CS575 Project 7b

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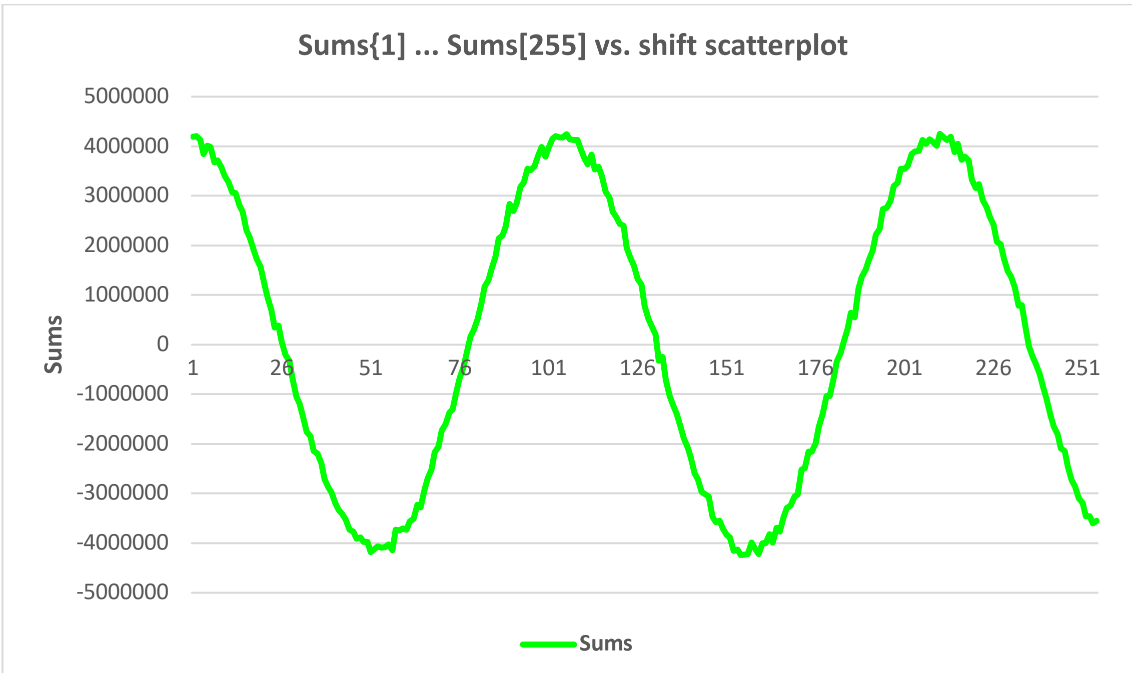
June 7, 2022

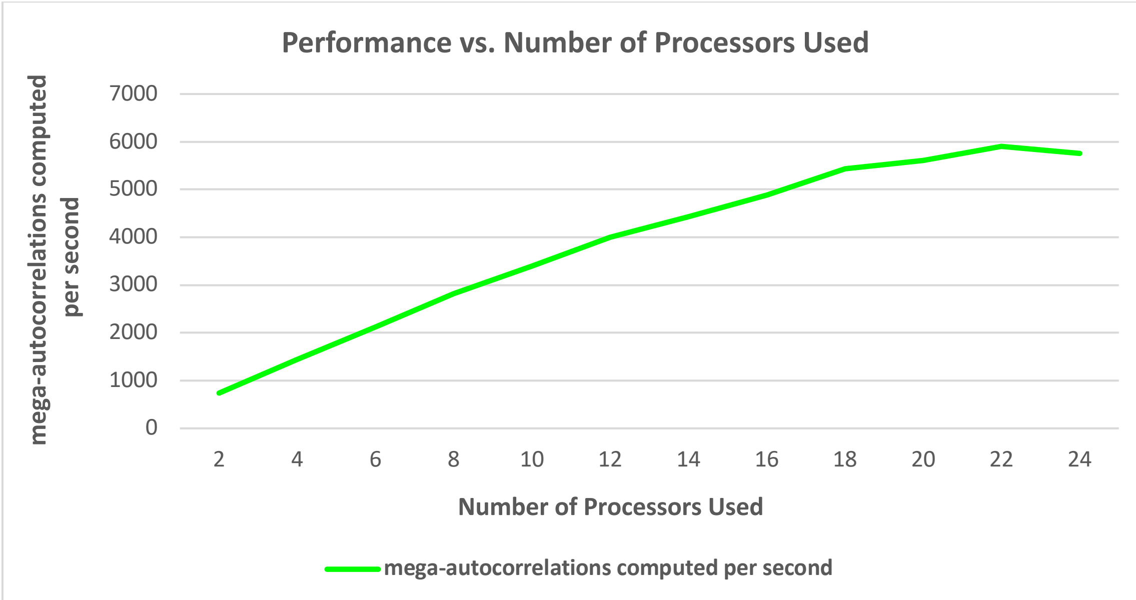
1. **Show the Sums{1] ... Sums[255] vs. shift scatterplot.**



2. **State what the secret sine-wave period is, i.e., what change in shift gets you one complete sine wave?**

   According to the data, the first peak is at Sums[2] = 4201512, whereas the second peak is at Sums[106] = 4243458, and the third peak is at Sums[211] = 4250251. Hence, the sine-wave period is in between the state of (211 – 106 = **105**) & (106 – 2 = **104**).

3. **Show your graph of Performance vs. Number of Processors used.**



4. **What patterns are you seeing in the performance graph?**

   As the number of processors we use grows, so does the performance. However, as it reaches 22, the performance begins to decline.

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

   MPI is based on the Single-Program-Multiple-Data model, which allows CPUs to send messages to each other, coordinate computations, and transmit messages among them. As a result, the more processors we employed, the higher the performance we got. However, when the number of processors reaches the maximum capacity that the software can provide, the performance may not be as planned.