Assignment 5 Report

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Task:

You must prepare a report that shows the results of your experiments and draws a conclusion (or more) about the efficacy of this method of parallelizing sort. Your experiments should involve sorting arrays of sufficient size for the parallel sort to make a difference. You should run with many different array sizes (they must be sufficiently large to make parallel sorting worthwhile, obviously) and different cutoff schemes.

Running in different threads and different cutoffs of the same array.

Threads are from 1-32(stick to powers of 2), cutoffs are from 1000-512000(stick to powers of 2).

Threads: 1. Array Size: 2000000 Thread: 2 Array Size: 2000000

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Thread: 4. Array Size: 2000000 Thread: 8, Array Size: 2000000

Text

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Threads: 16 Array Size: 2000000 Threads: 32. Array Size: 2000000

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The number of threads is the same. Array size varies from 500000 to 3000000, cutoffs vary from 1000-512000

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**In conclusion:**

When the number of threads is small than 8, if we increase the number of threads, the performance of the parallel sort in the same array size and the same cutoff is better. However, when the number of threads is greater than 8 and we use the same array size and the same cutoff, the number of threads will not affect the performance of the parallel sort.

When the number of the threads is the same and the array size is the same, the number of cutoffs will dramatically influence the performance of the parallel sort. As the graph shown, for the same array size and the same number of threads, as the cutoffs increases, the performance of the parallel sort will perform better in the beginning, and then perform worse if cutoffs are really large.