NXP Processors Deliver Performance and Safety for Next-Generation Electric and Autonomous Vehicles

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- First product release from NXP's new S32 automotive processing platform
- New 16nm 800MHz multicore microprocessor/microcontroller
- The first use of the new Arm® Cortex®-R52 for multi-core ASIL D computing

LUDWIGSBURG, Germany, June 18, 2018 (GLOBE NEWSWIRE) -- NXP Semiconductors N.V. (NASDAQ:NXPI), the world's largest supplier of automotive semiconductors[1], has announced a new family of high-performance safe microprocessors to control vehicle dynamics in next-generation electric and autonomous vehicles. The new NXP S32S microprocessors will manage the systems that accelerate, brake and steer vehicles safely, whether under the direct control of a driver or an autonomous vehicle's control.

NXP's S32S processors deliver safe dynamic control for electric and autonomous vehicles.

Today's car is evolving from a machine that takes simple instructions from a human driver to an increasingly sophisticated computing platform that senses, thinks and acts autonomously. Traditionally, vehicle control systems responded directly to a driver's commands. In autonomous systems by contrast, it is the car that gives those commands and then must execute them flawlessly to guarantee safety in all conditions. This need for safe guaranteed control has driven a rapid growth in demand for high-performance, safe computing solutions to control the "start, stop and steer" functions fundamental to all mobility.

"We see that the shift to next-generation autonomous and electric vehicles is introducing huge challenges to carmakers," said Ian Riches, executive director in the Strategy Analytics Global Automotive Practice. "Not least of these is the ability to get silicon in hand fast enough and with enough performance headroom to ease the transitions to autonomous and advanced HEV/EV. A car can be extremely intelligent, but if it can't act safely on a decision, you don't have a reliable autonomous system at all."

NXP has met the needs of carmakers developing future autonomous and hybrid electric vehicles with a newly available 800MHz microprocessor/microcontroller. The first of the new S32 product lines, the S32S microprocessors offer the highest performance ASIL D capability available today.[2]

The NXP S32S processors use an array of the new Arm Cortex-R52 cores, which integrate the highest level of safety features of any Arm processor. The array offers four fully independent ASIL D capable processing paths to support parallel safe computing. In addition, the S32S architecture supports a new "fail availability" capability allowing the device to continue to operate after detecting and isolating a failure – a critical capability for future autonomous applications.

NXP has partnered with OpenSynergy to develop a fully featured, real-time hypervisor supporting the NXP S32S products. OpenSynergy's COQOS Micro SDK is one of the first hypervisor platforms that takes advantage of the Arm Cortex-R52's special hardware features. It enables the integration of multiple real-time operating systems onto microcontrollers requiring high levels of safety (up to ISO26262 ASIL D). Multiple vendor independent OS/stacks can also run on a single microcontroller. COQOS Micro SDK provides secure, safe and fast context switching ahead of today's software-only solutions in traditional microcontrollers.

Additional S32S Features and Benefits

- Comprehensive Safety Solution: Available companion ASIL D safety system basis chip from NXP (FS66 functionally safe

multi-output power supply IC)
- Large integrated flash memory (up to 64M bytes) supporting on-the-fly, over-the-air update capability with zero processor downtime
- User programmable hardware security engine with private and public key support
- Available PCIe for ADAS domain supervisory applications
- Advanced electric motor control peripherals with included motor control software libraries
- Software and Tools: Autosar MCAL and OS, security firmware, safety SDK, hardware development tools including NXP GreenBox Electrification Platform

S32 Platform

The NXP S32 platform is the world's first fully-scalable automotive computing architecture. Adopted by both premium and volume automotive brands, it offers a unified architecture of microcontrollers/microprocessors (MCU/MPU) and an identical software environment that can reduce development effort and maximizing software reuse across products and applications. The NXP S32 architecture addresses the challenges of future car development with a host of architectural innovations designed to allow carmakers to bring rich in-vehicle experiences and automated driving functions to market much faster than before.

Quote:

"When we started the development of the S32S it was clear that just building another incremental microcontroller was not what customers needed to handle the safety and performance requirements of next-generation and autonomous vehicles," said Ray Cornyn, vice president of Vehicle Dynamics and Safety. "Our new safety processors leverage the high performance multi-core benefits of the S32 Arm platform while still supporting traditional microcontroller ease of use and environmental robustness."

Availability

S32S will be sampling in Q4 2018 to NXP's Automotive Alpha customers. Contact your sales person for more information.

Notes

[1] Source: Strategy Analytics 2017
[2] Performance statement based on publicly available information

About NXP Semiconductors

NXP Semiconductors N.V. (NASDAQ:NXPI) enables secure connections and infrastructure for a smarter world, advancing solutions that make lives easier, better and safer. As the world leader in secure connectivity solutions for embedded applications, NXP is driving innovation in the secure connected vehicle, end-to-end security & privacy and smart connected solutions markets. Built on more than 60 years of combined experience and expertise, the company has over 30,000 employees in more than 30 countries and posted revenue of $9.26 billion in 2017. Find out more at www.nxp.com

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