

CS-575 Parallel Programming
Spring 2022

Name: Akhil Sai Chintala

Email: chintala@oregonstate.edu

Project Name: #Project-0

1. Tell what machine you ran this on?

I have executed the project-0 code on the rabbit server “rabbit.engr.oregonstate.edu”.

I have given the values of ARRAY SIZE as “218970” and NUMTRIES as “5000”.

2. What Performance results did you get?

I have executed the program with values mentioned in answer 1 and noted four observations.

S.No	Execution time for 4 threads (MegaMults/sec)	Execution time for 1 threads (MegaMults/sec)
1	1596.46	403.42
2	1597.39	403.72
3	1595.72	403.69
4	1592.20	403.77
Average	1595.44	403.65

3. What was your 4-thread-to-one-thread speedup?

The speedup is calculated using the below formula,

Speedup (S) = (Execution time for 4 threads) / (Execution time for 1 thread).

$$S = 1595.44/403.65$$

$$S=3.95$$

4. If the 4-thread-to-one-thread speedup is less than 4.0, why do you think it is this way?

The overhead of implementing threading may cost some resources, therefore a 4-thread-to-one-thread speedup cannot approach a value greater than 4.0 as the value for 4-threads should be nearly equal to 4 times of 1-thread. The value for ideal speedup will be in the range of 3.0 – 4.0, where I have got 3.95 for 4-thread-to-one-thread calculation.

5. What was your Parallel Fraction, Fp?

The Parallel Fraction Fp is calculated using the below formula,

$$F_p = (4./3.) * (1. - (1./S))$$

$$F_p = (4./3.) * (1. - (1./3.95))$$

$$F_p = 0.9957$$