Project 4 Writeup

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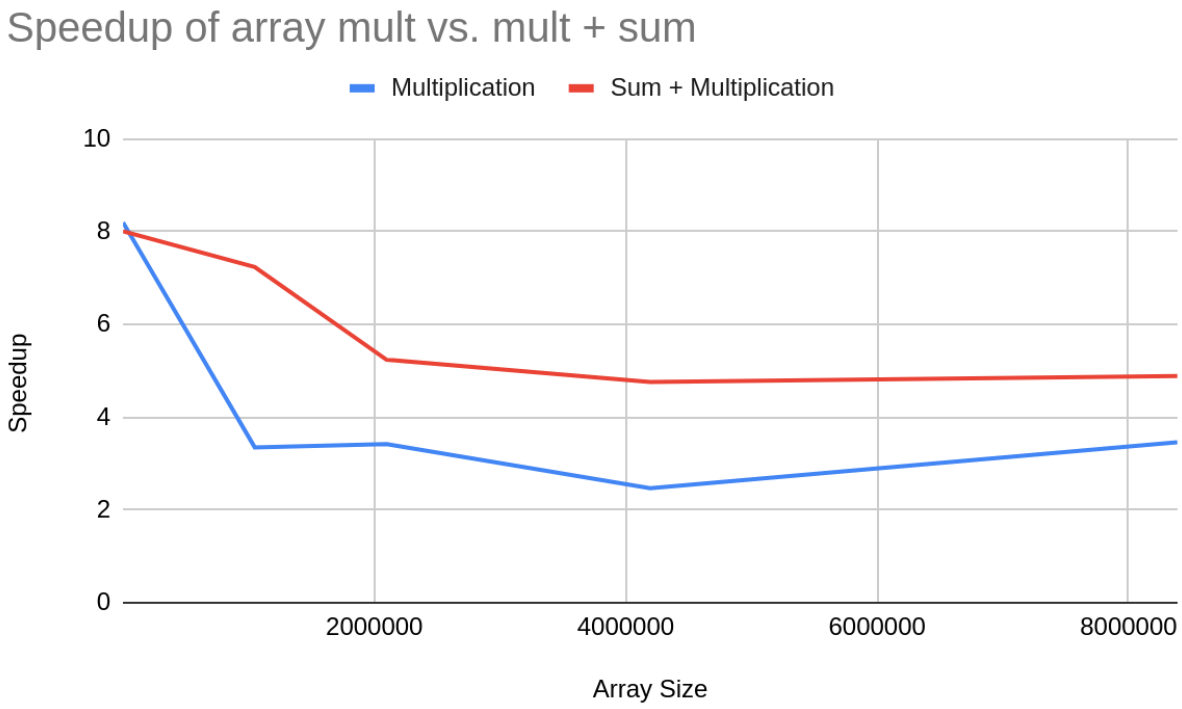
Multiplication only table

Array Size	Non-SSE MM/s	SSE MM/s	Speedup
1024	221.69	1818.88	8.2
1048576	216.33	724.62	3.35
2097152	215.27	736.42	3.42
4194304	215.94	532.91	2.47
8388608	216.99	750.82	3.46

Multiplication and sum table

Array Size	Non-SSE MM/s	SSE MM/s	Speedup
1024	223.53	1790.74	8.01
1048576	226.36	1637.98	7.24
2097152	220.37	1154.39	5.24
4194304	222.66	1059.78	4.76
8388608	224.44	1097.97	4.89



In the data, it is seen that performing multiplication and sum together provides a higher speed up than just doing the multiplication alone. I believe that this is because doing the sum and the multiplication, gives the program potentially two places to perform SSE, and this is seen in the data with almost a difference of a factor of 2. Next, we also see a decrease in the speedup as the array size increases. This is because the cache line isn't able to keep up with the instructions. However, all of these patterns are not consistent across all array sizes, in fact, it's not very consistent at all. I believe this is because of outside noise since we had to use the flip servers.