



# Success

in Series

From the very beginning, dSPACE has actively supported the development and widespread use of the AUTOSAR standard and has inspired many customers to work with dSPACE's AUTOSAR-supporting tools. The many successful projects and innovative developments encourage dSPACE to further boost AUTOSAR support. Joachim Stroop, Lead Product Manager and AUTOSAR expert at dSPACE, gives insight into the current activities.



AUTOSAR's success story and how the dSPACE tool chain supports the AUTOSAR standard







#### *How has the AUTOSAR standard evolved from a dSPACE point of view?*

After more than ten years of hard work, the standard is now a core component in many countries. AUTOSAR is a technologically mature and extensive standard that can be used internationally. But the standard has not been put into practice equally in all regions. Although the initial interest is still strong in Europe, the same cannot

be said for other markets. But dSPACE remains internationally active and continues to create commonly accepted, state-of-the-art means for the development and exchange of software in vehicle development.

LDF, and FIBEX. This makes it possible to introduce new technology such as Ethernet into the vehicle. The dSPACE tool chain supports AUTOSAR standard developments in all stages.

#### *How does dSPACE contribute to AUTOSAR organizational work?*

From day one, in 2004, dSPACE has been a premium member of

#### *How does dSPACE include the standard in its solutions?*

We develop new applications that generate added value for our customers, all based on the AUTOSAR standard. dSPACE SystemDesk®, for example, makes developing software architectures and generating virtual electronic control units possible. These can be validated in early development phases using

## Our customers have successfully used our products in production projects for a long time.

the AUTOSAR partnership and has always been active in the AUTOSAR working groups. As a provider of tools for the development and testing of electronic control units, we use our know-how to promote standardization. We develop description formats for function components and software architectures, and work on communication protocols. We also support the efforts to use the well-established methods of rapid control prototyping and bypassing in AUTOSAR development projects.

#### *How important is the AUTOSAR standard for dSPACE?*

The AUTOSAR standard has entered all traditional vehicle domains, from vehicle electronics, to vehicle dynamics, to the drivetrain. The standard also increasingly replaces established description formats, which now have a common basis. This is especially true for descriptions of bus system communication. Here, AUTOSAR is used more frequently than DBC,

dSPACE simulation platforms such as VEOS®. This is only possible with the AUTOSAR standard. But the standard is also becoming a part of other tools to provide new possibilities created by the standard and to have a product range that can be used in all development stages. Some examples are AUTOSAR-compliant code generation with dSPACE TargetLink® and the AUTOSAR-compliant use of bus formats for configuring hardware-in-the-loop systems. Another example is rapid control prototyping in combi-

**AUTOSAR has entered all areas of traditional vehicle electronics.**



## We want to create added value by adapting the development methods for real AUTOSAR ECUs to the virtual world.

nation with AUTOSAR modules and bypassing of AUTOSAR electronic control units. dSPACE invests not only in these tools but also in optimizing how our tools are put to use. Often, a small investment yields big returns. The experienced AUTOSAR experts at dSPACE Engineering are there to support these services.

### *Where can dSPACE products be used for AUTOSAR-compliant development?*

The AUTOSAR standard covers many areas, and one provider alone cannot cover all of them. At dSPACE, the AUTOSAR standard focuses on the company's core competencies. Thanks to the advanced maturity of the AUTOSAR standard, dSPACE tools can be used together with the solutions of other providers in customer projects.

### *How successful is dSPACE with AUTOSAR?*

For a long time, our customers have successfully used our hardware and software in production projects. The PSA article in this issue describes a striking example. PSA's approach has become common practice in Europe and is gaining importance across the globe. Virtual validation is a prominent and often-discussed topic in the automotive markets.

dSPACE has recognized the potential for this application field very early and is considered to spearhead innovation in applications for front-loading tests – while ensuring a seamless transition to hardware-in-the-loop tests.

### *What does the future hold for AUTOSAR at dSPACE?*

We are currently preparing Release R4.2 of the AUTOSAR standard, which our products will support as soon as possible. The quick support of new releases is a top priority for us. At the same time, we want to increase the added value for our customers, by adapting develop-

ment methods for real electronic control units to the virtual world, for example. One solution is to introduce bypassing to virtual ECUs.

*Thank you very much for your time, Mr. Stroop.*

*Joachim Stroop is Lead Product Manager for SystemDesk at dSPACE GmbH.*

