

# MICROSAR IOHW

## AUTOSAR Input Output Hardware Abstraction

The ECU-specific MICROSAR Input Output Hardware Abstraction (IOHW) module links the microcontroller's periphery to the application. It provides a uniform, hardware-independent interface for signal acquisition and makes it possible to implement application-specific signal processing.

### Properties and Advantages

AUTOSAR uses the Input Output Hardware Abstraction module to specify a number of different signal conditioning functions. In its MICROSAR IOHW package, Vector has extended standard functions to include functions for signal definition. This lets the users concentrate fully on developing their application. Other application- or ECU-specific functions can be obtained upon request.

MICROSAR IOHW is part of the seamless Vector AUTOSAR solution. All MICROSAR Basic Software Modules conform to AUTOSAR Release 3.0. During their implementation special emphasis was placed on efficient memory utilization and short execution times, so they are an ideal foundation for your AUTOSAR ECU software. The time of configuration of all MICROSAR Basic Software Modules is user selectable, because the Vector BSW modules are pre-compile, link-time and post-build capable (in accordance with AUTOSAR Configuration Conformance Classes CCC1 through CCC3).

### Application Areas

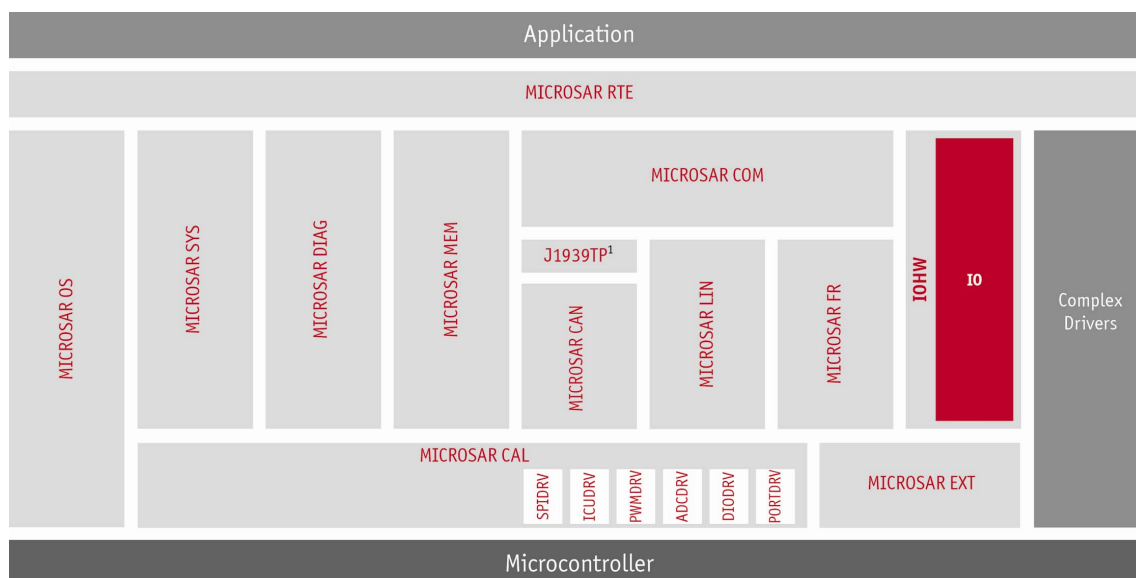
The MICROSAR IOHW Basic Software Module is the interface between the RTE and MICROSAR CAL. It provides the application with all of the functions it needs to access physical signals. In addition, it lets you condition or filter the abstracted physical signals and implement ECU-specific extensions.

### Functions

- > Supports Client/Server ports for direct acquisition of physical signals in the RTE
- > Direct access to digital I/O driver
- > Processing analog and digital I/O signals by filtering, e.g. for switch debounce
- > Diagnostics of I/O signals, e.g. for short circuit detection
- > Extends CAL driver functionality by implementing complex functions such as those needed to connect external ASIC chips via SPI.

### Special Functions

- > Support to help users to define ports for acquiring ECU-specific signals
- > Extended functional features for processing user-defined signals from user-defined ports



**MICROSAR IOHW  
module**

<sup>1</sup> 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](http://www.vector-academy.com)

### 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.com](http://www.micosar.com) or by inquiry

E-mail: [embedded@vector-informatik.com](mailto:embedded@vector-informatik.com)

Telephone: +49 711 80670 400.

### Configuration

DaVinci Configurator Pro makes configuration of the MICROSAR IOHW module easy, convenient and consistent. The ECU Configuration Description generated during the configuration process is then read in by the design tool (e.g. DaVinci Developer) to generate the RTE. This integrates MICROSAR IOHW into the overall AUTOSAR software.

### Creating your own Software

DaVinci Configurator Pro helps the user to define MICROSAR IOHW extensions, including user-defined signals and ports. Upon request, DaVinci Configurator Pro generates code templates in which the user can program extensions directly.

DaVinci Configurator Pro configures the IOHW extensions as well as the other Basic Software Modules. The advantage of uniform configuration is that it makes it easy to generate the run-time environment (RTE). This ensures that the signals and parameters defined in the extensions are integrated into the application's overall data flow.

### Integration of Hardware-specific Components

MICROSAR IOHW requires hardware-specific software modules from the AUTOSAR Microcontroller Abstraction Layer to drive the microcontroller's peripheral devices. Vector offers MICROSAR CAL, which contains a number of drivers for various platforms. They are all directly configurable from DaVinci Configurator Pro.

### Scope of Delivery

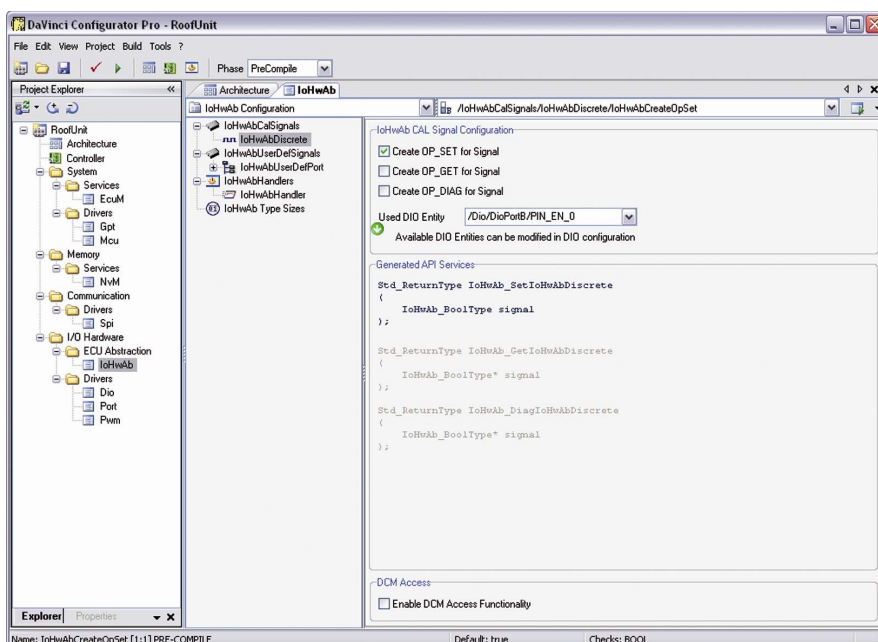
- > DaVinci Configurator Base as a Generic ECU Configuration Editor (GCE) as well as a command line-based generator
- > Libraries, C header files, optionally with source code
- > BSW Module Description, makefiles and sample programs
- > Documentation/operating instructions/Readme file

### License

Vector offers flexible licensing customized to your individual requirements.

### Optional Services

- > Consultation in system design
- > Integrating the Basic Software into existing ECUs
- > Extending standard modules according to your needs
- > Developing customer-specific AUTOSAR Software Components (SWC)
- > Hotline, special workshops and training courses on the topic of embedded software and AUTOSAR



**Defining signals for MICROSAR IOHW with the help of DaVinci Configurator Pro**