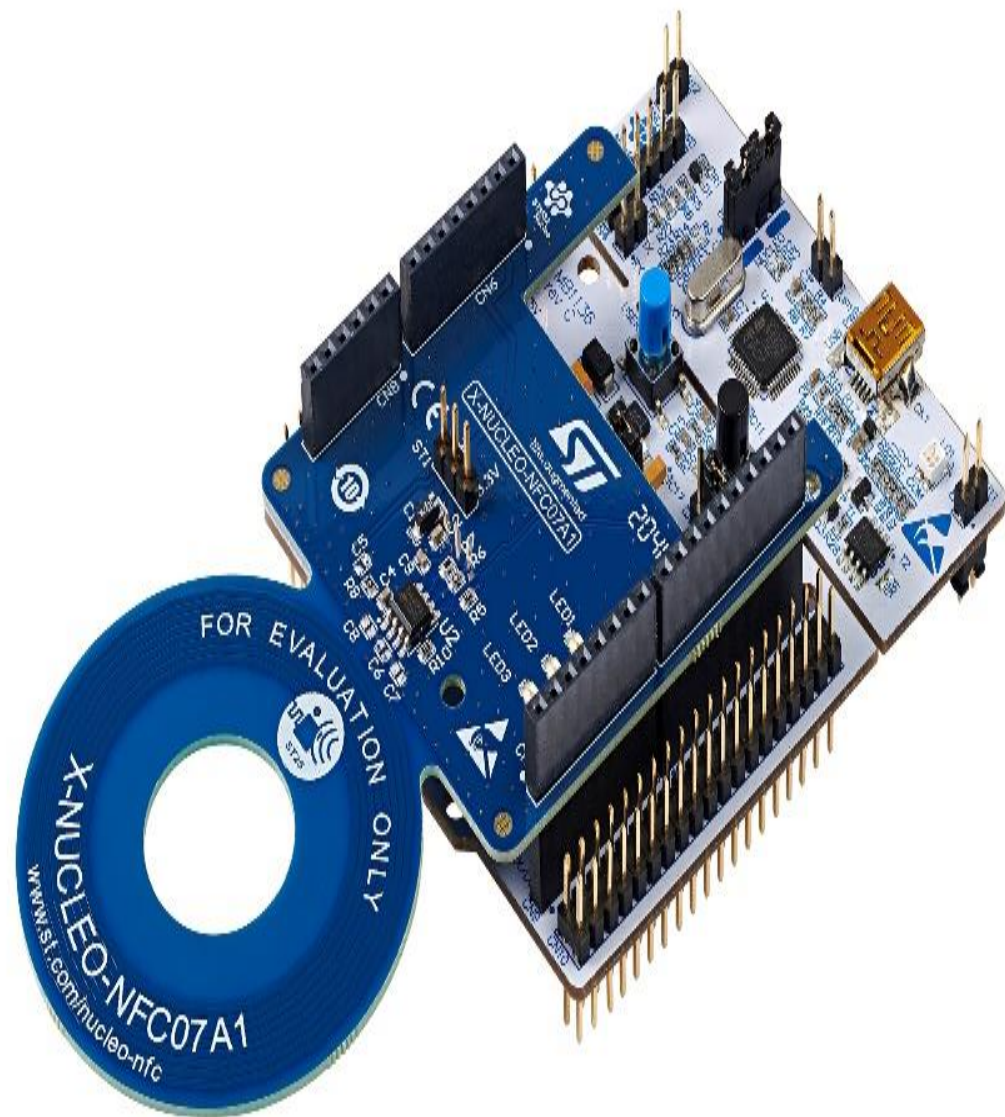




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Quick Start Guide X-NUCLEO-NFC07A1

Dynamic NFC/RFID tag IC expansion board based on
ST25DV64KC for STM32 Nucleo



**STM32 Open
Development
Environment**

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STM32 Open Development Environment: Overview

X-NUCLEO-NFC07A1 expansion board

Hardware overview 1/2

Hardware Description

The X-NUCLEO-NFC07A1 dynamic NFC/RFID tag IC expansion board is based on the ST25DV64KC NFC Type V/RFID tag IC with a dual interface 64 Kbits EEPROM that also features an I²C interface. It can be powered by the pin of Arduino connector or directly by the received carrier electromagnetic field.

It is compatible with the STM32 Nucleo Development Board family and with the Arduino™ UNO R3 connector layout.

Main Features:

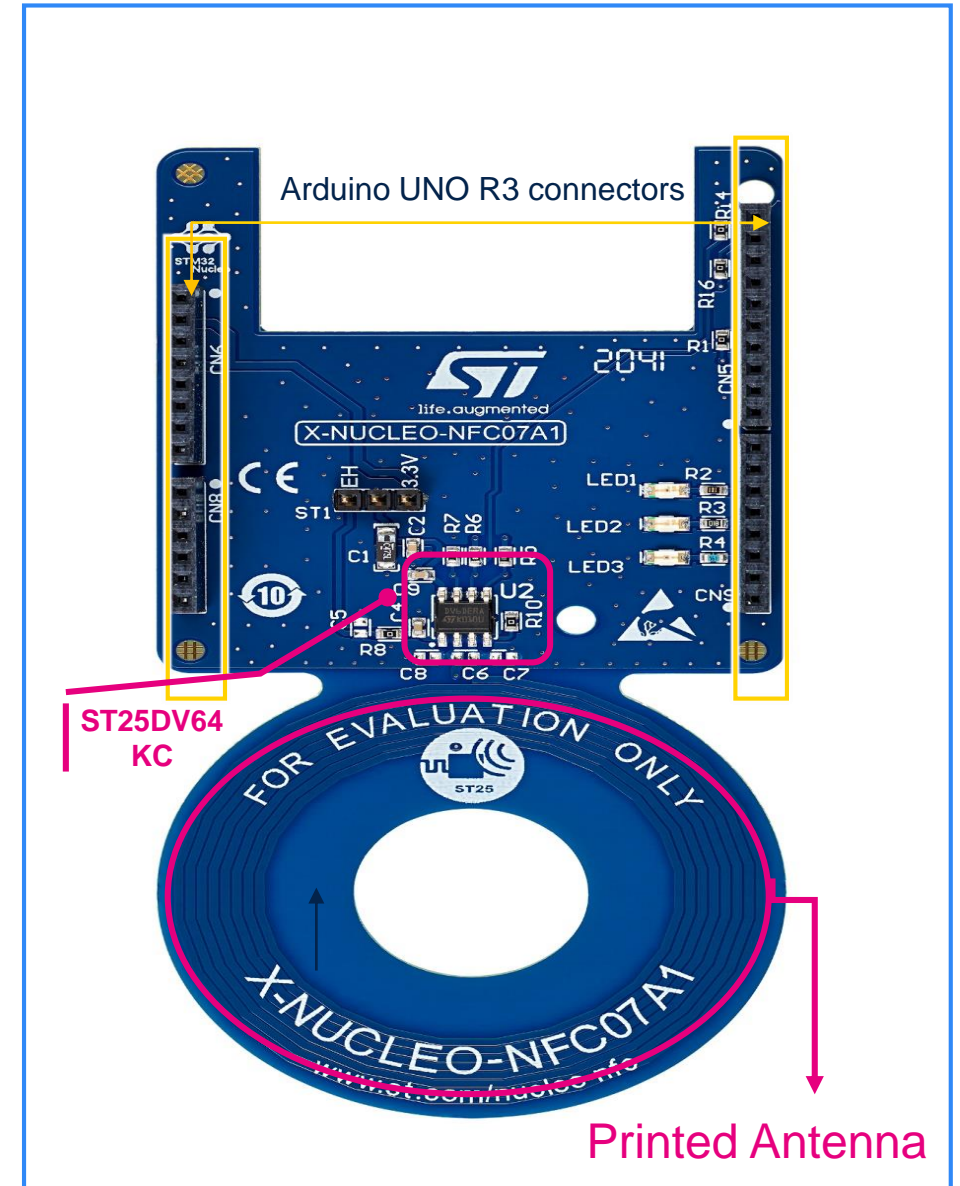
- The device is accessible using I2C bus
- Complete middleware to build applications using the ST25DV64KC dynamic NFC/RFID tag IC
- Easy portability across different MCU families, thanks to STM32Cube

Key Products on the Nucleo expansion board:

ST25DV64KC

Dynamic NFC/RFID tag IC with 64-Kbit EEPROM

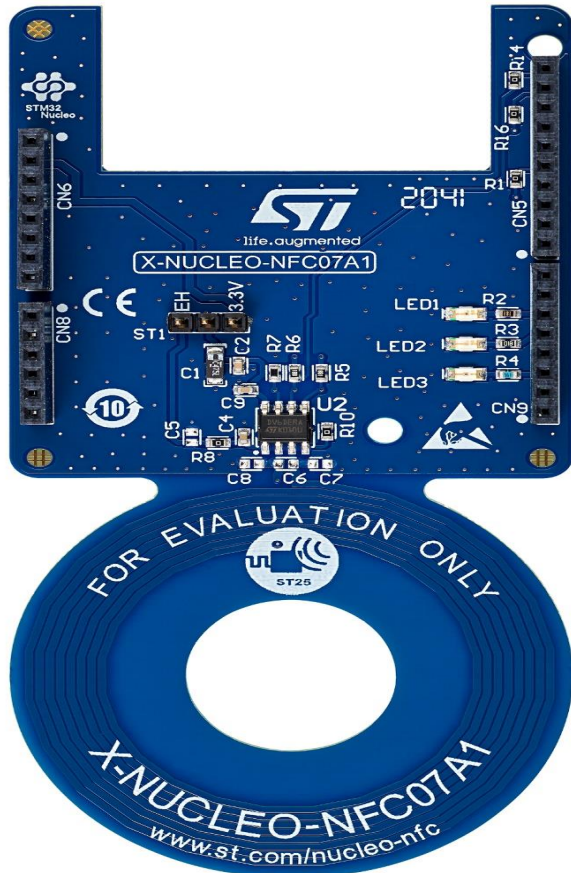
Latest info available at www.st.com
X-NUCLEO-NFC07A1



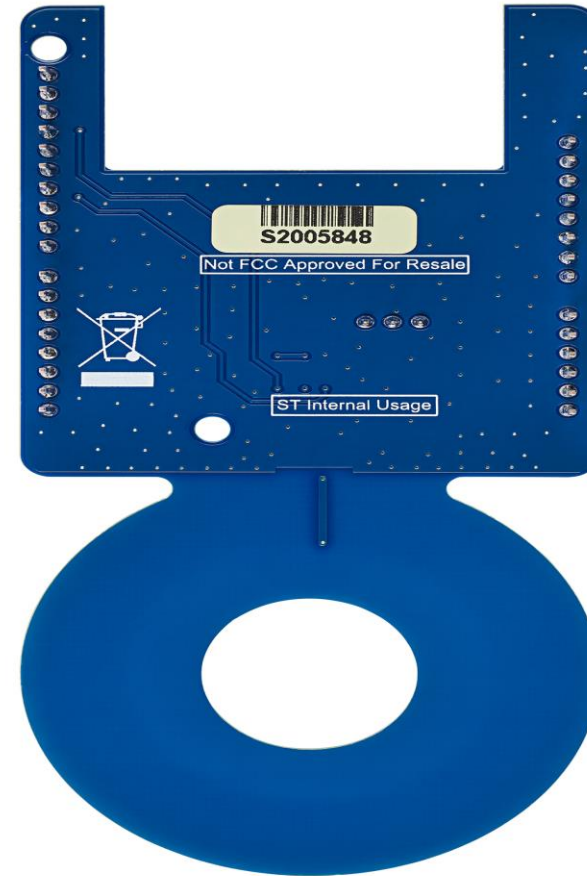
X-NUCLEO-NFC07A1 expansion board

Hardware overview 2/2

Top view



Bottom view



X-CUBE-NFC7 software package

SW architecture overview

Software Description :

The X-CUBE-NFC7 software expansion for STM32Cube provides a complete middleware for STM32 to build applications using the ST25DV64KC dynamic NFC/RFID tag IC. The software is based on STM32Cube technology and expands STM32Cube-based packages. It is built on top of STM32Cube software technology to ease portability across different STM32 microcontrollers.

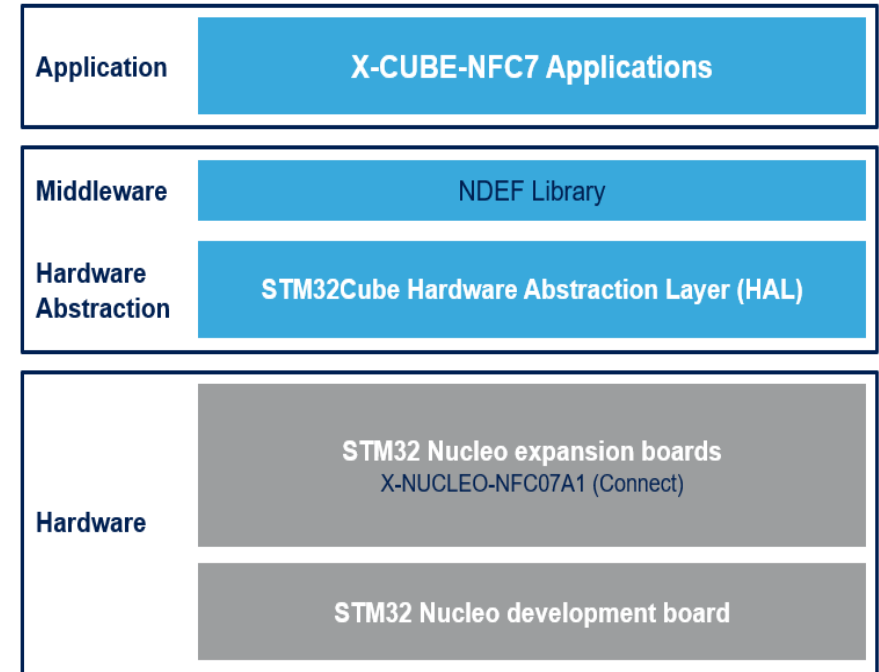
The software comes with sample implementations of the drivers running on the X-NUCLEO-NFC07A1 expansion board plugged on top of a NUCLEO-L053R8, NUCLEO-L476RG or NUCLEO-F401RE development board.

The package includes a sample application and five samples to activate ST25DVxxKC features:

- Energy harvesting enabling
- GPO interrupt activation
- I²C protection setting
- ST25DVxxKC Mailbox usage
- URI NDEF writing

Key Features:

- Complete middleware to build applications using the ST25DV64KC dynamic NFC/RFID tag IC
- Sample implementation available on the X-NUCLEO-NFC07A1 expansion board, plugged into a NUCLEO-L053R8, NUCLEO-L476RG or NUCLEO-F401RE development board
- Easy portability across different MCU families, thanks to STM32Cube
- Free, user-friendly license terms



Latest info available at www.st.com
X-CUBE-NFC07A1

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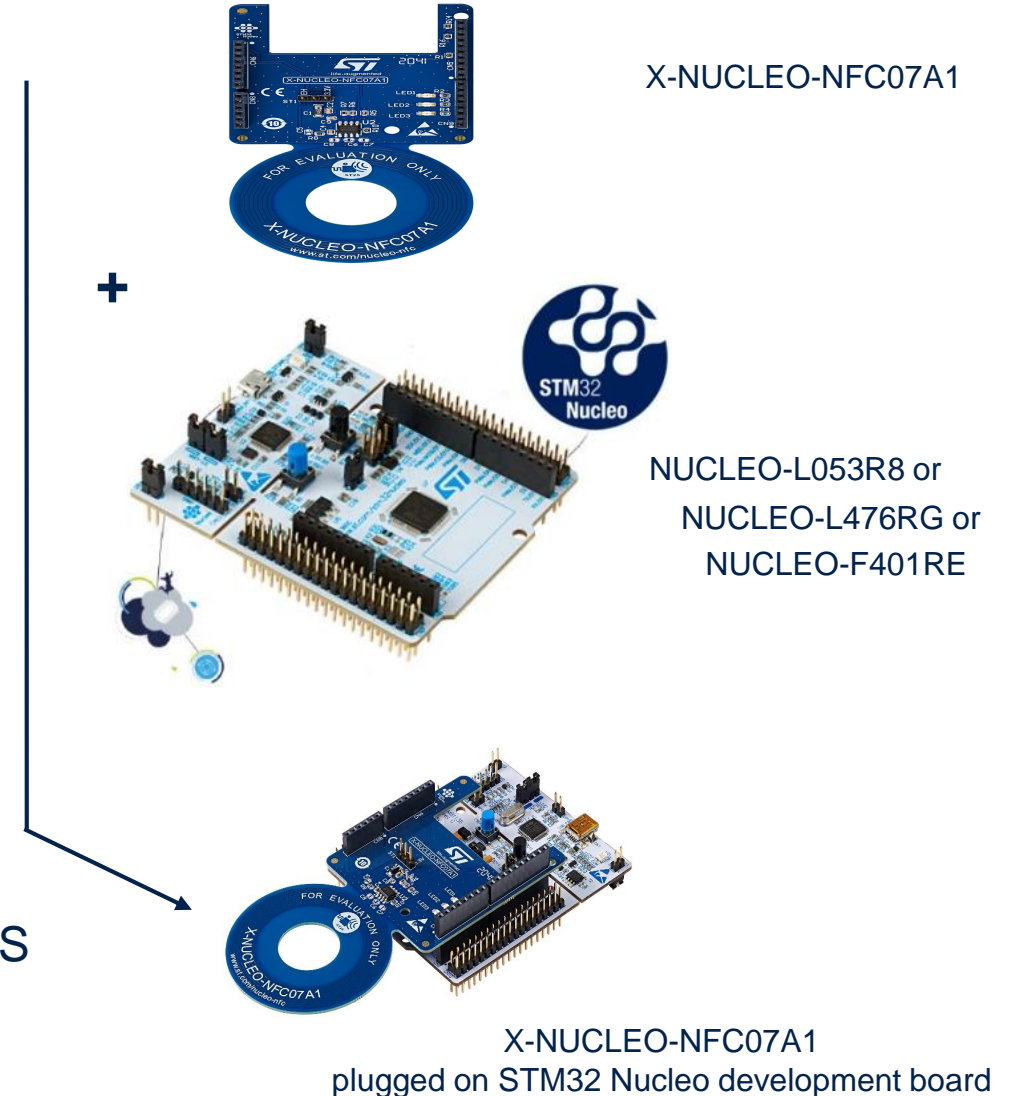
Demo Example: Bill Of Material

HW pre-requisites

- 1x *Dynamic NFC/RFID tag IC* expansion board (**X-NUCLEO-NFC07A1**)
- 1x STM32 Nucleo development board of (**NUCLEO-L053R8, NUCLEO-L476RG, NUCLEO-F401RE**)
- 1x USB type A to micro-B cable
- 1x Laptop/PC with Windows 10 or above
- 1x NFC-enabled Android™ smartphone and ST25 [NFC App](#)



Android OS
Mobile



Demo Example Software Prerequisite

- **STSW-LINK009**: ST-LINK/V2-1 USB driver
- **X-CUBE-NFC7**: expansion software for STM32Cube
 - The package contains source code example projects (Keil, IAR, STM32CubeIDE) based on **NUCLEO-L053R8**, **NUCLEO-L476RG** and **NUCLEO-F401RE**.

Demo Example: software tools

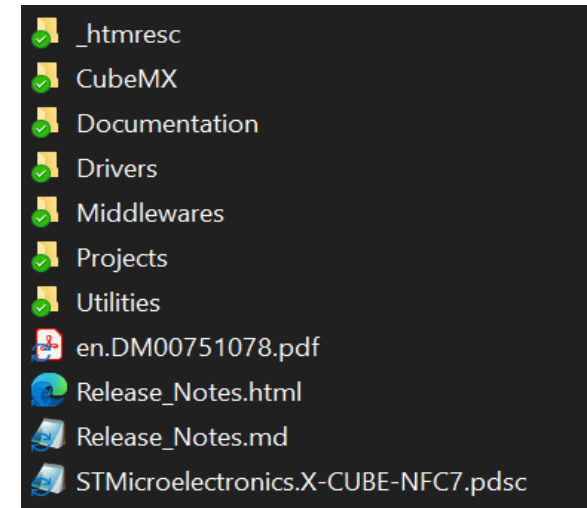
Working with X-CUBE-NFC7

Go to www.st.com/x-nucleo



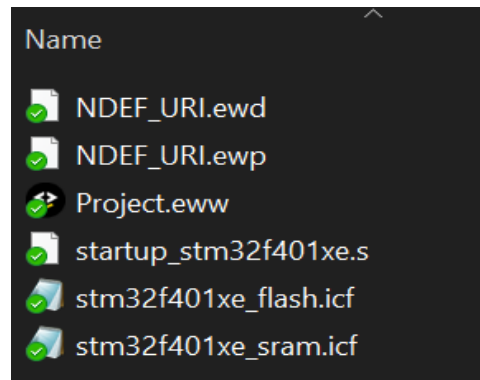
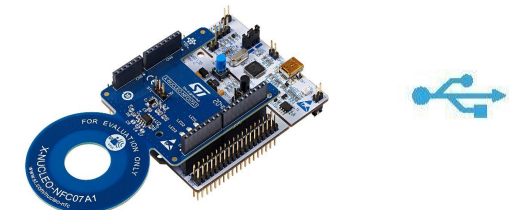
2 Select X-NUCLEO-NFC07A1

3 Download and unpack X-CUBE-NFC7



4 Download & install STM32 Nucleo ST-LINK/V2-1 USB driver SW-LINK009

Open Project example



6 Modify and build application

Demo Examples for different operating modes

- 7 Program STM32 on Nucleo with NDEF_URI.bin binary file
- 8 Enable NFC on your phone and make sure it is also connected to the internet
- 9 Bring the phone close to the X-NUCLEO-NFC07A1 Antenna. You are directly redirected to www.st.com

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All documents are available in the **DOCUMENTATION** tab of the related products webpage

X-NUCLEO-NFC07A1 :

- **DB4607**: Dynamic NFC/RFID tag IC expansion board based on ST25DV64KC for STM32 Nucleo
- **UM2960**: Getting started with the X-NUCLEO-NFC07A1 NFC/RFID tag IC expansion board based on ST25DV64KC for STM32 Nucleo
- Schematics, Gerber files, BOM

X-CUBE-NFC7:

- **DB4608**: Dynamic NFC/RFID tag IC software expansion for STM32Cube
- **UM2961**: Getting started with the X-CUBE-NFC7 dynamic NFC/RFID tag IC software expansion for STM32Cube

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STM32 Open Development Environment: Overview

STM32 ODE Ecosystem

FAST, AFFORDABLE PROTOTYPING AND DEVELOPMENT

The STM32 Open Development Environment (ODE) is an **open, flexible, easy** and **affordable** way to develop innovative devices and applications based on the STM32 32-bit microcontroller family combined with other state-of-the-art ST components connected via expansion boards. It enables fast prototyping with leading-edge components that can quickly be transformed into final designs.

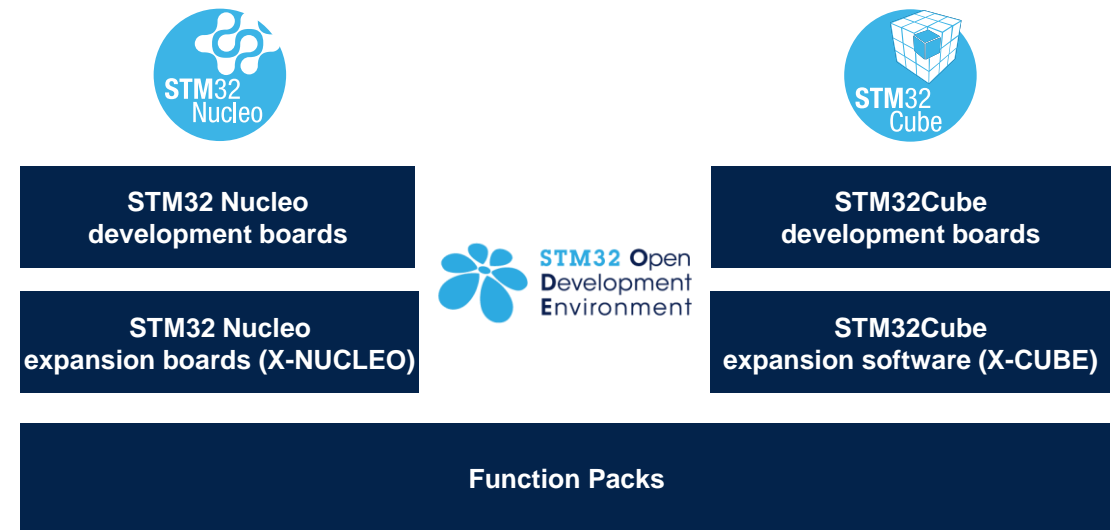
The STM32 ODE includes the following five elements:

- STM32 Nucleo development boards. A comprehensive range of affordable development boards for all STM32 microcontroller series, with unlimited unified expansion capability, and with integrated debugger/programmer
- STM32 Nucleo expansion boards. Boards with additional functionality to add sensing, control, connectivity, power, audio or other functions as needed. The expansion boards are plugged on top of the STM32 Nucleo development boards. More complex functionalities can be achieved by stacking additional expansion boards
- STM32Cube software. A set of free-of-charge tools and embedded software bricks to enable fast and easy development on the STM32, including a Hardware Abstraction Layer, middleware and the STM32CubeMX PC-based configurator and code generator
- STM32Cube expansion software. Expansion software provided free of charge for use with STM32 Nucleo expansion boards, and compatible with the STM32Cube software framework
- STM32Cube Function Packs. Set of function examples for some of the most common application cases built by leveraging the modularity and interoperability of STM32 Nucleo development boards and expansions, with STM32Cube software and expansions.

The STM32 Open Development Environment is compatible with a number of IDEs including IAR EWARM, Keil MDK, mbed and GCC-based environments.



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STM32 Open Development Environment: all that you need

The combination of a broad range of expandable boards based on leading-edge commercial products and modular software, from driver to application level, enables fast prototyping of ideas that can be smoothly transformed into final designs.

To start your design:

- Choose the appropriate STM32 Nucleo development board (MCU) and expansion (X-NUCLEO) boards (sensors, connectivity, audio, motor control etc.) for the functionality you need
- Select your development environment (IAR EWARM, Keil MDK, and GCC-based IDEs) and use the free STM32Cube tools and software.
- Download all the necessary software to run the functionality on the selected STM32 Nucleo expansion boards.
- Compile your design and upload it to the STM32 Nucleo development board.
- Then start developing and testing your application.

Software developed on the STM32 Open Development Environment prototyping hardware can be directly used in an advanced prototyping board or in an end product design using the same commercial ST components, or components from the same family as those found on the STM32 Nucleo boards.

