

# PHYS-8061 HW5 Discussions

B11902156 陳浩文

In this homework, I tried out 3 different block size to determine the speed-up:

Each block size is a power of two, with another power of two. (like  $2^k \times 2^k$ , where  $k$  is an integer)

Speed-up of block size  $8 \times 8$  : 26.157139

Speed-up of block size  $16 \times 16$  : 34.274235

Speed-up of block size  $32 \times 32$  : 26.533367

The optimal block size for this problem is  $16 \times 16$ , with a speed-up of 34.274235.

The larger the block size, the better the speed-up should be, as there are more threads working together. However this trend only holds until block size reaches  $16 \times 16$ , the performance stops to improve when block size reaches  $32 \times 32$ .