

CSCD 439  
HW4

Michael Peterson

Input Size	1048576	16777216	67108864	143217728
Block Dimensions	1 X 1024	1 X 1024	1 X 1024	1 X 1024
T1: time cost for reduce2 (ms)	0.000583	0.007765	0.000115	0.000136
T2: time cost for reduce3 (ms)	0.000424	0.004985	0.000092	0.00011
Speedup = T1 / T2	1.375	1.557673019	1.25	1.236363636

4, Do you identify any advantage of reduce3() over reduce2() kernel? Or vice versus? And why ? ( hint: in terms of performance, such as bank conflicts or condition divergence )

**Reduce2 will cause more bank conflicts then reduce3 because the threads are not reading in contiguous locations from shared or global memory.**

5, What are disadvantage(s) of reduce2()? And any disadvantages for reduce3()? And Why? ( hint: in terms of performance, such as bank conflicts or condition divergence )

**reduce 2 will cause divergence at the first if statement within the loop because the condition will split the warps into separate execution paths.**