Project #4

Vectorized Array Multiplication/Reduction using SSE

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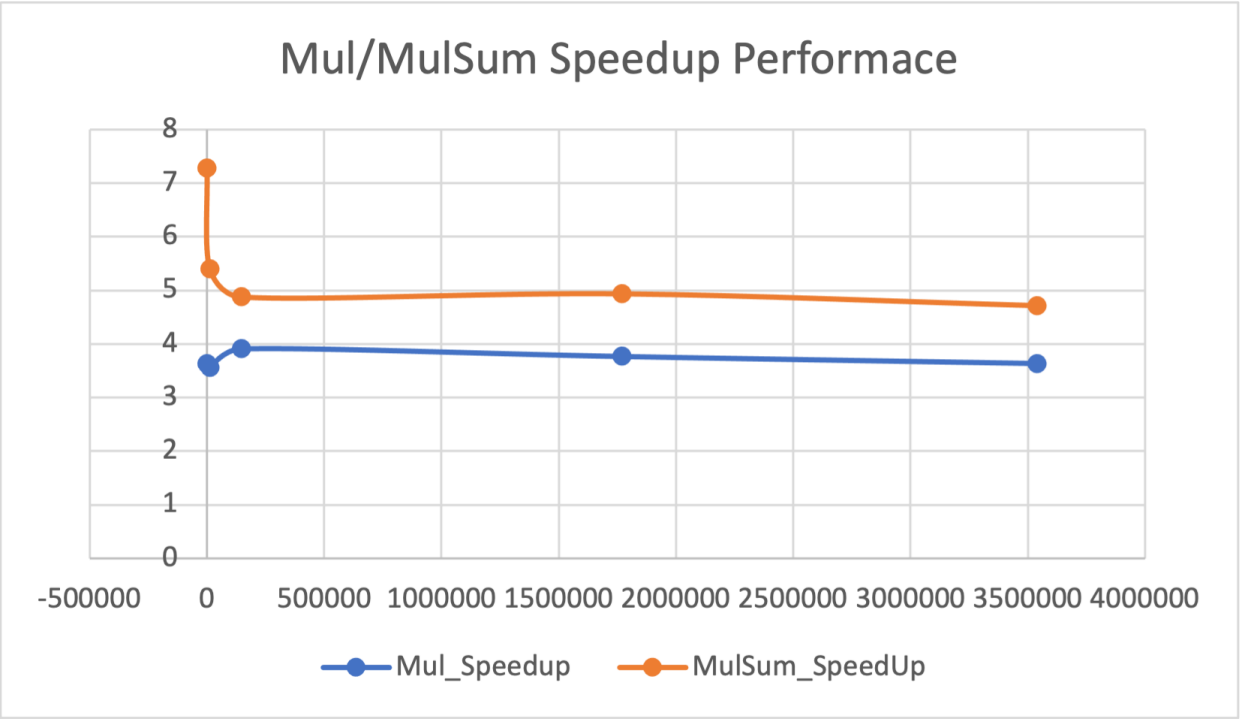
1. I ran the program on a Linux server.
2. The result of the program can be presented as following tables and graphs:

   Table:

ArraySize	NonSimdMul_Max	SimdMul_Max	Mul_Speedup	NonSimdMulSum	SimdMulSum2	MulSum_Speedup
1000000	196.88	717.28	3.64	248.22	1807.22	7.28
2000000	213.36	759.87	3.56	238.69	1290.75	5.41
3000000	209.42	819.21	3.91	237.45	1157.85	4.88
4000000	213.11	775.14	3.64	233.07	1151.23	4.94
5000000	217.98	715.09	3.28	232.79	1099.04	4.72

3. The speedup versus array size of the program can be presented as following graph



4. The Mul starts in lower speedup performance when the arraySize is lower, and then the performance increases after the arraySize increases; however, the MulSum is the opposite. It starts with very high speedup performance and then the performance drops when size increases.
5. No, it is not consistent.
6. From observing the result of the speedup performance, we can see that the speedup performance varies greatly in the beginning. Of course, it becomes stable after the size of the array increases. The speedup performance gradually approaches a certain value, but it still gradually decreases. Therefore, I wouldn't say that is consistent.