NXP Expands S32 Platform with Motor Control Solution for Software-Defined Vehicle Edge Nodes

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- *Made for motor control, NXP's S32M2 maximizes software re-use across the S32 vehicle compute platform and supports the automotive industry's transition to software-defined electric vehicles*
- *OEMs are turning to smaller, lightweight and more efficient BLDC/ PMSM motors, contributing to energy savings and range extension of electric vehicles*
- *The highly integrated S32M2 simplifies and optimizes motor control of body and comfort applications, reducing in-cabin noise and enhancing occupant comfort*

DETROIT, Nov. 07, 2023 (GLOBE NEWSWIRE) -- **NXP Tech Days --** NXP Semiconductors N.V. (NASDAQ: NXPI) expands its scalable S32 vehicle compute platform with the introduction of the S32M2. The purpose-built motor control solution is optimized for efficiency improvement across vehicle applications such as pumps, fans, sunroof and seat position, seat belt pretensioners, trunk openers and more. Building on the success of the S12 MagniV® portfolio, the S32M2 combines NXP's motor control heritage and the software development benefits of the S32 platform. The highly integrated system-in-package solution adds the power and analog functions as well as extensive software libraries required for motor control to NXP's widely adopted S32K microcontrollers. It addresses the needs of the emerging software-defined electric vehicle market and enables carmakers to fully optimize product development and to maximize software re-use across S32 platform implementations.

Among the many types of electric motors, brushless direct current (BLDC) and permanent magnet synchronous (PMSM) motors are known for their endurance and robustness, small size, low weight and high efficiency, which all contribute to energy savings and range extension for EVs. The S32M2 enables simplified and more robust motor control functions that can run efficiently while maintaining performance headroom to integrate more functions and capabilities while optimizing costs. OEMs can perform motor diagnostic tests, transmit data to the zonal controller and optimize for higher performance to improve efficiency further and lower audible noise in the final application, which improves occupant comfort. Compared with discrete motor control implementations, the S32M2 enables OEMs to accelerate time-to-market and reduce the printed circuit board footprint, design risks and bill-of-material cost.

"By using NXP's Model-Based Design Toolkit, automakers can start Simulink simulation early in the development cycle and map the model to the S32M2 hardware," said Manuel Alves, Senior Vice President and General Manager of General Purpose and Integrated Solutions (GPIS), Automotive Processing, NXP. "Since this is a purely software-defined approach, automakers can optimize software re-use across the S32 vehicle compute platform, while benefiting from feature and performance enhancements which builds on the success of today's S12 MagniV portfolio."

With the addition of the S32M2, NXP's S32 vehicle compute platform is consistent from top to bottom, while benefitting from the vast Arm ® software ecosystem. The close and long-standing partnership with Arm and previous joint development efforts allow NXP to leverage the full potential of the Arm Cortex™-M processors in terms of power efficiency and safety capabilities in combination with the new motor control solution.

"Vehicle architectures are changing significantly to meet the requirements of a software-defined future," said Dipti Vachani, SVP and GM, Automotive Line of Business, Arm. "By leveraging the efficient, low-power heritage of the Arm Cortex-M portfolio alongside Arm's extensive software ecosystem, NXP's S32M2 product is primed to power the safety-critical, real-time response requirements of edge applications in SDVs while enabling customers to focus their time on product differentiation rather than rewriting code."

Based on the system-in-package approach, the S32M2 combines advanced compute with MOSFET gate drivers, physical layer interfaces for CAN FD and LIN communication, and a built-in voltage regulator directly from the vehicle's 12-volt battery, addressing various motor control applications.

Integrating either an Arm Cortex-M4 or Cortex-M7 core, the S32M2 series covers a broad range of memory options from 128KB to 1MB. These devices are supported with the 64-pin LQFP package, which gives automakers the flexibility to select across different memory sizes while having pin-to-pin compatibility within the same family. The system-in-package solution also leverages the S32K's development processes certified to ISO 26262 for ASIL B functional safety, the S32 platform's proven security subsystems (CSEc, HSE), and the S32K's comprehensive tools and software ecosystem.

For more information, please visit http://www.nxp.com/S32M.

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Source: NXP USA, Inc.