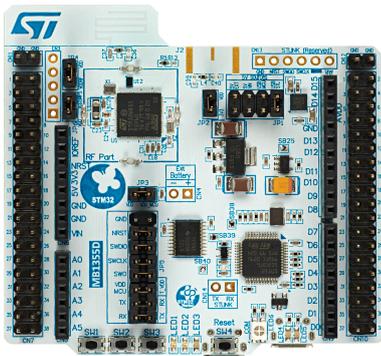


STM32WB Nucleo-64 boards



NUCLEO-WB55RG example. Boards with different references show different layouts. Picture is not contractual.

Product status link

NUCLEO-WB55RG

NUCLEO-WB15CC



Features

- Common features
 - STM32WB55RG (1-Mbyte Flash memory, 256-Kbyte SRAM, in VFQFPN68 package) or STM32WB15CC (320-Kbyte Flash memory, 48-Kbyte SRAM, in VFQFPN48 package) ultra-low-power wireless microcontroller featuring:
 - Dual-core 32-bit (Arm® Cortex®-M4 and dedicated M0+ CPU for real-time radio layer)
 - 2.4 GHz RF transceiver supporting Bluetooth® specification v5.2
 - Three user LEDs
 - One reset and three user push-buttons
 - Board connectors:
 - ARDUINO® Uno V3 expansion connector
 - ST morpho extension pin headers for full access to all STM32WB I/Os
 - Integrated PCB antenna and SMA connector footprint
 - Flexible power-supply options: ST-LINK, USB V_{BUS} , or external sources
 - On-board footprint to mount a CR2032 battery socket
 - On-board ST-LINK/V2-1 debugger/programmer with USB re-enumeration capability: mass storage, Virtual COM port, and debug port
 - Comprehensive free software libraries and examples available with the STM32CubeWB MCU Package
 - Support of a wide choice of Integrated Development Environments (IDEs) including IAR Embedded Workbench®, MDK-ARM, STM32CubeIDE, and Mbed Studio
- Board-specific features (STM32WB55RG only)
 - USB user with Micro-B connector
 - 2.4 GHz RF transceiver supporting IEEE 802.15.4-2011 PHY and MAC with Zigbee®, Thread®, and proprietary protocols

Description

The NUCLEO-WB55RG and NUCLEO-WB15CC STM32WB Nucleo-64 boards are Bluetooth® Low Energy (BLE) wireless and ultra-low-power devices embedding a powerful and ultra-low-power radio compliant with the Bluetooth® Low Energy (BLE) SIG specification v5.2.

NUCLEO-WB55RG also offers a radio compliant with IEEE 802.15.4-2011 standard and allows the simple and quick evaluation of STM32WB55xx and STM32WB35xx devices.

The ARDUINO® Uno V3 connectivity support and the ST morpho headers provide an easy means of expanding the functionality of the STM32WB Nucleo open development platform with a wide choice of specialized shields.

1 Ordering information

To order an STM32WB Nucleo-64 board, refer to [Table 1](#). For a detailed description of each board, refer to its user manual on the product web page. Additional information is available from the datasheet and reference manual of the target STM32.

Table 1. List of available products

| Order code | Board reference | User manual | Target STM32 | Differentiating feature |
|---------------|-----------------|-------------|----------------|--|
| NUCLEO-WB55RG | MB1355 | UM2819 | STM32WB55RGV6U | <ul style="list-style-type: none"> • USB user with Micro-B connector • Radio compliant with IEEE 802.15.4-2011 standard supporting Zigbee®, Thread®, and proprietary protocols |
| NUCLEO-WB15CC | MB1641 | UM2823 | STM32WB15CCU6U | - |

1.1 Product marking

The stickers located on the top or bottom side of the PCB provide product information:

- Product order code and product identification for the first sticker
- Board reference with revision, and serial number for the second sticker

On the first sticker, the first line provides the product order code, and the second line the product identification.

On the second sticker, the first identification line has the following format: "MBxxxx-Variant-yyz", where "MBxxxx" is the board reference, "Variant" (optional) identifies the mounting variant when several exist, "y" is the PCB revision and "zz" is the assembly revision, for example B01.

The second identification line is the board serial number used for traceability.

Evaluation tools marked as "ES" or "E" are not yet qualified and therefore not ready to be used as reference design or in production. Any consequences deriving from such usage will not be at ST charge. In no event, ST will be liable for any customer usage of these engineering sample tools as reference designs or in production.

"E" or "ES" marking examples of location:

- On the targeted STM32 that is soldered on the board (For an illustration of STM32 marking, refer to the STM32 datasheet "Package information" paragraph at the www.st.com website).
- Next to the evaluation tool ordering part number that is stuck or silk-screen printed on the board.

These boards feature a specific STM32 device version, which allows the operation of any bundled commercial stack/library available. This STM32 device shows a "U" marking option at the end of the standard part number and is not available for sales.

In order to use the same commercial stack in his application, a developer may need to purchase a part number specific to this stack/library. The price of those part numbers includes the stack/library royalties.

1.2 Codification

The meaning of the codification is explained in [Table 2](#).

Table 2. Codification explanation

| NUCLEO-XXYYTZ | Description | Example: NUCLEO-WB55RG |
|---------------|--|------------------------|
| XX | MCU series in STM32 32-bit Arm Cortex MCUs | STM32WB Series |
| YY | Product line in the Series | STM32WB55 |
| T | STM32 package pin count: <ul style="list-style-type: none"> • C for 48 pins • R for 68 pins | 68 pins |
| Z | STM32 Flash memory size: <ul style="list-style-type: none"> • C for 256 Kbytes • G for 1 Mbyte | 1-Mbyte Flash memory |

2 Development environment

STM32 32-bit microcontrollers are based on the Arm® Cortex®-M processor.

Note: Arm is a registered trademark of Arm Limited (or its subsidiaries) in the US and/or elsewhere.



2.1 System requirements

- Windows® OS (7, 8, or 10), Linux® 64-bit, or macOS®
- USB Type-A or USB Type-C® to Micro-B cable

Note: macOS® is a trademark of Apple Inc. registered in the U.S. and other countries.
All other trademarks are the property of their respective owners.

2.2 Development toolchains

- IAR Systems® - IAR Embedded Workbench®⁽¹⁾
- Keil® - MDK-ARM⁽¹⁾
- STMicroelectronics - STM32CubeIDE
- Arm® - Mbed Studio^{(2) (3)}

1. On Windows® only.
2. Arm and Mbed are registered trademarks or trademarks of Arm Limited (or its subsidiaries) in the US and or elsewhere.
3. Refer to the os.mbed.com website and to the "Ordering information" section to determine which order codes are supported.

2.3 Demonstration software

The demonstration software, included in the STM32Cube MCU Package corresponding to the on-board microcontroller, is preloaded in the STM32 Flash memory for easy demonstration of the device peripherals in standalone mode. The latest versions of the demonstration source code and associated documentation can be downloaded from www.st.com.

Revision history

Table 3. Document revision history

| Date | Version | Changes |
|-------------|---------|------------------|
| 12-Jan-2021 | 1 | Initial release. |



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