

Exploring The “Futures” of SystemC

Analog System C

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My Perspective

- 80's - Dissertation – Computer Architecture
- AFIT – Computer Architecture & Digital VLSI
- Involved in VHDL 7.2 and initial IEEE standardization of VHDL.
- 1990 – joined Ohio State faculty
- Mid 90's – Mixed Signal VLSI
- Last few years – Analog VLSI and RF VLSI

Analog System Design

- System Level
 - Few good tools exist
 - Matlab, Verilog-AMS, VHDL-A
 - Words for these – Low flexibility and hard to model
- Device Level
 - Circuit Language – SPICE, Spectre
 - Other proprietary

Analog System Design

- Use a Programming Language
 - PRO – High Flexibility
 - CON – No built in devices or constructs and no tools!
 - Hard to interface to digital portions of circuit
- Current Possible Solutions
 - Piece systems together
 - Part of system in MATLAB, part in VHDL-A,...

Analog System C

- System C
 - A set of class objects of C++ to allow digital design
 - ESSENTIALLY – “VHDL unrolled”
- Analog System C
 - Would be a set of class object for analog system modeling
 - Could support levels of abstraction for analog
 - System – Behavioral to circuit (~RTL)

Analog/Digital Modeling

