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STMicroelectronics Announces Mass-Market Availability of STM32WL LoRa®-Compatible Wireless System-on-Chip Family

- ❖ *Market-unique LoRa-compatible multi-modulation SoC drives innovation in IoT connectivity*
- ❖ *Mass-market introduction extends feature options, packages, and protocols compatibility (e.g. Sigfox)*
- ❖ *Dual-core variant boosts performance, cyber-security, and flexibility*

Geneva, December 9, 2020 – STMicroelectronics (NYSE: STM), a global semiconductor leader serving customers across the spectrum of electronics applications, has expanded availability of its market-unique [STM32WL long-range sub-GHz wireless system-on-chip \(SoC\)](#) family, adding flexible configurations and package options for diverse mass-market applications.

As the only SoC ICs featured to connect devices to [LoRa-based Low-Power Wide-Area Networks \(LPWANs\)](#), the STM32WL series lets users create Internet-of-Things (IoT) devices that are extremely compact, energy efficient, and reliable. LPWANs provide cost-effective connectivity over large geographical areas and in remote locations, extending the IoT's reach and enabling smart technologies to add greater value in industries from utilities and agriculture to shipping, transportation, and others.

“Long-range IoT networks like [LoRaWAN](#) or [Sigfox](#) now cover the globe, ready to connect innovative and highly useful smart devices in applications such as environmental monitoring and asset tracking,” said Ricardo de Sa Earp, Group Vice President, Microcontroller Division General Manager, STMicroelectronics. *“Mass-market access to our unique single-chip integrated microcontroller and multi-modulation radio will broaden development of exciting new products that leverage these networks and deliver unparalleled functionality, usability, and value.”*

The STM32WL series combines ST's STM32 ultra-low-power microcontroller (MCU) architecture with a sub-GHz radio subsystem that supports multiple modulation schemes. These include both LoRa, which allows high receiving sensitivity at low RF signal power, and (G)FSK, (G)MSK and BPSK modulation used by [Sigfox](#) and [wireless Meter-Bus \(wM-Bus\)](#) protocols for instance as well as other proprietary protocols or sub-GHz standards. The radio has a selectable dual-power output that helps customers comply with RF-power restrictions for unlicensed frequency bands in all territories worldwide.

The new STM32WL models introduced today include the [dual-core STM32WL55, based on an Arm® Cortex®-M4 core and a Cortex-M0+ MCU core](#) which can both be used in a fully open and flexible way. The dual-core architecture effectively ensures hardware isolation that enhances cybersecurity, allows application updates without the need to re-certify the device as a new radio product, and enhances real-time performance of both the radio and application.

The STM32WL55 joins the single-core [STM32WLE5](#) introduced in January 2020 in BGA73 and QFN48 packages, which uses the main Cortex-M4 core to handle the radio and the application. The extended lineup also adds two non-LoRa variants, the single-core STM32WLE4 and dual-core STM32WL54, allowing developers flexibility to leverage the unique SoC in new wireless IoT projects. All devices are supported by ST's rolling 10-year longevity commitment for industrial products.

Please contact your ST sales office for pricing options and sample requests.

Please visit www.st.com/stm32wl for more information.

Further technical information:

Monolithic integration of ST's STM32 ultra-low-power architecture and sub-GHz multi-modulation radio featuring LoRa modulation makes the STM32WL series unique in the market. The radio is based on proven Semtech SX126x transceiver IP, specially re-engineered by ST to fit market-proven power modes of STM32 platforms. It contains two internal power amplifiers with 15dBm and 22dBm maximum transmit power: The high-power and low-power transmitter modes, covering the global unlicensed frequency range from 150MHz to 960MHz, ensure compatibility with Low-Power Wide Area Networks in all territories and allow STM32WL SoCs to power end-products that are marketed worldwide.

The high level of RF integration, enables single-crystal synchronization of the High-Speed External (HSE) clock and radio, and with no need for an external power amplifier (PA), which serves to minimize the overall Bill of Materials (BoM) cost and solution footprint. ST's STM32WL architecture, leveraging the energy-efficient and powerful Arm Cortex-M4 core with DSP extensions, benefits from ultra-low-power technologies including dynamic voltage scaling and ST's adaptive real-time ART Accelerator™ for zero-wait execution from Flash. MCU Flash options up to 256Kbyte let developers choose the optimal code and data storage density for the entire platform including application and radio.

Built-in cyber-security features include hardware symmetric encryption and Public Key Accelerators, True Random Number Generator (TRNG), sector protection against read/write operation, dual-core secure areas isolation and support for state-of-the-art cryptographic algorithms including RSA, ECC and ECDSA.

Moreover, users can take advantage of the proven [STM32Cube development ecosystem](#) to simplify product creation and accelerate time to market. Such free resources include the STM32CubeMX project configuration and code generation tool, STM32CubeMonitor runtime monitoring and visualization tool, and STM32CubeProgrammer.

The [STM32CubeWL](#) MCU package contains all the embedded software bricks needed to operate the STM32WL series, including peripheral drivers, ST's LoRaWAN protocol stack, Sigfox stack, and example code for LoRaWAN Firmware Update Over The Air (FUOTA) leveraging ST's Secure Boot and Secure Firmware Update (SBSFU) technology. Alternative stacks by Authorized Partners, such as the [Stackforce W-MBus stack](#), are also available. There are also two STM32WL-based Nucleo boards for fast prototyping: [NUCLEO-WL55JC1](#) (868/915/923 MHz) and [NUCLEO-WL55JC2](#) (433/470 MHz).

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About STMicroelectronics

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