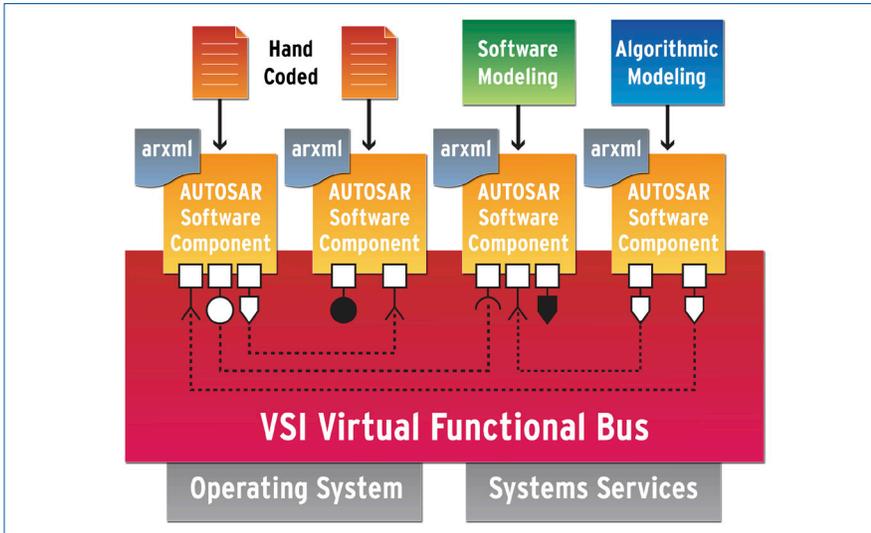


Volcano™ VSI

Vehicle Systems Integrator



The Volcano Vehicle System Integrator is an execution environment for the verification of AUTOSAR application software. VSI enables early validation of software functionality before actual hardware is available.

Maintaining AUTOSAR Compliance throughout the Environment

The Volcano Vehicle Systems Integrator (VSI) is an AUTOSAR software execution environment designed specifically for the development of vehicular embedded systems. It provides early validation of software functionality on virtual electronic control units (ECUs) on the desktop.

Behaving like an integrated system--made up of hardware elements, such as ECUs, busses, sensors, actuators, etc.--the VSI environment provides the same actions and reactions as the planned hardware environment. And, because VSI can be brought into the flow at the very earliest conceptual stages, each step of code design builds on a foundation of well-tested content.

VSI allows AUTOSAR software developers to focus completely on the software under development's value-add into an AUTOSAR system without getting caught up in AUTOSAR, its many format tools and rules, or its detailed and complicated workflow. VSI automatically maps pure AUTOSAR software to a VSI AUTOSAR-compliant platform and manages all the configuration details, such as SWC to ECU mapping and basic software configurations (i.e., OS and RTE).

AUTOSAR compliance is maintained throughout the environment, which means software applications being executed within VSI are 100% AUTOSAR-compliant and can be retargeted as is--without modification--to any other AUTOSAR-compliant platform after being validated within VSI.

FEATURES AND BENEFITS:

- Manages all tool invocations, resulting in a ready-to-execute system from a single build command
- Allows for automatic trigger of workflow based on detection of change in software design
- Scalable, with varying degrees of specificity within the lower AUTOSAR architectural layers, delivering earliest means of metrics and validation, from concept through deployment
- Provides AUTOSAR and C/C++ source-level debugging and target control
- Allows software developers to complete system's application independent of implementation details
- Automates execution of AUTOSAR-compliant application
- Supports embedded system design evaluation from conceptual phase to complete distributed system development and validation
- Delivers incisive views of an embedded design at the AUTOSAR component, RTE behavioral, and implementation levels
- Reduces need for physical prototypes and test benches
- Error discovery occurs earlier in the design process

Concurrent Development Offers High Value

Many phases of today's vehicle development must proceed concurrently to meet compressed project schedules. New hardware and software elements must converge thoroughly in validated form, ready to work together. The VSI execution environment allows software validation to track evolving hardware capabilities. Embedded system software can be verified at any time during the design process, with minimal hardware system prototyping.

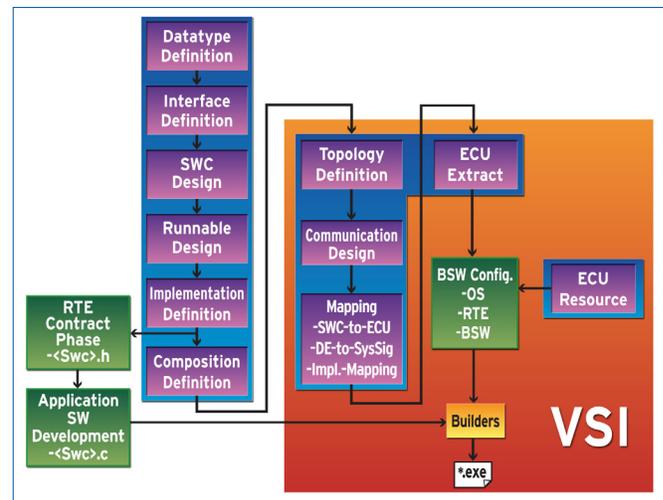
Volcano VSI creates a compliant execution environment of an AUTOSAR-based system architecture, incorporating all the interconnected software components, busses, and interfaces of the system. This environment accepts the actual code the ECUs will run, ensuring that embedded code tested is ready to become the application. It provides full debug and interactive validation at all relevant levels of software--application and basic.

Moreover, VSI:

- Provides a scalable execution environment, with varying degrees of specificity with the lower AUTOSAR architectural layers, which delivers the earliest possible metrics and validation from concept through deployment
- Is extensible from single application to full ECU to multi-ECU configurations

Volcano VSx Tool Suite

Volcano VSI is part of the comprehensive Mentor Graphics vehicle systems design toolset, which provides a robust medium for an AUTOSAR-based vehicle system design flow, including E/E architectural design, application software development, virtual validation, and



The VSI workflow begins when the developer "builds" the described software system. VSI includes builders that take as input the abstract system, automatically, mapping it to a VSI ECU topology; then generate the required AUTOSAR RTE, OS, and associated AUTOSAR basic software; ultimately resulting in executable files that are ready for execution within VSI or outside of VSI in a batch or interactive console mode.

software test. In addition to VSI, the VSx AUTOSAR tool chain includes:

- Volcano Vehicle System Architect (VSA) - an architecture design tool
- Volcano VSA COM Designer - a network design tool for AUTOSAR-based ECUs
- Volcano VSTAR - fully compliant AUTOSAR 4.0 basic software
- Volcano Vehicle System Builder (VSB) - the ECU configuration tool

All VSx tools are built upon the Eclipse framework and thus are part of a modular and open framework for development tools.

For the latest product information, call us or visit: www.mentor.com/vnd

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