

Xtreme Server

Multi-Session High-Performance VPA Platform

Xtreme Server

- ✓ Seamlessly integrates emulation, acceleration, and simulation
- ✓ Provides a configurable platform for early system-level integration
- ✓ Emulates behavioral objects with reconfigurable behavioral processors
- ✓ Supports designs of up to 50M ASIC gates
- ✓ Runs at speeds of up to 1 million cycles per second
- ✓ Offers hot-swapping in real time from in-circuit emulation to simulation
- ✓ Provides accurate modeling of event-based, cycle-based, and transaction-based modeling styles

Verification solutions have not kept pace with the incredible rate at which design sizes are growing, creating a rapidly widening verification gap. Traditional software simulation works well for early design verification, but slows down significantly at RTL and gate level.

Traditional hardware emulation achieves high performance, but departs from native simulation environments with steep learning curves, lengthy setup times, and difficult debugging methods. Xtreme[®] Server provides emulation performance and simulation flexibility in a single multi-user, multi-purpose event-based system with a unified design database.

High-Performance VPA Platform

Xtreme Server is a unified high-performance Verification Process Automation (VPA) platform. VPA enables teams to use well-defined processes, combined with best-in-class technology, to automate and simplify verification, from executable plans to verification closure.

Xtreme Server-based VPA processes allow SoC designers to quickly create new or modify existing architectures much earlier in their design flows. Designers can leverage IPs from various marketplaces or previous projects and simultaneously simulate, accelerate, and emulate these models.

Xtreme Server allows access to HW/SW system integration and affirms system performance before silicon is available. Enabled by patented RCC (ReConfigurable Computing) and the latest FPGA technology, Xtreme Server delivers fast runtime performance and highest capacity, while preserving the native RTL simulation debugging environment.



Xtreme Server – A unified high-performance Verification Process Automation (VPA) system.

In-Circuit Emulation

Xtreme Server can connect directly to a target system and is controlled through a Sun workstation or Linux PC for compactness and high-speed communication. The ability to simultaneously emulate physical hardware with software models, while using a software simulation environment for debugging, provides the most flexible and accessible system integration solution.

Behavioral Emulation & Procedural Callbacks

Xtreme Server extends emulation with behavioral processors and embedded procedural callbacks. Behavioral processors provide a practical method for emulating non-synthesizable behavioral objects. The behavioral emulation capability maintains the performance of emulation without giving up the software simulation environment.

Xtreme Server automates event-driven callbacks during acceleration or emulation. By using embedded callbacks, you can use common simulation tasks or customized software utilities to process functions better handled by the workstation.

Xtreme Server

Verisity — Meet your SpeX

Contact Information

Verisity Design, Inc.
331 East Evelyn Avenue
Mountain View, CA 94041
PH: (650) 934-6800
FX: (650) 934-6801
www.verisity.com

More Information

Please see us on the web at
www.verisity.com or contact
your local sales representative.

Xtreme Server — set up for
In-circuit Emulation (ICE) ▶

One-Step Compilation and Mapping

Design descriptions can be separated into three components: behavioral, RTL, and gates. Xtreme Server's compiler automatically maps sections that can be emulated with the RCC engine and builds a native-compiled simulation image for sections that remain in software. The patented Hierarchy Extracted mapping technique automatically maps designs onto arrays of FPGAs for optimized usage and high-performance simulation.

Debug in Software, Emulate/Accelerate in RCC

Xtreme Server's ability to swap states between software and the RCC engine, in real time, makes it unique. During simulation, you can swap the state of the RCC engine into software to interactively debug the design and continue in software. When your circuit is fully debugged, and the problem isolated, the simulation state value can be swapped back into the RCC engine for maximum simulation performance.



Complete History with no Re-simulation

Xtreme Server's VCD-on-Demand (VoD) gives you access to all node history values from any point in simulation without re-simulating from time zero — significantly increasing debugging productivity. Waveforms are generated in either IEEE-standard VCD (Value-Change-Dump) or FSDB (Fast Signal Database) format.

Simplified Library & Memory Conversion

To maximize density and performance on the RCC processors, design library and memory cells

Xtreme Server Specifications

Architecture	- ReConfigurable Computing (RCC) Engine, with extended arbiter - Event-based algorithm
Design Format	- RTL and gate-level netlist - 1076-1987/1993 IEEE VHDL - 1364-1995/2001 IEEE Verilog
Xsim Simulator	- Native-compiled, event look-ahead
Co-modeling Options	- XMI-API - PLI 1.0/2.0
Gate and I/O Capacities	- Up to 50M ASIC gates - Up to 4,656 I/Os
Programmable Trigger Generators	- Up to 1K probes per trigger - Up to 48 separate trigger generators
Runtime Performance	- Up to 1 million cycles/sec
Memory	- Up to 12 G bytes of extended memory - Up to 4 G bytes per workstation
Debugging	- VCD-on-Demand (VoD) - Real-time simulation state swap HW/SW
Supported Platforms	- Solaris: 4U Sun Fire 280R Server (UltraSPARC III) - Linux: 1U Sun Fire V60x (Intel uP)

are converted into RCC elements. For library cells, a library compiler automatically generates the appropriate mapping. For embedded design memory blocks, a large internal cache and on-board memories are configured to the specific memory type. For system verification, large external memories are integrated using extended memory board or workstation memory, communicating via the fast PCI bus.

All-Encompassing System

To stay ahead of the competition, you need the fastest, most efficient, and most adaptable verification system. With its multi-user, multi-purpose single-database solution for simulation, acceleration, and emulation, Xtreme Server has been designed to significantly increase your productivity and confidence in your designs.

Verisity