New S32K5 microcontroller family advances zonal SDV architectures and extends the NXP CoreRide platform

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- New family of MCUs helps automakers shift to SDVs with a range of zonal and electrification architectures
- Combines leading-edge core performance with embedded MRAM memory to enable ECU consolidation without sacrificing latency or efficiency
- NXP CoreRide platform enables faster time to market and reduced lifecycle costs via pre-integrated software and reference solutions from partner ecosystem

NUREMBERG, Germany, March 11, 2025 (GLOBE NEWSWIRE) -- EMBEDDED WORLD -- NXP Semiconductors N.V. (NASDAQ: NXPI), the trusted partner for innovative solutions in the automotive market, today unveiled its new S32K5 family of automotive microcontrollers (MCU), the automotive industry's first 16nm FinFET MCU with embedded magnetic RAM (MRAM). The S32K5 MCU family will extend the NXP CoreRide platform with pre-integrated zonal and electrification system solutions for scalable software-defined vehicle (SDV) architectures.

Automakers are embracing zonal architectures with diverse approaches to the distribution and integration of electronic control unit (ECU) functions. The foundation of these zonal solutions is a next-generation MCU architecture that combines real-time performance with low-latency deterministic communication, and innovative isolation features.

“The new S32K5 family pushes the boundaries of MCU performance without sacrificing the safety, efficiency and isolation that are essential for zonal solutions,” said Manuel Alves, SVP and GM, automotive microcontrollers at NXP. “The NXP CoreRide platform featuring S32K5 will help automakers and Tier-1s accelerate the development of zonal architectures, providing a scalable foundation for software-driven innovation.”

NXP’s new S32K5 family features Arm ® Cortex® CPU cores running up to 800 MHz and offers power-efficient application performance, enabled by the 16nm FinFET process. Optimized accelerators are available to boost key workloads, including network translation, security and digital signal processing. The integrated Ethernet switch core, common with NXP’s S32N family of automotive processors, brings a proven networking solution that streamlines network design and enables software re-use.

With its integrated software-defined, hardware-enforced isolation architecture, the S32K5 enables automakers to implement safe and secure partitioning. It ensures safety applications up to ASIL-D can be integrated without compromising safety or performance.

The S32K5 also features a dedicated eIQ® Neutron neural processing unit (NPU), NXP's scalable machine learning accelerator, enabling machine learning algorithms to perform power-efficient, real-time processing of sensor data at the vehicle’s edge.

Additionally, on-chip high-performance MRAM accelerates ECU programming times both in the factory and for over-the-air (OTA) updates, with more than 15x faster write speeds than embedded Flash memory technologies. Combined with NXP’s latest security accelerator including post-quantum cryptography (PQC) capability, the S32K5 enables automakers to safely and securely deploy new features throughout the vehicle lifetime, benefiting the manufacturing and ownership of the vehicle.

The S32K5 will begin sampling with lead customers in Q3 2025.

NXP CoreRide zonal ecosystem voices

Suraj Gajendra, Vice President of Automotive Product and Software Solutions, Automotive Line of Business, Arm
“Automakers need to embrace zonal architecture to deliver cutting-edge driving experiences in SDVs. By leveraging Arm Cortex technology, NXP’s S32K5 MCUs enable that innovation coupled with the highest levels of functional safety.”

Jagan Rajagopalan, Head of Strategy & Portfolio, Elektrobit Automotive GmbH
“Teamwork alone within the automotive software ecosystem is not enough to guarantee the future of the software-defined vehicle. Speed is also a factor. Working with the Synopsys virtualizer development kit (VDK) to port our EB tresos AutoCore OS and full Classic AUTOSAR stack, Elektrobit is proud to play a dynamic part in fully utilizing the NXP CoreRide platform. With the EB tresos port to the VDK, our products will not only be available for the first samples faster, but also NXP's K5 customers will be able to start their application development sooner. We look forward to working with NXP’s new S32K5 microcontroller to support Safety OS in the future with higher ASIL D requirements.”

Mike Thoeny, President, Automotive, Flex
“Strong ecosystem partnerships are crucial to enable OEMs to overcome complexity and transition to zonal architectures. By combining Flex's advanced design and manufacturing capabilities with NXP's scalable S32K5 MCU and software, we are providing OEMs with a modular, automotive-grade hardware platform to speed production, optimize for cost, and deliver software-defined vehicles at scale.”

Dan Mender, Vice President, Business Development at Green Hills Software
“Green Hills Software is pleased to announce the availability of RTOS, hypervisor and advanced development tools solutions for NXP’s S32K5 family of microcontrollers. Integrated and optimized to work with the latest NXP S32 automotive processor, Green Hills’ production-focused software solutions help customers fully utilize the S32K5 microcontroller’s impressive combination of high-performance real-time control, communication

acceleration and hardware-enforced isolation for safely running and consolidating functions in new SDV zonal architectures."

Yu Fang, CTO and Co-Founder at Sonatus
"Sonatus is proud to partner with NXP to support the CoreRide platform and the S32K5 family of automotive microcontrollers. This new product will accelerate the adoption of zonal architectures, one important evolutionary step to realize the full promise of SDVs. Our Zonal Network Manager leverages the S32K5 MCU to simplify network management and add flexibility to E/E architectures to ensure vehicles continue to improve after shipment."

NXP CoreRide platform
The NXP CoreRide platform marks a major step forward in helping automakers overcome software and hardware integration barriers, while scaling development efforts for new architectures in SDVs. The platform integrates NXP's S32 compute, networking, system power management with middleware, OSes and other software from the world's leading automotive software providers, including Accenture ESR Labs, ArcherMind, Blackberry QNX, Elektrobit, ETAS, Green Hills Software, Sonatus, Synopsys, TTTech Auto, Vector Informatik GmbH, and Wind River, Tier-1 suppliers like Valeo as well as integration service providers like Foxconn.

About NXP Semiconductors
NXP Semiconductors N.V. (NASDAQ: NXPI) is the trusted partner for innovative solutions in the automotive, industrial & IoT, mobile, and communications infrastructure markets. NXP's "Brighter Together" approach combines leading-edge technology with pioneering people to develop system solutions that make the connected world better, safer, and more secure. The company has operations in more than 30 countries and posted revenue of $12.61 billion in 2024. Find out more at www.nxp.com.

For more information, please contact:

Americas and Europe
Andrea Lempart
Tel: +49 175 610 695 1
Email: andrea.lempart@nxp.com

Greater China / Asia
Ming Yue
Tel: +86 21 2205 2690
Email: ming.yue@nxp.com

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A photo accompanying this announcement is available at https://www.globenewswire.com/NewsRoom/AttachmentNg/c99503ea-da19-44ac-aee3-5af04d57f4e9

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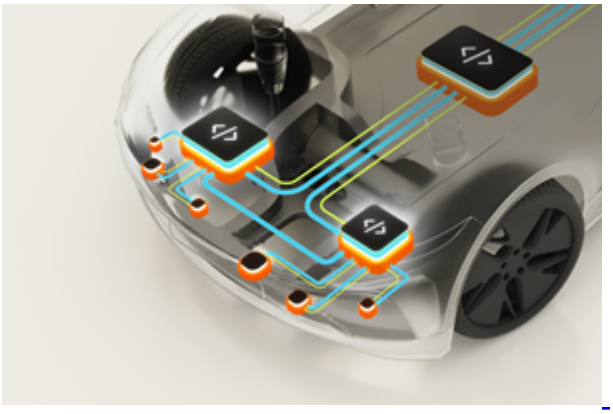

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Source: NXP USA, Inc.