

A Performance Study of Near-Memory Processing Under Garbage Collection

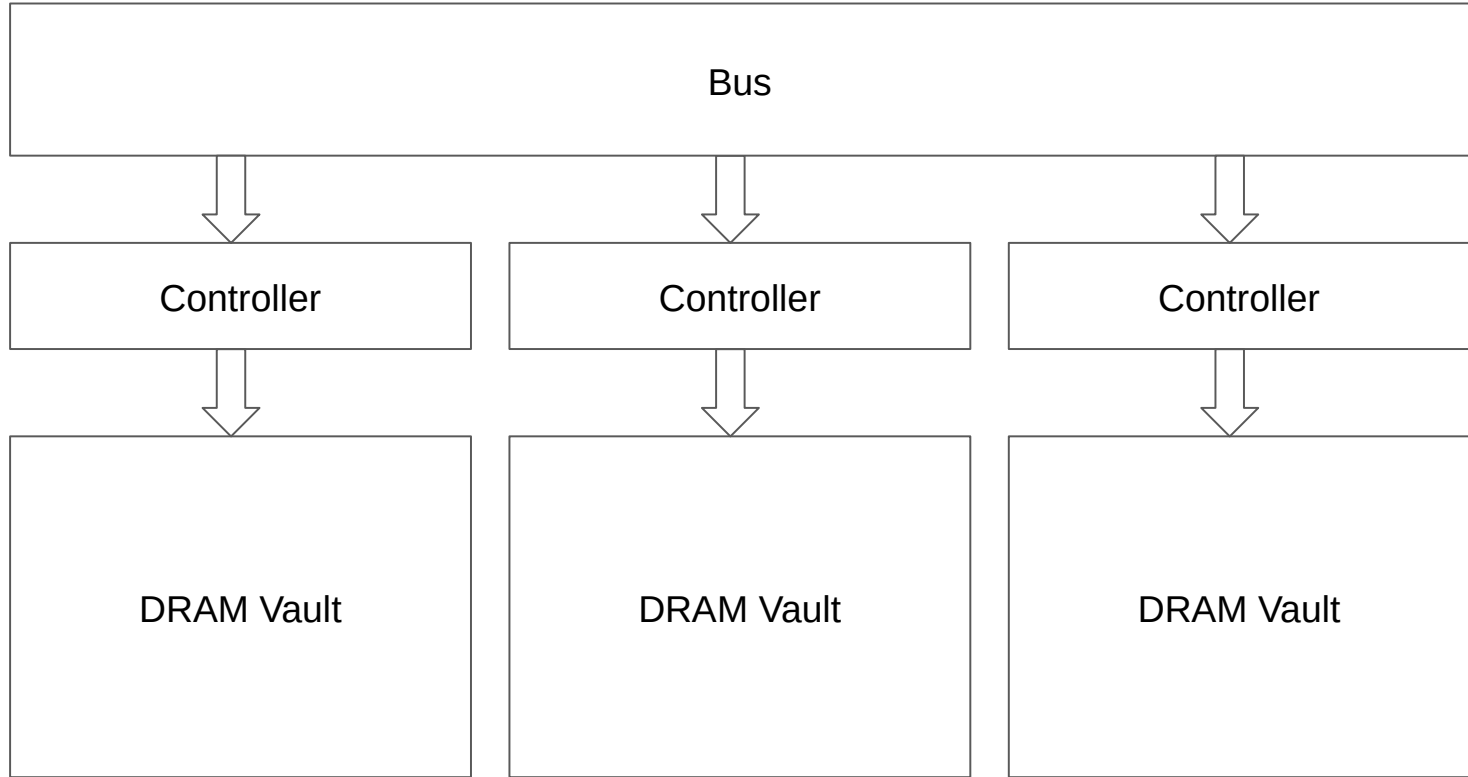
Samuel Thomas*, Jiwon Choe, Ofir Gordon, Erez Petrank, Tali Moreshet,
Maurice Herlihy, R. Iris Bahar

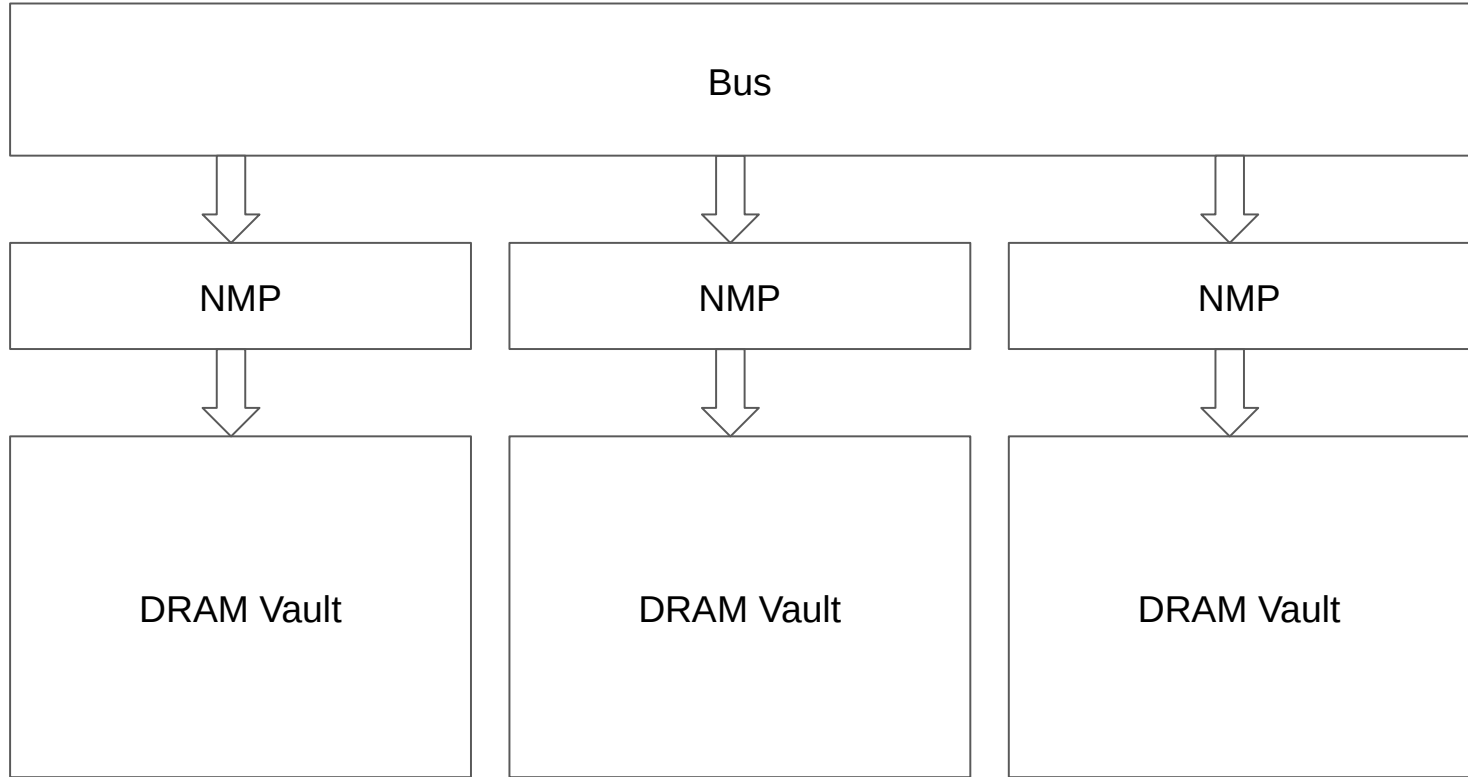
Outline

- Overview of Near-Memory Processing
- Overview of Garbage Collection in JDK
- Proposed Solution
- Evaluation

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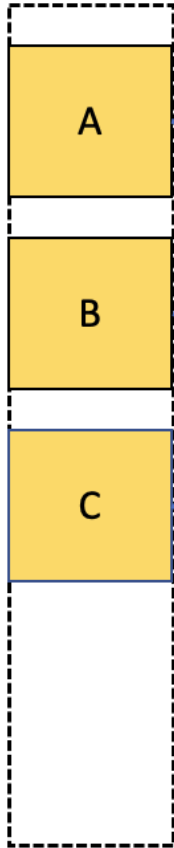




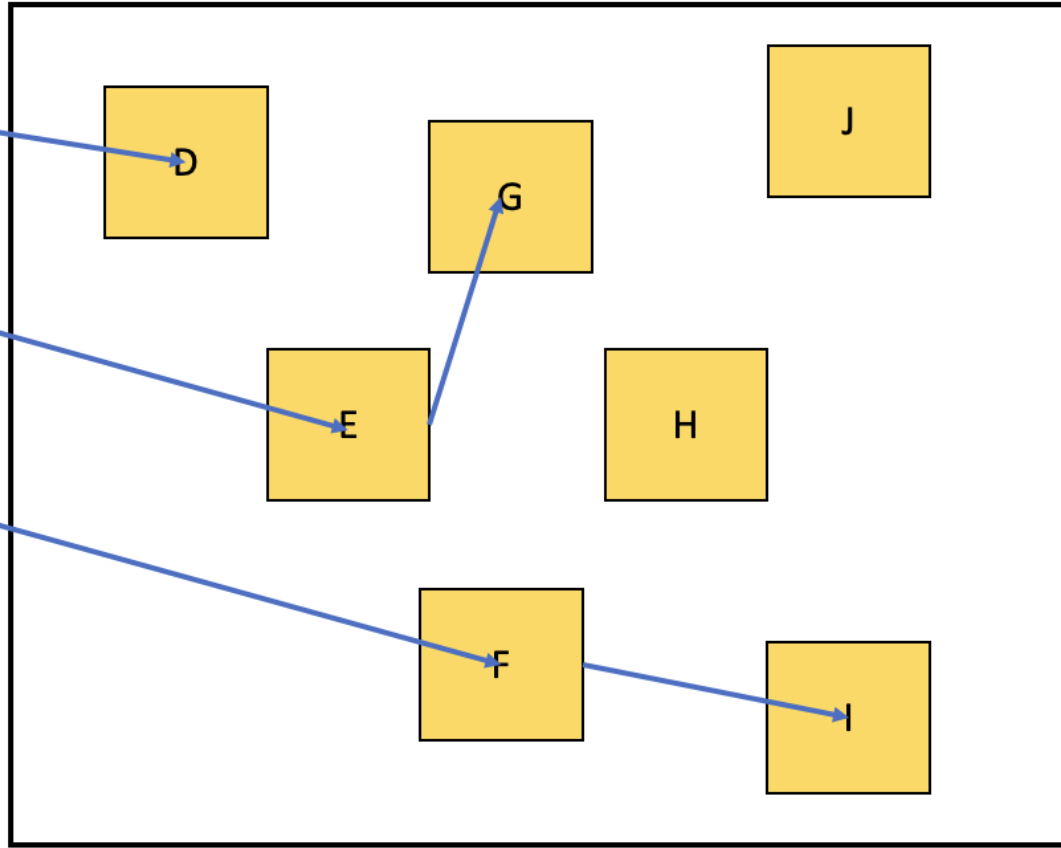
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- Concluding Remarks

Live Object
Roots

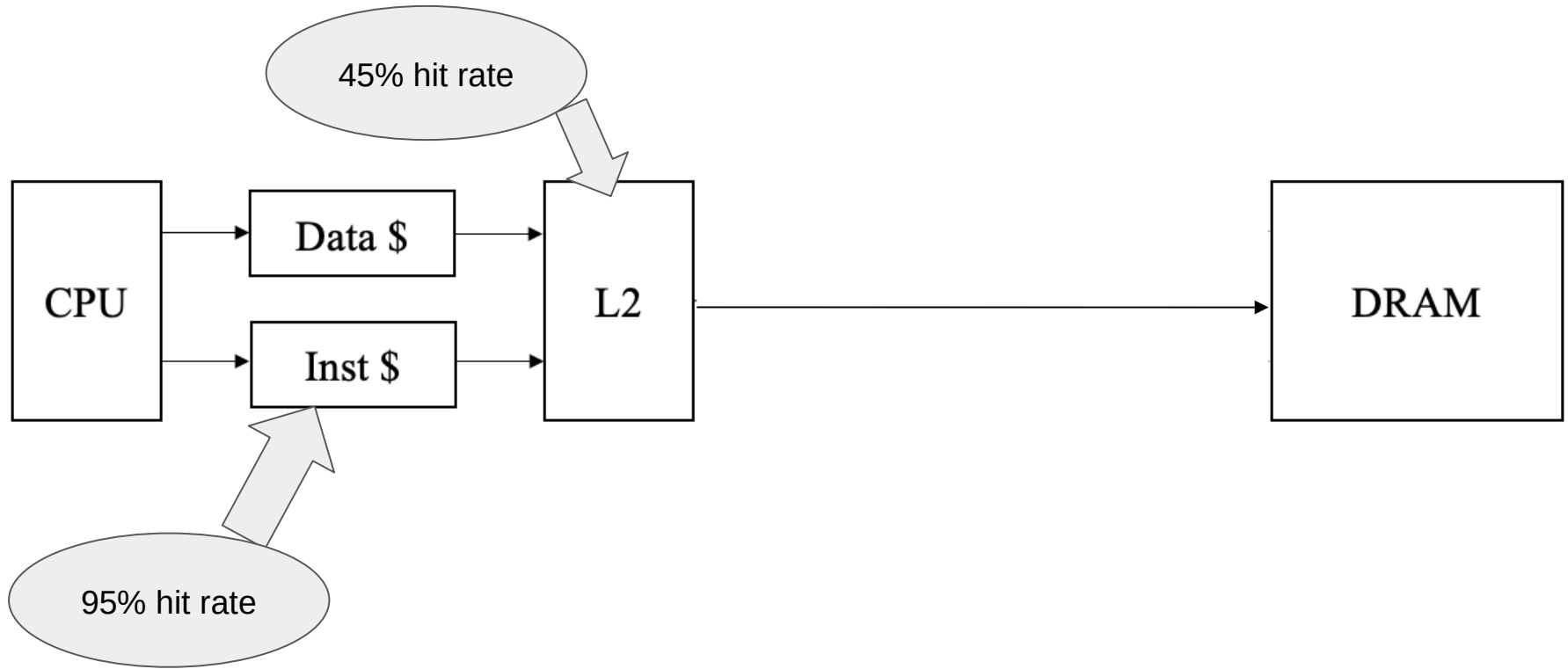


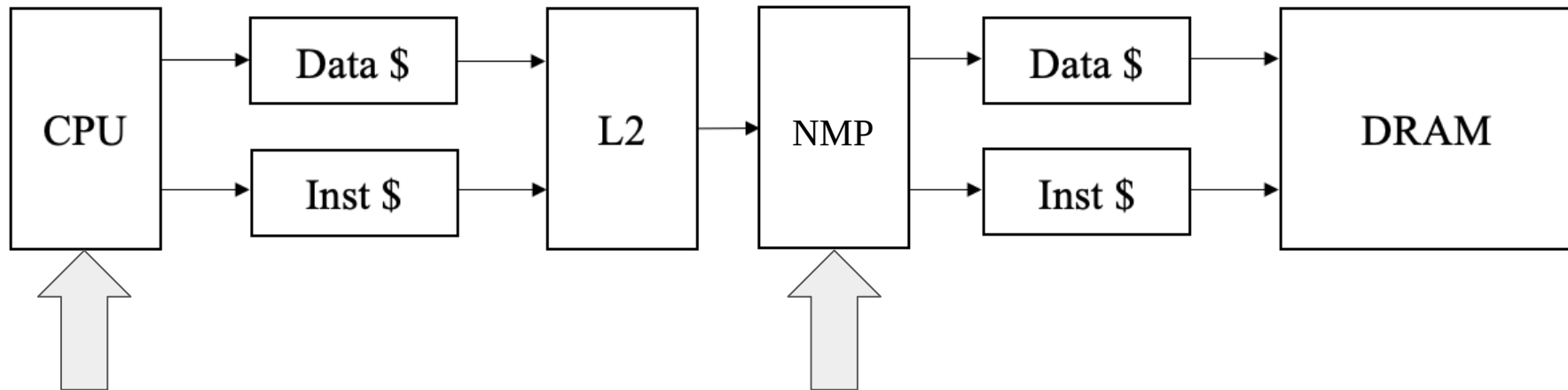
Heap



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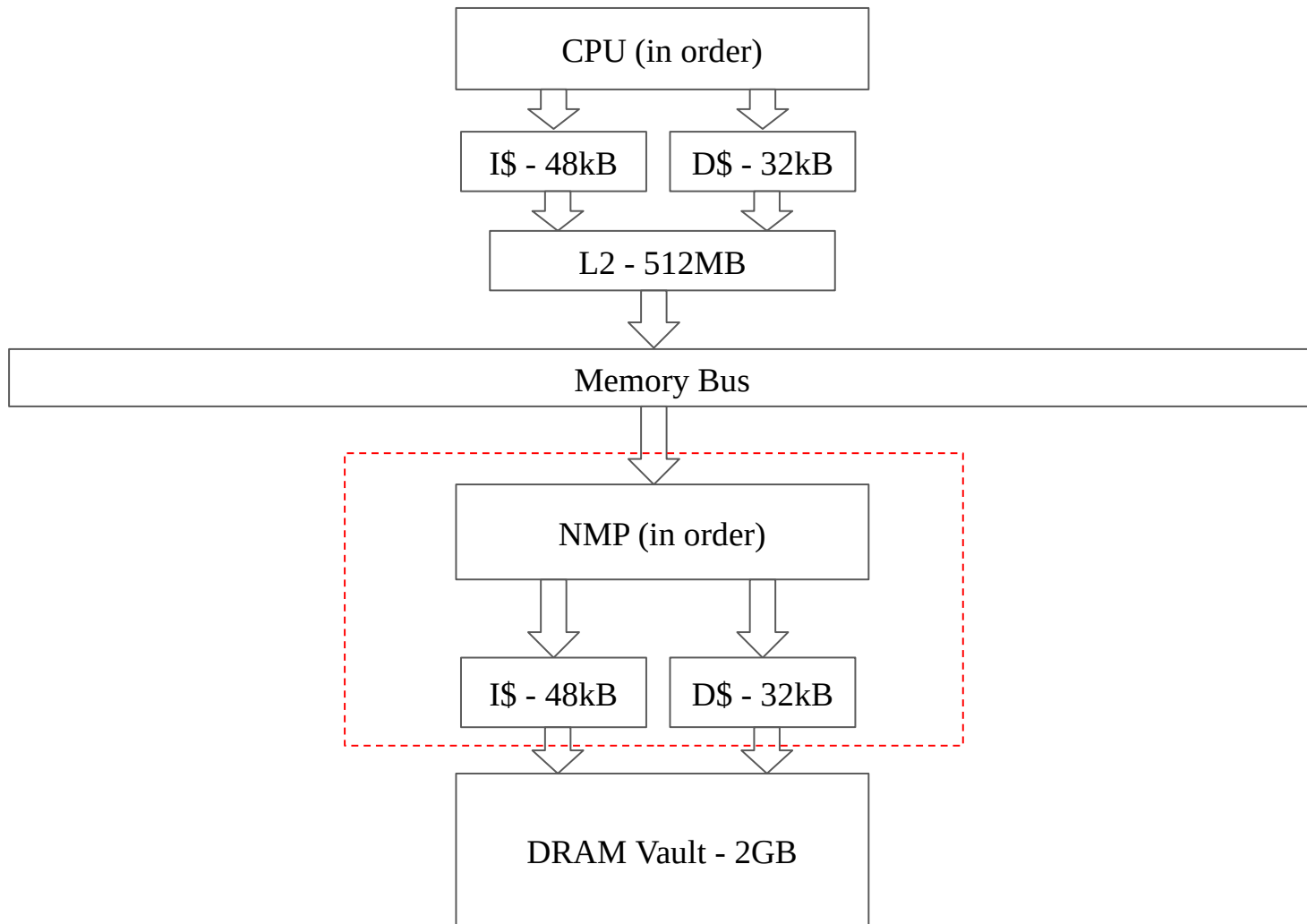


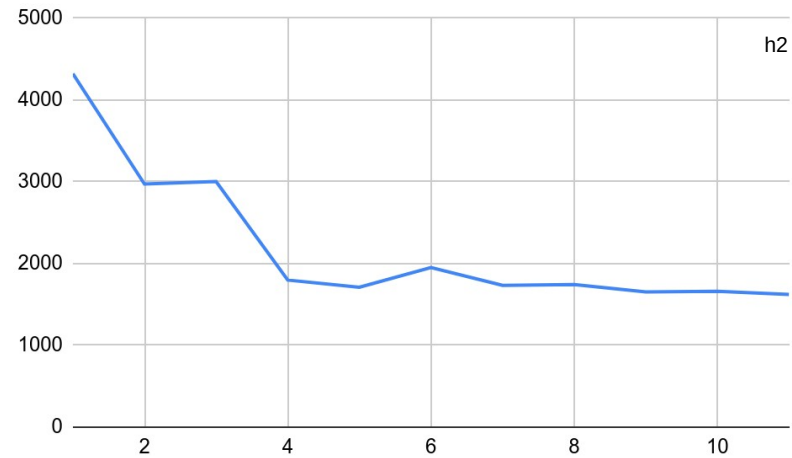
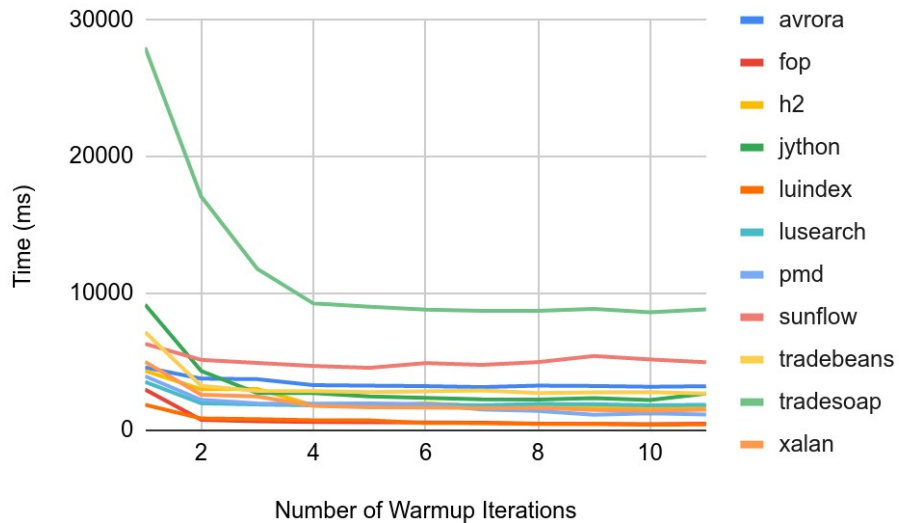
1. Running the application
2. Running the sweep phase of garbage collection

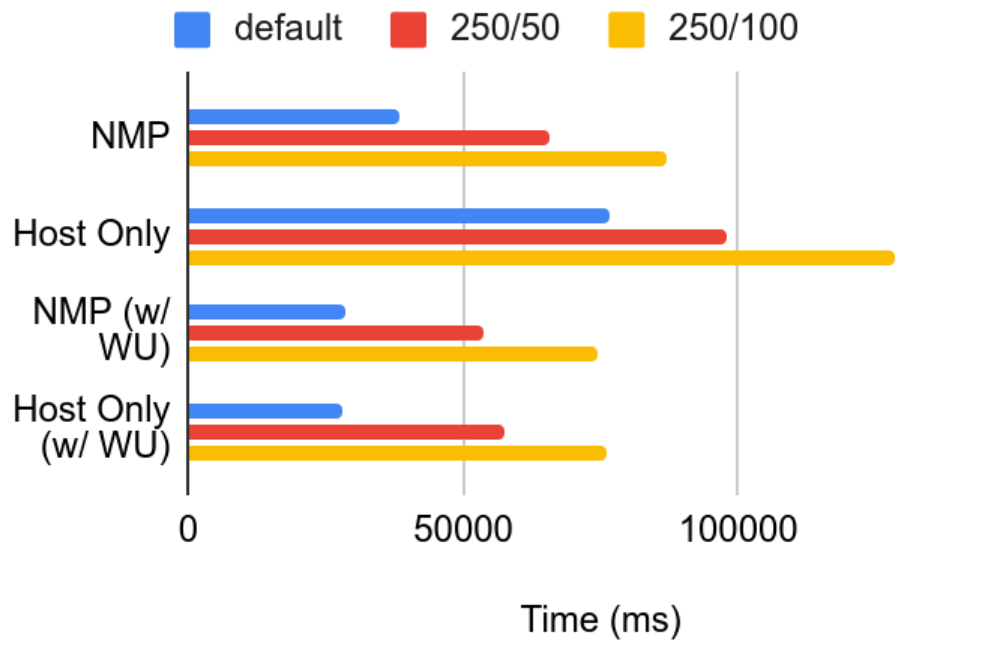
1. Running the marking phase of garbage collection
2. Otherwise idle

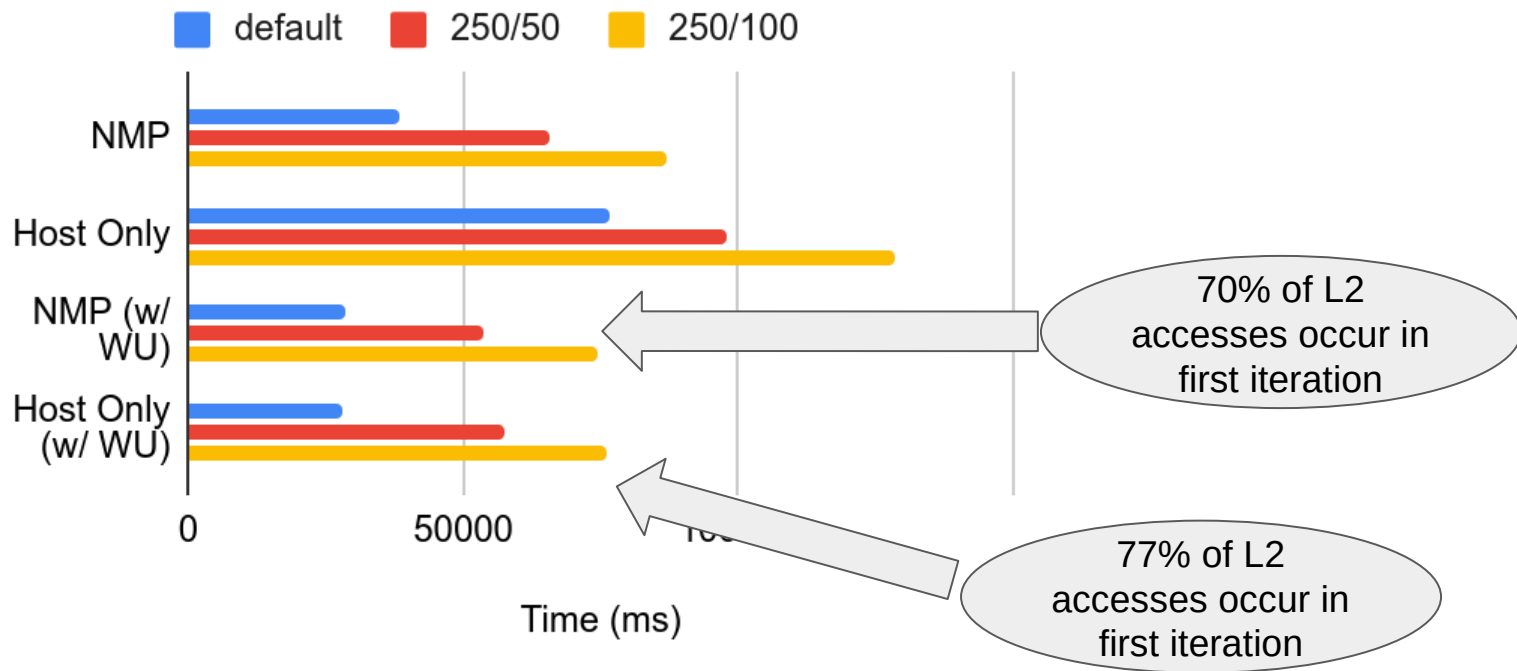
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Future Work

- Just-in-time compiler, etc...
- Short-lived vs long-running applications
- Hardware-software co-design