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Press Release

ETAS and IPG Automotive collaborate

- EVE and CarMaker – a joint solution for virtual software validation
- Cooperation built on many years of automotive expertise

Stuttgart, Karlsruhe, August 18, 2014 – Stuttgart-based ETAS GmbH and IPG Automotive GmbH, headquartered in Karlsruhe, are collaborating in virtual ECU software validation. Both companies have many years of automotive expertise as well as extensive solution portfolios in the areas of embedded software and driving dynamics simulation. Now they are bringing this vast know-how together in the creation of a joint solution for validating software during early stages of the development process. The solution is based on taking virtual ECUs on virtual test drives.

Prompting this new solution is not only the continuously growing complexity of what automotive ECUs must do, but also their shortened development cycles. One of the key forces behind this growing complexity is the trend towards autonomous driving, which brings with it a perpetual increase in the number of assistance functions. When it comes to developing these functions, there is no real prototype available some 60 percent of the time and less than 10 percent of engineers are able to carry out validation activities in the complete vehicle. Automotive manufacturers and suppliers both have a vested interest in improving this situation and being able to test new functions early on, independent of hardware, in a virtual environment in a complete vehicle.

ETAS and IPG Automotive are addressing this issue and are enabling the virtual validation of ECU software early on. The main ingredients of their joint solution

are the ETAS virtual ECU EVE and IPG Automotive's open integration and test platform CarMaker.

EVE is a PC-based platform for virtual software integration and validation. Unlike previous virtual solutions, here the ECU production software is used in conjunction with RTA-OS and under realistic conditions. This enables validation of application software, basic software – or even the complete ECU software – to take place within a virtual environment. Testing can be conducted in realtime as well as non-realtime modes and supports a wide range of different applications that offer a high degree of consistency across the various stages of development.
For its part, CarMaker provides the simulation environment for virtual test driving. This open integration and test platform allows the integration of models from various modeling tools, thereby solving potential interface problems in the process. High-quality simulation results are drawn from precise non-linear vehicle and trailer models and are reinforced by the option of carrying out complex driving maneuvers in countless situations (e.g., testing ADAS with many road users). CarMaker covers a broad spectrum of application areas and allows functions to be developed and secured using Model-, Software-, Hardware-, and Vehicle-in-the-Loop at any time during the development process.

The combination of these two tools makes it possible to carry out realistic and hardware-independent software validation early on within a virtual environment. The process starts with the integration of production software components into the virtual ECU EVE. Afterwards, EVE can be exported as a Functional Mock-up Unit (FMU) and integrated into CarMaker via the standardized Functional Mock-up Interface (FMI). CarMaker is then used to put the software through its paces as part of virtual test drives before the software is approved.

The ETAS and IPG Automotive joint solution offers numerous time- and cost-saving benefits – for automotive manufacturers and suppliers alike. Since tests can be carried out in a complete vehicle context, the hardware-independent and early validation of ECU software also raises quality. What is more, this ensures that car manufacturers can incorporate their own specific test scenarios.

ETAS GmbH

ETAS provides innovative solutions for the development of embedded systems for the automotive industry and other sectors of the embedded industry. As a systems provider, ETAS supplies a multifaceted portfolio that covers the range from integrated tools and tool solutions to engineering services, consulting, training, and support. Security solutions in the area of embedded systems are offered by the ETAS subsidiary ESCRYPT. Established in 1994, ETAS GmbH is a 100-percent subsidiary of the Bosch Group, with international subsidiaries and sales offices in 13 countries in Europe, North and South America, and Asia.

For more information, please visit www.etas.com

IPG Automotive GmbH

IPG Automotive GmbH is one of the world's leading providers of simulation solutions, test systems, and engineering services for the automobile and automotive supplier industries. In addition to conventional vehicle dynamics simulation, the open integration and test platforms CarMaker, TruckMaker, and MotorcycleMaker open up a wide range of applications in Model-, Software-, and Hardware-in-the-Loop simulation. It includes development and testing of chassis control systems, driver assistance systems and combined chassis, powertrain and steering systems, as well as comprehensive consumption analysis and hybrid technology.

For more information, please visit www.ipg.de