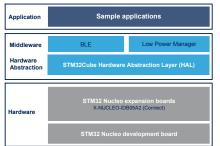




Bluetooth low energy software expansion for STM32Cube





Product summary		
Bluetooth low energy software expansion for STM32Cube	X-CUBE-BLE1	
Bluetooth® low energy expansion board based on the BlueNRG-M0 module for STM32 Nucleo		
Bluetooth low energy network processor supporting Bluetooth 4.2 core specification	BlueNRG-MS/ BlueNRG-M0	
STM32 Nucleo-64 development board with STM32L476RG MCU	NUCLEO- L476RG	
	Cloud Connectivity	
Applications	Wearable	
	Wireless Connectivity	

Features

- Complete middleware to build Bluetooth low energy applications using BlueNRG-MS/BlueNRG-M0 devices
- Easy portability across different MCU families, thanks to STM32Cube
- Package compatible with STM32CubeMX, can be downloaded from and installed directly into STM32CubeMX
- Free, user-friendly license terms

Description

The X-CUBE-BLE1 expansion software package for STM32Cube runs on the STM32 and includes drivers for BlueNRG-MS/BlueNRG-M0 Bluetooth low energy devices.

The expansion is built on STM32Cube software technology to ease portability across different STM32 microcontrollers.

The software comes with sample implementations of the drivers running on the X-NUCLEO-IDB05A2 expansion board, when connected to a NUCLEO-L476RG development board.

The software is available also on GitHub, where the users can signal bugs and propose new ideas through [Issues] and [Pull Requests] tabs.



1 Detailed description

1.1 What is STM32Cube?

STM32Cube is a combination of a full set of PC software tools and embedded software blocks running on STM32 microcontrollers and microprocessors:

- STM32CubeMX configuration tool for any STM32 device; it generates initialization C code for Cortex-M cores and the Linux device tree source for Cortex-A cores
- STM32CubeIDE integrated development environment based on open-source solutions like Eclipse or the GNU C/C++ toolchain, including compilation reporting features and advanced debug features
- STM32CubeProgrammer programming tool that provides an easy-to-use and efficient environment for reading, writing and verifying devices and external memories via a wide variety of available communication media (JTAG, SWD, UART, USB DFU, I2C, SPI, CAN, etc.)
- STM32CubeMonitor family of tools (STM32CubeMonRF, STM32CubeMonUCPD, STM32CubeMonPwr) to help developers customize their applications in real-time
- STM32Cube MCU and MPU packages specific to each STM32 series with drivers (HAL, low-layer, etc.), middleware, and lots of example code used in a wide variety of real-world use cases
- STM32Cube expansion packages for application-oriented solutions.

1.2 How does this software complement STM32Cube?

The proposed software is based on the STM32CubeHAL, the hardware abstraction layer for the STM32 microcontroller. The package extends STM32Cube by providing a board support package (BSP) for the BlueNRG-MS/BlueNRG-M0 expansion boards and some middleware components for communication with other Bluetooth LE devices.

BlueNRG-MS and BlueNRG-M0 are very low power Bluetooth low energy (BLE) single-mode network processors, compliant with Bluetooth specifications core 4.2.

The drivers abstract low-level details of the hardware and allow the middleware components and applications to access the BlueNRG-MS/BlueNRG-M0 device in a hardware-independent fashion.

The package is compatible with STM32CubeMX. It can be downloaded from and installed directly into STM32CubeMX, as detailed in UM1718 (freely available on www.st.com).

DB2461 - Rev 11 page 2/4



Revision history

Table 1. Document revision history

Date	Rev	Changes
19-Nov-2014	1	First release.
26-Jan-2015	2	Modified the document title, Features and Description on the cover page.
		Added the Detailed description section.
30-Jun-2015	3	Updated overall system architecture on the cover page.
16-Nov-2015	4	Updated cover page image and description.
26-Jan-2017	5	Updated cover page Features and Detailed description.
14-Feb-2017	6	Updated Detailed description .
20-Dec-2018	7	Updated cover page image, features and description.
		Added product summary table on the cover page.
		Updated Section 1.2 How does this software complement STM32Cube?.
22-Apr-2020	8	Updated cover page image, product summary table and Section 1.1 What is STM32Cube?.
		Added X-NUCLEO-IDB05A2 expansion board and BlueNRG-M0 module compatibility information.
27-Oct-2021	9	Updated cover page features, description, and product summary table.
		Updated How does this software complement STM32Cube?.
03-Nov-2022	10	Updated cover page features.
		Updated How does this software complement STM32Cube?.
17-Apr-2023	11	Added reference to GitHub.

DB2461 - Rev 11 page 3/4



IMPORTANT NOTICE - READ CAREFULLY

STMicroelectronics NV and its subsidiaries ("ST") reserve the right to make changes, corrections, enhancements, modifications, and improvements to ST products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST's terms and conditions of sale in place at the time of order acknowledgment.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of purchasers' products.

No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and the ST logo are trademarks of ST. For additional information about ST trademarks, refer to www.st.com/trademarks. All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously supplied in any prior versions of this document.

© 2023 STMicroelectronics – All rights reserved

DB2461 - Rev 11 page 4/4