

Dear Reader,

We're thrilled to present you with the latest issue of RealTimes, packed with fascinating articles about the world of embedded systems. In addition to news about the innovative solutions we're deploying to increase the efficiency of your development processes, you will discover exciting customer projects and how our solutions are being applied in a variety of market segments.

One area where new tools and methods are needed is the validation and calibration of advanced, powerful, and connected systems for new generations of vehicles. Conducting a series of isolated tests on the test bench and in the vehicle is no longer enough to optimize and safeguard the behavior of complex systems in all operating states. What's more, maintaining these as the sole method of validation and calibration isn't worth the effort and the money involved. In this issue, we'd like to tell you about the range of innovative tools ETAS provides to complement and make the most of these tests:

ETAS ASCMO offers an extremely effective way of using measurement data to model and optimize the behavior of complex systems. This makes it possible for instance to optimize and accurately predict fuel consumption and emission values for complex combustion engines according to engine speed, load, or any controlled engine variable.

ETAS INCA-FLOW gives calibration engineers all they need to graphically model complex calibration processes in the form of flow charts, which they can then use to guide other users through the complex stages of particular calibration cases.

ETAS EHANDBOOK is an efficient tool for documenting complex systems. It offers calibration engineers who are working on a vehicle a shortcut to understanding how the various ECU functions work and how signals flow through multiple functions. With just one click, they can jump straight to the relevant content, while the graphical representation makes it much easier to understand how things link together. Conventional ECU documentation, which typically fills between 10,000 and 20,000 PDF pages, is now a thing of the past. Together, the ES800 solution and the FETK ECU interface make it possible to record measurement data from ECUs and from the system environment – simultaneously, at high rates, and with minimum strain on ECU resources. This solution brings us closer to fulfilling the goal of being able to record all vehicle measurements without interruption over a full day of testing.

Friedhelm Pickhard
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(left to right)



In connection with Big Data processing methods, the aim of this new ETAS measurement technology is to improve quality and raise efficiency when validating vehicles, systems, and ECUs. Engineers working on development, testing, calibration, and quality assurance can use the available measurement data for the specific task in hand. Existing data can be carried over into subsequent projects, which significantly reduces both test phase times and the number of test candidates. Share in our enthusiasm for innovative, efficient methods and solutions and get to know our latest tools starting on page 6.

Highly connected, electronically controlled systems present a big target to manipulators and it is time to reassess the risks. Growing connectivity is increasing the chances of malfunctions and breakdowns. Minimizing risk involves dovetailing safety and security disciplines over the entire product life cycle – especially when it comes to design and development. Read more about this topic in our feature on safety and security starting on page 18 and discover how ETAS is offering more of both with its modular solutions for the future connectivity market.

Closely connected with the automotive industry is the off-highway market segment. ETAS has many years of extensive expertise in embedded systems, especially in the powertrain area. Starting on page 32, we've included some customer projects that demonstrate how we are applying our highly specialized know-how to the off-highway market.

Dear Reader, we hope that you enjoy reading this latest issue of RealTimes and that it provides you with some inspiring ideas.

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