: 12.624 GB/sec F: 3388658836.657 FLOP/sec
R: 1000000 <T>: 0.000536 sec B: 13.899 GB/sec F: 3731078766.755 FLOP/sec
R: 1000000 <T>: 0.000819 sec B: 9.096 GB/sec F: 2441632768.741 FLOP/sec
R: 1000000 <T>: 0.000702 sec B: 10.609 GB/sec F: 2847733133.328 FLOP/sec
R: 1000000 <T>: 0.000951 sec B: 7.833 GB/sec F: 2102744291.564 FLOP/sec
R: 1000000 <T>: 0.000827 sec B: 9.010 GB/sec F: 2418528833.137 FLOP/sec
R: 1000000 <T>: 0.000734 sec B: 10.149 GB/sec F: 2724305710.723 FLOP/sec
R: 1000000 <T>: 0.000623 sec B: 11.962 GB/sec F: 3211061464.300 FLOP/sec
R: 1000000 <T>: 0.000603 sec B: 12.359 GB/sec F: 3317481301.858 FLOP/sec
R: 1000000 <T>: 0.000580 sec B: 12.851 GB/sec F: 3449620024.258 FLOP/sec
R: 1000000 <T>: 0.000533 sec B: 13.979 GB/sec F: 3752556429.104 FLOP/sec
R: 1000000 <T>: 0.000566 sec B: 13.155 GB/sec F: 3531254248.598 FLOP/sec
R: 1000000 <T>: 0.000681 sec B: 10.942 GB/sec F: 2937245744.789 FLOP/sec
R: 1000000 <T>: 0.000579 sec B: 12.858 GB/sec F: 3451566752.736 FLOP/sec
R: 1000000 <T>: 0.000548 sec B: 13.606 GB/sec F: 3652227584.898 FLOP/sec
R: 1000000 <T>: 0.000815 sec B: 9.142 GB/sec F: 2454129256.612 FLOP/sec
R: 1000000 <T>: 0.000813 sec B: 9.165 GB/sec F: 2460121431.621 FLOP/sec
R: 1000000 <T>: 0.000831 sec B: 8.966 GB/sec F: 2406715699.553 FLOP/sec
R: 1000000 <T>: 0.000925 sec B: 8.055 GB/sec F: 2162374893.118 FLOP/sec
R: 1000000 <T>: 0.000868 sec B: 8.579 GB/sec F: 2302988011.774 FLOP/sec
R: 1000000 <T>: 0.000714 sec B: 10.429 GB/sec F: 2799418840.528 FLOP/sec
R: 1000000 <T>: 0.000737 sec B: 10.114 GB/sec F: 2714975124.155 FLOP/sec
R: 1000000 <T>: 0.000873 sec B: 8.538 GB/sec F: 2291785553.134 FLOP/sec
R: 1000000 <T>: 0.000797 sec B: 9.350 GB/sec F: 2509888962.534 FLOP/sec
R: 1000000 <T>: 0.000851 sec B: 8.759 GB/sec F: 2351322913.147 FLOP/sec
R: 1000000 <T>: 0.000752 sec B: 9.901 GB/sec F: 2657867353.866 FLOP/sec
R: 1000000 <T>: 0.000609 sec B: 12.225 GB/sec F: 3281539698.577 FLOP/sec
R: 1000000 <T>: 0.000657 sec B: 11.334 GB/sec F: 3042403498.750 FLOP/sec
R: 1000000 <T>: 0.000655 sec B: 11.379 GB/sec F: 3054628984.622 FLOP/sec
R: 1000000 <T>: 0.000666 sec B: 11.188 GB/sec F: 3003192393.455 FLOP/sec
R: 1000000 <T>: 0.000722 sec B: 10.323 GB/sec F: 2771057962.179 FLOP/sec
R: 1000000 <T>: 0.000785 sec B: 9.489 GB/sec F: 2547079582.319 FLOP/sec
R: 1000000 <T>: 0.000732 sec B: 10.173 GB/sec F: 2730763139.106 FLOP/sec
R: 1000000 <T>: 0.000621 sec B: 12.003 GB/sec F: 3222132181.550 FLOP/sec
R: 1000000 <T>: 0.000614 sec B: 12.144 GB/sec F: 3259866801.644 FLOP/sec
```

```
R: 1000000 <T>: 0.000583 sec B: 12.788 GB/sec F: 3432786890.753 FLOP/sec
R: 1000000 <T>: 0.000563 sec B: 13.237 GB/sec F: 3553357211.796 FLOP/sec
R: 1000000 <T>: 0.000624 sec B: 11.941 GB/sec F: 3205508345.526 FLOP/sec
R: 1000000 <T>: 0.000644 sec B: 11.563 GB/sec F: 3104042860.713 FLOP/sec
R: 1000000 <T>: 0.000665 sec B: 11.210 GB/sec F: 3009270056.547 FLOP/sec
R: 1000000 <T>: 0.000653 sec B: 11.416 GB/sec F: 3064429633.272 FLOP/sec
R: 1000000 <T>: 0.000674 sec B: 11.060 GB/sec F: 2968817030.411 FLOP/sec
R: 1000000 <T>: 0.000694 sec B: 10.732 GB/sec F: 2880852271.404 FLOP/sec
R: 1000000 <T>: 0.000630 sec B: 11.832 GB/sec F: 3176140830.153 FLOP/sec
R: 1000000 <T>: 0.000648 sec B: 11.501 GB/sec F: 3087334518.886 FLOP/sec
R: 1000000 <T>: 0.000784 sec B: 9.503 GB/sec F: 2550984616.263 FLOP/sec
R: 1000000 <T>: 0.000714 sec B: 10.432 GB/sec F: 2800355645.165 FLOP/sec
R: 1000000 <T>: 0.000635 sec B: 11.736 GB/sec F: 3150310778.098 FLOP/sec
R: 1000000 <T>: 0.000659 sec B: 11.307 GB/sec F: 3035274441.979 FLOP/sec
R: 1000000 <T>: 0.000636 sec B: 11.719 GB/sec F: 3145663074.403 FLOP/sec
R: 1000000 <T>: 0.000545 sec B: 13.677 GB/sec F: 3671334768.726 FLOP/sec
R: 1000000 <T>: 0.000503 sec B: 14.812 GB/sec F: 3975937625.571 FLOP/sec
R: 1000000 <T>: 0.000513 sec B: 14.514 GB/sec F: 3896144375.443 FLOP/sec
R: 1000000 <T>: 0.000501 sec B: 14.868 GB/sec F: 3991012240.749 FLOP/sec
R: 1000000 <T>: 0.000681 sec B: 10.935 GB/sec F: 2935314474.880 FLOP/sec
R: 1000000 <T>: 0.000702 sec B: 10.616 GB/sec F: 2849692945.713 FLOP/sec
R: 1000000 <T>: 0.000633 sec B: 11.768 GB/sec F: 3158978765.259 FLOP/sec
R: 1000000 <T>: 0.000756 sec B: 9.850 GB/sec F: 2644128118.523 FLOP/sec
R: 1000000 <T>: 0.000817 sec B: 9.118 GB/sec F: 2447566996.021 FLOP/sec
R: 1000000 <T>: 0.001066 sec B: 6.992 GB/sec F: 1876804665.041 FLOP/sec
R: 1000000 <T>: 0.001531 sec B: 4.866 GB/sec F: 1306206899.259 FLOP/sec
R: 1000000 <T>: 0.000844 sec B: 8.828 GB/sec F: 2369699131.220 FLOP/sec
R: 1000000 <T>: 0.000765 sec B: 9.739 GB/sec F: 2614286816.021 FLOP/sec
R: 1000000 <T>: 0.000705 sec B: 10.571 GB/sec F: 2837531461.170 FLOP/sec
R: 1000000 <T>: 0.000786 sec B: 9.473 GB/sec F: 2542989232.886 FLOP/sec
R: 1000000 <T>: 0.000724 sec B: 10.295 GB/sec F: 2763549337.096 FLOP/sec
R: 1000000 <T>: 0.000637 sec B: 11.688 GB/sec F: 3137604344.984 FLOP/sec
R: 1000000 <T>: 0.000674 sec B: 11.054 GB/sec F: 2967218173.590 FLOP/sec
R: 1000000 <T>: 0.000625 sec B: 11.921 GB/sec F: 3199974400.115 FLOP/sec
R: 1000000 <T>: 0.000666 sec B: 11.195 GB/sec F: 3005060521.853 FLOP/sec
R: 1000000 <T>: 0.000783 sec B: 9.514 GB/sec F: 2553880493.619 FLOP/sec
R: 1000000 <T>: 0.001180 sec B: 6.316 GB/sec F: 1695415258.114 FLOP/sec
R: 1000000 <T>: 0.000724 sec B: 10.297 GB/sec F: 2764213933.633 FLOP/sec
R: 1000000 <T>: 0.000743 sec B: 10.022 GB/sec F: 2690392339.877 FLOP/sec
R: 1000000 <T>: 0.000682 sec B: 10.927 GB/sec F: 2933071703.284 FLOP/sec
R: 1000000 <T>: 0.000661 sec B: 11.269 GB/sec F: 3025022990.081 FLOP/sec
R: 1000000 <T>: 0.000787 sec B: 9.470 GB/sec F: 2542074510.768 FLOP/sec
R: 1000000 <T>: 0.000635 sec B: 11.726 GB/sec F: 3147638405.613 FLOP/sec
R: 1000000 <T>: 0.000701 sec B: 10.635 GB/sec F: 2854899721.512 FLOP/sec
R: 1000000 <T>: 0.000732 sec B: 10.173 GB/sec F: 2730796696.179 FLOP/sec
R: 1000000 <T>: 0.000668 sec B: 11.147 GB/sec F: 2992220227.431 FLOP/sec
R: 1000000 <T>: 0.000910 sec B: 8.184 GB/sec F: 2196949974.363 FLOP/sec
R: 1000000 <T>: 0.000979 sec B: 7.612 GB/sec F: 2043447786.813 FLOP/sec
R: 1000000 <T>: 0.000675 sec B: 11.044 GB/sec F: 2964693465.439 FLOP/sec
R: 1000000 <T>: 0.000725 sec B: 10.282 GB/sec F: 2760025447.554 FLOP/sec
R: 1000000 <T>: 0.000632 sec B: 11.795 GB/sec F: 3166074874.419 FLOP/sec
R: 1000000 <T>: 0.000666 sec B: 11.193 GB/sec F: 3004545877.901 FLOP/sec
R: 1000000 <T>: 0.000622 sec B: 11.977 GB/sec F: 3215061922.099 FLOP/sec
R: 1000000 <T>: 0.000580 sec B: 12.840 GB/sec F: 3446766416.092 FLOP/sec
R: 1000000 <T>: 0.000635 sec B: 11.725 GB/sec F: 3147331298.995 FLOP/sec
R: 1000000 <T>: 0.000605 sec B: 12.324 GB/sec F: 3308273164.184 FLOP/sec
R: 1000000 <T>: 0.000525 sec B: 14.192 GB/sec F: 3809661682.905 FLOP/sec
R: 1000000 <T>: 0.000561 sec B: 13.284 GB/sec F: 3565996794.013 FLOP/sec
R: 1000000 <T>: 0.000651 sec B: 11.439 GB/sec F: 3070739080.944 FLOP/sec
R: 1000000 <T>: 0.000615 sec B: 12.122 GB/sec F: 3253921381.975 FLOP/sec
R: 1000000 <T>: 0.000610 sec B: 12.217 GB/sec F: 3279468070.315 FLOP/sec
R: 1000000 <T>: 0.000636 sec B: 11.706 GB/sec F: 3142331924.715 FLOP/sec
R: 1000000 <T>: 0.000821 sec B: 9.071 GB/sec F: 2435059993.755 FLOP/sec
R: 1000000 <T>: 0.000765 sec B: 9.743 GB/sec F: 2615479979.822 FLOP/sec
R: 1000000 <T>: 0.000641 sec B: 11.615 GB/sec F: 3117790110.307 FLOP/sec
R: 1000000 <T>: 0.000565 sec B: 13.183 GB/sec F: 3538896006.226 FLOP/sec
R: 1000000 <T>: 0.000649 sec B: 11.487 GB/sec F: 3083412474.081 FLOP/sec
R: 1000000 <T>: 0.000632 sec B: 11.798 GB/sec F: 3166917117.155 FLOP/sec
R: 1000000 <T>: 0.000625 sec B: 11.914 GB/sec F: 3198060695.782 FLOP/sec
R: 1000000 <T>: 0.000635 sec B: 11.742 GB/sec F: 3151929295.960 FLOP/sec
R: 1000000 <T>: 0.000646 sec B: 11.533 GB/sec F: 3095754791.523 FLOP/sec
R: 1000000 <T>: 0.000606 sec B: 12.295 GB/sec F: 3300286464.990 FLOP/sec
R: 1000000 <T>: 0.000655 sec B: 11.383 GB/sec F: 3055520332.178 FLOP/sec
R: 1000000 <T>: 0.000605 sec B: 12.325 GB/sec F: 3308420923.528 FLOP/sec
R: 1000000 <T>: 0.000927 sec B: 8.036 GB/sec F: 2157024945.039 FLOP/sec
R: 1000000 <T>: 0.000728 sec B: 10.232 GB/sec F: 2746569877.546 FLOP/sec
R: 1000000 <T>: 0.000674 sec B: 11.054 GB/sec F: 2967398674.529 FLOP/sec
R: 1000000 <T>: 0.000627 sec B: 11.885 GB/sec F: 3190281127.570 FLOP/sec
R: 1000000 <T>: 0.000601 sec B: 12.387 GB/sec F: 3325087117.120 FLOP/sec
R: 1000000 <T>: 0.000535 sec B: 13.920 GB/sec F: 3736718302.031 FLOP/sec
R: 1000000 <T>: 0.000545 sec B: 13.678 GB/sec F: 3671651545.581 FLOP/sec
R: 1000000 <T>: 0.000801 sec B: 9.300 GB/sec F: 2496417640.528 FLOP/sec
R: 1000000 <T>: 0.001621 sec B: 4.595 GB/sec F: 1233460832.088 FLOP/sec
R: 1000000 <T>: 0.000870 sec B: 8.568 GB/sec F: 2300013800.050 FLOP/sec
R: 1000000 <T>: 0.000761 sec B: 9.797 GB/sec F: 2629789998.108 FLOP/sec
R: 1000000 <T>: 0.000662 sec B: 11.263 GB/sec F: 3023427024.185 FLOP/sec
R: 1000000 <T>: 0.000651 sec B: 11.450 GB/sec F: 3073646097.261 FLOP/sec
R: 1000000 <T>: 0.000547 sec B: 13.619 GB/sec F: 3655772464.410 FLOP/sec
R: 1000000 <T>: 0.000592 sec B: 12.582 GB/sec F: 3377494068.319 FLOP/sec
R: 1000000 <T>: 0.000601 sec B: 12.400 GB/sec F: 3328551314.618 FLOP/sec
R: 1000000 <T>: 0.000654 sec B: 11.399 GB/sec F: 3059966156.775 FLOP/sec
R: 1000000 <T>: 0.000660 sec B: 11.283 GB/sec F: 3028788635.909 FLOP/sec
R: 1000000 <T>: 0.000564 sec B: 13.205 GB/sec F: 3544791991.516 FLOP/sec
R: 1000000 <T>: 0.000619 sec B: 12.039 GB/sec F: 3231680813.310 FLOP/sec
R: 1000000 <T>: 0.000620 sec B: 12.023 GB/sec F: 3227519119.114 FLOP/sec
R: 1000000 <T>: 0.000543 sec B: 13.726 GB/sec F: 3684428683.108 FLOP/sec
R: 1000000 <T>: 0.000607 sec B: 12.280 GB/sec F: 3296418935.191 FLOP/sec
R: 1000000 <T>: 0.000626 sec B: 11.904 GB/sec F: 3195475207.226 FLOP/sec
R: 1000000 <T>: 0.000621 sec B: 11.990 GB/sec F: 3218559501.290 FLOP/sec
R: 1000000 <T>: 0.000612 sec B: 12.170 GB/sec F: 3266959603.902 FLOP/sec
```

```
R: 1000000 <T>: 0.000680 sec B: 10.949 GB/sec F: 2939136364.175 FLOP/sec
R: 1000000 <T>: 0.000744 sec B: 10.012 GB/sec F: 2687622958.817 FLOP/sec
R: 1000000 <T>: 0.000763 sec B: 9.761 GB/sec F: 2620246381.628 FLOP/sec
R: 1000000 <T>: 0.000947 sec B: 7.867 GB/sec F: 2111803078.568 FLOP/sec
R: 1000000 <T>: 0.000974 sec B: 7.650 GB/sec F: 2053472421.844 FLOP/sec
R: 1000000 <T>: 0.000761 sec B: 9.791 GB/sec F: 2628169243.429 FLOP/sec
R: 1000000 <T>: 0.000806 sec B: 9.247 GB/sec F: 2482264222.126 FLOP/sec
R: 1000000 <T>: 0.000655 sec B: 11.381 GB/sec F: 3055072260.041 FLOP/sec
R: 1000000 <T>: 0.000617 sec B: 12.085 GB/sec F: 3243946390.698 FLOP/sec
R: 1000000 <T>: 0.000665 sec B: 11.199 GB/sec F: 3006167151.954 FLOP/sec
R: 1000000 <T>: 0.000695 sec B: 10.726 GB/sec F: 2879139482.821 FLOP/sec
R: 1000000 <T>: 0.000761 sec B: 9.786 GB/sec F: 2626791964.531 FLOP/sec
R: 1000000 <T>: 0.000762 sec B: 9.779 GB/sec F: 2624999179.721 FLOP/sec
R: 1000000 <T>: 0.000757 sec B: 9.841 GB/sec F: 2641714789.954 FLOP/sec
R: 1000000 <T>: 0.000699 sec B: 10.654 GB/sec F: 2859953783.168 FLOP/sec
R: 1000000 <T>: 0.000708 sec B: 10.524 GB/sec F: 2824986440.177 FLOP/sec
R: 1000000 <T>: 0.000701 sec B: 10.629 GB/sec F: 2853185081.776 FLOP/sec
R: 1000000 <T>: 0.000666 sec B: 11.180 GB/sec F: 3001096900.988 FLOP/sec
R: 1000000 <T>: 0.000673 sec B: 11.078 GB/sec F: 2973597428.651 FLOP/sec
R: 1000000 <T>: 0.000667 sec B: 11.177 GB/sec F: 3000336037.820 FLOP/sec
R: 1000000 <T>: 0.000666 sec B: 11.183 GB/sec F: 3002020359.738 FLOP/sec
R: 1000000 <T>: 0.000729 sec B: 10.224 GB/sec F: 2744508238.966 FLOP/sec
R: 1000000 <T>: 0.000720 sec B: 10.342 GB/sec F: 2776050457.565 FLOP/sec
R: 1000000 <T>: 0.000674 sec B: 11.058 GB/sec F: 2968385213.183 FLOP/sec
R: 1000000 <T>: 0.000725 sec B: 10.282 GB/sec F: 2760151145.966 FLOP/sec
R: 1000000 <T>: 0.000694 sec B: 10.729 GB/sec F: 2880068199.886 FLOP/sec
R: 1000000 <T>: 0.000664 sec B: 11.217 GB/sec F: 3010982558.681 FLOP/sec
R: 1000000 <T>: 0.000719 sec B: 10.365 GB/sec F: 2782438362.168 FLOP/sec
R: 1000000 <T>: 0.000635 sec B: 11.735 GB/sec F: 3150206574.709 FLOP/sec
R: 1000000 <T>: 0.000607 sec B: 12.280 GB/sec F: 3296332006.763 FLOP/sec
R: 1000000 <T>: 0.000604 sec B: 12.335 GB/sec F: 3311044485.564 FLOP/sec
R: 1000000 <T>: 0.000557 sec B: 13.380 GB/sec F: 3591695998.841 FLOP/sec
R: 1000000 <T>: 0.000594 sec B: 12.534 GB/sec F: 3364624339.539 FLOP/sec
R: 1000000 <T>: 0.000689 sec B: 10.809 GB/sec F: 2901620555.040 FLOP/sec
R: 1000000 <T>: 0.000603 sec B: 12.364 GB/sec F: 3318874105.139 FLOP/sec
R: 1000000 <T>: 0.000570 sec B: 13.071 GB/sec F: 3508630353.721 FLOP/sec
R: 1000000 <T>: 0.000597 sec B: 12.475 GB/sec F: 3348804811.542 FLOP/sec
R: 1000000 <T>: 0.000560 sec B: 13.299 GB/sec F: 3569803036.231 FLOP/sec
R: 1000000 <T>: 0.000637 sec B: 11.691 GB/sec F: 3138264069.279 FLOP/sec
R: 1000000 <T>: 0.000792 sec B: 9.402 GB/sec F: 2523850386.156 FLOP/sec
R: 1000000 <T>: 0.000946 sec B: 7.877 GB/sec F: 2114482300.802 FLOP/sec
R: 1000000 <T>: 0.000779 sec B: 9.570 GB/sec F: 2568996832.461 FLOP/sec
R: 1000000 <T>: 0.000700 sec B: 10.646 GB/sec F: 2857759316.652 FLOP/sec
R: 1000000 <T>: 0.000654 sec B: 11.400 GB/sec F: 3060218989.259 FLOP/sec
R: 1000000 <T>: 0.000671 sec B: 11.101 GB/sec F: 2979817694.668 FLOP/sec
R: 1000000 <T>: 0.000656 sec B: 11.361 GB/sec F: 3049654474.191 FLOP/sec
R: 1000000 <T>: 0.000754 sec B: 9.878 GB/sec F: 2651654765.008 FLOP/sec
R: 1000000 <T>: 0.000716 sec B: 10.413 GB/sec F: 2795142601.144 FLOP/sec
R: 1000000 <T>: 0.000664 sec B: 11.228 GB/sec F: 3013859231.744 FLOP/sec
R: 1000000 <T>: 0.000627 sec B: 11.880 GB/sec F: 3188953465.354 FLOP/sec
R: 1000000 <T>: 0.000646 sec B: 11.540 GB/sec F: 3097754283.215 FLOP/sec
R: 1000000 <T>: 0.000606 sec B: 12.295 GB/sec F: 3300281019.112 FLOP/sec
R: 1000000 <T>: 0.000678 sec B: 10.990 GB/sec F: 2950048307.225 FLOP/sec
R: 1000000 <T>: 0.000620 sec B: 12.015 GB/sec F: 3225265439.312 FLOP/sec
R: 1000000 <T>: 0.000672 sec B: 11.080 GB/sec F: 2974282863.231 FLOP/sec
R: 1000000 <T>: 0.000675 sec B: 11.044 GB/sec F: 2964548447.347 FLOP/sec
R: 1000000 <T>: 0.000706 sec B: 10.550 GB/sec F: 2832046876.068 FLOP/sec
R: 1000000 <T>: 0.000645 sec B: 11.545 GB/sec F: 3099194364.386 FLOP/sec
R: 1000000 <T>: 0.001161 sec B: 6.418 GB/sec F: 1722761207.206 FLOP/sec
R: 1000000 <T>: 0.000888 sec B: 8.392 GB/sec F: 2252663211.125 FLOP/sec
R: 1000000 <T>: 0.000767 sec B: 9.708 GB/sec F: 2605988822.954 FLOP/sec
R: 1000000 <T>: 0.000653 sec B: 11.403 GB/sec F: 3060949628.995 FLOP/sec
R: 1000000 <T>: 0.000633 sec B: 11.774 GB/sec F: 3160646162.376 FLOP/sec
R: 1000000 <T>: 0.000624 sec B: 11.932 GB/sec F: 3202956969.703 FLOP/sec
R: 1000000 <T>: 0.000652 sec B: 11.423 GB/sec F: 3066280724.022 FLOP/sec
R: 1000000 <T>: 0.000811 sec B: 9.183 GB/sec F: 2464921091.653 FLOP/sec
R: 1000000 <T>: 0.000729 sec B: 10.220 GB/sec F: 2743348750.970 FLOP/sec
R: 1000000 <T>: 0.000660 sec B: 11.296 GB/sec F: 3032205049.911 FLOP/sec
R: 1000000 <T>: 0.000601 sec B: 12.401 GB/sec F: 3328800616.383 FLOP/sec
R: 1000000 <T>: 0.000578 sec B: 12.893 GB/sec F: 3460914166.113 FLOP/sec
R: 1000000 <T>: 0.000666 sec B: 11.193 GB/sec F: 3004618098.011 FLOP/sec
R: 1000000 <T>: 0.000557 sec B: 13.376 GB/sec F: 3590516011.015 FLOP/sec
R: 1000000 <T>: 0.000625 sec B: 11.925 GB/sec F: 3201034574.427 FLOP/sec
R: 1000000 <T>: 0.000605 sec B: 12.311 GB/sec F: 3304654440.666 FLOP/sec
R: 1000000 <T>: 0.000700 sec B: 10.651 GB/sec F: 2859078861.950 FLOP/sec
R: 1000000 <T>: 0.000908 sec B: 8.208 GB/sec F: 2203305619.495 FLOP/sec
R: 1000000 <T>: 0.000846 sec B: 8.812 GB/sec F: 2365341129.456 FLOP/sec
R: 1000000 <T>: 0.000964 sec B: 7.725 GB/sec F: 2073720773.563 FLOP/sec
R: 1000000 <T>: 0.000943 sec B: 7.903 GB/sec F: 2121421691.958 FLOP/sec
R: 1000000 <T>: 0.000822 sec B: 9.063 GB/sec F: 2432906520.440 FLOP/sec
R: 1000000 <T>: 0.000755 sec B: 9.868 GB/sec F: 2648803138.367 FLOP/sec
R: 1000000 <T>: 0.000788 sec B: 9.461 GB/sec F: 2539566445.157 FLOP/sec
R: 1000000 <T>: 0.000714 sec B: 10.434 GB/sec F: 2800873312.173 FLOP/sec
R: 1000000 <T>: 0.000635 sec B: 11.729 GB/sec F: 3148500605.212 FLOP/sec
R: 1000000 <T>: 0.000704 sec B: 10.590 GB/sec F: 2842786783.829 FLOP/sec
R: 1000000 <T>: 0.000645 sec B: 11.554 GB/sec F: 3101443566.850 FLOP/sec
R: 1000000 <T>: 0.000654 sec B: 11.392 GB/sec F: 3058066567.870 FLOP/sec
R: 1000000 <T>: 0.000733 sec B: 10.169 GB/sec F: 2729659938.807 FLOP/sec
R: 1000000 <T>: 0.000727 sec B: 10.245 GB/sec F: 2750029219.188 FLOP/sec
R: 1000000 <T>: 0.000813 sec B: 9.165 GB/sec F: 2460109327.413 FLOP/sec
R: 1000000 <T>: 0.000693 sec B: 10.747 GB/sec F: 2884791523.309 FLOP/sec
R: 1000000 <T>: 0.000665 sec B: 11.207 GB/sec F: 3008355708.009 FLOP/sec
R: 1000000 <T>: 0.000682 sec B: 10.918 GB/sec F: 2930797997.727 FLOP/sec
R: 1000000 <T>: 0.000724 sec B: 10.285 GB/sec F: 2760844597.482 FLOP/sec
R: 1000000 <T>: 0.000607 sec B: 12.275 GB/sec F: 3295061197.275 FLOP/sec
R: 1000000 <T>: 0.000590 sec B: 12.624 GB/sec F: 3388612905.078 FLOP/sec
R: 1000000 <T>: 0.000763 sec B: 9.762 GB/sec F: 2620383702.755 FLOP/sec
R: 1000000 <T>: 0.001167 sec B: 6.385 GB/sec F: 1713989928.618 FLOP/sec
R: 1000000 <T>: 0.000782 sec B: 9.529 GB/sec F: 2558038700.687 FLOP/sec
R: 1000000 <T>: 0.000755 sec B: 9.864 GB/sec F: 2647887846.039 FLOP/sec
```

```
R: 1000000 <T>: 0.000723 sec B: 10.301 GB/sec F: 2765173196.749 FLOP/sec
R: 1000000 <T>: 0.000761 sec B: 9.791 GB/sec F: 2628314304.413 FLOP/sec
R: 1000000 <T>: 0.000721 sec B: 10.337 GB/sec F: 2774814122.149 FLOP/sec
R: 1000000 <T>: 0.000642 sec B: 11.613 GB/sec F: 3117289579.039 FLOP/sec
R: 1000000 <T>: 0.000638 sec B: 11.679 GB/sec F: 3135150048.265 FLOP/sec
R: 1000000 <T>: 0.000636 sec B: 11.706 GB/sec F: 3142247995.597 FLOP/sec
R: 1000000 <T>: 0.000583 sec B: 12.771 GB/sec F: 3428261905.399 FLOP/sec
R: 1000000 <T>: 0.000568 sec B: 13.125 GB/sec F: 3523235740.047 FLOP/sec
R: 1000000 <T>: 0.000675 sec B: 11.044 GB/sec F: 2964667097.481 FLOP/sec
R: 1000000 <T>: 0.000575 sec B: 12.962 GB/sec F: 3479398481.784 FLOP/sec
R: 1000000 <T>: 0.000705 sec B: 10.569 GB/sec F: 2837225533.967 FLOP/sec
R: 1000000 <T>: 0.000686 sec B: 10.863 GB/sec F: 2916132042.387 FLOP/sec
R: 1000000 <T>: 0.000717 sec B: 10.398 GB/sec F: 2791148152.596 FLOP/sec
R: 1000000 <T>: 0.000746 sec B: 9.986 GB/sec F: 2680727978.370 FLOP/sec
R: 1000000 <T>: 0.000874 sec B: 8.525 GB/sec F: 2288366175.234 FLOP/sec
R: 1000000 <T>: 0.001059 sec B: 7.037 GB/sec F: 1888857722.783 FLOP/sec
R: 1000000 <T>: 0.001000 sec B: 7.451 GB/sec F: 2000038000.709 FLOP/sec
R: 1000000 <T>: 0.000708 sec B: 10.525 GB/sec F: 2825217895.090 FLOP/sec
R: 1000000 <T>: 0.000676 sec B: 11.027 GB/sec F: 2959967913.960 FLOP/sec
R: 1000000 <T>: 0.000688 sec B: 10.830 GB/sec F: 2907217603.773 FLOP/sec
R: 1000000 <T>: 0.000694 sec B: 10.738 GB/sec F: 2882500627.045 FLOP/sec
R: 1000000 <T>: 0.000689 sec B: 10.813 GB/sec F: 2902698638.974 FLOP/sec
R: 1000000 <T>: 0.000753 sec B: 9.900 GB/sec F: 2657553031.434 FLOP/sec
R: 1000000 <T>: 0.000741 sec B: 10.058 GB/sec F: 2699958960.577 FLOP/sec
R: 1000000 <T>: 0.000781 sec B: 9.545 GB/sec F: 2562157951.873 FLOP/sec
R: 1000000 <T>: 0.000838 sec B: 8.893 GB/sec F: 2387278669.455 FLOP/sec
R: 1000000 <T>: 0.000810 sec B: 9.200 GB/sec F: 2469538245.638 FLOP/sec
R: 1000000 <T>: 0.000734 sec B: 10.150 GB/sec F: 2724535807.133 FLOP/sec
R: 1000000 <T>: 0.000644 sec B: 11.565 GB/sec F: 3104457224.549 FLOP/sec
R: 1000000 <T>: 0.000735 sec B: 10.143 GB/sec F: 2722773962.112 FLOP/sec
R: 1000000 <T>: 0.000687 sec B: 10.848 GB/sec F: 2912068631.572 FLOP/sec
R: 1000000 <T>: 0.000863 sec B: 8.636 GB/sec F: 2318079980.707 FLOP/sec
R: 1000000 <T>: 0.000762 sec B: 9.784 GB/sec F: 2626246974.857 FLOP/sec
R: 1000000 <T>: 0.000804 sec B: 9.267 GB/sec F: 2487472466.808 FLOP/sec
R: 1000000 <T>: 0.000777 sec B: 9.588 GB/sec F: 2573750830.157 FLOP/sec
R: 1000000 <T>: 0.000808 sec B: 9.226 GB/sec F: 2476540965.594 FLOP/sec
R: 1000000 <T>: 0.000728 sec B: 10.231 GB/sec F: 2746256851.793 FLOP/sec
R: 1000000 <T>: 0.000768 sec B: 9.697 GB/sec F: 2603071885.171 FLOP/sec
R: 1000000 <T>: 0.000690 sec B: 10.792 GB/sec F: 2897039225.821 FLOP/sec
R: 1000000 <T>: 0.000603 sec B: 12.361 GB/sec F: 3318064705.679 FLOP/sec
R: 1000000 <T>: 0.000652 sec B: 11.435 GB/sec F: 3069504321.134 FLOP/sec
R: 1000000 <T>: 0.000632 sec B: 11.789 GB/sec F: 3164662116.984 FLOP/sec
R: 1000000 <T>: 0.000673 sec B: 11.072 GB/sec F: 2972139167.511 FLOP/sec
R: 1000000 <T>: 0.000709 sec B: 10.502 GB/sec F: 2819077259.537 FLOP/sec
R: 1000000 <T>: 0.000677 sec B: 11.013 GB/sec F: 2956384460.165 FLOP/sec
R: 1000000 <T>: 0.000694 sec B: 10.734 GB/sec F: 2881499763.060 FLOP/sec
R: 1000000 <T>: 0.000721 sec B: 10.339 GB/sec F: 2775414820.443 FLOP/sec
R: 1000000 <T>: 0.000914 sec B: 8.153 GB/sec F: 2188430424.932 FLOP/sec
R: 1000000 <T>: 0.000613 sec B: 12.161 GB/sec F: 3264336148.299 FLOP/sec
R: 1000000 <T>: 0.000610 sec B: 12.222 GB/sec F: 3280786076.508 FLOP/sec
R: 1000000 <T>: 0.000762 sec B: 9.779 GB/sec F: 2624995734.452 FLOP/sec
R: 1000000 <T>: 0.000963 sec B: 7.740 GB/sec F: 2077587505.461 FLOP/sec
R: 1000000 <T>: 0.000779 sec B: 9.560 GB/sec F: 2566208170.915 FLOP/sec
R: 1000000 <T>: 0.000718 sec B: 10.378 GB/sec F: 2785872284.421 FLOP/sec
R: 1000000 <T>: 0.000684 sec B: 10.900 GB/sec F: 2926072771.483 FLOP/sec
R: 1000000 <T>: 0.000662 sec B: 11.248 GB/sec F: 3019250742.683 FLOP/sec
R: 1000000 <T>: 0.000848 sec B: 8.788 GB/sec F: 2358935648.219 FLOP/sec
R: 1000000 <T>: 0.000604 sec B: 12.333 GB/sec F: 3310490945.768 FLOP/sec
R: 1000000 <T>: 0.000647 sec B: 11.513 GB/sec F: 3090559576.526 FLOP/sec
R: 1000000 <T>: 0.000617 sec B: 12.082 GB/sec F: 3243194157.099 FLOP/sec
R: 1000000 <T>: 0.000679 sec B: 10.975 GB/sec F: 2946132906.038 FLOP/sec
R: 1000000 <T>: 0.000709 sec B: 10.507 GB/sec F: 2820580080.558 FLOP/sec
R: 1000000 <T>: 0.000818 sec B: 9.113 GB/sec F: 2446148050.690 FLOP/sec
R: 1000000 <T>: 0.000664 sec B: 11.223 GB/sec F: 3012701549.915 FLOP/sec
R: 1000000 <T>: 0.000675 sec B: 11.034 GB/sec F: 2961936158.307 FLOP/sec
R: 1000000 <T>: 0.000614 sec B: 12.141 GB/sec F: 3258990332.217 FLOP/sec
R: 1000000 <T>: 0.000650 sec B: 11.462 GB/sec F: 3076871006.776 FLOP/sec
R: 1000000 <T>: 0.000668 sec B: 11.145 GB/sec F: 2991826330.328 FLOP/sec
R: 1000000 <T>: 0.000747 sec B: 9.974 GB/sec F: 2677318825.867 FLOP/sec
R: 1000000 <T>: 0.001138 sec B: 6.548 GB/sec F: 1757736457.331 FLOP/sec
R: 1000000 <T>: 0.000862 sec B: 8.646 GB/sec F: 2320926049.513 FLOP/sec
R: 1000000 <T>: 0.000819 sec B: 9.099 GB/sec F: 2442485570.887 FLOP/sec
R: 1000000 <T>: 0.000702 sec B: 10.620 GB/sec F: 2850789668.581 FLOP/sec
R: 1000000 <T>: 0.000719 sec B: 10.362 GB/sec F: 2781416798.028 FLOP/sec
R: 1000000 <T>: 0.000679 sec B: 10.967 GB/sec F: 2943821580.746 FLOP/sec
R: 1000000 <T>: 0.000585 sec B: 12.727 GB/sec F: 3416508226.130 FLOP/sec
R: 1000000 <T>: 0.000647 sec B: 11.507 GB/sec F: 3088893728.217 FLOP/sec
R: 1000000 <T>: 0.000782 sec B: 9.529 GB/sec F: 2557891478.898 FLOP/sec
R: 1000000 <T>: 0.000820 sec B: 9.087 GB/sec F: 2439399224.755 FLOP/sec
R: 1000000 <T>: 0.000774 sec B: 9.631 GB/sec F: 2585238546.469 FLOP/sec
R: 1000000 <T>: 0.000673 sec B: 11.078 GB/sec F: 2973765441.227 FLOP/sec
R: 1000000 <T>: 0.000688 sec B: 10.828 GB/sec F: 2906600744.990 FLOP/sec
R: 1000000 <T>: 0.000807 sec B: 9.233 GB/sec F: 2478462163.782 FLOP/sec
R: 1000000 <T>: 0.000795 sec B: 9.368 GB/sec F: 2514733193.013 FLOP/sec
R: 1000000 <T>: 0.000743 sec B: 10.021 GB/sec F: 2690023241.758 FLOP/sec
R: 1000000 <T>: 0.000745 sec B: 10.002 GB/sec F: 2684779982.266 FLOP/sec
R: 1000000 <T>: 0.000797 sec B: 9.344 GB/sec F: 2508204965.432 FLOP/sec
R: 1000000 <T>: 0.000748 sec B: 9.962 GB/sec F: 2674036310.690 FLOP/sec
R: 1000000 <T>: 0.000728 sec B: 10.232 GB/sec F: 2746607596.110 FLOP/sec
R: 1000000 <T>: 0.000661 sec B: 11.272 GB/sec F: 3025920031.030 FLOP/sec
R: 1000000 <T>: 0.000732 sec B: 10.182 GB/sec F: 2733263543.906 FLOP/sec
R: 1000000 <T>: 0.000759 sec B: 9.821 GB/sec F: 2636345181.973 FLOP/sec
R: 1000000 <T>: 0.000789 sec B: 9.438 GB/sec F: 2533592266.492 FLOP/sec
R: 1000000 <T>: 0.000800 sec B: 9.310 GB/sec F: 2499206501.898 FLOP/sec
R: 1000000 <T>: 0.000760 sec B: 9.804 GB/sec F: 2631824815.321 FLOP/sec
R: 1000000 <T>: 0.000752 sec B: 9.913 GB/sec F: 2660876599.174 FLOP/sec
R: 1000000 <T>: 0.000783 sec B: 9.519 GB/sec F: 2555234589.749 FLOP/sec
R: 1000000 <T>: 0.000792 sec B: 9.404 GB/sec F: 2524490715.671 FLOP/sec
R: 1000000 <T>: 0.000727 sec B: 10.253 GB/sec F: 2752190055.099 FLOP/sec
R: 1000000 <T>: 0.000771 sec B: 9.659 GB/sec F: 2592839872.747 FLOP/sec
```

```
R: 1000000 <T>: 0.000685 sec B: 10.879 GB/sec F: 2920219600.538 FLOP/sec
N: 1000000 <T>: 0.000702 sec B: 10.882 GB/sec F: 2921165255.164 FLOP/sec
```

In [3]: `!python dp5.py 300000000 20`

```
Vector size: 300000000 with 20 measurements.
R: 300000000 <T>: 0.278298 sec B: 8.032 GB/sec F: 2155965195.650 FLOP/sec
R: 300000000 <T>: 0.267667 sec B: 8.351 GB/sec F: 2241587319.986 FLOP/sec
R: 300000000 <T>: 0.284721 sec B: 7.850 GB/sec F: 2107327584.726 FLOP/sec
R: 300000000 <T>: 0.268387 sec B: 8.328 GB/sec F: 2235580086.476 FLOP/sec
R: 300000000 <T>: 0.237919 sec B: 9.395 GB/sec F: 2521870586.411 FLOP/sec
R: 300000000 <T>: 0.235881 sec B: 9.476 GB/sec F: 2543658118.511 FLOP/sec
R: 300000000 <T>: 0.230464 sec B: 9.699 GB/sec F: 2603441816.035 FLOP/sec
R: 300000000 <T>: 0.231247 sec B: 9.666 GB/sec F: 2594627256.043 FLOP/sec
R: 300000000 <T>: 0.230914 sec B: 9.680 GB/sec F: 2598371339.978 FLOP/sec
R: 300000000 <T>: 0.232312 sec B: 9.621 GB/sec F: 2582729551.787 FLOP/sec
R: 300000000 <T>: 0.228388 sec B: 9.787 GB/sec F: 2627105022.083 FLOP/sec
R: 300000000 <T>: 0.227616 sec B: 9.820 GB/sec F: 2636015291.736 FLOP/sec
R: 300000000 <T>: 0.234700 sec B: 9.524 GB/sec F: 2556457783.004 FLOP/sec
R: 300000000 <T>: 0.257270 sec B: 8.688 GB/sec F: 2332184496.659 FLOP/sec
R: 300000000 <T>: 0.254726 sec B: 8.775 GB/sec F: 2355475252.170 FLOP/sec
R: 300000000 <T>: 0.265363 sec B: 8.423 GB/sec F: 2261055796.914 FLOP/sec
R: 300000000 <T>: 0.265724 sec B: 8.412 GB/sec F: 2257979077.114 FLOP/sec
R: 300000000 <T>: 0.266239 sec B: 8.395 GB/sec F: 2253615969.077 FLOP/sec
R: 300000000 <T>: 0.264325 sec B: 8.456 GB/sec F: 2269933363.080 FLOP/sec
R: 300000000 <T>: 0.283866 sec B: 7.874 GB/sec F: 2113675743.097 FLOP/sec
N: 300000000 <T>: 0.254822 sec B: 8.815 GB/sec F: 2366349779.493 FLOP/sec
```

In [4]:
```python
import numpy as np

def compute_dot_product_numpy(N):
    # Create two vectors of size N with all elements set to 1.0
    vecA = np.ones(N, dtype=np.float32)
    vecB = np.ones(N, dtype=np.float32)

    # Compute the dot product using numpy.dot
    dot_product_result = np.dot(vecA, vecB)

    # Analytically, the result should be N
    analytical_result = N

    return dot_product_result, analytical_result

# Test the function for a few vector sizes
vector_sizes = [1000000, 16777216, 67108864, 300000000]
results = {}

for size in vector_sizes:
    dot_product_result, analytical_result = compute_dot_product_numpy(size)
    results[size] = (dot_product_result, analytical_result)

for size, (dp_result, analytical) in results.items():
    print(f"For N = {size}:")
    print(f"Computed Dot Product (using numpy.dot): {dp_result}")
    print(f"Analytical Result: {analytical}")
    print("----")
```

```
For N = 1000000:
Computed Dot Product (using numpy.dot): 1000000.0
Analytical Result: 1000000
----
For N = 16777216:
Computed Dot Product (using numpy.dot): 16777216.0
Analytical Result: 16777216
----
For N = 67108864:
Computed Dot Product (using numpy.dot): 67108864.0
Analytical Result: 67108864
----
For N = 300000000:
Computed Dot Product (using numpy.dot): 300000000.0
Analytical Result: 300000000
----
```

Q1. Explain the consequence of only using the second half of the measurements for the computation of the mean.

When benchmarking, the rationale behind computing the mean of the second half measurements is based on the concept of warm-up and steady-state performance. When a system, application, or piece of code is first executed it will not always immediately operate at its steady-state performance. This can be due to a number of reasons, including cache effects, JIT compilation processes that run slower while interpreting the initial runs of the code, or systems and resource initialization. After this warm-up phase, the system usually reaches a state where performance becomes more consistent and representative of its typical behavior. Therefore, we are more likely to capture steady-state results and avoid variability by discarding the initial measurements in the first half.

In our results, the C code and NumPy implementations proved to be very fast compared to the pure Python loop. This is expected because C is a compiled language and can be heavily optimized by the compiler, while NumPy functions are written in C and optimized for performance. The pure Python loop, however, is interpreted and not optimized. We can also observe the benefits of loop unrolling in C2 and optimized library functions in C3, compared to the basic dot product implementation in C1. The numpy.dot function produced performance close to the optimized C code, showcasing the efficiencies of its underlying C implementations. Overall, by using the second half measurements to compute the mean, we are aiming to capture a more accurate representation of the steady-state of each implementation.

Q2. Draw a roofline model based on 200 GFLOPS and 30 GB/s. Add a vertical line for the arithmetic intensity. Draw points for the 10 measurements for the average results for the microbenchmarks.

In [31]:
```python
import numpy as np
import matplotlib.pyplot as plt

def compute_avg_ai(results, bw):
    """Compute the average Arithmetic Intensity."""
```

```python
        return np.mean(results) / np.mean(bw)


def plot_roofline(log_ai, peak_cpu, peak_mem, results, bw, avg_ai):
    """Plot the Roofline Model."""
    # Roofline values
    log_peak_cpu = np.full_like(log_ai, np.log10(peak_cpu))
    log_peak_mem = np.minimum(log_ai + np.log10(peak_mem), np.log10(peak_cpu))
    log_ai_peak_corrected = np.log10(peak_cpu / peak_mem)

    colors = ['black', 'blue', 'green', 'orange', 'purple', 'brown', 'pink', 'gray', 'cyan', 'magenta']

    fig, ax = plt.subplots(figsize=(12, 8))

    # Plot Peak FLOPS and Peak Bandwidth
    ax.plot(log_ai, log_peak_cpu, 'r-', label=f'Peak FLOPS ({peak_cpu} GFLOP/s)', linewidth=1.2)
    ax.plot(log_ai, log_peak_mem, 'b--', label=f'Peak B/w ({peak_mem} GB/s)', linewidth=1.2)

    # Memory-bound and Compute-bound vertical lines
    ax.axvline(x=log_ai_peak_corrected, color='g', linestyle=':', linewidth=2)
    ax.axvline(x=np.log10(avg_ai), color='gray', linestyle=':', linewidth=2)

    # Annotations and labels
    annotations = [
        (f'Peak FLOPS ({peak_cpu} GFLOP/s)', (-4, np.log10(peak_cpu) + 0.2), 'red'),
        (f'Peak B/w ({peak_mem} GB/s)', (-3.5, 0.3), 'blue'),
        (f'log(6.67) = {log_ai_peak_corrected:.3f}', (log_ai_peak_corrected + 0.05, -5.5), 'green'),
        (f'log({avg_ai:.2f}) = {np.log10(avg_ai):.2f}', (-2.47, -5.5), 'gray')
    ]
    for text, position, color in annotations:
        ax.annotate(text, xy=position, color=color, fontsize=9)

    # Scatter plot for Observed Values
    for idx, (flops, bandwidth, color) in enumerate(zip(results, bw, colors)):
        ax.scatter(np.log10(avg_ai), np.log10(flops), color=color, marker='o', s=80, label=f'dp{idx//2 + 1}, E_{idx%2 + 1} (Bw= {bandwidth:.2f

    # Plot adjustments
    ax.set_xlabel('Arithmetic Intensity [FLOP/bytes] (log-scale)')
    ax.set_ylabel('Performance [GFLOP/s] (log-scale)')
    ax.set_title('Roofline Model')
    ax.legend(loc='upper left', fontsize=8, bbox_to_anchor=(1.05, 1))
    ax.grid(True, which="both", ls="--", c='0.7')
    plt.tight_layout()
    plt.show()

# Constants
PEAK_CPU = 200  # GFLOPS
PEAK_MEM = 30  # GB/s
LOG_AI = np.arange(-10.0, 4.0, 0.1)  # Range of arithmetic intensity in log scale

# Data from microbenchmarks
RESULTS = np.array([1191738180.203, 1207793347.447, 2574610957.554, 2315727082.634,
                    4854645953.298, 2466717159.903, 3626885.618, 3652346.133,
                    2921165255.164, 2366349779.493]) / 10**9  # Convert to GFLOP/sec
BW = [4.440, 4.499, 9.591, 8.627, 18.085, 9.189, 0.014, 0.014, 10.882, 8.815]

# Compute average AI
AVG_AI = compute_avg_ai(RESULTS, BW)

# Plot the roofline model
plot_roofline(LOG_AI, PEAK_CPU, PEAK_MEM, RESULTS, BW, AVG_AI)
```
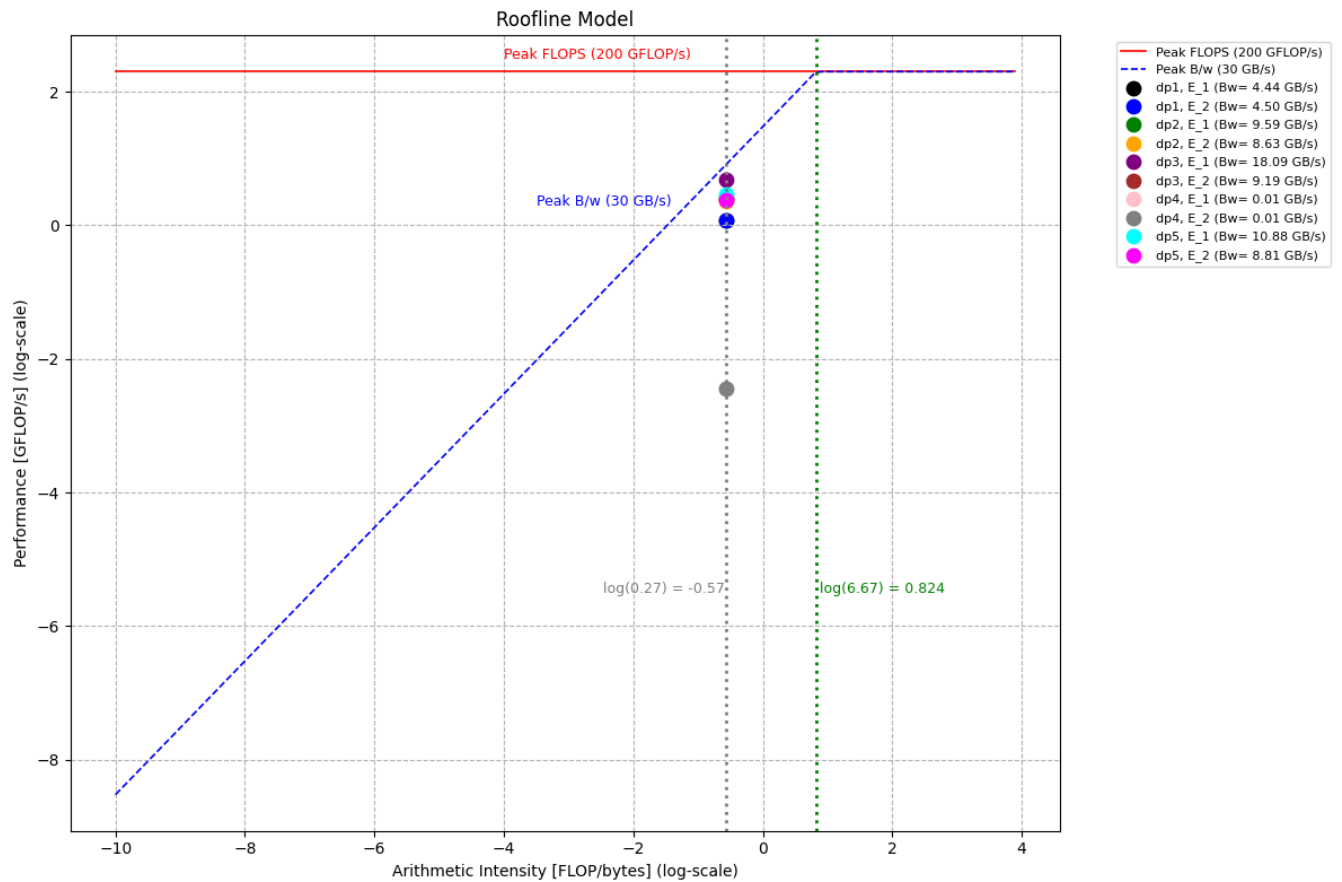
Roofline Model

Legend:
- Peak FLOPS (200 GFLOP/s)
- Peak B/w (30 GB/s)
- dp1, E_1 (Bw= 4.44 GB/s)
- dp1, E_2 (Bw= 4.50 GB/s)
- dp2, E_1 (Bw= 9.59 GB/s)
- dp2, E_2 (Bw= 8.63 GB/s)
- dp3, E_1 (Bw= 18.09 GB/s)
- dp3, E_2 (Bw= 9.19 GB/s)
- dp4, E_1 (Bw= 0.01 GB/s)
- dp4, E_2 (Bw= 0.01 GB/s)
- dp5, E_1 (Bw= 10.88 GB/s)
- dp5, E_2 (Bw= 8.81 GB/s)

Q3. Using the N = 300000000 simple loop as the baseline, explain the difference in performance for the 5 measurements in the C and Python variants.

Our dp4 implementation represents the simple loop dot product implementation in Python, it is the most straightforward and naïve approach to compute the dot product using a for loop without external libraries or optimizations. Given its interpreted nature and lack of optimizations, we should expect it to be the slowest and poorest performer of the five implementations and we can compare it to the other four implementations (dp1, dp2, dp3, dp5) to highlight the performance gains achieved by other methods.

dp1 (Basic Dot Product in C) vs **dp4** (Simple Loop in Python):

- Time: dp1 is significantly faster than dp4 at 0.490266 seconds vs 159.478333 seconds
- Bandwidth: dp1 achieves a bandwidth of 4.559 GB/sec, which is much higher than the 0.014 GB/sec of dp4
- FLOP/sec: dp1 has a throughput of 1.223 billion FLOP/sec, while dp4 achieves a mere 3.76 million FLOP/sec
- Scaling: as the vector size increases from 1M to 300M, dp1 bandwidth remains consistent, indicating a scalable implementation in C.

The vast difference in performance is because C is a compiled language that can be heavily optimized by the compiler, whereas Python is interpreted and not optimized for such operations.

dp2 (Dot Product with Loop Unrolling in C) vs **dp4** (Simple Loop in Python):

- Time: dp2 is even faster than dp1, with a timing of 0.257274 seconds
- Bandwidth: dp2 achieves a bandwidth of 8.688 GB/sec, which is superior to both dp1 and dp4
- FLOP/sec: dp2 has a throughput of 2.332 billion FLOP/sec, which is superior to dp1 and dp4
- Scaling: dp2 bandwidth slightly decreases as the vector size grows, suggesting that while loop unrolling provides benefits for smaller vectors, its efficiency diminishes slightly with larger data sizes.

Loop unrolling is an optimization technique where multiple iterations of a loop are combined into a single iteration to reduce the overhead of loop control, this results in faster execution despite increasing the code size.

dp3 (Dot Product using MKL in C) vs **dp4** (Simple Loop in Python):

- Time: dp3 achieves the best C performance at 0.210301 seconds, better than dp1, dp2, dp4, and dp5
- Bandwidth: dp3 achieves a bandwidth of 10.628 GB/sec, which is superior to dp1, dp2, dp4, and dp5
- FLOP/sec: dp3 has a throughput of 2.853 billion FLOP/sec, which is superior to dp1, dp2, dp4, and dp5
- Scaling: despite its excellent performance at 1M, dp3 bandwidth drops significantly as the vector size increases, indicating some scaling challenges when using the MKL library for very large vectors.

The optimized MKL library is a set of highly optimized mathematical routines. The cblas_sdot function from MKL performs the dot product, showcasing the power of using specialized libraries for mathematical operations.

dp5 (numpy.dot in Python) vs **dp4** (Simple Loop in Python):

- Time: dp5 outperforms dp4 and closely rivals the exceptional performance of MKL, at 0.218039 seconds
- Bandwidth: dp5 achieves a highly optimized bandwidth of 10.299 GB/sec, superior to dp1, dp2, and dp4

- FLOP/sec: dp5 has a throughput of 2.764 billion FLOP/sec, which is superior to dp1, dp2, and dp4
- Scaling: dp5 bandwidth slightly decreases as the vector size grows, but it remains highly competitive, showcasing the optimization capabilities of NumPy even for larger data sizes.

The performance observed in dp5 is a testament to the efficiencies of NumPy, which provides Python bindings to underlying C implementations and demonstrates how using the right libraries can yield results that rival optimized C code.

Overall, the C implementations (dp1, dp2, dp3) are all significantly faster than the pure Python loop (dp4). Among the C implementations, using specialized libraries (dp3) or optimization techniques (dp2) can further boost performance. Additionally, the NumPy implementation (dp5) provides near-C performance, demonstrating the power of optimized libraries in Python, while pure Python loops (dp4) proved unsuitable for intensive numerical operations due to their significant performance limitations compared to optimized C or library-based solutions.

Q4. Check the result of the dotproduct computations against the analytically calculated result. Explain your findings. (Hint: Floating point operations are not exact.)

Because of the finite number of bits allocated to represent numbers, floating point arithmetic cannot precisely represent all integers beyond a certain magnitude. This limitation can lead to unexpected behaviors when performing large-scale computations, but can be mitigated by employing strategies like chunking or leveraging optimized libraries to achieve results that are much closer to the analytically expected values.

In the realm of computational mathematics, the task involves computing the dot product of two vectors of size N, with each element initialized to 1.

Analytically, the dot product for such vectors can be represented as:

$$A \cdot B = \sum_{i=1}^{N} A_i \times B_i = \sum_{i=1}^{N} 1 \times 1 = N$$

Here, we will examine the findings from our dot product computations, based on how these precision issues have been handled by splitting the dot product into chunks after our initial tests demonstrated precision issues that are typical of floating point arithmetic.

- **dp1** (Dot Product in C) and **dp2** (Dot Product with Loop Unrolling in C):

  - Without optimization techniques like chunking, the value for the dot product in dp1 saturates at 16777216. This is not because of the nature of the dot product but rather due to the limitations of single-precision floating-point arithmetic.
  - This saturation is due to the inability of single-precision floating-point arithmetic to accurately represent integers beyond 2^{24}.
  - In dp1_test (below), the operation continuously adds 1 to the running sum. When the sum reaches 2^{24} (16777216) any further addition does not change the value because of precision limitation. In this case, it is as if there is an error of -1 causing the results to stay the same, even though we are trying to add 1.
  - dp2_test (below) uses a loop unrolling to add 4 in each iteration. However, when the sum reaches $4 \cdot 2^{24}$ (67108864), adding 4 does not change the result. Again, this is due to the precision limitation and can be thought of as an error of -4.
  - In our final versions of dp1 and dp2, a chunking strategy breaks down the dot product into smaller chunks, effectively preventing the sum in any chunk from reaching the problematic threshold. As a result, with chunking, our results align with the expected value ($R = N$), demonstrating the effectiveness of this strategy in mitigating floating-point precision issues.
  - Loop unrolling in dp2 also improves performance, underscoring the advantage of this optimization in computational tasks that are both memory-bound and computationally intensive.
- **dp3** (Intel MKL in C): The MKL library features optimizations that handle precision loss more effectively than our straightforward implementation. The dot product results matched the expected analytical value without additional optimizations. The larger vector sizes were slower but still performed well with limited variability in each run and the MKL performance proved superior to the unrolled loop in dp2.

- **dp4** (Simply Loop in Python): Python uses double precision for its floating point operations, which provides a larger range of exact integer representations with its allocation of 64 bits. This is crucial for iterative computations where errors can accumulate over time, double precision ensures that results are accurate and reliable for tasks that require greater precision. However, as was observed during our tests, this increased accuracy comes at the expense of increased memory usage and potentially slower runtimes, especially when using hardware that has been optimized for single precision. Because of this, the dot product computation returned results matching the analytical value without needing additional optimization but the performance in Python was slower than the previous C-based implementations.

- **dp5** (numpy.dot in Python): NumPy is also optimized for numerical computaitons and uses a combination of efficient algorithms and higher precision arithmetic when computing the dot product. Thus, the results were consistent with expected analytical values without needing further optimization. The NumPy built-in dot function proved faster than the generic Python loop in dp4, and the performance of dp5 proved closer to the C-based implementations.

In conclusion, the nuances of single-precision floating-point operations can lead to significant precision losses, especially with larger numbers. This precision loss can materially impact the outcome of computations, as evidenced in dp1 and dp2 without chunking. By understanding these computational intricacies and employing strategies like chunking or optimized libraries, we can achieve results that are closer to the analytically expected values.

Validation tests were executed after running each expirement, the results of the dot product computations against the analytically calculated result were as follows:

dp1

For N = 1000000:
Computed Dot Product: 1000000.0
Analytical Result: 1000000

For N = 16777216:
Computed Dot Product: 16777216.0
Analytical Result: 16777216

For N = 67108864:
Computed Dot Product: 67108864.0
Analytical Result: 67108864

For N = 300000000:
Computed Dot Product: 300000000.0
Analytical Result: 300000000

dp2

For N = 1000000:
Computed Dot Product: 1000000.0
Analytical Result: 1000000

For N = 16777216:
Computed Dot Product: 16777216.0
Analytical Result: 16777216

For N = 67108864:
Computed Dot Product: 67108864.0
Analytical Result: 67108864

For N = 300000000:
Computed Dot Product: 300000000.0
Analytical Result: 300000000

dp3

For N = 1000000:
Computed Dot Product (using MKL): 1000000.0
Analytical Result: 1000000

For N = 16777216:
Computed Dot Product (using MKL): 16777216.0
Analytical Result: 16777216

For N = 67108864:
Computed Dot Product (using MKL): 67108864.0
Analytical Result: 67108864

For N = 300000000:
Computed Dot Product (using MKL): 300000000.0
Analytical Result: 300000000

dp4

For N = 1000000:
Computed Dot Product (using Python loop): 1000000.0
Analytical Result: 1000000

For N = 16777216:
Computed Dot Product (using Python loop): 16777216.0
Analytical Result: 16777216

For N = 67108864:
Computed Dot Product (using Python loop): 67108864.0
Analytical Result: 67108864

For N = 300000000:
Computed Dot Product (using Python loop): 300000000.0
Analytical Result: 300000000

dp5

For N = 1000000:
Computed Dot Product (using numpy.dot): 1000000.0
Analytical Result: 1000000

For N = 16777216:
Computed Dot Product (using numpy.dot): 16777216.0
Analytical Result: 16777216

For N = 67108864:
Computed Dot Product (using numpy.dot): 67108864.0
Analytical Result: 67108864

For N = 300000000:
Computed Dot Product (using numpy.dot): 300000000.0
Analytical Result: 300000000

```
In [15]: %%writefile dp1_test.c
#include <stdio.h>
#include <stdlib.h>
#include <time.h>

#define GB (1073741824.0)

// Compute the dot product of two vectors
float dp(long N, float *pA, float *pB)
{
    float R = 0.0;
```

```c
    int j;
    for (j = 0; j < N; j++)
        R += pA[j] * pB[j]; // Multiply corresponding elements and accumulate
    return R;
}

// Initialize two vectors with all elements set to 1
void initialize_vectors(long N, float *vecA, float *vecB)
{
    for (long i = 0; i < N; i++)
    {
        vecA[i] = 1.0;
        vecB[i] = 1.0;
    }
}

int main(int argc, char *argv[])
{
    // Check for the correct number of command-line arguments
    if (argc < 3)
    {
        printf("Usage: %s [vector size] [number of measurements]\n", argv[0]);
        return 1;
    }

    // Convert command-line arguments to respective data types
    long vec_size = atol(argv[1]);
    int num_measurements = atoi(argv[2]);
    printf("Vector size: %ld with %d measurements.\n", vec_size, num_measurements);

    // Allocate memory for the two vectors
    float *vecA = (float *)malloc(vec_size * sizeof(float));
    float *vecB = (float *)malloc(vec_size * sizeof(float));

    // Measure the time
    struct timespec start_time, end_time;
    double cumulative_time = 0;
    float dp_result;

    // Initialize vectors to default values
    initialize_vectors(vec_size, vecA, vecB);

    // Perform the dot product multiple times and measure its performance
    for (int i = 0; i < num_measurements; i++)
    {
        clock_gettime(CLOCK_MONOTONIC, &start_time); // Start the timer
        dp_result = dp(vec_size, vecA, vecB);
        clock_gettime(CLOCK_MONOTONIC, &end_time); // Stop the timer

        // Calculate elapsed time
        double elapsed_time = (end_time.tv_sec - start_time.tv_sec) +
                              (end_time.tv_nsec - start_time.tv_nsec) / 1e9;

        // Accumulate time from the second half measurements for averages
        if (i >= num_measurements / 2)
            cumulative_time += elapsed_time;

        // Compute bandwidth and flops
        double bandwidth = (vec_size * 2 * sizeof(float) / GB) / elapsed_time;
        double flops = vec_size * 2 / elapsed_time;

        printf("R: %ld <T>: %.6f sec B: %.3f GB/sec F: %.3f FLOP/sec\n",
                (long)dp_result, elapsed_time, bandwidth, flops);

    }

    // Calculate and print the averages for second half measurements
    double average_time = cumulative_time / (num_measurements / 2);
    double average_bandwidth = (vec_size * 2 * sizeof(float) / GB) / average_time;
    double average_flops = vec_size * 2 / average_time;

    printf("N: %li <T>: %.6f sec B: %.3f GB/sec F: %.3f FLOP/sec\n",
            vec_size, average_time, average_bandwidth, average_flops);

    // Free the allocated memory
    free(vecA);
    free(vecB);

    return 0;
}
```

Overwriting dp1_test.c

In [16]: `!gcc -O3 -Wall -o dp1_test dp1_test.c`

In [17]: `!./dp1_test`

Usage: ./dp1_test [vector size] [number of measurements]

In [18]: `!./dp1_test 1000000 1000`

```
Vector size: 1000000 with 1000 measurements.
R: 1000000 <T>: 0.002307 sec B: 3.230 GB/sec F: 867086105.119 FLOP/sec
R: 1000000 <T>: 0.001630 sec B: 4.570 GB/sec F: 1226771841.906 FLOP/sec
R: 1000000 <T>: 0.001625 sec B: 4.584 GB/sec F: 1230519340.688 FLOP/sec
R: 1000000 <T>: 0.001976 sec B: 3.771 GB/sec F: 1012333768.468 FLOP/sec
R: 1000000 <T>: 0.001592 sec B: 4.679 GB/sec F: 1256069958.072 FLOP/sec
R: 1000000 <T>: 0.002232 sec B: 3.338 GB/sec F: 896152102.104 FLOP/sec
R: 1000000 <T>: 0.001616 sec B: 4.609 GB/sec F: 1237242483.443 FLOP/sec
R: 1000000 <T>: 0.001590 sec B: 4.687 GB/sec F: 1258098220.986 FLOP/sec
R: 1000000 <T>: 0.001668 sec B: 4.466 GB/sec F: 1198943730.573 FLOP/sec
R: 1000000 <T>: 0.002002 sec B: 3.722 GB/sec F: 999077352.065 FLOP/sec
R: 1000000 <T>: 0.002284 sec B: 3.262 GB/sec F: 875666327.346 FLOP/sec
R: 1000000 <T>: 0.001608 sec B: 4.633 GB/sec F: 1243719991.369 FLOP/sec
R: 1000000 <T>: 0.001847 sec B: 4.035 GB/sec F: 1083050476.651 FLOP/sec
R: 1000000 <T>: 0.001744 sec B: 4.273 GB/sec F: 1147036945.486 FLOP/sec
R: 1000000 <T>: 0.001581 sec B: 4.714 GB/sec F: 1265335870.754 FLOP/sec
R: 1000000 <T>: 0.001576 sec B: 4.729 GB/sec F: 1269340786.902 FLOP/sec
R: 1000000 <T>: 0.001547 sec B: 4.817 GB/sec F: 1293031272.608 FLOP/sec
R: 1000000 <T>: 0.001588 sec B: 4.691 GB/sec F: 1259241256.773 FLOP/sec
R: 1000000 <T>: 0.001556 sec B: 4.787 GB/sec F: 1284992762.278 FLOP/sec
R: 1000000 <T>: 0.001587 sec B: 4.694 GB/sec F: 1259971096.263 FLOP/sec
R: 1000000 <T>: 0.001545 sec B: 4.821 GB/sec F: 1294161648.555 FLOP/sec
R: 1000000 <T>: 0.001551 sec B: 4.803 GB/sec F: 1289408348.532 FLOP/sec
R: 1000000 <T>: 0.001565 sec B: 4.760 GB/sec F: 1277675244.339 FLOP/sec
R: 1000000 <T>: 0.001543 sec B: 4.830 GB/sec F: 1296520786.470 FLOP/sec
R: 1000000 <T>: 0.001577 sec B: 4.726 GB/sec F: 1268517984.097 FLOP/sec
R: 1000000 <T>: 0.001562 sec B: 4.769 GB/sec F: 1280214666.395 FLOP/sec
R: 1000000 <T>: 0.001557 sec B: 4.784 GB/sec F: 1284274888.766 FLOP/sec
R: 1000000 <T>: 0.001580 sec B: 4.716 GB/sec F: 1265924539.504 FLOP/sec
R: 1000000 <T>: 0.001570 sec B: 4.745 GB/sec F: 1273856952.234 FLOP/sec
R: 1000000 <T>: 0.001592 sec B: 4.679 GB/sec F: 1256026572.498 FLOP/sec
R: 1000000 <T>: 0.001604 sec B: 4.644 GB/sec F: 1246686152.371 FLOP/sec
R: 1000000 <T>: 0.001608 sec B: 4.635 GB/sec F: 1244084378.779 FLOP/sec
R: 1000000 <T>: 0.002761 sec B: 2.699 GB/sec F: 724454730.092 FLOP/sec
R: 1000000 <T>: 0.001617 sec B: 4.608 GB/sec F: 1237054992.661 FLOP/sec
R: 1000000 <T>: 0.001704 sec B: 4.372 GB/sec F: 1173631091.365 FLOP/sec
R: 1000000 <T>: 0.001597 sec B: 4.665 GB/sec F: 1252153704.372 FLOP/sec
R: 1000000 <T>: 0.001604 sec B: 4.644 GB/sec F: 1246601452.789 FLOP/sec
R: 1000000 <T>: 0.001610 sec B: 4.629 GB/sec F: 1242476031.084 FLOP/sec
R: 1000000 <T>: 0.001604 sec B: 4.644 GB/sec F: 1246529195.272 FLOP/sec
R: 1000000 <T>: 0.001588 sec B: 4.692 GB/sec F: 1259383191.894 FLOP/sec
R: 1000000 <T>: 0.001595 sec B: 4.672 GB/sec F: 1254139444.002 FLOP/sec
R: 1000000 <T>: 0.001646 sec B: 4.525 GB/sec F: 1214735470.094 FLOP/sec
R: 1000000 <T>: 0.001590 sec B: 4.687 GB/sec F: 1258047573.069 FLOP/sec
R: 1000000 <T>: 0.001589 sec B: 4.688 GB/sec F: 1258421989.162 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.630 GB/sec F: 1242889120.619 FLOP/sec
R: 1000000 <T>: 0.001576 sec B: 4.726 GB/sec F: 1268668456.335 FLOP/sec
R: 1000000 <T>: 0.001714 sec B: 4.348 GB/sec F: 1167168938.366 FLOP/sec
R: 1000000 <T>: 0.001585 sec B: 4.701 GB/sec F: 1261876625.060 FLOP/sec
R: 1000000 <T>: 0.001604 sec B: 4.645 GB/sec F: 1246958978.790 FLOP/sec
R: 1000000 <T>: 0.001600 sec B: 4.658 GB/sec F: 1250289910.973 FLOP/sec
R: 1000000 <T>: 0.001557 sec B: 4.786 GB/sec F: 1284710468.014 FLOP/sec
R: 1000000 <T>: 0.001587 sec B: 4.695 GB/sec F: 1260251357.133 FLOP/sec
R: 1000000 <T>: 0.001575 sec B: 4.729 GB/sec F: 1269491454.418 FLOP/sec
R: 1000000 <T>: 0.001557 sec B: 4.786 GB/sec F: 1284675808.848 FLOP/sec
R: 1000000 <T>: 0.001595 sec B: 4.671 GB/sec F: 1253806871.112 FLOP/sec
R: 1000000 <T>: 0.001563 sec B: 4.766 GB/sec F: 1279455463.755 FLOP/sec
R: 1000000 <T>: 0.002819 sec B: 2.643 GB/sec F: 709371039.714 FLOP/sec
R: 1000000 <T>: 0.001620 sec B: 4.600 GB/sec F: 1234743966.578 FLOP/sec
R: 1000000 <T>: 0.001564 sec B: 4.765 GB/sec F: 1279018532.339 FLOP/sec
R: 1000000 <T>: 0.001620 sec B: 4.600 GB/sec F: 1234825537.674 FLOP/sec
R: 1000000 <T>: 0.001592 sec B: 4.681 GB/sec F: 1256485033.379 FLOP/sec
R: 1000000 <T>: 0.001557 sec B: 4.784 GB/sec F: 1284122340.904 FLOP/sec
R: 1000000 <T>: 0.001628 sec B: 4.576 GB/sec F: 1228452935.511 FLOP/sec
R: 1000000 <T>: 0.001604 sec B: 4.645 GB/sec F: 1246866468.706 FLOP/sec
R: 1000000 <T>: 0.001620 sec B: 4.600 GB/sec F: 1234712713.219 FLOP/sec
R: 1000000 <T>: 0.001746 sec B: 4.268 GB/sec F: 1145628253.942 FLOP/sec
R: 1000000 <T>: 0.001603 sec B: 4.649 GB/sec F: 1247934668.124 FLOP/sec
R: 1000000 <T>: 0.001590 sec B: 4.686 GB/sec F: 1257771455.380 FLOP/sec
R: 1000000 <T>: 0.001615 sec B: 4.615 GB/sec F: 1238700726.808 FLOP/sec
R: 1000000 <T>: 0.001574 sec B: 4.734 GB/sec F: 1270719074.510 FLOP/sec
R: 1000000 <T>: 0.001606 sec B: 4.640 GB/sec F: 1245606124.396 FLOP/sec
R: 1000000 <T>: 0.001566 sec B: 4.757 GB/sec F: 1276901114.224 FLOP/sec
R: 1000000 <T>: 0.001554 sec B: 4.795 GB/sec F: 1287190969.583 FLOP/sec
R: 1000000 <T>: 0.001552 sec B: 4.799 GB/sec F: 1288351817.961 FLOP/sec
R: 1000000 <T>: 0.001542 sec B: 4.833 GB/sec F: 1297277662.825 FLOP/sec
R: 1000000 <T>: 0.001569 sec B: 4.747 GB/sec F: 1274365875.540 FLOP/sec
R: 1000000 <T>: 0.001569 sec B: 4.749 GB/sec F: 1274914214.210 FLOP/sec
R: 1000000 <T>: 0.001553 sec B: 4.799 GB/sec F: 1288088785.384 FLOP/sec
R: 1000000 <T>: 0.001591 sec B: 4.682 GB/sec F: 1256915391.369 FLOP/sec
R: 1000000 <T>: 0.001554 sec B: 4.795 GB/sec F: 1287159490.002 FLOP/sec
R: 1000000 <T>: 0.001569 sec B: 4.749 GB/sec F: 1274778507.234 FLOP/sec
R: 1000000 <T>: 0.001557 sec B: 4.785 GB/sec F: 1284583393.548 FLOP/sec
R: 1000000 <T>: 0.001575 sec B: 4.730 GB/sec F: 1269625232.024 FLOP/sec
R: 1000000 <T>: 0.001581 sec B: 4.711 GB/sec F: 1264713359.041 FLOP/sec
R: 1000000 <T>: 0.001552 sec B: 4.802 GB/sec F: 1288893156.557 FLOP/sec
R: 1000000 <T>: 0.001591 sec B: 4.682 GB/sec F: 1256727418.965 FLOP/sec
R: 1000000 <T>: 0.001567 sec B: 4.755 GB/sec F: 1276404827.108 FLOP/sec
R: 1000000 <T>: 0.001574 sec B: 4.732 GB/sec F: 1270316327.820 FLOP/sec
R: 1000000 <T>: 0.001569 sec B: 4.749 GB/sec F: 1274743569.397 FLOP/sec
R: 1000000 <T>: 0.001640 sec B: 4.543 GB/sec F: 1219521862.064 FLOP/sec
R: 1000000 <T>: 0.001589 sec B: 4.688 GB/sec F: 1258513054.241 FLOP/sec
R: 1000000 <T>: 0.001566 sec B: 4.757 GB/sec F: 1276933724.586 FLOP/sec
R: 1000000 <T>: 0.001589 sec B: 4.688 GB/sec F: 1258387150.357 FLOP/sec
R: 1000000 <T>: 0.001569 sec B: 4.748 GB/sec F: 1274633080.935 FLOP/sec
R: 1000000 <T>: 0.001556 sec B: 4.788 GB/sec F: 1285304090.095 FLOP/sec
R: 1000000 <T>: 0.001586 sec B: 4.699 GB/sec F: 1261301259.283 FLOP/sec
R: 1000000 <T>: 0.001558 sec B: 4.784 GB/sec F: 1284091835.680 FLOP/sec
R: 1000000 <T>: 0.001585 sec B: 4.702 GB/sec F: 1262111537.845 FLOP/sec
R: 1000000 <T>: 0.001577 sec B: 4.723 GB/sec F: 1267871440.372 FLOP/sec
```

```
R: 1000000 <T>: 0.001544 sec B: 4.824 GB/sec F: 1295036513.554 FLOP/sec
R: 1000000 <T>: 0.001566 sec B: 4.757 GB/sec F: 1276976935.881 FLOP/sec
R: 1000000 <T>: 0.001562 sec B: 4.771 GB/sec F: 1280687678.056 FLOP/sec
R: 1000000 <T>: 0.001576 sec B: 4.728 GB/sec F: 1269104786.175 FLOP/sec
R: 1000000 <T>: 0.001595 sec B: 4.671 GB/sec F: 1253849317.404 FLOP/sec
R: 1000000 <T>: 0.001557 sec B: 4.785 GB/sec F: 1284485216.860 FLOP/sec
R: 1000000 <T>: 0.001571 sec B: 4.743 GB/sec F: 1273127960.818 FLOP/sec
R: 1000000 <T>: 0.001563 sec B: 4.768 GB/sec F: 1279807516.949 FLOP/sec
R: 1000000 <T>: 0.001575 sec B: 4.731 GB/sec F: 1270055768.149 FLOP/sec
R: 1000000 <T>: 0.001593 sec B: 4.676 GB/sec F: 1255288688.154 FLOP/sec
R: 1000000 <T>: 0.001569 sec B: 4.749 GB/sec F: 1274829698.688 FLOP/sec
R: 1000000 <T>: 0.001580 sec B: 4.716 GB/sec F: 1266057566.371 FLOP/sec
R: 1000000 <T>: 0.002560 sec B: 2.911 GB/sec F: 781295779.050 FLOP/sec
R: 1000000 <T>: 0.001936 sec B: 3.849 GB/sec F: 1033241443.728 FLOP/sec
R: 1000000 <T>: 0.001590 sec B: 4.687 GB/sec F: 1258242273.291 FLOP/sec
R: 1000000 <T>: 0.001602 sec B: 4.651 GB/sec F: 1248456595.534 FLOP/sec
R: 1000000 <T>: 0.001559 sec B: 4.778 GB/sec F: 1282692628.365 FLOP/sec
R: 1000000 <T>: 0.001568 sec B: 4.751 GB/sec F: 1275350785.233 FLOP/sec
R: 1000000 <T>: 0.004138 sec B: 1.801 GB/sec F: 483348873.000 FLOP/sec
R: 1000000 <T>: 0.001657 sec B: 4.496 GB/sec F: 1206862218.575 FLOP/sec
R: 1000000 <T>: 0.002092 sec B: 3.561 GB/sec F: 955960797.960 FLOP/sec
R: 1000000 <T>: 0.001908 sec B: 3.904 GB/sec F: 1048104869.181 FLOP/sec
R: 1000000 <T>: 0.001629 sec B: 4.573 GB/sec F: 1227511227.125 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.629 GB/sec F: 1242632741.136 FLOP/sec
R: 1000000 <T>: 0.001600 sec B: 4.657 GB/sec F: 1250229729.713 FLOP/sec
R: 1000000 <T>: 0.001562 sec B: 4.771 GB/sec F: 1280736064.631 FLOP/sec
R: 1000000 <T>: 0.001606 sec B: 4.638 GB/sec F: 1245020695.357 FLOP/sec
R: 1000000 <T>: 0.001564 sec B: 4.765 GB/sec F: 1279173142.481 FLOP/sec
R: 1000000 <T>: 0.001575 sec B: 4.731 GB/sec F: 1270092062.623 FLOP/sec
R: 1000000 <T>: 0.001747 sec B: 4.265 GB/sec F: 1144805929.637 FLOP/sec
R: 1000000 <T>: 0.001650 sec B: 4.516 GB/sec F: 1212306364.366 FLOP/sec
R: 1000000 <T>: 0.001584 sec B: 4.703 GB/sec F: 1262463672.608 FLOP/sec
R: 1000000 <T>: 0.001573 sec B: 4.736 GB/sec F: 1271177822.523 FLOP/sec
R: 1000000 <T>: 0.001564 sec B: 4.764 GB/sec F: 1278790366.616 FLOP/sec
R: 1000000 <T>: 0.001574 sec B: 4.733 GB/sec F: 1270477718.679 FLOP/sec
R: 1000000 <T>: 0.001559 sec B: 4.778 GB/sec F: 1282566775.236 FLOP/sec
R: 1000000 <T>: 0.001574 sec B: 4.734 GB/sec F: 1270699698.082 FLOP/sec
R: 1000000 <T>: 0.001582 sec B: 4.711 GB/sec F: 1264523846.707 FLOP/sec
R: 1000000 <T>: 0.001587 sec B: 4.695 GB/sec F: 1260188625.033 FLOP/sec
R: 1000000 <T>: 0.001575 sec B: 4.731 GB/sec F: 1269934801.547 FLOP/sec
R: 1000000 <T>: 0.001546 sec B: 4.818 GB/sec F: 1293353199.238 FLOP/sec
R: 1000000 <T>: 0.001557 sec B: 4.786 GB/sec F: 1284849948.799 FLOP/sec
R: 1000000 <T>: 0.001544 sec B: 4.826 GB/sec F: 1295502920.711 FLOP/sec
R: 1000000 <T>: 0.001569 sec B: 4.749 GB/sec F: 1274715945.485 FLOP/sec
R: 1000000 <T>: 0.001558 sec B: 4.781 GB/sec F: 1283473798.845 FLOP/sec
R: 1000000 <T>: 0.001557 sec B: 4.785 GB/sec F: 1284541315.987 FLOP/sec
R: 1000000 <T>: 0.001570 sec B: 4.746 GB/sec F: 1274059011.865 FLOP/sec
R: 1000000 <T>: 0.001557 sec B: 4.785 GB/sec F: 1284453869.482 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.631 GB/sec F: 1243244520.089 FLOP/sec
R: 1000000 <T>: 0.001568 sec B: 4.753 GB/sec F: 1275848694.552 FLOP/sec
R: 1000000 <T>: 0.001551 sec B: 4.803 GB/sec F: 1289221336.097 FLOP/sec
R: 1000000 <T>: 0.001594 sec B: 4.675 GB/sec F: 1254952355.734 FLOP/sec
R: 1000000 <T>: 0.001544 sec B: 4.824 GB/sec F: 1294987040.417 FLOP/sec
R: 1000000 <T>: 0.001555 sec B: 4.792 GB/sec F: 1286455743.671 FLOP/sec
R: 1000000 <T>: 0.001549 sec B: 4.811 GB/sec F: 1291368172.294 FLOP/sec
R: 1000000 <T>: 0.001557 sec B: 4.785 GB/sec F: 1284575142.829 FLOP/sec
R: 1000000 <T>: 0.001558 sec B: 4.783 GB/sec F: 1283854439.151 FLOP/sec
R: 1000000 <T>: 0.001577 sec B: 4.725 GB/sec F: 1268358699.450 FLOP/sec
R: 1000000 <T>: 0.001599 sec B: 4.660 GB/sec F: 1250975761.094 FLOP/sec
R: 1000000 <T>: 0.001650 sec B: 4.517 GB/sec F: 1212400431.615 FLOP/sec
R: 1000000 <T>: 0.001573 sec B: 4.736 GB/sec F: 1271305490.896 FLOP/sec
R: 1000000 <T>: 0.001568 sec B: 4.751 GB/sec F: 1275434556.496 FLOP/sec
R: 1000000 <T>: 0.001557 sec B: 4.785 GB/sec F: 1284538840.922 FLOP/sec
R: 1000000 <T>: 0.001606 sec B: 4.639 GB/sec F: 1245398253.453 FLOP/sec
R: 1000000 <T>: 0.001575 sec B: 4.731 GB/sec F: 1269888033.972 FLOP/sec
R: 1000000 <T>: 0.001623 sec B: 4.591 GB/sec F: 1232410422.248 FLOP/sec
R: 1000000 <T>: 0.001673 sec B: 4.454 GB/sec F: 1195544444.963 FLOP/sec
R: 1000000 <T>: 0.001568 sec B: 4.750 GB/sec F: 1275137746.755 FLOP/sec
R: 1000000 <T>: 0.001564 sec B: 4.765 GB/sec F: 1279137145.247 FLOP/sec
R: 1000000 <T>: 0.001572 sec B: 4.740 GB/sec F: 1272486425.751 FLOP/sec
R: 1000000 <T>: 0.001562 sec B: 4.771 GB/sec F: 1280572057.149 FLOP/sec
R: 1000000 <T>: 0.001593 sec B: 4.678 GB/sec F: 1255658310.261 FLOP/sec
R: 1000000 <T>: 0.001574 sec B: 4.733 GB/sec F: 1270554393.704 FLOP/sec
R: 1000000 <T>: 0.001564 sec B: 4.765 GB/sec F: 1279101150.040 FLOP/sec
R: 1000000 <T>: 0.001548 sec B: 4.813 GB/sec F: 1291892855.574 FLOP/sec
R: 1000000 <T>: 0.001547 sec B: 4.816 GB/sec F: 1292916755.555 FLOP/sec
R: 1000000 <T>: 0.001578 sec B: 4.723 GB/sec F: 1267758121.892 FLOP/sec
R: 1000000 <T>: 0.001551 sec B: 4.804 GB/sec F: 1289527233.526 FLOP/sec
R: 1000000 <T>: 0.003157 sec B: 2.360 GB/sec F: 633535304.388 FLOP/sec
R: 1000000 <T>: 0.001663 sec B: 4.481 GB/sec F: 1202973509.922 FLOP/sec
R: 1000000 <T>: 0.001615 sec B: 4.614 GB/sec F: 1238483650.158 FLOP/sec
R: 1000000 <T>: 0.002031 sec B: 3.669 GB/sec F: 984850051.655 FLOP/sec
R: 1000000 <T>: 0.001788 sec B: 4.166 GB/sec F: 1118333057.478 FLOP/sec
R: 1000000 <T>: 0.001748 sec B: 4.262 GB/sec F: 1144132687.356 FLOP/sec
R: 1000000 <T>: 0.001640 sec B: 4.544 GB/sec F: 1219814173.509 FLOP/sec
R: 1000000 <T>: 0.001565 sec B: 4.760 GB/sec F: 1277801772.055 FLOP/sec
R: 1000000 <T>: 0.001643 sec B: 4.536 GB/sec F: 1217641926.821 FLOP/sec
R: 1000000 <T>: 0.001640 sec B: 4.543 GB/sec F: 1219426686.543 FLOP/sec
R: 1000000 <T>: 0.001621 sec B: 4.596 GB/sec F: 1233657888.163 FLOP/sec
R: 1000000 <T>: 0.001679 sec B: 4.438 GB/sec F: 1191420816.981 FLOP/sec
R: 1000000 <T>: 0.001590 sec B: 4.687 GB/sec F: 1258134626.696 FLOP/sec
R: 1000000 <T>: 0.001783 sec B: 4.179 GB/sec F: 1121772310.509 FLOP/sec
R: 1000000 <T>: 0.001561 sec B: 4.773 GB/sec F: 1281326839.569 FLOP/sec
R: 1000000 <T>: 0.001585 sec B: 4.700 GB/sec F: 1261516064.776 FLOP/sec
R: 1000000 <T>: 0.001569 sec B: 4.748 GB/sec F: 1274430027.101 FLOP/sec
R: 1000000 <T>: 0.001557 sec B: 4.784 GB/sec F: 1284293856.709 FLOP/sec
R: 1000000 <T>: 0.001580 sec B: 4.716 GB/sec F: 1266051154.797 FLOP/sec
R: 1000000 <T>: 0.001770 sec B: 4.210 GB/sec F: 1130009260.426 FLOP/sec
R: 1000000 <T>: 0.001576 sec B: 4.726 GB/sec F: 1268654775.565 FLOP/sec
R: 1000000 <T>: 0.001605 sec B: 4.641 GB/sec F: 1245735691.013 FLOP/sec
```

```
R: 1000000 <T>: 0.001585 sec B: 4.701 GB/sec F: 1261870255.762 FLOP/sec
R: 1000000 <T>: 0.001554 sec B: 4.794 GB/sec F: 1286855542.744 FLOP/sec
R: 1000000 <T>: 0.001586 sec B: 4.699 GB/sec F: 1261394332.681 FLOP/sec
R: 1000000 <T>: 0.001584 sec B: 4.704 GB/sec F: 1262587205.320 FLOP/sec
R: 1000000 <T>: 0.001574 sec B: 4.735 GB/sec F: 1270952445.408 FLOP/sec
R: 1000000 <T>: 0.001547 sec B: 4.817 GB/sec F: 1293015389.469 FLOP/sec
R: 1000000 <T>: 0.001685 sec B: 4.423 GB/sec F: 1187268445.551 FLOP/sec
R: 1000000 <T>: 0.001568 sec B: 4.752 GB/sec F: 1275499629.148 FLOP/sec
R: 1000000 <T>: 0.001583 sec B: 4.707 GB/sec F: 1263461391.463 FLOP/sec
R: 1000000 <T>: 0.001750 sec B: 4.258 GB/sec F: 1143115160.279 FLOP/sec
R: 1000000 <T>: 0.001573 sec B: 4.737 GB/sec F: 1271638518.948 FLOP/sec
R: 1000000 <T>: 0.001721 sec B: 4.330 GB/sec F: 1162256194.971 FLOP/sec
R: 1000000 <T>: 0.001569 sec B: 4.750 GB/sec F: 1274979233.776 FLOP/sec
R: 1000000 <T>: 0.001629 sec B: 4.574 GB/sec F: 1227830748.443 FLOP/sec
R: 1000000 <T>: 0.001647 sec B: 4.524 GB/sec F: 1214432313.615 FLOP/sec
R: 1000000 <T>: 0.001571 sec B: 4.744 GB/sec F: 1273415727.576 FLOP/sec
R: 1000000 <T>: 0.001582 sec B: 4.710 GB/sec F: 1264382349.222 FLOP/sec
R: 1000000 <T>: 0.001572 sec B: 4.741 GB/sec F: 1272611118.040 FLOP/sec
R: 1000000 <T>: 0.001585 sec B: 4.701 GB/sec F: 1261894140.962 FLOP/sec
R: 1000000 <T>: 0.001549 sec B: 4.810 GB/sec F: 1291298969.285 FLOP/sec
R: 1000000 <T>: 0.001572 sec B: 4.740 GB/sec F: 1272403850.803 FLOP/sec
R: 1000000 <T>: 0.001571 sec B: 4.743 GB/sec F: 1273218735.159 FLOP/sec
R: 1000000 <T>: 0.001560 sec B: 4.775 GB/sec F: 1281736599.284 FLOP/sec
R: 1000000 <T>: 0.001593 sec B: 4.679 GB/sec F: 1255881449.815 FLOP/sec
R: 1000000 <T>: 0.001563 sec B: 4.765 GB/sec F: 1279183778.415 FLOP/sec
R: 1000000 <T>: 0.001621 sec B: 4.597 GB/sec F: 1233897635.852 FLOP/sec
R: 1000000 <T>: 0.001577 sec B: 4.724 GB/sec F: 1268011308.125 FLOP/sec
R: 1000000 <T>: 0.001581 sec B: 4.713 GB/sec F: 1265201394.758 FLOP/sec
R: 1000000 <T>: 0.001589 sec B: 4.690 GB/sec F: 1259010581.354 FLOP/sec
R: 1000000 <T>: 0.001568 sec B: 4.753 GB/sec F: 1275907297.679 FLOP/sec
R: 1000000 <T>: 0.001577 sec B: 4.726 GB/sec F: 1268506720.231 FLOP/sec
R: 1000000 <T>: 0.001612 sec B: 4.623 GB/sec F: 1241066647.141 FLOP/sec
R: 1000000 <T>: 0.001579 sec B: 4.720 GB/sec F: 1266972682.802 FLOP/sec
R: 1000000 <T>: 0.001589 sec B: 4.688 GB/sec F: 1258316686.852 FLOP/sec
R: 1000000 <T>: 0.001574 sec B: 4.734 GB/sec F: 1270673863.763 FLOP/sec
R: 1000000 <T>: 0.001579 sec B: 4.719 GB/sec F: 1266799342.785 FLOP/sec
R: 1000000 <T>: 0.001644 sec B: 4.533 GB/sec F: 1216856628.127 FLOP/sec
R: 1000000 <T>: 0.001587 sec B: 4.695 GB/sec F: 1260393520.065 FLOP/sec
R: 1000000 <T>: 0.001575 sec B: 4.729 GB/sec F: 1269504347.418 FLOP/sec
R: 1000000 <T>: 0.002900 sec B: 2.569 GB/sec F: 689643995.425 FLOP/sec
R: 1000000 <T>: 0.001596 sec B: 4.669 GB/sec F: 1253421056.095 FLOP/sec
R: 1000000 <T>: 0.001599 sec B: 4.660 GB/sec F: 1250856836.933 FLOP/sec
R: 1000000 <T>: 0.001579 sec B: 4.719 GB/sec F: 1266823414.951 FLOP/sec
R: 1000000 <T>: 0.001564 sec B: 4.763 GB/sec F: 1278468292.708 FLOP/sec
R: 1000000 <T>: 0.001595 sec B: 4.671 GB/sec F: 1253861894.635 FLOP/sec
R: 1000000 <T>: 0.001687 sec B: 4.417 GB/sec F: 1185792310.848 FLOP/sec
R: 1000000 <T>: 0.001579 sec B: 4.717 GB/sec F: 1266233910.124 FLOP/sec
R: 1000000 <T>: 0.001666 sec B: 4.471 GB/sec F: 1200302236.103 FLOP/sec
R: 1000000 <T>: 0.001633 sec B: 4.562 GB/sec F: 1224532779.518 FLOP/sec
R: 1000000 <T>: 0.001692 sec B: 4.402 GB/sec F: 1181722999.402 FLOP/sec
R: 1000000 <T>: 0.001627 sec B: 4.578 GB/sec F: 1228973794.592 FLOP/sec
R: 1000000 <T>: 0.001866 sec B: 3.993 GB/sec F: 1071889483.907 FLOP/sec
R: 1000000 <T>: 0.002290 sec B: 3.254 GB/sec F: 873442110.838 FLOP/sec
R: 1000000 <T>: 0.001678 sec B: 4.439 GB/sec F: 1191692000.052 FLOP/sec
R: 1000000 <T>: 0.001627 sec B: 4.580 GB/sec F: 1229467130.504 FLOP/sec
R: 1000000 <T>: 0.001595 sec B: 4.670 GB/sec F: 1253655974.235 FLOP/sec
R: 1000000 <T>: 0.001630 sec B: 4.572 GB/sec F: 1227333452.385 FLOP/sec
R: 1000000 <T>: 0.001588 sec B: 4.691 GB/sec F: 1259156428.151 FLOP/sec
R: 1000000 <T>: 0.001606 sec B: 4.638 GB/sec F: 1245087352.216 FLOP/sec
R: 1000000 <T>: 0.001658 sec B: 4.494 GB/sec F: 1206304630.521 FLOP/sec
R: 1000000 <T>: 0.001600 sec B: 4.656 GB/sec F: 1249737555.113 FLOP/sec
R: 1000000 <T>: 0.001713 sec B: 4.350 GB/sec F: 1167795925.326 FLOP/sec
R: 1000000 <T>: 0.001599 sec B: 4.660 GB/sec F: 1250854489.973 FLOP/sec
R: 1000000 <T>: 0.001595 sec B: 4.672 GB/sec F: 1254141016.870 FLOP/sec
R: 1000000 <T>: 0.001590 sec B: 4.685 GB/sec F: 1257550015.908 FLOP/sec
R: 1000000 <T>: 0.001595 sec B: 4.671 GB/sec F: 1253949942.318 FLOP/sec
R: 1000000 <T>: 0.001569 sec B: 4.748 GB/sec F: 1274507992.121 FLOP/sec
R: 1000000 <T>: 0.001607 sec B: 4.638 GB/sec F: 1244919173.623 FLOP/sec
R: 1000000 <T>: 0.001604 sec B: 4.646 GB/sec F: 1247253703.252 FLOP/sec
R: 1000000 <T>: 0.001595 sec B: 4.671 GB/sec F: 1253957018.115 FLOP/sec
R: 1000000 <T>: 0.001584 sec B: 4.703 GB/sec F: 1262561699.812 FLOP/sec
R: 1000000 <T>: 0.001585 sec B: 4.700 GB/sec F: 1261777908.161 FLOP/sec
R: 1000000 <T>: 0.001694 sec B: 4.398 GB/sec F: 1180581093.820 FLOP/sec
R: 1000000 <T>: 0.001559 sec B: 4.780 GB/sec F: 1283020126.737 FLOP/sec
R: 1000000 <T>: 0.001597 sec B: 4.665 GB/sec F: 1252368542.005 FLOP/sec
R: 1000000 <T>: 0.001660 sec B: 4.490 GB/sec F: 1205170664.218 FLOP/sec
R: 1000000 <T>: 0.001568 sec B: 4.752 GB/sec F: 1275676172.155 FLOP/sec
R: 1000000 <T>: 0.001632 sec B: 4.567 GB/sec F: 1225853745.841 FLOP/sec
R: 1000000 <T>: 0.001606 sec B: 4.639 GB/sec F: 1245297445.521 FLOP/sec
R: 1000000 <T>: 0.001576 sec B: 4.728 GB/sec F: 1269171630.714 FLOP/sec
R: 1000000 <T>: 0.002227 sec B: 3.345 GB/sec F: 898007859.365 FLOP/sec
R: 1000000 <T>: 0.001599 sec B: 4.659 GB/sec F: 1250607326.183 FLOP/sec
R: 1000000 <T>: 0.001601 sec B: 4.654 GB/sec F: 1249234063.365 FLOP/sec
R: 1000000 <T>: 0.002609 sec B: 2.855 GB/sec F: 766487040.429 FLOP/sec
R: 1000000 <T>: 0.001651 sec B: 4.513 GB/sec F: 1211505913.966 FLOP/sec
R: 1000000 <T>: 0.001588 sec B: 4.692 GB/sec F: 1259525159.015 FLOP/sec
R: 1000000 <T>: 0.002476 sec B: 3.009 GB/sec F: 807830788.532 FLOP/sec
R: 1000000 <T>: 0.001619 sec B: 4.602 GB/sec F: 1235280093.585 FLOP/sec
R: 1000000 <T>: 0.001592 sec B: 4.681 GB/sec F: 1256653193.250 FLOP/sec
R: 1000000 <T>: 0.002158 sec B: 3.452 GB/sec F: 926632912.518 FLOP/sec
R: 1000000 <T>: 0.001623 sec B: 4.590 GB/sec F: 1232115838.603 FLOP/sec
R: 1000000 <T>: 0.001617 sec B: 4.608 GB/sec F: 1236976186.971 FLOP/sec
R: 1000000 <T>: 0.001669 sec B: 4.464 GB/sec F: 1198335272.639 FLOP/sec
R: 1000000 <T>: 0.001613 sec B: 4.618 GB/sec F: 1239562112.288 FLOP/sec
R: 1000000 <T>: 0.001571 sec B: 4.742 GB/sec F: 1272981290.357 FLOP/sec
R: 1000000 <T>: 0.001697 sec B: 4.389 GB/sec F: 1178251827.763 FLOP/sec
R: 1000000 <T>: 0.001563 sec B: 4.768 GB/sec F: 1279984435.389 FLOP/sec
R: 1000000 <T>: 0.004535 sec B: 1.643 GB/sec F: 441056833.922 FLOP/sec
R: 1000000 <T>: 0.005114 sec B: 1.457 GB/sec F: 391099896.104 FLOP/sec
R: 1000000 <T>: 0.001673 sec B: 4.452 GB/sec F: 1195170792.894 FLOP/sec
```

```
R: 1000000 <T>: 0.001725 sec B: 4.319 GB/sec F: 1159435076.853 FLOP/sec
R: 1000000 <T>: 0.001634 sec B: 4.561 GB/sec F: 1224335629.575 FLOP/sec
R: 1000000 <T>: 0.001634 sec B: 4.558 GB/sec F: 1223650222.031 FLOP/sec
R: 1000000 <T>: 0.001581 sec B: 4.714 GB/sec F: 1265379101.252 FLOP/sec
R: 1000000 <T>: 0.003324 sec B: 2.241 GB/sec F: 601652498.753 FLOP/sec
R: 1000000 <T>: 0.001591 sec B: 4.684 GB/sec F: 1257336558.821 FLOP/sec
R: 1000000 <T>: 0.001634 sec B: 4.560 GB/sec F: 1224154277.715 FLOP/sec
R: 1000000 <T>: 0.001617 sec B: 4.607 GB/sec F: 1236739065.372 FLOP/sec
R: 1000000 <T>: 0.001581 sec B: 4.712 GB/sec F: 1264753347.802 FLOP/sec
R: 1000000 <T>: 0.001587 sec B: 4.694 GB/sec F: 1260076675.666 FLOP/sec
R: 1000000 <T>: 0.001585 sec B: 4.701 GB/sec F: 1261984912.970 FLOP/sec
R: 1000000 <T>: 0.001591 sec B: 4.684 GB/sec F: 1257404540.991 FLOP/sec
R: 1000000 <T>: 0.001616 sec B: 4.611 GB/sec F: 1237737885.486 FLOP/sec
R: 1000000 <T>: 0.001860 sec B: 4.005 GB/sec F: 1075145695.681 FLOP/sec
R: 1000000 <T>: 0.001638 sec B: 4.547 GB/sec F: 1220695674.465 FLOP/sec
R: 1000000 <T>: 0.001698 sec B: 4.388 GB/sec F: 1177790406.308 FLOP/sec
R: 1000000 <T>: 0.001807 sec B: 4.124 GB/sec F: 1106940405.649 FLOP/sec
R: 1000000 <T>: 0.001706 sec B: 4.366 GB/sec F: 1172099660.233 FLOP/sec
R: 1000000 <T>: 0.001662 sec B: 4.484 GB/sec F: 1203574375.179 FLOP/sec
R: 1000000 <T>: 0.001660 sec B: 4.489 GB/sec F: 1204970261.334 FLOP/sec
R: 1000000 <T>: 0.001599 sec B: 4.659 GB/sec F: 1250584648.323 FLOP/sec
R: 1000000 <T>: 0.001608 sec B: 4.635 GB/sec F: 1244105273.700 FLOP/sec
R: 1000000 <T>: 0.001675 sec B: 4.449 GB/sec F: 1194155326.172 FLOP/sec
R: 1000000 <T>: 0.001612 sec B: 4.623 GB/sec F: 1241045084.065 FLOP/sec
R: 1000000 <T>: 0.001614 sec B: 4.615 GB/sec F: 1238824256.674 FLOP/sec
R: 1000000 <T>: 0.001668 sec B: 4.467 GB/sec F: 1198991168.831 FLOP/sec
R: 1000000 <T>: 0.001605 sec B: 4.641 GB/sec F: 1245838898.080 FLOP/sec
R: 1000000 <T>: 0.001620 sec B: 4.598 GB/sec F: 1234258574.703 FLOP/sec
R: 1000000 <T>: 0.001603 sec B: 4.648 GB/sec F: 1247641178.397 FLOP/sec
R: 1000000 <T>: 0.001586 sec B: 4.699 GB/sec F: 1261424564.604 FLOP/sec
R: 1000000 <T>: 0.001614 sec B: 4.616 GB/sec F: 1239230314.052 FLOP/sec
R: 1000000 <T>: 0.001617 sec B: 4.608 GB/sec F: 1237067235.223 FLOP/sec
R: 1000000 <T>: 0.001599 sec B: 4.658 GB/sec F: 1250397782.795 FLOP/sec
R: 1000000 <T>: 0.001596 sec B: 4.670 GB/sec F: 1253494900.469 FLOP/sec
R: 1000000 <T>: 0.001563 sec B: 4.766 GB/sec F: 1279322061.653 FLOP/sec
R: 1000000 <T>: 0.001605 sec B: 4.643 GB/sec F: 1246442186.584 FLOP/sec
R: 1000000 <T>: 0.001717 sec B: 4.338 GB/sec F: 1164563271.305 FLOP/sec
R: 1000000 <T>: 0.001620 sec B: 4.598 GB/sec F: 1234267715.136 FLOP/sec
R: 1000000 <T>: 0.002339 sec B: 3.185 GB/sec F: 854949666.976 FLOP/sec
R: 1000000 <T>: 0.001568 sec B: 4.751 GB/sec F: 1275401209.335 FLOP/sec
R: 1000000 <T>: 0.001628 sec B: 4.578 GB/sec F: 1228771437.454 FLOP/sec
R: 1000000 <T>: 0.002798 sec B: 2.663 GB/sec F: 714776868.105 FLOP/sec
R: 1000000 <T>: 0.001614 sec B: 4.616 GB/sec F: 1239149695.479 FLOP/sec
R: 1000000 <T>: 0.001631 sec B: 4.568 GB/sec F: 1226310742.237 FLOP/sec
R: 1000000 <T>: 0.001618 sec B: 4.606 GB/sec F: 1236287256.289 FLOP/sec
R: 1000000 <T>: 0.001594 sec B: 4.674 GB/sec F: 1254754736.229 FLOP/sec
R: 1000000 <T>: 0.001598 sec B: 4.663 GB/sec F: 1251648264.308 FLOP/sec
R: 1000000 <T>: 0.001607 sec B: 4.635 GB/sec F: 1244252331.884 FLOP/sec
R: 1000000 <T>: 0.001596 sec B: 4.668 GB/sec F: 1253055890.052 FLOP/sec
R: 1000000 <T>: 0.001598 sec B: 4.663 GB/sec F: 1251631031.688 FLOP/sec
R: 1000000 <T>: 0.001574 sec B: 4.733 GB/sec F: 1270501930.845 FLOP/sec
R: 1000000 <T>: 0.001569 sec B: 4.748 GB/sec F: 1274590840.408 FLOP/sec
R: 1000000 <T>: 0.001601 sec B: 4.654 GB/sec F: 1249268397.195 FLOP/sec
R: 1000000 <T>: 0.002598 sec B: 2.868 GB/sec F: 769801310.433 FLOP/sec
R: 1000000 <T>: 0.001640 sec B: 4.543 GB/sec F: 1219398434.170 FLOP/sec
R: 1000000 <T>: 0.001605 sec B: 4.642 GB/sec F: 1246112906.552 FLOP/sec
R: 1000000 <T>: 0.001589 sec B: 4.689 GB/sec F: 1258818812.544 FLOP/sec
R: 1000000 <T>: 0.001593 sec B: 4.676 GB/sec F: 1255169730.327 FLOP/sec
R: 1000000 <T>: 0.001575 sec B: 4.732 GB/sec F: 1270182404.544 FLOP/sec
R: 1000000 <T>: 0.001580 sec B: 4.715 GB/sec F: 1265725051.610 FLOP/sec
R: 1000000 <T>: 0.001601 sec B: 4.654 GB/sec F: 1249354240.027 FLOP/sec
R: 1000000 <T>: 0.001607 sec B: 4.635 GB/sec F: 1244287166.547 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.632 GB/sec F: 1243331855.841 FLOP/sec
R: 1000000 <T>: 0.001640 sec B: 4.544 GB/sec F: 1219692174.089 FLOP/sec
R: 1000000 <T>: 0.001708 sec B: 4.362 GB/sec F: 1170956073.925 FLOP/sec
R: 1000000 <T>: 0.001614 sec B: 4.616 GB/sec F: 1239049128.917 FLOP/sec
R: 1000000 <T>: 0.001619 sec B: 4.603 GB/sec F: 1235493758.903 FLOP/sec
R: 1000000 <T>: 0.001580 sec B: 4.714 GB/sec F: 1265508810.472 FLOP/sec
R: 1000000 <T>: 0.001600 sec B: 4.657 GB/sec F: 1250111728.736 FLOP/sec
R: 1000000 <T>: 0.001558 sec B: 4.781 GB/sec F: 1283335440.142 FLOP/sec
R: 1000000 <T>: 0.001579 sec B: 4.718 GB/sec F: 1266412708.705 FLOP/sec
R: 1000000 <T>: 0.001614 sec B: 4.617 GB/sec F: 1239233385.443 FLOP/sec
R: 1000000 <T>: 0.001667 sec B: 4.469 GB/sec F: 1199575110.496 FLOP/sec
R: 1000000 <T>: 0.001699 sec B: 4.385 GB/sec F: 1177093062.743 FLOP/sec
R: 1000000 <T>: 0.001565 sec B: 4.760 GB/sec F: 1277775648.152 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.631 GB/sec F: 1243160287.493 FLOP/sec
R: 1000000 <T>: 0.001606 sec B: 4.639 GB/sec F: 1245332338.728 FLOP/sec
R: 1000000 <T>: 0.001632 sec B: 4.566 GB/sec F: 1225648659.232 FLOP/sec
R: 1000000 <T>: 0.001607 sec B: 4.636 GB/sec F: 1244340583.484 FLOP/sec
R: 1000000 <T>: 0.001573 sec B: 4.737 GB/sec F: 1271476833.056 FLOP/sec
R: 1000000 <T>: 0.001580 sec B: 4.716 GB/sec F: 1265826790.591 FLOP/sec
R: 1000000 <T>: 0.001592 sec B: 4.680 GB/sec F: 1256279039.675 FLOP/sec
R: 1000000 <T>: 0.001626 sec B: 4.582 GB/sec F: 1230072820.311 FLOP/sec
R: 1000000 <T>: 0.001587 sec B: 4.695 GB/sec F: 1260225945.910 FLOP/sec
R: 1000000 <T>: 0.001624 sec B: 4.589 GB/sec F: 1231872230.212 FLOP/sec
R: 1000000 <T>: 0.001577 sec B: 4.725 GB/sec F: 1268357895.084 FLOP/sec
R: 1000000 <T>: 0.001587 sec B: 4.694 GB/sec F: 1259991734.454 FLOP/sec
R: 1000000 <T>: 0.001571 sec B: 4.744 GB/sec F: 1273349245.954 FLOP/sec
R: 1000000 <T>: 0.001620 sec B: 4.598 GB/sec F: 1234203734.947 FLOP/sec
R: 1000000 <T>: 0.001578 sec B: 4.722 GB/sec F: 1267539578.923 FLOP/sec
R: 1000000 <T>: 0.001596 sec B: 4.670 GB/sec F: 1253519255.309 FLOP/sec
R: 1000000 <T>: 0.001592 sec B: 4.681 GB/sec F: 1256572660.372 FLOP/sec
R: 1000000 <T>: 0.001579 sec B: 4.719 GB/sec F: 1266666962.222 FLOP/sec
R: 1000000 <T>: 0.001571 sec B: 4.744 GB/sec F: 1273386539.668 FLOP/sec
R: 1000000 <T>: 0.001591 sec B: 4.684 GB/sec F: 1257429047.994 FLOP/sec
R: 1000000 <T>: 0.001605 sec B: 4.641 GB/sec F: 1245778368.554 FLOP/sec
R: 1000000 <T>: 0.001591 sec B: 4.683 GB/sec F: 1257029149.877 FLOP/sec
R: 1000000 <T>: 0.001678 sec B: 4.440 GB/sec F: 1191779344.438 FLOP/sec
R: 1000000 <T>: 0.001587 sec B: 4.695 GB/sec F: 1260305359.386 FLOP/sec
R: 1000000 <T>: 0.001580 sec B: 4.716 GB/sec F: 1265908514.058 FLOP/sec
```

```
R: 1000000 <T>: 0.001585 sec B: 4.702 GB/sec F: 1262104369.721 FLOP/sec
R: 1000000 <T>: 0.001593 sec B: 4.676 GB/sec F: 1255310749.038 FLOP/sec
R: 1000000 <T>: 0.001595 sec B: 4.670 GB/sec F: 1253672476.812 FLOP/sec
R: 1000000 <T>: 0.001596 sec B: 4.667 GB/sec F: 1252884767.176 FLOP/sec
R: 1000000 <T>: 0.001572 sec B: 4.740 GB/sec F: 1272327761.810 FLOP/sec
R: 1000000 <T>: 0.001595 sec B: 4.671 GB/sec F: 1253904344.653 FLOP/sec
R: 1000000 <T>: 0.001587 sec B: 4.695 GB/sec F: 1260314095.479 FLOP/sec
R: 1000000 <T>: 0.001623 sec B: 4.591 GB/sec F: 1232465102.751 FLOP/sec
R: 1000000 <T>: 0.001585 sec B: 4.699 GB/sec F: 1261465141.303 FLOP/sec
R: 1000000 <T>: 0.001602 sec B: 4.652 GB/sec F: 1248819865.227 FLOP/sec
R: 1000000 <T>: 0.001597 sec B: 4.667 GB/sec F: 1252656414.509 FLOP/sec
R: 1000000 <T>: 0.001663 sec B: 4.480 GB/sec F: 1202603877.916 FLOP/sec
R: 1000000 <T>: 0.001777 sec B: 4.193 GB/sec F: 1125663437.889 FLOP/sec
R: 1000000 <T>: 0.005239 sec B: 1.422 GB/sec F: 381784015.620 FLOP/sec
R: 1000000 <T>: 0.001636 sec B: 4.553 GB/sec F: 1222121125.647 FLOP/sec
R: 1000000 <T>: 0.001655 sec B: 4.501 GB/sec F: 1208199323.892 FLOP/sec
R: 1000000 <T>: 0.001643 sec B: 4.535 GB/sec F: 1217287676.119 FLOP/sec
R: 1000000 <T>: 0.002383 sec B: 3.127 GB/sec F: 839378960.295 FLOP/sec
R: 1000000 <T>: 0.001678 sec B: 4.441 GB/sec F: 1191993143.655 FLOP/sec
R: 1000000 <T>: 0.001639 sec B: 4.544 GB/sec F: 1219887831.314 FLOP/sec
R: 1000000 <T>: 0.001619 sec B: 4.603 GB/sec F: 1235610542.971 FLOP/sec
R: 1000000 <T>: 0.001886 sec B: 3.951 GB/sec F: 1060557291.040 FLOP/sec
R: 1000000 <T>: 0.001622 sec B: 4.592 GB/sec F: 1232772771.008 FLOP/sec
R: 1000000 <T>: 0.001675 sec B: 4.449 GB/sec F: 1194352860.804 FLOP/sec
R: 1000000 <T>: 0.001694 sec B: 4.399 GB/sec F: 1180887803.259 FLOP/sec
R: 1000000 <T>: 0.001666 sec B: 4.473 GB/sec F: 1200806701.942 FLOP/sec
R: 1000000 <T>: 0.002103 sec B: 3.543 GB/sec F: 951178391.129 FLOP/sec
R: 1000000 <T>: 0.001649 sec B: 4.517 GB/sec F: 1212631252.175 FLOP/sec
R: 1000000 <T>: 0.001625 sec B: 4.586 GB/sec F: 1230931334.957 FLOP/sec
R: 1000000 <T>: 0.001692 sec B: 4.402 GB/sec F: 1181757912.165 FLOP/sec
R: 1000000 <T>: 0.001642 sec B: 4.538 GB/sec F: 1218145495.298 FLOP/sec
R: 1000000 <T>: 0.001572 sec B: 4.739 GB/sec F: 1272211217.595 FLOP/sec
R: 1000000 <T>: 0.001575 sec B: 4.732 GB/sec F: 1270121906.301 FLOP/sec
R: 1000000 <T>: 0.001548 sec B: 4.814 GB/sec F: 1292141582.537 FLOP/sec
R: 1000000 <T>: 0.001603 sec B: 4.648 GB/sec F: 1247567243.874 FLOP/sec
R: 1000000 <T>: 0.002992 sec B: 2.490 GB/sec F: 668491648.868 FLOP/sec
R: 1000000 <T>: 0.001640 sec B: 4.543 GB/sec F: 1219562018.692 FLOP/sec
R: 1000000 <T>: 0.001644 sec B: 4.531 GB/sec F: 1216411088.560 FLOP/sec
R: 1000000 <T>: 0.001665 sec B: 4.474 GB/sec F: 1201110306.367 FLOP/sec
R: 1000000 <T>: 0.001657 sec B: 4.496 GB/sec F: 1206865131.615 FLOP/sec
R: 1000000 <T>: 0.001670 sec B: 4.461 GB/sec F: 1199572520.501 FLOP/sec
R: 1000000 <T>: 0.001684 sec B: 4.425 GB/sec F: 1187711227.019 FLOP/sec
R: 1000000 <T>: 0.001651 sec B: 4.512 GB/sec F: 1211233708.150 FLOP/sec
R: 1000000 <T>: 0.001764 sec B: 4.224 GB/sec F: 1133872981.281 FLOP/sec
R: 1000000 <T>: 0.001622 sec B: 4.592 GB/sec F: 1232765932.267 FLOP/sec
R: 1000000 <T>: 0.001619 sec B: 4.603 GB/sec F: 1235567795.914 FLOP/sec
R: 1000000 <T>: 0.001636 sec B: 4.556 GB/sec F: 1222858652.214 FLOP/sec
R: 1000000 <T>: 0.001602 sec B: 4.650 GB/sec F: 1248091979.387 FLOP/sec
R: 1000000 <T>: 0.001624 sec B: 4.587 GB/sec F: 1231410321.928 FLOP/sec
R: 1000000 <T>: 0.001603 sec B: 4.648 GB/sec F: 1247761827.222 FLOP/sec
R: 1000000 <T>: 0.001983 sec B: 3.757 GB/sec F: 1008469123.701 FLOP/sec
R: 1000000 <T>: 0.001633 sec B: 4.562 GB/sec F: 1224531280.039 FLOP/sec
R: 1000000 <T>: 0.001686 sec B: 4.419 GB/sec F: 1186277615.060 FLOP/sec
R: 1000000 <T>: 0.001688 sec B: 4.414 GB/sec F: 1184903616.978 FLOP/sec
R: 1000000 <T>: 0.001643 sec B: 4.535 GB/sec F: 1217293603.305 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.630 GB/sec F: 1242800302.498 FLOP/sec
R: 1000000 <T>: 0.001641 sec B: 4.541 GB/sec F: 1218965147.349 FLOP/sec
R: 1000000 <T>: 0.001646 sec B: 4.527 GB/sec F: 1215093404.230 FLOP/sec
R: 1000000 <T>: 0.001667 sec B: 4.471 GB/sec F: 1200120012.001 FLOP/sec
R: 1000000 <T>: 0.001615 sec B: 4.613 GB/sec F: 1238165459.765 FLOP/sec
R: 1000000 <T>: 0.001639 sec B: 4.546 GB/sec F: 1220187018.064 FLOP/sec
R: 1000000 <T>: 0.001653 sec B: 4.507 GB/sec F: 1209854019.014 FLOP/sec
R: 1000000 <T>: 0.001779 sec B: 4.189 GB/sec F: 1124531140.797 FLOP/sec
R: 1000000 <T>: 0.001650 sec B: 4.516 GB/sec F: 1212179249.794 FLOP/sec
R: 1000000 <T>: 0.001653 sec B: 4.508 GB/sec F: 1210203955.673 FLOP/sec
R: 1000000 <T>: 0.001611 sec B: 4.626 GB/sec F: 1241821056.069 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.629 GB/sec F: 1242701458.994 FLOP/sec
R: 1000000 <T>: 0.001552 sec B: 4.802 GB/sec F: 1289050163.387 FLOP/sec
R: 1000000 <T>: 0.001599 sec B: 4.661 GB/sec F: 1251079055.686 FLOP/sec
R: 1000000 <T>: 0.001603 sec B: 4.648 GB/sec F: 1247764941.049 FLOP/sec
R: 1000000 <T>: 0.001581 sec B: 4.713 GB/sec F: 1265262225.596 FLOP/sec
R: 1000000 <T>: 0.001603 sec B: 4.649 GB/sec F: 1247883277.990 FLOP/sec
R: 1000000 <T>: 0.001575 sec B: 4.731 GB/sec F: 1270058994.240 FLOP/sec
R: 1000000 <T>: 0.001603 sec B: 4.647 GB/sec F: 1247481646.426 FLOP/sec
R: 1000000 <T>: 0.001637 sec B: 4.552 GB/sec F: 1222027784.024 FLOP/sec
R: 1000000 <T>: 0.001630 sec B: 4.570 GB/sec F: 1226721427.511 FLOP/sec
R: 1000000 <T>: 0.001649 sec B: 4.517 GB/sec F: 1212594491.426 FLOP/sec
R: 1000000 <T>: 0.001642 sec B: 4.538 GB/sec F: 1218149946.950 FLOP/sec
R: 1000000 <T>: 0.001644 sec B: 4.533 GB/sec F: 1216845522.678 FLOP/sec
R: 1000000 <T>: 0.001649 sec B: 4.517 GB/sec F: 1212554792.320 FLOP/sec
R: 1000000 <T>: 0.001616 sec B: 4.610 GB/sec F: 1237512723.178 FLOP/sec
R: 1000000 <T>: 0.001620 sec B: 4.599 GB/sec F: 1234404837.879 FLOP/sec
R: 1000000 <T>: 0.001625 sec B: 4.586 GB/sec F: 1231037407.534 FLOP/sec
R: 1000000 <T>: 0.001655 sec B: 4.502 GB/sec F: 1208602348.073 FLOP/sec
R: 1000000 <T>: 0.001604 sec B: 4.646 GB/sec F: 1247210146.803 FLOP/sec
R: 1000000 <T>: 0.001588 sec B: 4.691 GB/sec F: 1259239671.087 FLOP/sec
R: 1000000 <T>: 0.001606 sec B: 4.641 GB/sec F: 1245689912.901 FLOP/sec
R: 1000000 <T>: 0.001600 sec B: 4.656 GB/sec F: 1249871107.042 FLOP/sec
R: 1000000 <T>: 0.001639 sec B: 4.546 GB/sec F: 1220399961.679 FLOP/sec
R: 1000000 <T>: 0.001590 sec B: 4.685 GB/sec F: 1257532620.396 FLOP/sec
R: 1000000 <T>: 0.001625 sec B: 4.584 GB/sec F: 1230629128.376 FLOP/sec
R: 1000000 <T>: 0.001621 sec B: 4.596 GB/sec F: 1233733988.446 FLOP/sec
R: 1000000 <T>: 0.001603 sec B: 4.649 GB/sec F: 1247908972.528 FLOP/sec
R: 1000000 <T>: 0.001605 sec B: 4.641 GB/sec F: 1245790008.390 FLOP/sec
R: 1000000 <T>: 0.001619 sec B: 4.602 GB/sec F: 1235450256.757 FLOP/sec
R: 1000000 <T>: 0.001616 sec B: 4.610 GB/sec F: 1237377205.780 FLOP/sec
R: 1000000 <T>: 0.001585 sec B: 4.700 GB/sec F: 1261748455.304 FLOP/sec
R: 1000000 <T>: 0.001580 sec B: 4.717 GB/sec F: 1266088022.238 FLOP/sec
R: 1000000 <T>: 0.001595 sec B: 4.672 GB/sec F: 1254046651.789 FLOP/sec
R: 1000000 <T>: 0.001687 sec B: 4.417 GB/sec F: 1185804262.848 FLOP/sec
```

```
R: 1000000 <T>: 0.001721 sec B: 4.330 GB/sec F: 1162352788.019 FLOP/sec
R: 1000000 <T>: 0.001662 sec B: 4.484 GB/sec F: 1203708384.792 FLOP/sec
R: 1000000 <T>: 0.001606 sec B: 4.639 GB/sec F: 1245342419.352 FLOP/sec
R: 1000000 <T>: 0.001605 sec B: 4.643 GB/sec F: 1246276748.215 FLOP/sec
R: 1000000 <T>: 0.001559 sec B: 4.779 GB/sec F: 1282797113.450 FLOP/sec
R: 1000000 <T>: 0.001575 sec B: 4.732 GB/sec F: 1270114646.899 FLOP/sec
R: 1000000 <T>: 0.001585 sec B: 4.700 GB/sec F: 1261606782.398 FLOP/sec
R: 1000000 <T>: 0.001620 sec B: 4.599 GB/sec F: 1234534370.671 FLOP/sec
R: 1000000 <T>: 0.001595 sec B: 4.670 GB/sec F: 1253714914.005 FLOP/sec
R: 1000000 <T>: 0.001613 sec B: 4.620 GB/sec F: 1240186251.171 FLOP/sec
R: 1000000 <T>: 0.001595 sec B: 4.670 GB/sec F: 1253612755.259 FLOP/sec
R: 1000000 <T>: 0.001592 sec B: 4.679 GB/sec F: 1256018684.534 FLOP/sec
R: 1000000 <T>: 0.001570 sec B: 4.745 GB/sec F: 1273753107.161 FLOP/sec
R: 1000000 <T>: 0.001611 sec B: 4.625 GB/sec F: 1241568970.708 FLOP/sec
R: 1000000 <T>: 0.001589 sec B: 4.689 GB/sec F: 1258720573.473 FLOP/sec
R: 1000000 <T>: 0.001618 sec B: 4.604 GB/sec F: 1235861741.675 FLOP/sec
R: 1000000 <T>: 0.001592 sec B: 4.679 GB/sec F: 1256132280.778 FLOP/sec
R: 1000000 <T>: 0.001637 sec B: 4.551 GB/sec F: 1221780684.258 FLOP/sec
R: 1000000 <T>: 0.001604 sec B: 4.645 GB/sec F: 1246803507.508 FLOP/sec
R: 1000000 <T>: 0.001610 sec B: 4.627 GB/sec F: 1241959091.109 FLOP/sec
R: 1000000 <T>: 0.001596 sec B: 4.668 GB/sec F: 1253129691.404 FLOP/sec
R: 1000000 <T>: 0.001583 sec B: 4.705 GB/sec F: 1263075196.550 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.630 GB/sec F: 1242845868.470 FLOP/sec
R: 1000000 <T>: 0.001621 sec B: 4.596 GB/sec F: 1233854246.032 FLOP/sec
R: 1000000 <T>: 0.001590 sec B: 4.685 GB/sec F: 1257727161.247 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.631 GB/sec F: 1243223654.071 FLOP/sec
R: 1000000 <T>: 0.001582 sec B: 4.711 GB/sec F: 1264567821.301 FLOP/sec
R: 1000000 <T>: 0.001607 sec B: 4.636 GB/sec F: 1244343680.258 FLOP/sec
R: 1000000 <T>: 0.001608 sec B: 4.632 GB/sec F: 1243460949.731 FLOP/sec
R: 1000000 <T>: 0.001662 sec B: 4.484 GB/sec F: 1203685202.616 FLOP/sec
R: 1000000 <T>: 0.001568 sec B: 4.752 GB/sec F: 1275684308.955 FLOP/sec
R: 1000000 <T>: 0.002869 sec B: 2.597 GB/sec F: 697056712.883 FLOP/sec
R: 1000000 <T>: 0.001660 sec B: 4.487 GB/sec F: 1204551518.367 FLOP/sec
R: 1000000 <T>: 0.001637 sec B: 4.550 GB/sec F: 1221377029.318 FLOP/sec
R: 1000000 <T>: 0.001639 sec B: 4.545 GB/sec F: 1220043360.341 FLOP/sec
R: 1000000 <T>: 0.001719 sec B: 4.334 GB/sec F: 1163279004.326 FLOP/sec
R: 1000000 <T>: 0.001640 sec B: 4.544 GB/sec F: 1219769536.744 FLOP/sec
R: 1000000 <T>: 0.001635 sec B: 4.558 GB/sec F: 1223595572.297 FLOP/sec
R: 1000000 <T>: 0.001605 sec B: 4.641 GB/sec F: 1245789232.395 FLOP/sec
R: 1000000 <T>: 0.001588 sec B: 4.692 GB/sec F: 1259425223.516 FLOP/sec
R: 1000000 <T>: 0.001572 sec B: 4.741 GB/sec F: 1272638650.799 FLOP/sec
R: 1000000 <T>: 0.001595 sec B: 4.671 GB/sec F: 1253796652.990 FLOP/sec
R: 1000000 <T>: 0.001577 sec B: 4.726 GB/sec F: 1268537294.045 FLOP/sec
R: 1000000 <T>: 0.001604 sec B: 4.645 GB/sec F: 1246811280.151 FLOP/sec
R: 1000000 <T>: 0.001625 sec B: 4.586 GB/sec F: 1230933607.749 FLOP/sec
R: 1000000 <T>: 0.001661 sec B: 4.485 GB/sec F: 1203960548.621 FLOP/sec
R: 1000000 <T>: 0.002962 sec B: 2.515 GB/sec F: 675216482.845 FLOP/sec
R: 1000000 <T>: 0.001652 sec B: 4.510 GB/sec F: 1210549698.513 FLOP/sec
R: 1000000 <T>: 0.001681 sec B: 4.433 GB/sec F: 1190097909.355 FLOP/sec
R: 1000000 <T>: 0.001630 sec B: 4.571 GB/sec F: 1226943432.387 FLOP/sec
R: 1000000 <T>: 0.001903 sec B: 3.916 GB/sec F: 1051129017.678 FLOP/sec
R: 1000000 <T>: 0.001667 sec B: 4.470 GB/sec F: 1199797474.186 FLOP/sec
R: 1000000 <T>: 0.001664 sec B: 4.478 GB/sec F: 1201948358.289 FLOP/sec
R: 1000000 <T>: 0.001619 sec B: 4.601 GB/sec F: 1235097773.427 FLOP/sec
R: 1000000 <T>: 0.001608 sec B: 4.632 GB/sec F: 1243481050.592 FLOP/sec
R: 1000000 <T>: 0.001636 sec B: 4.554 GB/sec F: 1222351927.343 FLOP/sec
R: 1000000 <T>: 0.001576 sec B: 4.727 GB/sec F: 1268827013.835 FLOP/sec
R: 1000000 <T>: 0.001604 sec B: 4.644 GB/sec F: 1246699363.435 FLOP/sec
R: 1000000 <T>: 0.001600 sec B: 4.656 GB/sec F: 1249880480.179 FLOP/sec
R: 1000000 <T>: 0.001629 sec B: 4.574 GB/sec F: 1227782508.151 FLOP/sec
R: 1000000 <T>: 0.001586 sec B: 4.697 GB/sec F: 1260954542.589 FLOP/sec
R: 1000000 <T>: 0.001548 sec B: 4.813 GB/sec F: 1292046420.644 FLOP/sec
R: 1000000 <T>: 0.001558 sec B: 4.781 GB/sec F: 1283316500.499 FLOP/sec
R: 1000000 <T>: 0.001564 sec B: 4.764 GB/sec F: 1278715964.577 FLOP/sec
R: 1000000 <T>: 0.001562 sec B: 4.771 GB/sec F: 1280676197.032 FLOP/sec
R: 1000000 <T>: 0.001722 sec B: 4.326 GB/sec F: 1161375440.161 FLOP/sec
R: 1000000 <T>: 0.001589 sec B: 4.688 GB/sec F: 1258385566.821 FLOP/sec
R: 1000000 <T>: 0.001587 sec B: 4.696 GB/sec F: 1260514264.610 FLOP/sec
R: 1000000 <T>: 0.001582 sec B: 4.710 GB/sec F: 1264335190.431 FLOP/sec
R: 1000000 <T>: 0.001557 sec B: 4.784 GB/sec F: 1284128936.818 FLOP/sec
R: 1000000 <T>: 0.001587 sec B: 4.694 GB/sec F: 1260022693.009 FLOP/sec
R: 1000000 <T>: 0.001601 sec B: 4.653 GB/sec F: 1248937622.435 FLOP/sec
R: 1000000 <T>: 0.001690 sec B: 4.408 GB/sec F: 1183238013.651 FLOP/sec
R: 1000000 <T>: 0.003045 sec B: 2.446 GB/sec F: 656723220.387 FLOP/sec
R: 1000000 <T>: 0.001664 sec B: 4.477 GB/sec F: 1201854461.434 FLOP/sec
R: 1000000 <T>: 0.001642 sec B: 4.537 GB/sec F: 1217968197.632 FLOP/sec
R: 1000000 <T>: 0.001627 sec B: 4.580 GB/sec F: 1229526841.186 FLOP/sec
R: 1000000 <T>: 0.001723 sec B: 4.324 GB/sec F: 1160825393.288 FLOP/sec
R: 1000000 <T>: 0.001660 sec B: 4.489 GB/sec F: 1205064645.693 FLOP/sec
R: 1000000 <T>: 0.002092 sec B: 3.561 GB/sec F: 955887237.806 FLOP/sec
R: 1000000 <T>: 0.001603 sec B: 4.649 GB/sec F: 1247993849.886 FLOP/sec
R: 1000000 <T>: 0.001593 sec B: 4.678 GB/sec F: 1255782091.668 FLOP/sec
R: 1000000 <T>: 0.001657 sec B: 4.498 GB/sec F: 1207324110.987 FLOP/sec
R: 1000000 <T>: 0.001621 sec B: 4.597 GB/sec F: 1233879366.082 FLOP/sec
R: 1000000 <T>: 0.001601 sec B: 4.654 GB/sec F: 1249336290.096 FLOP/sec
R: 1000000 <T>: 0.001856 sec B: 4.015 GB/sec F: 1077731956.207 FLOP/sec
R: 1000000 <T>: 0.001660 sec B: 4.489 GB/sec F: 1205129271.204 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.631 GB/sec F: 1243154878.451 FLOP/sec
R: 1000000 <T>: 0.001614 sec B: 4.616 GB/sec F: 1239020727.578 FLOP/sec
R: 1000000 <T>: 0.004451 sec B: 1.674 GB/sec F: 449317239.988 FLOP/sec
R: 1000000 <T>: 0.001654 sec B: 4.505 GB/sec F: 1209208850.925 FLOP/sec
R: 1000000 <T>: 0.001651 sec B: 4.512 GB/sec F: 1211224172.159 FLOP/sec
R: 1000000 <T>: 0.001709 sec B: 4.358 GB/sec F: 1169954629.159 FLOP/sec
R: 1000000 <T>: 0.001666 sec B: 4.473 GB/sec F: 1200834820.367 FLOP/sec
R: 1000000 <T>: 0.001638 sec B: 4.548 GB/sec F: 1220909540.981 FLOP/sec
R: 1000000 <T>: 0.001636 sec B: 4.556 GB/sec F: 1222867624.580 FLOP/sec
R: 1000000 <T>: 0.001600 sec B: 4.658 GB/sec F: 1250385274.963 FLOP/sec
R: 1000000 <T>: 0.001652 sec B: 4.510 GB/sec F: 1210712383.166 FLOP/sec
R: 1000000 <T>: 0.002657 sec B: 2.804 GB/sec F: 752625534.176 FLOP/sec
R: 1000000 <T>: 0.001608 sec B: 4.633 GB/sec F: 1243672041.195 FLOP/sec
```

```
R: 1000000 <T>: 0.001655 sec B: 4.501 GB/sec F: 1208117583.668 FLOP/sec
R: 1000000 <T>: 0.001829 sec B: 4.074 GB/sec F: 1093504474.074 FLOP/sec
R: 1000000 <T>: 0.001670 sec B: 4.462 GB/sec F: 1199684396.987 FLOP/sec
R: 1000000 <T>: 0.001617 sec B: 4.609 GB/sec F: 1237199623.396 FLOP/sec
R: 1000000 <T>: 0.001640 sec B: 4.543 GB/sec F: 1219397690.705 FLOP/sec
R: 1000000 <T>: 0.001653 sec B: 4.506 GB/sec F: 1209614743.752 FLOP/sec
R: 1000000 <T>: 0.001642 sec B: 4.539 GB/sec F: 1218313196.647 FLOP/sec
R: 1000000 <T>: 0.001651 sec B: 4.512 GB/sec F: 1211227106.294 FLOP/sec
R: 1000000 <T>: 0.001614 sec B: 4.616 GB/sec F: 1239099026.316 FLOP/sec
R: 1000000 <T>: 0.001635 sec B: 4.557 GB/sec F: 1223322396.831 FLOP/sec
R: 1000000 <T>: 0.001641 sec B: 4.542 GB/sec F: 1219122670.561 FLOP/sec
R: 1000000 <T>: 0.002036 sec B: 3.659 GB/sec F: 982127248.335 FLOP/sec
R: 1000000 <T>: 0.001723 sec B: 4.325 GB/sec F: 1160861103.549 FLOP/sec
R: 1000000 <T>: 0.001667 sec B: 4.468 GB/sec F: 1199460003.107 FLOP/sec
R: 1000000 <T>: 0.001640 sec B: 4.544 GB/sec F: 1219746475.695 FLOP/sec
R: 1000000 <T>: 0.001741 sec B: 4.279 GB/sec F: 1148579035.446 FLOP/sec
R: 1000000 <T>: 0.001670 sec B: 4.462 GB/sec F: 1197839337.403 FLOP/sec
R: 1000000 <T>: 0.001647 sec B: 4.523 GB/sec F: 1214247985.866 FLOP/sec
R: 1000000 <T>: 0.001577 sec B: 4.726 GB/sec F: 1268519593.237 FLOP/sec
R: 1000000 <T>: 0.001585 sec B: 4.702 GB/sec F: 1262142600.657 FLOP/sec
R: 1000000 <T>: 0.001577 sec B: 4.723 GB/sec F: 1267868225.384 FLOP/sec
R: 1000000 <T>: 0.001571 sec B: 4.743 GB/sec F: 1273302226.560 FLOP/sec
R: 1000000 <T>: 0.001622 sec B: 4.594 GB/sec F: 1233297300.497 FLOP/sec
R: 1000000 <T>: 0.001583 sec B: 4.707 GB/sec F: 1263404724.123 FLOP/sec
R: 1000000 <T>: 0.001617 sec B: 4.609 GB/sec F: 1237188908.849 FLOP/sec
R: 1000000 <T>: 0.001604 sec B: 4.646 GB/sec F: 1247056945.608 FLOP/sec
R: 1000000 <T>: 0.001612 sec B: 4.621 GB/sec F: 1240460086.646 FLOP/sec
R: 1000000 <T>: 0.002244 sec B: 3.320 GB/sec F: 891273143.578 FLOP/sec
R: 1000000 <T>: 0.001672 sec B: 4.456 GB/sec F: 1196019885.027 FLOP/sec
R: 1000000 <T>: 0.001648 sec B: 4.520 GB/sec F: 1213392700.594 FLOP/sec
R: 1000000 <T>: 0.001666 sec B: 4.471 GB/sec F: 1200168263.591 FLOP/sec
R: 1000000 <T>: 0.001658 sec B: 4.493 GB/sec F: 1206098758.985 FLOP/sec
R: 1000000 <T>: 0.001641 sec B: 4.540 GB/sec F: 1218809893.080 FLOP/sec
R: 1000000 <T>: 0.001628 sec B: 4.577 GB/sec F: 1228508020.007 FLOP/sec
R: 1000000 <T>: 0.001596 sec B: 4.669 GB/sec F: 1253314232.824 FLOP/sec
R: 1000000 <T>: 0.001608 sec B: 4.634 GB/sec F: 1243984557.176 FLOP/sec
R: 1000000 <T>: 0.001823 sec B: 4.088 GB/sec F: 1097231739.184 FLOP/sec
R: 1000000 <T>: 0.001586 sec B: 4.698 GB/sec F: 1261010195.267 FLOP/sec
R: 1000000 <T>: 0.001585 sec B: 4.700 GB/sec F: 1261721391.729 FLOP/sec
R: 1000000 <T>: 0.001678 sec B: 4.441 GB/sec F: 1192150878.615 FLOP/sec
R: 1000000 <T>: 0.001654 sec B: 4.505 GB/sec F: 1209283427.012 FLOP/sec
R: 1000000 <T>: 0.001586 sec B: 4.696 GB/sec F: 1260662049.282 FLOP/sec
R: 1000000 <T>: 0.001699 sec B: 4.386 GB/sec F: 1177476291.515 FLOP/sec
R: 1000000 <T>: 0.001695 sec B: 4.395 GB/sec F: 1179869305.877 FLOP/sec
R: 1000000 <T>: 0.001586 sec B: 4.697 GB/sec F: 1260928308.030 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.630 GB/sec F: 1242725396.212 FLOP/sec
R: 1000000 <T>: 0.001564 sec B: 4.763 GB/sec F: 1278481368.691 FLOP/sec
R: 1000000 <T>: 0.002998 sec B: 2.485 GB/sec F: 667153911.407 FLOP/sec
R: 1000000 <T>: 0.001615 sec B: 4.614 GB/sec F: 1238610205.033 FLOP/sec
R: 1000000 <T>: 0.001629 sec B: 4.574 GB/sec F: 1227925732.596 FLOP/sec
R: 1000000 <T>: 0.003033 sec B: 2.457 GB/sec F: 659462043.838 FLOP/sec
R: 1000000 <T>: 0.001681 sec B: 4.432 GB/sec F: 1189833821.859 FLOP/sec
R: 1000000 <T>: 0.001706 sec B: 4.368 GB/sec F: 1172517136.338 FLOP/sec
R: 1000000 <T>: 0.001646 sec B: 4.527 GB/sec F: 1215143605.671 FLOP/sec
R: 1000000 <T>: 0.001639 sec B: 4.547 GB/sec F: 1220574243.564 FLOP/sec
R: 1000000 <T>: 0.001615 sec B: 4.614 GB/sec F: 1238564182.086 FLOP/sec
R: 1000000 <T>: 0.001707 sec B: 4.363 GB/sec F: 1171317480.332 FLOP/sec
R: 1000000 <T>: 0.001646 sec B: 4.527 GB/sec F: 1215142867.385 FLOP/sec
R: 1000000 <T>: 0.001592 sec B: 4.681 GB/sec F: 1256486612.135 FLOP/sec
R: 1000000 <T>: 0.001603 sec B: 4.647 GB/sec F: 1247547010.690 FLOP/sec
R: 1000000 <T>: 0.001582 sec B: 4.708 GB/sec F: 1263866191.959 FLOP/sec
R: 1000000 <T>: 0.001617 sec B: 4.608 GB/sec F: 1236854555.181 FLOP/sec
R: 1000000 <T>: 0.001651 sec B: 4.511 GB/sec F: 1211043016.853 FLOP/sec
R: 1000000 <T>: 0.001586 sec B: 4.697 GB/sec F: 1260944207.632 FLOP/sec
R: 1000000 <T>: 0.001584 sec B: 4.703 GB/sec F: 1262375222.099 FLOP/sec
R: 1000000 <T>: 0.001585 sec B: 4.702 GB/sec F: 1262145786.673 FLOP/sec
R: 1000000 <T>: 0.001630 sec B: 4.571 GB/sec F: 1227142176.079 FLOP/sec
R: 1000000 <T>: 0.001695 sec B: 4.395 GB/sec F: 1179828240.605 FLOP/sec
R: 1000000 <T>: 0.001587 sec B: 4.695 GB/sec F: 1260285505.078 FLOP/sec
R: 1000000 <T>: 0.001578 sec B: 4.722 GB/sec F: 1267633575.303 FLOP/sec
R: 1000000 <T>: 0.001626 sec B: 4.583 GB/sec F: 1230185555.038 FLOP/sec
R: 1000000 <T>: 0.001656 sec B: 4.499 GB/sec F: 1207760100.196 FLOP/sec
R: 1000000 <T>: 0.001589 sec B: 4.688 GB/sec F: 1258517013.892 FLOP/sec
R: 1000000 <T>: 0.001834 sec B: 4.063 GB/sec F: 1090703443.733 FLOP/sec
R: 1000000 <T>: 0.001976 sec B: 3.770 GB/sec F: 1012114504.562 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.632 GB/sec F: 1243288572.873 FLOP/sec
R: 1000000 <T>: 0.001590 sec B: 4.687 GB/sec F: 1258220900.811 FLOP/sec
R: 1000000 <T>: 0.001570 sec B: 4.745 GB/sec F: 1273796914.736 FLOP/sec
R: 1000000 <T>: 0.001595 sec B: 4.670 GB/sec F: 1253538111.319 FLOP/sec
R: 1000000 <T>: 0.001586 sec B: 4.698 GB/sec F: 1261083346.259 FLOP/sec
R: 1000000 <T>: 0.001626 sec B: 4.582 GB/sec F: 1229958593.444 FLOP/sec
R: 1000000 <T>: 0.001606 sec B: 4.638 GB/sec F: 1245110606.288 FLOP/sec
R: 1000000 <T>: 0.001589 sec B: 4.688 GB/sec F: 1258322228.640 FLOP/sec
R: 1000000 <T>: 0.001684 sec B: 4.424 GB/sec F: 1187663971.857 FLOP/sec
R: 1000000 <T>: 0.001706 sec B: 4.368 GB/sec F: 1172440840.101 FLOP/sec
R: 1000000 <T>: 0.001652 sec B: 4.510 GB/sec F: 1210594395.795 FLOP/sec
R: 1000000 <T>: 0.003073 sec B: 2.425 GB/sec F: 650860518.964 FLOP/sec
R: 1000000 <T>: 0.001846 sec B: 4.035 GB/sec F: 1083169549.071 FLOP/sec
R: 1000000 <T>: 0.001748 sec B: 4.263 GB/sec F: 1144439084.655 FLOP/sec
R: 1000000 <T>: 0.001633 sec B: 4.563 GB/sec F: 1224771243.351 FLOP/sec
R: 1000000 <T>: 0.001634 sec B: 4.560 GB/sec F: 1224035903.421 FLOP/sec
R: 1000000 <T>: 0.001746 sec B: 4.268 GB/sec F: 1145605942.487 FLOP/sec
R: 1000000 <T>: 0.002356 sec B: 3.162 GB/sec F: 848729642.689 FLOP/sec
R: 1000000 <T>: 0.001921 sec B: 3.878 GB/sec F: 1040968350.398 FLOP/sec
R: 1000000 <T>: 0.001830 sec B: 4.071 GB/sec F: 1092816751.569 FLOP/sec
R: 1000000 <T>: 0.001588 sec B: 4.693 GB/sec F: 1259766338.540 FLOP/sec
R: 1000000 <T>: 0.001620 sec B: 4.599 GB/sec F: 1234612103.396 FLOP/sec
R: 1000000 <T>: 0.001631 sec B: 4.567 GB/sec F: 1225952181.735 FLOP/sec
R: 1000000 <T>: 0.001617 sec B: 4.607 GB/sec F: 1236610598.742 FLOP/sec
R: 1000000 <T>: 0.001629 sec B: 4.574 GB/sec F: 1227758389.427 FLOP/sec
```

```
R: 1000000 <T>: 0.003235 sec B: 2.303 GB/sec F: 618189674.811 FLOP/sec
R: 1000000 <T>: 0.001775 sec B: 4.198 GB/sec F: 1126878647.565 FLOP/sec
R: 1000000 <T>: 0.002185 sec B: 3.410 GB/sec F: 915423978.616 FLOP/sec
R: 1000000 <T>: 0.004238 sec B: 1.758 GB/sec F: 471876402.358 FLOP/sec
R: 1000000 <T>: 0.001670 sec B: 4.461 GB/sec F: 1197360299.484 FLOP/sec
R: 1000000 <T>: 0.001675 sec B: 4.447 GB/sec F: 1193786104.569 FLOP/sec
R: 1000000 <T>: 0.002171 sec B: 3.432 GB/sec F: 921181415.165 FLOP/sec
R: 1000000 <T>: 0.001627 sec B: 4.580 GB/sec F: 1229562368.014 FLOP/sec
R: 1000000 <T>: 0.001637 sec B: 4.550 GB/sec F: 1221490413.743 FLOP/sec
R: 1000000 <T>: 0.001854 sec B: 4.018 GB/sec F: 1078597973.638 FLOP/sec
R: 1000000 <T>: 0.001584 sec B: 4.703 GB/sec F: 1262523443.482 FLOP/sec
R: 1000000 <T>: 0.001567 sec B: 4.755 GB/sec F: 1276441485.369 FLOP/sec
R: 1000000 <T>: 0.001612 sec B: 4.623 GB/sec F: 1241035072.892 FLOP/sec
R: 1000000 <T>: 0.001638 sec B: 4.548 GB/sec F: 1220948298.334 FLOP/sec
R: 1000000 <T>: 0.001596 sec B: 4.667 GB/sec F: 1252915377.469 FLOP/sec
R: 1000000 <T>: 0.001647 sec B: 4.523 GB/sec F: 1214140364.339 FLOP/sec
R: 1000000 <T>: 0.001650 sec B: 4.515 GB/sec F: 1212030860.730 FLOP/sec
R: 1000000 <T>: 0.001921 sec B: 3.879 GB/sec F: 1041127124.225 FLOP/sec
R: 1000000 <T>: 0.001606 sec B: 4.639 GB/sec F: 1245385845.443 FLOP/sec
R: 1000000 <T>: 0.001633 sec B: 4.564 GB/sec F: 1225048067.824 FLOP/sec
R: 1000000 <T>: 0.001595 sec B: 4.672 GB/sec F: 1254095405.308 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.631 GB/sec F: 1243184242.391 FLOP/sec
R: 1000000 <T>: 0.001703 sec B: 4.374 GB/sec F: 1174216782.728 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.630 GB/sec F: 1242947052.320 FLOP/sec
R: 1000000 <T>: 0.001872 sec B: 3.980 GB/sec F: 1068243108.630 FLOP/sec
R: 1000000 <T>: 0.001623 sec B: 4.592 GB/sec F: 1232560805.306 FLOP/sec
R: 1000000 <T>: 0.001655 sec B: 4.501 GB/sec F: 1208243117.847 FLOP/sec
R: 1000000 <T>: 0.001599 sec B: 4.658 GB/sec F: 1250471271.360 FLOP/sec
R: 1000000 <T>: 0.001631 sec B: 4.569 GB/sec F: 1226463400.799 FLOP/sec
R: 1000000 <T>: 0.001624 sec B: 4.588 GB/sec F: 1231548327.188 FLOP/sec
R: 1000000 <T>: 0.001582 sec B: 4.710 GB/sec F: 1264200127.937 FLOP/sec
R: 1000000 <T>: 0.001602 sec B: 4.651 GB/sec F: 1248471402.826 FLOP/sec
R: 1000000 <T>: 0.001582 sec B: 4.709 GB/sec F: 1263934882.075 FLOP/sec
R: 1000000 <T>: 0.001581 sec B: 4.713 GB/sec F: 1265081351.056 FLOP/sec
R: 1000000 <T>: 0.001592 sec B: 4.679 GB/sec F: 1255901954.246 FLOP/sec
R: 1000000 <T>: 0.001564 sec B: 4.764 GB/sec F: 1278895852.477 FLOP/sec
R: 1000000 <T>: 0.001604 sec B: 4.645 GB/sec F: 1246842371.694 FLOP/sec
R: 1000000 <T>: 0.001619 sec B: 4.601 GB/sec F: 1235154981.071 FLOP/sec
R: 1000000 <T>: 0.001584 sec B: 4.704 GB/sec F: 1262599958.460 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.631 GB/sec F: 1243109289.818 FLOP/sec
R: 1000000 <T>: 0.001581 sec B: 4.712 GB/sec F: 1264918128.174 FLOP/sec
R: 1000000 <T>: 0.001614 sec B: 4.616 GB/sec F: 1239005376.044 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.631 GB/sec F: 1243030483.458 FLOP/sec
R: 1000000 <T>: 0.001650 sec B: 4.517 GB/sec F: 1212484222.549 FLOP/sec
R: 1000000 <T>: 0.001695 sec B: 4.396 GB/sec F: 1180166592.316 FLOP/sec
R: 1000000 <T>: 0.001638 sec B: 4.547 GB/sec F: 1220687478.981 FLOP/sec
R: 1000000 <T>: 0.001709 sec B: 4.360 GB/sec F: 1170345550.375 FLOP/sec
R: 1000000 <T>: 0.001708 sec B: 4.363 GB/sec F: 1171116519.067 FLOP/sec
R: 1000000 <T>: 0.001619 sec B: 4.603 GB/sec F: 1235569322.544 FLOP/sec
R: 1000000 <T>: 0.001620 sec B: 4.599 GB/sec F: 1234650973.430 FLOP/sec
R: 1000000 <T>: 0.001615 sec B: 4.615 GB/sec F: 1238768243.185 FLOP/sec
R: 1000000 <T>: 0.001631 sec B: 4.569 GB/sec F: 1226534855.054 FLOP/sec
R: 1000000 <T>: 0.001608 sec B: 4.635 GB/sec F: 1244100630.324 FLOP/sec
R: 1000000 <T>: 0.001714 sec B: 4.346 GB/sec F: 1166570521.813 FLOP/sec
R: 1000000 <T>: 0.001671 sec B: 4.458 GB/sec F: 1196624561.437 FLOP/sec
R: 1000000 <T>: 0.001600 sec B: 4.658 GB/sec F: 1250339936.170 FLOP/sec
R: 1000000 <T>: 0.001575 sec B: 4.731 GB/sec F: 1269921899.803 FLOP/sec
R: 1000000 <T>: 0.001690 sec B: 4.409 GB/sec F: 1183640665.632 FLOP/sec
R: 1000000 <T>: 0.001642 sec B: 4.538 GB/sec F: 1218081691.867 FLOP/sec
R: 1000000 <T>: 0.001591 sec B: 4.683 GB/sec F: 1257142138.776 FLOP/sec
R: 1000000 <T>: 0.001636 sec B: 4.555 GB/sec F: 1222672505.335 FLOP/sec
R: 1000000 <T>: 0.001639 sec B: 4.545 GB/sec F: 1220172874.093 FLOP/sec
R: 1000000 <T>: 0.003098 sec B: 2.405 GB/sec F: 645506323.864 FLOP/sec
R: 1000000 <T>: 0.001612 sec B: 4.623 GB/sec F: 1241056635.620 FLOP/sec
R: 1000000 <T>: 0.001659 sec B: 4.491 GB/sec F: 1205527342.867 FLOP/sec
R: 1000000 <T>: 0.001676 sec B: 4.445 GB/sec F: 1193302470.554 FLOP/sec
R: 1000000 <T>: 0.001623 sec B: 4.592 GB/sec F: 1232619297.518 FLOP/sec
R: 1000000 <T>: 0.001689 sec B: 4.410 GB/sec F: 1183839641.817 FLOP/sec
R: 1000000 <T>: 0.001688 sec B: 4.414 GB/sec F: 1184869922.018 FLOP/sec
R: 1000000 <T>: 0.001616 sec B: 4.610 GB/sec F: 1237448406.136 FLOP/sec
R: 1000000 <T>: 0.001647 sec B: 4.522 GB/sec F: 1213987810.348 FLOP/sec
R: 1000000 <T>: 0.001639 sec B: 4.547 GB/sec F: 1220569774.176 FLOP/sec
R: 1000000 <T>: 0.001641 sec B: 4.539 GB/sec F: 1218425270.627 FLOP/sec
R: 1000000 <T>: 0.001685 sec B: 4.421 GB/sec F: 1186854165.888 FLOP/sec
R: 1000000 <T>: 0.001622 sec B: 4.592 GB/sec F: 1232706666.354 FLOP/sec
R: 1000000 <T>: 0.001599 sec B: 4.659 GB/sec F: 1250741064.080 FLOP/sec
R: 1000000 <T>: 0.001641 sec B: 4.541 GB/sec F: 1219018641.233 FLOP/sec
R: 1000000 <T>: 0.001610 sec B: 4.627 GB/sec F: 1241956777.420 FLOP/sec
R: 1000000 <T>: 0.001595 sec B: 4.670 GB/sec F: 1253611183.716 FLOP/sec
R: 1000000 <T>: 0.001591 sec B: 4.682 GB/sec F: 1256718732.524 FLOP/sec
R: 1000000 <T>: 0.001612 sec B: 4.621 GB/sec F: 1240540106.352 FLOP/sec
R: 1000000 <T>: 0.001566 sec B: 4.759 GB/sec F: 1277545477.425 FLOP/sec
R: 1000000 <T>: 0.001596 sec B: 4.669 GB/sec F: 1253406131.161 FLOP/sec
R: 1000000 <T>: 0.001683 sec B: 4.427 GB/sec F: 1188347068.645 FLOP/sec
R: 1000000 <T>: 0.001584 sec B: 4.703 GB/sec F: 1262425422.218 FLOP/sec
R: 1000000 <T>: 0.001724 sec B: 4.321 GB/sec F: 1160010045.687 FLOP/sec
R: 1000000 <T>: 0.001894 sec B: 3.934 GB/sec F: 1056040923.698 FLOP/sec
R: 1000000 <T>: 0.001636 sec B: 4.554 GB/sec F: 1222531998.247 FLOP/sec
R: 1000000 <T>: 0.001710 sec B: 4.357 GB/sec F: 1169484637.357 FLOP/sec
R: 1000000 <T>: 0.001686 sec B: 4.419 GB/sec F: 1186161527.918 FLOP/sec
R: 1000000 <T>: 0.001599 sec B: 4.659 GB/sec F: 1250576828.562 FLOP/sec
R: 1000000 <T>: 0.001635 sec B: 4.557 GB/sec F: 1223179496.087 FLOP/sec
R: 1000000 <T>: 0.001620 sec B: 4.599 GB/sec F: 1234583905.100 FLOP/sec
R: 1000000 <T>: 0.001571 sec B: 4.743 GB/sec F: 1273205766.604 FLOP/sec
R: 1000000 <T>: 0.001596 sec B: 4.670 GB/sec F: 1253520040.965 FLOP/sec
R: 1000000 <T>: 0.001631 sec B: 4.568 GB/sec F: 1226310742.237 FLOP/sec
R: 1000000 <T>: 0.001686 sec B: 4.420 GB/sec F: 1186444398.173 FLOP/sec
R: 1000000 <T>: 0.001628 sec B: 4.575 GB/sec F: 1228205493.518 FLOP/sec
R: 1000000 <T>: 0.001718 sec B: 4.336 GB/sec F: 1164034590.452 FLOP/sec
R: 1000000 <T>: 0.001656 sec B: 4.500 GB/sec F: 1208068690.786 FLOP/sec
```

```
R: 1000000 <T>: 0.001687 sec B: 4.417 GB/sec F: 1185726227.671 FLOP/sec
R: 1000000 <T>: 0.001671 sec B: 4.459 GB/sec F: 1196885225.888 FLOP/sec
R: 1000000 <T>: 0.001642 sec B: 4.538 GB/sec F: 1218089110.527 FLOP/sec
R: 1000000 <T>: 0.002045 sec B: 3.643 GB/sec F: 977867915.469 FLOP/sec
R: 1000000 <T>: 0.001636 sec B: 4.554 GB/sec F: 1222494634.777 FLOP/sec
R: 1000000 <T>: 0.001628 sec B: 4.575 GB/sec F: 1228191163.042 FLOP/sec
R: 1000000 <T>: 0.001642 sec B: 4.538 GB/sec F: 1218198175.261 FLOP/sec
R: 1000000 <T>: 0.001592 sec B: 4.679 GB/sec F: 1256127547.191 FLOP/sec
R: 1000000 <T>: 0.001621 sec B: 4.597 GB/sec F: 1234059803.772 FLOP/sec
R: 1000000 <T>: 0.001730 sec B: 4.308 GB/sec F: 1156379514.506 FLOP/sec
R: 1000000 <T>: 0.001635 sec B: 4.556 GB/sec F: 1222943147.208 FLOP/sec
R: 1000000 <T>: 0.001613 sec B: 4.618 GB/sec F: 1239715014.313 FLOP/sec
R: 1000000 <T>: 0.001632 sec B: 4.566 GB/sec F: 1225768848.188 FLOP/sec
R: 1000000 <T>: 0.001581 sec B: 4.714 GB/sec F: 1265331067.547 FLOP/sec
R: 1000000 <T>: 0.001600 sec B: 4.655 GB/sec F: 1249700071.983 FLOP/sec
R: 1000000 <T>: 0.001596 sec B: 4.669 GB/sec F: 1253366856.719 FLOP/sec
R: 1000000 <T>: 0.001616 sec B: 4.611 GB/sec F: 1237857392.639 FLOP/sec
R: 1000000 <T>: 0.001611 sec B: 4.623 GB/sec F: 1241109775.539 FLOP/sec
R: 1000000 <T>: 0.001597 sec B: 4.666 GB/sec F: 1252510500.735 FLOP/sec
R: 1000000 <T>: 0.001627 sec B: 4.579 GB/sec F: 1229163376.094 FLOP/sec
R: 1000000 <T>: 0.001625 sec B: 4.584 GB/sec F: 1230486029.677 FLOP/sec
R: 1000000 <T>: 0.001601 sec B: 4.653 GB/sec F: 1249007039.404 FLOP/sec
R: 1000000 <T>: 0.005950 sec B: 1.252 GB/sec F: 336158804.108 FLOP/sec
R: 1000000 <T>: 0.001702 sec B: 4.377 GB/sec F: 1175039804.473 FLOP/sec
R: 1000000 <T>: 0.001659 sec B: 4.490 GB/sec F: 1205193903.647 FLOP/sec
R: 1000000 <T>: 0.001647 sec B: 4.525 GB/sec F: 1214556950.879 FLOP/sec
R: 1000000 <T>: 0.001651 sec B: 4.512 GB/sec F: 1211135421.290 FLOP/sec
R: 1000000 <T>: 0.001629 sec B: 4.572 GB/sec F: 1227395968.986 FLOP/sec
R: 1000000 <T>: 0.001653 sec B: 4.508 GB/sec F: 1209985038.535 FLOP/sec
R: 1000000 <T>: 0.001729 sec B: 4.309 GB/sec F: 1156638992.151 FLOP/sec
R: 1000000 <T>: 0.001844 sec B: 4.040 GB/sec F: 1084586346.902 FLOP/sec
R: 1000000 <T>: 0.005584 sec B: 1.334 GB/sec F: 358143227.923 FLOP/sec
R: 1000000 <T>: 0.001833 sec B: 4.065 GB/sec F: 1091153906.167 FLOP/sec
R: 1000000 <T>: 0.001720 sec B: 4.331 GB/sec F: 1162552104.132 FLOP/sec
R: 1000000 <T>: 0.001645 sec B: 4.529 GB/sec F: 1215790689.475 FLOP/sec
R: 1000000 <T>: 0.005612 sec B: 1.328 GB/sec F: 356365915.810 FLOP/sec
R: 1000000 <T>: 0.001667 sec B: 4.469 GB/sec F: 1199543453.761 FLOP/sec
R: 1000000 <T>: 0.001670 sec B: 4.463 GB/sec F: 1197911082.654 FLOP/sec
R: 1000000 <T>: 0.001674 sec B: 4.452 GB/sec F: 1195063670.005 FLOP/sec
R: 1000000 <T>: 0.001682 sec B: 4.431 GB/sec F: 1189345604.208 FLOP/sec
R: 1000000 <T>: 0.001684 sec B: 4.424 GB/sec F: 1187596269.523 FLOP/sec
R: 1000000 <T>: 0.001734 sec B: 4.296 GB/sec F: 1153233609.379 FLOP/sec
R: 1000000 <T>: 0.001655 sec B: 4.501 GB/sec F: 1208274505.468 FLOP/sec
R: 1000000 <T>: 0.001668 sec B: 4.466 GB/sec F: 1198752578.067 FLOP/sec
R: 1000000 <T>: 0.001605 sec B: 4.641 GB/sec F: 1245762073.147 FLOP/sec
R: 1000000 <T>: 0.001601 sec B: 4.655 GB/sec F: 1249457267.000 FLOP/sec
R: 1000000 <T>: 0.001650 sec B: 4.517 GB/sec F: 1212410721.106 FLOP/sec
R: 1000000 <T>: 0.001601 sec B: 4.653 GB/sec F: 1248952441.140 FLOP/sec
R: 1000000 <T>: 0.001601 sec B: 4.654 GB/sec F: 1249415898.068 FLOP/sec
R: 1000000 <T>: 0.001651 sec B: 4.513 GB/sec F: 1211490502.823 FLOP/sec
R: 1000000 <T>: 0.001592 sec B: 4.679 GB/sec F: 1255951640.838 FLOP/sec
R: 1000000 <T>: 0.001606 sec B: 4.639 GB/sec F: 1245295119.377 FLOP/sec
R: 1000000 <T>: 0.001627 sec B: 4.579 GB/sec F: 1229267633.076 FLOP/sec
R: 1000000 <T>: 0.001578 sec B: 4.721 GB/sec F: 1267407043.615 FLOP/sec
R: 1000000 <T>: 0.002956 sec B: 2.520 GB/sec F: 676496613.458 FLOP/sec
R: 1000000 <T>: 0.001653 sec B: 4.508 GB/sec F: 1210120479.595 FLOP/sec
R: 1000000 <T>: 0.001639 sec B: 4.544 GB/sec F: 1219884855.069 FLOP/sec
R: 1000000 <T>: 0.001614 sec B: 4.615 GB/sec F: 1238864927.176 FLOP/sec
R: 1000000 <T>: 0.001782 sec B: 4.181 GB/sec F: 1122384843.315 FLOP/sec
R: 1000000 <T>: 0.001671 sec B: 4.457 GB/sec F: 1196550106.732 FLOP/sec
R: 1000000 <T>: 0.001639 sec B: 4.545 GB/sec F: 1220148309.027 FLOP/sec
R: 1000000 <T>: 0.001613 sec B: 4.620 GB/sec F: 1240223934.834 FLOP/sec
R: 1000000 <T>: 0.001612 sec B: 4.623 GB/sec F: 1240941129.753 FLOP/sec
R: 1000000 <T>: 0.001624 sec B: 4.589 GB/sec F: 1231768289.604 FLOP/sec
R: 1000000 <T>: 0.001598 sec B: 4.663 GB/sec F: 1251797111.228 FLOP/sec
R: 1000000 <T>: 0.001617 sec B: 4.608 GB/sec F: 1237026682.666 FLOP/sec
R: 1000000 <T>: 0.001616 sec B: 4.610 GB/sec F: 1237414718.924 FLOP/sec
R: 1000000 <T>: 0.001605 sec B: 4.642 GB/sec F: 1246119117.773 FLOP/sec
R: 1000000 <T>: 0.001617 sec B: 4.609 GB/sec F: 1237127686.423 FLOP/sec
R: 1000000 <T>: 0.001630 sec B: 4.570 GB/sec F: 1226747010.418 FLOP/sec
R: 1000000 <T>: 0.001600 sec B: 4.656 GB/sec F: 1249890634.569 FLOP/sec
R: 1000000 <T>: 0.001620 sec B: 4.598 GB/sec F: 1234344652.480 FLOP/sec
R: 1000000 <T>: 0.001966 sec B: 3.791 GB/sec F: 1017517065.033 FLOP/sec
R: 1000000 <T>: 0.001577 sec B: 4.724 GB/sec F: 1268124671.873 FLOP/sec
R: 1000000 <T>: 0.001587 sec B: 4.695 GB/sec F: 1260372074.440 FLOP/sec
R: 1000000 <T>: 0.001603 sec B: 4.649 GB/sec F: 1247894957.194 FLOP/sec
R: 1000000 <T>: 0.001584 sec B: 4.705 GB/sec F: 1262879795.312 FLOP/sec
R: 1000000 <T>: 0.001599 sec B: 4.659 GB/sec F: 1250566663.019 FLOP/sec
R: 1000000 <T>: 0.001587 sec B: 4.693 GB/sec F: 1259890931.242 FLOP/sec
R: 1000000 <T>: 0.001692 sec B: 4.404 GB/sec F: 1182198688.587 FLOP/sec
R: 1000000 <T>: 0.001627 sec B: 4.580 GB/sec F: 1229456549.469 FLOP/sec
R: 1000000 <T>: 0.001677 sec B: 4.442 GB/sec F: 1192285910.161 FLOP/sec
R: 1000000 <T>: 0.001612 sec B: 4.622 GB/sec F: 1240600127.906 FLOP/sec
R: 1000000 <T>: 0.001692 sec B: 4.403 GB/sec F: 1181899679.173 FLOP/sec
R: 1000000 <T>: 0.001604 sec B: 4.645 GB/sec F: 1246990855.193 FLOP/sec
R: 1000000 <T>: 0.001584 sec B: 4.704 GB/sec F: 1262767367.313 FLOP/sec
R: 1000000 <T>: 0.001607 sec B: 4.635 GB/sec F: 1244332067.433 FLOP/sec
R: 1000000 <T>: 0.001592 sec B: 4.680 GB/sec F: 1256223014.759 FLOP/sec
R: 1000000 <T>: 0.001610 sec B: 4.629 GB/sec F: 1242507678.697 FLOP/sec
R: 1000000 <T>: 0.001610 sec B: 4.627 GB/sec F: 1242110270.824 FLOP/sec
R: 1000000 <T>: 0.001600 sec B: 4.656 GB/sec F: 1249957813.924 FLOP/sec
R: 1000000 <T>: 0.001604 sec B: 4.645 GB/sec F: 1246931768.517 FLOP/sec
R: 1000000 <T>: 0.001608 sec B: 4.634 GB/sec F: 1243844524.410 FLOP/sec
R: 1000000 <T>: 0.001610 sec B: 4.627 GB/sec F: 1242071701.073 FLOP/sec
R: 1000000 <T>: 0.001621 sec B: 4.598 GB/sec F: 1234166416.234 FLOP/sec
R: 1000000 <T>: 0.001595 sec B: 4.672 GB/sec F: 1254093832.555 FLOP/sec
R: 1000000 <T>: 0.001664 sec B: 4.477 GB/sec F: 1201775021.707 FLOP/sec
R: 1000000 <T>: 0.001616 sec B: 4.610 GB/sec F: 1237543352.691 FLOP/sec
R: 1000000 <T>: 0.001602 sec B: 4.650 GB/sec F: 1248148060.316 FLOP/sec
R: 1000000 <T>: 0.001597 sec B: 4.666 GB/sec F: 1252525404.347 FLOP/sec
```

```
R: 1000000 <T>: 0.001633 sec B: 4.563 GB/sec F: 1224972285.002 FLOP/sec
R: 1000000 <T>: 0.001684 sec B: 4.424 GB/sec F: 1187630824.958 FLOP/sec
R: 1000000 <T>: 0.001594 sec B: 4.675 GB/sec F: 1254864167.228 FLOP/sec
R: 1000000 <T>: 0.002953 sec B: 2.523 GB/sec F: 677258768.046 FLOP/sec
R: 1000000 <T>: 0.001713 sec B: 4.348 GB/sec F: 1167250681.091 FLOP/sec
R: 1000000 <T>: 0.001700 sec B: 4.382 GB/sec F: 1176388933.003 FLOP/sec
R: 1000000 <T>: 0.001619 sec B: 4.602 GB/sec F: 1235463993.946 FLOP/sec
R: 1000000 <T>: 0.002040 sec B: 3.652 GB/sec F: 980376297.834 FLOP/sec
R: 1000000 <T>: 0.001666 sec B: 4.473 GB/sec F: 1200802376.148 FLOP/sec
R: 1000000 <T>: 0.001612 sec B: 4.623 GB/sec F: 1241050474.764 FLOP/sec
R: 1000000 <T>: 0.001629 sec B: 4.573 GB/sec F: 1227542870.400 FLOP/sec
R: 1000000 <T>: 0.001773 sec B: 4.203 GB/sec F: 1128346605.510 FLOP/sec
R: 1000000 <T>: 0.001631 sec B: 4.569 GB/sec F: 1226589767.665 FLOP/sec
R: 1000000 <T>: 0.001629 sec B: 4.573 GB/sec F: 1227526295.148 FLOP/sec
R: 1000000 <T>: 0.001605 sec B: 4.642 GB/sec F: 1245999562.654 FLOP/sec
R: 1000000 <T>: 0.001629 sec B: 4.574 GB/sec F: 1227805874.069 FLOP/sec
R: 1000000 <T>: 0.001613 sec B: 4.618 GB/sec F: 1239722698.827 FLOP/sec
R: 1000000 <T>: 0.001620 sec B: 4.598 GB/sec F: 1234392647.957 FLOP/sec
R: 1000000 <T>: 0.001641 sec B: 4.539 GB/sec F: 1218537365.230 FLOP/sec
R: 1000000 <T>: 0.001626 sec B: 4.582 GB/sec F: 1230018351.874 FLOP/sec
R: 1000000 <T>: 0.001647 sec B: 4.525 GB/sec F: 1214542937.129 FLOP/sec
R: 1000000 <T>: 0.001607 sec B: 4.636 GB/sec F: 1244411038.921 FLOP/sec
R: 1000000 <T>: 0.001647 sec B: 4.524 GB/sec F: 1214467710.947 FLOP/sec
R: 1000000 <T>: 0.001622 sec B: 4.593 GB/sec F: 1232986329.881 FLOP/sec
R: 1000000 <T>: 0.001612 sec B: 4.622 GB/sec F: 1240704794.766 FLOP/sec
R: 1000000 <T>: 0.001619 sec B: 4.602 GB/sec F: 1235410573.261 FLOP/sec
R: 1000000 <T>: 0.001730 sec B: 4.308 GB/sec F: 1156391549.553 FLOP/sec
R: 1000000 <T>: 0.001615 sec B: 4.614 GB/sec F: 1238629382.271 FLOP/sec
R: 1000000 <T>: 0.001643 sec B: 4.535 GB/sec F: 1217323240.101 FLOP/sec
R: 1000000 <T>: 0.001596 sec B: 4.667 GB/sec F: 1252887121.761 FLOP/sec
R: 1000000 <T>: 0.001651 sec B: 4.512 GB/sec F: 1211144222.448 FLOP/sec
R: 1000000 <T>: 0.001634 sec B: 4.560 GB/sec F: 1224134796.827 FLOP/sec
R: 1000000 <T>: 0.001582 sec B: 4.710 GB/sec F: 1264300822.681 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.629 GB/sec F: 1242706864.091 FLOP/sec
R: 1000000 <T>: 0.001605 sec B: 4.643 GB/sec F: 1246395579.783 FLOP/sec
R: 1000000 <T>: 0.001623 sec B: 4.590 GB/sec F: 1231988330.607 FLOP/sec
R: 1000000 <T>: 0.001633 sec B: 4.563 GB/sec F: 1224749492.801 FLOP/sec
R: 1000000 <T>: 0.001636 sec B: 4.555 GB/sec F: 1222824259.366 FLOP/sec
R: 1000000 <T>: 0.001676 sec B: 4.445 GB/sec F: 1193128771.405 FLOP/sec
R: 1000000 <T>: 0.001673 sec B: 4.453 GB/sec F: 1195386525.244 FLOP/sec
R: 1000000 <T>: 0.001659 sec B: 4.491 GB/sec F: 1205581117.224 FLOP/sec
R: 1000000 <T>: 0.001603 sec B: 4.648 GB/sec F: 1247811650.318 FLOP/sec
R: 1000000 <T>: 0.001589 sec B: 4.688 GB/sec F: 1258337270.880 FLOP/sec
R: 1000000 <T>: 0.001602 sec B: 4.651 GB/sec F: 1248433216.314 FLOP/sec
R: 1000000 <T>: 0.001588 sec B: 4.691 GB/sec F: 1259136610.027 FLOP/sec
R: 1000000 <T>: 0.001601 sec B: 4.653 GB/sec F: 1248961800.503 FLOP/sec
R: 1000000 <T>: 0.001589 sec B: 4.688 GB/sec F: 1258385566.821 FLOP/sec
R: 1000000 <T>: 0.001588 sec B: 4.691 GB/sec F: 1259247599.559 FLOP/sec
R: 1000000 <T>: 0.001600 sec B: 4.656 GB/sec F: 1249891415.683 FLOP/sec
R: 1000000 <T>: 0.001566 sec B: 4.759 GB/sec F: 1277403498.553 FLOP/sec
R: 1000000 <T>: 0.001597 sec B: 4.665 GB/sec F: 1252191334.836 FLOP/sec
R: 1000000 <T>: 0.001577 sec B: 4.726 GB/sec F: 1268599250.765 FLOP/sec
R: 1000000 <T>: 0.001602 sec B: 4.652 GB/sec F: 1248738773.838 FLOP/sec
R: 1000000 <T>: 0.001607 sec B: 4.635 GB/sec F: 1244238398.566 FLOP/sec
R: 1000000 <T>: 0.001583 sec B: 4.705 GB/sec F: 1263036909.096 FLOP/sec
R: 1000000 <T>: 0.001612 sec B: 4.622 GB/sec F: 1240693249.760 FLOP/sec
R: 1000000 <T>: 0.001623 sec B: 4.591 GB/sec F: 1232341319.110 FLOP/sec
R: 1000000 <T>: 0.001598 sec B: 4.662 GB/sec F: 1251340498.509 FLOP/sec
R: 1000000 <T>: 0.001627 sec B: 4.579 GB/sec F: 1229152044.879 FLOP/sec
R: 1000000 <T>: 0.001636 sec B: 4.556 GB/sec F: 1222863138.380 FLOP/sec
R: 1000000 <T>: 0.001674 sec B: 4.452 GB/sec F: 1194992979.416 FLOP/sec
R: 1000000 <T>: 0.001611 sec B: 4.624 GB/sec F: 1241203744.215 FLOP/sec
R: 1000000 <T>: 0.001760 sec B: 4.233 GB/sec F: 1136377841.087 FLOP/sec
R: 1000000 <T>: 0.001620 sec B: 4.599 GB/sec F: 1234667741.651 FLOP/sec
R: 1000000 <T>: 0.001642 sec B: 4.538 GB/sec F: 1218146237.238 FLOP/sec
R: 1000000 <T>: 0.001606 sec B: 4.640 GB/sec F: 1245505282.811 FLOP/sec
R: 1000000 <T>: 0.001616 sec B: 4.610 GB/sec F: 1237423140.555 FLOP/sec
R: 1000000 <T>: 0.001606 sec B: 4.640 GB/sec F: 1245600694.049 FLOP/sec
R: 1000000 <T>: 0.001618 sec B: 4.606 GB/sec F: 1236310947.039 FLOP/sec
R: 1000000 <T>: 0.001570 sec B: 4.746 GB/sec F: 1274075244.336 FLOP/sec
R: 1000000 <T>: 0.001603 sec B: 4.649 GB/sec F: 1248014097.567 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.631 GB/sec F: 1243177287.648 FLOP/sec
R: 1000000 <T>: 0.001610 sec B: 4.627 GB/sec F: 1242096385.437 FLOP/sec
R: 1000000 <T>: 0.001624 sec B: 4.589 GB/sec F: 1231723532.263 FLOP/sec
R: 1000000 <T>: 0.001604 sec B: 4.645 GB/sec F: 1246943429.917 FLOP/sec
R: 1000000 <T>: 0.001597 sec B: 4.665 GB/sec F: 1252257977.666 FLOP/sec
R: 1000000 <T>: 0.001628 sec B: 4.576 GB/sec F: 1228408418.774 FLOP/sec
R: 1000000 <T>: 0.001577 sec B: 4.724 GB/sec F: 1267981563.548 FLOP/sec
R: 1000000 <T>: 0.001575 sec B: 4.730 GB/sec F: 1269760650.117 FLOP/sec
R: 1000000 <T>: 0.001595 sec B: 4.671 GB/sec F: 1253874472.119 FLOP/sec
R: 1000000 <T>: 0.001591 sec B: 4.682 GB/sec F: 1256945408.975 FLOP/sec
R: 1000000 <T>: 0.001604 sec B: 4.644 GB/sec F: 1246623986.417 FLOP/sec
R: 1000000 <T>: 0.001574 sec B: 4.735 GB/sec F: 1270992829.694 FLOP/sec
R: 1000000 <T>: 0.001619 sec B: 4.603 GB/sec F: 1235554819.714 FLOP/sec
R: 1000000 <T>: 0.001609 sec B: 4.629 GB/sec F: 1242634285.274 FLOP/sec
R: 1000000 <T>: 0.001582 sec B: 4.708 GB/sec F: 1263837440.173 FLOP/sec
R: 1000000 <T>: 0.001605 sec B: 4.643 GB/sec F: 1246226271.073 FLOP/sec
R: 1000000 <T>: 0.001591 sec B: 4.683 GB/sec F: 1257104210.168 FLOP/sec
R: 1000000 <T>: 0.001591 sec B: 4.684 GB/sec F: 1257239341.282 FLOP/sec
R: 1000000 <T>: 0.001631 sec B: 4.567 GB/sec F: 1225868773.200 FLOP/sec
R: 1000000 <T>: 0.001586 sec B: 4.697 GB/sec F: 1260944207.632 FLOP/sec
R: 1000000 <T>: 0.001592 sec B: 4.680 GB/sec F: 1256152793.401 FLOP/sec
R: 1000000 <T>: 0.001604 sec B: 4.646 GB/sec F: 1247069386.941 FLOP/sec
R: 1000000 <T>: 0.001577 sec B: 4.725 GB/sec F: 1268258161.558 FLOP/sec
R: 1000000 <T>: 0.001637 sec B: 4.552 GB/sec F: 1221815018.428 FLOP/sec
R: 1000000 <T>: 0.001587 sec B: 4.693 GB/sec F: 1259900455.265 FLOP/sec
R: 1000000 <T>: 0.001617 sec B: 4.607 GB/sec F: 1236632772.623 FLOP/sec
R: 1000000 <T>: 0.001600 sec B: 4.657 GB/sec F: 1249984375.195 FLOP/sec
R: 1000000 <T>: 0.001585 sec B: 4.701 GB/sec F: 1261888567.668 FLOP/sec
R: 1000000 <T>: 0.001677 sec B: 4.442 GB/sec F: 1192495625.032 FLOP/sec
```

```
R: 1000000 <T>: 0.001705 sec B: 4.371 GB/sec F: 1173211819.874 FLOP/sec
N: 1000000 <T>: 0.001708 sec B: 4.362 GB/sec F: 1170904245.827 FLOP/sec
```

In [19]: `!./dp1_test 300000000 20`

```
Vector size: 300000000 with 20 measurements.
R: 16777216 <T>: 0.484582 sec B: 4.613 GB/sec F: 1238180460.877 FLOP/sec
R: 16777216 <T>: 0.488808 sec B: 4.573 GB/sec F: 1227477024.085 FLOP/sec
R: 16777216 <T>: 0.485182 sec B: 4.607 GB/sec F: 1236649120.636 FLOP/sec
R: 16777216 <T>: 0.491634 sec B: 4.546 GB/sec F: 1220420840.607 FLOP/sec
R: 16777216 <T>: 0.489934 sec B: 4.562 GB/sec F: 1224655246.842 FLOP/sec
R: 16777216 <T>: 0.484750 sec B: 4.611 GB/sec F: 1237751262.501 FLOP/sec
R: 16777216 <T>: 0.491045 sec B: 4.552 GB/sec F: 1221885138.280 FLOP/sec
R: 16777216 <T>: 0.482985 sec B: 4.628 GB/sec F: 1242274373.315 FLOP/sec
R: 16777216 <T>: 0.491989 sec B: 4.543 GB/sec F: 1219539161.314 FLOP/sec
R: 16777216 <T>: 0.490109 sec B: 4.561 GB/sec F: 1224217599.879 FLOP/sec
R: 16777216 <T>: 0.492591 sec B: 4.538 GB/sec F: 1218048845.598 FLOP/sec
R: 16777216 <T>: 0.484841 sec B: 4.610 GB/sec F: 1237520240.030 FLOP/sec
R: 16777216 <T>: 0.491240 sec B: 4.550 GB/sec F: 1221397790.023 FLOP/sec
R: 16777216 <T>: 0.489058 sec B: 4.570 GB/sec F: 1226848406.973 FLOP/sec
R: 16777216 <T>: 0.488754 sec B: 4.573 GB/sec F: 1227610494.535 FLOP/sec
R: 16777216 <T>: 0.492508 sec B: 4.538 GB/sec F: 1218253721.695 FLOP/sec
R: 16777216 <T>: 0.494307 sec B: 4.522 GB/sec F: 1213821435.101 FLOP/sec
R: 16777216 <T>: 0.498426 sec B: 4.484 GB/sec F: 1203790396.490 FLOP/sec
R: 16777216 <T>: 0.503624 sec B: 4.438 GB/sec F: 1191365731.737 FLOP/sec
R: 16777216 <T>: 0.498609 sec B: 4.483 GB/sec F: 1203347310.299 FLOP/sec
N: 300000000 <T>: 0.493396 sec B: 4.530 GB/sec F: 1216062280.808 FLOP/sec
```

In [25]:
```c
%%writefile dp2_test.c
#include <stdio.h>
#include <stdlib.h>
#include <time.h>

#define GB (1073741824.0)

// Compute the dot product of two vectors
// This version unrolls the loop for better performance
float dpunroll(long N, float *pA, float *pB)
{
    float R = 0.0;
    int j;
    for (j = 0; j < N; j += 4)
        // The loop is unrolled to calculate 4 products in a single iteration
        R += pA[j] * pB[j] + pA[j + 1] * pB[j + 1] +
             pA[j + 2] * pB[j + 2] + pA[j + 3] * pB[j + 3];
    return R;
}

// Initialize two vectors with all elements set to 1
void initialize_vectors(long N, float *vecA, float *vecB)
{
    for (long i = 0; i < N; i++)
    {
        vecA[i] = 1.0;
        vecB[i] = 1.0;
    }
}

int main(int argc, char *argv[])
{
    // Check for the correct number of command-line arguments
    if (argc < 3)
    {
        printf("Usage: %s [vector size] [number of measurements]\n", argv[0]);
        return 1;
    }

    // Convert command-line arguments to respective data types
    long vec_size = atol(argv[1]);
    int num_measurements = atoi(argv[2]);
    printf("Vector size: %ld with %d measurements.\n", vec_size, num_measurements);

    // Allocate memory for the two vectors
    float *vecA = (float *)malloc(vec_size * sizeof(float));
    float *vecB = (float *)malloc(vec_size * sizeof(float));

    // Measure the time
    struct timespec start_time, end_time;
    double cumulative_time = 0;
    float dp_result;

    // Initialize vectors to default values
    initialize_vectors(vec_size, vecA, vecB);

    // Perform the dot product multiple times and measure its performance
    for (int i = 0; i < num_measurements; i++)
    {
        clock_gettime(CLOCK_MONOTONIC, &start_time); // Start the timer
        dp_result = dpunroll(vec_size, vecA, vecB); // Loop-unrolled dot product function
        clock_gettime(CLOCK_MONOTONIC, &end_time); // Stop the timer

        // Calculate elapsed time
        double elapsed_time = (end_time.tv_sec - start_time.tv_sec) +
                              (end_time.tv_nsec - start_time.tv_nsec) / 1e9;

        // Accumulate time from the second half measurements for average calculation
        if (i >= num_measurements / 2)
            cumulative_time += elapsed_time;

        // Compute bandwidth and flops
```

```
            double bandwidth = (vec_size * 2 * sizeof(float) / GB) / elapsed_time;
            double flops = vec_size * 2 / elapsed_time;

            printf("R: %ld <T>: %.6f sec B: %.3f GB/sec F: %.3f FLOP/sec\n",
                    (long)dp_result, elapsed_time, bandwidth, flops);
    }

    // Calculate and print the averages for second half measurements
    double average_time = cumulative_time / (num_measurements / 2);
    double average_bandwidth = (vec_size * 2 * sizeof(float) / GB) / average_time;
    double average_flops = vec_size * 2 / average_time;

    printf("N: %li <T>: %.6f sec B: %.3f GB/sec F: %.3f FLOP/sec\n",
            vec_size, average_time, average_bandwidth, average_flops);

    // Free the allocated memory
    free(vecA);
    free(vecB);

    return 0;
}
```

Overwriting dp2_test.c

In [26]: `!gcc -O3 -Wall -o dp2_test dp2_test.c`

In [27]: `!./dp2_test`

Usage: ./dp2_test [vector size] [number of measurements]

In [28]: `!./dp2_test 1000000 1000`

```
Vector size: 1000000 with 1000 measurements.
R: 1000000 <T>: 0.001299 sec B: 5.735 GB/sec F: 1539461003.913 FLOP/sec
R: 1000000 <T>: 0.001362 sec B: 5.470 GB/sec F: 1468391047.220 FLOP/sec
R: 1000000 <T>: 0.001256 sec B: 5.933 GB/sec F: 1592549416.808 FLOP/sec
R: 1000000 <T>: 0.001127 sec B: 6.609 GB/sec F: 1774057775.740 FLOP/sec
R: 1000000 <T>: 0.001212 sec B: 6.149 GB/sec F: 1650678470.118 FLOP/sec
R: 1000000 <T>: 0.000924 sec B: 8.066 GB/sec F: 2165123114.313 FLOP/sec
R: 1000000 <T>: 0.000842 sec B: 8.852 GB/sec F: 2376293149.028 FLOP/sec
R: 1000000 <T>: 0.000772 sec B: 9.655 GB/sec F: 2591851994.884 FLOP/sec
R: 1000000 <T>: 0.000848 sec B: 8.788 GB/sec F: 2358963471.451 FLOP/sec
R: 1000000 <T>: 0.000759 sec B: 9.813 GB/sec F: 2634032756.831 FLOP/sec
R: 1000000 <T>: 0.000712 sec B: 10.466 GB/sec F: 2809312308.440 FLOP/sec
R: 1000000 <T>: 0.000711 sec B: 10.479 GB/sec F: 2812975129.080 FLOP/sec
R: 1000000 <T>: 0.000684 sec B: 10.894 GB/sec F: 2924387048.475 FLOP/sec
R: 1000000 <T>: 0.000676 sec B: 11.023 GB/sec F: 2958947561.531 FLOP/sec
R: 1000000 <T>: 0.000568 sec B: 13.124 GB/sec F: 3522962670.688 FLOP/sec
R: 1000000 <T>: 0.000540 sec B: 13.796 GB/sec F: 3703312798.464 FLOP/sec
R: 1000000 <T>: 0.000549 sec B: 13.582 GB/sec F: 3645856119.934 FLOP/sec
R: 1000000 <T>: 0.000530 sec B: 14.052 GB/sec F: 3772004933.782 FLOP/sec
R: 1000000 <T>: 0.000591 sec B: 12.599 GB/sec F: 3381971723.334 FLOP/sec
R: 1000000 <T>: 0.000527 sec B: 14.132 GB/sec F: 3793468406.098 FLOP/sec
R: 1000000 <T>: 0.000544 sec B: 13.701 GB/sec F: 3677822728.944 FLOP/sec
R: 1000000 <T>: 0.000511 sec B: 14.582 GB/sec F: 3914269665.780 FLOP/sec
R: 1000000 <T>: 0.000527 sec B: 14.144 GB/sec F: 3796795504.594 FLOP/sec
R: 1000000 <T>: 0.000548 sec B: 13.608 GB/sec F: 3652854614.560 FLOP/sec
R: 1000000 <T>: 0.000548 sec B: 13.597 GB/sec F: 3649814863.141 FLOP/sec
R: 1000000 <T>: 0.000535 sec B: 13.937 GB/sec F: 3741212826.374 FLOP/sec
R: 1000000 <T>: 0.000522 sec B: 14.269 GB/sec F: 3830375644.939 FLOP/sec
R: 1000000 <T>: 0.000513 sec B: 14.532 GB/sec F: 3900901498.336 FLOP/sec
R: 1000000 <T>: 0.000514 sec B: 14.490 GB/sec F: 3889658176.839 FLOP/sec
R: 1000000 <T>: 0.000530 sec B: 14.065 GB/sec F: 3775579551.461 FLOP/sec
R: 1000000 <T>: 0.000533 sec B: 13.981 GB/sec F: 3753070480.787 FLOP/sec
R: 1000000 <T>: 0.000530 sec B: 14.048 GB/sec F: 3770945243.990 FLOP/sec
R: 1000000 <T>: 0.000514 sec B: 14.499 GB/sec F: 3892087968.972 FLOP/sec
R: 1000000 <T>: 0.000513 sec B: 14.534 GB/sec F: 3901456999.116 FLOP/sec
R: 1000000 <T>: 0.000553 sec B: 13.468 GB/sec F: 3615224433.133 FLOP/sec
R: 1000000 <T>: 0.000539 sec B: 13.832 GB/sec F: 3713027528.386 FLOP/sec
R: 1000000 <T>: 0.000538 sec B: 13.859 GB/sec F: 3720148136.299 FLOP/sec
R: 1000000 <T>: 0.000508 sec B: 14.657 GB/sec F: 3934521690.034 FLOP/sec
R: 1000000 <T>: 0.000523 sec B: 14.251 GB/sec F: 3825452264.094 FLOP/sec
R: 1000000 <T>: 0.000643 sec B: 11.585 GB/sec F: 3109892724.250 FLOP/sec
R: 1000000 <T>: 0.000564 sec B: 13.222 GB/sec F: 3549182800.660 FLOP/sec
R: 1000000 <T>: 0.000549 sec B: 13.575 GB/sec F: 3644009430.696 FLOP/sec
R: 1000000 <T>: 0.000544 sec B: 13.683 GB/sec F: 3673121565.631 FLOP/sec
R: 1000000 <T>: 0.000551 sec B: 13.522 GB/sec F: 3629790415.901 FLOP/sec
R: 1000000 <T>: 0.000529 sec B: 14.086 GB/sec F: 3781247282.229 FLOP/sec
R: 1000000 <T>: 0.000543 sec B: 13.730 GB/sec F: 3685644047.869 FLOP/sec
R: 1000000 <T>: 0.000534 sec B: 13.964 GB/sec F: 3748378826.158 FLOP/sec
R: 1000000 <T>: 0.000517 sec B: 14.401 GB/sec F: 3865638149.210 FLOP/sec
R: 1000000 <T>: 0.000526 sec B: 14.163 GB/sec F: 3801854925.018 FLOP/sec
R: 1000000 <T>: 0.000504 sec B: 14.796 GB/sec F: 3971689795.140 FLOP/sec
R: 1000000 <T>: 0.000504 sec B: 14.769 GB/sec F: 3964556861.657 FLOP/sec
R: 1000000 <T>: 0.000510 sec B: 14.609 GB/sec F: 3921545559.536 FLOP/sec
R: 1000000 <T>: 0.000513 sec B: 14.524 GB/sec F: 3898817878.419 FLOP/sec
R: 1000000 <T>: 0.000489 sec B: 15.231 GB/sec F: 4088633394.731 FLOP/sec
R: 1000000 <T>: 0.000540 sec B: 13.802 GB/sec F: 3704986726.885 FLOP/sec
R: 1000000 <T>: 0.000542 sec B: 13.736 GB/sec F: 3687200069.319 FLOP/sec
R: 1000000 <T>: 0.000561 sec B: 13.280 GB/sec F: 3564954359.672 FLOP/sec
R: 1000000 <T>: 0.000549 sec B: 13.578 GB/sec F: 3644812975.534 FLOP/sec
R: 1000000 <T>: 0.000517 sec B: 14.401 GB/sec F: 3865727810.239 FLOP/sec
R: 1000000 <T>: 0.000505 sec B: 14.768 GB/sec F: 3964179672.479 FLOP/sec
R: 1000000 <T>: 0.000515 sec B: 14.473 GB/sec F: 3885124634.798 FLOP/sec
R: 1000000 <T>: 0.000520 sec B: 14.321 GB/sec F: 3844335179.896 FLOP/sec
R: 1000000 <T>: 0.000525 sec B: 14.191 GB/sec F: 3809233582.203 FLOP/sec
R: 1000000 <T>: 0.000534 sec B: 13.956 GB/sec F: 3746391756.440 FLOP/sec
R: 1000000 <T>: 0.000541 sec B: 13.779 GB/sec F: 3698895140.022 FLOP/sec
R: 1000000 <T>: 0.000683 sec B: 10.906 GB/sec F: 2927426177.630 FLOP/sec
R: 1000000 <T>: 0.000586 sec B: 12.723 GB/sec F: 3415207234.775 FLOP/sec
R: 1000000 <T>: 0.000597 sec B: 12.478 GB/sec F: 3349444159.742 FLOP/sec
R: 1000000 <T>: 0.000581 sec B: 12.814 GB/sec F: 3439747660.112 FLOP/sec
R: 1000000 <T>: 0.000539 sec B: 13.811 GB/sec F: 3707369880.586 FLOP/sec
R: 1000000 <T>: 0.000555 sec B: 13.436 GB/sec F: 3606599355.501 FLOP/sec
R: 1000000 <T>: 0.000526 sec B: 14.160 GB/sec F: 3800987876.749 FLOP/sec
R: 1000000 <T>: 0.000519 sec B: 14.351 GB/sec F: 3852198835.095 FLOP/sec
R: 1000000 <T>: 0.000509 sec B: 14.633 GB/sec F: 3928146347.020 FLOP/sec
R: 1000000 <T>: 0.000554 sec B: 13.452 GB/sec F: 3610916522.832 FLOP/sec
R: 1000000 <T>: 0.000529 sec B: 14.083 GB/sec F: 3780361024.478 FLOP/sec
R: 1000000 <T>: 0.000538 sec B: 13.843 GB/sec F: 3715862832.639 FLOP/sec
R: 1000000 <T>: 0.000547 sec B: 13.612 GB/sec F: 3653855639.818 FLOP/sec
R: 1000000 <T>: 0.000532 sec B: 13.993 GB/sec F: 3756334118.407 FLOP/sec
R: 1000000 <T>: 0.000540 sec B: 13.786 GB/sec F: 3700708870.784 FLOP/sec
R: 1000000 <T>: 0.000527 sec B: 14.138 GB/sec F: 3795023206.567 FLOP/sec
R: 1000000 <T>: 0.000554 sec B: 13.454 GB/sec F: 3611614229.038 FLOP/sec
R: 1000000 <T>: 0.000527 sec B: 14.135 GB/sec F: 3794281638.143 FLOP/sec
R: 1000000 <T>: 0.000554 sec B: 13.458 GB/sec F: 3612644979.959 FLOP/sec
R: 1000000 <T>: 0.000540 sec B: 13.796 GB/sec F: 3703326513.040 FLOP/sec
R: 1000000 <T>: 0.000551 sec B: 13.519 GB/sec F: 3629026404.796 FLOP/sec
R: 1000000 <T>: 0.000572 sec B: 13.030 GB/sec F: 3497830470.651 FLOP/sec
R: 1000000 <T>: 0.000541 sec B: 13.776 GB/sec F: 3697882962.004 FLOP/sec
R: 1000000 <T>: 0.000555 sec B: 13.425 GB/sec F: 3603720481.025 FLOP/sec
R: 1000000 <T>: 0.000538 sec B: 13.841 GB/sec F: 3715289904.071 FLOP/sec
R: 1000000 <T>: 0.000582 sec B: 12.802 GB/sec F: 3436408403.393 FLOP/sec
R: 1000000 <T>: 0.000548 sec B: 13.602 GB/sec F: 3651367437.105 FLOP/sec
R: 1000000 <T>: 0.000542 sec B: 13.752 GB/sec F: 3691562564.602 FLOP/sec
R: 1000000 <T>: 0.000548 sec B: 13.591 GB/sec F: 3648217025.134 FLOP/sec
R: 1000000 <T>: 0.000531 sec B: 14.034 GB/sec F: 3767251658.062 FLOP/sec
R: 1000000 <T>: 0.000539 sec B: 13.821 GB/sec F: 3710175899.439 FLOP/sec
R: 1000000 <T>: 0.000544 sec B: 13.690 GB/sec F: 3674788561.853 FLOP/sec
R: 1000000 <T>: 0.000533 sec B: 13.971 GB/sec F: 3750276582.898 FLOP/sec
R: 1000000 <T>: 0.000542 sec B: 13.737 GB/sec F: 3687573981.953 FLOP/sec
```

```
R: 1000000 <T>: 0.000635 sec B: 11.724 GB/sec F: 3147247102.959 FLOP/sec
R: 1000000 <T>: 0.000680 sec B: 10.956 GB/sec F: 2941076992.984 FLOP/sec
R: 1000000 <T>: 0.000709 sec B: 10.511 GB/sec F: 2821654505.336 FLOP/sec
R: 1000000 <T>: 0.000697 sec B: 10.693 GB/sec F: 2870272302.733 FLOP/sec
R: 1000000 <T>: 0.000646 sec B: 11.540 GB/sec F: 3097639134.334 FLOP/sec
R: 1000000 <T>: 0.000595 sec B: 12.526 GB/sec F: 3362452169.118 FLOP/sec
R: 1000000 <T>: 0.000597 sec B: 12.473 GB/sec F: 3348098447.487 FLOP/sec
R: 1000000 <T>: 0.000595 sec B: 12.520 GB/sec F: 3360937836.094 FLOP/sec
R: 1000000 <T>: 0.000564 sec B: 13.216 GB/sec F: 3547697012.484 FLOP/sec
R: 1000000 <T>: 0.000577 sec B: 12.920 GB/sec F: 3468200073.526 FLOP/sec
R: 1000000 <T>: 0.000565 sec B: 13.183 GB/sec F: 3538833388.185 FLOP/sec
R: 1000000 <T>: 0.000614 sec B: 12.129 GB/sec F: 3255828339.707 FLOP/sec
R: 1000000 <T>: 0.000561 sec B: 13.278 GB/sec F: 3564299971.486 FLOP/sec
R: 1000000 <T>: 0.000528 sec B: 14.099 GB/sec F: 3784732012.588 FLOP/sec
R: 1000000 <T>: 0.000563 sec B: 13.228 GB/sec F: 3550732871.265 FLOP/sec
R: 1000000 <T>: 0.000532 sec B: 14.012 GB/sec F: 3761321577.950 FLOP/sec
R: 1000000 <T>: 0.000580 sec B: 12.843 GB/sec F: 3447592287.736 FLOP/sec
R: 1000000 <T>: 0.000538 sec B: 13.837 GB/sec F: 3714317020.672 FLOP/sec
R: 1000000 <T>: 0.000515 sec B: 14.471 GB/sec F: 3884513416.138 FLOP/sec
R: 1000000 <T>: 0.000534 sec B: 13.964 GB/sec F: 3748392876.554 FLOP/sec
R: 1000000 <T>: 0.000532 sec B: 14.006 GB/sec F: 3759730652.896 FLOP/sec
R: 1000000 <T>: 0.000543 sec B: 13.711 GB/sec F: 3680631596.382 FLOP/sec
R: 1000000 <T>: 0.000524 sec B: 14.209 GB/sec F: 3814071635.893 FLOP/sec
R: 1000000 <T>: 0.000548 sec B: 13.604 GB/sec F: 3651834133.694 FLOP/sec
R: 1000000 <T>: 0.000554 sec B: 13.456 GB/sec F: 3611979491.180 FLOP/sec
R: 1000000 <T>: 0.000562 sec B: 13.261 GB/sec F: 3559821012.200 FLOP/sec
R: 1000000 <T>: 0.000544 sec B: 13.707 GB/sec F: 3679541381.962 FLOP/sec
R: 1000000 <T>: 0.000527 sec B: 14.127 GB/sec F: 3792231235.092 FLOP/sec
R: 1000000 <T>: 0.000529 sec B: 14.079 GB/sec F: 3779189515.017 FLOP/sec
R: 1000000 <T>: 0.000509 sec B: 14.628 GB/sec F: 3926596210.442 FLOP/sec
R: 1000000 <T>: 0.000535 sec B: 13.932 GB/sec F: 3739883614.822 FLOP/sec
R: 1000000 <T>: 0.000525 sec B: 14.200 GB/sec F: 3811869016.557 FLOP/sec
R: 1000000 <T>: 0.000523 sec B: 14.241 GB/sec F: 3822849169.486 FLOP/sec
R: 1000000 <T>: 0.000525 sec B: 14.188 GB/sec F: 3808464693.628 FLOP/sec
R: 1000000 <T>: 0.000518 sec B: 14.375 GB/sec F: 3858836059.279 FLOP/sec
R: 1000000 <T>: 0.000508 sec B: 14.660 GB/sec F: 3935280378.889 FLOP/sec
R: 1000000 <T>: 0.000543 sec B: 13.725 GB/sec F: 3684381171.338 FLOP/sec
R: 1000000 <T>: 0.001365 sec B: 5.459 GB/sec F: 1465347463.190 FLOP/sec
R: 1000000 <T>: 0.000789 sec B: 9.440 GB/sec F: 2533906840.915 FLOP/sec
R: 1000000 <T>: 0.000771 sec B: 9.660 GB/sec F: 2593186144.088 FLOP/sec
R: 1000000 <T>: 0.000788 sec B: 9.450 GB/sec F: 2536673963.832 FLOP/sec
R: 1000000 <T>: 0.000702 sec B: 10.608 GB/sec F: 2847465542.108 FLOP/sec
R: 1000000 <T>: 0.000729 sec B: 10.219 GB/sec F: 2743013886.508 FLOP/sec
R: 1000000 <T>: 0.000844 sec B: 8.828 GB/sec F: 2369817061.972 FLOP/sec
R: 1000000 <T>: 0.000889 sec B: 8.381 GB/sec F: 2249670704.451 FLOP/sec
R: 1000000 <T>: 0.000652 sec B: 11.421 GB/sec F: 3065885887.727 FLOP/sec
R: 1000000 <T>: 0.000708 sec B: 10.522 GB/sec F: 2824399991.527 FLOP/sec
R: 1000000 <T>: 0.000642 sec B: 11.598 GB/sec F: 3113358956.278 FLOP/sec
R: 1000000 <T>: 0.000612 sec B: 12.167 GB/sec F: 3266105985.139 FLOP/sec
R: 1000000 <T>: 0.000576 sec B: 12.940 GB/sec F: 3473567023.344 FLOP/sec
R: 1000000 <T>: 0.000570 sec B: 13.080 GB/sec F: 3511026378.341 FLOP/sec
R: 1000000 <T>: 0.000534 sec B: 13.964 GB/sec F: 3748428003.006 FLOP/sec
R: 1000000 <T>: 0.000537 sec B: 13.871 GB/sec F: 3723417128.836 FLOP/sec
R: 1000000 <T>: 0.000553 sec B: 13.465 GB/sec F: 3614571058.852 FLOP/sec
R: 1000000 <T>: 0.000574 sec B: 12.977 GB/sec F: 3483379923.540 FLOP/sec
R: 1000000 <T>: 0.000557 sec B: 13.367 GB/sec F: 3588093986.534 FLOP/sec
R: 1000000 <T>: 0.000571 sec B: 13.039 GB/sec F: 3500015750.071 FLOP/sec
R: 1000000 <T>: 0.000574 sec B: 12.973 GB/sec F: 3482288211.584 FLOP/sec
R: 1000000 <T>: 0.000548 sec B: 13.606 GB/sec F: 3652260932.130 FLOP/sec
R: 1000000 <T>: 0.000545 sec B: 13.660 GB/sec F: 3666804782.980 FLOP/sec
R: 1000000 <T>: 0.000517 sec B: 14.414 GB/sec F: 3869362580.555 FLOP/sec
R: 1000000 <T>: 0.000544 sec B: 13.699 GB/sec F: 3677383174.133 FLOP/sec
R: 1000000 <T>: 0.000525 sec B: 14.198 GB/sec F: 3811345995.895 FLOP/sec
R: 1000000 <T>: 0.000534 sec B: 13.949 GB/sec F: 3744504939.002 FLOP/sec
R: 1000000 <T>: 0.000532 sec B: 13.997 GB/sec F: 3757166795.663 FLOP/sec
R: 1000000 <T>: 0.000535 sec B: 13.934 GB/sec F: 3740289273.972 FLOP/sec
R: 1000000 <T>: 0.000557 sec B: 13.384 GB/sec F: 3592799311.620 FLOP/sec
R: 1000000 <T>: 0.000534 sec B: 13.960 GB/sec F: 3747367474.349 FLOP/sec
R: 1000000 <T>: 0.000540 sec B: 13.790 GB/sec F: 3701647233.019 FLOP/sec
R: 1000000 <T>: 0.000557 sec B: 13.378 GB/sec F: 3591141372.462 FLOP/sec
R: 1000000 <T>: 0.000568 sec B: 13.121 GB/sec F: 3522162325.895 FLOP/sec
R: 1000000 <T>: 0.000565 sec B: 13.181 GB/sec F: 3538263667.870 FLOP/sec
R: 1000000 <T>: 0.000618 sec B: 12.052 GB/sec F: 3235130933.837 FLOP/sec
R: 1000000 <T>: 0.000595 sec B: 12.512 GB/sec F: 3358561729.525 FLOP/sec
R: 1000000 <T>: 0.000557 sec B: 13.370 GB/sec F: 3589027624.746 FLOP/sec
R: 1000000 <T>: 0.000562 sec B: 13.250 GB/sec F: 3556763274.285 FLOP/sec
R: 1000000 <T>: 0.000546 sec B: 13.655 GB/sec F: 3665514473.284 FLOP/sec
R: 1000000 <T>: 0.000534 sec B: 13.960 GB/sec F: 3747374495.744 FLOP/sec
R: 1000000 <T>: 0.000536 sec B: 13.909 GB/sec F: 3733788357.675 FLOP/sec
R: 1000000 <T>: 0.000525 sec B: 14.194 GB/sec F: 3810075363.291 FLOP/sec
R: 1000000 <T>: 0.000534 sec B: 13.945 GB/sec F: 3743285481.667 FLOP/sec
R: 1000000 <T>: 0.000539 sec B: 13.830 GB/sec F: 3712558844.058 FLOP/sec
R: 1000000 <T>: 0.000554 sec B: 13.445 GB/sec F: 3609137614.613 FLOP/sec
R: 1000000 <T>: 0.000545 sec B: 13.671 GB/sec F: 3669684370.447 FLOP/sec
R: 1000000 <T>: 0.000552 sec B: 13.494 GB/sec F: 3622250033.053 FLOP/sec
R: 1000000 <T>: 0.000542 sec B: 13.734 GB/sec F: 3686669923.225 FLOP/sec
R: 1000000 <T>: 0.000536 sec B: 13.913 GB/sec F: 3734625015.639 FLOP/sec
R: 1000000 <T>: 0.000540 sec B: 13.794 GB/sec F: 3702832852.274 FLOP/sec
R: 1000000 <T>: 0.000521 sec B: 14.291 GB/sec F: 3836334305.844 FLOP/sec
R: 1000000 <T>: 0.000525 sec B: 14.187 GB/sec F: 3808297900.295 FLOP/sec
R: 1000000 <T>: 0.000512 sec B: 14.564 GB/sec F: 3909449334.514 FLOP/sec
R: 1000000 <T>: 0.000533 sec B: 13.974 GB/sec F: 3751134718.252 FLOP/sec
R: 1000000 <T>: 0.000501 sec B: 14.886 GB/sec F: 3995980044.076 FLOP/sec
R: 1000000 <T>: 0.000518 sec B: 14.390 GB/sec F: 3862718967.881 FLOP/sec
R: 1000000 <T>: 0.000499 sec B: 14.924 GB/sec F: 4006025061.693 FLOP/sec
R: 1000000 <T>: 0.000506 sec B: 14.715 GB/sec F: 3950063299.764 FLOP/sec
R: 1000000 <T>: 0.000512 sec B: 14.552 GB/sec F: 3906318665.758 FLOP/sec
R: 1000000 <T>: 0.000503 sec B: 14.818 GB/sec F: 3977550703.828 FLOP/sec
R: 1000000 <T>: 0.000507 sec B: 14.693 GB/sec F: 3944205272.219 FLOP/sec
R: 1000000 <T>: 0.000813 sec B: 9.170 GB/sec F: 2461438489.268 FLOP/sec
```

```
R: 1000000 <T>: 0.000710 sec B: 10.493 GB/sec F: 2816814126.886 FLOP/sec
R: 1000000 <T>: 0.000741 sec B: 10.053 GB/sec F: 2698709342.257 FLOP/sec
R: 1000000 <T>: 0.000708 sec B: 10.518 GB/sec F: 2823534726.654 FLOP/sec
R: 1000000 <T>: 0.000564 sec B: 13.212 GB/sec F: 3546658958.595 FLOP/sec
R: 1000000 <T>: 0.000752 sec B: 9.904 GB/sec F: 2658535093.993 FLOP/sec
R: 1000000 <T>: 0.000754 sec B: 9.885 GB/sec F: 2653617942.703 FLOP/sec
R: 1000000 <T>: 0.000583 sec B: 12.780 GB/sec F: 3430590576.168 FLOP/sec
R: 1000000 <T>: 0.000593 sec B: 12.563 GB/sec F: 3372328694.133 FLOP/sec
R: 1000000 <T>: 0.000525 sec B: 14.196 GB/sec F: 3810627076.792 FLOP/sec
R: 1000000 <T>: 0.000526 sec B: 14.156 GB/sec F: 3800077901.597 FLOP/sec
R: 1000000 <T>: 0.000515 sec B: 14.464 GB/sec F: 3882530167.259 FLOP/sec
R: 1000000 <T>: 0.000543 sec B: 13.723 GB/sec F: 3683621146.932 FLOP/sec
R: 1000000 <T>: 0.000655 sec B: 11.380 GB/sec F: 3054913599.406 FLOP/sec
R: 1000000 <T>: 0.000599 sec B: 12.441 GB/sec F: 3339723337.319 FLOP/sec
R: 1000000 <T>: 0.000583 sec B: 12.785 GB/sec F: 3431814983.991 FLOP/sec
R: 1000000 <T>: 0.000551 sec B: 13.526 GB/sec F: 3630963403.520 FLOP/sec
R: 1000000 <T>: 0.000570 sec B: 13.073 GB/sec F: 3509319876.261 FLOP/sec
R: 1000000 <T>: 0.000563 sec B: 13.231 GB/sec F: 3551647165.164 FLOP/sec
R: 1000000 <T>: 0.000571 sec B: 13.049 GB/sec F: 3502933706.980 FLOP/sec
R: 1000000 <T>: 0.000574 sec B: 12.973 GB/sec F: 3482282148.429 FLOP/sec
R: 1000000 <T>: 0.000549 sec B: 13.562 GB/sec F: 3640467436.019 FLOP/sec
R: 1000000 <T>: 0.000555 sec B: 13.426 GB/sec F: 3604032191.216 FLOP/sec
R: 1000000 <T>: 0.000574 sec B: 12.985 GB/sec F: 3485686898.174 FLOP/sec
R: 1000000 <T>: 0.000529 sec B: 14.086 GB/sec F: 3781275878.107 FLOP/sec
R: 1000000 <T>: 0.000550 sec B: 13.547 GB/sec F: 3636588443.649 FLOP/sec
R: 1000000 <T>: 0.000525 sec B: 14.199 GB/sec F: 3811418629.071 FLOP/sec
R: 1000000 <T>: 0.000542 sec B: 13.755 GB/sec F: 3692455390.523 FLOP/sec
R: 1000000 <T>: 0.000513 sec B: 14.518 GB/sec F: 3897047791.446 FLOP/sec
R: 1000000 <T>: 0.000522 sec B: 14.276 GB/sec F: 3832063642.913 FLOP/sec
R: 1000000 <T>: 0.000502 sec B: 14.845 GB/sec F: 3985040159.242 FLOP/sec
R: 1000000 <T>: 0.000534 sec B: 13.953 GB/sec F: 3745514746.092 FLOP/sec
R: 1000000 <T>: 0.000523 sec B: 14.249 GB/sec F: 3824962085.063 FLOP/sec
R: 1000000 <T>: 0.000518 sec B: 14.377 GB/sec F: 3859364748.562 FLOP/sec
R: 1000000 <T>: 0.000667 sec B: 11.167 GB/sec F: 2997615396.952 FLOP/sec
R: 1000000 <T>: 0.000507 sec B: 14.681 GB/sec F: 3940995416.622 FLOP/sec
R: 1000000 <T>: 0.000506 sec B: 14.711 GB/sec F: 3948823250.671 FLOP/sec
R: 1000000 <T>: 0.000491 sec B: 15.168 GB/sec F: 4071702684.270 FLOP/sec
R: 1000000 <T>: 0.000501 sec B: 14.867 GB/sec F: 3990852965.004 FLOP/sec
R: 1000000 <T>: 0.000514 sec B: 14.487 GB/sec F: 3888954785.067 FLOP/sec
R: 1000000 <T>: 0.000505 sec B: 14.752 GB/sec F: 3959831469.573 FLOP/sec
R: 1000000 <T>: 0.000513 sec B: 14.531 GB/sec F: 3900718902.494 FLOP/sec
R: 1000000 <T>: 0.000502 sec B: 14.843 GB/sec F: 3984444727.783 FLOP/sec
R: 1000000 <T>: 0.000501 sec B: 14.875 GB/sec F: 3992916566.012 FLOP/sec
R: 1000000 <T>: 0.000528 sec B: 14.107 GB/sec F: 3786939225.306 FLOP/sec
R: 1000000 <T>: 0.000519 sec B: 14.363 GB/sec F: 3855496009.562 FLOP/sec
R: 1000000 <T>: 0.000542 sec B: 13.755 GB/sec F: 3692407671.346 FLOP/sec
R: 1000000 <T>: 0.000501 sec B: 14.868 GB/sec F: 3991123740.800 FLOP/sec
R: 1000000 <T>: 0.000519 sec B: 14.363 GB/sec F: 3855525739.490 FLOP/sec
R: 1000000 <T>: 0.000518 sec B: 14.393 GB/sec F: 3863666658.295 FLOP/sec
R: 1000000 <T>: 0.000516 sec B: 14.438 GB/sec F: 3875578430.081 FLOP/sec
R: 1000000 <T>: 0.000530 sec B: 14.045 GB/sec F: 3770255698.741 FLOP/sec
R: 1000000 <T>: 0.000503 sec B: 14.798 GB/sec F: 3972328757.873 FLOP/sec
R: 1000000 <T>: 0.000518 sec B: 14.371 GB/sec F: 3857741909.351 FLOP/sec
R: 1000000 <T>: 0.000523 sec B: 14.247 GB/sec F: 3824442778.687 FLOP/sec
R: 1000000 <T>: 0.000516 sec B: 14.434 GB/sec F: 3874542319.688 FLOP/sec
R: 1000000 <T>: 0.000510 sec B: 14.600 GB/sec F: 3919232457.516 FLOP/sec
R: 1000000 <T>: 0.000537 sec B: 13.879 GB/sec F: 3725706067.871 FLOP/sec
R: 1000000 <T>: 0.000580 sec B: 12.843 GB/sec F: 3447586344.800 FLOP/sec
R: 1000000 <T>: 0.000590 sec B: 12.623 GB/sec F: 3388394747.988 FLOP/sec
R: 1000000 <T>: 0.000611 sec B: 12.203 GB/sec F: 3275783280.730 FLOP/sec
R: 1000000 <T>: 0.000582 sec B: 12.803 GB/sec F: 3436880824.439 FLOP/sec
R: 1000000 <T>: 0.000582 sec B: 12.805 GB/sec F: 3437252947.444 FLOP/sec
R: 1000000 <T>: 0.000583 sec B: 12.784 GB/sec F: 3431803206.677 FLOP/sec
R: 1000000 <T>: 0.000591 sec B: 12.596 GB/sec F: 3381342765.025 FLOP/sec
R: 1000000 <T>: 0.000591 sec B: 12.597 GB/sec F: 3381519993.237 FLOP/sec
R: 1000000 <T>: 0.000587 sec B: 12.695 GB/sec F: 3407805237.115 FLOP/sec
R: 1000000 <T>: 0.000598 sec B: 12.460 GB/sec F: 3344755673.960 FLOP/sec
R: 1000000 <T>: 0.000604 sec B: 12.332 GB/sec F: 3310271773.313 FLOP/sec
R: 1000000 <T>: 0.000599 sec B: 12.432 GB/sec F: 3337232333.109 FLOP/sec
R: 1000000 <T>: 0.000622 sec B: 11.988 GB/sec F: 3217896654.031 FLOP/sec
R: 1000000 <T>: 0.000572 sec B: 13.022 GB/sec F: 3495556274.087 FLOP/sec
R: 1000000 <T>: 0.000557 sec B: 13.378 GB/sec F: 3591057548.493 FLOP/sec
R: 1000000 <T>: 0.000560 sec B: 13.302 GB/sec F: 3570841933.111 FLOP/sec
R: 1000000 <T>: 0.000528 sec B: 14.103 GB/sec F: 3785842463.523 FLOP/sec
R: 1000000 <T>: 0.000579 sec B: 12.858 GB/sec F: 3451566752.438 FLOP/sec
R: 1000000 <T>: 0.000647 sec B: 11.519 GB/sec F: 3092012095.951 FLOP/sec
R: 1000000 <T>: 0.000684 sec B: 10.891 GB/sec F: 2923583377.674 FLOP/sec
R: 1000000 <T>: 0.000978 sec B: 7.620 GB/sec F: 2045506380.446 FLOP/sec
R: 1000000 <T>: 0.000896 sec B: 8.314 GB/sec F: 2231841458.910 FLOP/sec
R: 1000000 <T>: 0.000900 sec B: 8.278 GB/sec F: 2222113585.558 FLOP/sec
R: 1000000 <T>: 0.000776 sec B: 9.607 GB/sec F: 2578731908.584 FLOP/sec
R: 1000000 <T>: 0.000637 sec B: 11.689 GB/sec F: 3137614189.546 FLOP/sec
R: 1000000 <T>: 0.000647 sec B: 11.515 GB/sec F: 3091094556.582 FLOP/sec
R: 1000000 <T>: 0.000620 sec B: 12.016 GB/sec F: 3225613955.296 FLOP/sec
R: 1000000 <T>: 0.000572 sec B: 13.033 GB/sec F: 3498552473.914 FLOP/sec
R: 1000000 <T>: 0.000601 sec B: 12.391 GB/sec F: 3326076942.138 FLOP/sec
R: 1000000 <T>: 0.000556 sec B: 13.397 GB/sec F: 3596287911.618 FLOP/sec
R: 1000000 <T>: 0.000551 sec B: 13.514 GB/sec F: 3627709899.295 FLOP/sec
R: 1000000 <T>: 0.000596 sec B: 12.504 GB/sec F: 3356414275.501 FLOP/sec
R: 1000000 <T>: 0.000581 sec B: 12.830 GB/sec F: 3443917525.063 FLOP/sec
R: 1000000 <T>: 0.000581 sec B: 12.831 GB/sec F: 3444243721.574 FLOP/sec
R: 1000000 <T>: 0.000553 sec B: 13.472 GB/sec F: 3616407641.469 FLOP/sec
R: 1000000 <T>: 0.000560 sec B: 13.297 GB/sec F: 3569312479.030 FLOP/sec
R: 1000000 <T>: 0.000700 sec B: 10.650 GB/sec F: 2858923558.102 FLOP/sec
R: 1000000 <T>: 0.000697 sec B: 10.692 GB/sec F: 2870169325.639 FLOP/sec
R: 1000000 <T>: 0.000605 sec B: 12.309 GB/sec F: 3304184915.405 FLOP/sec
R: 1000000 <T>: 0.000590 sec B: 12.629 GB/sec F: 3390002881.502 FLOP/sec
R: 1000000 <T>: 0.000566 sec B: 13.170 GB/sec F: 3535199093.575 FLOP/sec
R: 1000000 <T>: 0.000580 sec B: 12.851 GB/sec F: 3449661674.431 FLOP/sec
R: 1000000 <T>: 0.000576 sec B: 12.945 GB/sec F: 3474894754.125 FLOP/sec
```

```
R: 1000000 <T>: 0.000576 sec B: 12.929 GB/sec F: 3470571290.740 FLOP/sec
R: 1000000 <T>: 0.000617 sec B: 12.066 GB/sec F: 3239065723.883 FLOP/sec
R: 1000000 <T>: 0.000606 sec B: 12.304 GB/sec F: 3302837137.101 FLOP/sec
R: 1000000 <T>: 0.000599 sec B: 12.446 GB/sec F: 3341045580.214 FLOP/sec
R: 1000000 <T>: 0.000600 sec B: 12.421 GB/sec F: 3334172433.396 FLOP/sec
R: 1000000 <T>: 0.000738 sec B: 10.096 GB/sec F: 2710005067.709 FLOP/sec
R: 1000000 <T>: 0.000737 sec B: 10.110 GB/sec F: 2713862545.576 FLOP/sec
R: 1000000 <T>: 0.000750 sec B: 9.935 GB/sec F: 2666855124.429 FLOP/sec
R: 1000000 <T>: 0.000593 sec B: 12.559 GB/sec F: 3371373666.200 FLOP/sec
R: 1000000 <T>: 0.000580 sec B: 12.851 GB/sec F: 3449679524.772 FLOP/sec
R: 1000000 <T>: 0.000569 sec B: 13.099 GB/sec F: 3516328952.574 FLOP/sec
R: 1000000 <T>: 0.000548 sec B: 13.607 GB/sec F: 3652607779.324 FLOP/sec
R: 1000000 <T>: 0.000558 sec B: 13.345 GB/sec F: 3582264922.820 FLOP/sec
R: 1000000 <T>: 0.000542 sec B: 13.734 GB/sec F: 3686663127.470 FLOP/sec
R: 1000000 <T>: 0.000569 sec B: 13.103 GB/sec F: 3517361697.338 FLOP/sec
R: 1000000 <T>: 0.000535 sec B: 13.938 GB/sec F: 3741373795.044 FLOP/sec
R: 1000000 <T>: 0.000549 sec B: 13.562 GB/sec F: 3640480689.070 FLOP/sec
R: 1000000 <T>: 0.000554 sec B: 13.439 GB/sec F: 3607549157.367 FLOP/sec
R: 1000000 <T>: 0.000537 sec B: 13.862 GB/sec F: 3721137923.977 FLOP/sec
R: 1000000 <T>: 0.000572 sec B: 13.034 GB/sec F: 3498791167.652 FLOP/sec
R: 1000000 <T>: 0.000541 sec B: 13.774 GB/sec F: 3697445434.949 FLOP/sec
R: 1000000 <T>: 0.000552 sec B: 13.507 GB/sec F: 3625723785.111 FLOP/sec
R: 1000000 <T>: 0.000552 sec B: 13.505 GB/sec F: 3625342594.875 FLOP/sec
R: 1000000 <T>: 0.000592 sec B: 12.593 GB/sec F: 3380405479.637 FLOP/sec
R: 1000000 <T>: 0.000606 sec B: 12.285 GB/sec F: 3297669042.637 FLOP/sec
R: 1000000 <T>: 0.000590 sec B: 12.631 GB/sec F: 3390508610.197 FLOP/sec
R: 1000000 <T>: 0.001621 sec B: 4.597 GB/sec F: 1233880127.312 FLOP/sec
R: 1000000 <T>: 0.000923 sec B: 8.070 GB/sec F: 2166154912.569 FLOP/sec
R: 1000000 <T>: 0.000870 sec B: 8.568 GB/sec F: 2299886845.567 FLOP/sec
R: 1000000 <T>: 0.000750 sec B: 9.929 GB/sec F: 2665199030.401 FLOP/sec
R: 1000000 <T>: 0.000695 sec B: 10.728 GB/sec F: 2879699129.035 FLOP/sec
R: 1000000 <T>: 0.000640 sec B: 11.641 GB/sec F: 3124902346.802 FLOP/sec
R: 1000000 <T>: 0.000579 sec B: 12.857 GB/sec F: 3451286812.288 FLOP/sec
R: 1000000 <T>: 0.000547 sec B: 13.619 GB/sec F: 3655825924.193 FLOP/sec
R: 1000000 <T>: 0.000579 sec B: 12.873 GB/sec F: 3455466807.650 FLOP/sec
R: 1000000 <T>: 0.000515 sec B: 14.473 GB/sec F: 3885132181.910 FLOP/sec
R: 1000000 <T>: 0.000550 sec B: 13.552 GB/sec F: 3637812147.019 FLOP/sec
R: 1000000 <T>: 0.000578 sec B: 12.887 GB/sec F: 3459232085.069 FLOP/sec
R: 1000000 <T>: 0.000533 sec B: 13.977 GB/sec F: 3751852477.161 FLOP/sec
R: 1000000 <T>: 0.000488 sec B: 15.269 GB/sec F: 4098621018.958 FLOP/sec
R: 1000000 <T>: 0.000585 sec B: 12.742 GB/sec F: 3420300165.543 FLOP/sec
R: 1000000 <T>: 0.000501 sec B: 14.864 GB/sec F: 3989977177.331 FLOP/sec
R: 1000000 <T>: 0.000490 sec B: 15.199 GB/sec F: 4080000652.800 FLOP/sec
R: 1000000 <T>: 0.000504 sec B: 14.797 GB/sec F: 3971950088.475 FLOP/sec
R: 1000000 <T>: 0.000505 sec B: 14.762 GB/sec F: 3962569567.862 FLOP/sec
R: 1000000 <T>: 0.000518 sec B: 14.382 GB/sec F: 3860728094.711 FLOP/sec
R: 1000000 <T>: 0.000503 sec B: 14.827 GB/sec F: 3979996537.403 FLOP/sec
R: 1000000 <T>: 0.000522 sec B: 14.272 GB/sec F: 3831241475.488 FLOP/sec
R: 1000000 <T>: 0.000495 sec B: 15.057 GB/sec F: 4041906486.452 FLOP/sec
R: 1000000 <T>: 0.000515 sec B: 14.458 GB/sec F: 3881015817.080 FLOP/sec
R: 1000000 <T>: 0.000492 sec B: 15.132 GB/sec F: 4061886908.945 FLOP/sec
R: 1000000 <T>: 0.000508 sec B: 14.673 GB/sec F: 3938674832.852 FLOP/sec
R: 1000000 <T>: 0.000483 sec B: 15.426 GB/sec F: 4140889628.728 FLOP/sec
R: 1000000 <T>: 0.000519 sec B: 14.343 GB/sec F: 3850159492.857 FLOP/sec
R: 1000000 <T>: 0.000496 sec B: 15.015 GB/sec F: 4030649055.417 FLOP/sec
R: 1000000 <T>: 0.000519 sec B: 14.345 GB/sec F: 3850670979.418 FLOP/sec
R: 1000000 <T>: 0.000496 sec B: 15.018 GB/sec F: 4031347760.183 FLOP/sec
R: 1000000 <T>: 0.000522 sec B: 14.276 GB/sec F: 3832070985.283 FLOP/sec
R: 1000000 <T>: 0.000496 sec B: 15.012 GB/sec F: 4029812553.269 FLOP/sec
R: 1000000 <T>: 0.000611 sec B: 12.202 GB/sec F: 3275525762.829 FLOP/sec
R: 1000000 <T>: 0.000489 sec B: 15.226 GB/sec F: 4087121072.788 FLOP/sec
R: 1000000 <T>: 0.000510 sec B: 14.598 GB/sec F: 3918740986.896 FLOP/sec
R: 1000000 <T>: 0.000485 sec B: 15.373 GB/sec F: 4126791543.379 FLOP/sec
R: 1000000 <T>: 0.000496 sec B: 15.023 GB/sec F: 4032721502.269 FLOP/sec
R: 1000000 <T>: 0.000488 sec B: 15.273 GB/sec F: 4099738436.688 FLOP/sec
R: 1000000 <T>: 0.000515 sec B: 14.474 GB/sec F: 3885358608.886 FLOP/sec
R: 1000000 <T>: 0.000509 sec B: 14.646 GB/sec F: 3931613514.528 FLOP/sec
R: 1000000 <T>: 0.000505 sec B: 14.759 GB/sec F: 3961713995.943 FLOP/sec
R: 1000000 <T>: 0.000505 sec B: 14.768 GB/sec F: 3964258247.639 FLOP/sec
R: 1000000 <T>: 0.000545 sec B: 13.659 GB/sec F: 3666435070.185 FLOP/sec
R: 1000000 <T>: 0.000643 sec B: 11.590 GB/sec F: 3111223115.143 FLOP/sec
R: 1000000 <T>: 0.000536 sec B: 13.905 GB/sec F: 3732673396.677 FLOP/sec
R: 1000000 <T>: 0.000543 sec B: 13.730 GB/sec F: 3685698384.558 FLOP/sec
R: 1000000 <T>: 0.000508 sec B: 14.669 GB/sec F: 3937744263.199 FLOP/sec
R: 1000000 <T>: 0.000510 sec B: 14.603 GB/sec F: 3919969894.631 FLOP/sec
R: 1000000 <T>: 0.000493 sec B: 15.122 GB/sec F: 4059388859.007 FLOP/sec
R: 1000000 <T>: 0.000512 sec B: 14.554 GB/sec F: 3906723079.748 FLOP/sec
R: 1000000 <T>: 0.000486 sec B: 15.334 GB/sec F: 4116259637.193 FLOP/sec
R: 1000000 <T>: 0.000516 sec B: 14.426 GB/sec F: 3872344297.876 FLOP/sec
R: 1000000 <T>: 0.000494 sec B: 15.087 GB/sec F: 4049853699.035 FLOP/sec
R: 1000000 <T>: 0.000536 sec B: 13.904 GB/sec F: 3732325107.911 FLOP/sec
R: 1000000 <T>: 0.000502 sec B: 14.853 GB/sec F: 3987129545.826 FLOP/sec
R: 1000000 <T>: 0.000494 sec B: 15.074 GB/sec F: 4046297738.727 FLOP/sec
R: 1000000 <T>: 0.000488 sec B: 15.253 GB/sec F: 4094316679.018 FLOP/sec
R: 1000000 <T>: 0.000491 sec B: 15.166 GB/sec F: 4071056215.180 FLOP/sec
R: 1000000 <T>: 0.000486 sec B: 15.316 GB/sec F: 4111318047.453 FLOP/sec
R: 1000000 <T>: 0.000492 sec B: 15.147 GB/sec F: 4065999300.648 FLOP/sec
R: 1000000 <T>: 0.000491 sec B: 15.179 GB/sec F: 4074564530.916 FLOP/sec
R: 1000000 <T>: 0.000490 sec B: 15.207 GB/sec F: 4082032525.635 FLOP/sec
R: 1000000 <T>: 0.000503 sec B: 14.800 GB/sec F: 3972975818.483 FLOP/sec
R: 1000000 <T>: 0.000500 sec B: 14.887 GB/sec F: 3996067869.217 FLOP/sec
R: 1000000 <T>: 0.000526 sec B: 14.155 GB/sec F: 3799760235.129 FLOP/sec
R: 1000000 <T>: 0.000496 sec B: 15.012 GB/sec F: 4029707000.004 FLOP/sec
R: 1000000 <T>: 0.000511 sec B: 14.568 GB/sec F: 3910450679.441 FLOP/sec
R: 1000000 <T>: 0.000487 sec B: 15.286 GB/sec F: 4103287964.646 FLOP/sec
R: 1000000 <T>: 0.000507 sec B: 14.707 GB/sec F: 3947747612.600 FLOP/sec
R: 1000000 <T>: 0.000490 sec B: 15.211 GB/sec F: 4083215940.875 FLOP/sec
R: 1000000 <T>: 0.000505 sec B: 14.754 GB/sec F: 3960403881.988 FLOP/sec
R: 1000000 <T>: 0.000540 sec B: 13.808 GB/sec F: 3706641560.348 FLOP/sec
R: 1000000 <T>: 0.000497 sec B: 14.979 GB/sec F: 4020932977.079 FLOP/sec
```

```
R: 1000000 <T>: 0.000471 sec B: 15.815 GB/sec F: 4245419192.691 FLOP/sec
R: 1000000 <T>: 0.000513 sec B: 14.525 GB/sec F: 3899045903.467 FLOP/sec
R: 1000000 <T>: 0.000476 sec B: 15.655 GB/sec F: 4202404615.921 FLOP/sec
R: 1000000 <T>: 0.000584 sec B: 12.751 GB/sec F: 3422752748.898 FLOP/sec
R: 1000000 <T>: 0.000665 sec B: 11.208 GB/sec F: 3008577454.322 FLOP/sec
R: 1000000 <T>: 0.000659 sec B: 11.310 GB/sec F: 3036108437.649 FLOP/sec
R: 1000000 <T>: 0.000693 sec B: 10.747 GB/sec F: 2884974619.436 FLOP/sec
R: 1000000 <T>: 0.000958 sec B: 7.774 GB/sec F: 2086809174.865 FLOP/sec
R: 1000000 <T>: 0.000770 sec B: 9.670 GB/sec F: 2595872044.275 FLOP/sec
R: 1000000 <T>: 0.000691 sec B: 10.787 GB/sec F: 2895621530.683 FLOP/sec
R: 1000000 <T>: 0.000669 sec B: 11.135 GB/sec F: 2988924540.117 FLOP/sec
R: 1000000 <T>: 0.000532 sec B: 13.992 GB/sec F: 3755868544.601 FLOP/sec
R: 1000000 <T>: 0.000510 sec B: 14.621 GB/sec F: 3924862433.572 FLOP/sec
R: 1000000 <T>: 0.000511 sec B: 14.586 GB/sec F: 3915388455.477 FLOP/sec
R: 1000000 <T>: 0.000525 sec B: 14.180 GB/sec F: 3806456892.827 FLOP/sec
R: 1000000 <T>: 0.000525 sec B: 14.200 GB/sec F: 3811883546.958 FLOP/sec
R: 1000000 <T>: 0.000511 sec B: 14.586 GB/sec F: 3915342465.217 FLOP/sec
R: 1000000 <T>: 0.000494 sec B: 15.075 GB/sec F: 4046674341.859 FLOP/sec
R: 1000000 <T>: 0.000492 sec B: 15.133 GB/sec F: 4062241666.819 FLOP/sec
R: 1000000 <T>: 0.000519 sec B: 14.347 GB/sec F: 3851212265.341 FLOP/sec
R: 1000000 <T>: 0.000490 sec B: 15.210 GB/sec F: 4082874180.108 FLOP/sec
R: 1000000 <T>: 0.000503 sec B: 14.813 GB/sec F: 3976324961.181 FLOP/sec
R: 1000000 <T>: 0.000489 sec B: 15.236 GB/sec F: 4089954458.357 FLOP/sec
R: 1000000 <T>: 0.000512 sec B: 14.549 GB/sec F: 3905540595.165 FLOP/sec
R: 1000000 <T>: 0.000500 sec B: 14.912 GB/sec F: 4002890086.643 FLOP/sec
R: 1000000 <T>: 0.000509 sec B: 14.630 GB/sec F: 3927112786.679 FLOP/sec
R: 1000000 <T>: 0.000537 sec B: 13.887 GB/sec F: 3727803261.455 FLOP/sec
R: 1000000 <T>: 0.000499 sec B: 14.934 GB/sec F: 4008875650.691 FLOP/sec
R: 1000000 <T>: 0.000517 sec B: 14.408 GB/sec F: 3867664008.292 FLOP/sec
R: 1000000 <T>: 0.000637 sec B: 11.698 GB/sec F: 3140052627.282 FLOP/sec
R: 1000000 <T>: 0.000690 sec B: 10.794 GB/sec F: 2897412755.280 FLOP/sec
R: 1000000 <T>: 0.000941 sec B: 7.916 GB/sec F: 2124840769.745 FLOP/sec
R: 1000000 <T>: 0.000730 sec B: 10.202 GB/sec F: 2738476831.801 FLOP/sec
R: 1000000 <T>: 0.000719 sec B: 10.359 GB/sec F: 2780728439.622 FLOP/sec
R: 1000000 <T>: 0.000651 sec B: 11.451 GB/sec F: 3073820882.310 FLOP/sec
R: 1000000 <T>: 0.000736 sec B: 10.119 GB/sec F: 2716217721.148 FLOP/sec
R: 1000000 <T>: 0.000894 sec B: 8.330 GB/sec F: 2236090955.236 FLOP/sec
R: 1000000 <T>: 0.000637 sec B: 11.706 GB/sec F: 3142178881.102 FLOP/sec
R: 1000000 <T>: 0.000697 sec B: 10.695 GB/sec F: 2870968621.748 FLOP/sec
R: 1000000 <T>: 0.000694 sec B: 10.736 GB/sec F: 2881956502.631 FLOP/sec
R: 1000000 <T>: 0.000606 sec B: 12.293 GB/sec F: 3299747404.336 FLOP/sec
R: 1000000 <T>: 0.000744 sec B: 10.014 GB/sec F: 2688027525.402 FLOP/sec
R: 1000000 <T>: 0.000739 sec B: 10.082 GB/sec F: 2706356283.686 FLOP/sec
R: 1000000 <T>: 0.000785 sec B: 9.494 GB/sec F: 2548637562.075 FLOP/sec
R: 1000000 <T>: 0.000740 sec B: 10.065 GB/sec F: 2701749788.250 FLOP/sec
R: 1000000 <T>: 0.000743 sec B: 10.026 GB/sec F: 2691290177.598 FLOP/sec
R: 1000000 <T>: 0.000748 sec B: 9.963 GB/sec F: 2674529784.232 FLOP/sec
R: 1000000 <T>: 0.000728 sec B: 10.234 GB/sec F: 2747181048.846 FLOP/sec
R: 1000000 <T>: 0.000767 sec B: 9.711 GB/sec F: 2606644336.414 FLOP/sec
R: 1000000 <T>: 0.000757 sec B: 9.841 GB/sec F: 2641543823.872 FLOP/sec
R: 1000000 <T>: 0.000817 sec B: 9.117 GB/sec F: 2447300444.063 FLOP/sec
R: 1000000 <T>: 0.000658 sec B: 11.318 GB/sec F: 3038234664.131 FLOP/sec
R: 1000000 <T>: 0.000604 sec B: 12.328 GB/sec F: 3309367993.447 FLOP/sec
R: 1000000 <T>: 0.000563 sec B: 13.241 GB/sec F: 3554285490.873 FLOP/sec
R: 1000000 <T>: 0.000582 sec B: 12.812 GB/sec F: 3439321765.748 FLOP/sec
R: 1000000 <T>: 0.000563 sec B: 13.240 GB/sec F: 3554203378.626 FLOP/sec
R: 1000000 <T>: 0.000619 sec B: 12.034 GB/sec F: 3230475009.045 FLOP/sec
R: 1000000 <T>: 0.000686 sec B: 10.854 GB/sec F: 2913536435.958 FLOP/sec
R: 1000000 <T>: 0.000585 sec B: 12.725 GB/sec F: 3415918865.095 FLOP/sec
R: 1000000 <T>: 0.000676 sec B: 11.028 GB/sec F: 2960392903.346 FLOP/sec
R: 1000000 <T>: 0.000661 sec B: 11.267 GB/sec F: 3024350558.522 FLOP/sec
R: 1000000 <T>: 0.000554 sec B: 13.438 GB/sec F: 3607275875.441 FLOP/sec
R: 1000000 <T>: 0.000561 sec B: 13.270 GB/sec F: 3562141559.506 FLOP/sec
R: 1000000 <T>: 0.000517 sec B: 14.416 GB/sec F: 3869699479.138 FLOP/sec
R: 1000000 <T>: 0.000535 sec B: 13.934 GB/sec F: 3740338238.787 FLOP/sec
R: 1000000 <T>: 0.000510 sec B: 14.617 GB/sec F: 3923753619.663 FLOP/sec
R: 1000000 <T>: 0.000563 sec B: 13.233 GB/sec F: 3552334772.029 FLOP/sec
R: 1000000 <T>: 0.000549 sec B: 13.580 GB/sec F: 3645251422.104 FLOP/sec
R: 1000000 <T>: 0.000514 sec B: 14.500 GB/sec F: 3892231883.607 FLOP/sec
R: 1000000 <T>: 0.000547 sec B: 13.632 GB/sec F: 3659190330.955 FLOP/sec
R: 1000000 <T>: 0.000664 sec B: 11.222 GB/sec F: 3012334001.569 FLOP/sec
R: 1000000 <T>: 0.000746 sec B: 9.987 GB/sec F: 2680807030.148 FLOP/sec
R: 1000000 <T>: 0.000869 sec B: 8.575 GB/sec F: 2301827075.241 FLOP/sec
R: 1000000 <T>: 0.004333 sec B: 1.719 GB/sec F: 461544248.593 FLOP/sec
R: 1000000 <T>: 0.001463 sec B: 5.094 GB/sec F: 1367331577.224 FLOP/sec
R: 1000000 <T>: 0.001322 sec B: 5.634 GB/sec F: 1512330789.089 FLOP/sec
R: 1000000 <T>: 0.001213 sec B: 6.144 GB/sec F: 1649394754.595 FLOP/sec
R: 1000000 <T>: 0.001263 sec B: 5.900 GB/sec F: 1583651647.314 FLOP/sec
R: 1000000 <T>: 0.001227 sec B: 6.073 GB/sec F: 1630316053.070 FLOP/sec
R: 1000000 <T>: 0.001371 sec B: 5.436 GB/sec F: 1459123387.851 FLOP/sec
R: 1000000 <T>: 0.001295 sec B: 5.752 GB/sec F: 1544096302.198 FLOP/sec
R: 1000000 <T>: 0.001275 sec B: 5.842 GB/sec F: 1568238773.763 FLOP/sec
R: 1000000 <T>: 0.001211 sec B: 6.154 GB/sec F: 1652050152.939 FLOP/sec
R: 1000000 <T>: 0.001161 sec B: 6.415 GB/sec F: 1722109998.054 FLOP/sec
R: 1000000 <T>: 0.001233 sec B: 6.042 GB/sec F: 1621910058.600 FLOP/sec
R: 1000000 <T>: 0.001363 sec B: 5.466 GB/sec F: 1467298681.119 FLOP/sec
R: 1000000 <T>: 0.001109 sec B: 6.717 GB/sec F: 1803182617.320 FLOP/sec
R: 1000000 <T>: 0.001037 sec B: 7.183 GB/sec F: 1928147580.416 FLOP/sec
R: 1000000 <T>: 0.000981 sec B: 7.592 GB/sec F: 2037896727.545 FLOP/sec
R: 1000000 <T>: 0.000979 sec B: 7.610 GB/sec F: 2042825800.073 FLOP/sec
R: 1000000 <T>: 0.000914 sec B: 8.153 GB/sec F: 2188495081.357 FLOP/sec
R: 1000000 <T>: 0.000869 sec B: 8.578 GB/sec F: 2302683086.332 FLOP/sec
R: 1000000 <T>: 0.000810 sec B: 9.197 GB/sec F: 2468736537.671 FLOP/sec
R: 1000000 <T>: 0.000800 sec B: 9.312 GB/sec F: 2499662545.556 FLOP/sec
R: 1000000 <T>: 0.000748 sec B: 9.965 GB/sec F: 2674919685.536 FLOP/sec
R: 1000000 <T>: 0.000599 sec B: 12.431 GB/sec F: 3336998469.986 FLOP/sec
R: 1000000 <T>: 0.000599 sec B: 12.439 GB/sec F: 3338998500.790 FLOP/sec
R: 1000000 <T>: 0.000544 sec B: 13.697 GB/sec F: 3676849087.406 FLOP/sec
R: 1000000 <T>: 0.000579 sec B: 12.859 GB/sec F: 3451822907.678 FLOP/sec
R: 1000000 <T>: 0.000570 sec B: 13.071 GB/sec F: 3508716529.037 FLOP/sec
```

```
R: 1000000 <T>: 0.000546 sec B: 13.651 GB/sec F: 3664446622.754 FLOP/sec
R: 1000000 <T>: 0.000557 sec B: 13.388 GB/sec F: 3593690198.749 FLOP/sec
R: 1000000 <T>: 0.000540 sec B: 13.799 GB/sec F: 3704190736.189 FLOP/sec
R: 1000000 <T>: 0.000610 sec B: 12.221 GB/sec F: 3280457820.693 FLOP/sec
R: 1000000 <T>: 0.000538 sec B: 13.853 GB/sec F: 3718716299.134 FLOP/sec
R: 1000000 <T>: 0.000551 sec B: 13.514 GB/sec F: 3627505926.438 FLOP/sec
R: 1000000 <T>: 0.000546 sec B: 13.639 GB/sec F: 3661226694.004 FLOP/sec
R: 1000000 <T>: 0.000553 sec B: 13.469 GB/sec F: 3615440098.485 FLOP/sec
R: 1000000 <T>: 0.000573 sec B: 12.999 GB/sec F: 3489353981.004 FLOP/sec
R: 1000000 <T>: 0.000534 sec B: 13.942 GB/sec F: 3742535979.805 FLOP/sec
R: 1000000 <T>: 0.000604 sec B: 12.328 GB/sec F: 3309198247.449 FLOP/sec
R: 1000000 <T>: 0.000579 sec B: 12.867 GB/sec F: 3454028606.265 FLOP/sec
R: 1000000 <T>: 0.000540 sec B: 13.788 GB/sec F: 3701195115.903 FLOP/sec
R: 1000000 <T>: 0.000586 sec B: 12.717 GB/sec F: 3413744075.020 FLOP/sec
R: 1000000 <T>: 0.000527 sec B: 14.143 GB/sec F: 3796572075.073 FLOP/sec
R: 1000000 <T>: 0.000564 sec B: 13.210 GB/sec F: 3545979834.013 FLOP/sec
R: 1000000 <T>: 0.000528 sec B: 14.115 GB/sec F: 3788847527.303 FLOP/sec
R: 1000000 <T>: 0.000574 sec B: 12.989 GB/sec F: 3486580152.991 FLOP/sec
R: 1000000 <T>: 0.000574 sec B: 12.989 GB/sec F: 3486592309.275 FLOP/sec
R: 1000000 <T>: 0.000550 sec B: 13.539 GB/sec F: 3634348225.075 FLOP/sec
R: 1000000 <T>: 0.000553 sec B: 13.484 GB/sec F: 3619686752.308 FLOP/sec
R: 1000000 <T>: 0.000516 sec B: 14.431 GB/sec F: 3873859390.526 FLOP/sec
R: 1000000 <T>: 0.000547 sec B: 13.627 GB/sec F: 3657845163.414 FLOP/sec
R: 1000000 <T>: 0.000519 sec B: 14.347 GB/sec F: 3851197433.562 FLOP/sec
R: 1000000 <T>: 0.000572 sec B: 13.017 GB/sec F: 3494157768.212 FLOP/sec
R: 1000000 <T>: 0.000536 sec B: 13.893 GB/sec F: 3729339459.395 FLOP/sec
R: 1000000 <T>: 0.000563 sec B: 13.242 GB/sec F: 3554721380.938 FLOP/sec
R: 1000000 <T>: 0.000722 sec B: 10.313 GB/sec F: 2768376831.454 FLOP/sec
R: 1000000 <T>: 0.000638 sec B: 11.671 GB/sec F: 3133003845.762 FLOP/sec
R: 1000000 <T>: 0.000724 sec B: 10.291 GB/sec F: 2762415677.261 FLOP/sec
R: 1000000 <T>: 0.000777 sec B: 9.592 GB/sec F: 2574761416.170 FLOP/sec
R: 1000000 <T>: 0.000848 sec B: 8.786 GB/sec F: 2358515597.453 FLOP/sec
R: 1000000 <T>: 0.000732 sec B: 10.181 GB/sec F: 2732882589.898 FLOP/sec
R: 1000000 <T>: 0.000702 sec B: 10.610 GB/sec F: 2848012941.371 FLOP/sec
R: 1000000 <T>: 0.000715 sec B: 10.425 GB/sec F: 2798376941.374 FLOP/sec
R: 1000000 <T>: 0.000676 sec B: 11.018 GB/sec F: 2957709195.074 FLOP/sec
R: 1000000 <T>: 0.000599 sec B: 12.440 GB/sec F: 3339377606.802 FLOP/sec
R: 1000000 <T>: 0.000650 sec B: 11.454 GB/sec F: 3074595844.376 FLOP/sec
R: 1000000 <T>: 0.000689 sec B: 10.811 GB/sec F: 2902037375.339 FLOP/sec
R: 1000000 <T>: 0.000633 sec B: 11.776 GB/sec F: 3161075777.309 FLOP/sec
R: 1000000 <T>: 0.000698 sec B: 10.673 GB/sec F: 2865005250.122 FLOP/sec
R: 1000000 <T>: 0.000634 sec B: 11.760 GB/sec F: 3156794843.060 FLOP/sec
R: 1000000 <T>: 0.000583 sec B: 12.772 GB/sec F: 3428491103.923 FLOP/sec
R: 1000000 <T>: 0.000604 sec B: 12.330 GB/sec F: 3309893768.959 FLOP/sec
R: 1000000 <T>: 0.000600 sec B: 12.415 GB/sec F: 3332555736.995 FLOP/sec
R: 1000000 <T>: 0.000600 sec B: 12.421 GB/sec F: 3334211342.320 FLOP/sec
R: 1000000 <T>: 0.000584 sec B: 12.761 GB/sec F: 3425566717.194 FLOP/sec
R: 1000000 <T>: 0.000539 sec B: 13.812 GB/sec F: 3707644792.798 FLOP/sec
R: 1000000 <T>: 0.000576 sec B: 12.927 GB/sec F: 3470005274.408 FLOP/sec
R: 1000000 <T>: 0.000569 sec B: 13.106 GB/sec F: 3517992774.043 FLOP/sec
R: 1000000 <T>: 0.000541 sec B: 13.763 GB/sec F: 3694590380.764 FLOP/sec
R: 1000000 <T>: 0.000609 sec B: 12.230 GB/sec F: 3282967145.706 FLOP/sec
R: 1000000 <T>: 0.000550 sec B: 13.539 GB/sec F: 3634301995.959 FLOP/sec
R: 1000000 <T>: 0.000662 sec B: 11.256 GB/sec F: 3021540562.671 FLOP/sec
R: 1000000 <T>: 0.000616 sec B: 12.093 GB/sec F: 3246136691.570 FLOP/sec
R: 1000000 <T>: 0.000595 sec B: 12.531 GB/sec F: 3363866023.944 FLOP/sec
R: 1000000 <T>: 0.000613 sec B: 12.163 GB/sec F: 3265103552.759 FLOP/sec
R: 1000000 <T>: 0.000573 sec B: 13.006 GB/sec F: 3491144711.439 FLOP/sec
R: 1000000 <T>: 0.000585 sec B: 12.744 GB/sec F: 3420844230.148 FLOP/sec
R: 1000000 <T>: 0.000614 sec B: 12.127 GB/sec F: 3255393780.570 FLOP/sec
R: 1000000 <T>: 0.000577 sec B: 12.915 GB/sec F: 3466769283.037 FLOP/sec
R: 1000000 <T>: 0.000589 sec B: 12.654 GB/sec F: 3396692979.715 FLOP/sec
R: 1000000 <T>: 0.000580 sec B: 12.846 GB/sec F: 3448299643.446 FLOP/sec
R: 1000000 <T>: 0.000552 sec B: 13.501 GB/sec F: 3624225774.769 FLOP/sec
R: 1000000 <T>: 0.000560 sec B: 13.315 GB/sec F: 3574332716.761 FLOP/sec
R: 1000000 <T>: 0.000529 sec B: 14.094 GB/sec F: 3783199944.009 FLOP/sec
R: 1000000 <T>: 0.000565 sec B: 13.185 GB/sec F: 3539303075.831 FLOP/sec
R: 1000000 <T>: 0.000538 sec B: 13.851 GB/sec F: 3718018073.286 FLOP/sec
R: 1000000 <T>: 0.000604 sec B: 12.343 GB/sec F: 3313425170.434 FLOP/sec
R: 1000000 <T>: 0.000570 sec B: 13.061 GB/sec F: 3506028616.206 FLOP/sec
R: 1000000 <T>: 0.000526 sec B: 14.154 GB/sec F: 3799406532.700 FLOP/sec
R: 1000000 <T>: 0.000583 sec B: 12.781 GB/sec F: 3430961338.212 FLOP/sec
R: 1000000 <T>: 0.000524 sec B: 14.216 GB/sec F: 3816000106.848 FLOP/sec
R: 1000000 <T>: 0.000517 sec B: 14.415 GB/sec F: 3869407496.977 FLOP/sec
R: 1000000 <T>: 0.000508 sec B: 14.662 GB/sec F: 3935868951.307 FLOP/sec
R: 1000000 <T>: 0.000512 sec B: 14.559 GB/sec F: 3908181191.096 FLOP/sec
R: 1000000 <T>: 0.000536 sec B: 13.888 GB/sec F: 3727949180.597 FLOP/sec
R: 1000000 <T>: 0.000540 sec B: 13.786 GB/sec F: 3700654090.611 FLOP/sec
R: 1000000 <T>: 0.000556 sec B: 13.408 GB/sec F: 3599200257.703 FLOP/sec
R: 1000000 <T>: 0.000532 sec B: 13.999 GB/sec F: 3757858621.843 FLOP/sec
R: 1000000 <T>: 0.000542 sec B: 13.743 GB/sec F: 3689015954.994 FLOP/sec
R: 1000000 <T>: 0.000521 sec B: 14.313 GB/sec F: 3842156525.615 FLOP/sec
R: 1000000 <T>: 0.000516 sec B: 14.433 GB/sec F: 3874399710.195 FLOP/sec
R: 1000000 <T>: 0.000502 sec B: 14.856 GB/sec F: 3987749633.127 FLOP/sec
R: 1000000 <T>: 0.000518 sec B: 14.373 GB/sec F: 3858329844.760 FLOP/sec
R: 1000000 <T>: 0.000495 sec B: 15.067 GB/sec F: 4044473025.387 FLOP/sec
R: 1000000 <T>: 0.000510 sec B: 14.616 GB/sec F: 3923391850.723 FLOP/sec
R: 1000000 <T>: 0.000508 sec B: 14.667 GB/sec F: 3937240388.212 FLOP/sec
R: 1000000 <T>: 0.000534 sec B: 13.941 GB/sec F: 3742220858.391 FLOP/sec
R: 1000000 <T>: 0.000529 sec B: 14.095 GB/sec F: 3783708109.622 FLOP/sec
R: 1000000 <T>: 0.000547 sec B: 13.617 GB/sec F: 3655184513.714 FLOP/sec
R: 1000000 <T>: 0.000537 sec B: 13.870 GB/sec F: 3723202251.793 FLOP/sec
R: 1000000 <T>: 0.000503 sec B: 14.819 GB/sec F: 3977882970.683 FLOP/sec
R: 1000000 <T>: 0.000568 sec B: 13.128 GB/sec F: 3524086248.487 FLOP/sec
R: 1000000 <T>: 0.000507 sec B: 14.696 GB/sec F: 3944991044.870 FLOP/sec
R: 1000000 <T>: 0.000528 sec B: 14.110 GB/sec F: 3787591849.102 FLOP/sec
R: 1000000 <T>: 0.000515 sec B: 14.462 GB/sec F: 3882070463.461 FLOP/sec
R: 1000000 <T>: 0.000522 sec B: 14.273 GB/sec F: 3831513045.344 FLOP/sec
R: 1000000 <T>: 0.000510 sec B: 14.609 GB/sec F: 3921514802.738 FLOP/sec
R: 1000000 <T>: 0.000509 sec B: 14.644 GB/sec F: 3931095753.630 FLOP/sec
```

```
R: 1000000 <T>: 0.000504 sec B: 14.795 GB/sec F: 3971421649.808 FLOP/sec
R: 1000000 <T>: 0.000528 sec B: 14.119 GB/sec F: 3789931667.532 FLOP/sec
R: 1000000 <T>: 0.000518 sec B: 14.384 GB/sec F: 3861182757.502 FLOP/sec
R: 1000000 <T>: 0.000508 sec B: 14.653 GB/sec F: 3933453828.136 FLOP/sec
R: 1000000 <T>: 0.000532 sec B: 14.005 GB/sec F: 3759497430.384 FLOP/sec
R: 1000000 <T>: 0.000494 sec B: 15.074 GB/sec F: 4046346856.899 FLOP/sec
R: 1000000 <T>: 0.000512 sec B: 14.545 GB/sec F: 3904404558.783 FLOP/sec
R: 1000000 <T>: 0.000500 sec B: 14.891 GB/sec F: 3997209947.457 FLOP/sec
R: 1000000 <T>: 0.000505 sec B: 14.749 GB/sec F: 3959196520.658 FLOP/sec
R: 1000000 <T>: 0.000754 sec B: 9.879 GB/sec F: 2651953627.939 FLOP/sec
R: 1000000 <T>: 0.000515 sec B: 14.460 GB/sec F: 3881701272.034 FLOP/sec
R: 1000000 <T>: 0.000506 sec B: 14.727 GB/sec F: 3953209808.704 FLOP/sec
R: 1000000 <T>: 0.000496 sec B: 15.034 GB/sec F: 4035553223.903 FLOP/sec
R: 1000000 <T>: 0.000513 sec B: 14.531 GB/sec F: 3900627610.983 FLOP/sec
R: 1000000 <T>: 0.002046 sec B: 3.642 GB/sec F: 977741709.972 FLOP/sec
R: 1000000 <T>: 0.000867 sec B: 8.598 GB/sec F: 2307877825.564 FLOP/sec
R: 1000000 <T>: 0.000816 sec B: 9.135 GB/sec F: 2452125318.317 FLOP/sec
R: 1000000 <T>: 0.000798 sec B: 9.332 GB/sec F: 2505053946.337 FLOP/sec
R: 1000000 <T>: 0.000810 sec B: 9.194 GB/sec F: 2467953622.216 FLOP/sec
R: 1000000 <T>: 0.000802 sec B: 9.287 GB/sec F: 2492951180.537 FLOP/sec
R: 1000000 <T>: 0.000788 sec B: 9.456 GB/sec F: 2538319099.709 FLOP/sec
R: 1000000 <T>: 0.000844 sec B: 8.829 GB/sec F: 2370030490.442 FLOP/sec
R: 1000000 <T>: 0.000824 sec B: 9.040 GB/sec F: 2426545436.457 FLOP/sec
R: 1000000 <T>: 0.000812 sec B: 9.179 GB/sec F: 2464098090.817 FLOP/sec
R: 1000000 <T>: 0.000844 sec B: 8.826 GB/sec F: 2369334181.555 FLOP/sec
R: 1000000 <T>: 0.000967 sec B: 7.707 GB/sec F: 2068859934.045 FLOP/sec
R: 1000000 <T>: 0.000876 sec B: 8.506 GB/sec F: 2283224918.203 FLOP/sec
R: 1000000 <T>: 0.000842 sec B: 8.844 GB/sec F: 2374081675.532 FLOP/sec
R: 1000000 <T>: 0.000813 sec B: 9.163 GB/sec F: 2459555681.266 FLOP/sec
R: 1000000 <T>: 0.000803 sec B: 9.278 GB/sec F: 2490672431.743 FLOP/sec
R: 1000000 <T>: 0.000805 sec B: 9.260 GB/sec F: 2485685558.291 FLOP/sec
R: 1000000 <T>: 0.000771 sec B: 9.664 GB/sec F: 2594195228.756 FLOP/sec
R: 1000000 <T>: 0.000787 sec B: 9.461 GB/sec F: 2539708339.894 FLOP/sec
R: 1000000 <T>: 0.000763 sec B: 9.760 GB/sec F: 2619916870.038 FLOP/sec
R: 1000000 <T>: 0.000821 sec B: 9.074 GB/sec F: 2435917110.613 FLOP/sec
R: 1000000 <T>: 0.000639 sec B: 11.668 GB/sec F: 3132228596.307 FLOP/sec
R: 1000000 <T>: 0.000700 sec B: 10.647 GB/sec F: 2857983920.982 FLOP/sec
R: 1000000 <T>: 0.000598 sec B: 12.453 GB/sec F: 3342815787.450 FLOP/sec
R: 1000000 <T>: 0.000595 sec B: 12.529 GB/sec F: 3363119360.469 FLOP/sec
R: 1000000 <T>: 0.000622 sec B: 11.978 GB/sec F: 3215185966.356 FLOP/sec
R: 1000000 <T>: 0.000555 sec B: 13.434 GB/sec F: 3606144148.400 FLOP/sec
R: 1000000 <T>: 0.000604 sec B: 12.329 GB/sec F: 3309455611.099 FLOP/sec
R: 1000000 <T>: 0.000551 sec B: 13.513 GB/sec F: 3627328291.347 FLOP/sec
R: 1000000 <T>: 0.000601 sec B: 12.402 GB/sec F: 3329110910.995 FLOP/sec
R: 1000000 <T>: 0.000817 sec B: 9.115 GB/sec F: 2446908209.132 FLOP/sec
R: 1000000 <T>: 0.000623 sec B: 11.955 GB/sec F: 3209031498.249 FLOP/sec
R: 1000000 <T>: 0.000574 sec B: 12.972 GB/sec F: 3482112388.659 FLOP/sec
R: 1000000 <T>: 0.000606 sec B: 12.297 GB/sec F: 3300896523.496 FLOP/sec
R: 1000000 <T>: 0.000588 sec B: 12.668 GB/sec F: 3400493071.495 FLOP/sec
R: 1000000 <T>: 0.000586 sec B: 12.710 GB/sec F: 3411700084.269 FLOP/sec
R: 1000000 <T>: 0.000706 sec B: 10.553 GB/sec F: 2832933417.566 FLOP/sec
R: 1000000 <T>: 0.000569 sec B: 13.098 GB/sec F: 3515908607.472 FLOP/sec
R: 1000000 <T>: 0.000597 sec B: 12.488 GB/sec F: 3352284917.400 FLOP/sec
R: 1000000 <T>: 0.000571 sec B: 13.058 GB/sec F: 3505223659.559 FLOP/sec
R: 1000000 <T>: 0.000583 sec B: 12.791 GB/sec F: 3433464606.130 FLOP/sec
R: 1000000 <T>: 0.000602 sec B: 12.379 GB/sec F: 3323009849.401 FLOP/sec
R: 1000000 <T>: 0.000581 sec B: 12.819 GB/sec F: 3441185832.638 FLOP/sec
R: 1000000 <T>: 0.000593 sec B: 12.560 GB/sec F: 3371487331.636 FLOP/sec
R: 1000000 <T>: 0.000601 sec B: 12.402 GB/sec F: 3329083203.777 FLOP/sec
R: 1000000 <T>: 0.000578 sec B: 12.900 GB/sec F: 3462801718.242 FLOP/sec
R: 1000000 <T>: 0.000588 sec B: 12.675 GB/sec F: 3402413672.259 FLOP/sec
R: 1000000 <T>: 0.000581 sec B: 12.819 GB/sec F: 3441020055.985 FLOP/sec
R: 1000000 <T>: 0.000587 sec B: 12.685 GB/sec F: 3405130510.140 FLOP/sec
R: 1000000 <T>: 0.000625 sec B: 11.930 GB/sec F: 3202454361.022 FLOP/sec
R: 1000000 <T>: 0.000599 sec B: 12.444 GB/sec F: 3340420592.357 FLOP/sec
R: 1000000 <T>: 0.000603 sec B: 12.353 GB/sec F: 3315935723.902 FLOP/sec
R: 1000000 <T>: 0.000613 sec B: 12.146 GB/sec F: 3260350389.856 FLOP/sec
R: 1000000 <T>: 0.000585 sec B: 12.745 GB/sec F: 3421341644.913 FLOP/sec
R: 1000000 <T>: 0.001040 sec B: 7.161 GB/sec F: 1922344953.268 FLOP/sec
R: 1000000 <T>: 0.000640 sec B: 11.647 GB/sec F: 3126406883.097 FLOP/sec
R: 1000000 <T>: 0.000596 sec B: 12.503 GB/sec F: 3356307256.504 FLOP/sec
R: 1000000 <T>: 0.000615 sec B: 12.119 GB/sec F: 3253259766.286 FLOP/sec
R: 1000000 <T>: 0.000633 sec B: 11.765 GB/sec F: 3158175648.255 FLOP/sec
R: 1000000 <T>: 0.000623 sec B: 11.954 GB/sec F: 3208918225.532 FLOP/sec
R: 1000000 <T>: 0.000712 sec B: 10.458 GB/sec F: 2807186960.055 FLOP/sec
R: 1000000 <T>: 0.000802 sec B: 9.295 GB/sec F: 2495115810.800 FLOP/sec
R: 1000000 <T>: 0.000827 sec B: 9.014 GB/sec F: 2419585089.549 FLOP/sec
R: 1000000 <T>: 0.000870 sec B: 8.565 GB/sec F: 2299241710.084 FLOP/sec
R: 1000000 <T>: 0.000813 sec B: 9.162 GB/sec F: 2459307680.295 FLOP/sec
R: 1000000 <T>: 0.000877 sec B: 8.498 GB/sec F: 2281086937.926 FLOP/sec
R: 1000000 <T>: 0.000735 sec B: 10.142 GB/sec F: 2722540456.951 FLOP/sec
R: 1000000 <T>: 0.000816 sec B: 9.132 GB/sec F: 2451485109.679 FLOP/sec
R: 1000000 <T>: 0.000733 sec B: 10.167 GB/sec F: 2729313509.420 FLOP/sec
R: 1000000 <T>: 0.000678 sec B: 10.997 GB/sec F: 2951981591.443 FLOP/sec
R: 1000000 <T>: 0.000770 sec B: 9.676 GB/sec F: 2597503798.849 FLOP/sec
R: 1000000 <T>: 0.000790 sec B: 9.428 GB/sec F: 2530889506.426 FLOP/sec
R: 1000000 <T>: 0.000799 sec B: 9.326 GB/sec F: 2503326294.814 FLOP/sec
R: 1000000 <T>: 0.000804 sec B: 9.263 GB/sec F: 2486408668.615 FLOP/sec
R: 1000000 <T>: 0.000786 sec B: 9.485 GB/sec F: 2546119777.113 FLOP/sec
R: 1000000 <T>: 0.000762 sec B: 9.782 GB/sec F: 2625898713.835 FLOP/sec
R: 1000000 <T>: 0.000780 sec B: 9.549 GB/sec F: 2563415700.152 FLOP/sec
R: 1000000 <T>: 0.000773 sec B: 9.635 GB/sec F: 2586388612.648 FLOP/sec
R: 1000000 <T>: 0.000784 sec B: 9.500 GB/sec F: 2550187693.814 FLOP/sec
R: 1000000 <T>: 0.000714 sec B: 10.430 GB/sec F: 2799685315.371 FLOP/sec
R: 1000000 <T>: 0.000632 sec B: 11.789 GB/sec F: 3164511897.774 FLOP/sec
R: 1000000 <T>: 0.000742 sec B: 10.038 GB/sec F: 2694647890.360 FLOP/sec
R: 1000000 <T>: 0.001062 sec B: 7.017 GB/sec F: 1883655987.907 FLOP/sec
R: 1000000 <T>: 0.000803 sec B: 9.277 GB/sec F: 2490256869.996 FLOP/sec
R: 1000000 <T>: 0.000821 sec B: 9.075 GB/sec F: 2435937878.712 FLOP/sec
R: 1000000 <T>: 0.000799 sec B: 9.322 GB/sec F: 2502414830.311 FLOP/sec
```

```
R: 1000000 <T>: 0.000737 sec B: 10.104 GB/sec F: 2712276305.012 FLOP/sec
R: 1000000 <T>: 0.000705 sec B: 10.568 GB/sec F: 2836754695.893 FLOP/sec
R: 1000000 <T>: 0.000732 sec B: 10.185 GB/sec F: 2734059408.377 FLOP/sec
R: 1000000 <T>: 0.000648 sec B: 11.498 GB/sec F: 3086362598.223 FLOP/sec
R: 1000000 <T>: 0.000794 sec B: 9.383 GB/sec F: 2518726733.262 FLOP/sec
R: 1000000 <T>: 0.001077 sec B: 6.915 GB/sec F: 1856203618.112 FLOP/sec
R: 1000000 <T>: 0.000928 sec B: 8.031 GB/sec F: 2155695076.931 FLOP/sec
R: 1000000 <T>: 0.000903 sec B: 8.248 GB/sec F: 2214167572.630 FLOP/sec
R: 1000000 <T>: 0.000878 sec B: 8.483 GB/sec F: 2277051082.225 FLOP/sec
R: 1000000 <T>: 0.000887 sec B: 8.397 GB/sec F: 2253937629.038 FLOP/sec
R: 1000000 <T>: 0.000828 sec B: 8.998 GB/sec F: 2415359755.759 FLOP/sec
R: 1000000 <T>: 0.000819 sec B: 9.092 GB/sec F: 2440545266.623 FLOP/sec
R: 1000000 <T>: 0.000809 sec B: 9.212 GB/sec F: 2472903163.585 FLOP/sec
R: 1000000 <T>: 0.000790 sec B: 9.430 GB/sec F: 2531418062.427 FLOP/sec
R: 1000000 <T>: 0.000826 sec B: 9.015 GB/sec F: 2420074030.065 FLOP/sec
R: 1000000 <T>: 0.000829 sec B: 8.984 GB/sec F: 2411521284.087 FLOP/sec
R: 1000000 <T>: 0.000882 sec B: 8.448 GB/sec F: 2267823105.262 FLOP/sec
R: 1000000 <T>: 0.000882 sec B: 8.450 GB/sec F: 2268327233.423 FLOP/sec
R: 1000000 <T>: 0.001015 sec B: 7.341 GB/sec F: 1970470528.658 FLOP/sec
R: 1000000 <T>: 0.000852 sec B: 8.741 GB/sec F: 2346294262.841 FLOP/sec
R: 1000000 <T>: 0.000808 sec B: 9.226 GB/sec F: 2476663636.881 FLOP/sec
R: 1000000 <T>: 0.000762 sec B: 9.777 GB/sec F: 2624530701.104 FLOP/sec
R: 1000000 <T>: 0.000763 sec B: 9.761 GB/sec F: 2620146833.029 FLOP/sec
R: 1000000 <T>: 0.000766 sec B: 9.729 GB/sec F: 2611661591.338 FLOP/sec
R: 1000000 <T>: 0.000815 sec B: 9.139 GB/sec F: 2453316454.516 FLOP/sec
R: 1000000 <T>: 0.000748 sec B: 9.964 GB/sec F: 2674587010.333 FLOP/sec
R: 1000000 <T>: 0.000737 sec B: 10.109 GB/sec F: 2713648975.937 FLOP/sec
R: 1000000 <T>: 0.000822 sec B: 9.068 GB/sec F: 2434064242.258 FLOP/sec
R: 1000000 <T>: 0.000829 sec B: 8.987 GB/sec F: 2412475392.751 FLOP/sec
R: 1000000 <T>: 0.000858 sec B: 8.686 GB/sec F: 2331687162.197 FLOP/sec
R: 1000000 <T>: 0.000843 sec B: 8.836 GB/sec F: 2371857437.137 FLOP/sec
R: 1000000 <T>: 0.000823 sec B: 9.051 GB/sec F: 2429696725.255 FLOP/sec
R: 1000000 <T>: 0.000826 sec B: 9.020 GB/sec F: 2421351477.327 FLOP/sec
R: 1000000 <T>: 0.000776 sec B: 9.605 GB/sec F: 2578193382.551 FLOP/sec
R: 1000000 <T>: 0.000770 sec B: 9.677 GB/sec F: 2597530787.234 FLOP/sec
R: 1000000 <T>: 0.000756 sec B: 9.856 GB/sec F: 2645653125.773 FLOP/sec
R: 1000000 <T>: 0.000750 sec B: 9.936 GB/sec F: 2667281919.696 FLOP/sec
R: 1000000 <T>: 0.000741 sec B: 10.055 GB/sec F: 2699197393.655 FLOP/sec
R: 1000000 <T>: 0.000791 sec B: 9.421 GB/sec F: 2528879807.401 FLOP/sec
R: 1000000 <T>: 0.000619 sec B: 12.027 GB/sec F: 3228581990.647 FLOP/sec
R: 1000000 <T>: 0.000569 sec B: 13.084 GB/sec F: 3512111516.565 FLOP/sec
R: 1000000 <T>: 0.000544 sec B: 13.704 GB/sec F: 3678512703.744 FLOP/sec
R: 1000000 <T>: 0.000583 sec B: 12.781 GB/sec F: 3430867168.831 FLOP/sec
R: 1000000 <T>: 0.000510 sec B: 14.598 GB/sec F: 3918648849.877 FLOP/sec
R: 1000000 <T>: 0.000543 sec B: 13.725 GB/sec F: 3684204709.150 FLOP/sec
R: 1000000 <T>: 0.000518 sec B: 14.372 GB/sec F: 3857883295.172 FLOP/sec
R: 1000000 <T>: 0.000572 sec B: 13.015 GB/sec F: 3493596238.096 FLOP/sec
R: 1000000 <T>: 0.000514 sec B: 14.484 GB/sec F: 3888032441.743 FLOP/sec
R: 1000000 <T>: 0.000560 sec B: 13.309 GB/sec F: 3572538610.211 FLOP/sec
R: 1000000 <T>: 0.001856 sec B: 4.014 GB/sec F: 1077609431.238 FLOP/sec
R: 1000000 <T>: 0.001021 sec B: 7.298 GB/sec F: 1958927173.944 FLOP/sec
R: 1000000 <T>: 0.001081 sec B: 6.889 GB/sec F: 1849322731.783 FLOP/sec
R: 1000000 <T>: 0.001130 sec B: 6.595 GB/sec F: 1770412860.279 FLOP/sec
R: 1000000 <T>: 0.003124 sec B: 2.385 GB/sec F: 640124337.751 FLOP/sec
R: 1000000 <T>: 0.001114 sec B: 6.687 GB/sec F: 1794951877.340 FLOP/sec
R: 1000000 <T>: 0.001228 sec B: 6.068 GB/sec F: 1628886013.000 FLOP/sec
R: 1000000 <T>: 0.001968 sec B: 3.786 GB/sec F: 1016338660.303 FLOP/sec
R: 1000000 <T>: 0.001072 sec B: 6.951 GB/sec F: 1865821325.218 FLOP/sec
R: 1000000 <T>: 0.001063 sec B: 7.012 GB/sec F: 1882191736.990 FLOP/sec
R: 1000000 <T>: 0.001083 sec B: 6.879 GB/sec F: 1846541335.751 FLOP/sec
R: 1000000 <T>: 0.001147 sec B: 6.495 GB/sec F: 1743397969.813 FLOP/sec
R: 1000000 <T>: 0.001050 sec B: 7.096 GB/sec F: 1904939699.134 FLOP/sec
R: 1000000 <T>: 0.001411 sec B: 5.279 GB/sec F: 1417116069.600 FLOP/sec
R: 1000000 <T>: 0.000836 sec B: 8.907 GB/sec F: 2391023142.713 FLOP/sec
R: 1000000 <T>: 0.000757 sec B: 9.847 GB/sec F: 2643408199.059 FLOP/sec
R: 1000000 <T>: 0.000694 sec B: 10.733 GB/sec F: 2881242391.719 FLOP/sec
R: 1000000 <T>: 0.000637 sec B: 11.699 GB/sec F: 3140358314.884 FLOP/sec
R: 1000000 <T>: 0.000544 sec B: 13.706 GB/sec F: 3679236779.123 FLOP/sec
R: 1000000 <T>: 0.000544 sec B: 13.704 GB/sec F: 3678512703.744 FLOP/sec
R: 1000000 <T>: 0.000548 sec B: 13.599 GB/sec F: 3650534346.965 FLOP/sec
R: 1000000 <T>: 0.000554 sec B: 13.458 GB/sec F: 3612586250.497 FLOP/sec
R: 1000000 <T>: 0.000563 sec B: 13.237 GB/sec F: 3553167826.776 FLOP/sec
R: 1000000 <T>: 0.000543 sec B: 13.726 GB/sec F: 3684421895.782 FLOP/sec
R: 1000000 <T>: 0.000611 sec B: 12.184 GB/sec F: 3270704787.821 FLOP/sec
R: 1000000 <T>: 0.000539 sec B: 13.834 GB/sec F: 3713620445.709 FLOP/sec
R: 1000000 <T>: 0.000558 sec B: 13.363 GB/sec F: 3587160833.943 FLOP/sec
R: 1000000 <T>: 0.000511 sec B: 14.592 GB/sec F: 3917113870.500 FLOP/sec
R: 1000000 <T>: 0.000545 sec B: 13.668 GB/sec F: 3668876553.311 FLOP/sec
R: 1000000 <T>: 0.000545 sec B: 13.663 GB/sec F: 3667732754.321 FLOP/sec
R: 1000000 <T>: 0.000545 sec B: 13.681 GB/sec F: 3672554996.511 FLOP/sec
R: 1000000 <T>: 0.000572 sec B: 13.032 GB/sec F: 3498264860.629 FLOP/sec
R: 1000000 <T>: 0.000542 sec B: 13.753 GB/sec F: 3691766990.435 FLOP/sec
R: 1000000 <T>: 0.000576 sec B: 12.944 GB/sec F: 3474617053.768 FLOP/sec
R: 1000000 <T>: 0.000524 sec B: 14.219 GB/sec F: 3817005139.597 FLOP/sec
R: 1000000 <T>: 0.000541 sec B: 13.780 GB/sec F: 3699120903.917 FLOP/sec
R: 1000000 <T>: 0.000502 sec B: 14.843 GB/sec F: 3984285976.110 FLOP/sec
R: 1000000 <T>: 0.000514 sec B: 14.498 GB/sec F: 3891875903.645 FLOP/sec
R: 1000000 <T>: 0.000528 sec B: 14.122 GB/sec F: 3790843974.548 FLOP/sec
R: 1000000 <T>: 0.000534 sec B: 13.959 GB/sec F: 3747191948.034 FLOP/sec
R: 1000000 <T>: 0.000544 sec B: 13.698 GB/sec F: 3677045126.536 FLOP/sec
R: 1000000 <T>: 0.000555 sec B: 13.413 GB/sec F: 3600489666.595 FLOP/sec
R: 1000000 <T>: 0.000548 sec B: 13.593 GB/sec F: 3648875963.759 FLOP/sec
R: 1000000 <T>: 0.000523 sec B: 14.235 GB/sec F: 3821103572.923 FLOP/sec
R: 1000000 <T>: 0.000528 sec B: 14.110 GB/sec F: 3787735313.056 FLOP/sec
R: 1000000 <T>: 0.000496 sec B: 15.028 GB/sec F: 4033998539.693 FLOP/sec
R: 1000000 <T>: 0.000510 sec B: 14.597 GB/sec F: 3918426203.300 FLOP/sec
R: 1000000 <T>: 0.000498 sec B: 14.965 GB/sec F: 4017193588.559 FLOP/sec
R: 1000000 <T>: 0.000536 sec B: 13.902 GB/sec F: 3731844576.137 FLOP/sec
R: 1000000 <T>: 0.000554 sec B: 13.441 GB/sec F: 3607926614.773 FLOP/sec
R: 1000000 <T>: 0.000517 sec B: 14.414 GB/sec F: 3869123043.916 FLOP/sec
```

```
R: 1000000 <T>: 0.000540 sec B: 13.800 GB/sec F: 3704382840.558 FLOP/sec
R: 1000000 <T>: 0.000517 sec B: 14.415 GB/sec F: 3869512306.017 FLOP/sec
R: 1000000 <T>: 0.000544 sec B: 13.700 GB/sec F: 3677565745.682 FLOP/sec
R: 1000000 <T>: 0.000528 sec B: 14.108 GB/sec F: 3787154351.156 FLOP/sec
R: 1000000 <T>: 0.000545 sec B: 13.658 GB/sec F: 3666421627.488 FLOP/sec
R: 1000000 <T>: 0.000526 sec B: 14.152 GB/sec F: 3798980733.469 FLOP/sec
R: 1000000 <T>: 0.000547 sec B: 13.615 GB/sec F: 3654810461.529 FLOP/sec
R: 1000000 <T>: 0.000558 sec B: 13.353 GB/sec F: 3584505616.024 FLOP/sec
R: 1000000 <T>: 0.000551 sec B: 13.521 GB/sec F: 3629474234.362 FLOP/sec
R: 1000000 <T>: 0.000594 sec B: 12.539 GB/sec F: 3365864412.884 FLOP/sec
R: 1000000 <T>: 0.000569 sec B: 13.099 GB/sec F: 3516273312.892 FLOP/sec
R: 1000000 <T>: 0.000581 sec B: 12.824 GB/sec F: 3442364491.322 FLOP/sec
R: 1000000 <T>: 0.000556 sec B: 13.394 GB/sec F: 3595525009.573 FLOP/sec
R: 1000000 <T>: 0.000527 sec B: 14.127 GB/sec F: 3792245616.164 FLOP/sec
R: 1000000 <T>: 0.000560 sec B: 13.295 GB/sec F: 3568968532.404 FLOP/sec
R: 1000000 <T>: 0.000525 sec B: 14.184 GB/sec F: 3807420662.872 FLOP/sec
R: 1000000 <T>: 0.000547 sec B: 13.615 GB/sec F: 3654656855.131 FLOP/sec
R: 1000000 <T>: 0.000513 sec B: 14.522 GB/sec F: 3898141561.011 FLOP/sec
R: 1000000 <T>: 0.000547 sec B: 13.616 GB/sec F: 3654964080.840 FLOP/sec
R: 1000000 <T>: 0.000532 sec B: 14.004 GB/sec F: 3759115855.951 FLOP/sec
R: 1000000 <T>: 0.000547 sec B: 13.623 GB/sec F: 3656795148.164 FLOP/sec
R: 1000000 <T>: 0.000538 sec B: 13.839 GB/sec F: 3714882749.013 FLOP/sec
R: 1000000 <T>: 0.000512 sec B: 14.553 GB/sec F: 3906539938.511 FLOP/sec
R: 1000000 <T>: 0.000521 sec B: 14.297 GB/sec F: 3837902356.088 FLOP/sec
R: 1000000 <T>: 0.000494 sec B: 15.072 GB/sec F: 4045863913.321 FLOP/sec
R: 1000000 <T>: 0.000521 sec B: 14.292 GB/sec F: 3836591878.702 FLOP/sec
R: 1000000 <T>: 0.000489 sec B: 15.241 GB/sec F: 4091100628.802 FLOP/sec
R: 1000000 <T>: 0.000537 sec B: 13.886 GB/sec F: 3727462827.877 FLOP/sec
R: 1000000 <T>: 0.000492 sec B: 15.132 GB/sec F: 4061845662.050 FLOP/sec
R: 1000000 <T>: 0.000522 sec B: 14.281 GB/sec F: 3833547373.062 FLOP/sec
R: 1000000 <T>: 0.000508 sec B: 14.660 GB/sec F: 3935357812.571 FLOP/sec
R: 1000000 <T>: 0.000587 sec B: 12.689 GB/sec F: 3406110562.349 FLOP/sec
R: 1000000 <T>: 0.000507 sec B: 14.705 GB/sec F: 3947326870.243 FLOP/sec
R: 1000000 <T>: 0.000560 sec B: 13.302 GB/sec F: 3570739928.728 FLOP/sec
R: 1000000 <T>: 0.000517 sec B: 14.397 GB/sec F: 3864794045.125 FLOP/sec
R: 1000000 <T>: 0.000517 sec B: 14.425 GB/sec F: 3872179359.348 FLOP/sec
R: 1000000 <T>: 0.000540 sec B: 13.786 GB/sec F: 3700777348.282 FLOP/sec
R: 1000000 <T>: 0.000511 sec B: 14.573 GB/sec F: 3912018699.449 FLOP/sec
R: 1000000 <T>: 0.000534 sec B: 13.958 GB/sec F: 3746742675.586 FLOP/sec
R: 1000000 <T>: 0.000516 sec B: 14.450 GB/sec F: 3878795401.300 FLOP/sec
R: 1000000 <T>: 0.000531 sec B: 14.019 GB/sec F: 3763175819.337 FLOP/sec
R: 1000000 <T>: 0.000500 sec B: 14.900 GB/sec F: 3999760014.399 FLOP/sec
R: 1000000 <T>: 0.000527 sec B: 14.131 GB/sec F: 3793374870.788 FLOP/sec
R: 1000000 <T>: 0.000490 sec B: 15.204 GB/sec F: 4081332800.039 FLOP/sec
R: 1000000 <T>: 0.000519 sec B: 14.364 GB/sec F: 3855785895.921 FLOP/sec
R: 1000000 <T>: 0.000495 sec B: 15.038 GB/sec F: 4036856499.844 FLOP/sec
R: 1000000 <T>: 0.000522 sec B: 14.283 GB/sec F: 3834091205.362 FLOP/sec
R: 1000000 <T>: 0.000494 sec B: 15.084 GB/sec F: 4049074786.411 FLOP/sec
R: 1000000 <T>: 0.000527 sec B: 14.145 GB/sec F: 3797119884.568 FLOP/sec
R: 1000000 <T>: 0.000538 sec B: 13.861 GB/sec F: 3720743330.102 FLOP/sec
R: 1000000 <T>: 0.000525 sec B: 14.181 GB/sec F: 3806775680.033 FLOP/sec
R: 1000000 <T>: 0.000537 sec B: 13.882 GB/sec F: 3726379412.499 FLOP/sec
R: 1000000 <T>: 0.000522 sec B: 14.262 GB/sec F: 3828417963.703 FLOP/sec
R: 1000000 <T>: 0.000545 sec B: 13.676 GB/sec F: 3671051737.968 FLOP/sec
R: 1000000 <T>: 0.000527 sec B: 14.151 GB/sec F: 3798511743.099 FLOP/sec
R: 1000000 <T>: 0.000564 sec B: 13.216 GB/sec F: 3547684426.375 FLOP/sec
R: 1000000 <T>: 0.000532 sec B: 14.000 GB/sec F: 3758190506.435 FLOP/sec
R: 1000000 <T>: 0.000547 sec B: 13.627 GB/sec F: 3657898683.522 FLOP/sec
R: 1000000 <T>: 0.000553 sec B: 13.466 GB/sec F: 3614871581.687 FLOP/sec
R: 1000000 <T>: 0.000537 sec B: 13.885 GB/sec F: 3727330839.749 FLOP/sec
R: 1000000 <T>: 0.000549 sec B: 13.559 GB/sec F: 3639824778.835 FLOP/sec
R: 1000000 <T>: 0.000552 sec B: 13.493 GB/sec F: 3622066352.634 FLOP/sec
R: 1000000 <T>: 0.000566 sec B: 13.173 GB/sec F: 3536049136.939 FLOP/sec
R: 1000000 <T>: 0.000562 sec B: 13.264 GB/sec F: 3560638564.920 FLOP/sec
R: 1000000 <T>: 0.000556 sec B: 13.411 GB/sec F: 3599990640.024 FLOP/sec
R: 1000000 <T>: 0.000548 sec B: 13.601 GB/sec F: 3650860872.994 FLOP/sec
R: 1000000 <T>: 0.000545 sec B: 13.667 GB/sec F: 3668654465.945 FLOP/sec
R: 1000000 <T>: 0.000611 sec B: 12.196 GB/sec F: 3273793934.315 FLOP/sec
R: 1000000 <T>: 0.000560 sec B: 13.293 GB/sec F: 3568440002.926 FLOP/sec
R: 1000000 <T>: 0.000587 sec B: 12.699 GB/sec F: 3408903032.049 FLOP/sec
R: 1000000 <T>: 0.000583 sec B: 12.780 GB/sec F: 3430684730.365 FLOP/sec
R: 1000000 <T>: 0.000560 sec B: 13.313 GB/sec F: 3573802597.440 FLOP/sec
R: 1000000 <T>: 0.000596 sec B: 12.499 GB/sec F: 3355209297.956 FLOP/sec
R: 1000000 <T>: 0.000570 sec B: 13.067 GB/sec F: 3507682702.038 FLOP/sec
R: 1000000 <T>: 0.000596 sec B: 12.504 GB/sec F: 3356476236.987 FLOP/sec
R: 1000000 <T>: 0.000573 sec B: 13.002 GB/sec F: 3490218662.199 FLOP/sec
R: 1000000 <T>: 0.000549 sec B: 13.571 GB/sec F: 3642814730.086 FLOP/sec
R: 1000000 <T>: 0.000577 sec B: 12.918 GB/sec F: 3467634830.311 FLOP/sec
R: 1000000 <T>: 0.000527 sec B: 14.136 GB/sec F: 3794655985.975 FLOP/sec
R: 1000000 <T>: 0.000539 sec B: 13.820 GB/sec F: 3709769864.426 FLOP/sec
R: 1000000 <T>: 0.000512 sec B: 14.554 GB/sec F: 3906929134.166 FLOP/sec
R: 1000000 <T>: 0.000530 sec B: 14.048 GB/sec F: 3771101670.787 FLOP/sec
R: 1000000 <T>: 0.000503 sec B: 14.818 GB/sec F: 3977693097.111 FLOP/sec
R: 1000000 <T>: 0.000526 sec B: 14.155 GB/sec F: 3799796330.917 FLOP/sec
R: 1000000 <T>: 0.000506 sec B: 14.719 GB/sec F: 3951054338.850 FLOP/sec
R: 1000000 <T>: 0.000522 sec B: 14.287 GB/sec F: 3835069021.655 FLOP/sec
R: 1000000 <T>: 0.000528 sec B: 14.124 GB/sec F: 3791318260.316 FLOP/sec
R: 1000000 <T>: 0.000513 sec B: 14.521 GB/sec F: 3897883254.499 FLOP/sec
R: 1000000 <T>: 0.000584 sec B: 12.755 GB/sec F: 3423825028.846 FLOP/sec
R: 1000000 <T>: 0.000511 sec B: 14.574 GB/sec F: 3912271229.940 FLOP/sec
R: 1000000 <T>: 0.000524 sec B: 14.229 GB/sec F: 3819651342.225 FLOP/sec
R: 1000000 <T>: 0.000510 sec B: 14.622 GB/sec F: 3924993376.574 FLOP/sec
R: 1000000 <T>: 0.000525 sec B: 14.194 GB/sec F: 3810046330.163 FLOP/sec
R: 1000000 <T>: 0.000515 sec B: 14.477 GB/sec F: 3886053149.549 FLOP/sec
R: 1000000 <T>: 0.000520 sec B: 14.340 GB/sec F: 3849403631.142 FLOP/sec
R: 1000000 <T>: 0.000507 sec B: 14.697 GB/sec F: 3945123334.418 FLOP/sec
R: 1000000 <T>: 0.000531 sec B: 14.043 GB/sec F: 3769637455.118 FLOP/sec
R: 1000000 <T>: 0.000539 sec B: 13.829 GB/sec F: 3712110947.572 FLOP/sec
R: 1000000 <T>: 0.000512 sec B: 14.542 GB/sec F: 3903566298.170 FLOP/sec
R: 1000000 <T>: 0.000553 sec B: 13.470 GB/sec F: 3615701545.532 FLOP/sec
```

```
R: 1000000 <T>: 0.000507 sec B: 14.699 GB/sec F: 3945644797.273 FLOP/sec
R: 1000000 <T>: 0.000518 sec B: 14.387 GB/sec F: 3862017827.074 FLOP/sec
R: 1000000 <T>: 0.000500 sec B: 14.915 GB/sec F: 4003835674.576 FLOP/sec
R: 1000000 <T>: 0.000535 sec B: 13.930 GB/sec F: 3739184409.097 FLOP/sec
R: 1000000 <T>: 0.000508 sec B: 14.670 GB/sec F: 3938054404.222 FLOP/sec
R: 1000000 <T>: 0.000557 sec B: 13.380 GB/sec F: 3591766951.793 FLOP/sec
R: 1000000 <T>: 0.000537 sec B: 13.883 GB/sec F: 3726629375.529 FLOP/sec
R: 1000000 <T>: 0.000555 sec B: 13.418 GB/sec F: 3601916219.429 FLOP/sec
R: 1000000 <T>: 0.000556 sec B: 13.406 GB/sec F: 3598520288.457 FLOP/sec
R: 1000000 <T>: 0.000585 sec B: 12.729 GB/sec F: 3416800064.236 FLOP/sec
R: 1000000 <T>: 0.000588 sec B: 12.670 GB/sec F: 3401025068.956 FLOP/sec
R: 1000000 <T>: 0.000614 sec B: 12.139 GB/sec F: 3258406280.904 FLOP/sec
R: 1000000 <T>: 0.000556 sec B: 13.401 GB/sec F: 3597432871.903 FLOP/sec
R: 1000000 <T>: 0.000531 sec B: 14.025 GB/sec F: 3764875966.161 FLOP/sec
R: 1000000 <T>: 0.000533 sec B: 13.969 GB/sec F: 3749700023.998 FLOP/sec
R: 1000000 <T>: 0.000544 sec B: 13.693 GB/sec F: 3675720579.073 FLOP/sec
R: 1000000 <T>: 0.000521 sec B: 14.301 GB/sec F: 3838963172.826 FLOP/sec
R: 1000000 <T>: 0.000537 sec B: 13.879 GB/sec F: 3725546444.525 FLOP/sec
R: 1000000 <T>: 0.001302 sec B: 5.721 GB/sec F: 1535597059.332 FLOP/sec
R: 1000000 <T>: 0.000697 sec B: 10.692 GB/sec F: 2870231111.009 FLOP/sec
R: 1000000 <T>: 0.000590 sec B: 12.624 GB/sec F: 3388733477.806 FLOP/sec
R: 1000000 <T>: 0.000587 sec B: 12.687 GB/sec F: 3405658160.468 FLOP/sec
R: 1000000 <T>: 0.000581 sec B: 12.821 GB/sec F: 3441505589.865 FLOP/sec
R: 1000000 <T>: 0.000547 sec B: 13.613 GB/sec F: 3654082615.154 FLOP/sec
R: 1000000 <T>: 0.000526 sec B: 14.153 GB/sec F: 3799226097.644 FLOP/sec
R: 1000000 <T>: 0.000508 sec B: 14.665 GB/sec F: 3936713395.455 FLOP/sec
R: 1000000 <T>: 0.000544 sec B: 13.692 GB/sec F: 3675315296.111 FLOP/sec
R: 1000000 <T>: 0.000557 sec B: 13.366 GB/sec F: 3587804335.503 FLOP/sec
R: 1000000 <T>: 0.000553 sec B: 13.470 GB/sec F: 3615753839.479 FLOP/sec
R: 1000000 <T>: 0.000538 sec B: 13.842 GB/sec F: 3715565992.168 FLOP/sec
R: 1000000 <T>: 0.000510 sec B: 14.612 GB/sec F: 3922253099.070 FLOP/sec
R: 1000000 <T>: 0.000543 sec B: 13.728 GB/sec F: 3685134719.313 FLOP/sec
R: 1000000 <T>: 0.000514 sec B: 14.509 GB/sec F: 3894793829.089 FLOP/sec
R: 1000000 <T>: 0.000697 sec B: 10.685 GB/sec F: 2868238843.985 FLOP/sec
R: 1000000 <T>: 0.000795 sec B: 9.375 GB/sec F: 2516698293.175 FLOP/sec
R: 1000000 <T>: 0.000517 sec B: 14.418 GB/sec F: 3870253617.720 FLOP/sec
R: 1000000 <T>: 0.000500 sec B: 14.913 GB/sec F: 4003074361.109 FLOP/sec
R: 1000000 <T>: 0.000521 sec B: 14.311 GB/sec F: 3841470207.478 FLOP/sec
R: 1000000 <T>: 0.000495 sec B: 15.048 GB/sec F: 4039318728.503 FLOP/sec
R: 1000000 <T>: 0.000487 sec B: 15.303 GB/sec F: 4107864300.811 FLOP/sec
R: 1000000 <T>: 0.000494 sec B: 15.089 GB/sec F: 4050411420.540 FLOP/sec
R: 1000000 <T>: 0.000510 sec B: 14.619 GB/sec F: 3924161651.915 FLOP/sec
R: 1000000 <T>: 0.000514 sec B: 14.498 GB/sec F: 3891807744.697 FLOP/sec
R: 1000000 <T>: 0.000519 sec B: 14.361 GB/sec F: 3855072407.898 FLOP/sec
R: 1000000 <T>: 0.000512 sec B: 14.542 GB/sec F: 3903505347.802 FLOP/sec
R: 1000000 <T>: 0.000513 sec B: 14.511 GB/sec F: 3895271724.417 FLOP/sec
R: 1000000 <T>: 0.000510 sec B: 14.614 GB/sec F: 3923007063.374 FLOP/sec
R: 1000000 <T>: 0.000531 sec B: 14.039 GB/sec F: 3768593297.180 FLOP/sec
R: 1000000 <T>: 0.001097 sec B: 6.790 GB/sec F: 1822657270.261 FLOP/sec
R: 1000000 <T>: 0.000532 sec B: 14.000 GB/sec F: 3758197568.446 FLOP/sec
R: 1000000 <T>: 0.000716 sec B: 10.400 GB/sec F: 2791748150.816 FLOP/sec
R: 1000000 <T>: 0.000737 sec B: 10.106 GB/sec F: 2712732481.174 FLOP/sec
R: 1000000 <T>: 0.000607 sec B: 12.279 GB/sec F: 3296250515.039 FLOP/sec
R: 1000000 <T>: 0.000737 sec B: 10.103 GB/sec F: 2712096084.140 FLOP/sec
R: 1000000 <T>: 0.000580 sec B: 12.841 GB/sec F: 3447021859.289 FLOP/sec
R: 1000000 <T>: 0.000651 sec B: 11.436 GB/sec F: 3069895377.966 FLOP/sec
R: 1000000 <T>: 0.000751 sec B: 9.915 GB/sec F: 2661471474.349 FLOP/sec
R: 1000000 <T>: 0.000815 sec B: 9.141 GB/sec F: 2453864284.128 FLOP/sec
R: 1000000 <T>: 0.000896 sec B: 8.311 GB/sec F: 2230967615.274 FLOP/sec
R: 1000000 <T>: 0.000848 sec B: 8.786 GB/sec F: 2358535066.699 FLOP/sec
R: 1000000 <T>: 0.000810 sec B: 9.193 GB/sec F: 2467828767.233 FLOP/sec
R: 1000000 <T>: 0.000740 sec B: 10.069 GB/sec F: 2702764793.245 FLOP/sec
R: 1000000 <T>: 0.000706 sec B: 10.547 GB/sec F: 2831144858.358 FLOP/sec
R: 1000000 <T>: 0.000760 sec B: 9.804 GB/sec F: 2631793646.324 FLOP/sec
R: 1000000 <T>: 0.000695 sec B: 10.713 GB/sec F: 2875736548.023 FLOP/sec
R: 1000000 <T>: 0.000559 sec B: 13.332 GB/sec F: 3578707406.672 FLOP/sec
R: 1000000 <T>: 0.000555 sec B: 13.426 GB/sec F: 3604032191.216 FLOP/sec
R: 1000000 <T>: 0.000539 sec B: 13.830 GB/sec F: 3712524386.645 FLOP/sec
R: 1000000 <T>: 0.000532 sec B: 14.006 GB/sec F: 3759589302.465 FLOP/sec
R: 1000000 <T>: 0.000511 sec B: 14.580 GB/sec F: 3913702852.111 FLOP/sec
R: 1000000 <T>: 0.000543 sec B: 13.728 GB/sec F: 3685209412.025 FLOP/sec
R: 1000000 <T>: 0.000523 sec B: 14.253 GB/sec F: 3825986482.790 FLOP/sec
R: 1000000 <T>: 0.000532 sec B: 14.018 GB/sec F: 3762857212.739 FLOP/sec
R: 1000000 <T>: 0.000534 sec B: 13.949 GB/sec F: 3744525971.096 FLOP/sec
R: 1000000 <T>: 0.000503 sec B: 14.817 GB/sec F: 3977281766.549 FLOP/sec
R: 1000000 <T>: 0.000524 sec B: 14.221 GB/sec F: 3817311124.217 FLOP/sec
R: 1000000 <T>: 0.000522 sec B: 14.271 GB/sec F: 3830947929.756 FLOP/sec
R: 1000000 <T>: 0.000546 sec B: 13.655 GB/sec F: 3665568218.057 FLOP/sec
R: 1000000 <T>: 0.000533 sec B: 13.986 GB/sec F: 3754275180.862 FLOP/sec
R: 1000000 <T>: 0.000533 sec B: 13.967 GB/sec F: 3749362608.357 FLOP/sec
R: 1000000 <T>: 0.000519 sec B: 14.367 GB/sec F: 3856618632.482 FLOP/sec
R: 1000000 <T>: 0.000532 sec B: 14.007 GB/sec F: 3759864945.651 FLOP/sec
R: 1000000 <T>: 0.000509 sec B: 14.648 GB/sec F: 3931961340.956 FLOP/sec
R: 1000000 <T>: 0.000521 sec B: 14.287 GB/sec F: 3835157270.212 FLOP/sec
R: 1000000 <T>: 0.000510 sec B: 14.598 GB/sec F: 3918618138.500 FLOP/sec
R: 1000000 <T>: 0.000513 sec B: 14.531 GB/sec F: 3900543930.851 FLOP/sec
R: 1000000 <T>: 0.000583 sec B: 12.779 GB/sec F: 3430302261.084 FLOP/sec
R: 1000000 <T>: 0.000591 sec B: 12.609 GB/sec F: 3384736193.661 FLOP/sec
R: 1000000 <T>: 0.000634 sec B: 11.760 GB/sec F: 3156735052.070 FLOP/sec
R: 1000000 <T>: 0.000610 sec B: 12.217 GB/sec F: 3279419673.895 FLOP/sec
R: 1000000 <T>: 0.000571 sec B: 13.050 GB/sec F: 3502976654.412 FLOP/sec
R: 1000000 <T>: 0.000577 sec B: 12.923 GB/sec F: 3469018198.469 FLOP/sec
R: 1000000 <T>: 0.000540 sec B: 13.802 GB/sec F: 3704924956.745 FLOP/sec
R: 1000000 <T>: 0.000541 sec B: 13.785 GB/sec F: 3700256982.847 FLOP/sec
R: 1000000 <T>: 0.000528 sec B: 14.107 GB/sec F: 3786767142.222 FLOP/sec
R: 1000000 <T>: 0.000547 sec B: 13.628 GB/sec F: 3658106088.735 FLOP/sec
R: 1000000 <T>: 0.000585 sec B: 12.743 GB/sec F: 3420733063.095 FLOP/sec
R: 1000000 <T>: 0.000579 sec B: 12.863 GB/sec F: 3452835986.838 FLOP/sec
R: 1000000 <T>: 0.000607 sec B: 12.272 GB/sec F: 3294241665.569 FLOP/sec
R: 1000000 <T>: 0.000609 sec B: 12.235 GB/sec F: 3284374261.016 FLOP/sec
```

```
R: 1000000 <T>: 0.000638 sec B: 11.684 GB/sec F: 3136502141.447 FLOP/sec
N: 1000000 <T>: 0.000636 sec B: 11.714 GB/sec F: 3144362275.410 FLOP/sec
```

In [29]: `!./dp2_test 300000000 20`

```
Vector size: 300000000 with 20 measurements.
R: 67108864 <T>: 0.305742 sec B: 7.311 GB/sec F: 1962440889.604 FLOP/sec
R: 67108864 <T>: 0.311067 sec B: 7.186 GB/sec F: 1928847918.587 FLOP/sec
R: 67108864 <T>: 0.309553 sec B: 7.221 GB/sec F: 1938280722.515 FLOP/sec
R: 67108864 <T>: 0.306531 sec B: 7.292 GB/sec F: 1957387427.762 FLOP/sec
R: 67108864 <T>: 0.306774 sec B: 7.286 GB/sec F: 1955836858.210 FLOP/sec
R: 67108864 <T>: 0.306587 sec B: 7.291 GB/sec F: 1957030492.606 FLOP/sec
R: 67108864 <T>: 0.304735 sec B: 7.335 GB/sec F: 1968923043.724 FLOP/sec
R: 67108864 <T>: 0.258050 sec B: 8.662 GB/sec F: 2325129274.863 FLOP/sec
R: 67108864 <T>: 0.252432 sec B: 8.855 GB/sec F: 2376879861.408 FLOP/sec
R: 67108864 <T>: 0.265831 sec B: 8.408 GB/sec F: 2257076363.243 FLOP/sec
R: 67108864 <T>: 0.257332 sec B: 8.686 GB/sec F: 2331622267.151 FLOP/sec
R: 67108864 <T>: 0.264618 sec B: 8.447 GB/sec F: 2267422500.368 FLOP/sec
R: 67108864 <T>: 0.265063 sec B: 8.433 GB/sec F: 2263615132.881 FLOP/sec
R: 67108864 <T>: 0.258282 sec B: 8.654 GB/sec F: 2323045188.254 FLOP/sec
R: 67108864 <T>: 0.264667 sec B: 8.445 GB/sec F: 2266997205.439 FLOP/sec
R: 67108864 <T>: 0.254150 sec B: 8.795 GB/sec F: 2360809151.598 FLOP/sec
R: 67108864 <T>: 0.261259 sec B: 8.555 GB/sec F: 2296575847.133 FLOP/sec
R: 67108864 <T>: 0.255068 sec B: 8.763 GB/sec F: 2352310222.296 FLOP/sec
R: 67108864 <T>: 0.262589 sec B: 8.512 GB/sec F: 2284941035.554 FLOP/sec
R: 67108864 <T>: 0.258690 sec B: 8.640 GB/sec F: 2319375967.876 FLOP/sec
N: 300000000 <T>: 0.260172 sec B: 8.591 GB/sec F: 2306169292.204 FLOP/sec
```