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STMicroelectronics releases long-range wireless microcontrollers for energy-efficient connectivity in smart metering, smart building, and industrial monitoring

New STM32 system-on-chip with low power and multi-protocol support simplifies wireless system design for diverse use cases

Geneva, Switzerland, November 20, 2023 – STMicroelectronics (NYSE: STM), a global semiconductor leader serving customers across the spectrum of electronics applications, has released a new microcontroller (MCU) that fuses the Company's expertise in wireless-device design with its high-performing and efficient STM32 architecture. Novel power-saving features enable the extension of battery life in the new wireless MCUs beyond 15 years.

Especially valuable in remotely deployed applications including metering and monitoring devices and data from alarm systems, actuators, and sensors in today's smart buildings, smart factories, and smart cities, the STM32WL3 wireless MCUs can help limit power consumption and prioritize activities. Adoption and use of these efficient MCUs can lead to improved user experience, service delivery, and reduced environmental footprint. Device and application designers can leverage ST's wireless MCUs to develop and deliver new products to the world quickly for maximum benefit.

The latest innovation in ST's lineup of integrated wireless chips, the [STM32WL3](#) contains an advanced, power-efficient multi-protocol radio suitable for long-range communication using license-free frequency bands reserved globally for industrial, scientific, and medical (ISM) applications. In addition to the main radio, ST has integrated an industry-unique ultra-low-power radio the system can power-down to save energy while listening continuously for a wake-up signal.

Lead customers are using STM32WL3 MCUs to add value to smart connected devices. For example, Lierda Internet of Things Technology, is using the STM32WL33 to reduce power and add long range wireless connectivity to existing networking products. Leveraging the MCU's wake-up radio to minimize power consumption, the Lierda module monitors and maintains network equipment across a point-to-point or point-to-multipoint wireless connection.

Another customer, Silent Smart Technology, has created a family of modules based on STM32WL3 wireless MCUs that operate in various sub-1GHz frequency bands. The modules support multiple transmission modes, channel monitoring, wireless relay, and other functions. The MCU's wakeup feature allows the modules to operate in deep-sleep mode, consuming only about 1μA overall current while remaining ready to return to full operation.

"ST's new highly featured, long-range STM32WL3 wireless microcontrollers help customers like Lierda and Silent Smart create innovative and flexible products, achieving very low power and fast time to market," said Benoit Rodriguez, Wireless Business Line General Manager, STMicroelectronics. "S*pecial features such as the wake-up radio and our flow-metering LC sensor controller enable energy-saving designs in smart metering, smart agriculture, and asset tracking that run for up to 15 years from a small battery."*

The STM32WL3 joins ST's growing family of devices that combine the radio with the main application controller to ease engineering challenges, reduce power and size, and enhance reliability.

Further technical information:

- The long-range radio on the STM32WL3 MCUs operates in the internationally designated license-free frequency bands, 413MHz - 479MHz and 826MHz - 958MHz, with the support for 169MHz coming in 2024.

- The radio is multi-protocol and multi-modulation capable, supporting 4-(G)FSK up to 600kbit/s, 2-(G)FSK, (G)MSK, DBPSK, DSSS, OOK, ASK modulation schemes to maximize versatility and ease deployment.

- On-board peripherals include an LCD driver, a 12-bit 1Msample/s ADC, analog comparator, DAC, and multiple timers. Together with an integrated balun, RF power amplifier, and SMPS, they minimize external BoM for a cost-optimized solution with short time-to-market.

The complete lineup contains devices with Flash density from 64KB to 256KB and 16KB or 32KB RAM, in a 32-pin or 48-pin VFQFPN package. There is also an extended temperature range option, from -40°C to 105°C. All variants are covered with ST's 10-year longevity guarantee for industrial products. Sample quantities are available now.

Tailored to the specific needs of smart-metering applications, the STM32WL3 embeds an LCD controller and a specific peripheral -- LC sensor controller – for fluid flow measurement that eases the design of water meters and heat-cost allocators. Multi-protocol support enables cost-efficient deployment of one single platform over different long-range wireless technologies, including Sigfox, KNX, mioty, M-Bus, and others.

Prices start from $2.04 for orders of 10,000 pieces. For larger quantity pricing, please contact your ST sales office. Evaluation kits will be available shortly.

For more information, please visit https://www.st.com/en/microcontrollers-microprocessors/stm32wl3x.html.

About STMicroelectronics
At ST, we are over 50,000 creators and makers of semiconductor technologies mastering the semiconductor supply chain with state-of-the-art manufacturing facilities. An integrated device manufacturer, we work with more than 200,000 customers and thousands of partners to design and build products, solutions, and ecosystems that address their challenges and opportunities, and the need to support a more sustainable world. Our technologies enable smarter mobility, more efficient power and energy management, and the wide-scale deployment of the Internet of Things and connectivity. We are committed to achieving our goal to become carbon neutral on scope 1 and 2 and partially scope 3 by 2027. Further information can be found at www.st.com.

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