STM32WBxM WIRELESS SERIES

Bluetooth LE 5.4, Zigbee 3.0 and Thread

STM32

Deliver best-in class IoT solutions for Bluetooth LE, Zigbee and Thread applications, security features, OTA firmware and radio update

A wireless MCU module

The STM32WB series is a dual-core, multi-protocol and ultra-low-power 2.4 GHz MCU system-on-chip. It supports Bluetooth® LE 5.4 as well as IEEE 802.15.4 protocols (in Single and Concurrent modes) covering a wide spectrum of IoT application needs. The STM32WBxM are ready-to-use and embeds the full reference design up to the antenna. They delivers acces to all peripheral sets from the WLCSP100 on which they are built.

KEY FEATURES AND BENEFITS*

- Fully certified whatever protocols and regulations to fasten time to market and reduce overall cost
- Small form factor
- Smart pinout to allow low-cost PCB manufacturing
- Fully integrated solution as ready to use package
  - Easy platform integration
  - No radio expertise required
- Up to 75 m communication range for wide application convenience
- Up to 1 MB Flash/256 KB RAM
  - Large memory availability to cover high-end devices
- Security features for anti-cloning and IP protection
- Various peripherals : USB FS, LCD, TSC
  - Smart complementary features to support wireless devices
- Concurrent modes supported
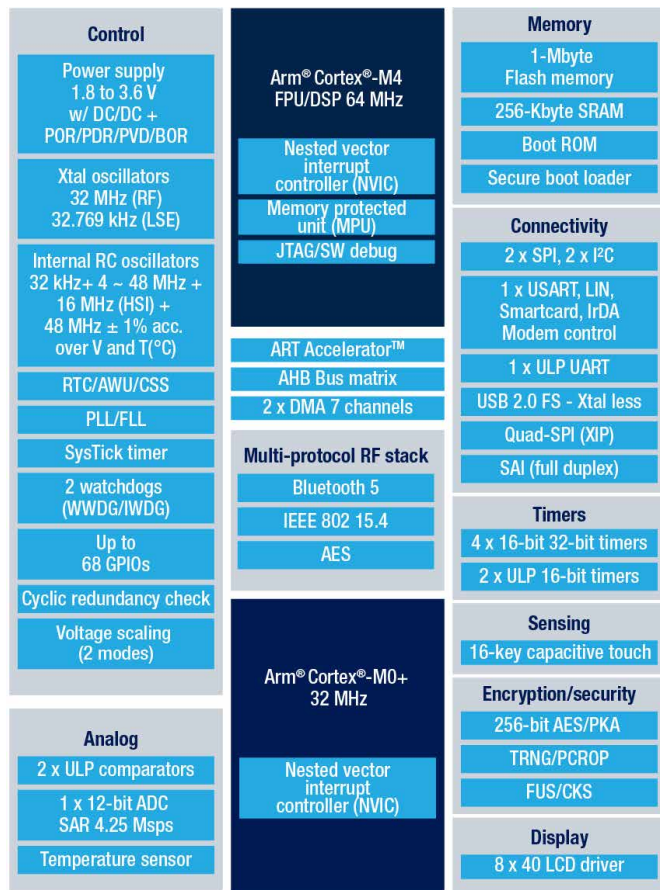 - Adress standards combination for new application use cases

KEY APPLICATIONS

Suitable for whatever point to point or meshed applications :

- Health & medical devices
- Trackers
- Building and home automation
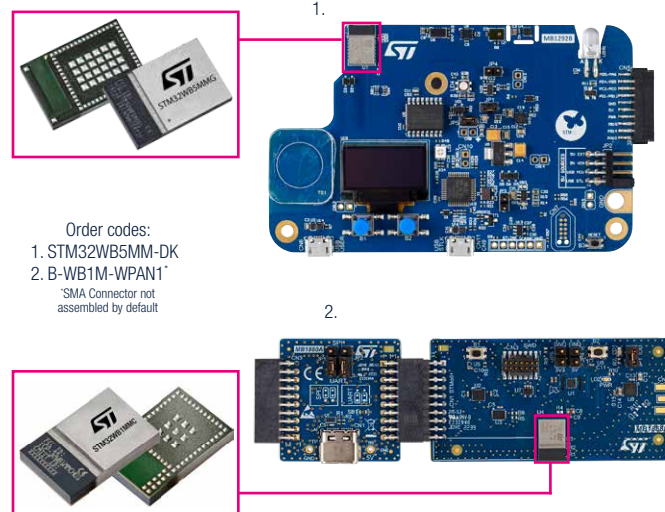- Retail and advertising beacons
- Industrial

* feature set depending on module

www.st.com/stm32wb-modules

STM32WB5M BLOCK DIAGRAM

Control

Power supply
1.8 to 3.6 V w/ DC/DC + POR/PDR/PVD/BOR
Xtal oscillators 32 MHz (RF) 32.769 kHz (LSE)
Internal RC oscillators 32 kHz+ 4 ~ 48 MHz + 16 MHz (HSI) + 48 MHz ± 1% acc. over V and T(°C)
RTC/AWU/CSS
PLL/FLL
SysTick timer
2 watchdogs (WWDG/IWDG)
Up to 68 GPIOs
Cyclic redundancy check
Voltage scaling (2 modes)

Analog

2 x ULP comparators
1 x 12-bit ADC SAR 4.25 Msps
Temperature sensor

Arm® Cortex®-M4 FPU/DSP 64 MHz

- Nested vector interrupt controller (NVIC)
- Memory protected unit (MPU)
- JTAG/SW debug
- ART Accelerator™
- AHB Bus matrix
- 2 x DMA 7 channels

Multi-protocol RF stack

- Bluetooth 5
- IEEE 802 15.4
- AES

Arm® Cortex®-M0+ 32 MHz

- Nested vector interrupt controller (NVIC)

Memory

1-Mbyte Flash memory
256-Kbyte SRAM
Boot ROM
Secure boot loader

Connectivity

2 x SPI, 2 x I²C
1 x USART, LIN, Smartcard, IrDA Modem control
1 x ULP UART
USB 2.0 FS - Xtal less
Quad-SPI (XIP)
SAI (full duplex)

Timers

4 x 16-bit 32-bit timers
2 x ULP 16-bit timers

Sensing

16-key capacitive touch

Encryption/security

256-bit AES/PKA
TRNG/PCROP
FUS/CKS

Display

8 x 40 LCD driver

HARDWARE TOOLS

These STM32WB Discovery Kit and CEB board are the most cost-effective way to quickly start developing with STM32WB5M and STM32WB1M modules.

1.

Order codes:
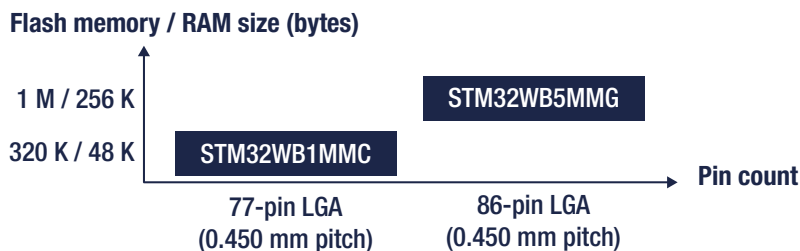1. STM32WB5MM-DK
2. B-WB1M-WPAN1*

*SMA Connector not assembled by default

2.

STANDARD PROTOCOL

OPENTHREAD released by Google

Bluetooth™

matter

Z 3.0

STM32WBxM PORTFOLIO

Flash memory / RAM size (bytes)

1 M / 256 K	STM32WB5MMG
320 K / 48 K	STM32WB1MMC
	77-pin LGA (0.450 mm pitch)
	86-pin LGA (0.450 mm pitch)

→ Pin count

STM32

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START DEVELOPING NOW!

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STM32Cube

STM32CubeWB firmware package

STM32 Online Training

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