



life.augmented

General Purpose MCUs Wireless line update (STM32Wx)

November 2022

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We are creators and makers of technology



One of the world's largest semiconductor companies



48,000 employees of which
8,400 in R&D



\$12.8 billion revenues
in 2021



Over **80** sales & marketing
offices serving over **200,000**
customers across the globe



14 manufacturing sites



Signatory of the United Nations Global Compact (UNGC)
Member of the Responsible Business Alliance (RBA)

We offer quality, flexibility, and supply security



Sweden
Norrköping

France
Crolles
Rousset
Tours
Rennes

Italy
Agrate
Catania
Marcianise



Morocco
Bouskoura

Malta
Kirkop

● Front-End (Wafer fabrication)
● Back-End (Assembly & Test)

China
Shenzhen

Philippines
Calamba



Malaysia
Muar

Singapore

Our products and solutions enable customer innovation

Dedicated
Automotive ICs



Analog, Industrial &
Power Conversion ICs



GP MCU & MPU,
Secure MCUs, EEPROM



Discrete &
Power Transistors



MEMS & Optical sensing solutions



ASICs based on ST
proprietary technologies



ST product portfolio enabling strategic trends

Dedicated Automotive ICs



Discrete & Power Transistors



Analog, Industrial & Power Conversion ICs



GP, Connected MCU, MPU Secure MCU, EEPROM



MEMS & Optical sensing solutions



ASICs based on ST proprietary technologies



Smart Mobility

Power & Energy

Internet of Things & Connectivity

General-purpose MCU & MPU, secure solutions & NFC



General-purpose 8/32-bit MCUs & MPUs



- STM32* 8-bit and 32-bit general-purpose microcontrollers (MCUs) and microprocessors (MPUs)
- 1000+ compatible devices
- Arm® Cortex® cores
- Maximum integration
- Extensive ecosystem

STM32 Wireless Connectivity Technologies

- Bluetooth® Low Energy ICs / Mesh / LE Audio
- LoRaWAN®, ZigBee, OpenThread, Matter, Wi-SUN, Sigfox, WM-Bus, mioty, Zeta technology etc..
- Sub-1 GHz System-on-Chip & transceivers devices
- 2/4 (G)FSK, (G)MSK, BPSK,OOK, ASK, LoRa®, DSSS modulations.

Secure solutions



- Secure MCUs
- eSIM, eSE, NFC for mobile
- eSIM, eSE and TPM for industrial, IoT and automotive
- Secure payment solutions
- Authentication and Brand protection solutions

NFC & Memory



- NFC / RFID Tags
- Dynamic NFC tags
- NFC / RFID Readers
- UHF Readers
- High-performance & high-endurance EEPROM



STM32 MCUs and MPUs portfolio

	MPU					STM32MP1 4158 CoreMark Up to 800 MHz Cortex-A7 209 MHz Cortex-M4	
	High Perf MCUs		STM32F2 Up to 398 CoreMark 120 MHz Cortex-M3	STM32F4 Up to 608 CoreMark 180 MHz Cortex-M4	STM32F7 1082 CoreMark 216 MHz Cortex-M7	STM32H7 Up to 3224 CoreMark Up to 550 MHz Cortex -M7 240 MHz Cortex -M4	
	Mainstream MCUs	STM32F3 245 CoreMark 72 MHz Cortex-M4				STM32G4 569 CoreMark 170 MHz Cortex-M4	<i>Mixed-signal MCUs</i>
		STM32F0 106 CoreMark 48 MHz Cortex-M0	STM32G0 142 CoreMark 64 MHz Cortex-M0+	STM32F1 177 CoreMark 72 MHz Cortex-M3			
	Ultra-low Power MCUs	STM32L0 75 CoreMark 32 MHz Cortex-M0+	STM32L1 93 CoreMark 32 MHz Cortex-M3	STM32L4 273 CoreMark 80 MHz Cortex-M4	STM32L4+ 409 CoreMark 120 MHz Cortex-M4	STM32L5 443 CoreMark 110 MHz Cortex-M33	STM32U5 651 CoreMark 160 MHz Cortex-M33
	Wireless MCUs	STM32WL 162 CoreMark 48 MHz Cortex-M4 48 MHz Cortex-M0+		STM32WB 216 CoreMark 64 MHz Cortex-M4 32 MHz Cortex-M0+			



STM32 助力万物互联3.0 – 无线



STM32出货量逾**60亿**颗

Addressing the full 2.4GHz market

BlueNRG series

STM32WB series



Wearable, healthcare,
smart appliances

- 2Mbps
- Long range
- Adv extension
- AOA/AOD

Bluetooth Mesh



Home appliances,
industrial

- Mesh topology
- Large scale
- BT SIG standard



End device
border router

- End device
- Border router
- Matter V1.0 candidate



Sensors, home
appliances, industrial

- OT1.1 certified
- OT1.3 candidate



Sensors, home
automation, industrial

- Mesh topology
- Large scale
- Zigbee compliant

Meet our 2.4GHz families!

STM32WB & BlueNRG

Bringing the most comprehensive portfolio for Bluetooth and other 2.4GHz protocols !

- From **192KB to 1MB** Flash
- **Single** or **Dual-core** products
- Compliant with **5.3 standard**
- Multiple **stack variants** available
- From **32pins to 129pins**
- **Matter** and **LE Audio** coming soon



 **Bluetooth® 5**



OPENTHREAD
released by Google

 **zigbee**

 **matter**

 **Proprietary**



The best 2.4GHz portfolio on the market

PERFORMANCE

STM32WBA5

Bluetooth LE 5.3
802.15.4, Zigbee 3.0, Thread
Application processor
Cortex-M33 @ 100MHz
Advanced Security - TZone
Rich periph (LCD, Comp ...)
Flash: 1MB / RAM: 128K
Up to 35 GPIOs,
UFBGA59, QFN48, UQFN32,
Module

Q1'23

STM32WB55/35

Bluetooth LE 5.3
802.15.4, Zigbee 3.0 Thread
Application processor
Dual core Cortex-M4 @ 64MHz
M0+ @ 32MHz
Advanced Security, Rich Analog
Rich peripherals (USB, LCD ...)
Flash: 256K - 1MB / RAM: 48K - 256K
Up to 72 GPIOs,
UFBGA129, WLCSP100,
VQFN68, UQFN48, Module

STM32WB50/30

Bluetooth LE 5.3
802.15.4, Zigbee 3.0 Thread
Application processor
Cortex-M4 @ 64MHz
Cortex-M0+ @ 32MHz
Flash: 1MB / RAM: 128K
UQFN48

STM32WB15

Bluetooth LE 5.3
Application processor
Dual core Cortex-M4 @ 64MHz
M0+ @ 32MHz
Advanced Security, Rich Analog
Flash: 320KB / RAM: 48KB
UQFN48, WLCSP49, Module

STM32WB10

Bluetooth LE 5.3
Application processor
Cortex-M4 @ 64MHz
Cortex-M0+ @ 32MHz
Flash: 320KB / RAM: 48KB
UQFN48

BlueNRG-LPS-512

Bluetooth LE 5.3
Cortex-M0+ 64MHz
security features
Flash 512KB / RAM 64KB
up to 20 GPIOs
QFN32, WLCSP36

Coming soon

BlueNRG-LP

Bluetooth LE 5.2
Cortex-M0+ 64MHz
security features
Flash 256KB / RAM: 64KB
up to 32 GPIOs
QFN48/32, WLCSP49

BlueNRG-LPS

Bluetooth LE 5.3
Cortex-M0+ 64MHz
security features
Flash 192KB / RAM 24KB
up to 20 GPIOs
QFN32, WLCSP36

BlueNRG-2

Cortex-M0 32MHz
Flash 256KB / RAM 24KB
QFN32, QFN48, WLCSP34

BlueNRG-1

Cortex-M0 32MHz
Flash 160KB / RAM 24KB
QFN32, WLCSP34

BlueNRG-2N

Bluetooth LE 5
Network processor
QFN32, WLCSP34

BlueNRG-MS

Bluetooth LE 4.2
Network processor
QFN32, WLCSP34

ULTRA-LOW-POWER

LOW-POWER

Sub-GHz markets

Smart Industry



Smart City



Smart Home



Smart Agriculture



Asset Tracking



Metering



Alarm System



Heat Cost Allocator



Flexibility (multi-protocol), Long range (robust RF-link), long battery life (ultra-low-power)

STM32 Sub-GHz Offer

Flexibility

Sub-GHz
Transceiver

Sub-GHz SoC
Application processor

Optimization



STM32Cube
Expansion package

STM32 ecosystem



STM32Cube
MCU package



Sub-GHz
proprietary



The best Sub-GHz portfolio on the market

PERFORMANCE

STM32WL5x

Application processor
Cortex-M4 / M0+ @ 48MHz

Build-in PA with 2x output power
Up to +15 dBm and up to +22 dBm
170 dB Link budget

Advanced Security, Hardware Isolation, Rich Analog

Flash: up to 256KB / RAM: up to 64KB

Up to 72 GPIOs,
UFQFPN48,, BGA73

STM32WLEx

Application processor
Cortex-M4 @ 48MHz

Build-in PA with 2x output power
Up to +15 dBm and up to +22 dBm
170 dB Link budget

Advanced Security, Rich Analog
Flash: up to 256KB / RAM: up to 64KB

Up to 72 GPIOs,
UFQFPN48, BGA73

STM32WL3

Application processor
Cortex-M0+@ 64Mhz

Build-in PA with 2x output power
Up to +14 dBm and up to +20 dBm
152dB Link budget

LCD Driver, LP analog sensing
FLASH up to 256KB / RAM 32KB

Up to 32 GPIOs
QFN32/48

Coming soon

SPIRIT2 (S2-LP)

Ultra-Low-Power Transceiver

Up to +16dBm output power
146 dB Link budget
QFN24

SPIRIT1

Transceiver

Up to +16dBm output power
136 dB Link budget
QFN20

Application Processor (SoC)

Transceiver

STM32 Sub-GHz Portfolio

Sub-GHz SoC Dual Core

STM32WL5x

Sub-GHz SoC Single Core

STM32WL3x

Coming soon

STM32WLEx

Sub-GHz Transceiver

**1st Generation
SPIRIT1**

General Purpose Sub-1GHz radio

**2nd Generation
S2-LP**

Ultra Low Power Sub-1GHz radio

2 (G)FSK
(G)MSK

-

OOK
ASK

-

2/4 (G)FSK (Zeta)
(G)MSK

BPSK (Sigfox)

OOK

ASK

- + DSSS on WL3

2 (G)FSK (Zeta)

(G)MSK

BPSK (Sigfox)

-

-

LoRa® (WLx5 P/N)
LR-FHSS Satellite (WLxx) 5

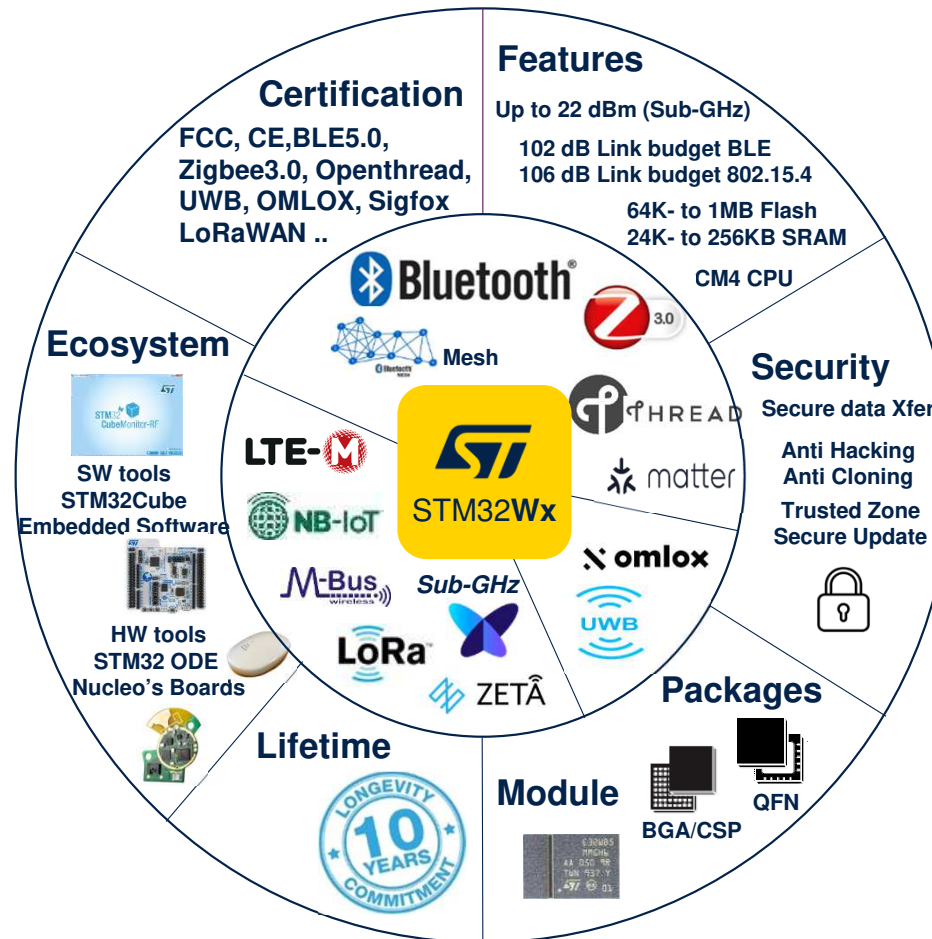
Takeaways



- The **STM32 Wireless Product Line (2.4GHz and Sub-GHz)** brings a **clear market offer** from ST on these wireless technologies and enriches the MCU portfolio with **more references**
- **More wireless technologies coming soon!**



STM32 goes to wireless



Our technology starts with You



Find out more at www.st.com

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