Myles Block
Computer Organization II
CSCI 202 - 01

Benchmark Project Report

Computer Model: MacBook Pro (14-inch, 2021)
Brand of CPU: Apple
Model of CPU: Apple M1 Pro chip
Number of Cores: 8
Clock Rate of CPU in GHz: 3.2GHz
Amount of Memory (in GB): 512GB
Speed of Memory: 200GB/s memory bandwidth
Capacity of Hard Drive: 32GB unified memory
Hard Drive Type: SSD

- Max Sequential Read Speed: 4,900 MB/s
- Max Sequential Write Speed: 3,951 MB/s
- Max Random Read Speed: 5200.7 MB/s
- Max Random Write Speed: 4432.3 MB/s

Bookmarks:

```
Myles-MacBook-M1-Pro:Computer-Organization-II-Benchmark-Project mylesblock$ python3 main.py
finished first execution
finished second execution
The Execution Time for 32-bit Integer Operation: 1128.6098198890686 seconds
```

32-bit Integer Operations

```
Myles-MacBook-M1-Pro:Computer-Organization-II-Benchmark-Project mylesblock$ python3 main.py
finished first execution
finished second execution
The Execution Time for 64-bit Float operation: 630.0300281047821 seconds
```

64-bit Float Operations

```
Myles-MacBook-M1-Pro:Test Benchmark Project mylesblock$ python3 main.py
in reading mode...
The Execution Time for Hard Drive Bookmark 1: 368.62298226356506 seconds
```

Hard Drive Benchmark 1

```
Myles-MacBook-M1-Pro:Computer-Organization-II-Benroject mylesblock$ python3 main.py
in reading mode
The Execution Time for Hard Drive Benchmark 2: 1.2132940292358398 seconds
```

Hard Drive Benchmark 2

Myles Block
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CSCI 202 - 01

```
Myles-MacBook-M1-Pro:Test Benchmark Project mylesblock$ python3 main.py
reading through array...
writing through array...
The Execution Time for Memory Benchmark: 730.689416885376 seconds
```

Memory Benchmark

	32-Bit Integer Operation	64-Bit Floating Point Operation	Hard Drive Benchmark 1	Hard Drive Benchmark 2	Geometric Mean
Total Execution Time (seconds)	1128.6 seconds	630.0 seconds	368.6 seconds	1.21 seconds	133.4

Geometric mean ($\bar{x}g$): 133.44592738043