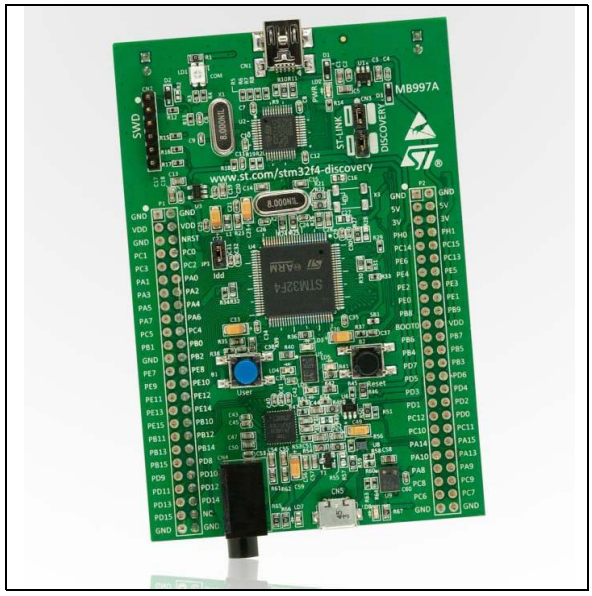
STM32F4DISCOVERY

Discovery kit with STM32F407VG MCU

Data brief

Features

- STM32F407VGT6 microcontroller featuring 32-bit ARM Cortex®-M4 with FPU core, 1-Mbyte Flash memory, 192-Kbyte RAM in an LQFP100 package
- On-board ST-LINK/V2 on STM32F4DISCOVERY or ST-LINK/V2-A on STM32F407G-DISC1
- ARM® mbed™ -enabled (http://mbed.org) with ST-LINK/V2-A only
- USB ST-LINK with re-enumeration capability and three different interfaces:
  - Virtual com port (with ST-LINK/V2-A only)
  - Mass storage (with ST-LINK/V2-A only)
  - Debug port
- Board power supply: through USB bus or from an external 5 V supply voltage
- External application power supply: 3 V and 5 V
- LIS302DL or LIS3DSH ST MEMS 3-axis accelerometer
- MP45DT02 ST MEMS audio sensor omni-directional digital microphone
- CS43L22 audio DAC with integrated class D speaker driver
- 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)
  - 2 USB OTG LEDs LD7 (green) VBUS and LD8 (red) over-current
- Two push buttons (user and reset)
- USB OTG FS with micro-AB connector
- Extension header for all LQFP100 I/Os for quick connection to prototyping board and easy probing
- Comprehensive free software including a variety of examples, part of STM32CubeF4 package or STSW-STM32068 for legacy standard libraries usage



1. Picture not contractual.

Description

The STM32F4DISCOVERY Discovery kit allows users to easily develop applications with the STM32F407 high performance microcontrollers with ARM® Cortex®-M4 32-bit core. It includes everything required either for beginners or for experienced users to get quickly started.

Based on the STM32F407VGT6, it includes an ST-LINK/V2 or ST-LINK/V2-A embedded debug tool, two ST MEMS digital accelerometers, a digital microphone, one audio DAC with integrated class D speaker driver, LEDs and push buttons and an USB OTG micro-AB connector.

To expand the functionality of the STM32F4DISCOVERY Discovery kit with the Ethernet connectivity, LCD display and more, visit the www.st.com/stm32f4dis-expansion webpage.

System requirements

- Windows® OS (XP, 7, 8)
- USB type A to Mini-B cable

Development toolchains

- IAR® EWARM (IAR Embedded Workbench®)
- Keil® MDK-ARM™
- GCC-based IDEs (free AC6: SW4STM32, Atollic® TrueSTUDIO®,...)
- ARM® mbed™ online

Demonstration software

The demonstration software is preloaded in the board Flash memory. It uses the MEMS motion sensor to blink the four LEDs, according to the motion direction and speed. Connecting the board to a PC with a second USB 'type A to micro-B' cable, converts it into a standard mouse and the board motion controls the PC cursor.

The latest versions of the demonstration source code and associated documentation can be downloaded from the www.st.com/stm32f4-discovery webpage.

Product marking

Tools marked as "ES" or "E" are not yet qualified and as such, they may be used only for evaluation purposes. ST shall not be liable for any consequences related with other ways of use of such non-qualified tools, for example, as reference design or for production.

Examples of location of "E" or "ES" marking:

- on target STM32 microcontroller part mounted on the board (for illustration, refer to section “Package information” of a STM32 datasheet at *www.st.com*)
- next to the evaluation tool ordering part number, as a label stuck or a silk-screen printed on the board

Ordering information

To order the Discovery kit for the STM32F407 line of microcontrollers, refer to *Table 1*.

Table 1. List of the order codes

Order code	ST-LINK version
STM32F4DISCOVERY	ST-LINK/V2
STM32F407G-DISC1	ST-LINK/V2-A (mbed-enabled)

Revision history

Table 2. Document revision history

Date	Revision	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 LIS3DSH 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.

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STM32F4DISCOVERY STM32F407G-DISC1