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Project #0 : Simple OpenMP Experiment

1. Machine: OSU flip (Linux)

2. Performance Results

NUMT	1	2	3	4	5	6	7	8	9	10	Average
1	1006.02	1104.56	1093.15	1126.90	1094.97	1076.97	1084.60	1123.35	1045.63	1060.86	**1081.70**
4	2685.06	2661.50	2700.05	2663.16	2649.82	2615.16	2672.77	2871.31	2728.37	2646.44	**2689.36**

Units : Mega-Multiplies per Second
SIZE : 16384 (for all tests)
NUMTRIES : 20 (for all tests)

3. Speedup (S) = 2689.36 / 1081.70 = **2.49**

4. *If the 4-thread-to-one-thread speedup is less than 4.0, why do you think it is this way?*
I think there are overhead costs involved in the 4-thread computation. For example, when I tested the program with NUMTRIES as 1, the 4-thread computation had lower performance than the 1-thread computation. When I increased NUMTRIES to 10, I observed that the 4-thread computation already had a better performance than the 1-thread computation. I also think that not all of the program is parallelizable. Hence, with these limitations a speed-up of 4.0 would be very difficult to achieve.

Source: http://selkie.macalester.edu/csinparallel/modules/IntermediateIntroduction/build/html/ParallelSpeedup/ParallelSpeedup.html

5. Parallel Fraction: = (4/3)*(1 - (1/2.49)) = **0.80**