CS 475 – Parallel Programming

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Project #0 - Simple OpenMP Experiment

1. Compiled on OSU FLIP server.
2. #define SIZE 16384 // array size set to 16384
    a. For 1 threads, Peak Performance = 483.15 MegaMults/Sec
    b. For 4 threads, Peak Performance = 1246.50 MegaMults/Sec
3. $S(Speedup) = \frac{(Performance\ with\ four\ threads)}{(Performance\ with\ one\ thread)} = \frac{1246.50\ MegaMults/Sec}{483.15\ MegaMults/Sec} = 2.58$
4. 1-thread-to-4-thread speedup should be less than 4.0. Some fraction of the total operation is inherently *sequential* and cannot be parallelized (such as reading data, setting up calculations, control logic, storing results, etc.).
5. $Fp(Parallel\ Fraction) = \left(\frac{4.}{3.}\right) * \left(1. - \left(\frac{1.}{S}\right)\right) = \left(\frac{4.}{3.}\right) * \left(1. - \left(\frac{1.}{2.58}\right)\right) = 0.82$