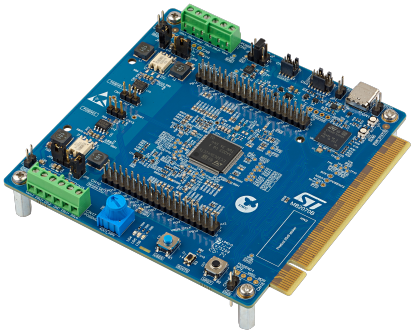
B-G564E-MC1S

Data brief

Motor control Discovery kit with STM32G564QE MCU



B-G564E-MC1S global view
Picture is not contractual.

Product status
B-G564E-MC1S

Features

- STM32G564QET3 microcontroller based on the Arm® Cortex®-M33 core, featuring 512 Kbytes of flash memory and 112 Kbytes of SRAM, in an LQFP128 package
- Three user LEDs
- Three push-buttons (user/tamper, reset, and boot mode)
- Potentiometer for ADC
- Board connectors:
  - STLINK-V3EC USB Type-C® connector
  - Motor control V2 connector
  - Position encoder interface with two POSENC terminal blocks for EnDat 3 and HIPERFACE DSL® protocols
  - STDC14 and USART debug port
  - ST morpho motor control
- Flexible power-supply options: 5 V from motor control V2 connector, STLINK-V3EC USB Type-C® V_{BUS}, or 5 V external source from ST morpho connector
- On-board STLINK-V3EC debugger/programmer with USB re-enumeration capability: mass storage, Virtual COM port, and debug port
- Comprehensive free software libraries and examples available with the STM32CubeG5 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
- STM32 ZeST algorithm available for selected users only

Description

The B-G564E-MC1S Discovery kit is part of the motor control development platform supporting ZeST and HSO algorithms. The B-G564E-MC1S is a control board with the STM32G564QET3 microcontroller in the 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 accessory package such as B-MOTOR-PMSMA1. The B-G564E-MC1S Discovery kit integrates two terminal block connectors for easy evaluation of the POSENC feature.

The B-G564E-MC1S Discovery kit is connected to the power or adaptor board through an embedded motor control V2 connector. It can also support motor driver expansion boards such as X-NUCLEO-IHM07M1, X-NUCLEO-IHM08M1, X-NUCLEO-IHM09M1, X-NUCLEO-IHM09M2, and X-NUCLEO-IHM16M1 via the ST morpho connector.

The B-G564E-MC1S Discovery kit enables two POSENC functions that interface with EnDat 3 and HIPERFACE DSL® protocols in 2-wire and 4-wire modes, with onboard RS-485 transceivers, and associated circuitry.

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.

The STM32 ZeST algorithm is available for selected users only.

1 Ordering information

To order the B-G564E-MC1S 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 STM32.

Table 1. List of available products

Order code	Board reference	User manual	Target STM32
B-G564E-MC1S	MB2070(1)	UM3719	STM32G564QET3

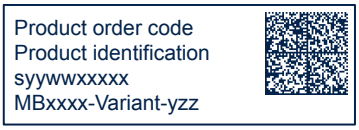
1. *Main board.*

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:

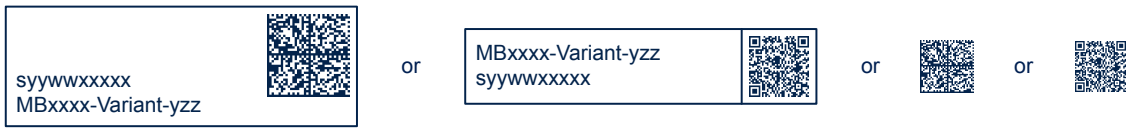
  

  Dual-sticker example:

- 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

B-XXYY-Z-MC1S	Description	Example: B-G564E-MC1S
B	Discovery kit	Discovery kit
XX	MCU series in STM32 32-bit Arm Cortex MCUs	STM32G5 series
YY	MCU product line in the series	STM32G5x4 product line
Z	STM32 flash memory size: • E for 512 Kbytes	512 Kbytes
-MC1S	Application type	Motor control

2 Development environment

The B-G564E-MC1S Discovery kit runs with the 32-bit STM32G564QET3 microcontroller based on the Arm® Cortex®-M33 core.

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2.1 System requirements

- Multi-OS support: Windows® 10 or 11, Linux® 64-bit, or macOS®
- USB Type-A or USB Type-C® to USB Type-C® 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 B-G564E-MC1S product page at *www.st.com*.

Revision history

Table 3. **Document revision history**

Date	Revision	Changes
15-Sep-2026	1	Initial release.

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