

**INDUSTRY QUOTE SHEET**  
**March 19, 2013**

**Accellera Systems Initiative completes SystemC AMS 2.0 standard  
for mixed-signal design of electronic systems**

**ASTC**

“With increasing systems integration, most embedded SOCs today contain increasing analog and mixed-signal IP content, while analog ICs are integrating more intelligence and programmability. The traditional separation of analog and digital design is in decline, with increasing mixed-signal design complexity. The SystemC AMS 2.0 standard is critical in transcending the traditional boundaries and unifying development at the highest system level. It will decrease the risk of mismatched expectations in integration and A/D boundary failures, while promoting system-level design and verification. ASTC is committed to support the new standard.”

*Mario Cavaiuolo, Vice President, AMS and ASIC Solutions, ASTC*

**Cadence**

“Designers face increased challenges at the analog/digital interface and need to consider the software powering today's complex multicore designs. Raising the level of abstraction, as with the SystemC AMS extensions, will allow designers to make more efficient tradeoffs between speed and accuracy for the next-generation systems and SoCs.”

*Stan Krolikoski, Distinguished Engineer, Cadence Design Systems*

**CircuitSutra**

“CircuitSutra is a company focused on SystemC-based ESL methodologies and covers all of the use cases of SystemC including Virtual Platform for Embedded software development, architectural exploration, verification and high-level synthesis. SystemC AMS is a very important component in the ESL flow; it can be used to develop fast models of analog components at higher abstraction level and thus hence enables the virtual prototyping of the complete SoC that includes digital and analog components. The power and performance optimization requires evaluation of the functioning of all analog and digital components working together with the embedded software running on the SoC.”

*Umesh Sisodia, CEO, CircuitSutra Technologies Pvt Ltd*

**Continental**

“Automotive systems development is driven by the need for fail-safe, reliable and affordable systems. Their growing complexity makes system-level modeling and verification an essential

part of the development process. SystemC AMS represents an important component of Continental's methodology for verifying safety-critical automotive electronic systems."

*Alfred Schuster, Director Electronic Systems Development, Continental, Chassis&Safety, Electronic Brake Systems*

*Stephane Fregosi, Engine Systems Innovation Manager, Continental, Powertrain, Engine Systems Electronics*

### **Dizain-Sync**

"The SystemC AMS 2.0 standard is a key enabler that allows modeling of analog functionality both at high level and with high detail so that the models can be used in virtual platforms based on SystemC and verification environments based on UVM. Dizain-Sync supports the SystemC AMS ecosystem by including SystemC AMS in Dizain-Sync's training portfolio. By offering methodology and verification consultancy services, Dizain-Sync supports customers successfully using SystemC AMS together with existing flows based on SystemVerilog, VHDL/Verilog-AMS, analog netlists, SystemC TLM and OVM/UVM."

*Gert-Jan Tromp, Senior Consultant, Dizain-Sync*

### **Doulos**

"The SystemC AMS 2.0 language standard provides a very important bridge between the analog and digital worlds, enabling some of the benefits of ESL simulation to be enjoyed in the context of analog and mixed-signal modeling. SystemC AMS is an inspired and forward-thinking standard. By enabling very fast simulation of complete systems, including analog and digital hardware and software, SystemC AMS is very relevant to those electronic system businesses that are taking a more holistic view of the AMS design process."

*John Aynsley, CTO, Doulos*

### **DSPlogic**

"At DSPlogic, high-level modeling and efficient simulation of DSP algorithms is a critical part of our development and validation process. The Timed Data Flow model of computation in SystemC-AMS provides just this capability for a very important class of DSP algorithms. The utility of SystemC AMS for DSP systems, even those without analog or mixed-signal components, should not be overlooked."

*Michael Babst, President, DSPlogic*

### **European SystemC User Group (ESCUG)**

"The European SystemC User Group congratulates you on the availability of the new SystemC AMS 2.0 standard! With the ongoing expansion of SystemC's modeling capabilities to new

design levels and modeling domains, the analog and mixed-signal world has early become an important focus of the community's investigations. In combination with advanced abstraction techniques and transaction-level modeling mechanisms, the new SystemC AMS 2.0 standard forms a powerful platform for efficient and domain-crossing electronic system-level design. The European SystemC User Group has accompanied the SystemC AMS activities and development from its early days. Therefore ESCUG dedicates this year's ESCUG Friday workshop at DATE to the new SystemC AMS 2.0 standard!"

*Wolfgang Rosenstiel, Head of the European SystemC User Group*

### **Fraunhofer IIS/EAS**

"As an associate member of Accellera Systems Initiative, Fraunhofer IIS/EAS very much welcomes the update of the SystemC AMS standard. It is essential for our work as a research institution with focus on design and design methods for heterogeneous systems. For us, SystemC AMS is perfect to model and simulate at higher levels of design abstraction. That is why we also contributed the proof-of-concept as the first implementation satisfying the SystemC AMS 1.0 to the community and developed our design environment COSIDE based on the standard. We are convinced that the new functions and improvements of the 2.0 standard will contribute to the ongoing success story of SystemC AMS."

*Dr. Peter Schneider, Director Design Automation Division (EAS), Fraunhofer Institute for Integrated Circuits (IIS)*

### **Indian SystemC User Group (ISCUG)**

" Digital – Analog Mixed Signal Modeling is an opportunity for the semiconductor industry for pre-silicon validation of system-level use cases and enables time-to-market for products. The SystemC AMS standard has the right abstractions defined for modeling analog designs of circuits and logic. It further leverages the SystemC engine and allows easy interoperability with SystemC/TLM2 which is the de-facto standard today for Modeling Digital Circuits / Processors and Micro-Controllers. The speed of simulation compared to SPICE modeling helps with system-level validation."

*Umesh Sisodia, Chair Organizing Committee, ISCUG*

*Amit Nene, Chair Technical Review Committee, ISCUG*

### **Infineon Technologies**

"SystemC AMS has been integrated into Infineon's current design flow. Together with the existing SystemC standards and extensions, a complete modeling solution is available for every concept and application engineer as well as hardware and software designer at Infineon. This is an important step to deal with the challenges of combined development of systems incorporating analogue, digital and firmware disciplines."

*Robert Czetina, Vice President Development Center Automotive Villach, Infineon Technologies Austria AG*

### **Intel**

“As we interact more with the analog world, inclusion of AMS peripherals becomes essential to analyze increasingly complex wireless and communication systems. The SystemC AMS 2.0 standard makes it easier to understand and optimize the functionality of the entire embedded system. It allows system designers to go beyond the analysis of digital hardware and software interaction. SystemC AMS 2.0 will enrich the ESL flow ecosystem, and it enables us to efficiently design and verify extended virtual prototypes with Mixed-Signal and RF models.”

*Shishpal Rawat, Director Business Enabling Programs, Design Technology Solutions Group, Intel*

### **International Rectifier**

“International Rectifier welcomes the release of the SystemC AMS 2.0 standard and appreciates the openness and transparency of this new AMS modeling platform. SystemC AMS has enabled us to easily add our own debug libraries to our top level mixed-signal simulations. Traditionally we were used to looking at VCD dump files to debug our designs. Now we are able to add our own debug API, such as socket streams to an external recording agent, to debug our designs efficiently without having to post process vast amounts of data.”

*Rajat Mitra, Lead Engineer for Mixed Signal Verification, International Rectifier*

### **Lantiq**

“Lantiq is using SystemC-AMS from its very first beginnings with very big success. SystemC is providing the high abstraction level which is required to model complex systems during system simulation. With SystemC-AMS it is possible to include analog models at this high abstraction level and with the combination of SystemC including TLM (transaction-level modeling) with AMS (Analog/Mixed Signal) we have a very powerful method for our system simulation. With SystemC AMS 2.0 we see further improvements, especially interesting are the variable time-steps.”

*Craig Joseph Garen, Senior Vice President of Global R&D, Lantiq*

### **Magillem Design Services**

“The release of the SystemC AMS 2.0 standard will present great benefits for industries in the domain of analog and digital system integration. Magillem Design Services has been actively involved during the development of this standard in order to facilitate its interoperability and joint deployment with IP-XACT IEEE 1685, another standard from Accellera Systems Initiative. Magillem is proud to provide a leading EDA front end for assembling mixed virtual platforms in SystemC AMS 2.0.”

*Cyril Spasevski, CTO and Founder, Magillem Design Services*

### **Mentor Graphics Corporation**

“We are pleased Accellera Systems Initiative has approved and released its SystemC AMS extensions standard to support analog/mixed-signal multi-disciplinary systems models. The SystemC AMS extensions standard fills a critical need to raise AMS modeling abstraction and represents a major step forward for SystemC and the global community of users.”

*Dennis Brophy, Director, Strategic Business Development, Mentor Graphics Corporation*

### **North American SystemC User’s Group (NASCUG)**

"Members of the North American SystemC Users Group (NASCUG) welcome the announcement of SystemC AMS 2.0. It is widely recognized that today’s complex systems increasingly integrate both analog and digital aspects. Thus, for true system-level modeling, one cannot ignore either side of the equation. NASCUG supports exchange of ideas and discussion on mixed-signal systems, and looks forward to presentations from the SystemC AMS community at future meetings. NASCUG's next meeting will be at the Design Automation Conference, for which a call-for-presentations is just now going out."

*David Black, Chair Organizing Committee, NASCUG*

### **NXP Semiconductors**

“As chair of the SystemC AMS working group, NXP has been driving this AMS standardization initiative for many years, resulting in the release of the SystemC AMS 2.0 standard today. SystemC AMS offers a valuable addition to established AMS and ESL modeling approaches, especially to address the design and verification challenges of complex mixed-signal integrated circuits and systems. With the availability of the SystemC AMS 2.0 standard, we will continue to expand the use of SystemC-centric design methodologies to create mixed-signal virtual prototypes, which are a vital technology to deliver NXP’s compelling High Performance Mixed-Signal products to the market.”

*Frank Bouwman, Senior Director Design Methodologies Group, NXP Semiconductors*

### **OFFIS**

“SystemC AMS provides a great modeling and simulation framework for integrated heterogeneous systems. The SystemC AMS 2.0 standard brings new capabilities for advanced behavioral modeling (e.g., multi-rate systems) and higher maturity for improved industrial acceptance. We at OFFIS see it as a major stepping stone towards a design methodology for cyber-physical systems. In our research we work on seamlessly integrating extra-functional properties such as power, temperature and aging into SystemC AMS models.”

*Frank Oppenheimer, Director R&D Division Transportation, OFFIS*

### **STMicroelectronics**

“SystemC AMS in conjunction with SystemC TLM is a powerful way to develop Virtual embedded Analog and Mixed-signal platforms to accelerate system-level validation and thus guarantying a direct path to silicon implementation. This will help our customers to significantly reduce design iterations, and consequently design costs, to deliver on time innovative and complete system solutions.”

*Pierre Dautriche, Director AMS IP & Flow, STMicroelectronics*

### **Synopsys**

“Version 2.0 of the SystemC AMS standard brings the ability to handle dynamic systems to the timed data flow model. This means SystemC AMS now offers the same system reactive capability that other standard AMS-related languages (VHDL-AMS, Verilog-AMS, MAST) provide, while preserving the architecture abstraction inherent in the SystemC language. This capability will improve the interoperability with these standard languages to provide the full spectrum of system behavior.”

*Yatin Trivedi, Director, Standards and Interoperability Programs, Synopsys, Inc.*

### **Universities - Academic Connection Program**

“The universities united in the SystemC AMS Academic Connection Program welcome the new SystemC AMS 2.0 standard that significantly broadens scope and impact. By introducing SystemC AMS into our educational programs, we pave the path for new methodologies that enable higher productivity in the design community. The Academic Connection Program promotes free documentation, tutorials and other materials to help educate students and designers, boost research and support the creation of new lectures.”

*François Pecheux, Université Pierre & Marie Curie, Paris, France*

*Christoph Grimm, Technical University of Kaiserslautern, Germany*

*Rene van Leuken, Delft University of Technology, The Netherlands*