Ultra-Fast Functional Instruction Set Simulation

HOTSPOT Detection
Simulation time is partitioned into epochs
Epoch is a interval between two translations
Frequently executed blocks are HOTSPOTS
HOTSPOTS are translated into native code

JIT Dynamic Binary Translation
Map uncompiled code into native code
Determine general dependencies
Compute instruction side effects
Emulate native target instructions
Emulate performance model updates

Large Translation Units
Larger blocks result in improved locality
More scope for JIT compiler optimizations

JIT Dynamic Binary Translation

Basic Block Mode
SCC Mode
CRO Mode
PCST Mode

Faster than Silicon

Simulation Modes

- Verified Cycle-Accurate Simulation
- High-Speed JIT Det. Simulation
- Fast Cycle-Approximate Simulation
- Co-Simulation for HW Verification

Features and APIs

- Instruction Set Extension API
- Memory-Mapped I/O API
- System Call Emulation
- Debugging and Tracing

Detailed Profiling Simulation Mode

Flexible Faster Than Silicon

Virtual Devices

Screen
UART
Sound

Instruction Set Extensions

Flexible Faster Than Silicon Instruction Set Simulator