

|               | kernel runtime (ms) | MFLOP/s     | Mem bandwidth util. |
|---------------|---------------------|-------------|---------------------|
| CPU vecadd    | 1068.945            | 478.9769352 | 2.94283429          |
| GPU vecadd    | 50047.98763         | 10.23018156 | 0.006478383204      |
| GPU 256t 1b   | 2080.504507         | 246.0941557 | 0.1558420284        |
| GPU 256t/b    | 1394.853783         | 367.0635634 | 0.2324473335        |
| GPU 256t/b ex | 3.963129            | 129190.8489 | 81.81162977         |

1. The MFLOP/s performance gain is:

$$129190.8489 / 478.9769 = 269.7x \text{ speedup}$$

2. The memory bandwidth performance gain is:

$$81.8116 / 2.9428 = 27.8x \text{ speedup}$$

3. Total concurrent threads in last program:

2097152 thread blocks (from code printout)

32 threads per block

$$2097152 * 32 = 67,108,864 \text{ concurrent threads (wow)}$$