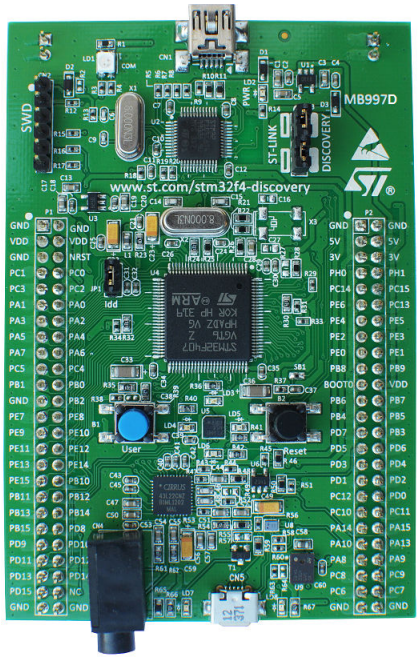
STM32F4DISCOVERY

Data brief

Discovery kit with STM32F407VG MCU



Picture is not contractual.

Product status link
STM32F4DISCOVERY

Features

- STM32F407VGT6 microcontroller featuring 32-bit Arm® Cortex®-M4 with FPU core, 1-Mbyte flash memory and 192-Kbyte RAM in an LQFP100 package
- USB OTG FS
- MEMS 3-axis accelerometer
- MEMS audio sensor omni-directional digital microphone
- Audio DAC with integrated class D speaker driver
- User and reset push buttons
- Eight LEDs:
  - LD1 (red/green) for USB communication
  - LD2 (red) for 3.3 V power on
  - Four user LEDs, LD3 (orange), LD4 (green), LD5 (red) and LD6 (blue)
  - Two USB OTG LEDs, LD7 (green) V_{BUS} and LD8 (red) over-current
- Board connectors:
  - USB with Micro-AB
  - Stereo headphone output jack
  - 2.54 mm pitch extension header for all LQFP100 I/Os for quick connection to prototyping board and easy probing
- Flexible power-supply options: ST-LINK USB V_{BUS}, USB connector, or external sources
- External application power supply: 3 V and 5 V
- Comprehensive free software including a variety of examples, part of STM32CubeF4 MCU Package, or STSW-STM32068 for using legacy standard libraries
- On-board ST-LINK/V2-A 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

The STM32F4DISCOVERY Discovery kit leverages the capabilities of the STM32F407 high-performance microcontrollers, to allow users to develop audio applications easily. It includes an ST-LINK/V2-A embedded debug tool, one MEMS digital accelerometer, one digital microphone, one audio DAC with integrated class D speaker driver, LEDs, push buttons, and a USB OTG Micro-AB connector.

Specialized add-on boards can be connected by means of the extension header connectors.

1 Ordering information

To order the STM32F4DISCOVERY 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
STM32F407G-DISC1(1)	MB997	UM1472	STM32F407VGT6

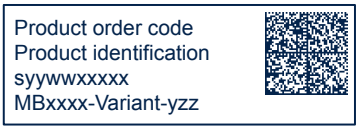
1. *STM32F407G-DISC1 with ST-LINK/V2-A replaces the obsolete STM32F4DISCOVERY order code with ST-LINK/V2.*

1.1 Product marking

The product and each board composing the product are identified with one or several stickers. The stickers, located on the top or bottom side of each PCB, provide product information:

- Main board featuring the target device: product order code, product identification, serial number, and board reference with revision.

  Single-sticker example:

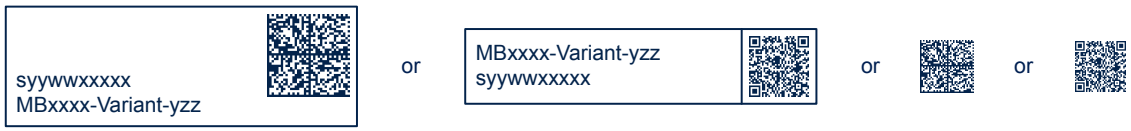
  

  Dual-sticker example:

- Other boards if any: board reference with revision and serial number.

  Examples:

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

On all board stickers, the line formatted as *"MBxxxx-Variant-yzz"* shows the board reference *"MBxxxx"*, the mounting variant *"Variant"* when several exist (optional), the PCB revision *"y"*, and the assembly revision *"zz"*, for example B01. The other line shows the board serial number used for traceability.

Products and parts labeled as *"ES"* or *"E"* are not yet qualified or feature devices that are not yet qualified. STMicroelectronics disclaims any responsibility for consequences arising from their use. Under no circumstances will STMicroelectronics be liable for the customer's use of these engineering samples. Before deciding to use these engineering samples for qualification activities, contact STMicroelectronics' quality department.

"ES" or *"E"* 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 ordering part number of the evaluation tool 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.

To use the same commercial stack in their applications, the developers might 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

STM32F4XXY-DISC1	Description	Example: STM32F407G-DISC1
STM32F4	MCU series in STM32 32-bit Arm Cortex MCUs	STM32F4 Series
XX	MCU product line in the series	STM32F407
Y	STM32 Flash memory size: • G for 1 Mbyte	1 Mbyte
DISC1	Discovery kit	Discovery kit

2 Development environment

STM32 32-bit microcontrollers are based on the Arm® Cortex®-M processor.

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 or 11, Linux® 64-bit, or macOS®
- USB Type-A or USB Type-C® to Mini-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.
Windows is a trademark of the Microsoft group of companies.

2.2 Development toolchains

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

1. *On Windows® only.*

2.3 Demonstration software

The demonstration software, included in the STM32Cube MCU Package corresponding to the on-board microcontroller, is preloaded in the STM32 flash memory for easy demonstration of the device peripherals in standalone mode. The latest versions of the demonstration source code and associated documentation can be downloaded from *www.st.com*.

2.4 EDA resources

All board design resources, including schematics, EDA databases, manufacturing files, and the bill of materials, are available from the corresponding product page at *www.st.com*.

Revision history

Table 3. **Document revision history**

Date	Version	Changes
15-Sep-2011	1	Initial version.
28-Jan-2013	2	Added URL for expanding functionality in *Description*.
15-Jul-2013	3	Modified to apply to STM32F407/417. Added accelerometer.
29-Sep-2014	4	Updated *Section : Features* and *Section : Description* to introduce STM32CubeF4 and STSW-STM32078. Updated *Section : System requirements* and *Section : Development toolchains*.
25-Feb-2016	5	Updated Features, Description and System requirements to introduce STM32F407G-DISC1.
28-Oct-2016	6	Updated *Features* and *Description* to remove reference to Mbed™ and to add information on the new order code.
12-Oct-2020	7	Removed all references to the obsolete STM32F4DISCOVERY order code. Updated MEMS descriptions in Features. Reorganized the entire document: • Updated Features, Description, Ordering information and Development environment • Added Codification
14-May-2025	8	Updated: • MEMS references throughout the entire document • Section 1.1: Product marking • Section 2.1: System requirements Added Section 2.4: EDA resources