



# SystemC Community Update

NASCUG 13  
June 13, 2010

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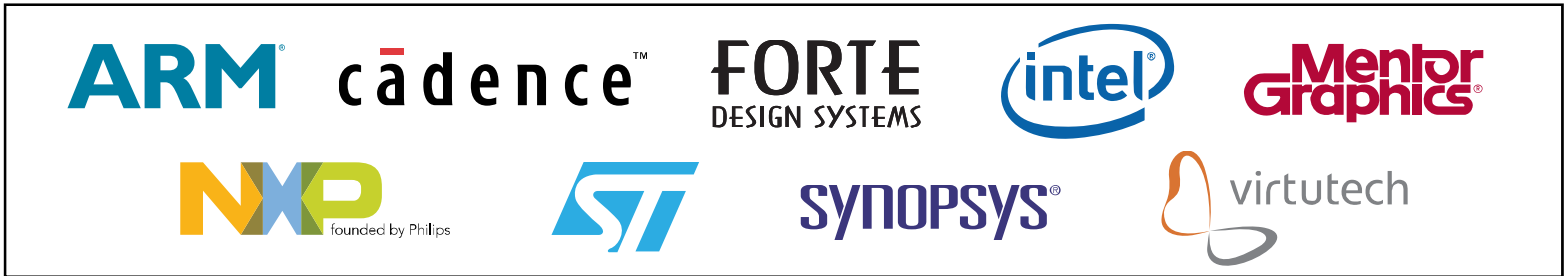
# Outline

- Update on the OSCI organization, events and activities
- Technical Working Group updates
  - Synthesis
  - Language
  - Transaction-Level Modeling (TLM)
  - Analog/Mixed-Signal (AMS)
  - Configuration, Control and Inspection (CCI)
- Video Tutorials Available
  - TLM-2.0 in Action Video Tutorial



# OSCI Membership

**Corporate  
Members**



**Associate  
Members**



**33 members**

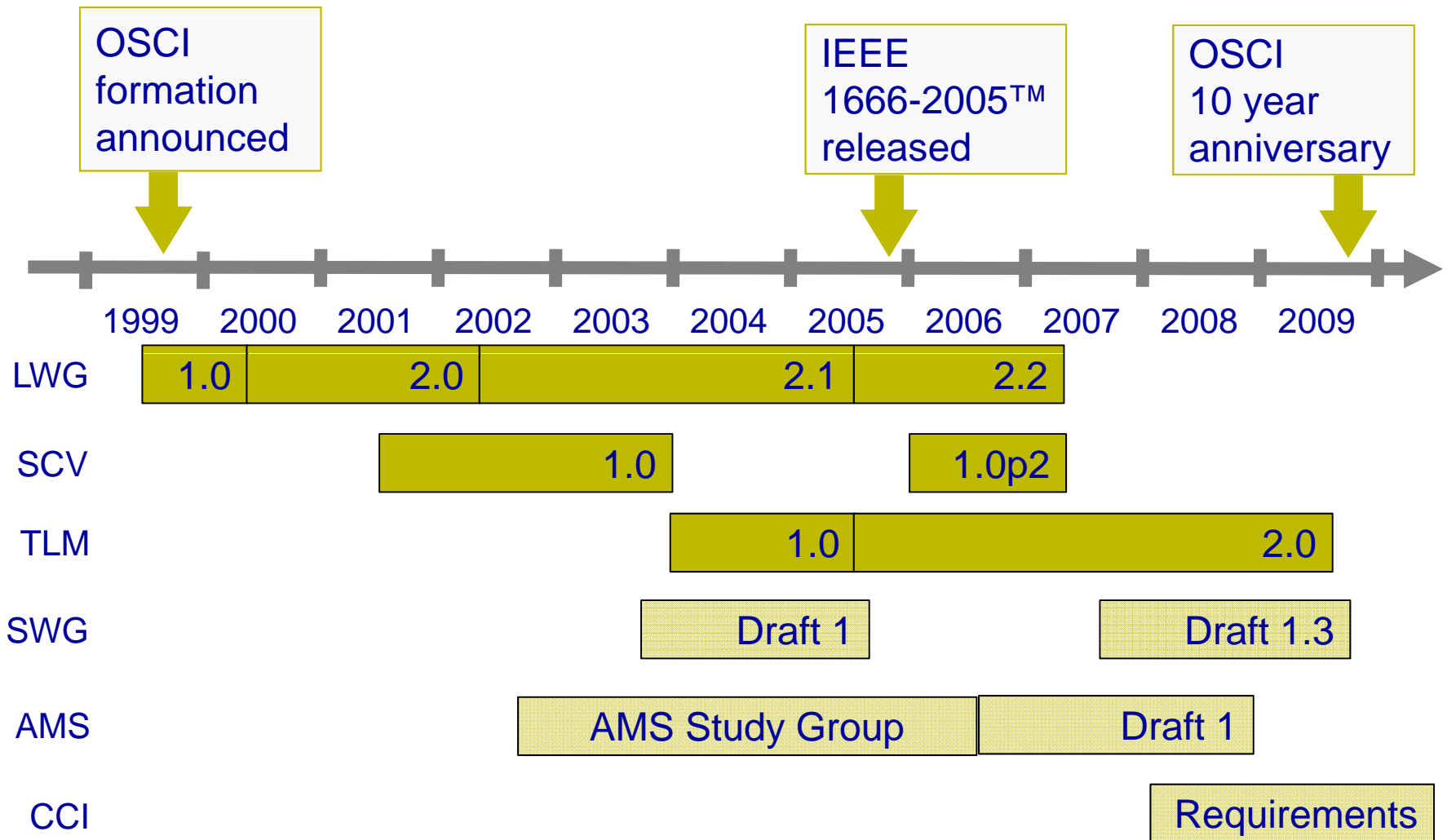


# Broad-based User Community

- SystemC User groups are worldwide
  - European SystemC User Group
  - Annual SystemC Users meeting in Japan
    - ◆ Previously by JEITA
    - ◆ Starting this year by OSCI
  - North America SystemC User Group
  - Latin America SystemC User Group in Brazil
  - India SystemC User Group
  - Taiwan SystemC User Group
    - ◆ First meeting 2009



# OSCI Standards History



# SystemC Events And Activities 2009

- End Draft 1 AMS public review
- Start Draft 1.2 Synthesis Subset public review

- TLM-2.0 Reference Manual
- Synthesis Subset Draft
- Results of AMS Draft 1 Public Review

CCI WG formed

- Public reviews of:
- AMS Draft 1 std.
  - CCI requirements

Q1 '09

Q2 '09

Q3 '09

Q4 '09

FEATURED EVENT

JEITA SystemC  
User's Forum  
EDS Fair  
Yokohama, Japan

FEATURED EVENT

ESCUG 19  
DATE  
Nice, France  
April 21, 2009

FEATURED EVENT

NASCUG 11  
SystemC Live!  
Town hall Meeting  
DAC – July 27

FEATURED EVENT

TSCUG 1!  
Hsinchu Taiwan  
Nov 16

FEATURED EVENT

NASCUG 10  
DVCon  
San Jose, CA  
February 24, 2009

FEATURED EVENT

SystemC Japan  
Shin Yokohama,  
Japan  
July 10, 2009

FEATURED EVENT

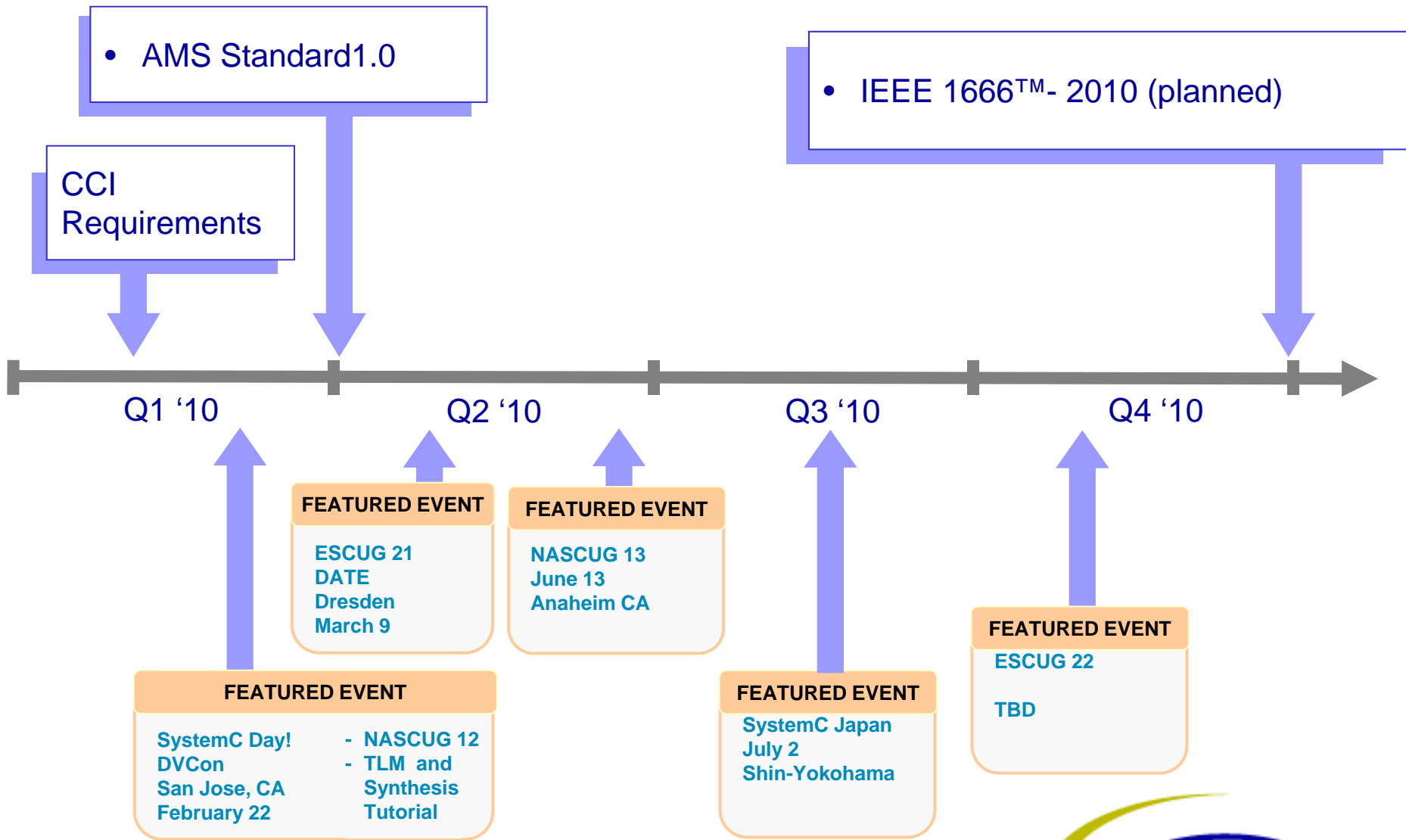
LASCUG 2  
Brazil  
Aug 30

FEATURED EVENT

ESCUG 20  
Grenoble  
Dec 1



# SystemC Events And Activities 2010





# Synthesis WG Update

- Public review of draft 1.3 underway! Updates include:
  - Supported language constructs established
  - Added section on processes, clocks, resets
  - Added discussion on abstraction levels to introduction
  - Simplified and clarified
- Tutorial at DVCon Feb 22 San Jose CA

Download: [http://www.systemc.org/downloads/drafts\\_review/](http://www.systemc.org/downloads/drafts_review/)

Feedback: [http://www.systemc.org/Discussion\\_Forums/synthesis\\_forum/](http://www.systemc.org/Discussion_Forums/synthesis_forum/)

Chair: Andres Takach, Mentor



# Language WG Update

- Interest in IEEE 1666 Standard continues strong
  - 27,793 total downloads of IEEE 1666-2005 LRM
  - 4217 downloads Jan 1, 2009 to May 31, 2009
- Current LWG activity
  - Preparing a bug-fix release, focusing on incompatibilities between SystemC 2.2 and IEEE 1666-2005 LRM
  - Members and non-members can report these at:
    - ◆ [http://www.systemc.org/about/contact\\_us/](http://www.systemc.org/about/contact_us/)

Chair: Mike Meredith, Forte



# Transaction-Level Modeling WG Update

- TLM-2.0 released June 9, 2008; experiencing rapid adoption
  - 8,818 downloads as of 6/25/09
  - Includes Users Guide, implementation and examples
  - Encompasses:
    - ◆ Approximately Timed (AT) & Loosely Timed (LT) modeling
    - ◆ Temporal Decoupling
    - ◆ Direct Memory Interface
    - ◆ Debug Transactions
    - ◆ Extensible Base Protocol for modeling memory mapped buses
- Public release of TLM-2.0 Reference Manual
  - Accompanied by TLM library: release 2.0.1.

Chair: Bart Vanthournout, CoWare

# Analog/Mixed-Signal WG Update

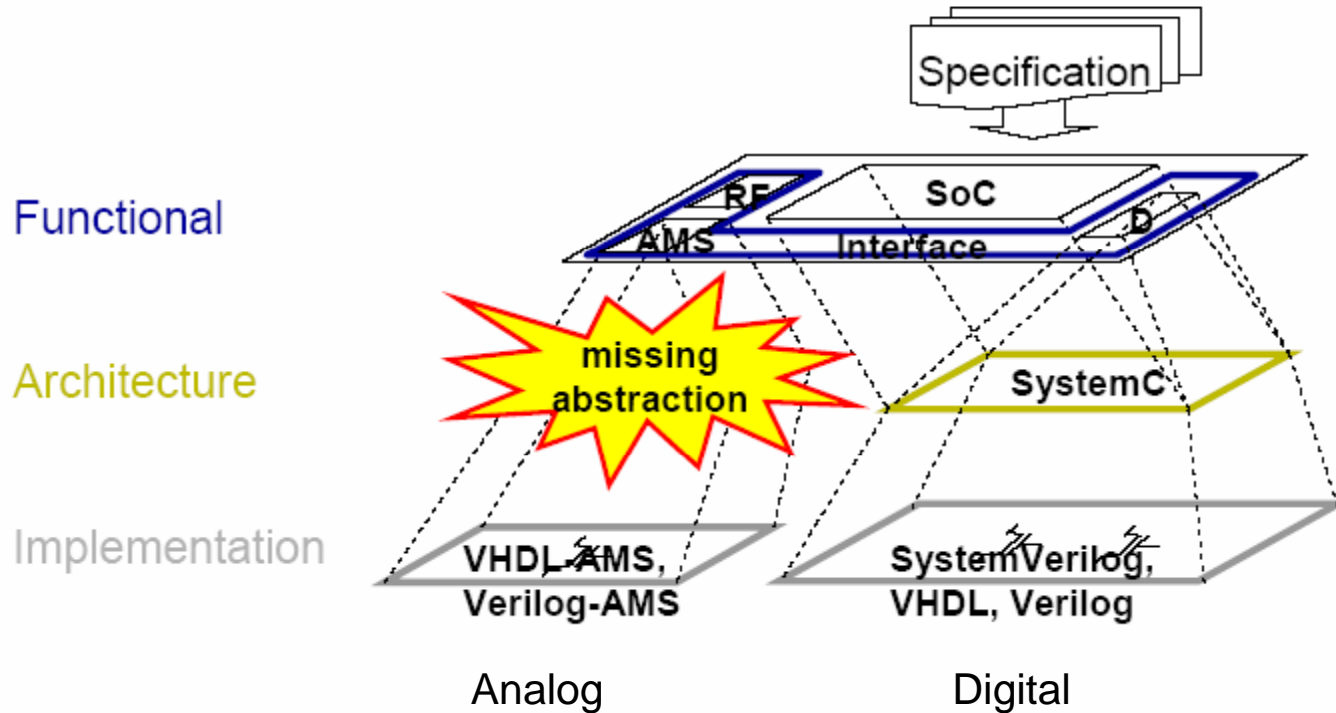
- AMS Standard 1.0 Released
  - LRM and requirements specification
  - Whitepaper “An Introduction to Modeling Embedded Analog/Mixed-Signal Systems using SystemC AMS extensions”
  - <http://www.systemc.org/downloads/standards/ams10/>
- Adoption
  - Open source implementation available from Fraunhofer Institute
  - <http://systemc-ams.eas.iis.fraunhofer.de/>
- Steady membership growth: 53 individuals from 19 organizations
  - Solid support from semi industry, universities and EDA/ESL vendors

Chair: Martin Barnasconi, NXP Semiconductors

Vice-Chair: Christoph Grimm, Vienna University of Technology



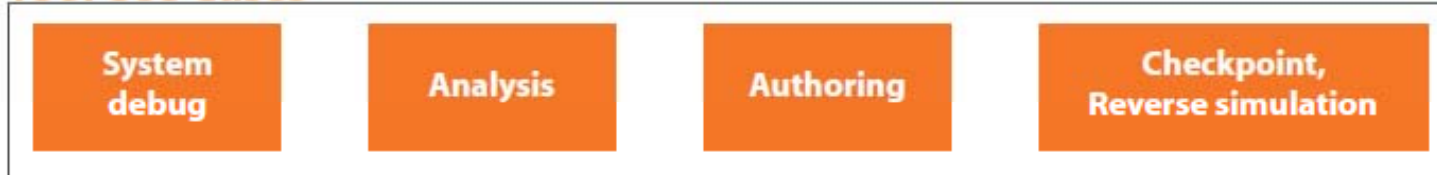
# SystemC-AMS Will Supply The Missing Abstraction



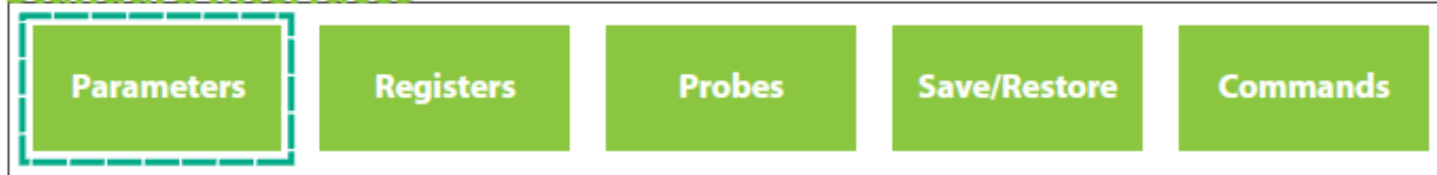
# Configuration, Control & Inspection WG

Standardizing interfaces between models and tools

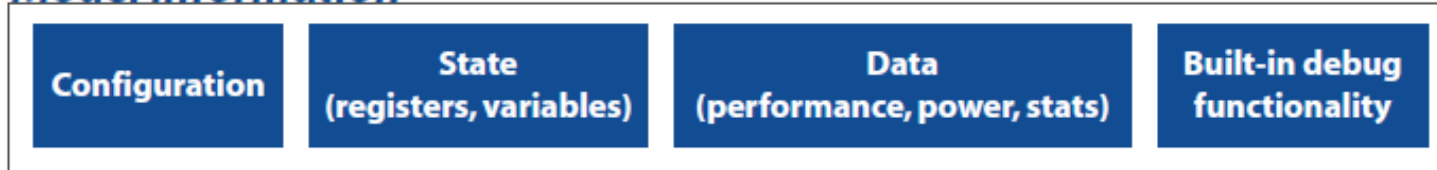
## Tool Use Cases



## Standard Interfaces



## Model Information



Chair: Trevor Wieman, Intel. Vice-Chair: Bart Vanthournout, CoWare

# Configuration Parameter Requirements



- Available for public review Feb. 22, 2010
- A sampling of key requirements:
  - Parameter information (type, description, default value, value's origin, etc.)
  - Parameter lookup
  - Parameter types (immutable, elaboration-time, mutable)
  - Parameter lifetimes
  - Precedence for overriding parameter values
  - Notification of parameter value changes
  - Locking parameter values
  - Parameter access control (read-only, hidden, etc.)
  - Portable parameter value encoding
- Feedback and discussion highly encouraged via the `cci_forum`

# IEEE P1666 Activity

- SystemC standards activity outside OSCI
- IEEE P1666 has begun meetings to discuss an update to IEEE™ 1666-2005 Standard for SystemC
- Items under consideration include
  - Errata
  - Incorporation of TLM-2 API
- Interested parties should contact IEEE P1666 chair: Stan Krolikoski [stanleyk@cadence.com](mailto:stanleyk@cadence.com)



# Video Tutorials



## ■ TLM-2 In Action Tutorial

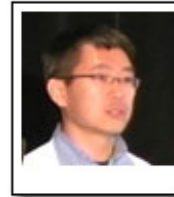
- From DVCon 2009
- 5 Technical presentations
- Examples and in-depth details
- Benefits new and experienced designers



David Black  
XtremeEDA



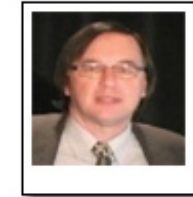
John Aynsley  
Doulos



Zhu Zhou  
Intel



Frank Schirmeister  
Synopsys



Jack Donovan  
XtremeEDA

## ■ NASCUG 11 Presentations

- 4 technical presentations
- Tutorial: Using TLM-2 extensions



Luca Ferro  
TIMA Laboratory



Karsten Einwich  
Fraunhofer IIS/EAS



David Black  
XtremeEDA



William Gnad  
Lockheed Martin

## ■ NASCUG 12 Presentations

- SystemC Synthesis workshop videos from DVCon

Available at: <http://www.systemc.org/news/videos>



# Summary

- OSCI continues to advance the ESL industry with SystemC standards
- Synthesis Subset draft 1.3 in public review now
- TLM-2.0 is seeing rapid adoption across the ecosystem
  - New TLM-2.0 in Action video tutorial
  - TLM-2.0 OSCI Reference Manual is now available
- SystemC AMS 1.0 standard is released
- Configuration, Control & Inspection WG released requirements
  - Still time to get in on the ground floor!

Visit [www.systemc.org](http://www.systemc.org) for details!