



NXP Introduces High-Performance S32K39 Series MCUs for Modern Electrification Applications

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- Addresses new electric vehicle (EV) traction inverter control needs with compelling combination of performance, integration, networking, security and functional safety
- Supports remote smart actuation applications using Time-Sensitive Networking (TSN) Ethernet for new zonal vehicle architectures
- Reduces system cost with ASIL D software resolver and analog integration

MUNICH, Germany, Nov. 15, 2022 (GLOBE NEWSWIRE) -- Electronica -- NXP Semiconductors (NASDAQ: NXPI), the leader in automotive processors, today announced a new S32K39 series of automotive microcontrollers (MCUs) optimized for electric vehicle (EV) control applications. The modern S32K39 MCUs take electrification into the future with high-speed and high-resolution control for increased power efficiency to extend driving range and provide a smoother EV driving experience. The S32K39 MCUs include networking, security and functional safety capabilities beyond traditional automotive MCUs to address the needs of zonal vehicle E/E architectures and software-defined vehicles. The new MCUs enable NXP's battery management system (BMS) and EV power inverters to provide end-to-end solutions for next-generation EVs.

The high-performance S32K39 MCUs are optimized for the intelligent and high-precision control of traction inverters that convert the EV battery's DC power into alternating current to drive modern traction motors. The MCUs support traditional insulated-gate bipolar transistors (IGBT), as well as newer silicon carbide (SiC) and gallium nitride (GaN) technologies. With dual 200 kHz control loops to improve power efficiency, these can enable smaller, lighter, more efficient inverters, allowing motors to deliver a longer driving range. They can also control six-phase motors with increased power density and fault tolerance for improved long-term reliability. A safe ASIL D software resolver, along with integrated sine wave generation and sigma delta converters, eliminate external components for reduced overall system cost. The S32K39 also provides flexibility to control up to quad traction inverters when coupled with the NXP [S32E real-time processor](#) and can implement advanced traction capabilities for 4-wheel drive EVs in this configuration.

Because of its versatile architecture, the S32K39 series is well-suited to address a wide range of EV applications beyond traction inverter control, including battery management (BMS), on-board charging (OBC) and DC/DC conversion. With support for hardware isolation, time-sensitive networking and advanced cryptography, it is well-positioned to support software-defined vehicles and zonal architectures.

"The S32K39 MCUs offer a compelling combination of modern technology that provide carmakers tremendous flexibility and scalability to accelerate their EV development and deploy the latest electrification technologies," said Allan McAuslin, Director, Vehicle Control and Electrification Segment at NXP Semiconductors. "NXP is leading the way with a comprehensive portfolio of complementary solutions to give our customers the ability to provide better EV driving experiences and help accelerate the electric vehicle revolution."

About the S32K39

- Highest performance member of the S32K family with four Arm[®] Cortex[®]-M7 cores at 320 MHz configured as a lockstep pair and two split-lock cores
- Up to 6 MB of flash memory and 800 KB of SRAM
- Two motor control coprocessors and NanoEdge[™] high-resolution pulse-width modulation (PWM) for higher performance and precision control
- Safe ASIL D software resolver eliminates external components and reduces cost
- Integrated DSP for flexible digital filtering and machine learning (ML) algorithms
- Multi-channel analog support with SAR and sigma-delta A/D converters, comparators and sine wave generators for resolver excitation
- Six CAN FD interfaces, TSN Ethernet and many advanced programmable I/Os
- Hardware security engine (HSE) for trusted boot, security services, secure over-the-air (OTA) updates using Public Key Infrastructure (PKI) and key management
- S32K37 versions (without the two motor control processors) are also available
- Developed with certified ISO/SAE 21434 cybersecurity and ISO 26262 functional safety processes
- Available in two packages: 176LPQFP-EP and 289MAPBGA

System Solution Availability

Engineering samples, evaluation boards, and a comprehensive set of software support and tools are now available for lead customers. The S32K39 MCUs can be combined with the NXP [ES26](#) safety system basis chip (SBC) and the advanced high voltage isolated gate driver [GD3162](#) with adjustable dynamic gate strength control for a safe inverter control system. Both support the highest level of functional safety (ASIL D) for traction inverter development. Production release is planned for Q4 2023.

[About NXP's Electrification Solutions](#)

The robust, open architecture of NXP's electrification solutions enables safer, more secure two-way communication from electrified end points to the cloud. Our integrated and embedded technologies give product designers and service providers confidence to build systems with the highest security and safety standards; with insights to improve the performance for the whole product life cycle. NXP electrification solutions offer control throughout the whole ecosystem, not just one part – handling battery management, efficient motor drive, fast charging, and load balancing across entire grids.

For more information, please visit [nxp.com/S32K39](https://www.nxp.com/S32K39).

About NXP Semiconductors

NXP Semiconductors N.V. (NASDAQ: NXPI) enables a smarter, safer and more sustainable world through innovation. As a world leader in secure connectivity solutions for embedded applications, NXP is pushing boundaries in the automotive, industrial & IoT, mobile, and communication infrastructure markets. Built on more than 60 years of combined experience and expertise, the company has approximately 31,000 employees in more than 30 countries and posted revenue of \$11.06 billion in 2021. Find out more at www.nxp.com.

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A photo accompanying this announcement is available at <https://www.globenewswire.com/NewsRoom/AttachmentNg/ab38bba8-4d82-4665-9e8e-de729c6ad989>



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Source: NXP USA, Inc.