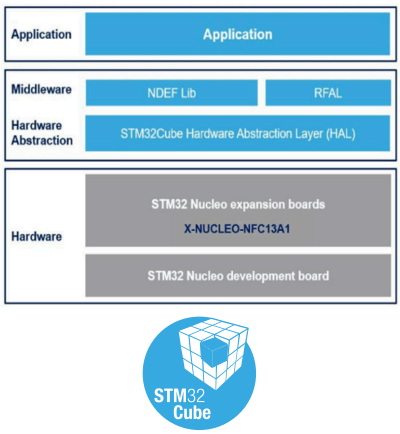
X-CUBE-NFC13

Data brief

NFC/HF RFID reader IC software expansion for STM32Cube



Features

- Complete middleware to build applications using the ST25R210 high-performance NFC universal device supporting NFC initiator, NFC target, NFC reader, and NFC card emulation modes
- Sample application to detect NFC tags of different types
- Sample application:
  - Polling tag detection
- Sample implementations available for the X-NUCLEO-NFC13A1 expansion board plugged onto the NUCLEO-U545RE-Q, NUCLEO-C071RB, or NUCLEO-G0B1RE development board
- Easy portability across different MCU families, thanks to STM32Cube
- Complete RF/NFC abstraction (RFAL) for all major technologies, including complete ISO-DEP and NFC-DEP layers
- Free user-friendly license terms

Product summary	
NFC/HF RFID reader IC software expansion for STM32Cube	X-CUBE-NFC13
NFC card reader expansion board based on ST25R210 for STM32 nucleos	X-NUCLEO-NFC13A1
NFC reader for industrial and consumer applications	ST25R210-ANET
STM32 Nucleo-64 development board with STM32U545RE MCU	NUCLEO-U545RE-Q
STM32 Nucleo-64 development board with STM32C071RB MCU	NUCLEO-C071RB
STM32 Nucleo-64 development board with STM32G0B1RE MCU, supports Arduino and ST morpho connectivity	NUCLEO-G0B1RE
Applications	Wireless connectivity

Description

The X-CUBE-NFC13 software expansion for STM32Cube provides complete middleware for STM32 to control applications using the ST25R210.

The ST25R210 is a high-performance NFC universal device supporting NFC initiator, NFC target, NFC reader, and NFC card emulation modes.

The device includes an advanced analog front end (AFE) and a highly integrated data framing system for reader NFC-A/B(ISO14443A/B), including higher bit rates, NFC-F (FeliCa™), NFC-V (ISO15693) up to 212 kbps, and NFC-A/NFC-F card emulation.

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

The software comes with sample implementations of the drivers running on the X-NUCLEO-NFC13A1 expansion board, plugged on top of a NUCLEO-U545RE-Q, NUCLEO-C071RB, or NUCLEO-G0B1RE board.

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, such as:

- 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, such as 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, I^2C, SPI, CAN, etc.).
- STM32CubeMonitor: family of tools (STM32CubeMonRF,STM32CubeMonUCPD, and STM32CubeMonPwr) that helps 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.

1.1.1 How does this software complement STM32Cube?

The proposed software is based on STM32CubeHAL, the hardware abstraction layer for the STM32 microcontroller. The package extends STM32Cube by providing a board support package (BSP) for the X-NUCLEO-NFC13A1 expansion board for STM32Nucleo, and some middleware components for HF reader and NFC application drivers (RFAL).

The drivers abstract low-level details of the hardware and allow the middleware components and applications to access NFC and HF tags or P2P devices in a hardware-independent fashion.

The package includes one sample application that developers can use to start experimenting with the code. The sample application has been developed to detect NFC tags of different types.

Revision history

Table 1. **Document revision history**

Date	Revision	Changes
19-May-2026	1	Initial release.

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