

SystemC: A User's Perspective, What's Working and What Needs to be Improved

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Usage

- **Early systems architecture exploration**
- **Corner case study**
- **Design change impact evaluation**

Positive Side

- **Reason:**
 - Improve visibility to previously “invisible” areas with reasonable effort and enhanced accuracy
- **What’s working:**
 - Common formal description method effectively covering varied system analysis objectives
 - System abstraction consistency
 - Great foundation for a library-based simulation
 - Standard and C++ based



Area for Improvement

- **Enhance model components portability:**
 - Data flow interface
 - Generic TLM bus interface preserving accuracy and providing flexibility in bus models selection
 - Inter-module functional communication and simulation flow control
 - Off-module process triggering and dynamic parameters sharing
 - User interface
 - Model components configuration
 - Simulation results representation



Area for Improvement: User Interface

- **Requirements:**
 - User-friendly, easy to understand data representation
 - Model data collection, post-simulation analysis, archiving and review
 - Portable across varied SW environments
 - Archiving, analysis and model input/output
 - Simplified data entry effort
 - Re-use and sharing across simulation environments
 - Reduce learning curve
 - Shorten model configuration time
 - Minimize human-related errors



Area for Improvement: User Interface (cont)

- **Proposed Solution:**

- Text-based table-like data representation
 - Stored in a model directory
 - Directly accessed during initialization or on simulation run time
- Required SystemC mechanism for:
 - Direct data reading from a configuration file
 - Direct data saving into a simulation result file
 - Higher than <iostream> or <printf> level
- Need an agreement on preferred data representation method
 - We are using Excel

