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Press release

IPG Automotive Facilitates the Development and Validation of vECUs with Synopsys' Silver Platform

Comprehensive validation solution with virtual electronic control units for software-defined vehicles

Karlsruhe, January 10, 2024: IPG Automotive, using Synopsys' Silver platform, provides solutions which support customers to efficiently develop and validate virtual ECUs with software-in-the-loop and therefore accelerates the development process.

IPG Automotive CarMarker offers a seamless, scalable simulation environment to develop and test software-defined vehicles. Synopsys Silver is a platform to validate virtual electronic control units, also known as vECUs.

The combination of CarMarker's integration platform and vECUs developed with Silver into a validated solution enables software architects, function developers and application engineers to develop ECU production code individually or bundled, in a time-efficient and highly automated x-in-the-loop environment. Diagnostic interfaces, restbus models and bus monitoring can thus be tested with virtual test driving.

The coupling of vECUs with the full virtual vehicle on the integration platform CarMaker enables signal- and scenario-based validation in all stages of development, such as for typical AUTOSAR projects.

As a direct co-simulation or via the FMU interface from CarMaker, synthetic or realistic input parameters stimulate the software in the virtual ECU. Afterwards,

the calculated control parameters are fed back into the simulation environment. The network communication can also be modeled as a virtual bus.

In contrast to a model-only approach, vECUs can be generated from the complete application software, the real production code, or the binary ECU data compiled from it.

vECUs can be tested in parallel on any amount of computing nodes in the cloud. Independence from hardware allows for faster and more flexible testing. As a consequence, developers achieve much higher test coverage.

"The automotive industry is accelerating software-defined vehicle validation through the deployment of virtualization solutions," said Tom De Schutter, Vice President of Engineering for the Systems Design Group at Synopsys. "The integration of vECUs, developed with Synopsys' Silver platform and IPG CarMaker accelerates the execution of virtual test scenarios, allowing vehicle manufacturers to start validation earlier with reduced verification and validation costs."

"The combination of Synopsys Silver and CarMaker enables developers to increase testing depth in the early stages of the development process, to detect faults quickly and safely in short loops and therefore to speed up development already today with one of the most advanced tool chains," confirms Martin Elbs, Senior Vice President and CCO (Chief Customer Officer) at IPG Automotive.

2,820 characters (including spaces)

Image

IPG Automotive facilitates the development and validation of vECUs with Synopsys' Silver platform.

Image: IPG Automotive GmbH, Synopsys

About IPG Automotive GmbH

As a global leader in virtual test driving technology, IPG Automotive develops innovative simulation solutions for vehicle development. The company's software and hardware products for the application areas of autonomous vehicles, ADAS, powertrain and vehicle dynamics are designed for seamless use throughout the entire development process.

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