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OSCI Welcomes Adoption of SystemC AMS 1.0 Standard Inside Industrial Design Flows for Mixed-Signal System Design

NXP Semiconductors, STMicroelectronics and Infineon Technologies Implement SystemC AMS Extensions for the Creation of Mixed-Signal Virtual Prototypes

DATE CONFERENCE - GRENOBLE, France - March 15, 2011 - The Open SystemC Initiative (OSCI), an independent non-profit organization dedicated to supporting and advancing SystemC as an industry-standard language for electronic system-level (ESL) design, announce the continuing industry adoption of the SystemC Analog/Mixed-Signal (AMS) 1.0 Standard for mixed-signal system-level design. Recognized industry leaders NXP Semiconductors, STMicroelectronics and Infineon Technologies, are integrating SystemC AMS extensions into their respective ESL design methodologies and mixed-signal design flows. The primary need is to enable the creation of mixed-signal virtual prototypes, where abstracted AMS models can be combined with the digital hardware/software subsystem for efficient and effective verification and validation of the entire system.

As part of a collaborative effort to extend the mixed-signal design flow with ESL design and verification, NXP, ST and Infineon contributed actively to the creation of OSCI's AMS Working Group in 2006, with the objective to develop a SystemC-based language extension for AMS. Together with the participation of OSCI members and key contributors from research institutes and universities--Ecole Polytechnique Fédérale de Lausanne (EPFL), University Pierre and Marie Curie Paris (UPMC), Vienna University of Technology and Fraunhofer IIS/EAS Dresden--the SystemC AMS 1.0 language standard was released by OSCI in March 2010.

"I am extremely pleased to see a continuous growth in the use of SystemC AMS extensions to create mixed-signal virtual prototypes," said Martin Barnasconi, Chair of the OSCI AMS Working Group and Product Manager of AMS System Design Methodologies at NXP Semiconductors. "As a leader in High Performance Mixed Signal, NXP's products have an excellent combination of analog and digital functionality. Standardized SystemC-based mixed-signal design methodologies are vital to architect these compelling and competitive products."

In addition to the standardization effort, cooperation within a **European MEDEA+/Catrene project, "Beyond DREAMS,"** was established to address the need for a structured design refinement methodology for AMS systems, using the SystemC AMS extensions as foundation technology. This methodology development was the basis for the OSCI SystemC AMS User's Guide that was released as part of the SystemC AMS 1.0 standard. Within this project, OSCI member The Fraunhofer Institute for Integrated Circuits IIS, developed an AMS reference implementation which is fully compliant with the SystemC AMS 1.0 standard.

"Many concepts developed by the Beyond DREAMS project have been incorporated in the OSCI SystemC AMS 1.0 Standard and are now freely available for the entire community to use," said Serge Scotti, project leader of the Beyond DREAMS project and Analogue Mixed Signal Centre of Competence Leader at STMicroelectronics.

"SystemC AMS is paving the way to develop virtual embedded analog and mixed-signal platforms to accelerate system-level validation, thus guaranteeing a direct path to silicon implementation," said Pier Luigi Rolandi, Analogue Mixed-Signal CAD Flows and Tools Department Director, STMicroelectronics. "This will help our customers significantly reduce design iterations and consequently design costs, to deliver innovative and complete system solutions on time."

As a next step, NXP, ST and Infineon have started integrating the SystemC AMS implementation into their design flows, combining it with in-house commercial ESL tools. As these tools already natively support the SystemC language standard, IEEE Std. 1666-2005, the AMS reference implementation has been integrated seamlessly by compiling it against these commercial SystemC compatible simulators.

"The SystemC AMS reference implementation developed by Fraunhofer is a big step forward to bring SystemC AMS standardization closer to the EDA tooling landscape, which helps to cope with the challenges of semiconductor design," said Wolfgang Scherr, Principal Engineer at Infineon Technologies. "The use of the SystemC AMS implementation within our existing and proven system-level and IC design flow is of great value. The changes are very minimal and extend the flow not only for in-house conceptual design—but also provide a standardized, flexible and effective path towards virtual mixed-signal IC prototyping for our customers."

Experts from NXP, STMicroelectronics and Infineon will present their industrial design flow and applications at the first-ever SystemC AMS Day to be held May 12 in Dresden, Germany. During this complimentary one-day event, system design engineers, modeling experts, EDA suppliers and verification architects will join together to show the true benefits

of using the SystemC AMS 1.0 standard as the new system-level modeling language for mixed-signal ESL design and verification. Visit www.systemc.org for further information and to register.

Work continues within the AMS working group, and OSCI anticipates broadened tool support of the SystemC AMS standard by EDA suppliers as part of the continuing evolution of SystemC in enabling system-level standards and methodologies for analog mixed-signal design.

About SystemC and OSCI

The Open SystemC Initiative (OSCI) is an independent, not-for-profit association composed of a broad range of organizations dedicated to supporting and advancing SystemC as an open industry standard for system-level modeling, design, and verification. SystemC is a language built in C++ that spans from concept to implementation in hardware and software. For further information about SystemC and OSCI visit www.systemc.org.

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