



NXP LPC5500 Flash Microcontroller Series Secures Industrial and IoT Edge Applications

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San Jose, California – (ARMTECHCON2018) – October 10, 2018 – NXP Semiconductors accelerates low-cost secure Edge processing with the launch of LPC5500 – industry's first microcontroller platform with single- and dual-core Arm® Cortex®-M33 and Arm TrustZone® technology. Built on low-power 40nm embedded flash process, the LPC5500 Microcontroller (MCU) series brings together new levels of processing efficiency, security and functionality.

The LPC55S69 devices achieves 32uA/MHz efficiency at up to 100 MHz core clock frequency, dual-core Cortex-M33 capability with additional tightly coupled accelerators for signal processing and cryptography, and up to 640KB Flash and 320KB on-chip SRAM for advanced edge applications. LPC55S69 integrates a 16-bit Successive Approximation ADC (SAR ADC) with differential pair mode; a rich set of peripherals for system expansion, including, 50MHz high-speed SPI, a High-Speed USB with integrated physical transceiver, eight flexible communication interfaces, and dual SDIO interfaces for concurrent Wi-Fi connection and external data logging. Further, NXP's autonomous programmable logic unit for offloading and execution of user defined tasks delivers enhanced real-time parallelism.

One of the key features of the Cortex-M33 is the dedicated co-processor interface that extends the processing capability of the CPU by allowing efficient integration of tightly-coupled co-processors, while maintaining full ecosystem and toolchain compatibility. NXP has utilized this capability to implement a co-processor for accelerating key ML and DSP functions, such as, convolution, correlation, matrix operations, transfer functions, and filtering; enhancing performance by as much as 10x compared to executing on Cortex-M33. The co-processor further leverages the popular CMSIS-DSP library calls (API) to simplify customer code portability.

Integrated benchmark security features: secure boot with immutable hardware 'root-of-trust,' SRAM PUF based unique key storage, certificate based secure debug authentication, AES-256 & SHA2-256 acceleration, and DICE security standard implementation for secure cloud-to-edge communication. The public key infrastructure (PKI), or asymmetric cryptography, is further accelerated by the dedicated asymmetric accelerator for ECC and RSA algorithms.

The LPC5500 MCU series features pin-, software- and peripheral compatibility across seven distinct families, with varying levels of functionality, resulting in a portfolio that maximizes re-use, reducing development costs and improving time to market.

Development Support and Product Enablement

The lead device family is enabled with LPC55S69-EVK, an evaluation board supported by NXP's MCUXpresso Integrated Development Environment (IDE) and comprehensive software development kit which includes peripheral drivers, security and connectivity middleware, Amazon FreeRTOS based demos, and Arm TrustZone based security examples.

To further reduce development effort, MCUXpresso includes a suite of configuration tools - pins, clocks and peripherals. Additional security tools include, host-side tool to create and sign a secure flash image, flash programming with SRAM PUF key provisioning and secure debug certificate generator.

Partner tools from Arm Keil MDK, IAR Embedded Workbench, Segger and others have been enabled to support LPC55S69-EVK.

Availability

NXP is sampling LPC55S69 development boards and 100-pin LQFP packages, with associated MCUXpresso based software development kit, through NXP field sales representatives. Direct to customer sampling on NXP eCommerce platform is expected by end of 2018. Volume production commences in Q1-2019.

- Devices within the LPC55S6x family are starting at a per unit price of \$1.99 MSRP USD for 256KB Flash and \$2.49 MSRP USD for 640KB Flash, in 10,000-unit quantities

More Information

For additional information, contact a local NXP sales representative, authorized distributor, or visit NXP online, including the LPC MCU technical forum.

NXP will be showcasing a variety of security and industrial IoT related demonstrations based on LPC55S69-EVK at Arm Techcon, October 16 – 18, 2018, in San Jose, California, and at Electronica, November 13 – 16, 2018 in Munich, Germany.

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