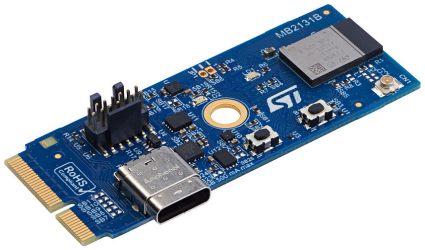
B-WBA5M-WPAN

Data brief

Bluetooth® connectivity expansion board for STM32 boards based on the STM32WBA5MMG module



B-WBA5M-WPAN global view. Picture is not contractual.

Product status link
B-WBA5M-WPAN

Features

- STM32WBA connectivity expansion board embedding an STM32WBA5MMG module including:
  - Ultra-low-power Arm® Cortex®-M33 core-based STM32WBA55UG microcontroller, Bluetooth® LE 5.4, AES-256, featuring 1 Mbyte of flash memory and 128 Kbytes of SRAM, including 64 Kbytes with parity check
  - RF transceiver multistandard radio Bluetooth® LE, compliant with Bluetooth® specification 5.4
- 256-Kbit serial I^2C bus EEPROM
- MEMS sensors:
  - Integrated high-accuracy temperature sensor
  - 3D accelerometer and 3D gyroscope
- User LED
- User and reset push buttons
- Board connectors:
  - STDC14 debug
  - USB Type-C® for power only
  - M.2 E-Key
- Flexible power supply options: M.2 E-Key connector or USB V_{BUS}
- Comprehensive free software libraries and examples available with the STM32CubeWBA MCU Package
- Support of a wide choice of Integrated Development Environments (IDEs) including IAR Embedded Workbench®, MDK-ARM, and STM32CubeIDE

Description

The B-WBA5M-WPAN STM32WBA connectivity expansion board provides an affordable and flexible way for users to try out new concepts and build prototypes with the STM32WBA series STM32WBA5MMGH6 module.

The B-WBA5M-WPAN product requires a separate probe for programming and debugging. The STLINK-V3SET debugger can be connected through an STDC14 cable.

The B-WBA5M-WPAN STM32WBA connectivity expansion board integrates a USB Type-C® connector for power only.

The B-WBA5M-WPAN STM32WBA connectivity expansion board integrates an M.2 E-Key connector, turning it into an M.2 E-Key daughterboard providing a Bluetooth® interface to a host board including an M.2 E-Key host connector.

The M.2 E-Key connector follows the PCI-SIG standard and provides UART, SPI, I^2C, and SAI interfaces for communication with the host.

The B-WBA5M-WPAN product includes the comprehensive STM32WBA software HAL library and various packaged software examples with the STM32CubeWBA MCU Package.

1 Ordering information

To order the B-WBA5M-WPAN STM32WBA connectivity expansion 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. Ordering information

Order code	Board reference	User manual	Target STM32
B-WBA5M-WPAN	MB2131(1)	UM3450	STM32WBA5MMGH6

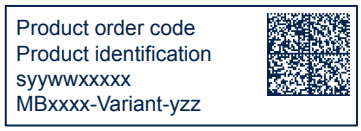
1. *Connectivity expansion board*

1.1 Product marking

The product and each board composing the product are identified with one or several stickers. The stickers, located on the top or bottom side of each PCB, provide product information:

- Main board featuring the target device: product order code, product identification, serial number, and board reference with revision.

  Single-sticker example:

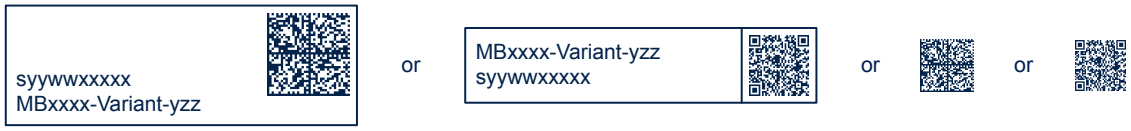
  

  Dual-sticker example:

- Other boards if any: board reference with revision and serial number.

  Examples:

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

On all board stickers, the line formatted as *"MBxxxx-Variant-yzz"* shows the board reference *"MBxxxx"*, the mounting variant *"Variant"* when several exist (optional), the PCB revision *"y"*, and the assembly revision *"zz"*, for example B01. The other line shows the board serial number used for traceability.

Products and parts labeled as *"ES"* or *"E"* are not yet qualified or feature devices that are not yet qualified. STMicroelectronics disclaims any responsibility for consequences arising from their use. Under no circumstances will STMicroelectronics be liable for the customer's use of these engineering samples. Before deciding to use these engineering samples for qualification activities, contact STMicroelectronics' quality department.

"ES" or *"E"* 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 ordering part number of the evaluation tool that is stuck, or silk-screen printed on the board.

Some 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.

To use the same commercial stack in their applications, the developers might 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

B-XXXYM-ZZZZ	Description	Example: B-WBA5M-WPAN
B	Expansion board	Connectivity expansion board
XXX	MCU series in STM32 32-bit Arm Cortex MCUs	STM32WBA series
YM	Module line in the MCU series	STM32WBA5M module line
ZZZZ	Wireless network	Wireless personal area network based on Bluetooth® LE 5.4 certified

2 Development environment

The B-WBA5M-WPAN STM32WBA connectivity expansion board runs with the STM32WBA5MMG module including the STM32WBA55UG 32-bit microcontroller based on the Arm® Cortex®-M33 core processor.

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

2.1 System requirements

- Multi-OS support: Windows® 10, Linux® 64-bit, or macOS®

Note: macOS® is a trademark of Apple Inc., registered in the U.S. and other countries and regions.
Linux® is a registered trademark of Linus Torvalds.
Windows is a trademark of the Microsoft group of companies.

2.2 Development toolchains

- IAR Systems® - IAR Embedded Workbench®(1)
- Keil® - MDK-ARM(1)
- STMicroelectronics - STM32CubeIDE

1. *On Windows® only.*

Revision history

Table 3. **Document revision history**

Date	Revision	Changes
06-Mar-2025	1	Initial release.