

# STM32WL WIRELESS SERIES



The world's first SoC enabling  
LoRa<sup>®</sup>, (G)FSK, (G)MSK, BPSK



**STM32WL series: the STM32 pioneer in Sub-GHz wireless connectivity.  
Easy-to-use, reliable and tailored for a wide range of RF applications.**

The STM32WL series supports multi-modulation and delivers outstanding ultra-low-power performance.

This makes it an ideal choice for LPWAN and IoT developments.

Embedding an Arm<sup>®</sup> Cortex<sup>®</sup>-M4 core, an optional Cortex<sup>®</sup>-M0+ and a Sub-GHz transceiver in one single chip, the STM32WL series ensures wireless application flexibility with LoRaWAN<sup>®</sup> and is compatible with Sigfox, W-MBUS or many other proprietary protocols, in a fully open way.

## WIRELESS CONNECTIVITY

Designed for Sub-GHz LPWANs, the STM32WL series comes with a LoRaWAN<sup>®</sup> stack and Sigfox stack, available free of charge on [st.com](http://st.com) in STM32CubeWL.

Thanks to a deep integration, the innovative and open architecture is optimized for flexible resource use, power management and helps lower BOM cost while offering a better user experience.

Developed using the same technology as the one implemented in our ultra-low-power STM32L4 microcontrollers, the STM32WL series, with its integrated Sub-GHz transceiver, provides similar digital and analog peripherals for basic or complex

application use cases requiring an extended battery life and a long RF range.

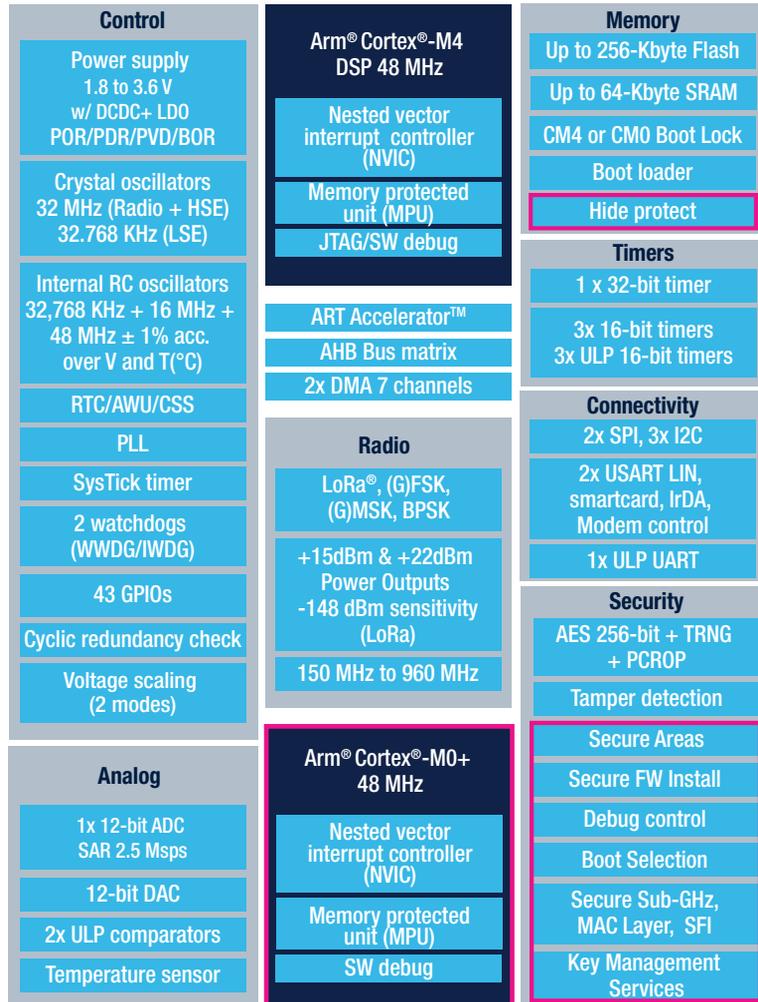
## SYSTEM PERIPHERALS

- Modulations: LoRa<sup>®</sup>, (G)FSK, (G)MSK, BPSK
- Linear Frequency Range: 150 to 960 MHz
- Dual-power Outputs: up to 22 dBm and up to 15 dBm (Embedded PAs)
- Up to 43 GPIOs
- Embedded SMPS and LDO
- Multiple low-power modes to maximize battery life

## Security & ID

In addition to its wireless and ultra-low-power features, STM32WL microcontrollers include embedded security hardware functions such as 128- / 256-bit AES hardware encryption, PCROP read / write protection, and public-key cryptography with an elliptic curve encryption engine. The dual-core line STM32WL5x also provides advanced security features.

## STM32WL block diagram



Legend :  Features available only in the STM32WL5x dual-core line

## Standard protocol



Available from STM32CubeWL (yellow box) Available from stackforce (pink box)

## Hardware tools

This STM32 Nucleo pack is the most cost-effective way to quickly get started developing STM32WL-based prototypes.

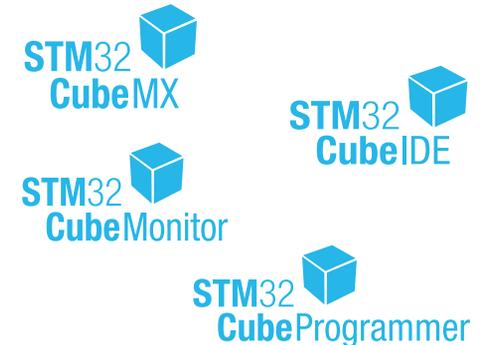


Order codes

NUCLEO-WL55JC1  
(868/915/923 MHz)

NUCLEO-WL55JC2  
(433/470 MHz)

## Embedded software



## STM32WL portfolio

Flash memory / RAM size (bytes)



Notes:

- STM32WLE5/55 all modulations available
- STM32WLE4/54 all modulations available except LoRa

Legend:

- Dual-core
- Single-core

## MULTIMEDIA

- Online Training WL: [www.st.com/stm32wl-online-training](http://www.st.com/stm32wl-online-training)
- Wireless YouTube Playlist: [www.st.com/long-range-stm32w](http://www.st.com/long-range-stm32w)
- STM32WL blog articles: [www.blog.st.com](http://www.blog.st.com)



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