Table of Contents

1 Technical Consulting, Product- and Engineering Services by Vector.......................................................... 3
2 Overview of Advantages.................................................................................................................................. 3
3 Application Areas........................................................................................................................................... 4
3.1 AUTOSAR Training for the Classic/Adaptive Platform .............................................................................. 4
3.2 CANbedded Training................................................................................................................................... 4
3.3 Flash Bootloader Training .......................................................................................................................... 4
3.4 Vector Certified Partner Program (CSP-E) ................................................................................................. 4
3.4.1 Prerequisite.................................................................................................................................................. 5
3.4.2 Phases of the Vector Certified Partner Program ....................................................................................... 5
3.4.3 Business Model.......................................................................................................................................... 6
3.5 Installation and Support with the MICROSTAR "Getting Started Package" ..................................................... 6
3.6 Installation and Support with the MICROSTAR "V2G Getting Started Package" ............................................. 6
3.7 Installation and Support with the Flash Bootloader “Getting Started Package” .................................................. 6
3.8 Review of your Configuration with the MICROSTAR "Verification Package" .................................................... 7
3.9 Coaching........................................................................................................................................................ 7
3.10 AUTOSAR Consulting ................................................................................................................................. 7
3.11 Extended Integration Package (EIP)............................................................................................................... 7

V2.3, 07/2019
Please consider your responsibility towards the environment before printing this document.
1 Technical Consulting, Product- and Engineering Services by Vector

For over 20 years, Vector has been creating software components as well as professional tools, and has been successfully supporting customers worldwide in developing ECU software, ECU hardware and complete networking ECUs. Our experts bring success to your project with individually tailored technical consulting and product services.

With our product services, we support you in every phase of your ECU development. Starting with our extensive experience and your project goals, we jointly carry out a customized action package for you, from which you realize sustained benefits from our competence.

> **Product-Services**: Our engineers support your development team through every phase of your project and offer you professional support with training, review, installation and coaching, either in our training premises or at your business site.

> **Integration-Services**: start-up of the basic software on your ECU with the goal to achieve a successful first OEM bench integration. Prior to the delivery to the customer, our integration team carries out widespread tasks, exemplarily such as

> 1. "Customer Hardware" for MICROSAR and CANbedded: Putting the ECU into an operationally ready state, configuration of the network transceiver and execution of tests on real customer hardware.
> 2. "Start Application" for MICROSAR 4: Incorporation of real project-specific communication descriptions, execution of a fundamental wakeup and shutdown, configuration of the OS, execution of a diagnostic service (request/response), configuration of a NVRAM block, creation of a periodic watchdog trigger.

> **Technical consulting**: Here, our expert team provides you with technical consulting or individual concept development. Our technical consulting, for example in the framework of joint workshops, helps you in tasks such as these:

> 1. Introducing a new multi-core operating system
> 2. Optimizing an existing software architecture
> 3. Porting your application software to a multi-processor ECU
> 4. Layout of safety-related "mixed ASIL" systems
> 5. Migration of ECUs to AUTOSAR
> 6. Introduction of Ethernet

2 Overview of Advantages

The services we offer include professional consultation which reduces the operational workload of your developers by having Vector assume responsibility for entire work packets:

> **Competence**: Benefit from our solid background of many years of professional experience
> **Precision**: Our engineers understand your project and perform "made-to-order" work
3 Application Areas

Based on our embedded standard software (CANbedded or MICROSMART), we can provide the following support for the development of your ECU software:

![Diagram](Image)

**Figure 2**: Services for the development of ECU software

### 3.1 AUTOSAR Training for the Classic/Adaptive Platform

Vector AUTOSAR training courses provide you with an ideal entry into ECU development with AUTOSAR. Intensive exercises ensure its relevance to practice.

- For the AUTOSAR Classic Platform you can retrieve more information using the following link: [https://vector.com/vi_class_autosar_overview_en.html](https://vector.com/vi_class_autosar_overview_en.html). There you can find our trainings for AUTOSAR basics, usage of AUTOSAR 4 in practice, OEM related trainings and special topics such as Safety, NV memory and Multi-core.

- For the AUTOSAR Adaptive Platform you can get to know more using the link: [https://vector.com/vi_class_autosar_adaptive_en.html](https://vector.com/vi_class_autosar_adaptive_en.html). There you can find our trainings for AUTOSAR adaptive Platform basics as well as the usage of AUTOSAR Adaptive in practice.

### 3.2 CANbedded Training

In the Vector CANbedded training you will get an introduction to the characteristics and interaction of the CANbedded software components. The training also includes the specific peculiarities for the different OEMs. For the list of available Vector in-house training courses on the Internet, please visit our website [http://vector.com/vi_class_canbedded_en.html](http://vector.com/vi_class_canbedded_en.html).

### 3.3 Flash Bootloader Training

The training on the Vector flash bootloader illustrates the important aspects of flash programming in the vehicle. Based on selected examples you learn the basics and functionalities of the flash bootloader. You get to know how to integrate the bootloader into an existing application in practice. For details on the training schedule, please visit [http://vector.com/vi_class_flash_bootloader_en.html](http://vector.com/vi_class_flash_bootloader_en.html).

### 3.4 Vector Certified Partner Program (CSP-E)

With the Vector Certified Partner for Embedded (CSP-E) program, you can be trained as an expert in Vector Basic Software and thus maintain close contact with our development and product management departments. Your advantages as a Vector Certified Partner are:

- Combining the domain-specific know-how of your employees with the expertise for Vector MICROSMART software

- Availability of Vector special know-how at your location
Continuous expansion of your knowledge regarding the latest topics through special workshops for certified partners.

3.4.1 Prerequisite

The prerequisite for the Vector Certified Partner for Embedded Program is a solid AUTOSAR basic knowledge. You can build this knowledge by participating the VectorMICROSAR Basic Training. Of course, your experience, which you have already gained with AUTOSAR projects, also matters.

3.4.2 Phases of the Vector Certified Partner Program

The Vector Certified Partner Program distinguishes between an education- and membership phase.

3.4.2.1 Education Phase

During the training phase you will go through a special program of online learning modules and attendance phases, which will end in exam preparation and certification. The training phase lasts about 10 weeks.

The online learning modules give you access to our modern eLearning platform, which enables the transfer of knowledge through various videos, explanations and helpful animations. Complete your knowledge build-up with expert tips and best practice sequences and check your learning status at any time with numerous self-check questions. In addition to the eLearning platform, the Vector Certified Expert Program offers a real working environment. Thanks to the SIP provided and the Vector DaVinci Toolsuite, practical applications can be simulated directly in a virtual environment.

This exam preparation phase takes place in a classroom event at Vector with further expert topics, a summary and a further “Ask the Expert” session. The certificate examination then takes place. After successful completion of this examination, you have qualified as Certified Partner for Embedded and enter directly into the membership phase.

3.4.2.2 Membership Phase

As a certified partner, you have further advantages and access to the membership phase:

- 2 times a year exclusive partner workshops at Vector
  The topics of the partner workshops are selected by Vector and the certified partners. The duration of the workshops varies, depending on the topic, between 1 and 3 days. As workshop participants, you will work with your own evaluation bundle and can optionally bring in your own target hardware. The agenda includes a theoretical part, a practical trainer session, as well as a practical work of the participants on your own system and on your own use cases with the support of the trainer.

- Regularly, web-based “Ask the Expert” sessions with Vector experts on current topics and issues
  The topics of the “Ask the Expert” session are proposed by Vector but can also be worked out together with the service partners. Typical contents are an open round of questions in which you can ask your own questions. The same applies to an exchange round in which you can exchange your own experiences with other participants and the Vector experts. Of course, there are also tips and tricks from the Vector experts, news about embedded products, schedules and releases as well as information about similar topics and Vector solutions.

- Networking with other Vector Certified Partners for Embedded

- Access to online training and workshop materials

- Access to Community Events

The membership phase has a duration of 12 months and can be renewed annually.
3.4.3 Business Model

The business model consists of an initial package and an annual update. Both licenses are personal and cannot be shared with others.

> Initial Package (Education Phase)
   The initial package includes access to the embedded online training and participation of the exam, which is valid for 3 years after successful completion. In these 3 years, you have the rights to the evaluation package and receive an annual update.

> Annual Update Package (Membership Phase)
   With the annual update package, you receive the rights to participate in the expert sessions. In addition, during this time they have access to the current online trainings as well as the possibility to participate in two partner workshops at Vector.

3.5 Installation and Support with the MICROSAR "Getting Started Package"

Here, we work together with you to start up the MICROSAR basic software (BSW) and the RTE on your ECU hardware using the related configuration tools and a sample application. This quickly gives you a runnable system, letting you afterwards focus on your application. This support is typically performed at your business site and is done at a fixed price. The main targets of this package are:

> Communication works on all busses
> Diagnostics responds on a basic service request
> Non-volatile memory is accessible.

Afterwards, our hotline support is available to you by telephone or email, which ensures continuous support in case you have questions about how to use our products.

3.6 Installation and Support with the MICROSAR "V2G Getting Started Package"

Within the scope of this fix price service package, we will take the MICROSAR.V2G software into operation on your ECU hardware using the related configuration tools and a sample application. This quickly gives you a runnable system, letting you afterwards focus on your application. The project setup is completely performed at Vector site, while the handover workshop can either take place at your business site, at Vector site or by Webex.

The main targets of this package are:

> The PHY chip is able to download firmware from host controller
> A link can be established after SLAC has completed
> V2G communication completes a full session

A detailed offer attachment will describe the prerequisites that have to be fulfilled prior to the start of this service package, in order to ensure successful completion in time.

Afterwards, our hotline support is available to you by telephone or email, which ensures continuous support in case you have further questions about how to use our products.

3.7 Installation and Support with the Flash Bootloader "Getting Started Package"

Here, we work together with you to start up the Flash Bootloader (FBL) on your ECU hardware using the related configuration tools and a sample application to ensure that you will quickly get a reprogrammable system. This support is typically performed at your business site and is done at a fixed price. The main targets of this package are:

> Download of existing application software or Start Application will be possible via the defined bus system
> Return from download with positive response from application software

Afterwards, our support is available to you by telephone or email, which ensures continuous support in case you have questions about how to use our products.
3.8 Review of your Configuration with the MICROSAR "Verification Package"

You have been using our AUTOSAR Embedded Software for a longer period of time, and you are approaching an important project milestone. Based on prepared checklists, we conduct an integration and configuration review related to the concrete usage of the MICROSAR stack. In this process, we evaluate the completeness, correctness and consistency of the selected settings and the required integration code. In particular, specific aspects of the OEM are considered, such as parameters, configuration settings, as well as provided software components.

3.9 Coaching

In Coaching, we accompany your ECU development during practice phase. We focus on addressing your individual needs and support you e.g. in:

> Initializing the hardware, including CPU Clock and PLL
> Integrating the software components in the project structure
> Individual configuration of the operating system
> Starting and stopping the bus communication depending on the network state
> Providing the necessary I/O signal interfaces, including signal processing via the RTE
> ECU and mode management in power up and shut down
> Integration of diagnostics, error memory and memory management in your ECU software
> Linking of the applications to watchdog management
> Integration of further standard software from the OEM

The Premium Support, which is included in any coaching agreement, contains on-site support in addition to the telephone and email Hotline. Based on the specific objectives that were agreed on, we ensure individual support of your project.

3.10 AUTOSAR Consulting

In the framework of AUTOSAR consulting, together with you we can work out individual, technical solutions to various questions related to AUTOSAR:

> Definition of an AUTOSAR-conformant software architecture
> Optimal use of the AUTOSAR tool chain: DaVinci Developer, Configurator Pro and GENy
> Migration of existing software to the AUTOSAR architecture
> Conceptualization of gateway functions
> Structuring of MATLAB/Simulink models to be linked as software components via the RTE
> Interfacing external peripheral components
> Hardware-dependent Sleep and Wakeup concepts under consideration of individual quiescent current requirements
> Consideration of aspects related to Functional Safety according to ISO 26262

We are performing these consulting activities as customized workshops. This ensures that the worked-out solutions optimally fit into your ECU project.

3.11 Extended Integration Package (EIP)

The Extended Integration Package is a pre-defined (standardized) project work for the integration of the OEM-specific standard software on your ECU. It offers an efficient start for your project and allows an early and successful execution of bench tests with the OEM. For details on the content of this service package, please refer to the separate Product Information "MICROSAR" at www.vector.com/pi_microsar_en.