

Virtutech® announces breakthrough hybrid simulation capability allowing mixed levels of model abstraction

Supports advanced Freescale QorIQ™ P4080 multicore processor; hybrid simulation infrastructure leverages proven Simics® simulator

ORLANDO, Fla. (Freescale Technology Forum) – June 16, 2008 – To solve the critical need for performance analysis and optimization of the system-on-chip (SoC) model when developing for complex multicore processors, [Virtutech, Inc.](#), the leader of virtualized software development (VSD) solutions for electronic systems, today announced [a hybrid simulation capability](#) that supports multiple levels of model abstraction within its Simics simulation environment.

This capability provides a fully reversible and deterministic simulation environment for easy experimentation with partitioning, parallelizing and optimizing systems and applications. The first implementation of this capability supports the advanced eight-core [QorIQ P4080 processor](#) from Freescale Semiconductor. Freescale will demonstrate the Simics hybrid simulation capabilities together with Freescale's cycle accurate model of the QorIQ P4080 processor at this week's Freescale Technology Forum in Orlando.

The Virtutech hybrid simulation approach allows engineers to analyze, debug, profile and execute their applications in a fast, TLM-based, functionally accurate model and then switch to the cycle-accurate model when they want to perform precise performance analysis on critical sections of their application. In addition, by incorporating the golden model from a semiconductor vendor such as [Freescale](#), developers have the benefit of using an accurate timing model provided by the source of the SoC instead of a less valid one developed by a third party.

“Our demanding markets need highly sophisticated multicore processors, but they also need the necessary capabilities and tools to leverage the performance of these devices,” said Lynelle McKay, senior vice president and general manager of the Networking and Multimedia Group at Freescale. “By working closely with Virtutech, we are bringing new levels of development capabilities to developers so that they can reduce their time to market and build high-quality products that fully leverage the performance of our QorIQ platforms.”

A crucial advantage of the Simics hybrid solution is its ability to mix detailed and fast models both temporally and spatially. This allows software developers to mix models at different levels of abstraction within the same simulation session and to switch between them in order to instantaneously analyze specific areas of interest. Using a hybrid solution also enables developers to run a full operating system on the cycle-accurate model without having to model all peripheral devices in full clock-cycle-accurate detail. In addition, Simics enables the user to

add fast models of other machines and pure network simulators into the same virtual network as the hybrid device.

“Our customers report increasing interest in multicore solutions, but at the same time they are challenged to successfully deploy sophisticated SoCs.

As a result, they are requesting companies like Virtutech to work side-by-side with semiconductor companies like Freescale,” said John Lambert, CEO of Virtutech, Inc. “Only with the unique Virtutech and Freescale hybrid simulation capability can customers become empowered to solve the complex issues of deploying multicore and have a high level of confidence that the solution will meet their design and performance goals.”

An informal survey conducted by Virtutech and Freescale at the 2008 Embedded Systems Conference (ESC) found that software and hardware architects are shifting their development focus from a purely performance perspective to optimization and increased flexibility on a multicore processor. For VSD platforms, cycle approximate models affect the timing behavior of the hardware so that users can determine performance metrics from their software running on the system; however, the lack of speed and difficulty in testing using this method makes it impractical from a user perspective.

“Advanced multicore processors, such as Freescale’s QorIQ P4080, require innovative approaches to software development,” said Markus Levy, president of the Multicore Association. “Semiconductor companies must do more than just integrate more processor cores on a chip and expect their customers to figure out the rest. Freescale’s partnership with Virtutech shows that the hardware designers are thinking ahead and helping to solve problems for software developers. Without this kind of collaboration, multicore processors cannot realize their full potential. Furthermore, Freescale’s extensive involvement with the Multicore Association will help to ensure that its partners’ tools will be more capable of handling the challenges of multicore development.”

About QorIQ communications platforms

Freescale QorIQ communications platforms are the next-generation evolution of Freescale’s leading PowerQUICC® communications processors. Built using high-performance Power Architecture® cores, Freescale QorIQ platforms enable a new era of networking innovation where the reliability, security and quality of service for every connection matters. The Freescale QorIQ platforms and roadmap consist of five platforms (P1, P2, P3, P4 and P5) that include single-, dual- and many cores to offer customers a choice of solutions, whether they are ready to move to multicore today or want a smart migration path to get there in the future. For more information about QorIQ platforms, visit www.freescale.com/multicore.

About Virtutech

Virtutech, Inc. is the leader in product development process improvement through virtualized software development (VSD). Virtutech Simics® allows for a revolutionary change in the product development process at a full system level rather than a component level and is the only commercial solution that delivers the four most important criteria for successful deployment of hardware virtualization in the electronics equipment development process: speed, scalability, model availability, and control. Simics customers report reduced time to market, better project risk management, lower capital expenditure, product development cost and maintenance as well as increased quality and individual productivity. Virtutech serves the needs of the world's leading OEMs in the high-performance computing, aerospace and defense, telecommunications, networking and semiconductor industries. Customers include Cisco, Ericsson, Freescale Semiconductor, GE Avionics, Honeywell, IBM, Lockheed Martin, Nortel, Northrop Grumman, MontaVista and Wind River. Virtutech is an active participant in organizations to drive adoption of VSD such as ARM Connected Community, Eclipse.org, IBM PartnerWorld, Power.org, OSCI and Spirit Consortium. Virtutech is headquartered in San Jose, Calif. For more information, visit www.virtutech.com.

About Freescale Semiconductor

Freescale Semiconductor is a global leader in the design and manufacture of embedded semiconductors for the automotive, consumer, industrial, networking and wireless markets. The privately held company is based in Austin, Texas, and has design, research and development, manufacturing or sales operations in more than 30 countries. Freescale is one of the world's largest semiconductor companies with 2007 sales of \$5.7 billion (USD). www.freescale.com.

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