



VaST

SYSTEMS TECHNOLOGY
CORPORATION

Corporate Brief

VaST is at the Intersection of an Electronics Convergence Megatrend

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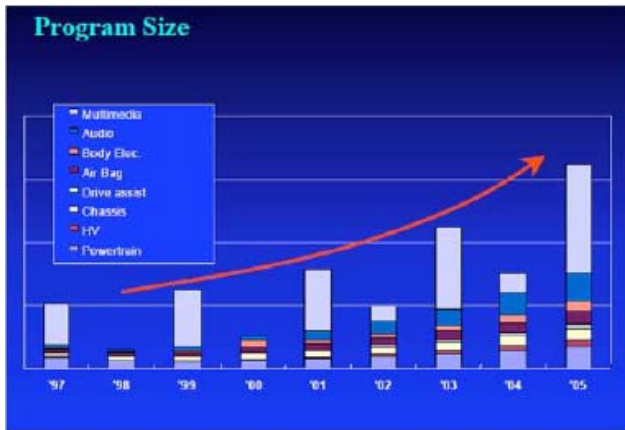
Delivering embedded design solutions that simplify the supply chain through virtualization

VaST's Impact

- Shrink Time to Market
- Shrink Development Cost
- Improve HW and SW Quality

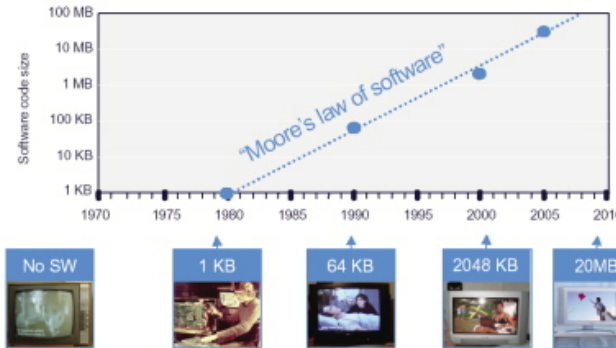


The Software Epoch is Underway



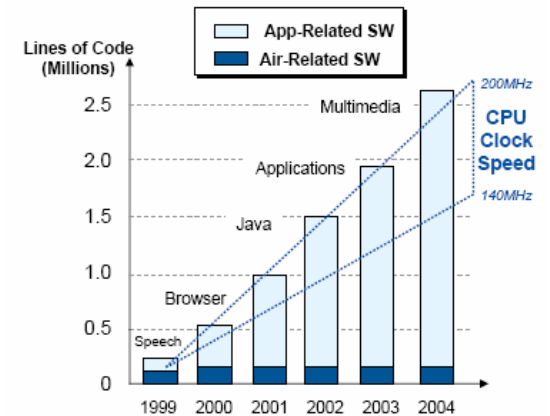
Automotive

The amount of TV software grows exponentially



Consumer

Handsets have become full clients.



Wireless

- Embedded = software programmability
- Software complexity rises exponentially
- Affecting TTM, quality, and product differentiation

Recalls, Warranty Returns,... Software is a Top Business Concern

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The screenshot shows the BusinessWeek online interface. At the top, there's a navigation bar with categories like 'TOP NEWS', 'BW MAGAZINE', 'INVESTING', 'ASIA', 'EUROPE', 'TECHNOLOGY', 'AUTOS', 'INNOVATION', and 'SMALL BIZ'. The date is 'JANUARY 13, 2005' and the article is a 'NEWS ANALYSIS' by Olga Kharif and Roger O. Crockett. The main content area features a 'silicon.com' banner with navigation links for 'Home', 'Management', 'Software', 'Hardware', 'Commentary', 'CIO Jury', 'CxO Extra', and 'Resources'. Below the banner is a search bar and a login section. The article title is 'Applications' and the sub-headline is 'Software glitch stalls Toyota's hybrid'. The text states that 75,000 cars need a check-up. A sidebar on the left lists various services like 'BW Digital', 'BW Mobile', and 'BW Online Alerts'. A 'COMMENTARY' section at the bottom features a photo of Martin Brampton and a link to Peter Cochrane's blog.

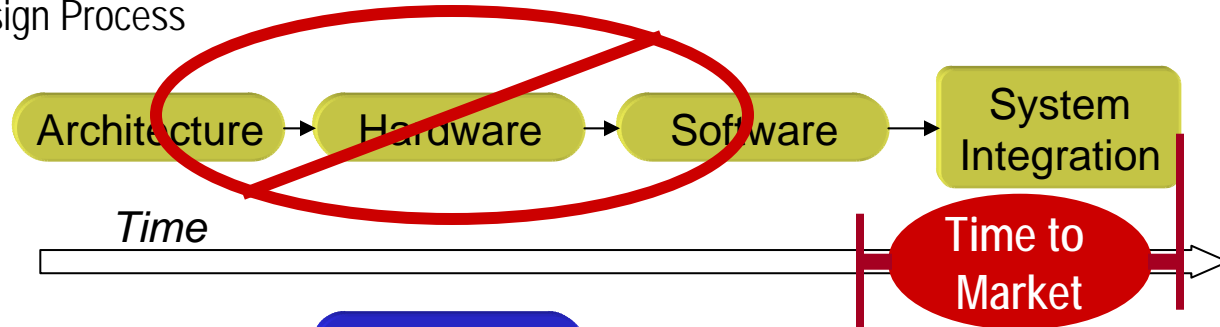
“Quality issues plague **Motorola** too. Recently, it had to **recall** its v710 camera phone, Because software and camera didn't work properly. Sagawa's research shows Motorola's **warranty returns** are about twice as high as Nokia's.

Toyota is asking 75,000 owners of Prius hybrid cars to come in and have their vehicle's software checked.

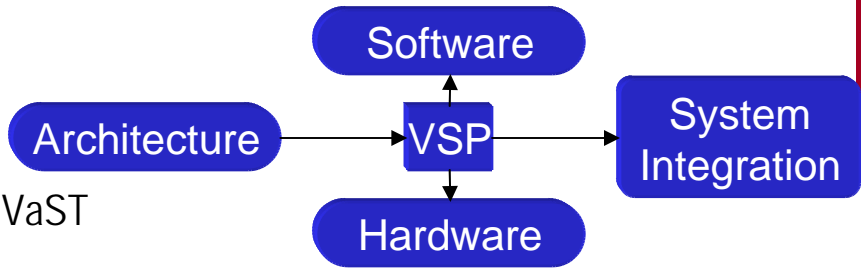
SW Doesn't Have to Wait for HW



Conventional Serial Design Process



Concurrent Design with VaST



- Software growth makes serial design untenable
- Develop software *before silicon availability*



Cut time-to-market by 6-12 months

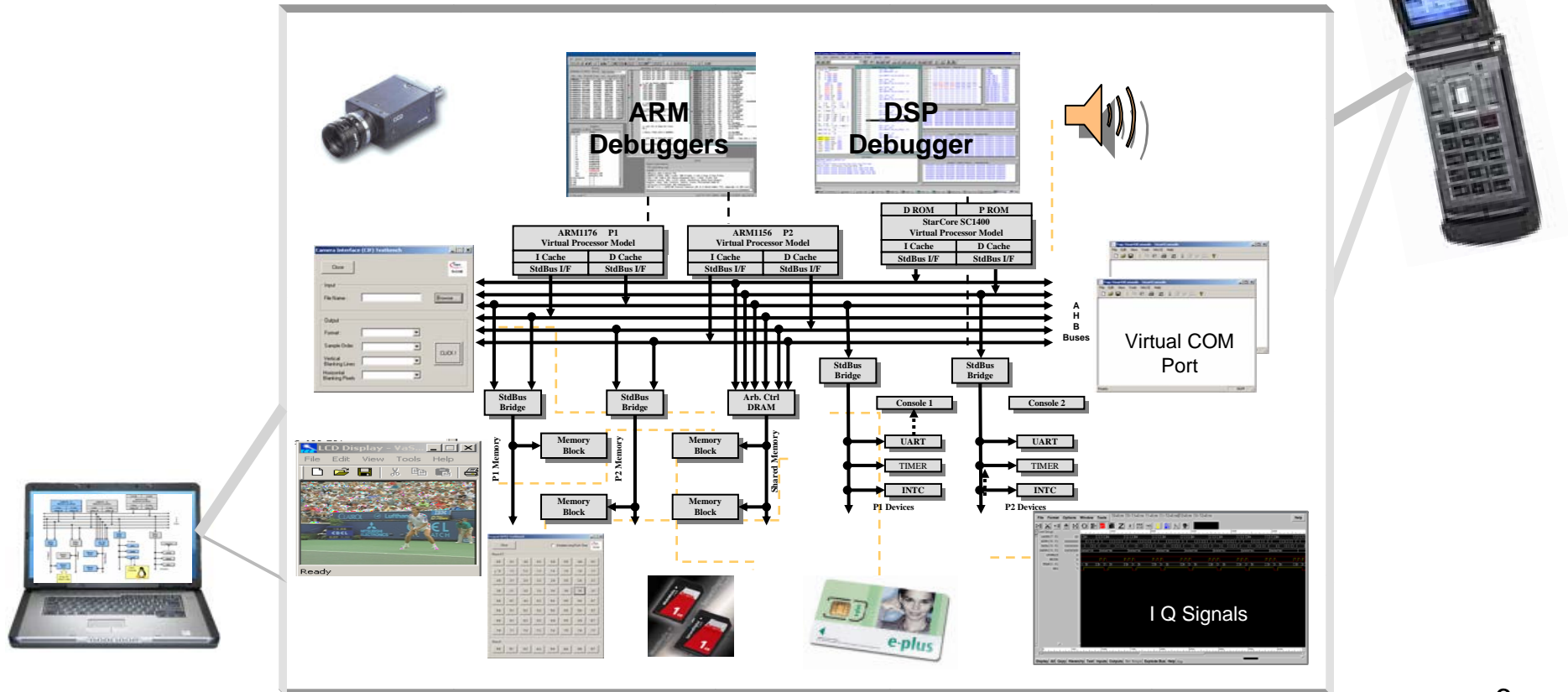
The VaST Solution

A Virtual System Prototype

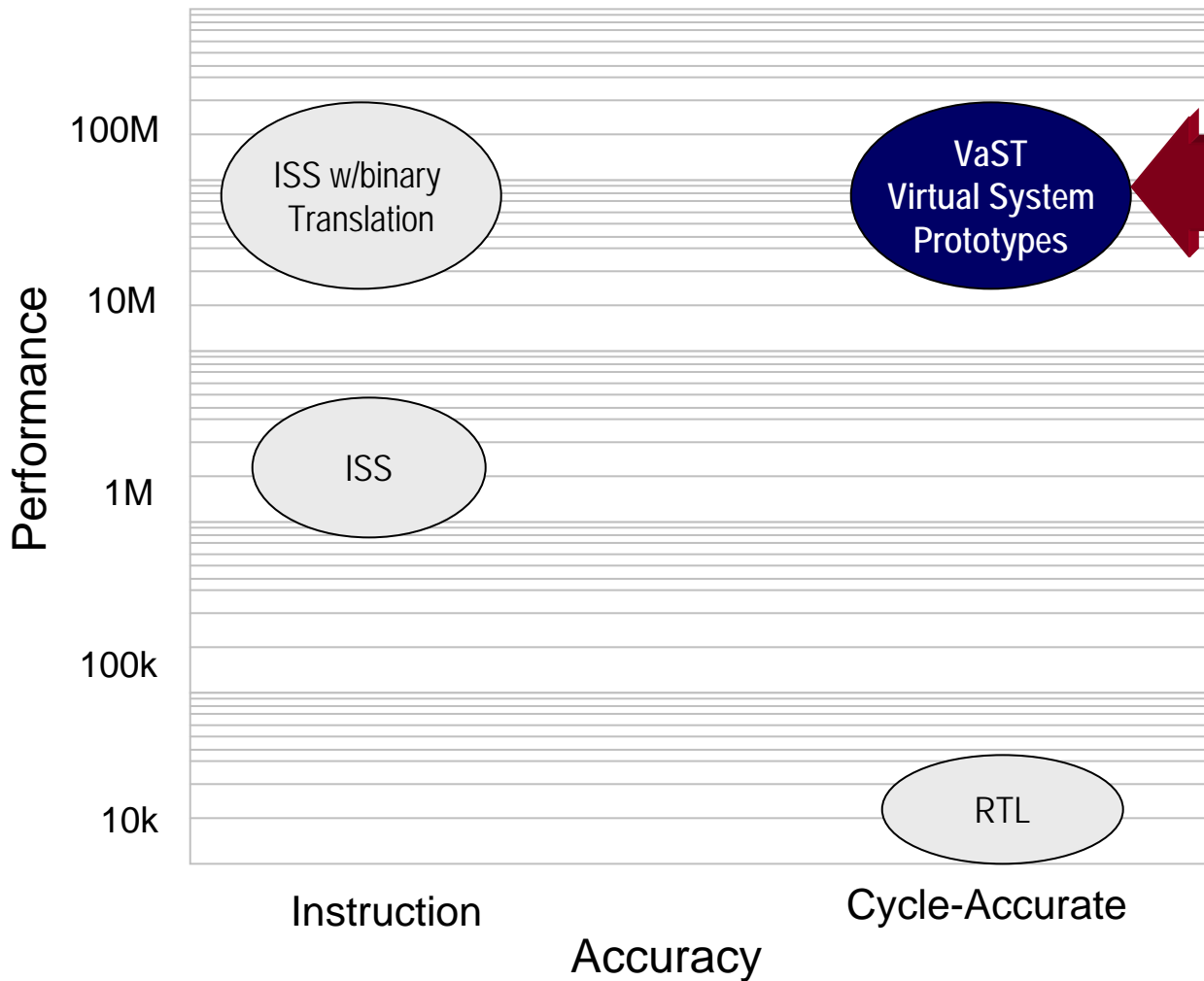
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*Model the Complete System,
Simulate at Near Real Time Speed*



Breakthrough Technology Enables A New Solution



Key Innovation:
ultra high speed, cycle-accurate simulation of embedded systems

Patent Status

Issued

- #6,230,114 – 5/2001
- #6,263,302 – 7/2001
- #6,584,436 – 6/2003
- #6,751,583 – 6/2004

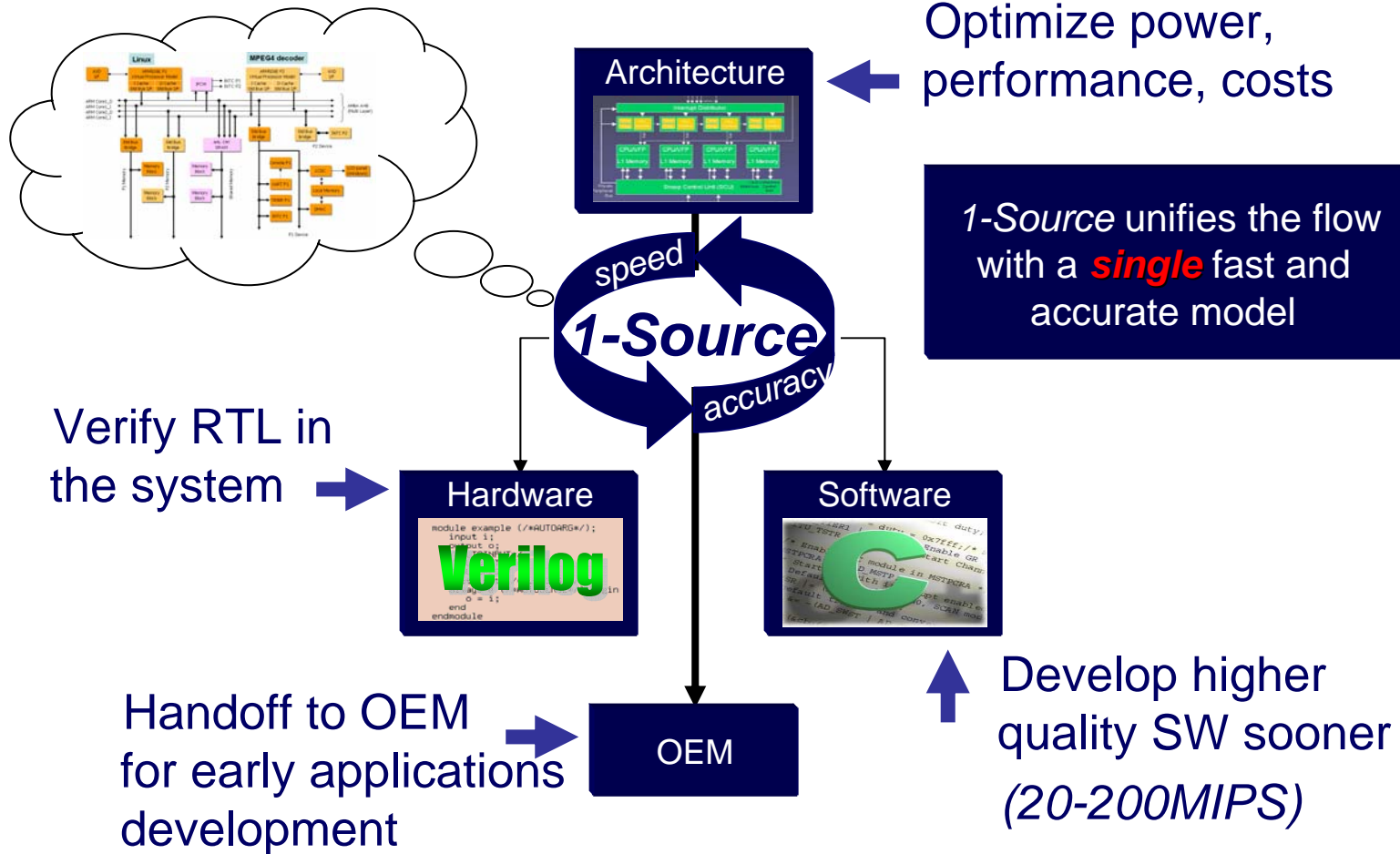
Pending

- # 60/820,768 – 7/2006
- # 60/886,031 – 1/2007
- # 11/315,683 – 12/2005

Concurrent HW/SW Design with Unified 1-Source Flow

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Standards Compliant

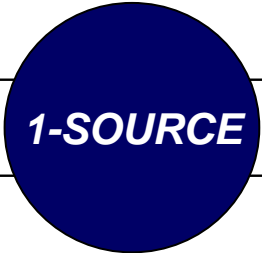
Interoperable

Fast and Accurate

Competitive Difference

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Architecture		(???)		
Software		(PV)	(PVT)	(CA)
Hardware		(CA)		
	VaST	Other		

- ✓ *One VPM covers HW, SW, and architecture*
- ✓ *High speed, and cycle-accurate*
- ✓ *Rigorously verified, high quality*
- ✓ *Port in days vs. months*

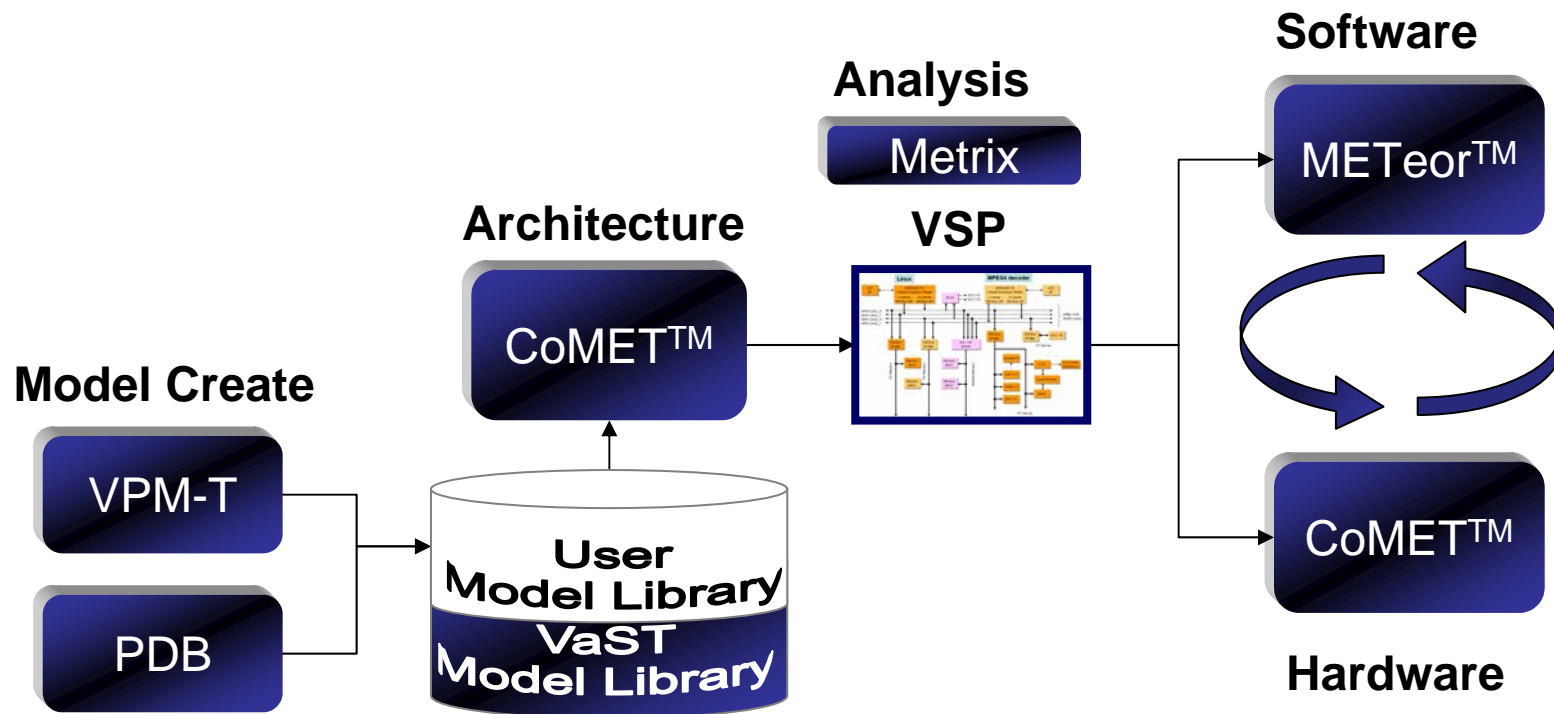
- ☹ *Three models required from different vendors*
- ☹ *Inconsistent performance, quality, and functionality*
- ☹ *Higher flow support costs*
- ☹ *Results in months of SW re-work to port to HW*

Definitions: VPM – virtual processor model;
 PV – programmers view; PVT – programmers view with timing;
 CA – cycle accurate

VaST Products

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Standards Compliant

Rich Support for 3rd Party Tools

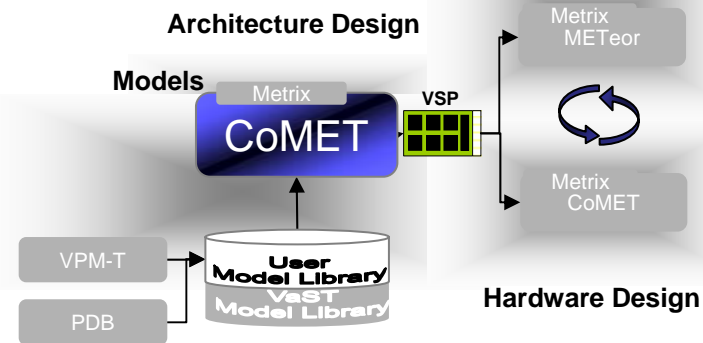
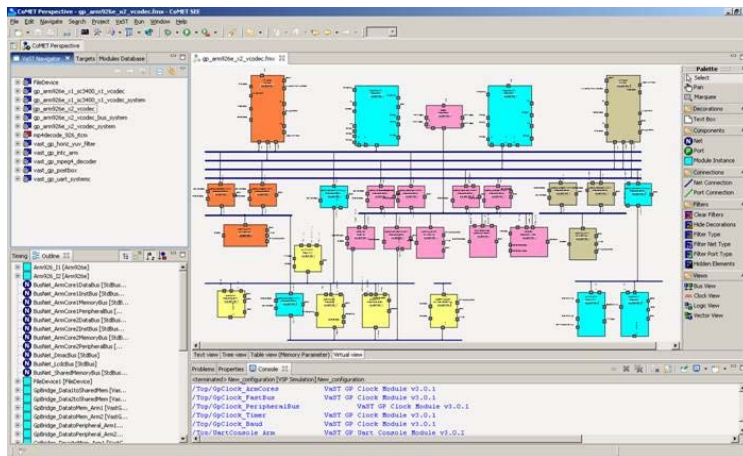


CoMET

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Software Development



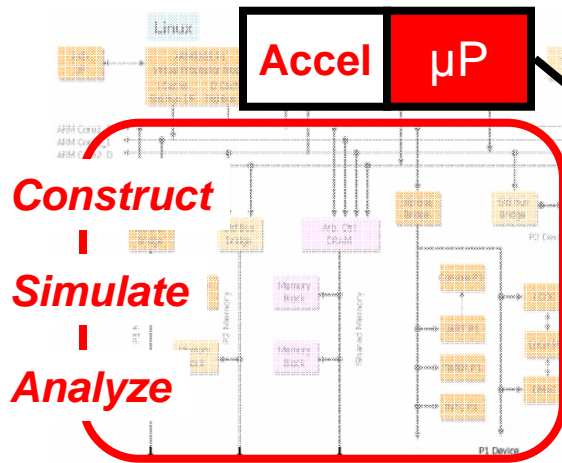
- 20-200MIPS
- Timing accurate
- Full visibility into signals, registers, variables
- Parameterizable models allow rapid re-configuration

- Configure, simulate, analyze, and optimize your architecture
- Supports H/W architecture and S/W development
- Run real S/W applications
- Deliver VSP for S/W development

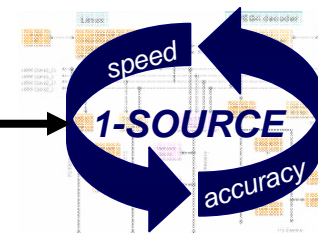
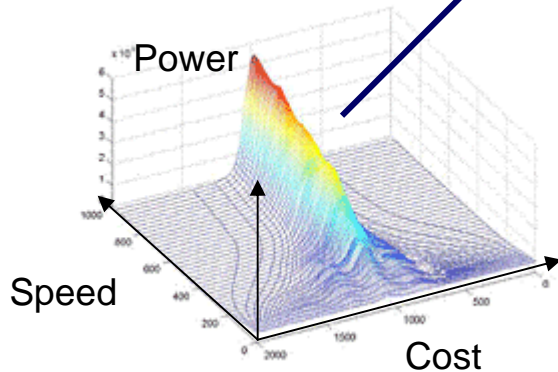
CoMET Architecture Design

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Activity	Problem Solved
HW/SW tradeoff	Cost, Performance, Power optimization
Bus & Subsystem design	Cost, Performance, Power optimization
Performance Proof	Suitability for multiple products; Risk of performance shortfall
Handoff	Precise executable spec for HW/SW

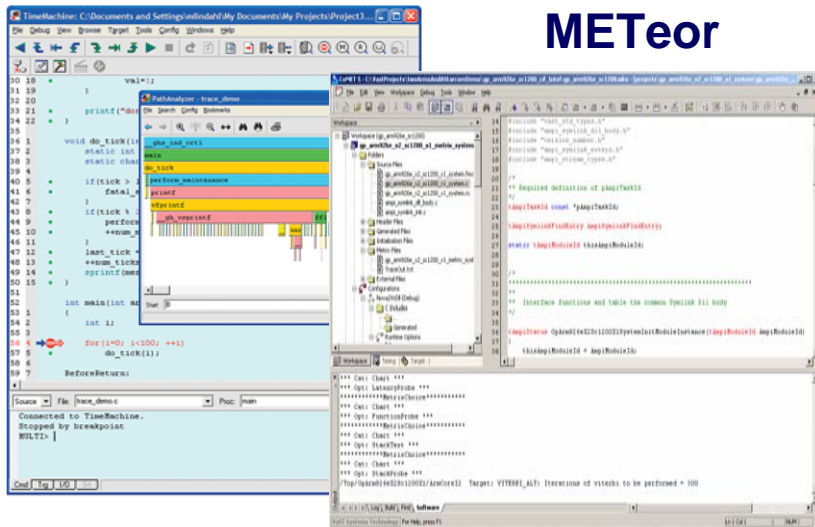


METeor

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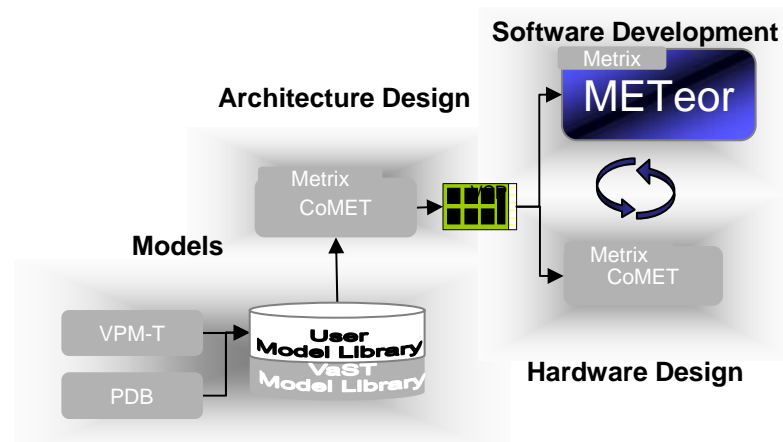
3rd Party Debugger



METeor

Architecture Design

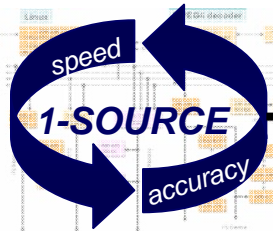
Software Development



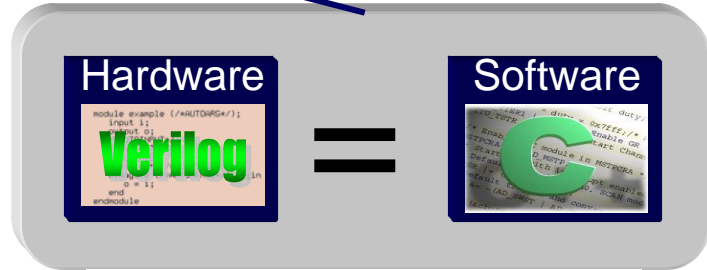
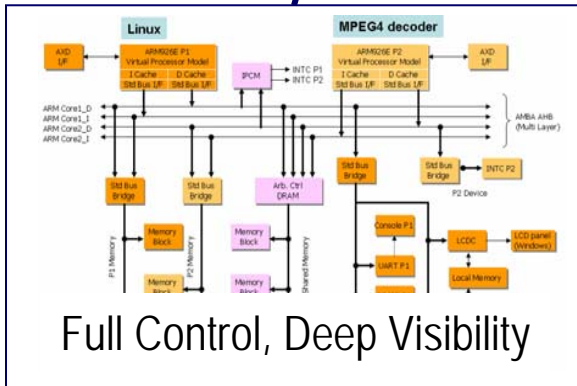
- *METeor is a subset of CoMET for S/W development*
- *Accepts CoMET VSP*
- *Write, compile, execute, and analyze your S/W*
- *Interfaces to 3rd party debuggers*

- *20-200MIPS*
- *Timing accurate*
- *Full visibility into signals, registers, variables*

METeor Software Development



Activity	Problem Solved
Early SW dev.	Time-to-market loss in waiting for HW
SW development	Learning curve and inconsistent development environment
SW debug	Limited controllability visibility silicon embedded system
Port to hardware	SW re-work required for inaccurate methods



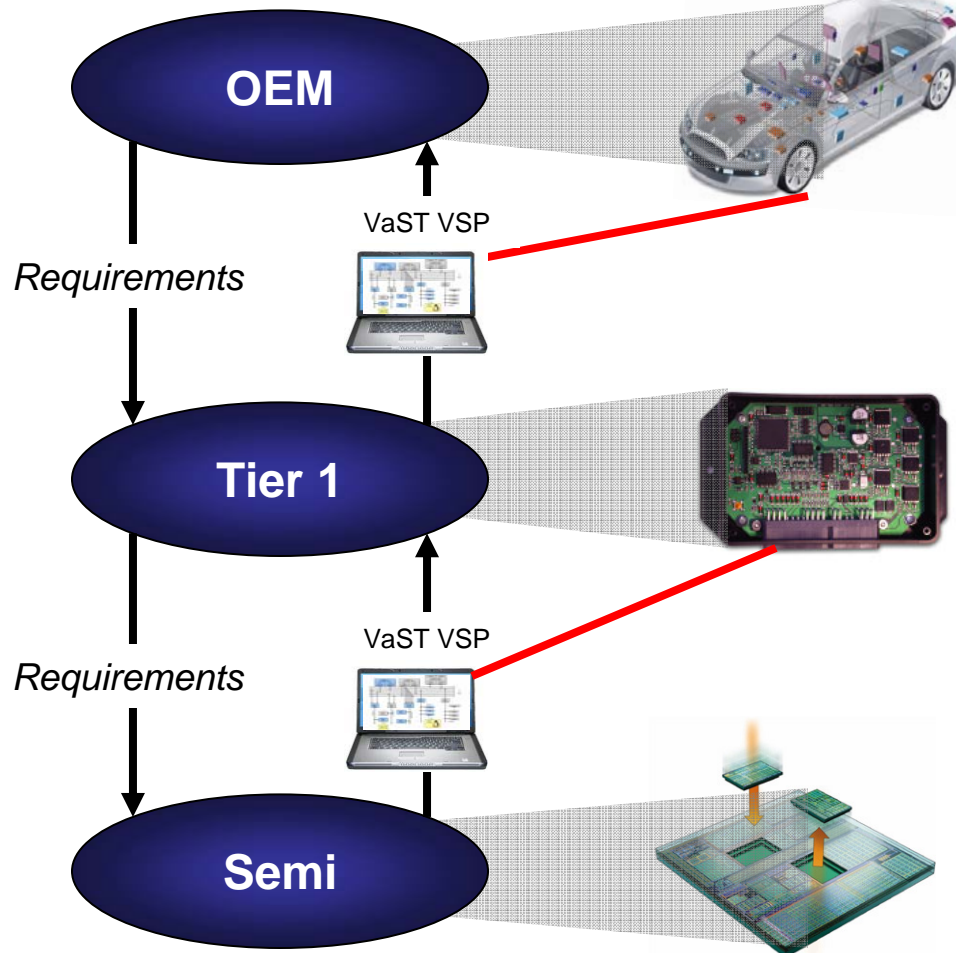
No port! Integrate in hrs due to cycle-accuracy

Supply Chain Solutions

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Model the System
Develop SW before
manufacture
→ *Quality, Safety, Costs*



Model the Subsystem
Develop SW before
manufacture
→ *Quality & TTM*

Model the Chip
Pre-silicon SW dev.
→ *Time To Market (TTM)*



Say No to Hardware Prototypes

News

Mar 3 2008 - EETimes.com: 35 People, Places, & Things That Will Shape The Future

Feb 28 2008 - Olympus Selects VaST for Virtual Platform Development

Feb 6 2008 - VaST Expands Advisory Board to Drive Growth in Key Markets

Jan 31 2008 - EETimes.com: IBM calls for modeling standard

Jan 25 2008 - VaST Virtualization Seminar January 31 in San Jose

[Voyager Newsletter](#)



May 29, 2007

Renesas and VaST Strike Global Partnership Addressing Automotive Software Development

June 19, 2007

VaST Develops High Performance Virtual Processor Model for **Freescale's** e200z6...

June 19, 2007

LSI Networking Standardizes on VaST

June 19, 2007

Infineon and VaST Renew Business Relationship **Infineon to Distribute** Virtual Prototypes for End-

Jan 7, 2008

Delphi Expands VaST Agreement to Support Automotive Systems Virtualization

February 28, 2008

Olympus Selects VaST for Virtual Platform Development

Summary

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- VaST solutions dramatically cut cost, time-to-market, and schedule
- VaST benefits the entire supply chain
- VaST is the leader in Electronics Virtualization

Automotive



Wireless



Consumer