ISIM: The Simulator for The Impulse Adaptable Memory System

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Abstract

This document describes ISIM, the simulator for the Impulse Adaptable Memory System. Impulse adds two new features to a conventional memory system. First, it supports a configurable, extra level of address remapping at the memory controller. Second, it supports prefetching at the memory controller. Consequently, two new units, a remapping controller and a memory controller cache, are added to a traditional memory system to support the new Impulse features. ISIM is based on Paint, a PA-RISC instruction set interpreter. ISIM extends Paint with a detailed Impulse memory system model which includes a primary data cache, a secondary data cache, a system bus, an Impulse memory controller, and a renovated DRAM backend.

Note that this document focuses on the Impulse extensions only. The reader should consult the Paint technical report [2] for an overview of the Paint simulation environment and terminology.