Shady Boukhary
GPU Programming
Dr. Colmenares
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Research Week 2

Problem Size	*Code/Cluster*		Maverick	
		Time(s)	**Speedup (Ts /Tp)**	**Speedup (TpG /TpS)**
512x512 matrix	**Sequential Code**	6.075399e-01		
	GPU (TpG) Global Memory	2.846003e-03	**213.4712** Or 21347.12%	
	GPU (TpS) Shared Memory	7.970333e-04	**762.251** Or 76225.1%	**3.570745** Or 357.07%
1024x1024 matrix	**Sequential Code**	4.809568		
	GPU (TpG) Global Memory	2.158999e-02	**222.76** Or 22276%	
	GPU (TpS) Shared Memory	5.844116e-03	**822.97** Or 82297%	**3.6943** Or 368.43%
4096x4096 matrix	**Sequential Code**	1237.623		
	GPU (TpG) Global Memory	1.372982	**901.412** Or 90141.2%	
	GPU (TpS) Shared Memory	3.636210e-01	**3403.607** Or 340360.7%	**3.77586** Or 377.58%

The use of shared memory over global memory to multiply matrices seems to increase performance by over **300%**. The increase in performance grows larger very slowly as the problem size increases from 512x512 to 4096x4096. On the other hand, the performance increase in using parallel shared memory versus sequential code was between **76225.1%** to **340360.7%** as the problem size increased from 512x512 to 4096x4096.