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**Computer Specifications:**

- **Apple MacBook Pro**
- **The brand of CPU:** Apple
- **The model of CPU:** M2
- **The number of cores on CPU:** 8 Cores
- **The clock rate of CPU in GHz:** 3.23 GHz, 2.06 GHz
- **The amount of memory in GB:** 16 GB
- **The speed of memory:** LPDDR5
- **The capacity of hard drive:** 512GB
- **The type of hard drive:** SSD
- **For SSD, provide:**
  - **Max sequential read speed:** 2.8 GB/s
  - **Max sequential write speed:** 3.5 GB/s
  - **Max random read speed:** 1 GB/s
  - **Max random write speed:** 800MB/s

```
phinny@Phinehass-MBP-3 Benchmark % g++ -std=c++14 -o benchmark main.cpp
phinny@Phinehass-MBP-3 Benchmark % ./benchmark
Total execution time of the 32 bit integer operation benchmark: 17.2607 seconds
```

**Result from Integer Benchmark**

```
Total execution time of the 64 bit floating point operation benchmark: 62.508 seconds
phinny@Phinehass-MBP-3 Benchmark % g++ -std=c++14 -o benchmark_2 bdd_benchmark.cpp
```

**Result from Floating Benchmark**

```
phinny@Phinehass-MBP-3 Benchmark % g++ -std=c++14 -o benchmark_2 bdd_benchmark.cpp
phinny@Phinehass-MBP-3 Benchmark % ./benchmark_2
Total execution time of the memory benchmark: 29.311 seconds
```

**Result from Memory Benchmark**

```
phinny@Phinehass-MBP-3 Benchmark % ./benchmark_3
Execution time for Hard drive operation one is 1.48845 seconds
Execution time for Hard drive operation two is 1.3581 seconds
```

### Result from Hard drive Benchmark 1

```
Execution time for Hard drive operation two is 1.3581 seconds
```

### Result from Hard drive Benchmark 2

Benchmark Type	Execution Time (secs)	Reference Time (secs)	Execution Time Ratio
Integer Benchmark	17.2607	100	5.794
Floating Point Benchmark	62.508	100	1.600
Memory Benchmark	29.311	100	3.412
Hard Drive Benchmark 1	1.488	250	168.011
Hard Drive Benchmark 2	1.358	10	7.364
Geometric Mean	8.289		

Geometric mean =  $\sqrt[5]{5.794 \times 1.600 \times 3.412 \times 168.011 \times 7.364}$

=  $\sqrt[5]{39,134.428}$

= 8.289