GPU Transactional Memory
GPU Transactional Memory
Energy Efficient
GPU Transactional Memory
via Space-Time Optimizations

Wilson Fung, Tor Aamodt (UBC)
Warp-Level Transaction Management
Warp-Level Transaction Management

Temporal Conflict Detection

Transaction

Memory

Last Written Time

0x00000000

0xFFFFFFFF
Low conflict workloads:

TM ≈ Fine-Grained Locks

65% Speedup  2X → 1.3X Energy Usage
Energy Efficient
GPU Transactional Memory
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Wednesday 10:15am, Section 6A

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