# Lock Performance Analysis

4 Cores.

The data was created by averaging 20 runs for each lock at each problem size.

In the graph above, we see the performance between the numbers of attempts each lock attempts and the time it takes. The results seem fairly similar and this would be due to the fact that performance differs between locks mainly when the number of threads are used, not the raw number of attempts each thread executes.

Another reason that TTAF Backoff does not perform too well is because if its extreme sensitivity to the minDelay and maxDelay parameters. The optimal values are extremely sensitive to the numbers of processors and their speed so it is difficult to optimize.

This graph shows the number of successful acquires between a thread’s own successful lock. As you can clearly see, the values are significantly higher in the TTAS backoff lock. That is due to the sensitivity of the parameters.

Here is a version of the graph without the TTAS backoff. As you can see, they are all also relatively similar. As stated before, performance differs more with a change in the number of threads instead of the number of attempts each thread makes.