STM32H7B3I-EVAL

Data brief

Evaluation board with STM32H7B3LI MCU

STM32H7B3I-EVAL top view. Picture is not contractual.

Product status link
STM32H7B3I-EVAL

Features

- STM32H7B3LIH6Q Arm® Cortex® microcontroller with 2 Mbytes of flash memory and 1.4 Mbyte of RAM in TFBGA225 package
- 7" 800x480 WVGA TFT LCD color module with RGB parallel interface and capacitive touch panel with I^2C interface
- 1/4" color CMOS QSXGA (5 Mpixels) camera module with DCMI and I^2C interface
- USB OTG HS and USB OTG FS
- On-board current measurement
- I^2S/SAI audio codec
- 512-Mbit Octo-SPI NOR flash, 8-Mx32bit SDRAM, 1-Mx16bit SRAM, and 8-Mx16bit NOR flash
- Four color user LEDs
- Reset, wake up, and tamper push-buttons
- 4-direction joystick with a selection button
- Potentiometer
- Coin-battery cell holder for power backup
- Power-metering and temperature-monitoring demonstration with 2 dual-channel, sigma-delta modulators
- Wi-Fi® module compliant with 802.11 b/g/n
- Board connectors:
  - Two USB Micro-AB
  - Two microSD™ cards
  - Octo-SPI NOR flash module connector
  - Stereo line out headset jack including analog microphone input
  - Stereo line in headset jack
  - Two DB9 for external RS-232 port and CAN FD
  - JTAG and ETM trace debugger
  - Connectors for ADC and DAC
  - I/O expansion connectors
  - DFSDM microphone daughterboard expansion connector
  - Motor-control interface expansion connector
  - I^2C expansion connector
- Flexible power-supply options: ST-LINK USB V_{BUS}, USB connector, 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 STM32Cube MCU Package
- Support of a wide choice of Integrated Development Environments (IDEs) including IAR Embedded Workbench®, MDK-ARM, and STM32CubeIDE

1 Description

The STM32H7B3I-EVAL Evaluation board is a complete demonstration and development platform for the Arm® Cortex®-M7-based STM32H7B3LIH6Q microcontroller. The STM32H7B3I-EVAL Evaluation board provides access to all the STM32 peripherals for user applications and includes an embedded STLINK-V3E debugger/ programmer.

The full range of the STM32H7B3I-EVAL hardware features helps to develop applications and evaluate all the peripherals, such as USB OTG HS and FS, CAN FD, USART, ADC and DAC, digital microphones, SRAM, SDRAM, NOR flash memory, Octo-SPI flash memory with OTFDEC, microSD™ 3.0 card, 7" 800x480 WVGA TFT color RGB LCD with capacitive touch panel (I^2C), and DCMI camera.

The expansion connectors provide an easy way to add specialized features, while ETM trace is supported through external probes.

2 Ordering information

To order the STM32H7B3I-EVAL Evaluation board, 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 STM32.

Table 1. List of available products

Order code	Board references	User manual	Target STM32
STM32H7B3I-EVAL	• MB1331(1) • MB1370(2) • MB1379(3) • MB1486(4)	UM2662	STM32H7B3LIH6Q

1. *Main board*
2. *LCD daughterboard*
3. *Camera module*
4. *Wi-Fi® module*

2.1 Product marking

The stickers located on the top or bottom side of all PCBs provide product information:

- First sticker: product order code and product identification, generally placed on the main board featuring the target device.
  Example:

  Product order code
  Product identification

- Second sticker: board reference with revision and serial number, available on each PCB.
  Example:

  MBxxxx-Variant-yzz
  syywwxxxxx

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.

Parts marked as *"ES"* or *"E"* are not yet qualified and therefore not approved for use in production. ST is not responsible for any consequences resulting from such use. In no event will ST be liable for the customer using any of these engineering samples in production. ST's Quality department must be contacted prior to any decision to use these engineering samples to run a qualification activity.

"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 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.

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.

2.2 Codification

The meaning of the codification is explained in Table 2. The order code is mentioned on a sticker placed on the top or bottom side of the board.

Table 2. Codification explanation

STM32TTXXY-EVAL	Description	Example: STM32H7B3I-EVAL
STM32TT	MCU series in STM32 32-bit Arm Cortex MCUs	STM32H7 series
XX	MCU product line in the series	STM32H7B3
Y	STM32 flash memory size: • I for 2 Mbytes	2 Mbytes

3 Development environment

STM32H7B3I-EVAL runs with the STM32H7B3LIH6Q 32-bit microcontroller based on the Arm® Cortex®-M7 core.

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

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 and regions.

Linux® is a registered trademark of Linus Torvalds.

Windows is a trademark of the Microsoft group of companies.

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	Revision	Changes
17-Jan-2020	1	Initial release.
18-Oct-2024	2	Alignment with associated user manual including updated Product marking.