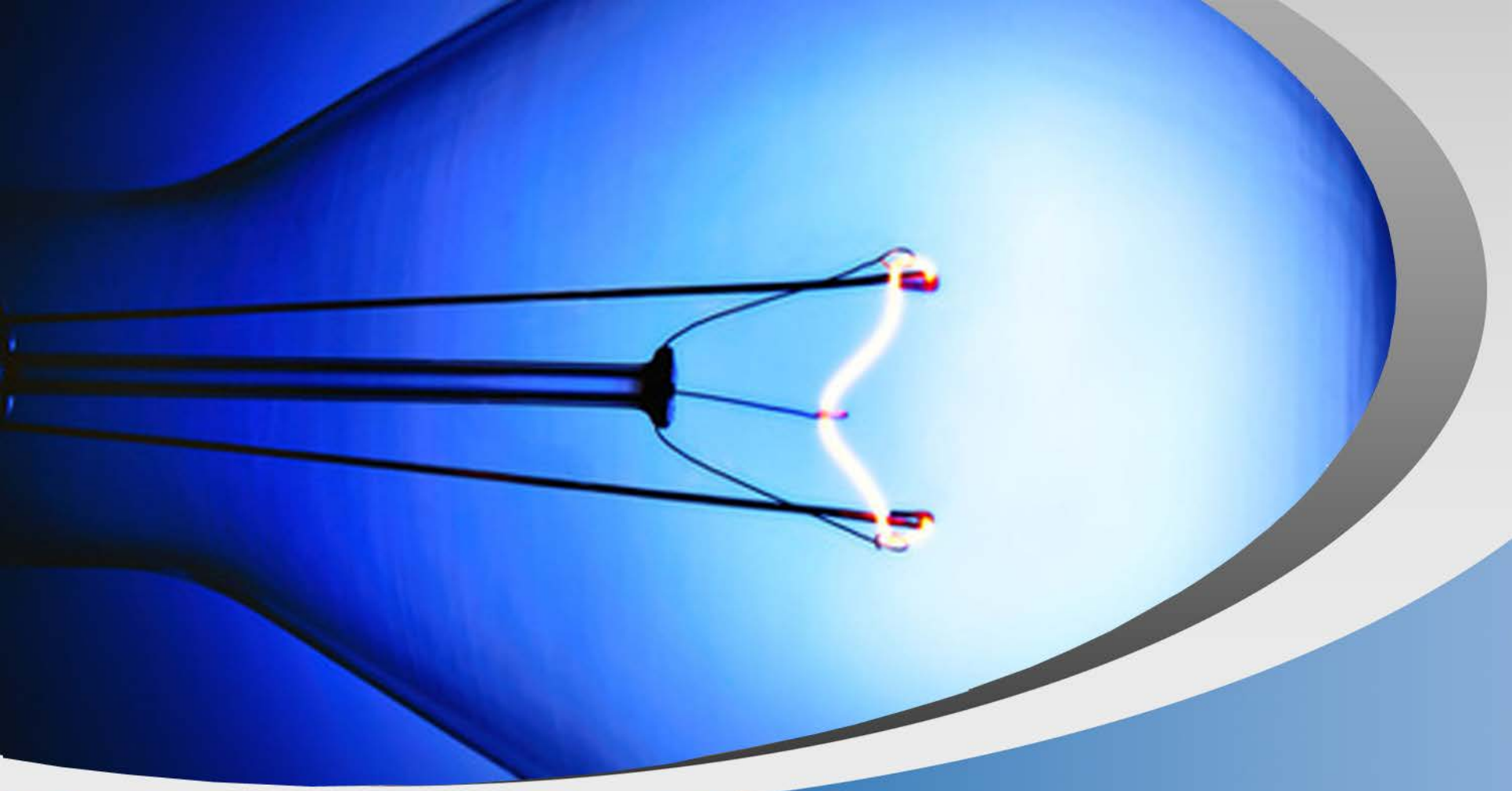


Portable Stimulus Working Group

Authored by the PSWG

Presented by Tom Fitzpatrick
Portable Stimulus Working Group Vice Chair

accellera
SYSTEMS INITIATIVE

Portable Stimulus Working Group (PSWG)

- **Our goals**
  - Enable value and automation for individual teams
  - Allow sharing and executing scenarios across teams and platforms
  - Define a clear and robust semantic for consistent implementation of multiple tools by multiple vendors
- **Group Info**
  - Was officially formed on December 15, 2014 by the Accellera board of directors
  - Chair: Mr. Faris Khundakjie, Intel Corporation
  - Vice-Chair: Mr. Tom Fitzpatrick, Mentor Graphics
  - Secretary: Mr. Tom Anderson, Breker Verification Systems
  - Multiple participating companies

accellera SYSTEMS INITIATIVE

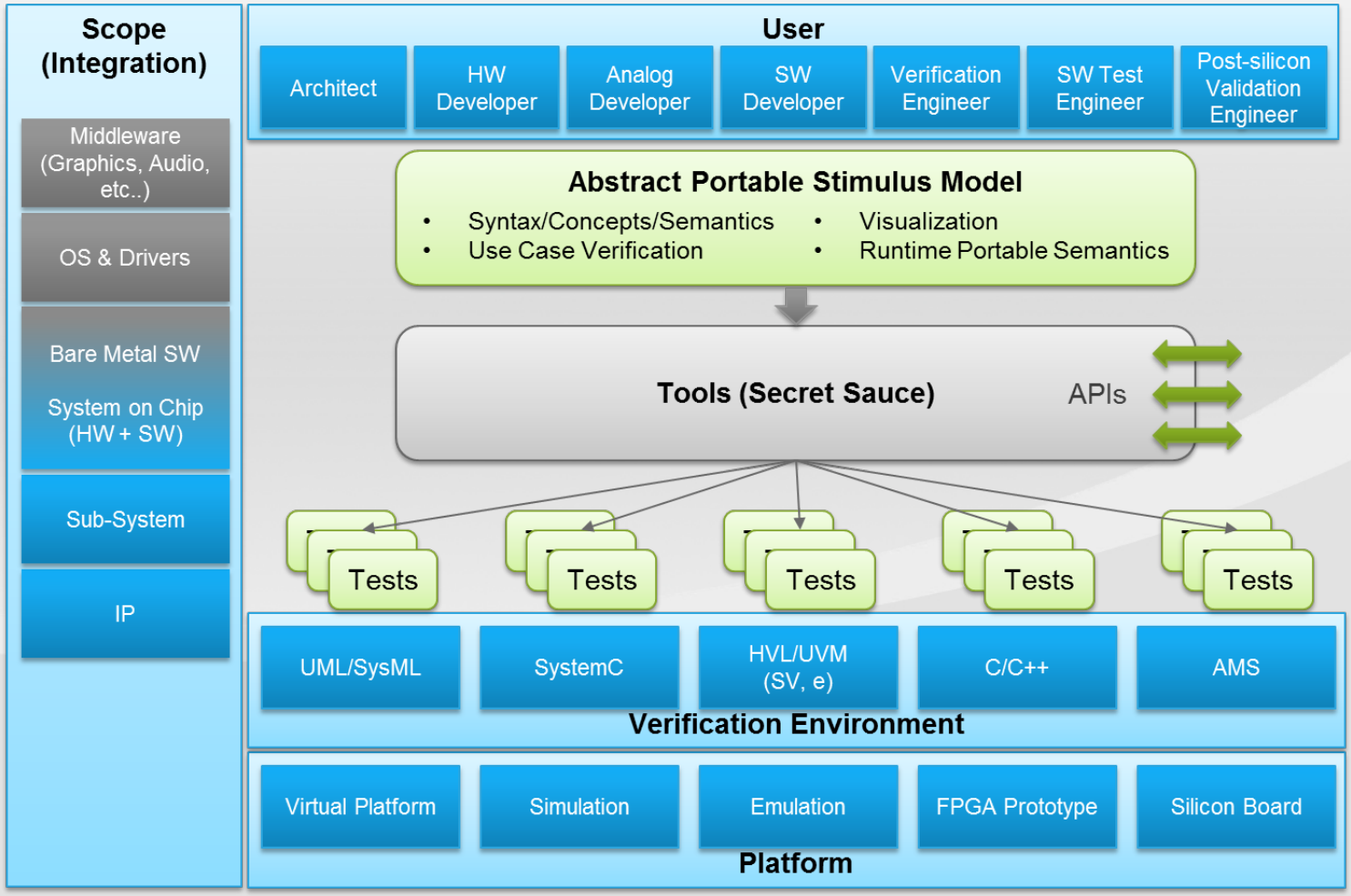
PSWG Active Members

- Agnisys
- AMD
- AMIQ EDA
- Analog Devices
- Breker
- Cadence
- Cisco
- IBM
- Intel
- Mentor Graphics
- NVIDIA
- NXP Semiconductors
- Qualcomm
- Semifore
- Synopsys
- Vayavya Labs

accellera SYSTEMS INITIATIVE

PSWG Vision

Proposed Portable Stimulus Diagram



accellera SYSTEMS INITIATIVE

Solution Requirements and Scope

User Requirements

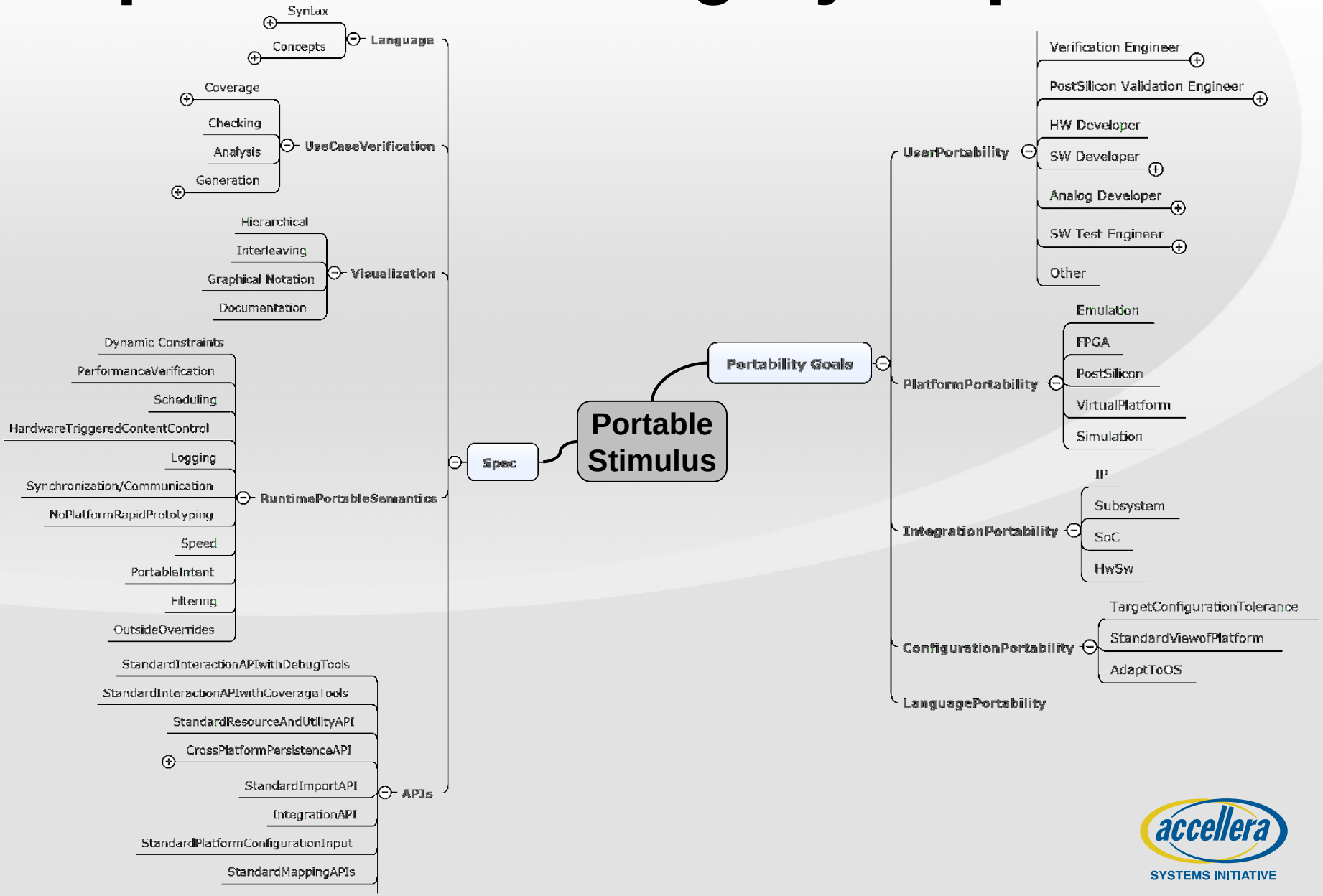
- Collected and prioritized by the proposed working group
- A list of **117** unique solution requirements
- Examples include constraints, inheritance, reuse across platforms, coverage and more

Usage examples to define the problem space

- 17 Concrete use-case examples to help scope the requirements and assess the contributions
- Users and vendors collected both typical and critical challenges
- Meant to be universally recognized as important and also representing a whole class of use cases with similar challenges

accellera SYSTEMS INITIATIVE

Requirements Category Map



accellera SYSTEMS INITIATIVE

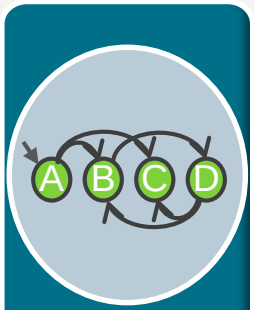
Covering the Spectrum with Usage Examples

DMA allocation for peripherals

Stimulus portability across pad selection connectivity

Memory to memory system data paths

Exhaustive exercise of power states



System aggregated power state validation

- Programmer
- Device
- Architecture
- HW Design
- Performance

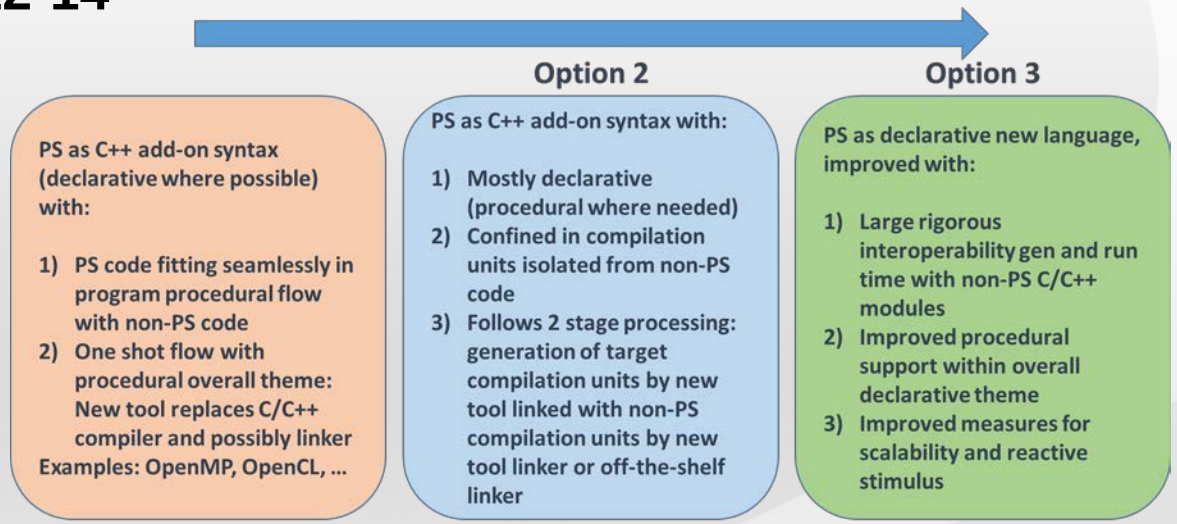
Portability multi-view deployment

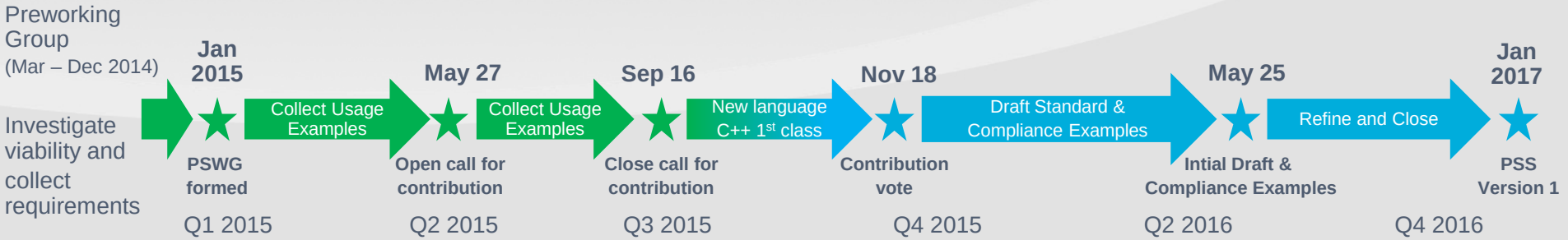
PSS Standard Scope

accellera SYSTEMS INITIATIVE

PSWG Standardization Status and Timeline

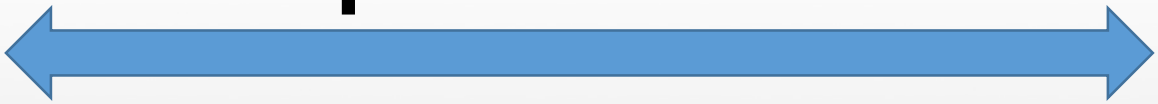
- **PSWG Face to Face Oct. 12-14 Complete, Next Step:**
  - Cadence, Mentor, Breker and Vayavya to work on exploring options 2 & 3 (and their deltas), consult with user companies





accellera SYSTEMS INITIATIVE

Options to Explore – Food for Thought



"Option 2"

PS as C++ add-on syntax with:

1. Mostly declarative (procedural where needed)
2. Confined in compilation units isolated from non-PS code
3. Follows 2 stage processing: generation of target compilation units by new tool linked with non-PS compilation units by new tool linker or off-the-shelf linker

"Option 3"

PS as declarative language, including:

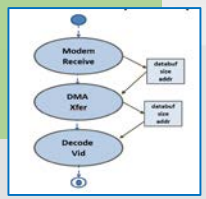
1. Large rigorous interoperability gen and run time with non-PS C/C++ modules
2. Improved procedural support within overall declarative theme
3. Improved measures for scalability and reactive stimulus

accellera SYSTEMS INITIATIVE

Contributions and Collaboration

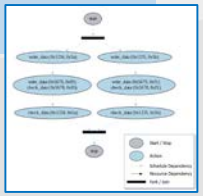
Cadence and Mentor

- Domain-specific language that combines C++ and SV intuitions
- Includes scenario specification and coverage
- Foreign language integration for legacy C++ and/or SV…



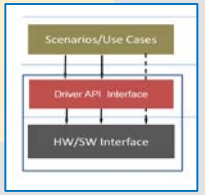
Breker

- Declarative C++ proposal
- Brings value constraints and path constraints into C++



Vayavya

- Complementary syntax to generate register sequences, firmware and driver routines from a canonical/standard HW/SW interface description
- Compatible with either language proposal



accellera SYSTEMS INITIATIVE

PSWG Next Steps

- **Define process to select baseline for the portable stimulus standard**
  - Option 2 or Option 3 proposal

- **Proposal updates to be 100% complete including updates from member comments and questions by mid March**

accellera SYSTEMS INITIATIVE

Summary

- **The Portable Stimulus Working Group is assigned to capture portable stimuli, coverage and checking**
  - Driving toward milestones to have a draft for internal review on May 2016 and 1.0 release in Jan 2017
- **There are multiple existing commercial and internal technologies that address this problem space**
- **Join us in Accellera to ensure that your needs are addressed by the upcoming standard**
- **To learn more about the Portable Stimulus Working Group, visit the accellera SYSTEMS INITIATIVE™ web site**

accellera SYSTEMS INITIATIVE