

Java Based Computer Memory Latency Simulator

Synopsis:

The goal of this project is to build a simple computer system simulator that consists of a hard drive, random access memory, and a cpu with at least one level of cache, then use this simulator to study how changing latencies will affect the overall performance. For instance, it is a common upgrade today to take an old hard drive based boot drive and convert it to a solid state drive. It would then be ideal if there are real world studies of actual hardware data that we could compare our results with, and determine any sources of error.

Milestones:

- A. Have a very basic memory simulator (without many delays, pure data transfer, simple array based)

Necessary

- Hard Drive
- RAM
- CPU Cache

Extra

- Add CPU registers
- An external hard drive/tape drive/network attached storage
- Also search for reputable data

- B. Upgrade the simulator (include delays, introduce structures that actually represent the hardware equivalents)

- Add any extra functionality from above if possible

Use the simulator to gather statistics

- Research causes of discrepancies
- Polish the Github repository

- C. Write the report

- Create necessary graphs/charts

Timeline:

- 11/8/2020 - Complete Part A
- 11/15/2020 - Complete Part B
- 11/21/2020 - Complete Part C

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