Discovery kit with STM32F413ZH MCU

Features

Pictures are not contractual.

Product status link
32F413HDISCOVERY

- STM32F413ZHT6 microcontroller with 1.5 Mbytes of Flash memory and 320 Kbytes of SRAM, in an LQFP144 package
- 240×240-pixel LCD with a parallel interface and capacitive touch panel
- Integrated Wi-Fi® module (802.11 b/g/n compliant)
- USB OTG FS
- I^2S audio codec
- Stereo digital ST-MEMS microphones
- 8-Mbit 16-bit wide PSRAM
- 128-Mbit Quad-SPI NOR Flash memory
- 2 color user LEDs
- User and reset push-buttons
- Board connectors:
  - microSD™ card
  - User USB with Micro-AB
  - Jack for audio line with microphone input and stereo output
  - Expansion connector to embedded MEMS microphone daughterboard featuring 5 MEMS microphones
  - ARDUINO® Uno V3 expansion connectors
- Flexible power-supply options: ST-LINK USB V_{BUS}, user USB FS connector, or external sources
- Comprehensive free software libraries and examples available with the STM32Cube MCU Package
- On-board ST-LINK/V2-1 debugger/programmer with USB re-enumeration capability: mass storage, Virtual COM port, and debug port
- Support of a wide choice of Integrated Development Environments (IDEs) including IAR Embedded Workbench®, MDK-ARM, and STM32CubeIDE

Description

With the STM32F413 Discovery kit (32F413HDISCOVERY), users develop applications easily on the STM32F4 Series high-performance microcontrollers based on Arm® Cortex®-M4 core. The Discovery kit combines the STM32F413 features with 240×240 pixel LCD with touch panel, LEDs, I^2S audio codec, MEMS microphones, USB OTG FS, Quad-SPI NOR Flash memory, and microSD™ card connector.

An embedded ST-LINK/V2-1 debugger/programmer is included. Specialized add-on boards can be connected through the ARDUINO® Uno V3 or expansion connectors.

1 Ordering information

To order the 32F413HDISCOVERY 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
STM32F413H-DISCO	• MB1274[1] • MB1299[2]	UM2135	STM32F413ZHT6

1. Mother board
2. MEMS microphone daughterboard

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.

1.2 Codification

The meaning of the codification is explained in Table 2.

Table 2. Codification explanation

STM32F4XXY-DISCO	Description	Example: STM32F413H-DISCO
STM32F4	MCU series in STM32 32-bit Arm Cortex MCUs	STM32F4 Series
XX	MCU product line in the series	STM32F413
Y	STM32 Flash memory size: • H for 1.5 Mbytes	1.5 Mbytes
DISCO	Discovery kit	Discovery kit

2 Development environment

The 32F413HDISCOVERY runs with the STM32F413ZHT6 32-bit microcontroller based on the Arm® Cortex®-M4 core.

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

arm

2.1 System requirements

- Multi-OS support: Windows® 10, Linux® 64-bit, or macOS®
- 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.

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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
13-Dec-2016	1	Initial release.
5-Apr-2017	2	Updated *Features*.
14-Dec-2021	3	Reshuffle of the document to align with latest standards: • Added Product status link • Updated Features, Description, Ordering information with added Product marking and Codification, and Development environment Removed *Demonstration software*.

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