

Computer Organization Benchmarking Project

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COMPUTERSPECS:

1. The brand of CPU: AMD
2. Model of CPU: AMD Ryzen 5 4600H with Radeon Graphics
3. Number of Cores on CPU: 6 core
4. The clock rate of CPU in GHz: 3
5. The amount of memory in GB: 16
6. The speed of memory: 3200 MHZ
7. Hard Drive Capacity: 1 TB
8. Type of Hard Drive: SSD

For SSD, provide ■

- Max sequential read speed —> 3.3 GB/s
- Max sequential write speed —> 2.7 GB/s
- Max random read speed —> 470000 IOPS
- Max random write speed —> 400000 IOPS

RESULTS FOR BENCHMARKS:

Integer Benchmark -

```
PS E:\commmm> python3 integer_bench.py
Benchmark 1:
32-bit Integer Operation Benchmark
Involving additions, multiplications, and divisions took: 618.6558518409729 seconds
PS E:\commmm> █
```

Integer Benchmark -

```
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```

Memory Benchmark -

```
Memory Benchmark 3:
RAM Read/Write Speed Test
Total time for array operations (4 bytes each): 9.61 seconds
PS E:\commm>
```

Hard drive one Benchmark -

```
Including additions, multiplications, and divisions took: 685.7444076538086 seconds
PS E:\commm> python3 haddrive_benchmark_one.py
Disk I/O Benchmark:
File System Operation Speed Test
Total time for sequential read/write operations: 9.240592956542969 seconds
PS E:\commm>
```

Hard drive two Benchmark -

```
Total time for sequential read/write operations: 9.18555351235 seconds
PS E:\commm> python haddrive_benchmark_two.py
Benchmark 5:
Disk I/O Benchmark 2
Total time for file operations (10,000 bytes operations): 7.75043511390686 seconds
PS E:\commm>
```

BenchMark	BenchMark Recorded Time	Reference Time(seconds)	BenchMark Ratio (Reference Time / Benchmark Recorded Time)

Integer BenchMark	618.65585	100	0.1616
Float BenchMark	685.74440	100	0.1458
Memory BenchMark	9.61	100	10.4058
Hard Drive One BenchMark	9.2405	250	27.0548
Hard Drive Two BenchMark	7.7504	10	1.2902

Final BenchMark = $(0.1616 * 0.1458 * 10.4058 * 27.0548 * 1.2902)^{1/5} = 1.536296$