CSE 603:HOMEWORK ASSIGNMENT-4

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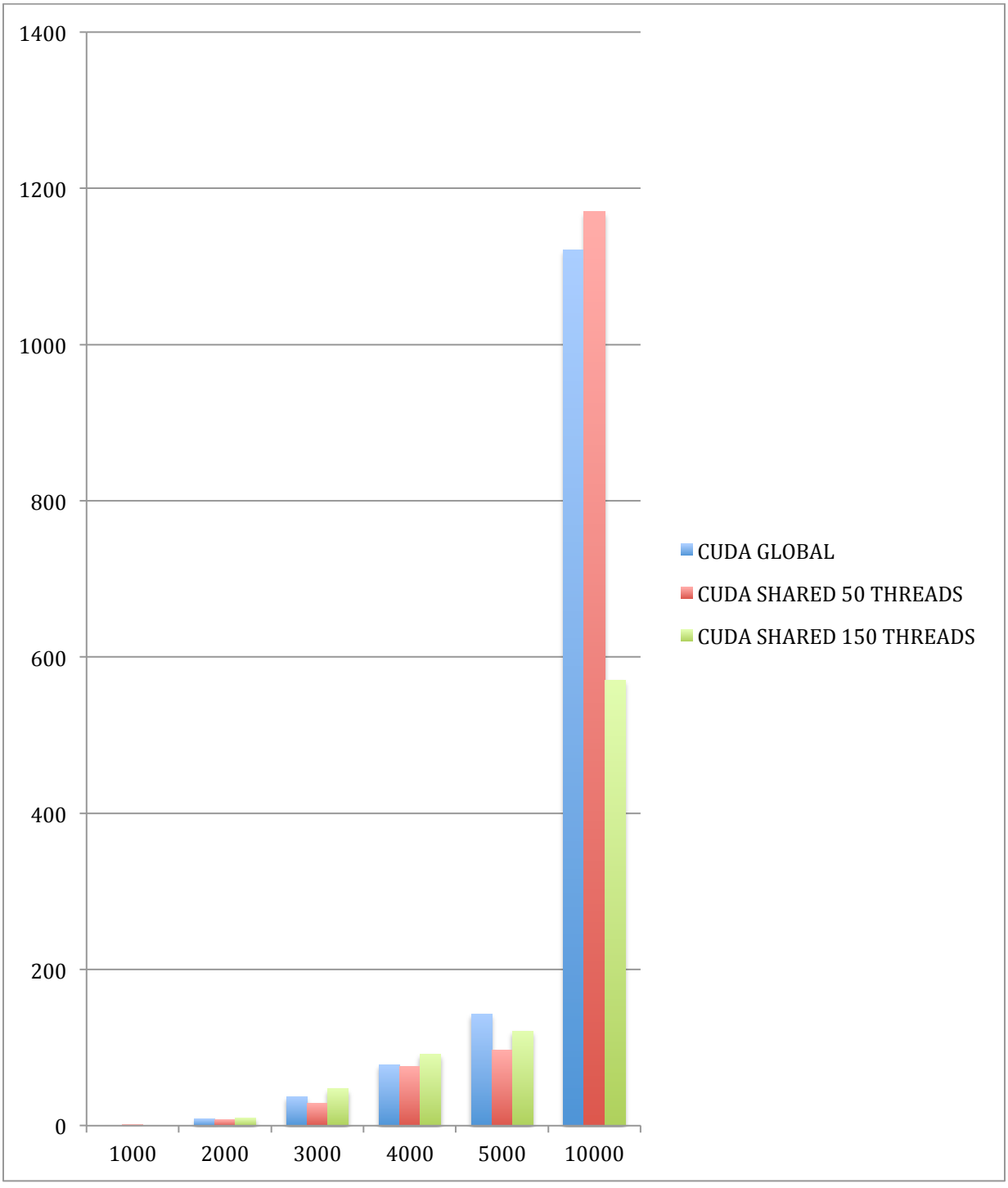
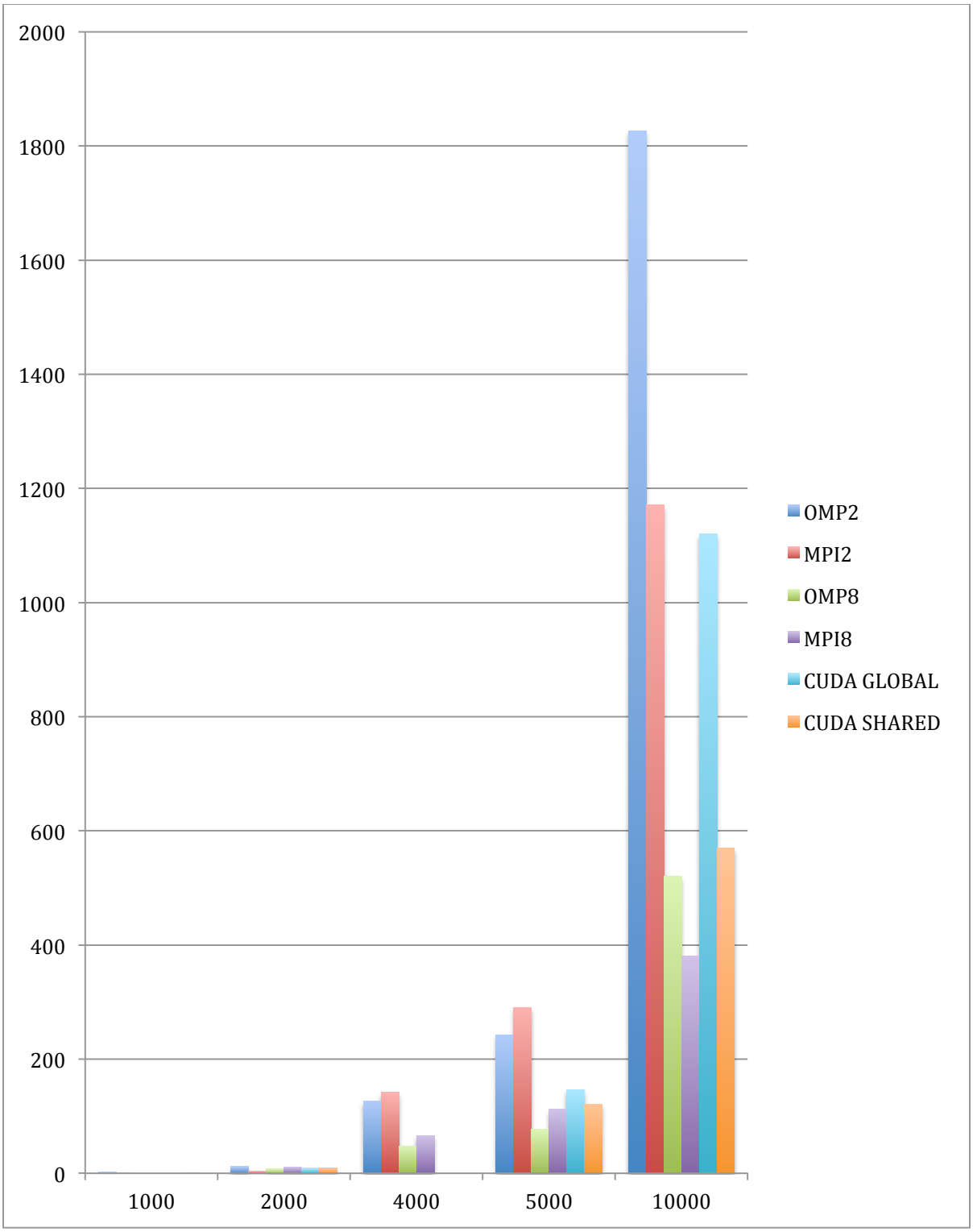
COMPARE THE PERFORMANCE OF CUDA GLOBAL MEMORY AND CUDA SHARED MEMORY

THE BELOW GRAPH IS TO DENOTE PERFORMANCE OF CUDA WITH INCREASING PROBLEM SIZE IN BOTH GLOBAL MEMORY IMPLEMENTATION AND SHARED MEMORY IMPLEMENTATION.



COMPARE THE PERFORMANCE OF CUDA SHARED MEMORY WITH OPENMP AND MPI

THE BELOW GRAPH IS TO DENOTE INCREASING PROBLEM SIZE, WITH OPENMP AND MPI.



IMPACT IN VARIATION OF PROBLEM SIZE ON PERFORMANCE

When comparing CUDA Global and Shared Memory implementations, we can see that CUDA Shared memory performs better than that of Global Memory as there are less reads to the global memory locations. When the thread size increases the performance improves more.
When we compare the performance with OpenMP and MPI MPI with more nodes performs better for large array sizes, in the computed values.

CONCLUSION:

I believe that with the experiments we ran, CUDA shared memory should perform the best for large arrays when more threads and blocks are used.