

Low Cost Trace-driven Memory Simulation using SimPoint

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Abstract: Trace-driven memory simulation tools such as MetaSim Tracer capture the address stream of an application during an instrumented program run. Various statistics can be measured using the in-flight address stream including anticipated cache hit rates. This paper reports on performance improvements of MetaSim Tracer gained by using techniques developed in SimPoint. Concurrent research addresses techniques that can be used to reduce the instrumentation overhead involved in memory tracing, and this work addresses a technique that can be used to decrease the amount of cache simulation that is required on top of this. The result is a tool for trace driven cache simulation that is practical to use for memory performance studies of full sized scientific applications.

Reference: @inproceedings{laurenzano05simpoint, Author = {Quantifying Locality in the Memory Access Patterns of HPC Applications}, Booktitle = {Workshop on Binary Instrumentation and Applications}, Title = {Low Cost Trace-driven Memory Simulation using SimPoint}, Year = {2005}}