

# Micro-controller with 12 CAN FD ports

**Infineon has introduced the second generation of its Aurix MCU family. The TC3xx micro-controllers come with multiple on-chip CAN FD channels as well as up to 24 LIN ports.**

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The multi-core MCUs comprises six TriCore processing units each running at 300 MHz (Photo: Infineon)

The Aurix TC3xx series is designed for automotive applications. As a host controller in gateway and telematics applications, the MCUs support multiple network interfaces. This includes up to 12 CAN-FD channels compliant to ISO 11898-1:2015. Additionally, they feature a Gigabit-Ethernet interface and up to 24 LIN channels. The eMMC interface for external flash-memory interfacing enables local data storage supporting software-over-the-air update concepts. Samples of the MCU family will be available in the first quarter of 2017. Qualification of the first product is planned in the first quarter of 2019.

In addition to engine management and transmission control, powertrain applications include new systems in electrical and hybrid drives. Specifically hybrid domain control, inverter control, battery management, and DC-DC converters will benefit from increased performance compared to the predecessor family. The MCUs comply with functional safety standards such as ISO 26062. This makes them suitable for safety-critical applications ranging from airbag, braking, and power steering to sensor-based systems using radar or camera technologies.

The introduced MCU family is scalable and offers up to 16 MiB of flash memory and more than 6 MiB of integrated RAM. Compared to today's TC2xx family with up to three Tricore cores, the TC3xx multicore architecture provides up to six Tricore units. Four of the six cores feature an additional lockstep core enabling a new level of ISO 26262 functional safe computational power on a single IC: up to 2400 DMIPS performance supporting applications classified ASIL-D, compared to up to 740 DMIPS with the previous products.

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Peter Schaefer, Infineon's Vice President (Photo: Infineon)

Peter Schaefer, Infineon's Vice President and General Manager for MCUs explained: "The Aurix TC3xx family will advance the automated and electrical car. We are proud to introduce our next generation of high-performing Tricore-based micro-controllers that set new performance standards and offer the right mix in performance, security, and safety to meet ISO 26262 ASIL-D system requirements."

The performance increase and the reuse of existing safety concepts allow automotive system suppliers to reduce development costs by 20 % and improve time-to-market. Also, more functions can now be implemented on a single micro-controller, such as powertrain and chassis domain control and next generation radar and fusion algorithms.

Automotive radar systems ranging from blindspot monitoring to advanced front radar specifically may benefit from the capabilities of the TC3xx family. The MCUs feature a radar processing sub-system with up to two dedicated Signal Processing Units running at 300 MHz. In addition, radar chips can be connected to the MCU via a high-speed digital radar interface.

The products do not compromise on security. A new version of the programmable Hardware Security Module (HSM) is available across the family: it supports secure on-board communications and prevents hardware manipulation, such as motor tuning. New asymmetric cryptography accelerators are integrated into the HSM hardware that helps to achieve full Evita support. The Aurix TC3xx facilitates fast software-over-the-air updates to protect against software hijacking.

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