

Use your HW4 implementation (OpenMP reduction) to collect runtime performance data.

1. This exercise assumes the code is compiled with optimization -O2. Measure the time for the parallel section to sum the numbers from 0 to 100000000 (100 million). Run your program five times for team sizes 1, 2, 4, 8, and 16. (That's 5 data points per team size = 25 data points.)
2. Record your raw timing results in a spreadsheet table--one column per team size in ascending order. Calculate the average times for each team size.
3. Create a new table on the same spreadsheet page with columns Team Size, Avg Times (s), and Speedup. Calculate the speedup for each team size. Use average time when using one thread as the numerator.
4. Create a chart to graph average times (left y-axis), speedups (right y-axis), and team sizes (x-axis).

Submit your spreadsheet to Blackboard.

Extra credit.

Edit your Makefile to use optimization level -O3. Recompile your program and recollect the same data (five runs for team sizes 1, 2, 4, 8, and 16). Update your spreadsheet with the -O3 data (create two more tables and a chart). Finally, calculate the speedup of -O2 to -O3 for each team size.