PHYS-8061 HW2 Discussions

B11902156 陳浩文

In this homework, I tried multiple configurations of block sizes and grid sizes with brute force, in effort to determine the optimal configuration for this problem. (All sizes are in the power of 2)

At first I pick a block size, and gradually increase the grid size until no improvements are made. And I tried from block size 8 to 1024.
(The rows are grid sizes, and the columns are block sizes)

Speed-up (only partially shown as I did not test every configuration)

	8	16	32	64	128	256	512	1024
32	1.655625							
64	2.445905		3.564847					
128	3.017705		3.828102	4.094434				
256	3.486074	3.849736	4.082444	4.145433				
512	3.486184	3.854025	4.106876	4.035630	4.065000			
1024	3.671298	3.866592	3.929090	4.160759	4.199512	4.146494		
2048	3.531811			4.183270	4.201124	4.390678	4.083611	
4096				4.195993	4.151450	4.153918	4.143168	4.085415
8192				4.041243			4.203990	4.264880
16384							4.192190	3.954277

The speed-up will increase as grid size does, but will stop until a certain point.
The speed-up will increase as block size as well, but will not be much after 256
The optimal block size and grid size is (256, 2048), with a speed-up of 4.390676.