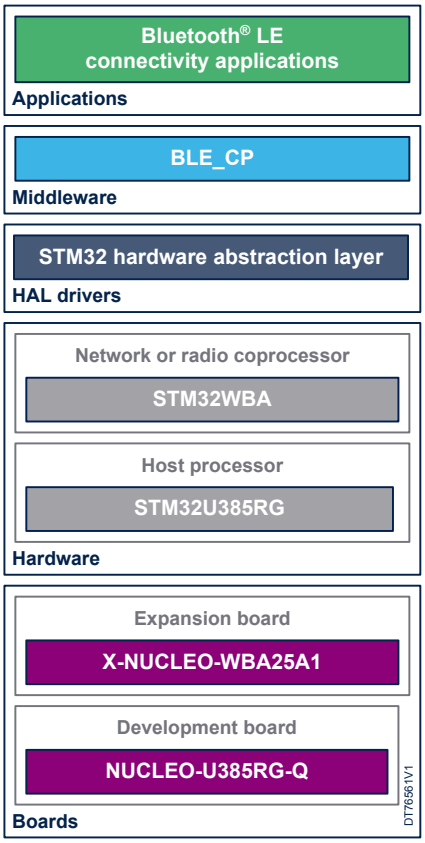
X-CUBE-WBA

Data brief

X-CUBE-WBA Bluetooth® LE software expansion for STM32Cube



Features

- Complete middleware to build Bluetooth® LE applications using an STM32WBA series device configured as a network or radio coprocessor connected with the host microcontroller over a serial interface such as SPI or UART
- Various reference examples to build Bluetooth® LE connectivity applications

Description

The X-CUBE-WBA STM32Cube Expansion Package runs on the STM32 host microcontroller. It includes drivers and middleware for interacting with STM32WBA series Bluetooth® LE devices (STM32WBA25CE, STM32WBA55CG, and STM32WBA65RI). X-CUBE-WBA contains a sample implementation for the X-NUCLEO-WBA25A1 expansion board, including an STM32WBA25CE device, plugged on the NUCLEO-U385RG-Q development board.

The same application examples can be used on the NUCLEO-U385RG-Q development board connected to an STM32WBA55xx or to an STM32WBA65xx device over a proper serial interface such as SPI or UART.

No dedicated Nucleo expansion boards are available for the STM32WBA55xx and STM32WBA65xx device variants.

Product status
X-CUBE-WBA

1 General information

X-CUBE-WBA interacts with STM32WBA series devices (STM32WBA25CE, STM32WBA55CG, and STM32WBA65RI), which run the Bluetooth® LE stack, and with the STM32U385RG microcontroller.They are based on the Arm® Cortex®-M33 processor.

For information on Bluetooth®, refer to www.bluetooth.com.

Note: Arm, Cortex, and the Arm logo are registered trademarks of Arm Limited (or its subsidiaries) in the US and/or elsewhere.

1.1 Ordering information

X-CUBE-WBA is available for free download from the *www.st.com* website.

1.2 What is STM32Cube?

STM32Cube is an STMicroelectronics original initiative to improve designer productivity significantly by reducing development effort, time, and cost. STM32Cube covers the whole STM32 portfolio.

STM32Cube includes:

- A set of user-friendly software development tools to cover project development from conception to realization, among which are:
  - STM32CubeMX, a graphical software configuration tool that allows the automatic generation of C initialization code using graphical wizards
  - STM32CubeIDE, an Eclipse®-based IDE, providing code edition, compilation, programming, and debugging capabilities
  - STM32CubeCLT, an all-in-one command-line development toolset with code compilation, board programming, and debug features
  - STM32CubeIDE for Visual Studio Code (STM32VSCode), a complete IDE based on VS Code® platform
  - STM32CubeProgrammer (STM32CubeProg), a programming tool available in graphical and command-line versions
  - STM32CubeMonitor (STM32CubeMonitor, STM32CubeMonPwr, STM32CubeMonRF, STM32CubeMonUCPD), powerful monitoring tools to fine-tune the behavior and performance of STM32 applications in real time
  - STM32CubeWiSE (STM32CubeWiSEbe, STM32CubeWiSEce, STM32CubeWiSEcg, STM32CubeWiSEre, STM32CubeWiSE8e), graphical tools designed to evaluate and test the capabilities of RF radios and protocols (Bluetooth® LE, sub-GHz, IEEE 802.15.4)
- STM32Cube MCU and MPU Packages, comprehensive embedded-software platforms specific to each microcontroller and microprocessor series (such as STM32CubeU3 for the STM32U3 series), which include:
  - STM32Cube hardware abstraction layer (HAL), ensuring maximized portability across the STM32 portfolio
  - STM32Cube low-layer APIs, ensuring the best performance and footprints with a high degree of user control over hardware
  - A consistent set of middleware components such as ThreadX, FileX, LevelX, NetX Duo, USBX, touch library, Mbed TLS, and OpenBL
  - All embedded software utilities with full sets of peripheral and applicative examples
- STM32Cube Expansion Packages, which contain embedded software components that complement the functionalities of the STM32Cube MCU and MPU Packages with:
  - Middleware extensions and applicative layers
  - Examples running on some specific STMicroelectronics development boards

1.3 How does X-CUBE-WBA complement STM32Cube?

X-CUBE-WBA is based on the STM32CubeHAL hardware abstraction layer for the STM32 MCU. It extends STM32Cube by providing:

- A board support package (BSP) for the X-NUCLEO-WBA25A1 expansion board based on the STM32WBA25CE
- Middleware components for the communication with STM32WBA series Bluetooth® LE devices (STM32WBA25CE, STM32WBA55CG, and STM32WBA65RI)

2 License

X-CUBE-WBA is delivered under the SLA0048 software license agreement and its Additional License Terms.

Revision history

Table 1. **Document revision history**

Date	Revision	Changes
02-Fev-2026	1	Initial release.

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