

OpenMAST™

Synopsys TAP-in Program
14th EDA Interoperability Developers' Forum

Chuck McIntyre
October 21 , 2004

OpenMAST Agenda

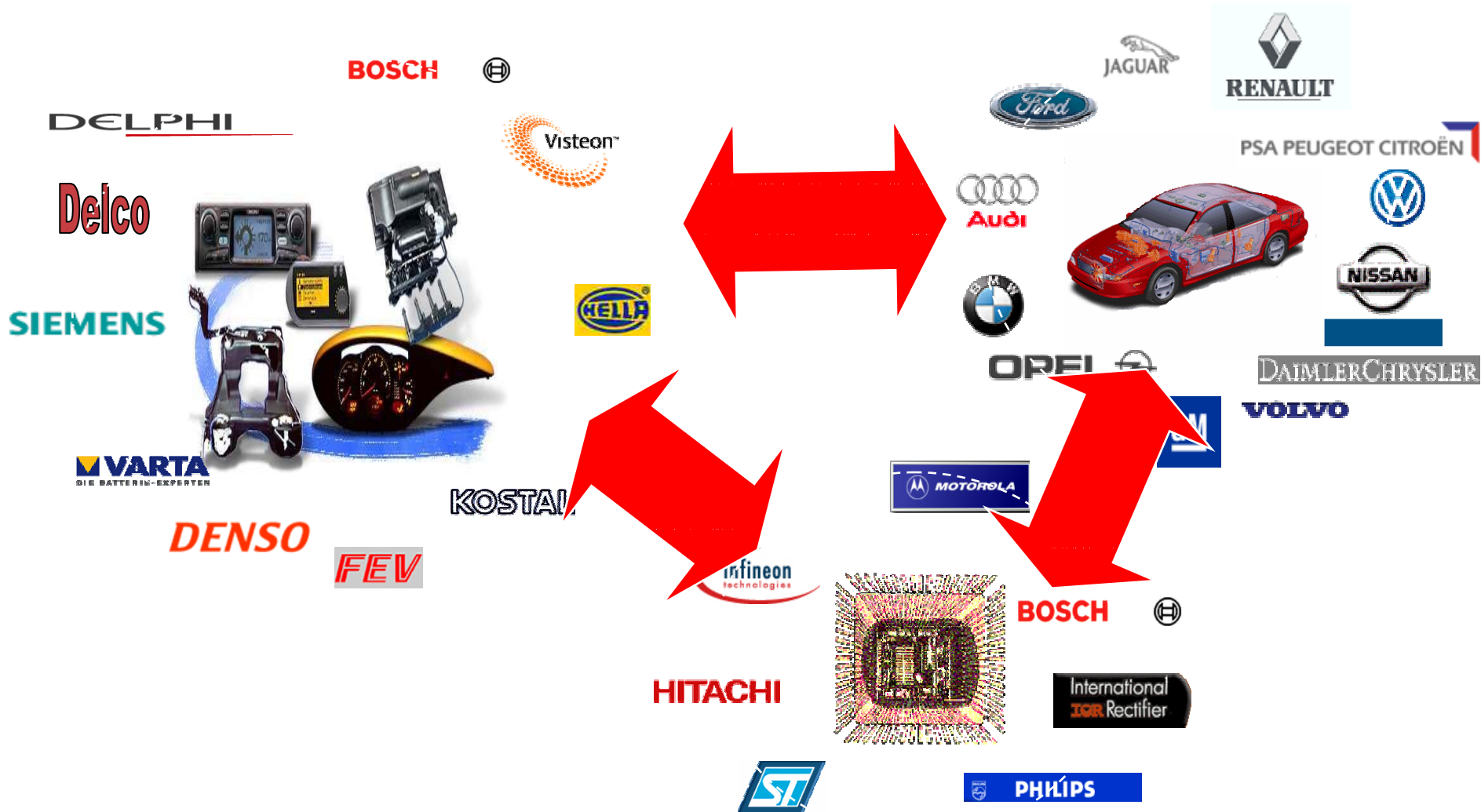
- **Landscape**
- **Standards**
- **Initiative**
- **Opportunity**

Landscape

- **MAST® – A defacto standard Mixed-Signal, Mixed-Technology, Mixed-Level HDL**
- **Interpreted by Saber® Product Applications**
- **In production use by major Automotive and Aerospace Companies**
- **Estimated 100,000 MAST models in use today**
- **Requirement for MAST models passed down from OEMs to suppliers (OEM → 1st tier → 2nd tier → ...)**
- **SAE and industry standards**
- **Proprietary Language until this year**

MAST

A Standard for Model Exchange



Goals of Opening MAST

- **Enable model interoperability between MAST and other standard languages like VHDL-AMS and Verilog-AMS**
- **Enable the exchange of existing models between multiple vendors**
- **Facilitate the creation of new tools supporting the MAST language**

Standards

- **OpenMAST – The open source, public form of MAST**
- **VHDL-AMS**
 - IEEE 1076.1 Analog, Mixed Signal VHDL standard
 - Emerging standard being adopted by major OEMs in the Automotive/Aerospace industries
- **Verilog-AMS**
 - Accellera Standard
 - Limited use in Auto/Aero industries, mostly for supplied IP

Modeling Languages: MAST and VHDL-AMS

Mixed-Signal, Mixed-Technology Capability

- **Industry Standard** languages for creating Saber models
 - MAST: OpenMAST Standard www.openmast.org
 - VHDL-AMS: IEEE Standard 1076.1
- Supports *conserved* and *signal-flow* modeling
- Supports Analog & Digital behavior
- Model domains include *electrical, mechanical, hydraulic, pneumatic, control, magnetic, thermal, optical*, and more

OpenMAST Initiative

- Respond to automotive/aerospace market's demand
- Protect customers' significant investment in models
- Enable third-party libraries and tools
- Available at www.openmast.org
 - Open Source Agreement
 - LRM
 - Open-source parser
 - MAST Portability guide
 - Designers Guide (MAST & VHDL-AMS)
- Available to Customers / Systems & EDA industries

OpenMAST

- **Quote from General Motors:**
 - "To facilitate electrical analysis, open model exchange between GM and its suppliers has long been a goal. To support this effort, there is a tremendous need for modeling standards and the OpenMAST is a step in the right direction," said David Smith, electrical analysis manager at General Motors. "GM was an early user and contributor to MAST and we have been incorporating it into our design flow for more than ten years. OpenMAST formalizes the language and should foster an open system-level modeling and verification environment that incorporates one of the most widely-used mixed-technology modeling languages in our industry."

OpenMAST Opportunity

- **Vendors can develop applications based upon OpenMAST**
 - **EDA Tool Vendors**
 - **Lynguent** -- provider of high-performance software products focused on accelerating and managing
 - ✓ HDL model development
 - ✓ Virtual test bench development.
 - **Coventor** -- Coventor provides industry-leading software tools for the design, optimization, and analysis of micro-scale devices, including (MEMS) and fluidic components and subsystems.
 - **Custom Library Development**
 - **Createch, Inc.** – Createch performs simulations for automotive mixed-technology systems using Saber library elements and custom MAST models.

www.openmast.org

OpenMAST Website - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://www.openmast.org>

OpenMAST SYNOPSIS

Overview Downloads Technical Paper Products News Contact us

operable

OpenMast
Download now!
Guide to Analog
& Mixed-Signal
Modeling

OpenMAST ->
OpenMAST is an open source mixed-technology and mixed-signal hardware description language developed specifically to meet the unique requirements of automotive and aerospace design and verification to significantly improve reliability, robustness and productivity.

In the automotive and aerospace industry, the rising complexity of software-controlled electromechanical systems is driving the need for new verification methodologies using languages such as VHDL-AMS, Verilog-AMS, SystemVerilog, and SystemC. Model libraries are the foundation and key to adoption of any design-verification methodology. With over a hundred thousand existing MAST models in these industries, OpenMAST supports the interoperability of these models in emerging design-verification methodologies helping mature and accelerated adoption. [More >>](#)

NEWS ->
[Synopsys Announces OpenMAST To Foster Open Model Exchange](#)

Trademarks/Copyright ©2004. All Rights Reserved.

Internet