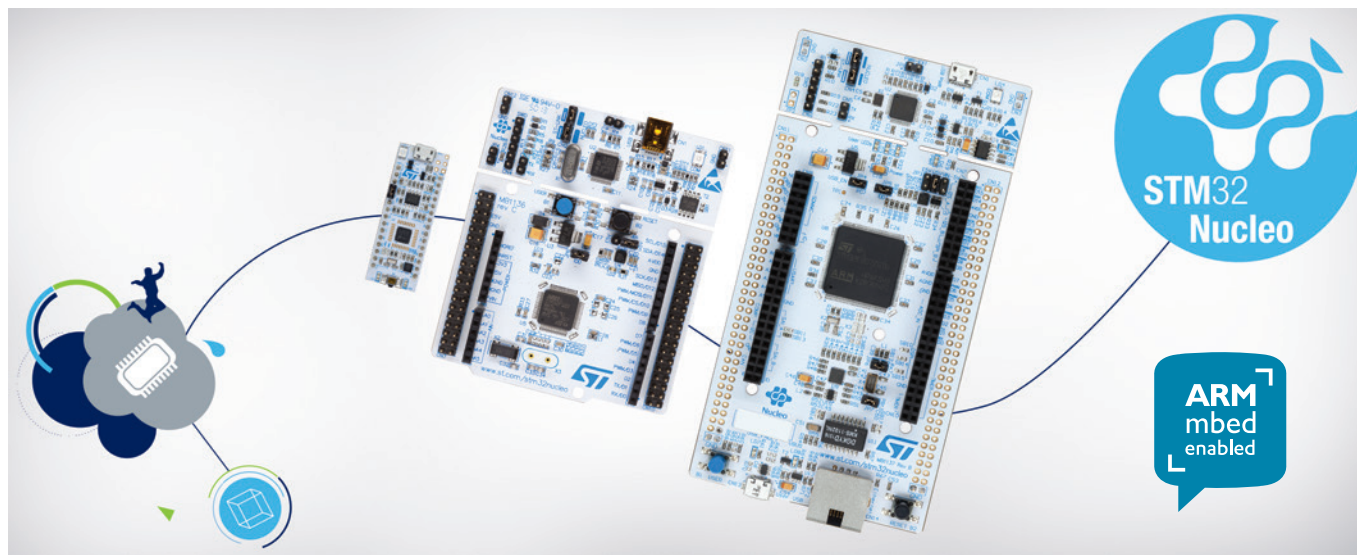# STM32
# Nucleo boards



## Open STM32 development platform for flexible prototyping

The highly affordable STM32 Nucleo boards allow anyone to try out new ideas and to quickly create prototypes with any STM32 MCU.

STM32 Nucleo boards can easily be extended with a large number of specialized application hardware add-ons (Arduino Uno Rev3 and ST morpho connectors on Nucleo-144 and Nucleo-64, ST Zio connectors on Nucleo-144, Arduino Nano connectors on Nucleo-32).

The STM32 Nucleo boards integrate an ST-Link debugger/programmer, so there is no need for a separate probe.

A comprehensive STM32 software HAL library together with various software examples are provided with STM32 Nucleo boards, and seamlessly work with a wide range of development environments including IAR EWARM, Keil MDK-ARM, mbed and GCC/LLVM-based IDEs.

All STM32 Nucleo users have free access to the mbed online resources (compiler, C/C++ SDK, and developer community) at **www.mbed.org** allowing to build a complete application in only a few minutes.
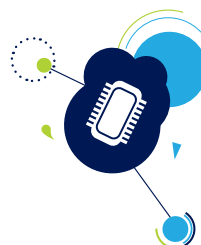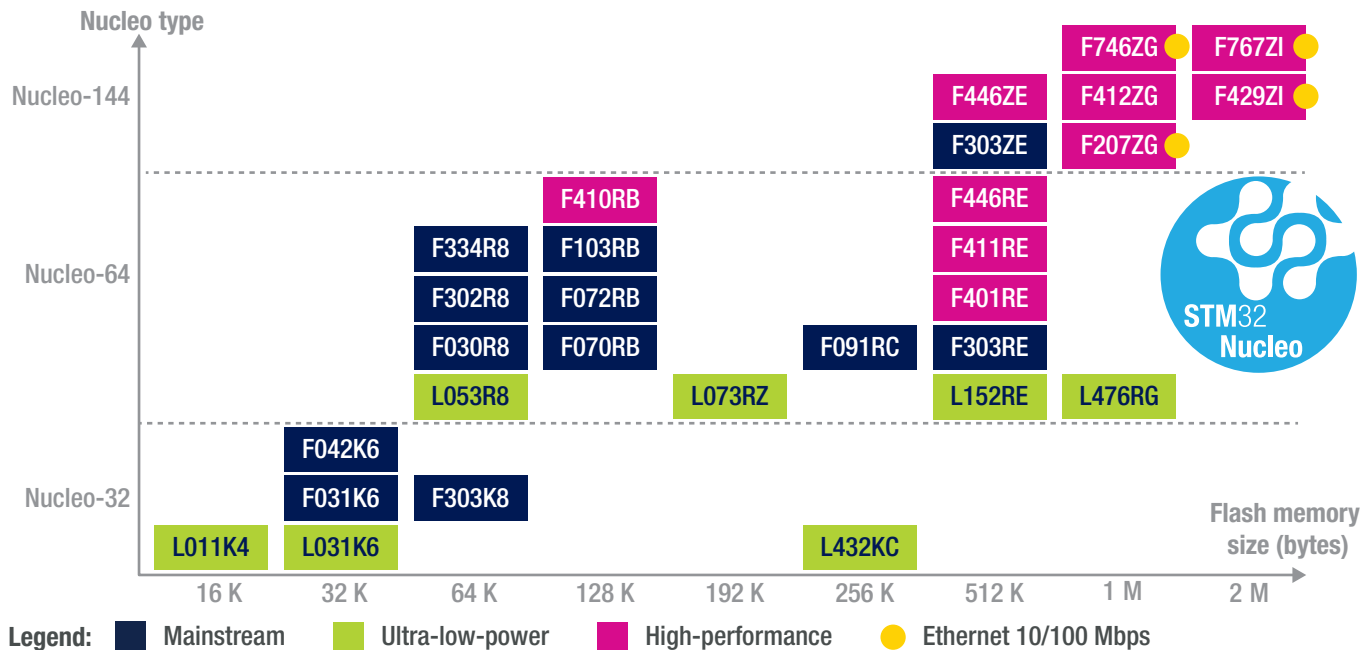
### KEY FEATURES
- Includes one STM32 microcontroller in 32-pin, 64-pin or 144-pin package
- On-board ST-LINK/V2-1 debugger/programmer:
  - Virtual com port
  - Mass storage
- Wide extension capabilities with specialized shields:
  - Arduino Uno rev3 connectors on Nucleo-64 and Nucleo-144,
  - Access to a wider range of peripherals through Zio connectors on Nucleo-144
  - Access to all MCU pins through ST morpho connectors on Nucleo-64 and Nucleo-144,
  - Arduino Nano connectors on Nucleo-32
- Direct access to mbed online resources
- Supported by IAR, Keil, ARM® mbed™ online, and GCC/LLVM-based IDEs (AC6, Atollic, Coocox, Emprog, Keolabs, Rowley, Segger, Tasking…)

# STM32 NUCLEO BOARD PORTFOLIO

**Unified offering with scalable performance/features/power mix**

www.st.com/stm32nucleo

**Nucleo type**

| | | | | | | | | F746ZG ● | F767ZI ● |
|---|---|---|---|---|---|---|---|---|---|
| Nucleo-144 | | | | | | F446ZE | F412ZG | | F429ZI ● |
| | | | | | | F303ZE | F207ZG ● | | |
| | | | F410RB | | | F446RE | | | |
| Nucleo-64 | | F334R8 | F103RB | | | F411RE | | | |
| | | F302R8 | F072RB | | | F401RE | | | |
| | | F030R8 | F070RB | | F091RC | F303RE | | | |
| | | L053R8 | | L073RZ | | L152RE | L476RG | | |
| | F042K6 | | | | | | | | |
| Nucleo-32 | F031K6 | F303K8 | | | | | | | |
| L011K4 | L031K6 | | | | L432KC | | | | |

**Flash memory size (bytes)**

16 K    32 K    64 K    128 K    192 K    256 K    512 K    1 M    2 M

**Legend:** ■ Mainstream    ■ Ultra-low-power    ■ High-performance    ● Ethernet 10/100 Mbps

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# STM32 NUCLEO EXPANSION BOARDS

**Unlimited possibilities**

STM32 Nucleo development boards can easily be expanded through a variety of add-on boards. These expansion boards open the door to any type of application leveraging the appropriate mix of performance/peripherals/power within the comprehensive STM32 family.

Each expansion board integrates the necessary components to implement specialized features of a chosen application, and comes with complementary STM32 software modules.
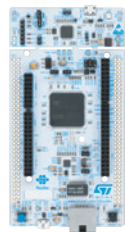
## Hardware tools
**STM32 Nucleo development boards**
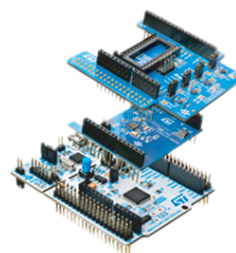
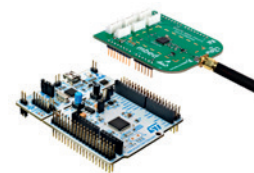Nucleo-32    Nucleo-64    Nucleo-144

www.st.com/stm32nucleo

## Expansion boards
**STM32 Nucleo expansion boards from ST and third parties**

### LoRa networking

P-NUCLEO-LRWAN1
(Pack ST and Semtech)

www.st.com/x-nucleo

## Software

| STM32Cube software library | STM32Cube expansion software |
|---|---|
| www.st.com/stm32cube | www.st.com/x-cube |

**Multiple IDE support**

IAR SYSTEMS    ARM KEIL Microcontroller Tools    ARM mbed    aC6    atollic    EMPROG "Where Software Meets Hardware"    iSYSTEM    KEOLABS    TASKING    X    SEGGER Embedded Studio

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