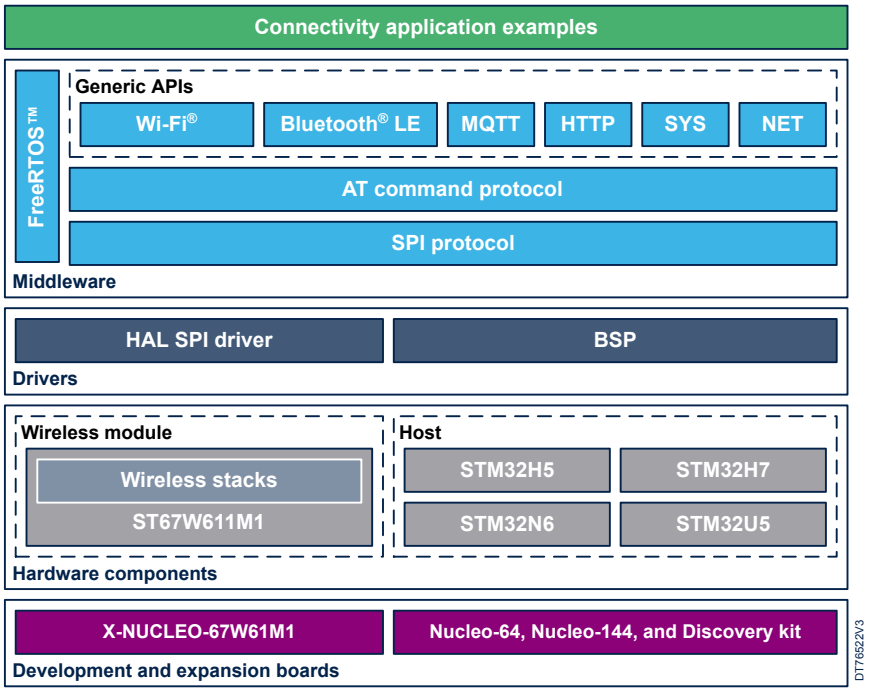
X-CUBE-ST67W61

Data brief

Wi-Fi 6 and Bluetooth® LE software expansion for STM32Cube



Product status
X-CUBE-ST67W61

Product summary	
Wi-Fi 6 and Bluetooth® LE 5.4 STM32Cube Expansion Package	X-CUBE-ST67W61
Wi-Fi 6 and Bluetooth® LE expansion board for STM32 Nucleo	X-NUCLEO-67W61M1
STM32 Nucleo-144, STM32 Nucleo-64, and STM32 Discovery kit development boards	NUCLEO-H753ZI, NUCLEO-H563ZI, NUCLEO-U575ZI-Q, NUCLEO-N657X0-Q, NUCLEO-H533RE, STM32H745I-DISCO
Low-power Wi-Fi 6 and Bluetooth® LE 5.4 combo coprocessor module	ST67W611M1
Applications	Connectivity Sensing IoT applications Personal electronics Industrial Personal healthcare devices

Features

- Complete middleware to build certified Wi-Fi 6 and Bluetooth® LE 5.4 (BLE) applications using ST67W611M1 network coprocessor module connected with host MCU over SPI serial interface
- Various reference examples to build Wi-Fi® and BLE connectivity applications such as MQTT, HTTP/HTTPS client and server, BLE p2p, and commissioning over BLE
- Easy portability across various STM32 MCU series through the STM32Cube ecosystem
- Free, user-friendly license terms

Description

The X-CUBE-ST67W61 STM32Cube Expansion Package runs on the STM32 host microcontroller. It includes drivers for the ST67W611M1 low-power Wi-Fi 6 and Bluetooth® LE 5.4 combo coprocessor module. The expansion is built on STM32Cube software technology to ease portability across different STM32 microcontrollers. Implementation examples use the X-NUCLEO-67W61M1 expansion board plugged on an STM32 Nucleo-144, an STM32 Nucleo-64, or an STM32 Discovery kit development board.

1 General information

The X-CUBE-ST67W61 Expansion Package runs on STM32 32-bit microcontrollers based on

- The Arm® Cortex®-M33 and Cortex®-M55 processors with Arm® TrustZone®
- The Arm® Cortex®-M7 processor

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

1.1 Ordering information

X-CUBE-ST67W61 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 all-in-one development tool with peripheral configuration, code generation, code compilation, and debug features
  - STM32CubeCLT, an all-in-one command-line development toolset with code compilation, board programming, and debug features
  - 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
- STM32Cube MCU and MPU Packages, comprehensive embedded-software platforms specific to each microcontroller and microprocessor series (such as STM32CubeU5 for the STM32U5 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, USB PD, touch library, network library, mbed-crypto, TFM, 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-ST67W61 complement STM32Cube?

The software is based on the STM32CubeHAL, which is the hardware abstraction layer for the STM32 microcontroller. X-CUBE-ST67W61 extends STM32Cube by providing middleware components for the communication with the module. ST67W611M1 is a low-power Wi-Fi 6 and Bluetooth® LE 5.4 combo coprocessor module. The drivers abstract the hardware low-level details and allow the middleware components and applications to access the Wi-Fi 6 and BLE 5.4 device in a hardware-independent way. The software implements low-power optimizations to allow system power consumption of 70 µA in DTIM power-saving mode.

2 License

X-CUBE-ST67W61 is delivered under the SLA0048 software license agreement and its Additional License Terms.

Revision history

Table 1. **Document revision history**

Date	Revision	Changes
17-Feb-2025	1	Initial release.
05-Mar-2025	2	Updated the software product reference, the cover image, and the document title.
20-May-2025	3	Extended support to STM32H5, STM32H7, and STM32N6 microcontrollers with application examples on related development boards: • Updated the cover image, *Product summary* table, and document title • Updated Description • Updated General information • Updated License