



News Release
Waltham, MA,

Carbon Links to Virtutech's Instruction Set Simulator

Early Joint Success at Sun Microsystems

WALTHAM, MA, August 23, 2004, Carbon Design Systems—a fast moving EDA company that reduces time-to-profit for chip companies by enabling pre-silicon software validation by automatically generating an cycle and register accurate model directly from a hardware design's Verilog and/or VHDL description—announced today that it has integrated its DesignPlayer™ engine with Virtutech's Simics Instruction Set Simulator (ISS). This will enable customers with processor-based designs to execute operating systems and application-level software on a fast and accurate model of a chip or system. This integration allowed Sun Microsystems to boot its Solaris operating system on a Simics-DesignPlayer model of their design.

"Booting an operating system on an RTL-accurate model of a design is now possible without a hardware emulator or first silicon," commented Steve Butler, President and CEO of Carbon. "The Virtutech-Carbon combination provides both the speed and accuracy to debug real software on a virtual system."

"For the first time, a design's RTL implementation can replace an ideal model without sacrificing performance," remarked Peter Magnusson, Founder and CEO of Virtutech. "Simics can now be used for architecture development, performance modeling, and software validation on the RTL hardware model."

About the Integration

Carbon's SPEEDCompiler™ software creates a high-performance engine-DesignPlayer—from a design's synthesizable Verilog and/or VHDL. The DesignPlayer-Simics integration allows one or more DesignPlayers to be called directly from the Simics ISS.

Unlike a traditional simulator, DesignPlayer is a simulation client—it doesn't control system time. The surrounding simulation environment-Simics-controls system time, which greatly minimizes the integration complexity. The Simics-DesignPlayer combination can run millions of instructions per second, since DesignPlayer only executes when it is called by the Simics ISS. This single master-of-time architecture removes the multiple-master performance bottleneck inherent in co-simulation.

DesignPlayer can represent one or more chips and multiple engines can represent a system that encompasses hundreds of millions of gates. DesignPlayer is a soft-model that is accurate to the hardware-cycle and register accurate. Unlike behavioral models or C models generated from an ideal specification, DesignPlayer behaves exactly like the hardware with all its errata.

Hardware designers now have the cycles they need to run complete regression suites before chip tapeout. Software designers can finally test and debug their code on a high performance, cycle accurate, linkable model. Customers get an executable specification that contains the silicon errata for system integration and test.

About Virtutech

Virtutech is the world's leading provider of full-system simulation technology. Virtutech is the only company using advanced virtualization technology to model test laboratories of hundreds of heterogeneous systems, deployable across all engineering tasks. Based on more than a decade of R&D and close collaboration with leading universities and systems companies, Virtutech's core product-Simics 2.0-provides the most advanced infrastructure for virtualizing complex digital systems, serving the needs of the largest systems companies in the world. Virtutech is headquartered at 1740 Technology Drive, Suite 460, San Jose, CA 95110. For more information, visit www.virtutech.com or email info@virtutech.com.

About Carbon Design Systems

Carbon is delivering software products that enable high-performance pre-silicon chip and system validation. Carbon's single engine solution-DesignPlayer-can be used for hardware, software, and customer design validation. The DesignPlayer engine boosts hardware regression performance and validates drivers, diagnostics, and firmware up to 50X faster with cycle and register accuracy. A low-cost executable or linkable model can be deployed across the enterprise and to customers without the encumbrances of a slow simulator.

Carbon's new approach shortens schedules and accelerates time-to-profit by enabling validation to occur in parallel with hardware development. Product schedules can be cut significantly, with validation starting as early as the first stable RTL. Problems are found and resolved before fabrication-rather than waiting for custom models to be built or silicon to be delivered.

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