

AUTOSAR Prototype Bundle

The complete Bundle for developing Prototype ECUs conformant to the AUTOSAR Standard

The AUTOSAR Prototype Bundle is Vector's comprehensive set of AUTOSAR Basic Software Modules, design and configuration tools. This bundle enables the users to develop entire ECUs with AUTOSAR-conformant SW architecture. It gives you an in-depth look at AUTOSAR methodology – from the design and configuration process to the actual Basic Software.

Properties and Advantages

The AUTOSAR Prototype Bundle offers wide-ranging support for user-friendly development of AUTOSAR ECUs:

> AUTOSAR-conformant ECU development

The tool DaVinci Developer provides a simple way to generate AUTOSAR-conformant ECU applications. You can describe your AUTOSAR Software Components and define their interfaces quickly and clearly using the graphical editor. You can combine DaVinci Configurator Pro and GENy to consistently configure the Basic Software Modules in accordance with AUTOSAR. These tools are characterized by their ease in handling, high level of performance and universality.

DaVinci Network Designer is included to generate network communication descriptions. This tool lets you generate the necessary input data for DaVinci Developer and DaVinci Configurator Pro.

> AUTOSAR Basic Software Modules (BSW)

The seamless lineup of AUTOSAR Basic Software Modules from Vector is contained in the AUTOSAR Prototype Bundle. All modules – from the Microcontroller Abstraction Layer to the middleware to the RTE (Run-Time Environment) – can be used individually, as a whole package or integrated together with third-party components.

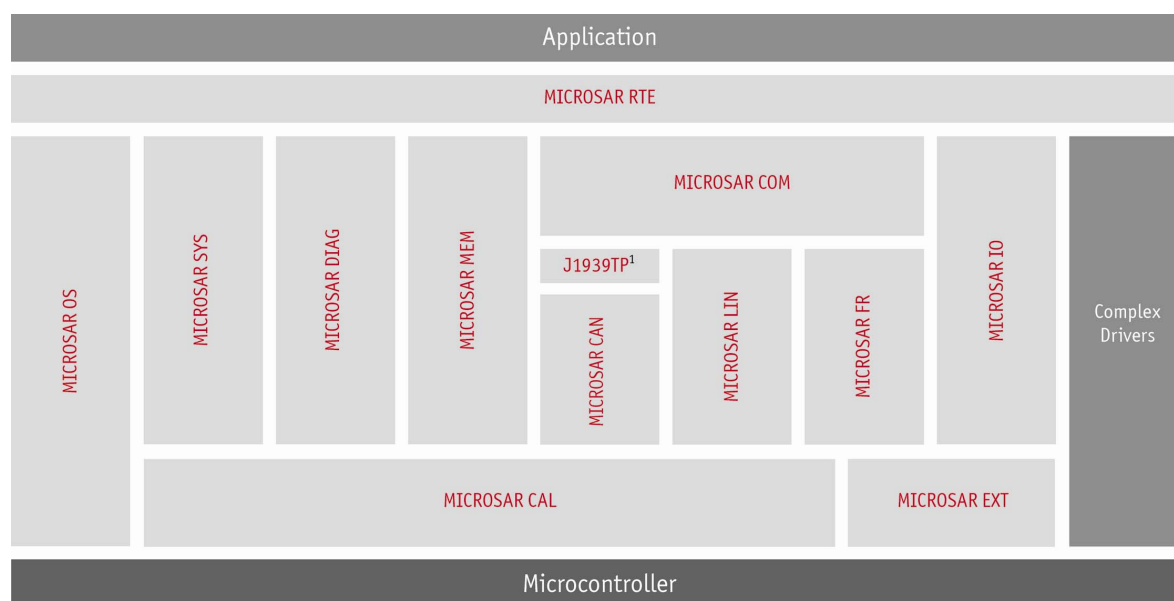
The MICROSAR Basic Software Modules efficiently and flexibly implement all basic functions and many other functions of AUTOSAR Release 3.0. The modules are bundled as functionally interrelated MICROSAR products and are available in production-level quality.

The AUTOSAR Prototype Bundle enables you to quickly, conveniently and easily develop your AUTOSAR ECU on a reliable foundation, so that you can focus on the Software Components of the application (SWC).

Application Areas

The AUTOSAR Prototype Bundle supports the automotive OEMs in evaluating AUTOSAR processes and methods, as well as suppliers in creating their first AUTOSAR-conformant prototype ECUs.

Service providers – who focus on the application level – get an optimal foundation for their initial developments of AUTOSAR-conformant software components.



**Basic Software in
the AUTOSAR
prototype bundle**

¹ Available extensions for AUTOSAR 3.0

Training Courses

We offer various training courses and workshops for AUTOSAR in our classrooms or at your business site.

For further information on individual training events and dates on the Internet go to: www.vector-academy.com.

Functions

DaVinci Network Designer CAN/FlexRay/LIN

- > Design communication buses
- > Distribute signals to messages
- > Import and export network data via standard formats

DaVinci Developer

- > Graphically design and integration of AUTOSAR Software Components
- > Configures and generates the MICROSAR RTE

DaVinci Configurator Pro

- > Consistent configuration of MICROSAR Basic Software
- > Convenient, well organized user interface

MICROSAR RTE

- > Contains the AUTOSAR Basic Software Module RTE

MICROSAR OS

Contains the AUTOSAR Basic Software Module Operating System (OS)

- > Implementation of "Scalability Classes" SC1 through SC4 (if they are supported by the processor)
- > Fully compatible with OSEK OS
- > Supports Schedule Tables

MICROSAR SYS

Contains the AUTOSAR Basic Software Modules

- > Communication Manager (COMM)
- > Cyclic Redundancy Check routines (CRC)
- > ECU Manager (ECUM)
- > Development Error Tracer (DET)
- > Watchdog Manager (WDGM)
- > Watchdog Interface (WDGIF)
- > Scheduler Module (SCHM)

MICROSAR DIAG

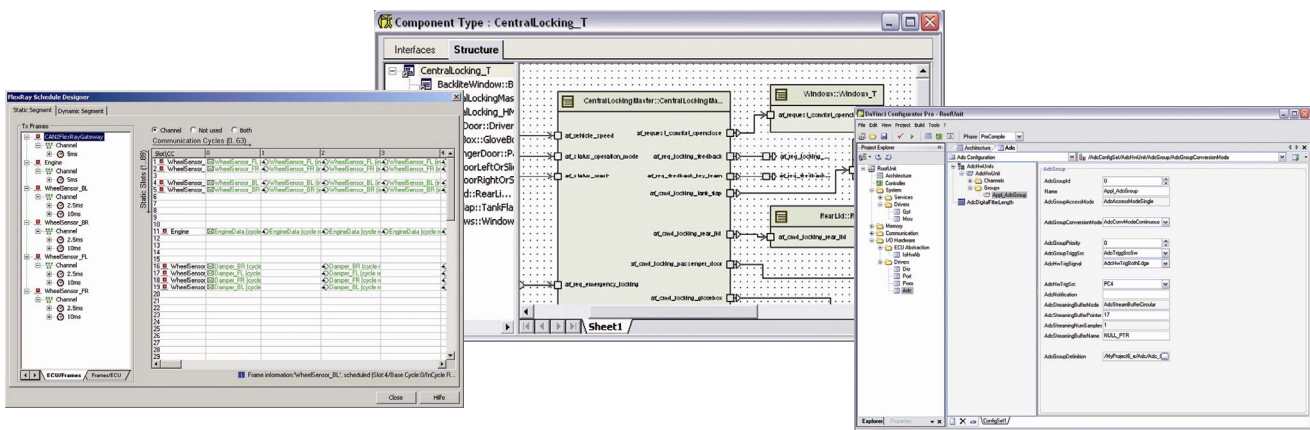
Contains the AUTOSAR Basic Software Modules

- > Diagnostic Event Manager (DEM)
- > Diagnostic Communication Manager (DCM)
- > Function Inhibition Manager (FIM)

MICROSAR MEM

Contains the AUTOSAR Basic Software Modules

- > NVRAM Manager (NVM)
- > Memory Abstraction Interface (MEMIF)
- > EEPROM Abstraction (EA)
- > Flash EEPROM Emulation (FEE)



Defining network communication with DaVinci Network Designer

Designing software components with DaVinci Developer

Configuration of the basic software with DaVinci Configurator Pro

MICROSAR CAN

Contains the AUTOSAR Basic Software Modules

- > CAN Interface (CANIF)
- > CAN Transport Protocol (CANTP)
- > CAN Network Management (CANNM)
- > CAN State Manager (CANSM)

MICROSAR J1939TP

Contains the Transport Protocols

- > BAM - Broadcast Announce Message
- > CMDT - Connection Mode Data Transfer

MICROSAR FR

Contains the AUTOSAR Basic Software Modules

- > FlexRay Interface (FRIF)
- > FlexRay Transport Protocol (FRTP)
- > FlexRay Network Management (FRNM)
- > FlexRay State Manager (FRSM)

MICROSAR LIN

Contains the AUTOSAR Basic Software Modules

- > LIN Interface (LINIF)
- > LIN Transport Protocol (LINTP, contained in LINIF)
- > LIN State Manager (LINSM)

MICROSAR COM

Contains the AUTOSAR Basic Software Modules

- > Communication (COM)
- > Network Management Interface (NM)
- > PDU Router (PDUR)
- > I-PDU Multiplexer (IPDUM)

MICROSAR IO

Contains the AUTOSAR Basic Software Module

- > IO Hardware Abstraction (IOHW)

MICROSAR CAL

Contains the AUTOSAR Basic Software Modules

- > General Purpose Timer Driver (GPTDRV)
- > Watchdog Driver (WGDTRV)
- > Microcontroller Unit Driver (MCUDRV)
- > EEPROM Driver (EEPDRV)
- > Flash Driver (FLSDRV)
- > CAN Driver (CANDRV)
- > LIN Driver (LINDRV)
- > FlexRay Driver (FRDRV)
- > SPI Driver (SPIDRV)
- > Input Capture Unit Driver (ICUDRV)
- > Pulse Width Modulation Driver (PWMDRV)
- > A/D Conversion Driver (ADCDRV)
- > PORT Driver (PORTDRV)
- > Digital IO Driver (DIODRV)

Special Functions

DaVinci Developer has an import/export interface for AUTOSAR XML files. This interface enables the exchange of design and configuration data. For example, you could integrate AUTOSAR software components in an ECU that you have developed with model-based tools such as MATLAB® Simulink®.

All MICROSAR products conform to:

- > "Implementation Conformance Class" ICC3 and
- > "Configuration Conformance Class" CCC 2.

Contact and Availability

Our basic software modules for automotive ECUs are available for a wide variety of currently used microcontrollers. You can obtain additional information at www.micosar.de or by inquiry
E-mail: embedded@vector-informatik.de
Telephone: +49 711 80670 400.

MICOSAR EXT

Contains the AUTOSAR Basic Software Modules

- > CAN Transceiver Driver (CANTRCV)
- > FlexRay Transceiver Driver (FRTRCV)
- > LIN Transceiver Driver (LINTRCV)
- > Vector can implement drivers for other external components upon request.

Optional Features

- > CANoe Emulation
The Prototype Bundle contains a library for emulating MICROSAR CAL and MICROSAR OS on your PC using CANoe. It lets you integrate the entire AUTOSAR Basic Software with your application and – using Vector’s CANoe test tool – execute functional tests without the real target hardware.
- > Support during startup
Vector can support you extensively during the initial startup and integration of the AUTOSAR Basic Software in your application. We would be glad to do this at your business site as well.

Sample Application:

To make it easier for you to learn to use the AUTOSAR Prototype Bundle, the bundle includes a sample application in source code and a detailed guideline on its use.

Available Hardware Platforms

The AUTOSAR Prototype Bundle is available for commonly used 16-bit and 32-bit hardware platforms. Due to the hardware dependency of the MICROSAR CAL modules and MICROSAR OS, we can only provide binding information about the availability based on specific processor device numbers. Our Sales Team would be glad to assist you.

Additional Options

The AUTOSAR Prototype Bundles for CAN, LIN and FlexRay may be used together in any desired combination.