Computer Information: Intel I7 – 3770 @ 3.40 GHz 8 GB Ram Windows 7

Question 6 part 1

We predict that as we increase the sequential cutoff for the parallel square locator that the time of finding the corners of the United States will be exactly the same as sequentially finding the corners.

Conclusion: Our conclusion that as we increase the sequential cutoff was mostly correct. At the beginning since the sequential cutoff is small an increase in the cutoff resulted in a spike which can be seen at the twenty element cutoff. However after that point it dips down and decreases to the optimal point of 10000 elements in the sequential before it starts climbing toward the same number of milliseconds as the sequential algorithm

Part 2 a) Setup Merge Grid’s cutoff was set at 5000 for these tests

We predict that the parallel creating will be more efficient than a sequential solution as we increase the sequential cutoff for the parallel grid section that the time of creating the grid of the United States will be exactly the same as sequentially.

Conclusion: Our prediction was not accurate. Version 3 was much more efficient in building than version 4 was. The likely reasons for our results are the cache not being used efficiently in Version 4, Version 4 taking up resource with creation of threads or creation of objects to determine location in version 4 rather than a direct calculation.

Part 2 b) Setup Parallel Grid Section cutoff set at 1000

We predict that the parallel creating will be more efficient than a sequential solution as we increase the sequential cutoff for merge grid that the time of creating the grid of the United States will be exactly the same as sequentially. Also that for small values MergeGrid will not work and cause out of memory exceptions do to making too many threads during the MergeGrid portion.

Conclusion: As predicated with a small cutoff for Merge Grid we suffered out of memory exceptions. Also as we predicated with an increase in MergeGrid cutoff it became closer and closer to the sequential cutoff. However we were not accurate in predicating that modifying MergeGrid would be more efficient than sequentially. This can be attributed to adding multiple Grid Sections together and adding them sequentially which means adding together Grids that are equal in size to the Master Grid.