EC 527 **Lab 8** **Abhishek Gaur**

Part 1: Matrix multiplication using global memory only

Tolerance: 1e-6

Size	1K x 1K	2K x 2K
GPU Time (ms)	41.09 msec	314.03 msec
Multiplication Time (ms)	36.30 msec	292.29 msec
CPU Time (s)	10.48 sec	227 sec

Part 2: Matrix multiplication using shared memory

Tolerance: 1e-6

Size	1K x 1K	2K x 2K
GPU Time	16.87 msec	117.35 msec
Multiplication Time	11.97 msec	95.46 msec
CPU Time	10 sec	227 sec

Part 3: Matrix multiplication using shared memory and loop unrolling

Tolerance: 1e-6

Size	1K x 1K	2K x 2K
GPU Time	17.06 msec	112.03 msec
Multiplication Time	11.98 m sec	95.38 msec
CPU Time	10 sec	227 sec

Observation:

We observe that in shared memory, there was a significant improvement in the performance of GPU.

Also, we observed that loop unrolling did not have any significant effect on the performance of the GPU.