

# Project #0 Simple OpenMP Experiment

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## Tell what machine you ran this one

MacBook Air (M1, 2020)  
Chip: Apple M1

## What performance results did you get?

One thread: 753.02 MegaMults/Sec  
Four threads: 2853.27 MegaMults/Sec

*From array size 100000 and 10000 trials.*

## What was your 4-thread-to-one-thread speedup?

**Speedup** = 3.7891

*Using: **Speedup** = (Performance with four threads) / (Performance with one thread)*

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

I think the speedup is not exactly four because there are a lot of factors that affect performance and runtime. For example, thread start time is dependent on the operating system. There's also other programs running on the same machine – this is not a purely isolated test. **The array size also changes this. I initially ran with array size 16384 and the speedup was only 1.29578.**

## What was your Parallel Fraction, Fp?

Parallel fraction: 0.981447

*Using:  $\text{float } Fp = (4./3.)*(1. - (1./\text{Speedup}))$ ;*