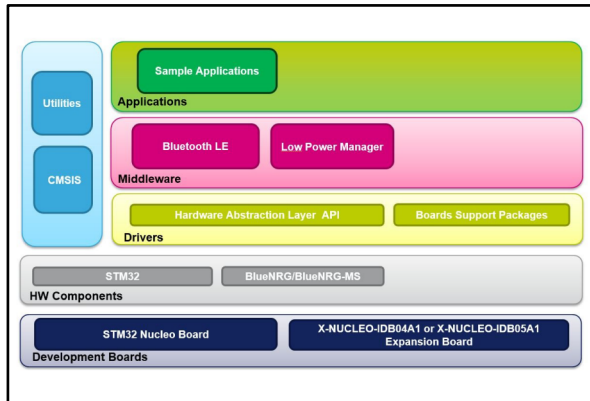


Bluetooth Low Energy software expansion for STM32Cube

Data brief

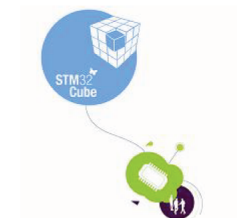


Description

The X-CUBE-BLE1 is an expansion software package for STM32Cube. The software runs on the STM32 and includes drivers for ST's BlueNRG / BlueNRG-MS Bluetooth Low Energy device. 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-IDB04A1 or X-NUCLEO-IDB05A1, when connected to a NUCLEO-L053R8, NUCLEO-L476RG, NUCLEO-F401RE or NUCLEO-F411RE board.

Features

- Complete middleware to build Bluetooth Low Energy applications using ST's BlueNRG / BlueNRG-MS device
- Easy portability across different MCU families, thanks to STM32Cube
- Numerous examples to aid understanding:
 - Support for Standard Profiles (Peripheral and Central)
 - Support for Apple Notification Center Service (ANCS)
- Free, user-friendly license terms



Detailed description

What is STM32Cube?

STM32Cube™ represents an original initiative by STMicroelectronics to ease developers' life by reducing development effort, time and cost. STM32Cube covers the STM32 portfolio. Version 1.x of STM32Cube includes:

- STM32CubeMX, a graphical software configuration tool that allows the generation of C initialization code using graphical wizards.
- A comprehensive embedded software platform, delivered per series (such as the STM32CubeF4 for STM32F4 series).
 - STM32Cube HAL, an STM32 abstraction layer embedded software, ensuring maximized portability across the STM32 portfolio
 - A consistent set of middleware components, such as RTOS, USB, TCP/IP, graphics
 - All embedded software utilities, including a full set of examples

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/BlueNRG-MS expansion board and some middleware components for communication with other Bluetooth LE devices. BlueNRG-MS is a very low power Bluetooth Low Energy (BLE) single-mode network processor, compliant with Bluetooth specifications core 4.0/4.1. The drivers abstract low-level details of the hardware and allow the middleware components and applications to access the BlueNRG/BlueNRG-MS device in a hardware-independent fashion. The software implements low power optimizations to allow system power consumption of a few micro-amps.

The package includes different sample applications and provides support for many standard profiles and for Apple Notification Center Service (ANCS).

Slave profiles (peripheral role):

- Alert Notification Service
- Blood Pressure Service
- Find Me Target
- Glucose Service
- Health Thermometer Service
- Heart Rate Service
- Human Interface Device Service (not supported by STM32 Nucleo-L053R8)
- Proximity Reporter
- Time Server

Master profiles (central role):

- Alert Notification Client
- Blood Pressure Collector
- Find Me Locator
- Glucose Collector
- Health Thermometer Collector
- Heart Rate Collector
- Time Client

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 <i>Section "Detailed description"</i>

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