

## Discovery kit with STM32F412ZG MCU



Picture is not contractual.

Product status link

[32F412GDISCOVERY](#)

### Features

- STM32F412ZGT6 microcontroller with 1 Mbyte of Flash memory and 256 Kbytes of RAM, in an LQFP144 package
- 1.54-inch 240×240 pixel TFT color LCD with parallel interface and capacitive touch panel
- USB OTG FS
- I<sup>2</sup>S audio codec
- Stereo digital ST-MEMS microphones
- 128-Mbit Quad-SPI NOR Flash memory
- Reset push-button and joystick
- 4 color user LEDs
- Board connectors:
  - microSD™ card
  - User USB with Micro-AB
  - Stereo headset jack with analog microphone input and a loudspeaker output
  - I<sup>2</sup>C expansion connector
  - ARDUINO® Uno V3 expansion connectors
  - 2.54 mm pitch expansion connector for direct access to various features of the STM32F412ZGT6 microcontroller
- Flexible power-supply options: ST-LINK USB V<sub>BUS</sub>, 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 STM32F412 Discovery kit ([32F412GDISCOVERY](#)), users develop applications easily on the STM32F412 high-performance MCUs with Arm® Cortex®-M4 core. The Discovery kit combines the STM32F412 features with 1.54-inch 240×240 pixel TFT color LCD with touch panel, LEDs, joystick, I<sup>2</sup>S 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 by means of the ARDUINO® Uno or expansion connectors.

# 1 Ordering information

To order the 32F412GDISCOVERY 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
<a href="#">STM32F412G-DISCO</a>	MB1209	<a href="#">UM2032</a>	<a href="#">STM32F412ZGT6</a>

## 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: "MBxxx-Variant-yyz", where "MBxxx" 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](http://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: STM32F412G-DISCO
STM32F4	MCU series in STM32 32-bit Arm Cortex MCUs	STM32F4 Series
XX	MCU product line in the series	STM32F412
Y	STM32 Flash memory size: • G for 1 Mbyte	1 Mbyte
DISCO	Discovery kit	Discovery kit

## 2 Development environment

The 32F412GDISCOVERY runs with the STM32F412ZGT6 32-bit microcontroller based on the Arm<sup>®</sup> Cortex<sup>®</sup>-M4 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<sup>®</sup> 10, Linux<sup>®</sup> 64-bit, or macOS<sup>®</sup>
- USB Type-A or USB Type-C<sup>®</sup> to Micro-B cable

*Note:* macOS<sup>®</sup> is a trademark of Apple Inc. registered in the U.S. and other countries.

Linux<sup>®</sup> is a registered trademark of Linus Torvalds.

All other trademarks are the property of their respective owners.

### 2.2 Development toolchains

- IAR Systems<sup>®</sup> - IAR Embedded Workbench<sup>®(1)</sup>
- Keil<sup>®</sup> - MDK-ARM<sup>(1)</sup>
- STMicroelectronics - STM32CubeIDE

1. On Windows<sup>®</sup> only.

## Revision history

**Table 3. Document revision history**

Date	Revision	Changes
29-Jul-2016	1	Initial release.
27-Oct-2021	2	Removed <i>Technology partner</i> and <i>Demonstration software</i> . Revised the entire document: <ul style="list-style-type: none"> <li>• Updated <a href="#">Features</a>, <a href="#">Description</a>, <a href="#">Ordering information</a>, <a href="#">System requirements</a> and <a href="#">Development toolchains</a></li> <li>• Added <a href="#">Product marking</a> and <a href="#">Codification</a></li> </ul>

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