

Accellera Systems Initiative SystemC Standards Update

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Presentation Overview

- Accellera Overview
 - Membership list
 - How to join a WG
 - Global SystemC events
- Number of IEEE-1666 standard downloads
- Accellera SystemC Working Group updates
 - Language & Transaction-Level Modeling
 - Configuration, Control & Inspection
 - Synthesis
 - Analog/Mixed-Signal
 - Verification

All Members Can Join SystemC WGs!

Corporate Members



Associate Members



Join A Working Group And Contribute!



Navigation bar: About Us, Technical Activities, Downloads, Community, Resources, News & Events, Workspace

Member Sign Up: Overview, Working Groups, IEEE Activities, Acronyms and Definitions

Google Custom Search: Search

Home » Technical Activities » Working Groups » SystemC Synthesis

SystemC Synthesis Working Group (SWG)

Charter

This group is responsible for the definition of a synthesizable subset of SystemC.

Chair: Andres Takach, Mentor Graphics
Vice-Chair: Michael Meredith, Cadence

Background

Since the last public review of the Synthesis Subset (version 1.3 which was released in August 2009), draft 1.4 has been updated to improve the clarity of what constructs are supported. The draft was reviewed and updated based on the IEEE 1666-2011 SystemC language standard. Updates were done in all sections including support for C++ constructs and SystemC modules, processes, clocks, resets and datatypes.

The SystemC Synthesizable Subset Version 1.4 was open for public review and comment until July 13, 2015. Community feedback on the draft is now being considered for the next release of this standard. Although the period to submit comments has ended, the preview document can be downloaded [here](#). The release of version 1.4 will be announced soon.

Join this Working Group

If you are an employee of a member company and would like to join this working group, [click here](#) (requires login) and click Join Group. WG participation requires right of entry by the group chair.

QUICK LINKS

- [Download SystemC Synthesizable Subset Draft 1.4](#)
- [SystemC Community](#)
- [Group working area](#)

Left sidebar menu: Overview, Working Groups, Interface, IP Tagging, IP-XACT, Multi-Language, Open Core Protocol (OCP), OVL (Open Verification Library), Portable Stimulus, SystemC AMS (Analog/Mixed-Signal), SystemC CCI (Configuration, Control & Inspection), SystemC Language



SystemC Community

- Online at <http://accelera.org/community/systemc>
- Community forums, upload area for contributions, SystemC news

Overview

SystemC

About SystemC

SystemC TLM

SystemC AMS


SystemC CCI

UVM

Home » Community » SystemC

SystemC

SystemC addresses the need for a system design and verification language that spans hardware and software. It is a language built in standard C++ by extending the language with a set of class libraries created for design and verification. Users worldwide are applying SystemC to system-level modeling, abstract analog/mixed-signal modeling, architectural exploration, performance modeling, software development, functional verification, and high-level synthesis.



COMMUNITY LINKS

- Download SystemC
- Forums
- Uploads
- Working Groups
 - Language
 - AMS
 - TLM
 - CCI
 - Synthesis
 - Verification

Global SystemC Presence 2015+

- DVCon US **March** in Silicon Valley
- DAC **June** in San Francisco
- SystemC Japan **June** in Shin-Yokohama
- DVCon India **September** in Bangalore
- DVCon Europe **November** in Munich
- Accellera Day Taiwan **December**, location TBA



IEEE 1666 SystemC Downloads

IEEE STANDARDS ASSOCIATION



IEEE Standard for Standard SystemC® Language Reference Manual

IEEE Computer Society

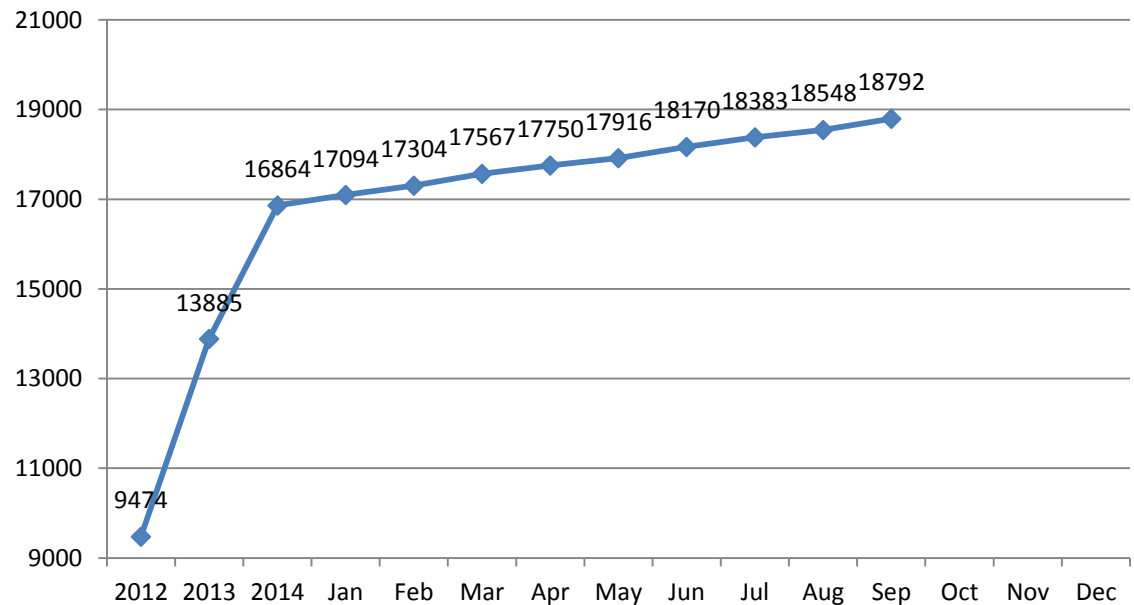
Sponsored by the
Design Automation Standards Committee

IEEE
3 Park Avenue
New York, NY 10016-5997
USA

9 January 2012

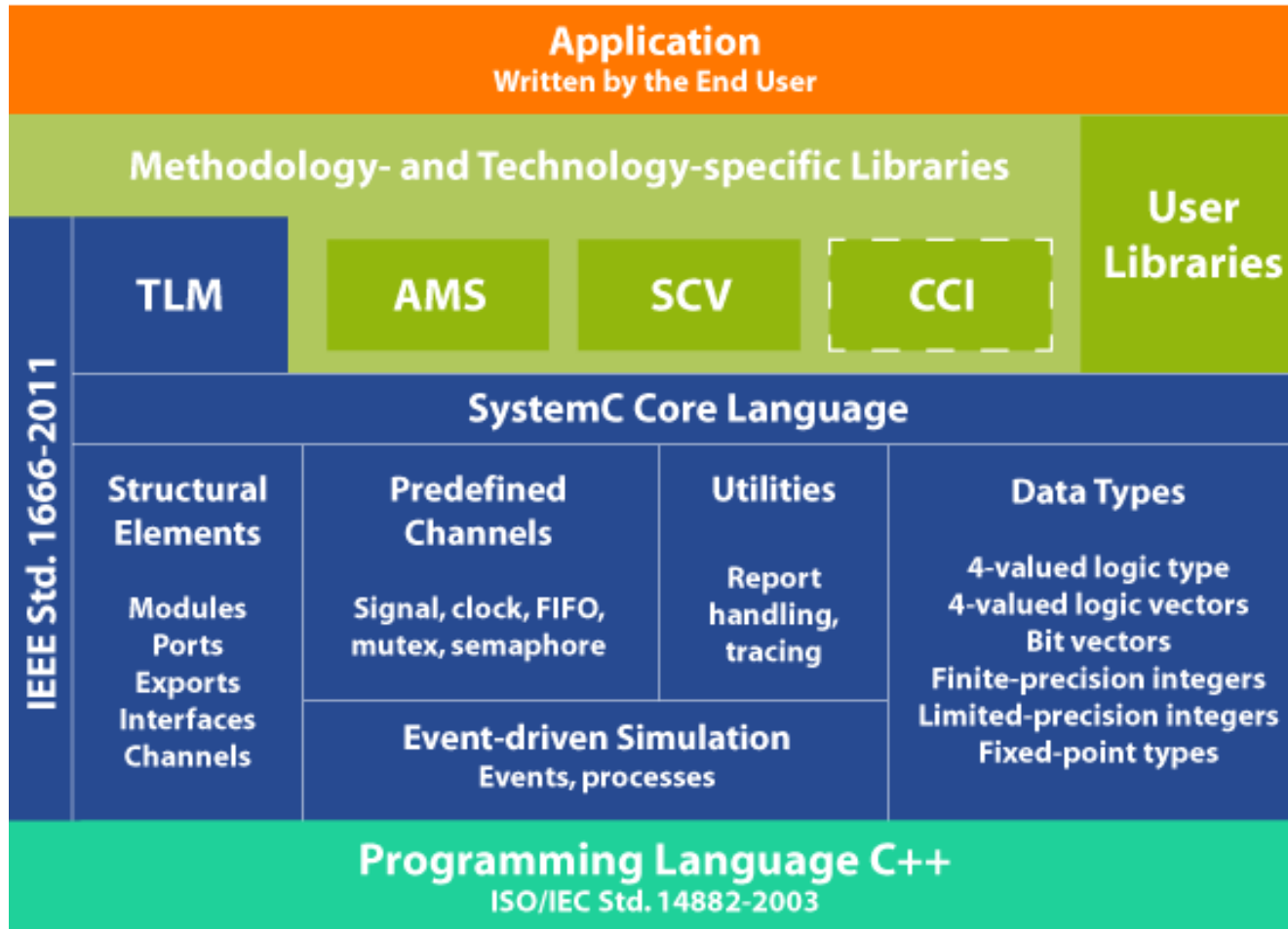
IEEE Std 1666™-2011
(Revision of
IEEE Std 1666-2005)

Cummulative Downloads - 2012-15



<http://standards.ieee.org/getieee/1666/download/1666-2011.pdf>

SystemC Overview



--- CCI standardization effort is underway

SystemC Language Working Group

- **Charter:** Responsible for the definition and development of the SystemC core language, the foundation on which all other SystemC libraries and functionality are built.
- **Current status**
 - SystemC/TLM 2.3.1 released in April 2014
 - Currently collecting, addressing, refining proposals and errata towards IEEE 1666-201x
 - Adding extensions to the core language (e.g. as needed by other SystemC-related WGs)
- **Plans for 2015/2016**
 - Continue work on necessary standards extensions for parallelization of SystemC simulations (contributors wanted!)

SystemC TLM Working Group

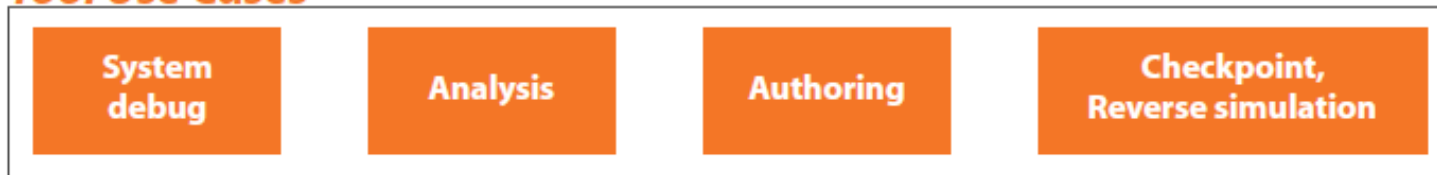
- **Charter:** The Transaction-level Modeling Working Group (TLMWG) is responsible for the definition and development of methodology and add-on libraries for transaction-level modeling in SystemC.
- **Current status**
 - Accellera TLM-2.0 became part of IEEE 1666-2011, PoC implementation 2.0.3 bundled with SystemC 2.3.1
- **Plans for 2015/2016**
 - Work on TLM interfaces, extensions, and guidelines to improve modeling of protocols beyond memory-mapped I/O
 - „TLM signals“; serial, bi-directional communication, ...

SystemC Synthesis WG

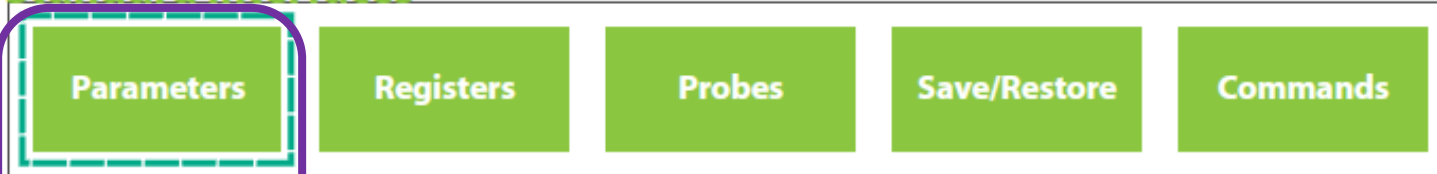
- **Charter:** To define the SystemC synthesis subset to allow synthesis of digital hardware from high-level specifications.
- **Current status**
 - Public review of SystemC Synthesizable Subset 1.4 completed in **July 2015**
 - Processing feedback from review
 - <http://workspace.accelera.org/apps/org/workgroup/swg>
- **Plans for 2015/2016**
 - Release of standard targeted for **Q4 2015**
 - Start work on new topics for the second version of the standard

Configuration, Control & Inspection WG

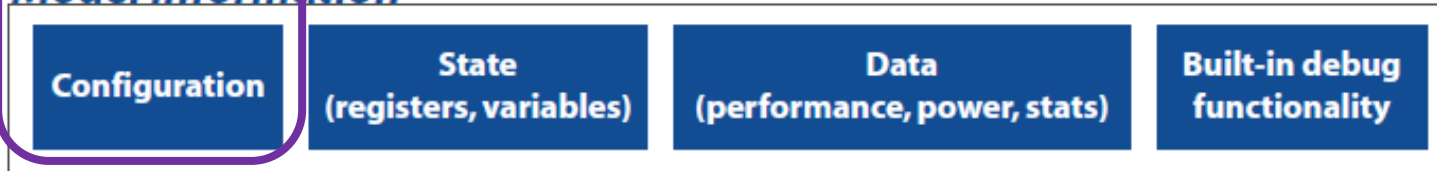
Tool Use Cases



Standard Interfaces



Model Information



WG is defining these

Initial Focus

Goal: Standardizing interfaces between models and tools

CCI WG Status

- Configuration standard status
 - Requirements specification, available on Accellera web site
 - Proof-of-Concept Implementation, educational examples
 - Key improvements identified
 - Technical previews available:
 - ISCUG '13: http://www.iscug.in/iscug2013_agenda_tutorials
 - DVCON '13: <http://events.dvcon.org/events/proceedings.aspx?id=144-2-T>
- Working to prepare a 2016 draft standard public review
 - Make identified improvements
 - Complete the Library Reference Manual (LRM)

SystemC Analog/Mixed-Signal WG

- **Charter:** The SystemC AMS Working Group is responsible for the standardization of the SystemC AMS extensions, defining and developing the language, methodology and class libraries for analog, mixed-signal and RF modeling in SystemC
- **Current status**
 - IEEE P1666.1 SystemC AMS Working Group completed draft for ballot in IEEE-SA (October 2015)
 - New features under development (e.g. piece-wise-linear modeling, tracing customization, analog solver parameters)
- **Plans 2015/2016**
 - Approval of IEEE 1666.1-2016 by IEEE-SA
 - Publish User's Guide update based on SystemC AMS 2.0

SystemC Verification WG

- **Charter:** The Verification Working Group (VWG) is responsible for defining verification extensions to the SystemC language standard, and to enrich the SystemC reference implementation by offering an add-on libraries (SystemC Verification (SCV) library, etc.) to ease the deployment of a verification methodology based on SystemC.
- **Current Status**
 - Released version 2.0 of SystemC Verification library (SCV) in April 2014
- **Plans for 2015/2016**
 - Integrate the UVM verification methodology in SystemC
 - Standardization of coverage APIs (coverage groups, bins, etc.)
 - Further explorations of needs regarding SystemC/TLM

UVM in SystemC

- Native UVM implementation in SystemC
- Language Reference Manual finished
- Open source proof-of-concept implementation in public beta later this year
 - Already available to working group members
 - Please join us if you are interested!
- See Fraunhofer's tutorial (coming up next here!)
“UVM Goes Universal - Introducing UVM in SystemC”

Advancing Standards Together

- Share your experiences
 - Visit www.accelera.org and register to post on community forums at forums.accelera.org
- Show your support
 - Record your adoption of standards
- Become an Accellera member
 - Join working groups
- Join **SystemC Birds-of-a-Feather Meeting** today!
 - 18:30 – 19:30, room **forum 8**
 - Current and future needs for SystemC/TLM, SystemC and C++14, ... and your **favorite topics!**

Questions