Next-Generation Kinetis Wireless Microcontrollers Increase Performance and Security for IoT Devices

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Single-chip, dual-core MCU supports Bluetooth 5, Thread and Zigbee while increasing security for consumer and industrial IoT devices

NUREMBERG, GERMANY (Embedded World 2018) – February 27, 2018 – Many devices today require a host microcontroller (MCU) connected to a radio which increases size and complexity, while also making design, software development, procurement, supply planning and logistics more complex. Part of NXP's broad edge computing portfolio, which allows devices to be more powerful and secure, is the new K32W0x wireless MCU platform – representing the next-generation of Kinetis MCUs. The K32W0x platform bridges its predecessor parts by providing a scalable path with higher performance, added functionality and increased security to address the evolving IoT landscape. This new platform is the first single chip device with a dual core architecture and embedded multi-protocol radio giving IoT product developers a single supplier for silicon, software, enablement, support and procurement reducing product complexity, size and costs – all while increasing functionality and security.
As the first of NXP's next-generation Kinetis MCUs, the K32W0x MCU platform combines a host and wireless MCU into a small form factor device, making it possible to miniaturize sophisticated applications that typically require a larger, more costly two-chip solution. Consumer devices such as wearables, smart door locks, thermostats and other smart home devices, as well as a broad array of healthcare, commercial and industrial IoT applications can take advantage of the multi-protocol radio and robust performance of the K32W0x wireless MCU platform.
Key features of the K32W0x wireless MCU Platform

- *Dual-core*: Arm® Cortex®-M4core for high performance application processing and a Cortex-M0+ core for low-power connectivity and sensor processing
- *Large memory*: 1.25 MB Flash and 384 kB SRAM to support full-featured applications as well as connectivity protocols
- *Multi-protocol radio*: Support for Bluetooth 5 and IEEE® 802.15.4 including the Thread IP-based mesh networking stack and the Zigbee 3.0 mesh networking stack
- HomeKit support over Bluetooth 5 connectivity with iCloud support

More secure IoT devices
Many IoT devices today do not have the necessary level of security to protect against threats that compromise networks. Protecting against these evolving threats is a primary focus of the K32W0x platform – designed to assure confidentiality, integrity, and authenticity of the IoT device and its data.

Security features of the K32W0x's security system include:

- Cryptographic sub-system that includes a dedicated core, dedicated instruction and data memory for encryption, signing, and hashing algorithms including AES, DES, SHA, RSA and ECC
- Secure key management for storing and protecting sensitive security keys
- Erasing of the cryptographic sub-system memory, including security keys, upon sensing a security breach or physical tamper event
- Resource Domain Controller for access control, system memory protection and peripheral isolation
- Built in secure boot and secure over-the-air programming intended to assure only authorized and authenticated code runs in the device

To extend the on-chip security features of the K32W0x MCU platform, NXP has collaborated with B-Secur, a leader in biometric authentication, to develop a system that uses an individual's unique heart pattern (electrocardiogram/ECG) to validate identity, making systems more secure than using an individual's fingerprint or voice. A full demonstration of this innovative technology will be shown at Embedded World 2018 in the NXP booth 4A-220.

Device Name	Bluetooth 5	Thread	Zigbee 3.0
K32W042	√	√	√
K32W032	√		

K32W022		√	√

The K32W0x platform is sampling now and is planned to launch in late Q3. Please contact your local NXP salesperson for additional details. Learn more about the K32W0x MCU platform at www.nxp.com/K32W0x.

See NXP's Edge Computing Solutions at Embedded World 2018

NXP will showcase its latest solutions for intelligent end-nodes, connected cars, and industrial systems at Embedded World 2018 at the NXP booth, #4A-220. A highlight for the show will be the NXP IoT Edge Compute Experience, located at the entrance to the exhibition hall 4A.
To RSVP your personalized visit to the IoT Edge Compute Experience or schedule a meeting during Embedded World 2018, please contact pr@nxp.com.
To hear the latest news for NXP at the show visit the NXP Embedded World 2018 press room.