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Parallel Computing

Assignment — OpenMP Task

* REDUCE

Ans: For reduce, the speedup is comparable to the static implementation from previous reduce assignment. Speedup increases when value of 'n' increases. The speedup seems to increase with increase in number of threads at a higher value of 'n', but eventually the speedup drops with more number of threads. This seems to be due to creation of multiple threads increases the total work & this seems to be substantial amount of work for such problem. Hence, speedup is less optimal and drops at very high number of threads. And for such small problem using the task construct does not have a substantial improvement on speedup. Hence, the speedup is comparable.

* Merge Sort

Ans: For mergesort, the speedup seems to have improved by using the task construct. As the value of n increases speedup increases. As Task defines a block that can be done asynchronously with the rest of the code, a new task is generated for the thread to execute. This improves the overall speedup for larger values of 'n'.