



Engineering Tomorrow's **Ideas**

# ST Micro's STM32WB Series MCU with Built-in BLE 5 and IEEE 802.15.4



# ST Micro's STM32WB

## *What is it?*

It is a integrated wireless device with 2 processors – an M4 running the application and the M0+ working as a network processor.

Support Bluetooth 5 plus IEEE 802.15.4 MAC layers

## *What problem does it solve?*

When your customer is looking for

- Standard BLE, ZigBee, Thread Protocol or
- To run proprietary protocol using the IEEE 802.15.4 MAC layer
- Highly integrated MCU + Connectivity SoC device to save space and BOM cost

## *What are the features and benefits?*

See next slide

## *What are the focus applications/markets?*

- Lighting
- Industrial devices
- Beacons
- Fleet maintenance
- Fitness/Healthcare
- Home security/audio

Anywhere Bluetooth or IEEE 802.15.4 is considered

# Value Proposition



## All in one MCU - Full flexibility control

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- Robust RF link **-100dBm** sensitivity with IEEE 802.15.4 and **+6 dBm** output power
- Upgrade legacy 802.15.4 device to **BLE 5**
- **Update** securely Radio and stack firmware with build-in RSS
- BLE 5 and 802.15.4 protocols **Mesh capable** to extend network range



Lighting

- Retrofit legacy product to **BLE 5** and concurrency mode
- Remotely upgrade device with **OTA capability**
- **Brand protection** with Authenticated **FW upgrade** system



Fleet maintenance

- Up to **105°C** radio capable
- Down to **600 nA mode** with RTC and 32KB of RAM
- Only **5µs** wakeup time over 16 wakeup lines
- PCROP, ECC, TRNG, PKA, for best design robustness
- Reduce BOM cost with **built-in LCD booster**



Industrial devices

- **Multipoint** BLE 5 connections
- Small form factor design with **CSP100 pins**
- Battery life time care with **< 50 nA** Shutdown mode
- Dynamic Efficient **50 µA/MHz**
- Extend memory storage with **Quad-SPI**
- Handle advanced algorithm with **1 Mbyte** of Flash
- Cost optimized product with USB 2.0 **crystal-less** device



Fitness/Healthcare

- **Beacon** profile available among a huge list
- **Embedded balun** to minimize design cost
- Only **5.5mA** Radio TX current to extend beacon life time
- Up to **+6 dBm** output power to get best beacon range
- **< 1.8 µA** Stop mode with full RAM for **battery life** optimization
- Down to 1.71 full feature capable



Beaconing

- **-100 dBm** sensitivity to increase area coverage
- **Customer Key Storage (CKS)** for trustable Application update
- Manage full duplex **audio** with embedded SAI
- USB FS 2.0 with Battery **Charging Detection** for remote device



Home security and Audio



# Presentations

The attachments for the Customer can be found [here](#)

# E-mail Template

Dear Mr Customer,

The dual-core, multi-protocol wireless STM32WB microcontroller is based on an Arm® Cortex®-M4 core running at 64 MHz (application processor) and an Arm® Cortex®-M0+ core at 32 MHz (network processor). STM32WB55 microcontrollers support Bluetooth™ 5 and IEEE 802.15.4 wireless standards.

Thanks to these two totally independent cores, this innovative architecture is optimized for real-time execution (radio related software processing) as well as flexible resource use and power management for a lower BOM cost and a better user experience.

Please refer to the attachment for further details.

Thank you.

Kind regards,

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# Resources

Resource	Links/Contacts/etc	Comments
Product Landing page – publicly available material		
Non-public support collateral		
Dev Kit and pricing	P-Nucleo-WB55	in stock \$ ASP \$42.00
Samples	MPN - STM32WB55CGU6	in stock
Pricing	\$5.00	Budgetary pricing 100pcs
Marketing contact	Reantee Bissoon	
SDM contact	AnnaMaria Pietromonaco	
Registerable	Yes	
Alternative Suppliers	NXP, Cypress	
Which other disti has this product?	Arrow, Avnet, Newark, Digikey	

# Feedback and Suggestions

*You can provide feedback, suggestions and ideas of new parts to:*

[esg\\_na\\_support@future.ca](mailto:esg_na_support@future.ca)

*Thank you!*