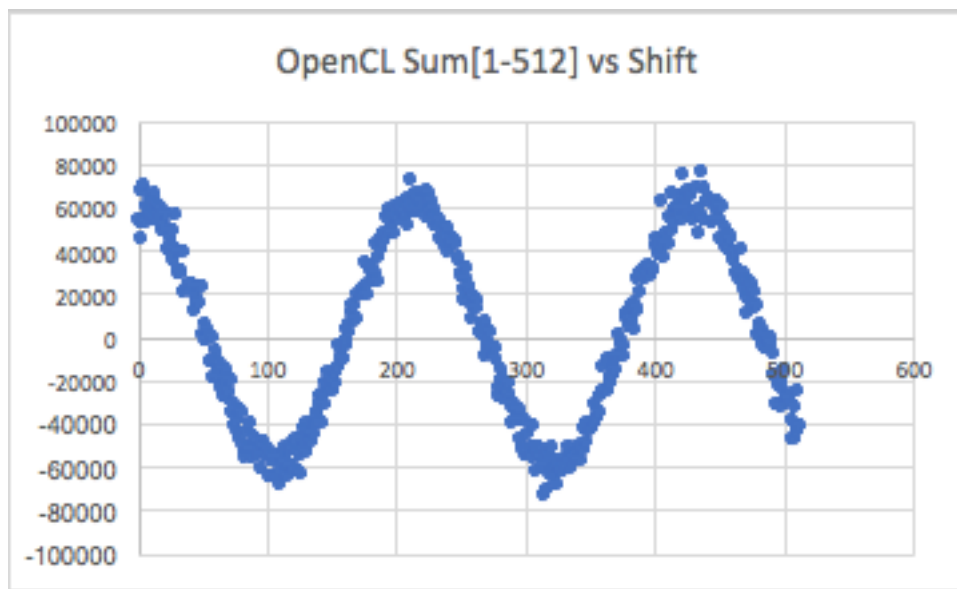Bryce Egley
CS475

<div align="center">Project 7 Write Up</div>

1. What machines you ran this on

   Answer: I ran OpenCL on <u>Rabbit</u> which 2 E5-2630 Xeon Processors. I ran SIMD and OpenMP on Flip(Linux) which has 24 processors.

2. Show the Sums{1] ... Sums[512] vs. shift scatterplot
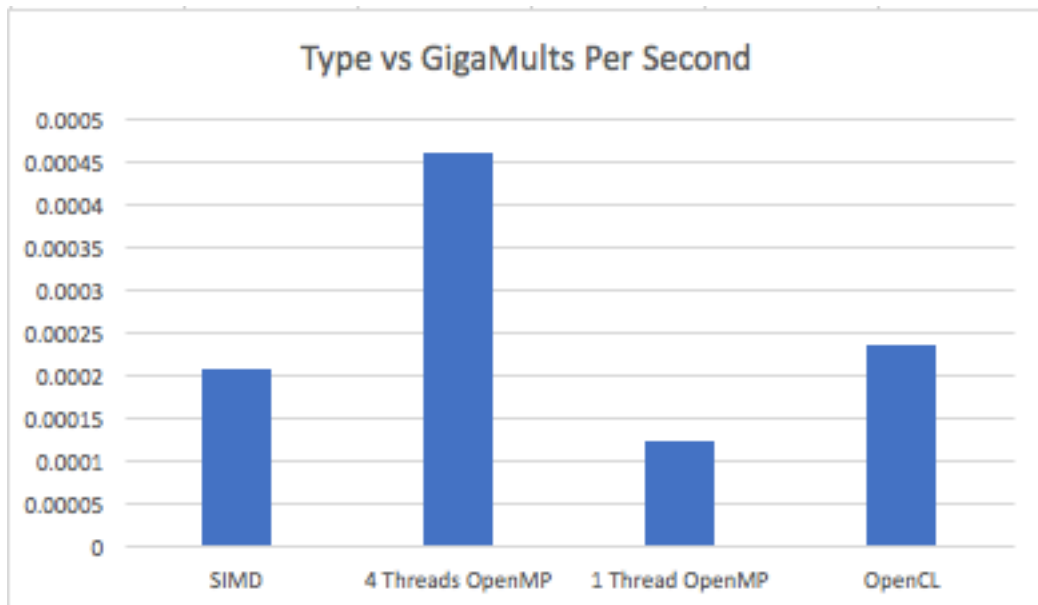
   Answer:

8. Tell me what you think the secret sine wave's period is, i.e., what multiples of *shift* give you maxima in the Sums[*] scatterplot?

   Answer: It looks like the sine wave's period is about 210.

9. Draw a bar chart showing the performance for your 1-thread OpenMP, your n-thread OpenMP, your SIMD, and your OpenCL. Pick appropriate units. Make "faster" go up.

Type	Performance (GigaMultsPerSecond)
SIMD	0.000207502
4 Threads OpenMP	0.000458604
1 Thread OpenMP	0.000123546
OpenCL	0.00023485

Type vs GigaMults Per Second

3. State what the hidden sine-wave period is, i.e., at what multiples of *shift* are you seeing maxima in the graph?

Answer: It looks like the sine wave's period is about 210.

4. What patterns are you seeing in the performance bar chart? Which of the four tests runs fastest, next fastest, etc.? By a little, or by a lot?

Answer: 4 Threads in Open has the best performance. More than twice the performance of the next two which are OpenCL and SIMD. Then 1 thread in OpenMP is about half the performance of those.

5. Why do you think the performances work this way?

Answer: OpenMP with 4 threads seems to have the best performance out of all 4. I believe this is because is divides the work up amongst 4 threads. OpenCL slightly beats SIMD probably because it uses GPU. And 1 thread OpenMP is the worst performance because there isn't anything being done it is executing as normally with just 1 thread.