Synopsys Advances Virtual Development of Next-Generation Automotive and Physical AI Applications with Infineon AURIX™ RC1 Microcontroller Family

Nov. 10, 2026

What's New:
Synopsys extended its long-standing collaboration with Infineon to deliver a Synopsys Virtualizer™ Development Kit (VDK) supporting Infineon's AURIX™ RC1 microcontroller (MCU) family. The VDK equips automotive engineering teams with a virtual prototype of the AURIX™ RC1 MCU, Infineon's new scalable computing platform for software-defined vehicle (SDV) and Physical AI applications. Using the RC1 VDK as part of an electronics digital twin, engineering teams can continuously develop, verify, and validate software across a variety of domains to reduce integration risk and accelerate time to market.

Why it Matters:
Automotive engineering teams are managing more than 600 million lines of code, hundreds of suppliers, shorter development cycles, and intensifying cost pressures. As AI and software become more central to vehicle functionality and differentiation, teams cannot wait for physical hardware before developing and validating their sophisticated software stacks.

Electronics digital twins of automotive systems enable teams to begin development and validation of software and systems sooner to identify issues early and reduce the risk of production delays. The financial implications are considerable: Large OEMs often spend hundreds of millions of dollars annually on physical test vehicles, with more than half of that used for software and electronics. The virtualization of vehicle electronics for design, integration, and test can reduce these costs by 20–60%.[1]

A Closer Look:
For more than a decade, Infineon and Synopsys have collaborated on virtual prototyping for multiple generations of AURIX™ MCUs, including the use of Synopsys solutions to develop Infineon's future-ready multicore real-time cluster architecture. Together, the companies are helping customers accelerate system validation, reduce development costs, and bring next-generation automotive and Physical AI applications to market with greater confidence. The new RC1 VDK helps customers:

- **Evaluate the New MCU Earlier:** The virtual model of the RC1 MCU offers frictionless access for customers and partners to evaluate the new MCU and make platform-selection decisions ahead of silicon availability.
- **"Shift Left" Software Development and Validation:** With virtual access to the RC1 MCU, engineering teams can integrate the architecture into next-generation electronic control units (ECUs) and achieve up to 90% software validation ahead of physical system availability, accelerating system bring-up and reducing integration issues during physical testing.
- **Comprehensive Integration with the Infineon Automotive Ecosystem:** The RC1 VDK is available within the Infineon DRIVECORE™ software portfolio for compiler, debugger, AUTOSAR, open-source and other partners to validate software compatibility with the upcoming MCU family ahead of silicon availability.
- **Scale Digital Engineering:** The RC1 VDK provides a critical foundation to build virtual ECUs (vECUs), networks of vECUs, and full-system electronics digital twins (eDTs), enabling validation from the earliest stages of development and throughout the product lifecycle.

Executive Commentary:
"We consider the introduction of our new AURIX™ RC1 family much beyond the new microcontroller architecture itself," said Thomas Schneid, vice president, Software and Ecosystem Management at Infineon. "Our new open architecture based on RISC-V comes with a growing holistic ecosystem. Together with partners like Synopsys, we are creating an open and scalable software, tools and services environment that enables customers to build on their existing investments, simplify migration, and accelerate innovation on AURIX™ RC1."

"For more than a decade, Synopsys and Infineon have collaborated to deliver Infineon-validated virtual prototypes for the AURIX™ and TRAVEO™ MCU families," said Marc Serughetti, vice president, Product Management at Synopsys. "With a Synopsys Virtualizer Development Kit for the new AURIX™ RC1 family, automotive OEMs and Tier 1 suppliers can start software development before silicon is available and scale system validation from virtual ECUs to complete electronics digital twins. These digital twins help teams validate software across the vehicle's electronics architecture and catch issues early, reducing costs, accelerating time to market, and improving software quality."

For more information about Synopsys and Infineon's collaboration, please visit:https://synopsys.com/partners/infineon.html.

Additional Synopsys Resources:

- Blog: Accelerating Software Development for Infineon's New AURIX™ RC1 Microcontroller Family
- News Release: Synopsys Launches Electronics Digital Twin Platform to Accelerate Physical AI System Development
- eBook: Navigating Vehicle Engineering in a Software-Defined World
- Docuseries: Driven by Simulation
- Web resources: Synopsys Automotive Solutions, Virtual Prototyping, and Electronics Digital Twins

[1,] Based on Synopsys analysis, Synopsys Automotive Executive Guide, 2025.

Additional assets available online: