

Motor control Discovery kit with STM32G473QE MCU



B-G473E-ZEST1S global view. Picture is not contractual.

Features

- STM32G473QET6 microcontroller based on the Arm® Cortex®-M4 core, featuring 512 Kbytes of flash memory and 128 Kbytes of SRAM in an LQFP128 package
- Three user LEDs
- User/tamper and reset push-buttons
- Potentiometer for ADC
- Board connectors:
 - MC connector V2
 - Morpho MC
 - STDC14 and USART debug ports
- Flexible power-supply options: 5V from Power board, ST-LINK USB V_{BUS}, or 5V external sources from Morpho MC connector
- On-board STLINK-V3EC debugger/programmer with USB re-enumeration capability: two Virtual COM ports, and debug port
- Comprehensive free software libraries and examples available with the STM32CubeG4 MCU Package
- Support of a wide choice of Integrated Development Environments (IDEs) including IAR Embedded Workbench®, MDK-ARM, and STM32CubeIDE
- Part of STM32 motor control ecosystem with X-CUBE-MCSDK motor project configuration tool

Product status link

[B-G473E-ZEST1S](#)



Description

The [B-G473E-ZEST1S](#) Discovery kit is a part of the motor-control development platform supporting ZeST and HSO algorithms. B-G473E-ZEST1S is a control board with STM32G473QET6 microcontroller in ZeST Discovery pack and works together with a Power board such as STEVAL-LVLP01, an optional adaptor board such as B-ZEST-ADAPT1, and an accessories package such as B-MOTOR-PMSMA1.

The B-G473E-ZEST1S control board is connected to the power board or adaptor board through an embedded MC connector V2. B-G473E-ZEST1S can also support motor driver expansion boards X-NUCLEO-IHM08M1, X-NUCLEO-IHM09M1, and X-NUCLEO-IHM16M1 via the Morpho MC connector. STLINK-V3EC is integrated into the board, as an embedded in-circuit debugger and programmer for the STM32 MCU and the USB Virtual COM port bridge.

1 Ordering information

To order the B-G473E-ZEST1S 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 |
|----------------|-----------------------|-------------|---------------|
| B-G473E-ZEST1S | MB1811 ⁽¹⁾ | UM3118 | STM32G473QET6 |

1. Subsequently called main board in the rest of the documentation.

1.1 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
sywwwwwww 

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.

1.2

Codification

The meaning of the codification is explained in Table 2.

Table 2. Codification explanation

| B-XXYYZ-ZEST1S | | Description | Example: B-G473E-ZEST1S |
|----------------|--|--|------------------------------------|
| B | | Discovery kit | Discovery kit |
| XX | | MCU series in STM32 32-bit Arm Cortex MCUs | STM32G4 series |
| YY | | MCU product line in the series | STM32G4x3 product line |
| Z | | STM32 flash memory size: • E for 512 Kbytes | 512 Kbytes |
| -ZEST | | Dedicated to application | Control board for ZEST application |

2 Development environment

The [B-G473E-ZEST1S](#) Discovery kit runs with the STM32G473QET6 32-bit microcontroller based on the Arm® Cortex®-M4 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, Linux® 64-bit, or macOS®
- USB Type-A or USB Type-C® to USB Type-C® cable

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.

Revision history

Table 3. Document revision history

| Date | Revision | Changes |
|-------------|----------|---------------------------------------|
| 14-Mar-2023 | 1 | Initial release. |
| 08-Nov-2023 | 2 | Updated Description . |

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