NUCLEO-XXXXZX

STM32 Nucleo-144 board

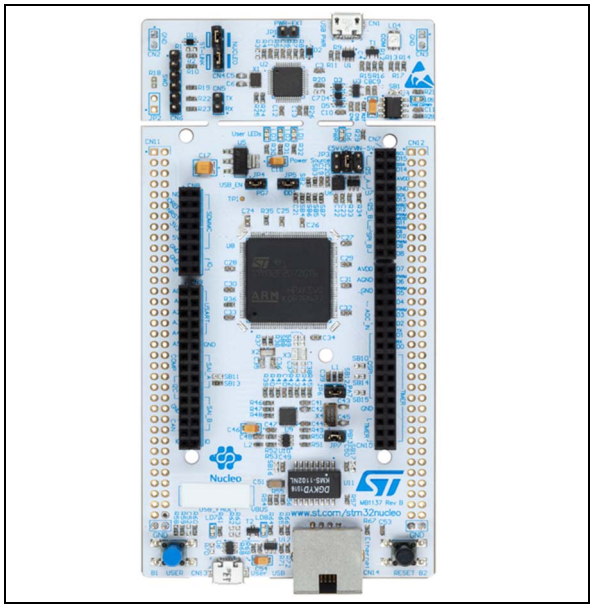
Data brief

Features

- STM32 microcontroller in LQFP144 package
- Two types of extension resources:
  - ST Zio connector including: support for Arduino™ Uno V3 connectivity (A0 to A5, D0 to D15) and additional signals exposing a wide range of peripherals
  - ST morpho extension pin header footprints for full access to all STM32 I/Os
- ARM® mbed™ -enabled (see http://mbed.org)
- On-board ST-LINK/V2-1 debugger/programmer with SWD connector:
  - Selection-mode switch to use the kit as a standalone ST-LINK/V2-1
  - USB re-enumeration capability. Three different interfaces supported on USB: virtual COM port, mass storage, debug port
- Flexible board power supply:
  - 5 V from ST-LINK/V2-1 USB VBUS
  - External power sources: 3.3 V and 7 - 12 V on ST Zio or ST morpho connectors, 5 V on ST morpho connector
- USB OTG or full-speed device with Micro-AB connector (depending on STM32 support)
- IEEE-802.3-2002 compliant Ethernet connector (depending on STM32 support)
- Three user LEDs
- Two push-buttons: USER and RESET
- LSE crystal:
  - 32.768 KHz crystal oscillator
- Comprehensive free software HAL library including a variety of software examples
- Support of wide choice of Integrated Development Environments (IDEs) including IAR™, Keil®, GCC-based IDEs, ARM® mbed™

Description

The STM32 Nucleo-144 board provides an affordable and flexible way for users to try out new concepts and build prototypes with the STM32 microcontroller, choosing from the various combinations of performance, power consumption and features.



1. Picture is not contractual.

The ST Zio connector, which is an extension of Arduino™ Uno V3, provides access to more peripherals and ST morpho headers provide an easy mean of expanding the functionality of the Nucleo open development platform with a wide choice of specialized shields.
The STM32 Nucleo-144 board does not require any separate probe, as it integrates the ST-LINK/V2-1 debugger and programmer and it comes with the STM32 comprehensive software HAL library, together with various packaged software examples, as well as a direct access to the ARM® mbed™ online resources at http://mbed.org.

Table 1. Device summary

Reference	Part number
NUCLEO-XXXXZX	NUCLEO-F207ZG, NUCLEO-F303ZE, NUCLEO-F412ZG, NUCLEO-F413ZH, NUCLEO-F429ZI, NUCLEO-F446ZE, NUCLEO-F746ZG, NUCLEO-F767ZI.

For further information contact your local STMicroelectronics sales office. www.st.com

System requirements

- Windows® OS (XP, 7, 8) or Linux 64-bit or Mac OS® X
- USB Type-A to Micro-B cable

Development toolchains

- ARM® Keil®: MDK-ARM(a)
- IAR™: EWARM(a)
- GCC-based IDEs (free AC6: SW4STM32, Atollic TrueSTUDIO®(a) and others)
- ARM® mbed™ online

Demonstration software

Demonstration software is preloaded in the board-mounted Flash memory for easy demonstration of the device peripherals in standalone mode. For more information and to download the latest version, refer to the demonstration software for the STM32 Nucleo boards at the www.st.com/stm32nucleo website.

Ordering information

Table 2 lists the order codes and the respective targeted STM32.

Table 2. Ordering information

Order code	Target STM32
NUCLEO-F207ZG	STM32F207ZGT6
NUCLEO-F303ZE	STM32F303ZET6
NUCLEO-F412ZG	STM32F412ZGT6
NUCLEO-F413ZH	STM32F413ZHT6
NUCLEO-F429ZI	STM32F429ZIT6
NUCLEO-F446ZE	STM32F446ZET6

a. On Windows® only.

Table 2. Ordering information (continued)

Order code	Target STM32
NUCLEO-F746ZG	STM32F746ZGT6
NUCLEO-F767ZI	STM32F767ZIT6

The meaning of the NUCLEO-TXXXZY codification is explained in *Table 3* with an example:

Table 3. Codification explanation

NUCLEO-TXXXZY	Description	Example: NUCLEO-F446ZE
TXXX	STM32 product line (F, H or L)	STM32F446
Z	STM32 package pin count	144 pins
Y	STM32 Flash memory size (8 for 64 Kbytes, B for 128 Kbytes, C for 256 Kbytes, E for 512 Kbytes, G for 1 Mbyte, Z for 192 Kbytes, H for 1.5 Mbytes, I for 2 Mbytes.)	512 Kbytes

This order code is mentioned on a sticker placed on top side of the board.

Revision history

Table 4. Document revision history

Date	Revision	Changes
21-Dec-2015	1	Initial version.
27-Apr-2016	2	Updated: *Features*, *Table 1: Device summary*, *System requirements* to add NUCLEO-F767ZI.
29-Jun-2016	3	Updated *Table 1: Device summary*, *System requirements* to add NUCLEO-F412ZG.
25-Nov-2016	4	Extended the applicability to NUCLEO-F413ZH. Updated *Table 1: Device summary* and *Table 2: Ordering information*. Added *Table 3: Codification explanation*.

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