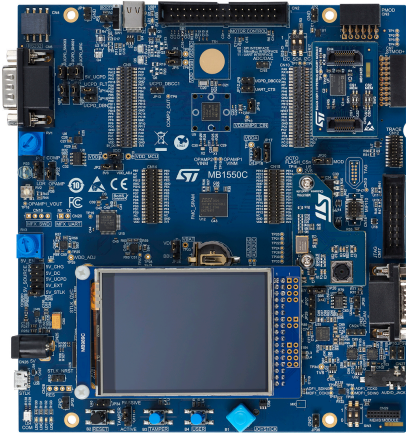## Evaluation board with STM32U575AI MCU

STM32U575I-EV top view. Picture is not contractual.

Product status link
STM32U575I-EV

Features

- STM32U575AII6Q Arm® Cortex®-M33 core-based microcontroller including Arm® TrustZone® with 2 Mbytes of Flash memory, 786 Kbytes of SRAM, and an embedded SMPS in a UFBGA169 package
- 2.8" 240x320 pixel-262K color parallel port TFT LCD touch panel module
- CMOS camera QSXGA 5 megapixels
- USB Type-C® FS, Sink and Source power capability 5 V / 500 mA
- SAI audio codec
- ST-MEMS digital microphone
- ST-MEMS 3D accelerometer and 3D gyroscope sensor
- Light-dependent resistor (LDR) and potentiometer for ADC
- 512-Mbit Octo-SPI Flash, 16-Mbit SRAM, 128-Kbit I^{2}C EEPROM
- Power-metering demonstration with dual-channel sigma-delta modulator
- 4 user LEDs
- Reset, Tamper, and User buttons
- 4-direction joystick with selection button
- Touchkey button
- Board connectors
    - 5V power jack
    - USB Type-C®
    - RS-232 communication and I^{2}C compatible serial interface
    - CAN FD
    - Stereo audio jack including analog microphone input
    - Connector for ADC input and DAC output
    - Smartcard socket
    - microSD™ card holder
    - Coin-battery cell holder for power backup
    - JTAG and ETM trace debugger connector
    - 8-bit camera expansion connector
    - Octo-SPI expansion connectors
    - Pmod™ and STMod+ expansion connectors
    - Audio MEMS expansion connector
    - Motor-control interface expansion connector
    - Expansion connectors for daughterboard or wire-wrap board
- Flexible power-supply options: ST-LINK, USB V$_{BUS}$, or external sources
- On-board STLINK-V3E debugger/programmer with USB re-enumeration capability: mass storage, Virtual COM port, and debug port
- Comprehensive free software libraries and examples available with the STM32CubeU5 MCU Package
- Support of a wide choice of Integrated Development Environments (IDEs) including IAR Embedded Workbench®, MDK-ARM, and STM32CubeIDE

DB4451 - Rev 1 - July 2021
For further information contact your local STMicroelectronics sales office.

www.st.com

1 Description

The STM32U575I-EV Evaluation board is designed as a complete demonstration and development platform for the STMicroelectronics Arm® Cortex®-M33 core-based microcontroller with Arm® TrustZone® and the Armv8-M mainline security extension.

The STM32U575I-EV Evaluation board is based on an ultra-low-power STM32U575AII6Q microcontroller with 2 Mbytes of Flash memory and 786 Kbytes of SRAM, one external memory interface supporting an LCD interface, two Octo-SPI memory interfaces, one USB Type-C® 2.0 FS device and host with Power Delivery controller interface (UCPD) compliant with USB Type-C® r1.2 and USB PD specification r3.0, one camera interface, one SDMMC interface, one 14-bit and one 12-bit ADCs, two 12-bit DACs, two operational amplifiers, two ultra-low-power comparators, four digital filters for sigma-delta modulation, up to 16 timers, touchkey capability, and SWD, JTAG, and ETM interface debugging support.

The full range of hardware features on the STM32U575I-EV Evaluation board helps the user to develop applications and evaluate all the peripherals, such as USB Type-C® connector with USB PD, motor control connector, CAN FD transceiver, USB 2.0 FS, RS-232, audio DAC, microphone ADC, dot-matrix TFT LCD, IrDA, IR LED, IR receiver, LDR, SRAM, camera interface, Octo-SPI Flash memory, microSD™ card, sigma-delta modulators, Smartcard slot, I²C, and EEPROM.

The daughterboard and extension connectors provide an easy way to connect a daughterboard or wrapping board for the user's specific application.

Furthermore, the onboard STLINK-V3E debugger provides out-of-the-box loading and debugging capabilities, as well as a USB Virtual COM port bridge.

2 Ordering information

To order the STM32U575I-EV Evaluation board, refer to Table 1. For a detailed description of the board, refer to its user manual on the product web page. Additional information is available from the datasheet and reference manual of the target STM32.

Table 1. List of available products

Order code	Board reference	User manual	Target STM32
STM32U575I-EV	• MB1550[1] • MB989[2] • MB1242[3] • MB1379[4]	UM2854	STM32U575AII6Q

1. *Mother board*
2. *LCD daughterboard*
3. *Octo-SPI daughterboard*
4. *Camera daughterboard*

2.1 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.

2.2 Codification

The meaning of the codification is explained in Table 2.

Table 2. Codification explanation

STM32XXYYT-EV	Description	Example: STM32U575I-EV
XX	MCU series in STM32 32-bit Arm Cortex MCUs	STM32U5 Series
YY	MCU product line in the series	STM32U575/585
T	STM32 Flash memory size • I for 2 Mbytes	2 Mbytes
EV	Evaluation board	Evaluation board

3 Development environment

The STM32U575I-EV Evaluation board runs with the STM32U575AI 32-bit microcontroller based on the Arm®
Cortex®-M33 core with Arm® TrustZone® and the Armv8-M mainline security extension.

Note: *Arm and TrustZone are registered trademarks of Arm Limited (or its subsidiaries) in the US and or elsewhere.*

arm

3.1 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.*

Linux® is a registered trademark of Linus Torvalds.

All other trademarks are the property of their respective owners.

3.2 Development toolchains

- IAR Systems® - IAR Embedded Workbench®[1]
- Keil® - MDK-ARM[1]
- STMicroelectronics - STM32CubeIDE

1. *On Windows® only.*

3.3 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*.

Revision history

Table 3. Document revision history

Date	Version	Changes
2-Jul-2021	1	Initial release.