AUTOSAR Software Design with PREEvision

Webinar
2013-06-05
AUTOSAR Software Design with PREEvision

Agenda

- Overview
- AUTOSAR Software and System Design
- Integrated AUTOSAR Software Design
- Vector AUTOSAR Solution
AUTOSAR Software Design with PREEvision

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Overview

- Requirements Management
- Project and Release Management
- Version & Configuration Management

AUTOSAR Software and System Design

Collaboration Platform

- Supplier Integration
- Quality Assurance
- Variant Management & Reuse
Overview

AUTOSAR Software and System Design

Integrated AUTOSAR Software Design

Vector AUTOSAR Solution
AUTOSAR Software Design with PREEvision

Overview

SW Design
HW Network Design
SW-HW Mapping
Data Mapping & Signal Routing
Network Communication Design
• CAN
• LIN
• FlexRay
• ...
Implementation

SW Design

SWC1

ECU A

ECU B

DE1

DE2

DE3

SWC2

SWC3

Basic Software (BSW)

AUTOSAR ECU

RTE

S1  S2

S1  S2

S1  S2

S1  S2
→ Type/Instance concept
→ Graphical diagrams to model SW architecture
→ Library to define SW components, interfaces and data types, ...
→ Engineering tools to merge/split/move SW Components, automatic connection of port, propagation of port interfaces, ...
Hardware Network Design

- Graphical diagrams to model HW architecture
- Reuse of HW components
- Engineering tools to change type of HW components, change type of bus, ...

Diagram:

- Wheel Front Left: Sensor
- Wheel Front Right: Sensor
- Wheel Rear Left: Sensor
- Wheel Rear Right: Sensor
- ESP ECU /-0 (ECU)
- Engine ECU /-0 (ECU)
- Gateway /-0 (ECU)
- Instrumental Cluster /-0
- Display /-0 (Actuator)
- Bus: CAN, LIN
- Transmission ECU /-0
SW Component Mapping

- Mapping of SW Components to HW Components
- Mappings are objects and support variants
- Graphical visualization of mappings in diagrams
Data Mapping and Signal Routing

- Signal router to automatically create signals, system signal mappings and routings
- Various routing options and delta routing...

![Diagram showing signal mapping and routing](image-url)
Network Communication Design

- Communication matrix view
- Frame/PDU/Signal layout editor
- Support of legacy formats (LDF, DBC, FIBEX)
Supplier Integration

- Generation of specification documents
- AUTOSAR ECU extract export
- Update of AUTOSAR SW component
Supplier Integration
Overview

AUTOSAR System Description
Import

AUTOSAR System Design
Export
PREEvision

Export
ECU Extract of System Description
Import

AUTOSAR System Description
Import

ECU Extract of System Description
Export

Update
SW Component Description

SWC Behavior Modeling
MATLAB Simulink

Export
SWC Detailed Design
(RTE Configuration)
DaVinci Developer

OEM

Tier 1

SWC Detailed Design
(RTE Configuration)
DaVinci Configurator Pro

RTE Configuration
BSW Configuration
DaVinci Configurator Pro
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Integrated AUTOSAR Software Design

- PREEvision
  - Integrated AUTOSAR Software and System Design
  - from Architecture Design to Series-Production Readiness
- Multi user support
- Lock concept on artifact level to prevent access conflicts
- All users have always access to up-to-date information
- Version and configuration management
Integrated Requirements Management

- Requirements import and assessment
- Specification of customer feature catalog
- Specification of abstract logical architecture representing future software and hardware implementations
- Modeling of control sequences realizing a customer feature as activity chains
- Mapping of requirements to SWCs
- Generation of requirements documents
- Integrated project planning and tracking
- Integrated change management
- Branch, compare & merge support
Integrated Variant Management

- Product line support
- Integrated feature model and resolver for feature based derivation of products
- Configurable propagation rules and consistency checks
Support of multiple product lines

Reuse of artifacts in different product lines

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Integrated Quality Assurance

- Integrated test data management
- Requirements based testing
- Feature tests
- Component tests
- Integration and system tests
Integrated AUTOSAR Software Design

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Thank you for your attention.

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