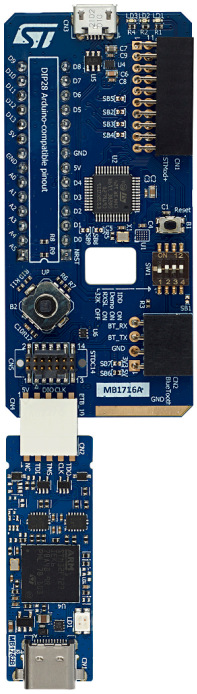
STM32C0316-DK

Data brief

Discovery kit with STM32C031C6 MCU



STM32C0316-DK top view with tiny probe. Picture is not contractual.

Product status link
STM32C0316-DK

Features

- STM32C031C6 Arm® Cortex®-M0+ core-based microcontroller with 32 Kbytes of Flash memory and 12 Kbytes of RAM, in an LQFP48 package
- Board reference design triple STM32 package footprints: LQFP48, UFQFPN20, and WLCSP20
- 32768 Hz on-board clock generator
- 1 user LED and 2 power LEDs
- Reset push-button
- 5-way joystick using a single ADC input pin
- Slide switch to conveniently disconnect embedded user demonstration components
- Board connectors:
  - USB Micro-B for 5 V power
  - STMod+ connector
  - Bluetooth® (HC05, 115200 bps) as a simple wireless serial adapter
  - Not-fitted DIP28 compatible extension connectors
  - STDC14 debug connector for third-party debug probes
  - On-board both side pads for BTB card edge connector
  - Standalone STLINK-V3MINIE debugger/programmer tiny probe for STM32 microcontrollers
- Comprehensive free software libraries and examples available with the STM32Cube MCU Package
- Support of a wide choice of Integrated Development Environments (IDEs) including IAR Embedded Workbench®, MDK-ARM, and STM32CubeIDE

Description

The STM32C0316-DK Discovery kit goal is to provide alternative features to the corresponding NUCLEO-C031C6 board.

All 20 pins common to all STM32C0 Series microcontrollers are user-accessible. The user can override the SWD debug pins by disconnecting the debug probe. The 5-way analog rock switch and LED can be overridden with a slide switch to be taken over by the user. All the pins are accessible through the DIP28 connector. Headers are not provided to let the user choose the header type. The 32768 Hz on-board 1-pin clock generator for RTC can be cut with a slide switch.

The kit helps migrate from 8-bit to STM32C0 Series microcontrollers, and between STM32C0 Series and STM32G0 Series microcontrollers. The DIP28 pinout is designed to be as compatible as possible with the ATMEGA328 8-bit microcontroller. The LQFP48 footprint is compatible with STM32G031/071/0B1 Series microcontrollers. The UFQFPN20 footprint is compatible with STM32C01 Series microcontrollers. The WLCSP20 footprint is compatible with STM32G051 Series microcontrollers.

The STM32C031C6 Series microcontroller can be tested over its operating range. The 5.0 to 3.3 V regulator bypass itself when its source goes lower than 3.3 V. The debug probe level shifters adjust the debug signal levels to the target microcontroller supply voltage.

1 Ordering information

To order the STM32C0316-DK Discovery kit, refer to Table 1. For a detailed description, refer to its user manual on the product web page. Additional information is available from the datasheet and reference manual of the target microcontroller.

Table 1. List of available products

Order code	Board reference	User manual	Target STM32
STM32C0316-DK	• MB1716(1) • MB1762(2)	UM2969	STM32C031C6T6

1. *Mother board*
2. *STLINK-V3MINIE tiny probe*

1.1 Product marking

The stickers located on the top or bottom side of the PCB provide product information:

- Product order code and product identification for the first sticker
- Board reference with revision, and serial number for the second sticker

On the first sticker, the first line provides the product order code, and the second line the product identification.

On the second sticker, the first line has the following format: “MBxxxx-Variant-yzz”, where “MBxxxx” is the board reference, “Variant” (optional) identifies the mounting variant when several exist, "y" is the PCB revision and "zz" is the assembly revision, for example B01. The second line shows the board serial number used for traceability.

Evaluation tools marked as “ES” or “E” are not yet qualified and therefore not ready to be used as reference design or in production. Any consequences deriving from such usage will not be at ST charge. In no event, ST will be liable for any customer usage of these engineering sample tools as reference designs or in production.

“E” or “ES” marking examples of location:

- On the targeted STM32 that is soldered on the board (For an illustration of STM32 marking, refer to the STM32 datasheet “Package information” paragraph at the *www.st.com* website).
- Next to the evaluation tool ordering part number that is stuck or silk-screen printed on the board.

Some boards feature a specific STM32 device version, which allows the operation of any bundled commercial stack/library available. This STM32 device shows a "U" marking option at the end of the standard part number and is not available for sales.

In order to use the same commercial stack in his application, a developer may need to purchase a part number specific to this stack/library. The price of those part numbers includes the stack/library royalties.

1.2 Codification

The meaning of the codification is explained in Table 2.

Table 2. Codification explanation

STM32C0XXY-DK	Description	Example: STM32C0316-DK
STM32C0	MCU series in STM32 32-bit Arm Cortex MCUs	STM32C0 Series
XX	MCU product line in the series	STM32C0x1 product line
Y	STM32 Flash memory size: • 6 for 32 Kbytes	32 Kbytes
DK	Discovery kit	Discovery kit

2 Development environment

The STM32C0316-DK board runs with the STM32C031C6T6 32-bit microcontroller based on the Arm® Cortex®-M0+ core.

Note: Arm is a registered trademark of Arm Limited (or its subsidiaries) in the US and/or elsewhere.

2.1 System requirements

- Multi-OS support: Windows® 10, Linux® 64-bit, or macOS®
- USB Type-A or USB Type-C® to USB Type-C® cable
- USB Type-A or USB Type-C® to Micro-B cable

Note: macOS® is a trademark of Apple Inc., registered in the U.S. and other countries and regions.
Linux® is a registered trademark of Linus Torvalds.
All other trademarks are the property of their respective owners.

2.2 Development toolchains

- IAR Systems® - IAR Embedded Workbench®(1)
- Keil® - MDK-ARM(1)
- STMicroelectronics - STM32CubeIDE

1. *On Windows® only.*

Revision history

Table 3. **Document revision history**

Date	Revision	Changes
12-Jan-2022	1	Initial release.

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