STM32G5 Nucleo-64 board (MB2067)

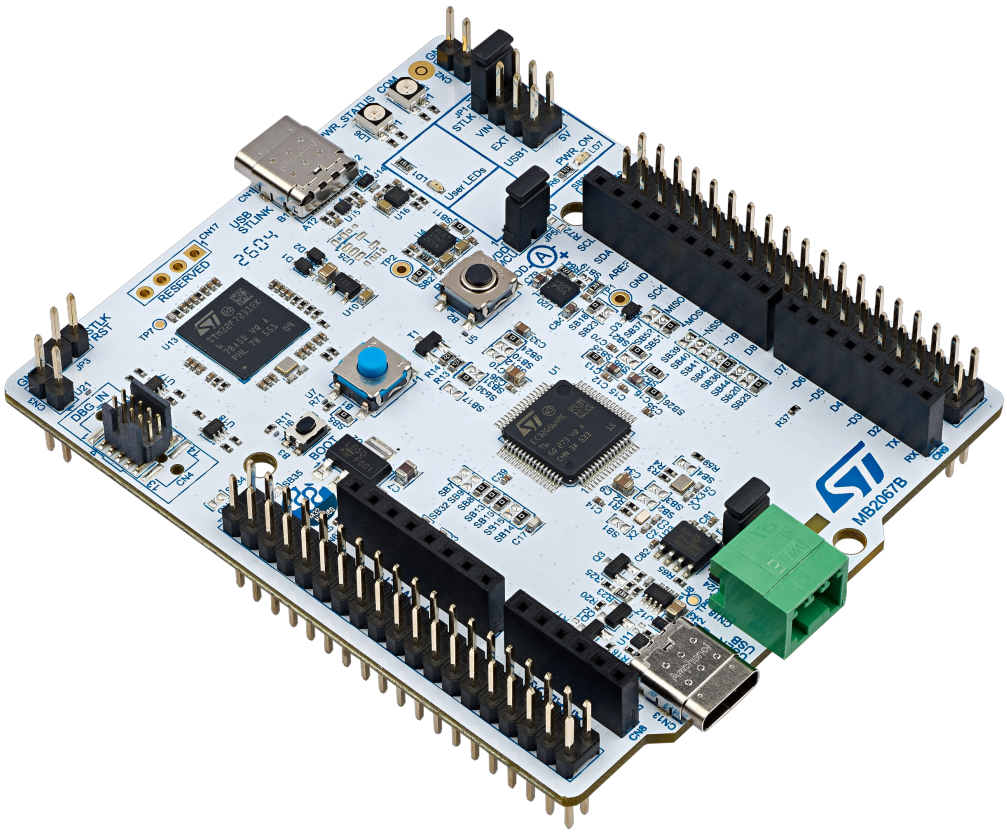
Introduction

The STM32G5 Nucleo-64 board based on the MB2067 reference board (order code NUCLEO-G564RE) provides an affordable and flexible way for users to try out new concepts and build prototypes by choosing from the various combinations of performance and power-consumption features, provided by the STM32G5 microcontroller.

The ARDUINO® Uno V3 and ST morpho connectors provide easy expansion of the functionality of the STM32 Nucleo open development platform with a wide choice of specialized shields. The board does not require any separate probes as it integrates the STLINK-V3EC debugger/programmer.

The STM32G5 Nucleo-64 board board comes with the comprehensive free STM32 software libraries and examples available with the STM32CubeG5 MCU Package.

Figure 1. STM32G5 Nucleo-64 board global view



Picture is not contractual.

1 Features

- STM32G564RET3 microcontroller based on the Arm® Cortex®-M33 core, featuring 512 Kbytes of flash memory and 80 Kbytes of RAM, in an LQFP64 package
- 32.768 kHz LSE crystal oscillator
- 24 MHz HSE crystal oscillator
- USB Type-C® (USB full speed) Sink mode
- CAN FD transceiver
- One user LED
- Three push-buttons: user, reset, and boot
- Board connectors:
  - User USB Type-C® connector
  - CAN FD connector
  - ARDUINO® Uno V3 connector
  - ST morpho expansion connectors for full access to the STM32 I/Os
  - MIPI10 debug and ST-LINK USB Type-C® connectors
- Flexible power-supply options: ST-LINK USB V_{BUS}, USB connector, or external sources
- Onboard 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

arm

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2 Ordering information

To order the STM32G5 Nucleo-64 board, refer to Table 1. Additional information is available from the datasheet and reference manual of the target STM32 microcontroller.

Table 1. Ordering information

Order code	Board reference	Board type	Target STM32 MCU
NUCLEO-G564RE	MB2067	Main board	STM32G564RET3

2.1 Codification

The meaning of the codification is explained in Table 2.

Table 2. Codification explanation

NUCLEO-XXYYZT	Description	Example: NUCLEO-G564RE
XX	MCU series in STM32 32-bit Arm Cortex MCUs	STM32G5 series
YY	MCU product line in the series	STM32G5x4 product line
Z	STM32 package pin or ball count: • C for 48 pins • R for 64 pins	64 pins
T	STM32 flash memory size: • 6 for 32 Kbytes • 8 for 64 Kbytes • B for 128 Kbytes • C for 256 Kbytes • E for 512 Kbytes • G for 1 Mbyte • Z for 192 Kbytes	512 Kbytes

3 Development environment

3.1 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: Windows is a trademark of the Microsoft group of companies.

Linux® is a registered trademark of Linus Torvalds.

macOS® is a trademark of Apple Inc., registered in the U.S. and other countries and regions.

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*.

3.4 EDA resources

All board design resources, including schematics, EDA databases, manufacturing files, and the bill of materials, are available from the corresponding product page at *www.st.com*.

4 Conventions

Table 3 provides the conventions used for the ON and OFF settings in the present document.

Table 3. ON/OFF convention

Convention	Definition
Jumper JPx ON	Jumper fitted
Jumper JPx OFF	Jumper not fitted
Jumper JPx [1-2]	Jumper fitted between pin 1 and pin 2
Solder bridge SBx ON	SBx connections closed by 0 Ω resistor
Solder bridge SBx OFF	SBx connections left open
Resistor Rx ON	Resistor soldered
Resistor Rx OFF	Resistor not soldered
Capacitor Cx ON	Capacitor soldered
Capacitor Cx OFF	Capacitor not soldered

5 Safety recommendations

5.1 Targeted audience

This product targets users with at least basic electronics or embedded software development knowledge, such as engineers, technicians, or students.

This board is not a toy and is not suited for use by children.

5.2 Handling the board

This product contains a bare printed circuit board. As with all products of this type, handle the board carefully and observe the following points:

- The connection pins on the board might be sharp. Handle the board carefully to avoid injury.
- This board contains electrostatic discharge (ESD)-sensitive devices. To avoid damage, handle the board in an ESD-protected environment.
- While the board is powered, do not touch the electrical connections with fingers or conductive objects. The board operates at a voltage level that is not dangerous, but short circuits might damage components.
- Do not put liquid on the board. Do not operate the board near water or in high humidity.
- Do not operate the board if it is dirty or dusty.
- The board pins are exposed and must not come into contact with metal surfaces, because this contact can cause a short circuit and damage the board.

5.3 Delivery recommendations

Before the first use, inspect the board for any damage that may have occurred during shipment. Ensure that all socketed components are securely fixed in their sockets and that nothing is loose in the plastic bag.

5.4 Power supply

This equipment must be powered by a power supply unit or auxiliary equipment that complies with EN 62368-1:2014+A11:2017, or a replacement standard, and that provides safety extra-low voltage (SELV/ES1) with limited power capability (LPS/PS2).

6 Quick start

The STM32G5 Nucleo-64 board is a low-cost, easy-to-use development board that enables rapid evaluation and development with an STM32G5 microcontroller in an LQFP64 package.

Before installing and using the product, accept the evaluation product license agreement from the *www.st.com/epla* webpage. For more information on the board and demonstration software, visit the *www.st.com/stm32nucleo* webpage.

6.1 Getting started

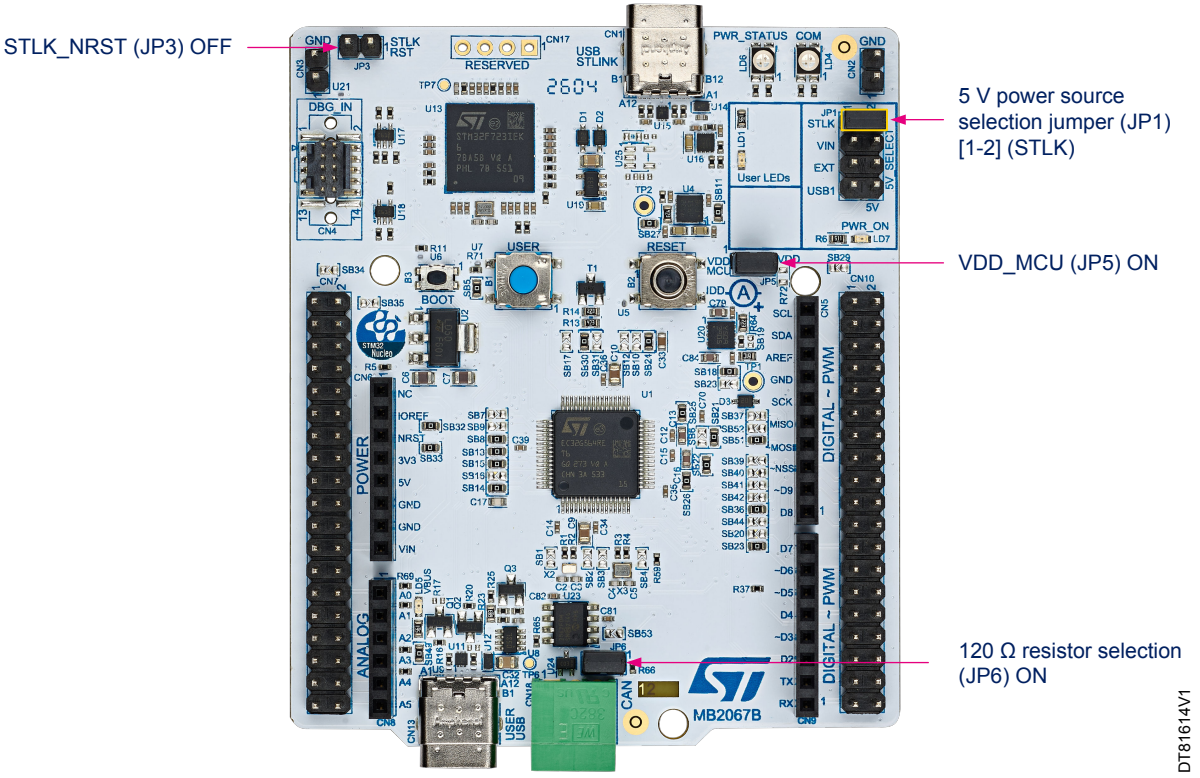
Follow the sequence below to configure the STM32G5 Nucleo-64 board and launch the demonstration application (refer to Figure 4 for component locations):

1. Check the jumper position on the board (refer to Table 4 and Figure 2 for the default jumper configuration for the demonstration software). By default, the board is configured for an ST-LINK power supply, as illustrated by Figure 2.
2. Connect the STM32G5 Nucleo-64 board to a PC using a USB cable (USB Type-A or USB Type-C® to USB Type-C®) and the ST-LINK USB connector (CN1) to power the board.
3. The PWR_ON (LD7), COM (LD4), and PWR STATUS (LD6) LEDs light up and the user LED (LD1) is blinking.
4. Each press of the blue user button (B1) changes the blinking speed of the user LED (LD1).
5. Download the demonstration software and several software examples to use the STM32 Nucleo features, available from the *st.com* website.
6. Develop a custom application using the examples provided in the demonstration package.

Table 4. Default jumper configuration for demonstration software

Jumper	Definition	Default position	Comment
JP1	5 V power selection	[1-2]	5 V power supply from STLINK-V3EC
JP3	STLK_RST	OFF	No ST-LINK reset
JP5	IDD measurement	ON	STM32 VDD current measurement
JP6	CAN FD interface	ON	-

Figure 2. Default board configuration for demonstration software



7 Hardware layout and configuration

The STM32G5 Nucleo-64 board is designed around an STM32G5 microcontroller in an LQFP64 package.

Figure 3 shows the connections between the microcontroller and its peripherals. Figure 4 shows the location of these features on the board. The mechanical dimensions of the board are shown in Figure 6.

7.1 Hardware layout

Figure 3. NUCLEO-G564RE block diagram

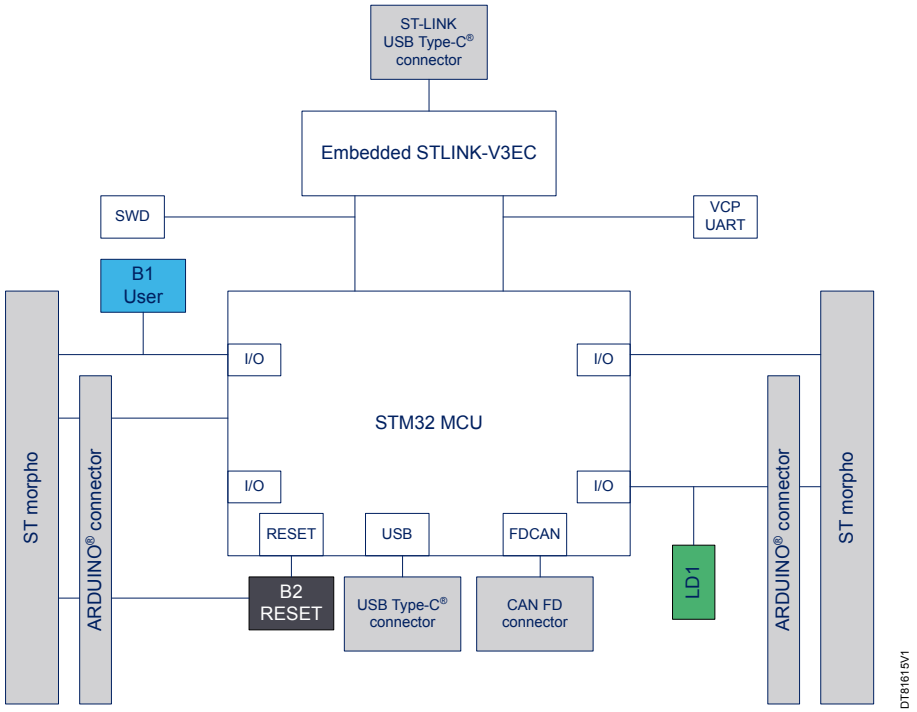


Figure 4. NUCLEO-G564RE top layout

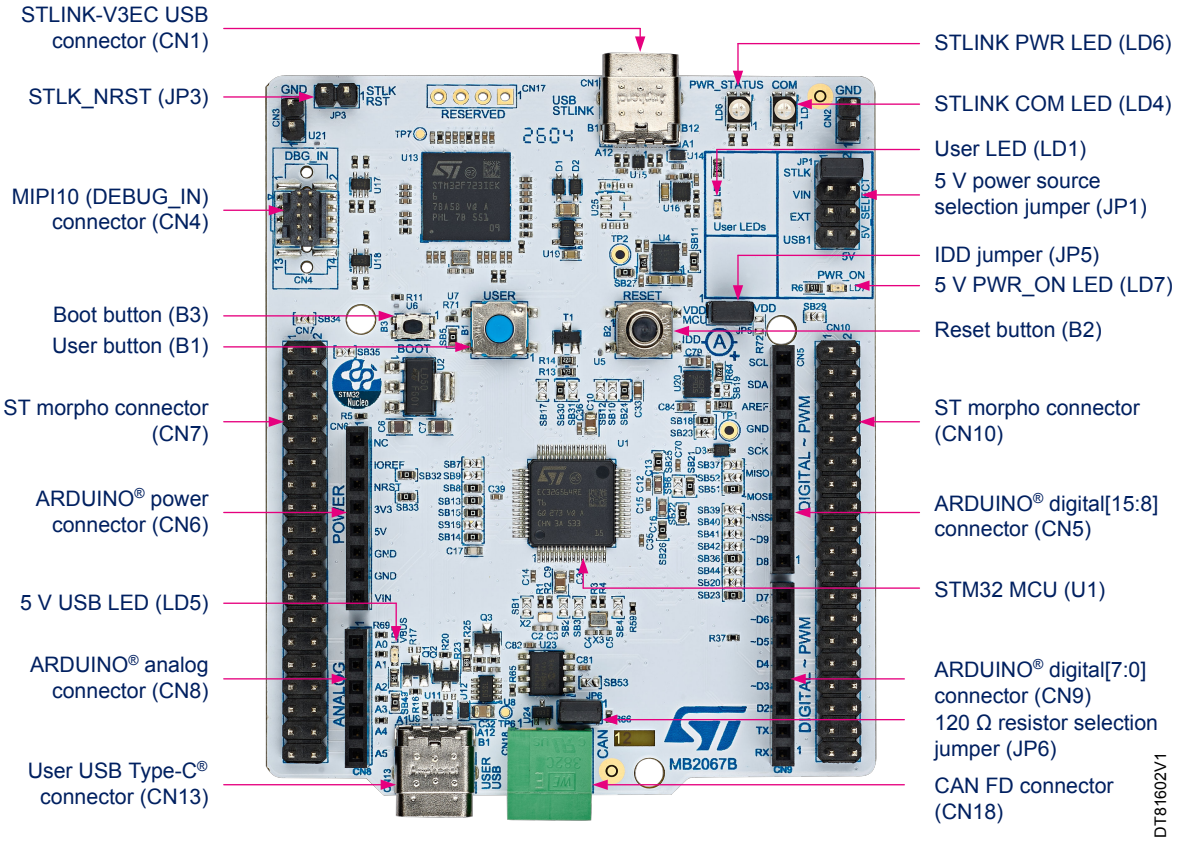
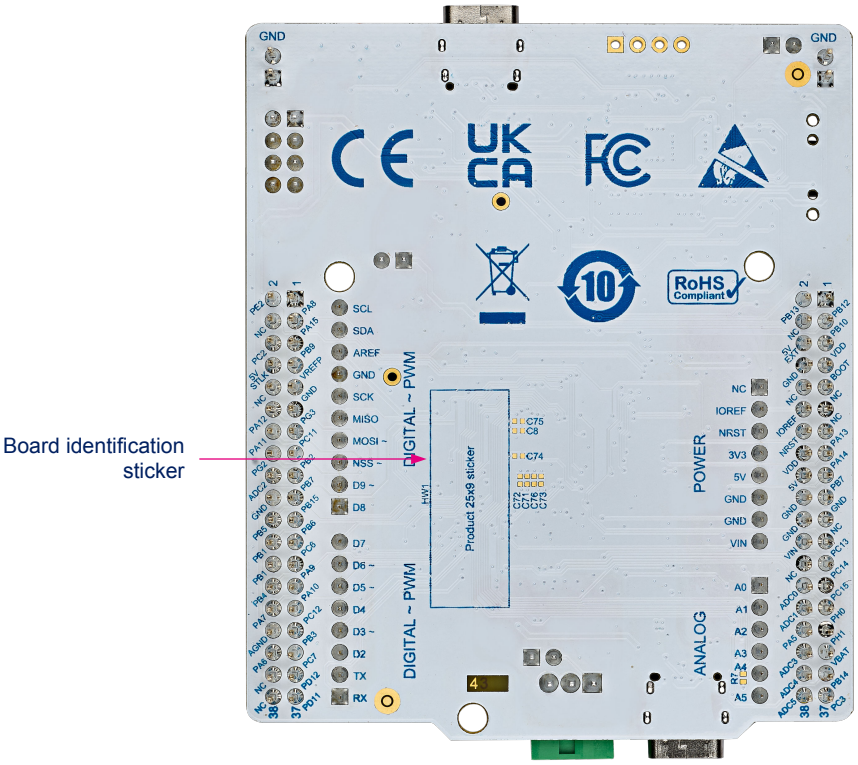


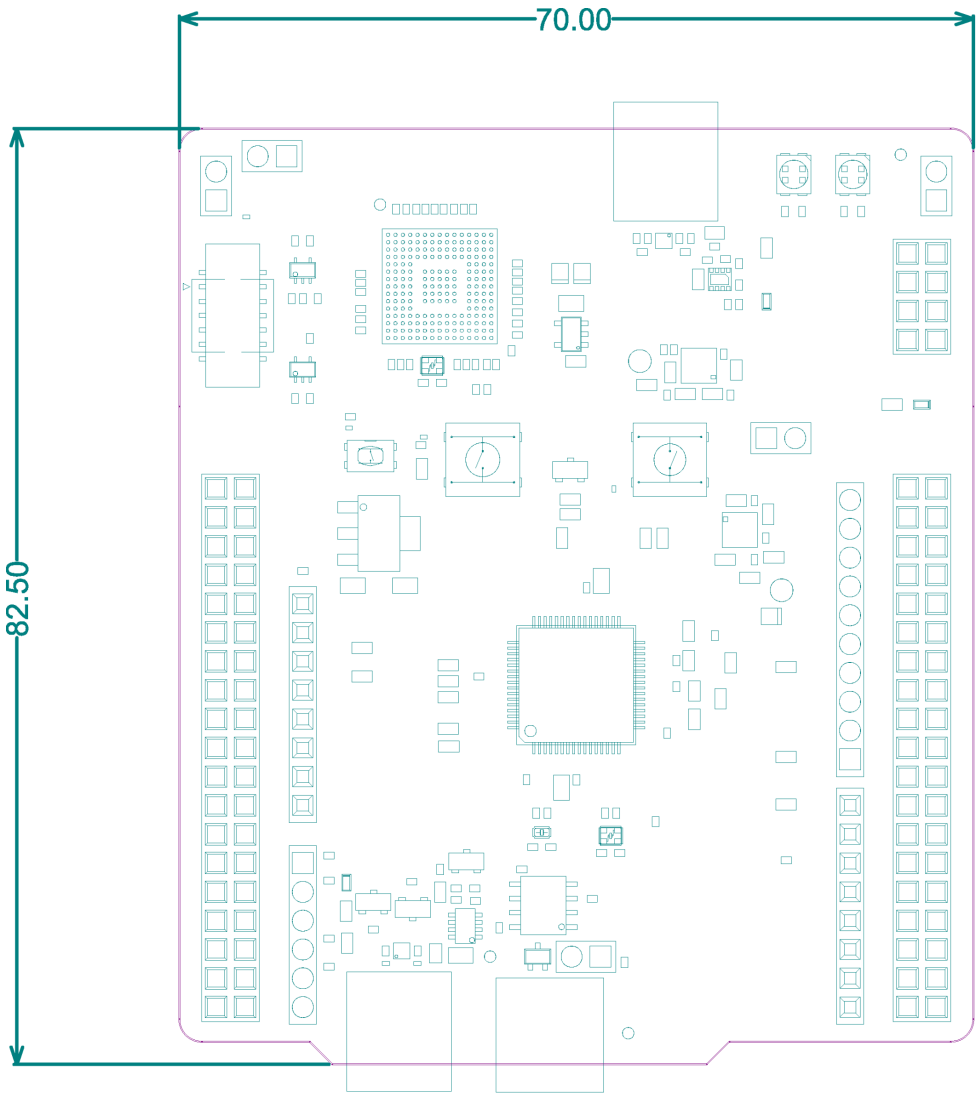
Figure 5. **NUCLEO-G564RE bottom layout**



DT81603V1

7.2 Mechanical dimensions

Figure 6. **Board mechanical drawing (in millimeters)**



DT81604V1

7.3 Jumper configuration

Table 5 provides an overview of the jumpers on the STM32G5 Nucleo-64 board and their configuration. The default configuration is shown in bold.

Table 5. Jumper configuration

Jumper	Function	State	Comments
CN2 / CN3	GND	**OFF**	**GND probe**
JP1	5 V power selection	**[1-2]**	**5 V from ST-LINK**
		[3-4]	5 V from VIN (7 to 12 V)
		[5-6]	5 V from EXT
		[7-8]	5 V from USB1
		OFF	No 5 V power
JP3	ST-LINK reset	ON	ST-LINK reset
		OFF	**No ST-LINK reset**
JP5	IDD measurement	**ON**	V_{DD} = 3.3 V
		OFF	Jumper OFF to connect an external source (such as a ULPBench™ probe)
JP6	120 Ω resistor selection	**ON**	**The 120 Ω resistor is connected to the CAN network.**
		OFF	The 120 Ω resistor is not connected to the CAN network.

7.4 Solder bridge configuration

Table 6 provides an overview of the solder bridges on the STM32G5 Nucleo-64 board and their configuration. The default configuration is shown in bold.

Note: All Nucleo boards are delivered with the solder bridges configured for the target MCU.

Table 6. Solder bridge configuration

Function	Solder bridge	State	Comments
LSE clock selection	SB1 / SB2	ON (R1/R2 OFF)	PC14 and PC15 work as GPIOs connected to the ST morpho connector. LSE not provided by external LSE (32.768 kHz, X2).
		OFF (R1/R2 ON)	**PC14 and PC15 work as LSE pins. LSE provided by external LSE (32.768 kHz, X2).**
HSE clock selection	SB3 / SB4	ON (R3/R4 OFF)	PH0 and PH1 work as GPIOs connected to the ST morpho connector (CN7, pins 29 and 31).
		OFF (R3/R4 ON)	**PH0 and PH1 work as HSE pins. HSE provided by external HSE (24 MHz, X3).**
User button (B1)	SB5	**ON**	**The user button is connected to PC13.**
		OFF	The user button is not connected to PC13.
MCU power supplies	SB6 / SB21 (VREF+)	**OFF / ON**	**MCU VREF+ is supplied by VDD_MCU.**
		ON / OFF	MCU VREF+ is supplied by VREFP from the ARDUINO Uno V3 digital connector (CN5, pin 8).
	SB22 (VDDA)	**ON**	**MCU V_{DDA} power supplies are connected to VDD_MCU.**
		OFF	MCU V_{DDA} power supplies are not connected to VDD_MCU.

Function	Solder bridge	State	Comments
MCU power supplies	SB23 (VCAP)	ON	The internal LDO is bypassed. V_{CORE} is generated by the external LDO (U20). SB18 must be ON.
		OFF	**V_{CORE} is generated by the internal LDO.**
	SB24 (VDD)	**ON**	**MCU V_{DD} power supplies are connected to VDD_MCU.**
		OFF	MCU V_{DD} power supplies are not connected to VDD_MCU.
USB selection	SB7 / SB9 / SB41 / SB42 (USB_FS_N/P)	ON / ON / ON / ON	PA11 and PA12 can be used as GPIOs connected to the ST morpho connector (CN10, pins 12 and 14).
		OFF / OFF / OFF / OFF	**PA11 and PA12 work as the USB_FS_N/P signals and are not connected to the ST morpho connector (CN10, pins 12 and 14).**
	SB14 (VBUS_DETECT)	**ON**	**PA4 works as the VBUS_DETECT signal.**
		OFF	PA4 is not connected to the VBUS_DETECT signal and can be used as GPIO connected to the ST morpho connector (CN10, pin 29). SB20 must be ON.
	SB53	ON	USB Host mode is connected. (V_{BUS} is connected to 5 V)
		OFF	USB Host mode is not connected.
DEBUG	SB8 (SWO signal)	**ON**	**PB3 works as the DBG_SWO signal and is connected to the ST-LINK SWO input. The SWO signal is also available on the DEBUG_IN connector (CN4) for the external debugger tool.**
		OFF	PB3 of the MCU is not connected to the ST-LINK SWO and can be used as a GPIO connected to the ST morpho connector (CN10, pin 31).
	SB13 / SB15 (SWD signals)	**ON / ON**	**PA13 and PA14 work as SWD signals and are connected to the T_SWDIO and T_SWCLK signals of ST-LINK.**
		OFF / OFF	PA13 and PA14 are connected to the ST morpho connector and can be used as GPIOs.
	SB16 (JTDI signal)	ON	PA15 works as the DBG_JTDI signal and is connected to the ST-LINK JTDI output. DBG_JTDI is also available on the DEBUG_IN connector (CN4) for the external debugger tool.
		OFF	**PA15 of the MCU is not connected to the ST-LINK JTDI pin and can be used as a GPIO connected to the ST morpho connector (CN10, pin 3).**
CAN FD selection	SB10 / SB12 / SB17	**OFF / OFF / OFF**	**PB12 and PB13 work as CAN FD signals and CAN FD is active. The STBY pin is set low.** **PB5 can be used as a GPIO.**
		ON / ON / ON	CAN FD can be placed in standby mode. The STBY pin is set high using pin PB5. PB12 and PB13 can be used as GPIOs.
		ON / ON / OFF	PB12, PB13, and PB5 can be used as GPIOs.
		OFF / OFF / ON	PB12 and PB13 work as CAN FD signals and the CAN FD transceiver can be placed in standby mode. The STBY pin is set high using pin PB5.
VBIAS (U4 LDO)	SB11	**ON**	**The VBIAS pin of the U4 LDO is connected to 5 V.**
		OFF	The VBIAS pin of the U4 LDO is not connected to 5 V.
V_{CORE} (From U20 LDO)	SB18 / SB19	**ON / OFF**	**V_{CORE} from the U20 LDO is set to 1.35 V.**
		ON / ON	V_{CORE} from the U20 LDO is set to 1.2 V.

Function	Solder bridge	State	Comments
Shield compatibility	SB20 / S28 / SB33 / SB34 / SB35 / SB36 / SB37 / SB39 / SB40 / SB41 / SB42 / SB44 / SB51 / SB52	-	Refer to Section 7.4.1: Solder bridge configuration for shields.
AGND	SB25 / SB26	**ON / ON**	**Reserved, do not modify. MCU AGND and VREF- are connected to GND.**
		OFF / OFF	MCU AGND and VREF- are not connected to GND.
VDD (3V3)	SB27	**ON**	**VDD is connected to the U4 LDO output (3.3 V).**
		OFF	VDD is not connected to the U4 LDO output (3.3 V).
User LED (LD1)	SB30 / SB31	**ON / OFF**	**User LED LD1 is driven by PG3 (shared with ARD_D13).**
		OFF / ON	The user LED LD1 is driven by PB15 (shared with ARD_D9).
		OFF / OFF	The user LED LD1 is isolated.
IOREF	SB32	**ON**	**The IOREF pin is connected to the V_{DD} power supply (3.3 V).**
		OFF	The IOREF pin is not connected to the V_{DD} power supply (3.3 V).

7.4.1 Solder bridge configuration for shields

Several motor shields are compatible with the STM32G5 Nucleo-64 board. Table 7 provides an overview of these shields and the required solder bridge configuration.

Table 7. Solder bridge configuration for shields

Shield	SB20	SB28	SB33	SB34	SB35	SB36	SB37	SB39	SB40	SB41	SB42	SB44	SB51	SB52
X-NUCLEO-IHM16M1 (default)	OFF	ON	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF
X-NUCLEO-IHM09M1	ON	OFF	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON
X-NUCLEO-IHM08M1	ON	OFF	ON	OFF	OFF	ON	OFF	ON(1)	ON(2)	OFF	OFF	OFF	OFF	ON
X-NUCLEO-IHM17M1	OFF	ON	ON	ON	ON	ON	OFF	ON(1)	ON(2)	OFF	OFF	OFF	ON	OFF
ST morpho (standard)	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	ON	ON	ON	OFF

1. *No SPI on CN10, pins 10, 13, 15, and 17*
2. *No UART on CN10, pins 35 and 37*

7.5 STM32 MCU I/O assignment

Table 8 shows the MCU resource management and the assignment of the MCU pins and functions on the board connectors.

Table 8. STM32 MCU I/O assignment

MCU pin name	MCU pin number	MCU function(1)	Connectivity(2)
PA0	14	ADC1_INP1 / ADC2_INP1	CN7 pin 28 / CN8 pin 1
PA1	15	ADC1_INP2 / ADC2_INP2 / TIM2_CH2	CN7 pin 30 / CN8 pin 2
PA2	16	DBG.VCP_TX	CN4 pin 14
PA3	18	DBG.VCP_RX	CN4 pin 13
PA4	19	VBUS_DETECT	-
PA5	20	ADC2_INP13 / DAC2_OUT1	CN7 pin 32 / CN8 pin 3
PA6	21	ADC2_INP3	CN10 pin 34
PA7	22	TIM8_CH1N / TIM17_CH1	CN10 pin 15 / CN10 pin 30
PA8	53	GPIO	CN10 pin 1
PA9	54	TIM2_CH3 / TIM2_ETR	CN9 pin 7 / CN10 pin 25
PA10	50	TIM1_CH3	CN9 pin 6 / CN10 pin 27
PA11	51	USB_FS_N	-
PA12	52	USB_FS_P	-
PA13	59	DBG.SWDIO	CN7 pin 13 / CN4 pin 4
PA14	60	DBG.SWCLK	CN7 pin 15 / CN4 pin 6
PA15	61	DBG.JTDI	CN4 pin 10
		I2C1_SCL / I3C1_SCL / TIM3_CH3	CN5 pin 10 / CN10 pin 3
PB0	23	ADC1_INP15 / ADC3_INP12 / TIM8_CH2N	CN7 pin 34 / CN8 pin 4
PB1	24	TIM8_CH3N / ADC1_INP12 / GPIO	CN10 pin 24 / CN10 pin 26
PB2	25	SPI1_MOSI / ADC2_INP12 / TIM3_CH4	CN5 pin 4 / CN10 pin 15
PB3	57	DBG.SWO / TIM2_CH2	CN9 pin 4
PB4	58	TIM8_CH2N	CN10 pin 28
PB5	47	FDCAN_STBY	-
		TIM16_CH1	CN10 pin 22
PB6	48	TIM8_CH2	CN5 pin 1 / CN10 pin 21
PB7	49	TIM2_CH1 / I2S1_WS	CN7 pin 17
PB9	63	I2C1_SDA / I3C1_SDA / TIM17_CH1	CN5 pin 9 / CN10 pin 5
PB10	30	GPIO	CN7 pin 3
		ADC1_INP14 / ADC2_INP14	CN7 pin 36 / CN8 pin 5
PB11	31	ADC1_INP14 / ADC2_INP14	CN7 pin 36 / CN8 pin 5
PB12	32	FDCAN.RX	-
		GPIO	CN7 pin 1
PB13	33	FDCAN.TX	-
		GPIO	CN7 pin 2
PB14	34	ADC5_INP1	CN7 pin 35
PB15	35	TIM15_CH2 /ADC2_INP15	CN5 pin 2
		GPIO	CN10 pin 19

MCU pin name	MCU pin number	MCU function(1)	Connectivity(2)
PC0	10	ADC1_INP6 / ADC2_INP6	CN10 pin 18
PC1	11	ADC1_INP7 / ADC2_INP7	CN8 pin 6
PC2	12	ADC1_INP8 / ADC2_INP8	CN10 pin 6
PC3	13	ADC1_INP9 / ADC2_INP9	CN7 pin 37
PC6	45	TIM8_CH1	CN9 pin 8 / CN10 pin 23
PC7	46	TIM8_CH3	CN9 pin 3 / CN10 pin 33
PC11	43	SPI1_MISO	CN5 pin 5 / CN10 pin 13
PC12	44	TIM13_CH1	CN9 pin 5 / CN10 pin 29
PC13	1	WKUP4	CN7 pin 23
PC14	3	OSC32_IN	CN7 pin 25
PC15	4	OSC32_OUT	CN7 pin 27
PD11	39	UART4_RX	CN9 pin 1
		TIM8_ETR	CN10 pin 12
PD12	40	UART4_TX	CN9 pin 2
PE2	64	GPIO	CN10 pin 2
		TIM11_CH1	CN10 pin 3
		I2S_SDI	CN7 pin 2
PG2	41	TIM8_BKIN2	CN10 in14 / CN10 pin 16
PG3	42	SPI1_SCK	CN5 pin 6 / CN10 pin 11
		TIM8_ETR	CN10 pin 12
PH0	8	OSC_IN	CN7 pin 29
PH1	9	OSC_OUT	CN7 pin 31
BOOT0	62	BOOT	-
NRST	2	NRST	CN7 pin 14 / CN6 pin 3
VCAP	5, 36	VCAP	-
VDD	7, 17, 38, 55	VDD	-
VSS	6, 37, 56	VSS	-
VDDA	27	VDDA	-
VSSA	26	VSSA	-
VREF+	28	VREF+	CN5 pin 8
VREF-	29	VREF-	-

1. *Default function by design.*
2. *Shows where the STM32 resource is connected to interface connectors, when applicable.*

7.6 Embedded STLINK-V3EC

This chapter provides information about the implementation of the embedded STLINK-V3EC on this STM32G5 Nucleo-64 board.

For further details on ST-LINK capabilities, LED management, and driver and firmware for STLINK-V3EC, refer to the technical note *Overview of ST-LINK derivatives* (TN1235). For more information about the debugging and programming features of STLINK-V3EC, refer to the user manual *STLINK-V3SET debugger/programmer for STM8 and STM32* (UM2448).

7.6.1 Description

There are two different ways to program and debug the onboard STM32 MCU:

- Using the embedded STLINK-V3EC.
- Using an external debug tool connected to the STDC14/MIPI10 connector (CN4).

The STLINK-V3EC tool for debugging and programming is integrated into this STM32G5 Nucleo-64 board. It provides the following features:

- 5 V/500 mA power supplied by the USB Type-C® connector (CN1)
- USB 2.0 high-speed compatible interface
- JTAG and Serial Wire Debug (SWD) with Serial Wire Viewer (SWV)
- Virtual COM port (VCP)
- 3.3 V application voltage
- Tricolor (green, orange, and red) COM status LED (LD4) that blinks during communication with the PC
- Tricolor (green, orange, and red) power status LED (LD6) that provides information about the STLINK-V3EC target power
- USB Type-C® overvoltage protection (U16) with current limitation

7.6.2 Drivers

Driver installation is not required for Windows® 10 or later. However, installing the driver assigns an ST-specific name to the ST-LINK COM port in the system device manager.

7.6.3 Firmware upgrade

STLINK-V3EC includes a firmware upgrade mechanism (stsw_link007) through the USB port. The firmware can change during the STLINK-V3EC lifetime, to add new features, correct errors, and support new microcontroller families. Visit the www.st.com website regularly and before using this board to stay up to date with the latest firmware version.

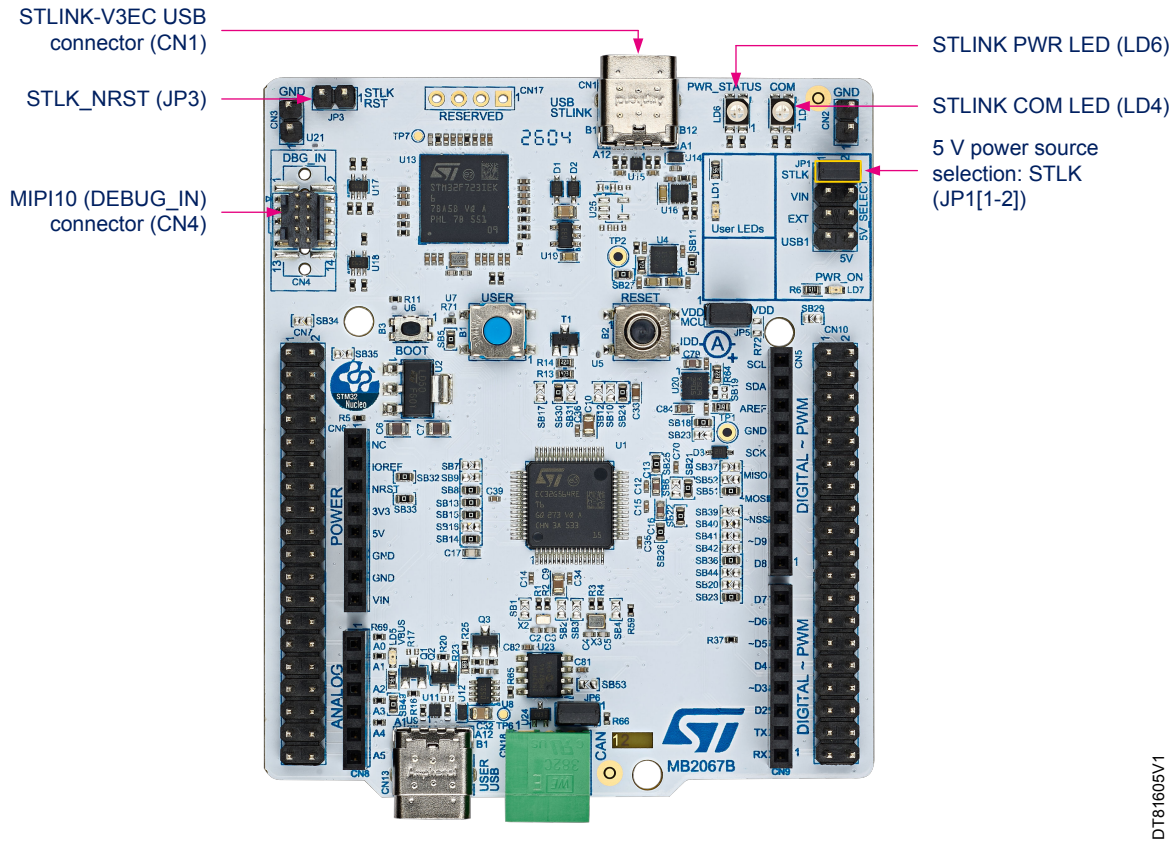
7.6.4 Using an external debug tool to program and debug the onboard STM32

When the external debug connector (CN4) is used, the STM32G5 Nucleo-64 board can be powered through the STLINK-V3EC USB connector (CN1) or another power supply source, as described in Section 7.7.

It is not mandatory to set the STLINK-V3EC to reset mode when an external debug probe is used on CN4. However, it is possible to set the STLINK-V3EC to reset mode by setting the JP3 jumper to ON. In this configuration, the board cannot be powered through the STLINK-V3EC USB connector (CN1), and debugging through STLINK-V3EC is unavailable. Select another 5 V power source on JP1, and connect an external debugger to CN4.

Figure 7 shows the location of the STLINK-V3EC components on the STM32G5 Nucleo-64 board that are required to connect an external debug tool. Refer to Table 14 for the pinout of the MIPI10 DEBUG_IN connector (CN4).

Figure 7. **Connecting an external debug tool**



7.6.5 Virtual COM port (VCP)

The USART2 serial interface (PA2/PA3) is directly available as a Virtual COM port (VCP) on the PC that is connected to the STLINK-V3EC USB connector (CN1). The VCP configuration is as follows:

- 8-bit data
- No parity
- One-stop bit
- No flow control

The interface supports bootloader mode.

Refer to Table 9 to set the USART2 connection to the VCP interface.

Table 9. **Virtual COM port configuration**

Pin name	Function	Configuration for Virtual COM port
PA2	USART2_TX	R30 ON
PA3	USART2_RX	R31 ON

7.7 Power supply

7.7.1 Power source selection

The STM32G5 Nucleo-64 board supports the following power supply sources:

- STLK: 5 V power supply from the STLINK-V3EC USB Type-C® connector (CN1)
- VIN: external 7 to 12 V power supply from the ARDUINO Uno V3 power connector (CN6) or ST morpho (CN7) connector, with a 5 V adaptation from LDO (U4)
- EXT: external 5 V power supply from the ST morpho connector (CN7)
- USB1: 5 V power supply from the USB Type-C® connector (CN13)
- 3V3: 3.3 V power supply from the ARDUINO Uno V3 (CN6) or ST morpho (CN7) connector

Table 10 lists the power supply capabilities of the STM32G5 Nucleo-64 board.

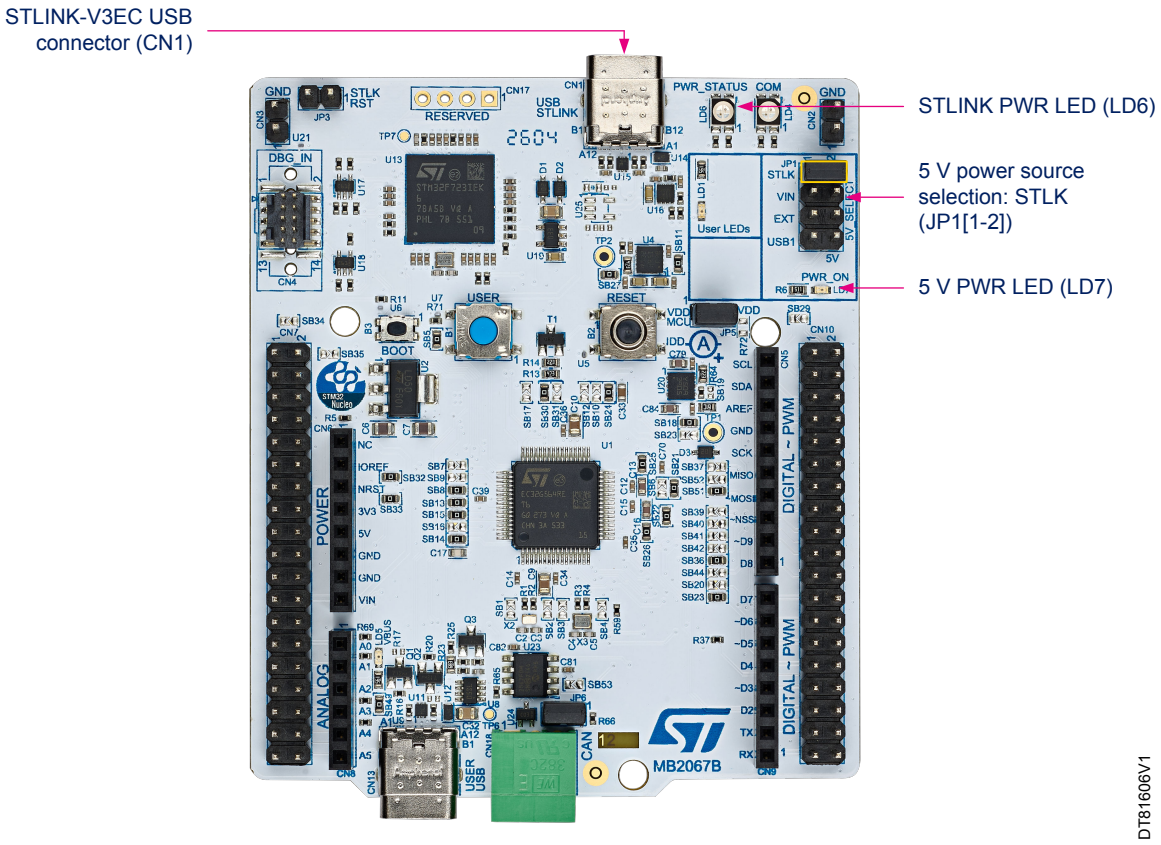
Table 10. Power supply sources

Power supply	Connector pins	Voltage range	Recommended current	Limitation
STLK	JP1[1-2]	4.75 to 5.25 V	500 mA	STLINK-V3EC determines the maximum current.
VIN	CN6 pin 8 CN7 pin 24 JP1[3-4]	7 to 12 V	800 mA	From 7 to 12 V only; input current capability is linked to input voltage: • 800 mA input current when V_{IN}=7V. • 450 mA input current when 7 V < V_{IN} < 9 V. • 250 mA input current when 9 V < V_{IN} < 12 V.
EXT	CN7 pin 6 JP1[5-6]	4.75 to 5.25 V	1.3 A	The maximum current depends on the power source. Maximum recommended current: 1.3 A.
USB1	JP1[7-8]	4.75 to 5.25 V	500 mA	The maximum current depends on the USB Host used to power the board. Maximum recommended current: 500 mA.
3V3	CN6 pin 4 CN7 pin 5	3 to 3.6 V	-	The maximum current depends on the 3V3 source. The 3V3 source can only be used when the STLINK-V3EC is not.
VDD_MCU	JP5 pin 2	1.71 to 3.6 V	-	It is possible to power only the MCU power supply pins by applying a voltage source on JP5 pin 2 (VDD_MCU). External functions like debug, LEDs, or expansion connectors are not powered. This option can be used for MCU power consumption measurement.

7.7.1.1 *STLK power supply input*

The STM32G5 Nucleo-64 board and shield can be powered from the STLINK-V3EC connector CN1 (5 V, 500 mA). To select the STLK power source, fit the 5 V power selection jumper (JP1) on pins 1 and 2 (STLK), as shown in Figure 8. This is the default configuration.

Figure 8. JP1 [1-2]: STLK power source



If the USB enumeration succeeds, the 5V_STLK power is enabled by asserting the T_PWR_EN signal from STLINK-V3EC. This pin is connected to a power switch (U16), which powers the board and features a current limitation, to protect the PC in case of an onboard short circuit. If an overcurrent condition (current greater than 500 mA) occurs, the ST-LINK POWER status LED (LD6) lights up in red.

The STM32G5 Nucleo-64 board and its shield can be powered by the STLINK-V3EC USB connector (CN1). If the host can provide the required power, the power switch (U16) is enabled and the green LED (LD7) is turned on. The board and its shield can consume up to 500 mA.

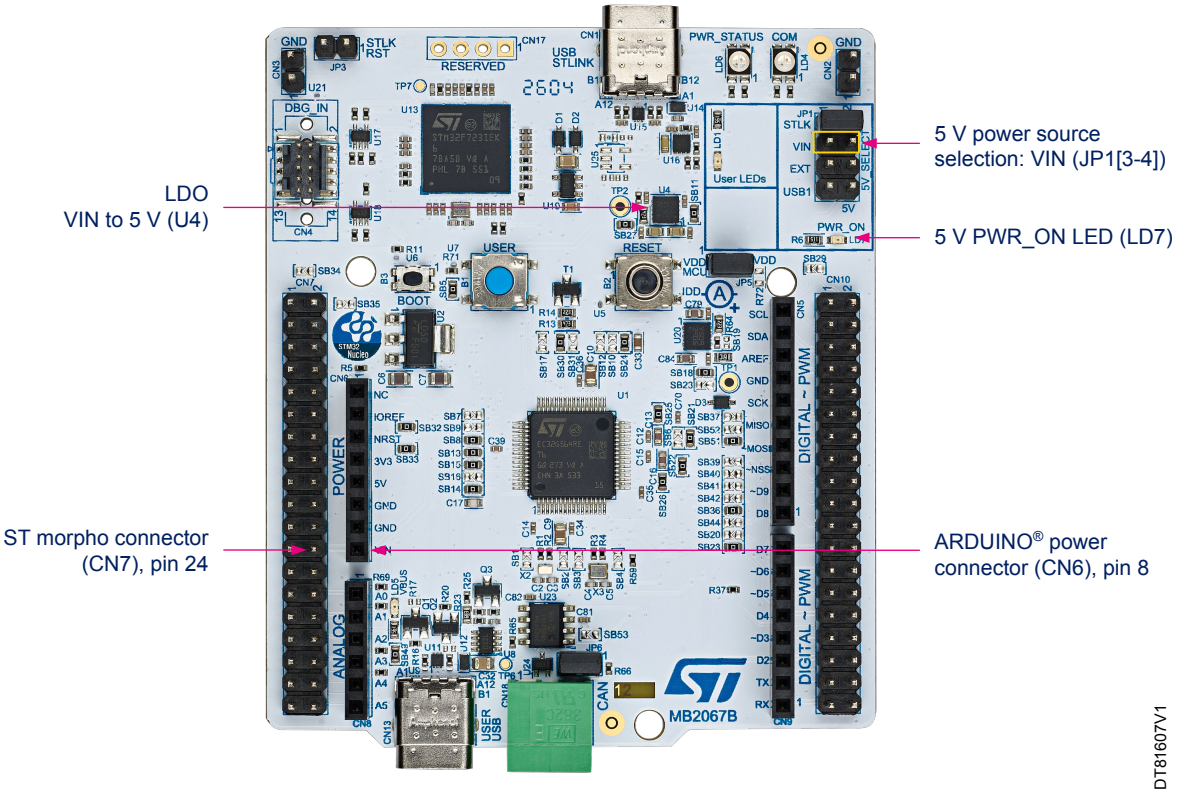
If the host is unable to provide the requested current, enumeration fails. The power switch (U16) remains OFF, and the MCU, including the extension board, is not powered. Consequently, the green LED (LD7) remains off. In this case, use an external power supply.

Warning: *If the maximum current consumption of the STM32G5 Nucleo-64 board and its shield boards exceeds 500 mA, power the board using an external power supply connected to VIN, EXT, or 3V3.*

7.7.1.2 *VIN power supply input*

VIN is the 7 to 12 V DC power supply from pin 8 (VIN) of the ARDUINO® connector (CN6) or from pin 24 of the ST morpho connector (CN7). An onboard LDO (U4) provides a fixed 5 V supply from VIN (7 to 12 V). For a VIN power supply, fit the JP1 jumper on [3-4] (VIN), as shown in Figure 9.

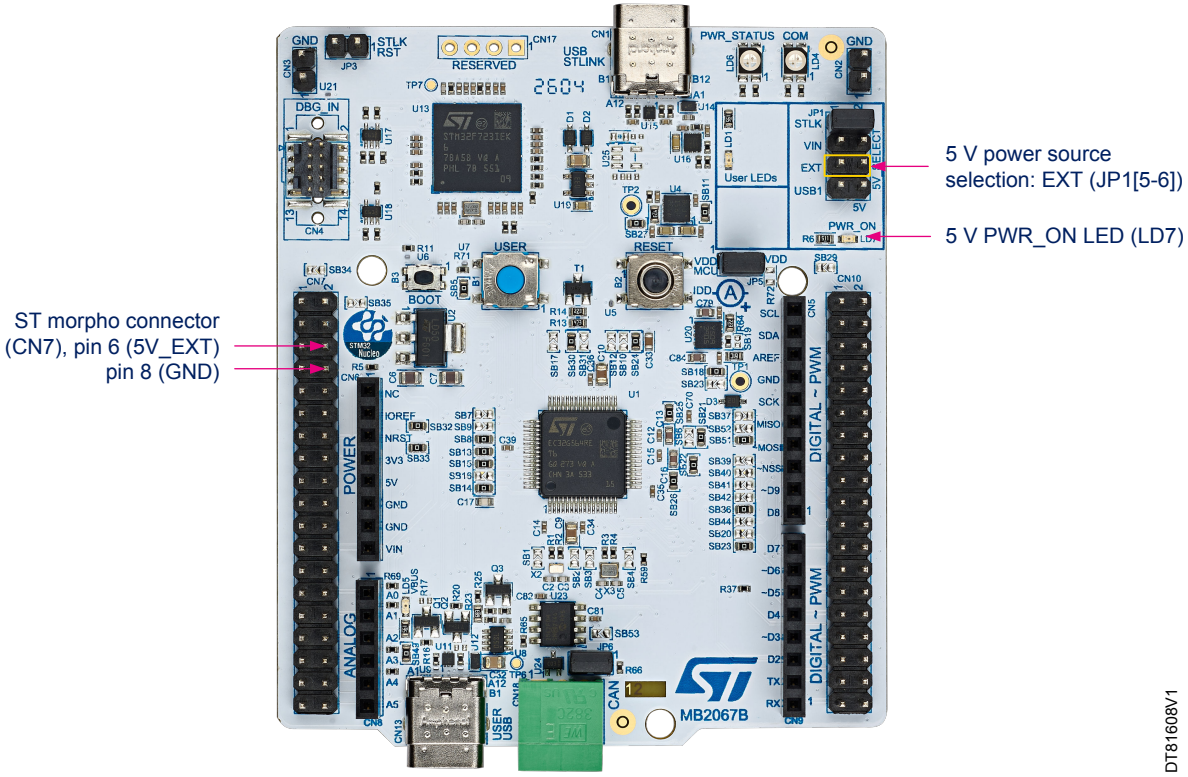
Figure 9. JP1 [3-4]: VIN power source



7.7.1.3 *EXT power supply input*

EXT is the DC power supply coming from an external 5 V DC power source connected to pin 6 of the ST morpho connector (CN7). The 5 V jumper selection (JP1) must be fitted on [5-6] (EXT) to select the EXT power source on the JP1 connector, and it must be configured as shown in Figure 10.

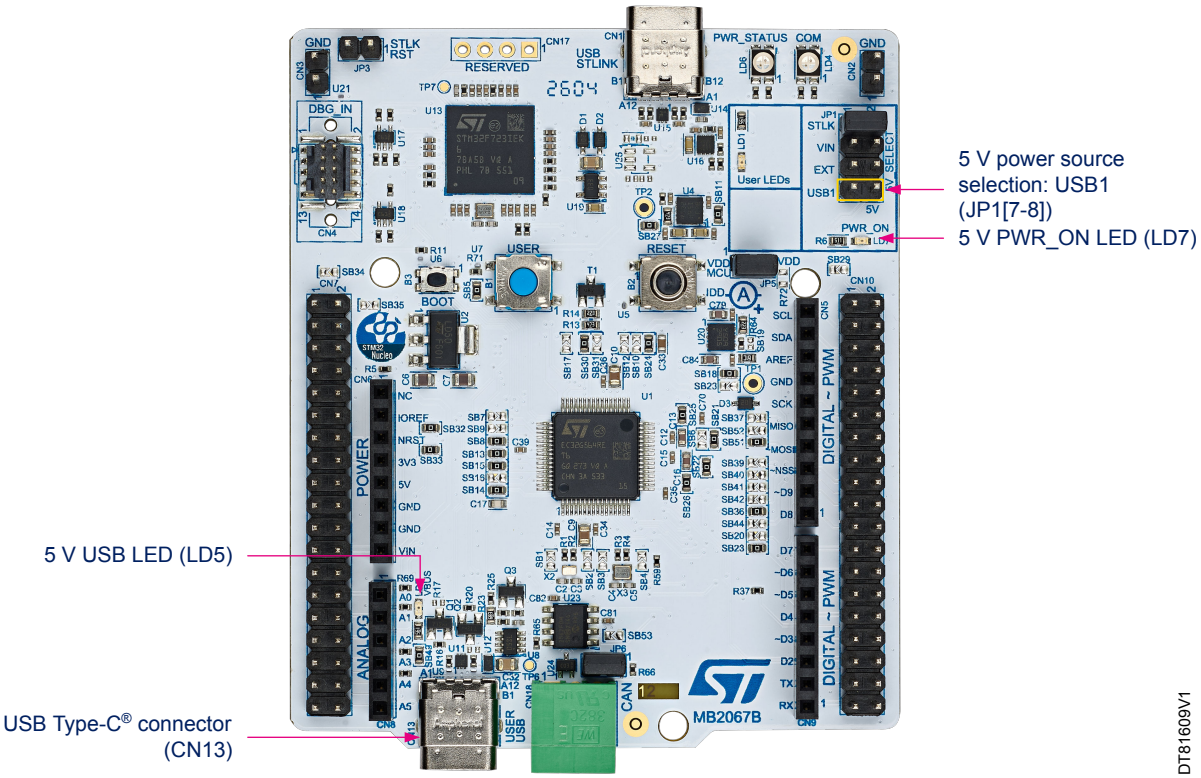
Figure 10. JP1[5-6]: EXT power source



7.7.1.4 *USB1 power supply input*

USB1 is the DC power supply from the USB Type-C® user connector (CN13, 5 V/500 mA). To select this power supply source, the JP1 jumper must be on [7-8], as shown in Figure 11. The green LED (LD5) is on when USB1 powers the board.

Figure 11. JP1 [7-8]: USB1 power source

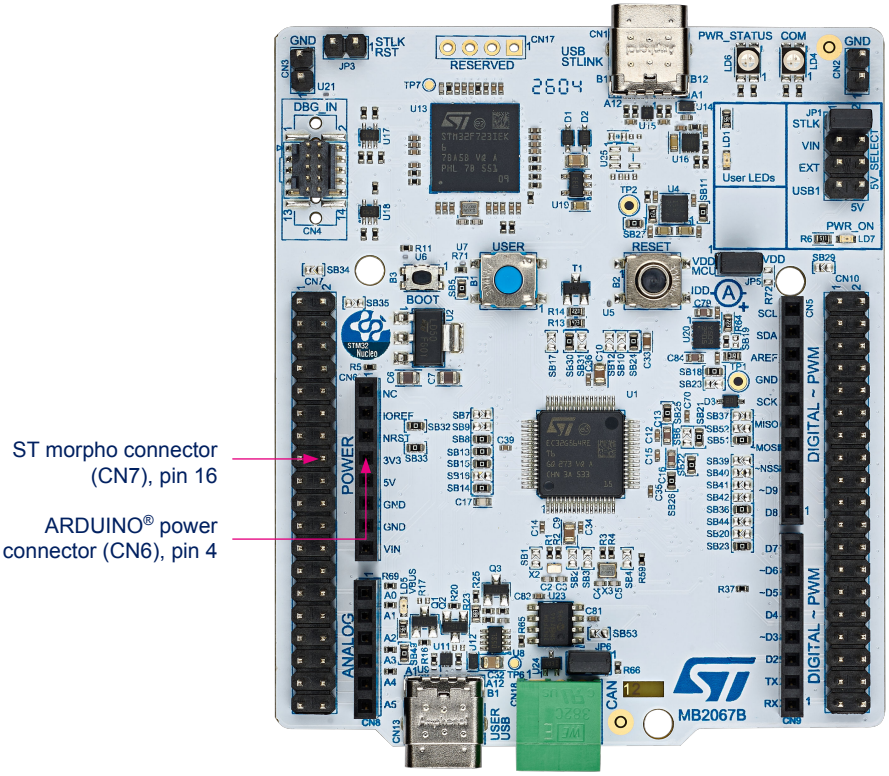


7.7.1.5 *External 3V3 power supply input*

In certain scenarios, for example, when an extension board provides the 3.3 V supply, an external 3.3 V source can be used on the 3V3 input (CN6, pin 4 and CN7, pin 16), as shown in Figure 12). When only a 3.3 V source powers the STM32G5 Nucleo-64 board, STLINK-V3EC is not powered, and programming and debugging are unavailable.

Warning: *When using the external 3V3 input, STLINK-V3EC is not powered. For this configuration, SB27 must be OFF to protect the low dropout regulator (U4).*

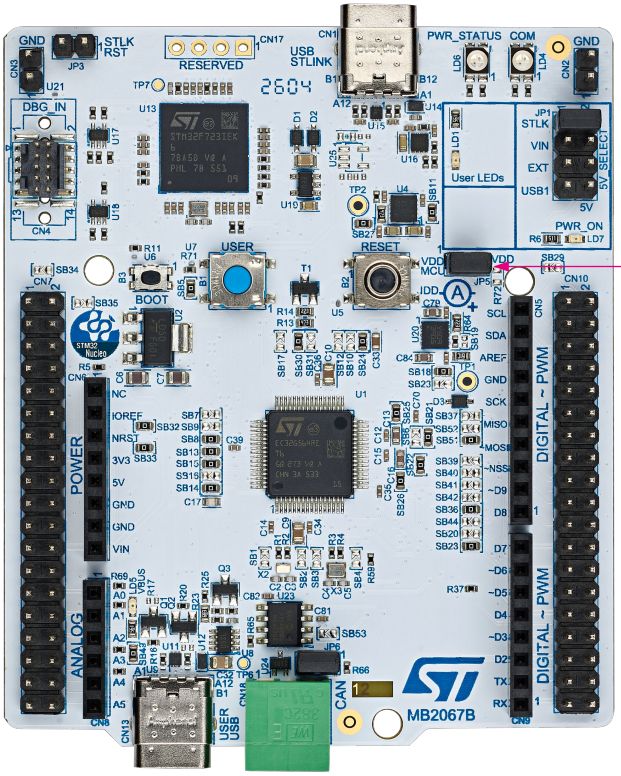
Figure 12. External power source



7.7.1.6 *VDD_MCU power supply input*

In certain scenarios, an external power source ranging from 1.71 to 3.6 V can power only the MCU power supply pins (JP5, pin 1), as shown in Figure 13. In this configuration, external functions such as debug, LEDs, and the expansion connectors are not powered. This option can optimize MCU power consumption measurement. This option can be used to optimize MCU power consumption measurement.

Figure 13. VDD_MCU power source



7.7.2 Programming/debugging when the power supply is not from STLINK-V3EC (STLK)

If the current consumption of the board and its expansion boards exceeds the allowed current on the ST-LINK USB connector, use the external power sources: VIN, EXT, or USB1. In this case, the embedded STLINK can still be used for the Virtual COM port (VCP), programming, and debugging.

Follow this power sequence procedure:

1. Set the JP1 jumper to select the 5 V external power source.
2. Connect the external power source as per the JP1 configuration.
3. Turn on the external power supply.
4. Verify that the 5 V green LED (LD7) is illuminated.
5. Connect the PC to the ST-LINK USB connector (CN1) for programming and debugging.

Caution: *If this sequence is not respected, VBUS from STLINK-V3EC might power the board first, possibly incurring the following risks:*

- *If the board requires more current than STLINK-V3EC can provide, the PC may be damaged, or the current can be limited by the PC. Therefore, the board is not powered correctly.*
- *Enumeration requires 500 mA. There is a risk that the request is rejected, and enumeration fails because the PC cannot provide this current.*

7.7.3 Measurement of the microcontroller current consumption

The IDD jumper (JP5) is used to measure the current consumption of the STM32 microcontroller. To perform the measurement, remove the jumper and connect an ammeter or another current measurement tool.

- Jumper ON: the STM32 microcontroller is powered by the internal 3.3 V source (default).
- Jumper OFF: connect an ammeter or an external 3.3 V power source to power and measure the STM32 microcontroller current consumption.

7.8 Clock sources

Two clock sources are available on the STM32G5 Nucleo-64 board:

- LSE: 32.768 kHz crystal for the STM32 embedded RTC.
- HSE: 24 MHz oscillator for the STM32 microcontroller. By default, it is not mounted.

Refer to the application note *Guidelines for oscillator design on STM8AF/AL/S and STM32 MCUs/MPUs* (AN2867) for further details, such as typical frequencies, capacitors, and resistors.

7.8.1 LSE clock references

There are three methods to set up the pins associated with the low-speed clock (LSE), which are detailed below.

LSE on-board oscillator X2 crystal (default configuration)

The X2 crystal has the following characteristics: 32.768 kHz, 9 pF, and 20 ppm. The following configuration is needed:

- R1 and R2 ON
- SB1 and SB2 OFF

External oscillator on PC14

The input clock comes from an external oscillator via the PC14 signal on the ST morpho connector (CN7 pin 25). This clock requires the following configuration:

- R1 and R2 OFF
- SB1 ON

LSE not used

PC14 and PC15 are used as GPIOs instead of low-speed clocks. This requires the following configuration:

- R1 and R2 OFF
- SB1 and SB2 ON

7.8.2 HSE clock references

There are three ways to configure the pins corresponding to the external high-speed clock (HSE), which are detailed below.

HSE onboard oscillator X3 crystal (default configuration)

The X3 crystal has the following characteristics: 24 MHz, 6 pF, and 20 ppm. The following configuration applies:

- R3 and R4 ON
- SB3 and SB4 OFF

External oscillator on PH0

The input clock comes from an external oscillator through PH0, on pin 29 of the ST morpho connector (CN7). The following configuration is required:

- R3 and R4 OFF
- SB3 ON

HSE not used

PH0 and PH1 are used as GPIOs instead of clocks. This requires the following configuration:

- R3 and R4 OFF
- SB3 and SB4 ON

7.9 Boot modes

There is one BOOT pin (BOOT0) connected on this board to select the boot modes:

- **BOOT0 = 0: boot from user flash memory (default configuration).**
- BOOT0 = 1: boot from system memory (bootloader).

The BOOT0 pin is pulled down with an external resistor. To achieve a high voltage level, two options exist:

- Press the button (B3). When the button is released, BOOT0 returns to a low level.
- Use a jumper to short pins 5 and 7 of CN7 (BOOT0 is shorted to V_{DD}).

7.10 Reset sources

The reset signal of the STM32G5 Nucleo-64 board is active LOW. The reset sources include:

- Reset button (B2)
- Embedded STLINK-V3EC
- ARDUINO® Uno V3 connector (CN6 pin 3)
- ST morpho connector (CN7 pin 14)

7.11 LEDs

The STM32G5 Nucleo-64 board contains five LEDs:

- One green user LED (LD1), connected to PG3 (ARDUINO® D13) through SB30 by default. It can be connected to PB15 through SB31, which is not mounted by default.
- Two tricolor (green, orange, and red) STLINK-V3EC LEDs (LD4 and LD6). These LEDs provide information about the STLINK-V3EC communication (LD4) and power (LD6) status. For detailed information about these LEDs, refer to the technical note *Overview of STLINK derivatives* (TN1235).
- USB Type-C® 5 V power LED (LD5). This green LED indicates the presence of V_{BUS} on CN13.
- 5V_PWR LED (LD7). This green LED indicates that the STM32 part is powered by a 5 V source.

Table 11 provides an overview of the different LEDs on the STM32G5 Nucleo-64 board. Refer to Figure 4 to locate the LEDs on the board.

Table 11. LEDs

Color	Reference	System element monitored
Green	LD1	Free for user function
Green, orange, red	LD4	Onboard STLINK-V3EC communication status
Green	LD5	V_{BUS} presence indicator on USB1 user connector (CN13)
Green, orange, red	LD6	Onboard STLINK-V3EC power status
Green	LD7	+5 V power indicator, board powered

7.12 Push-buttons

Three push-buttons are available on the STM32G5 Nucleo-64 board:

- Blue user button (B1)
- Black reset button (B2)
- Black boot mode button (B3)

Refer to Figure 4 to locate the push-buttons on the board.

Blue user button (B1)

The user button is connected to the PC13 STM32 I/O pin to support the default tamper and wake-up functions of the STM32 microcontroller. When the button is pressed, the logic state is HIGH; otherwise, the logic state is LOW.

There is no hardware filter and the user must program a software filter if necessary. This reduces the bill of materials (BOM) cost by eliminating the external hardware debounce filter (capacitor).

Warning: *Set the PC13 I/O for the user button to input mode with debounce. Do not set PC13 to output mode or drive it to a low level. This prevents a short circuit when the user button is pressed.*

Black reset button (B2)

This push-button connects to NRST and resets the microcontroller. When the button is pressed, the logic state is LOW; otherwise, the logic state is HIGH.

Black boot mode button (B3)

This push-button connects to the BOOT pin and selects the boot mode during the reset phase. When the button is pressed, the logic state is HIGH; otherwise, an external pull-down resistor drives the logic state LOW.

- No button press during the reset phase: BOOT pin is at level 0. Boot from user flash memory.
- Button press during the reset phase: BOOT pin is at level 1. Boot from system memory.

7.13 USB Type-C® full speed (USB full speed)

The STM32G5 Nucleo-64 board supports USB full-speed (USB FS) communication through a USB Type-C® connector (CN13). It supports USB Type-C® Sink mode only.

The green USB power LED (LD5) lights up when V_{BUS} is powered by a USB Host and the board works as a USB Device.

USB FS Device

When the STM32G5 Nucleo-64 board detects a USB Host connection to the USB Type-C® connector (CN13), it starts operating as a USB Device. Depending on the powering capability of the USB Host, the board can take power from the VBUS terminal of the USB Type-C® connector. In the board schematic diagrams, the corresponding power voltage line is called 5V_USB_SNK.

The board supports a 5 V USB voltage ranging from 4.75 to 5.25 V. Refer to Section 7.7 for further information on power source selection. Table 12 summarizes the hardware configuration for the USB FS interface.

Table 12. Hardware configuration for the USB interface

I/O	Solder bridge	Status(1)	Configuration(1)
PA11	SB7	**OFF**	**PA11 is used as the USB_FS_N signal.**
		ON	PA11 can be used as a GPIO on the ST morpho connector (CN10). The USB function can be used, but performances may be impacted due to the track length on the expansion module and track impedance mismatch.
PA12	SB9	**OFF**	**PA12 is used as the USB_FS_P signal.**
		ON	PA12 can be used as a GPIO on the ST morpho connector (CN10). The USB function can be used, but performances may be impacted due to the track length on the expansion module and track impedance mismatch.

1. *The default configuration is shown in bold.*

7.14 CAN FD

The STM32G5 Nucleo-64 board supports one CAN FD interface compliant with ISO 11898-1 version 2.0 parts A and B. The three-pin header provides a CAN FD interface. The screwless push-in connector enables the connection to the CAN FD connector (CN18) and the flying cable for the application.

Refer to Figure 4 to locate the CAN FD connector on the board. Table 13 shows the CAN FD interface and connector pinout.

Table 13. CAN FD interface and connector pinout

Pin	Function	CAN transceiver
1	CANH	CANH
2	CANL	CANL
3	GND	-

8 Board connectors

8.1 MIPI10 connector (CN4)

The STM32G5 Nucleo-64 board contains an STDC14/MIPI10 connector footprint for debugging (SWD, JTAG). Table 14 provides the pinout for this connector.

Table 14. MIPI10 debug connector (CN4) pinout

MIPI10 pin	STDC14 pin	Signal name	Designation
-	1	NC	Reserved(1)
-	2	NC	Reserved(1)
1	3	VDD	Target VDD(2)
2	4	JTMS / DBG.SWDIO	Target SWDIO using SWD protocol or target JTMS using JTAG protocol
3	5	GND	Ground
4	6	JTCK / DBG.SWCLK	Target SWCLK using SWD protocol or target JTCK using JTAG protocol
5	7	GND	Ground
6	8	JTDO / DBG.SWO	Target SWO using SWD protocol or target JTDO using JTAG protocol(3)
7	9	JRTCK	JRTCK(4)/Opt(5)
8	10	JTDI / DBG.JTDI	Not used by SWD protocol; target JTDI using JTAG protocol (SB28 ON)
9	11	GNDDetect	GND detect for plug indicator(6)
10	12	NRST	Target NRST
-	13	DBG.VCP_RX	Target Rx used for VCP (with UART supporting bootloader)(7)
-	14	DGB.VCP_TX	Target Tx used for VCP (with UART supporting bootloader)(2)

1. *Not connected on the STM32 Nucleo-64 board.*
2. *Input for external debug tools; output for the STM32 Nucleo-64 board.*
3. *SWO is optional; required only for Serial Wire Viewer (SWV) trace.*
4. *Optional loopback of JTCK on the MCU.*
5. *Not required for the SWD connection; optional configuration on the STM32 Nucleo-64 board.*
6. *Tied to GND; can be used by the target for tool detection.*
7. *Output for external debug tools; input for the STM32 Nucleo-64 board.*

8.2 ARDUINO® Uno V3 connectors (CN5, CN6, CN8, CN9)

The ARDUINO® connectors (CN5, CN6, CN8, and CN9) are female connectors supporting the ARDUINO® Uno V3 standard.

Note: Most STM32 MCU I/O pins are 5 V tolerant. However, some pins are only compatible with 3.6 V. The ARDUINO® Uno V3 connector is 5 V compatible. For details on I/O structures, refer to the STM32 MCU data brief and datasheet.

Figure 14 indicates where the connectors are situated on the board. Tables Table 15, Table 16, Table 17, and Table 18 provide the connector pinout configurations.

Note: Alternate pin functions depends on the target MCU. Refer to the product datasheet to determine the alternate functions available on the ARDUINO® Uno V3 connector.

Figure 14. **ARDUINO® Uno V3 connectors**

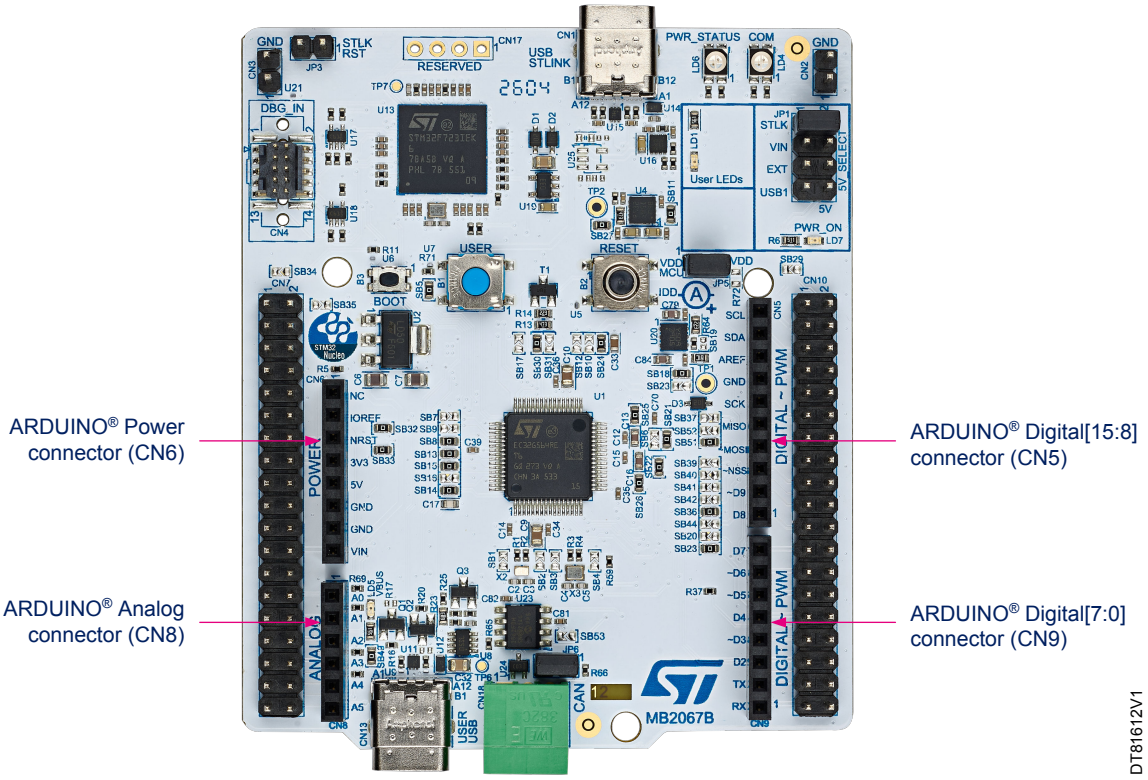


Table 15. **ARDUINO® power connector (CN6) pinout**

Pin number	Pin name	Signal name	MCU pin	MCU function
1	NC	NC	-	RESERVED
2	IOREF	IOREF	-	I/O REF
3	NRST	NRST	NRST	RESET
4	3V3	3V3	-	3V3 power input for ARDUINO® daughter board
5	5V	5V	-	5 V power input for ARDUINO® daughter board
6	GND	GND	-	GND
7	GND	GND	-	GND
8	VIN	VIN	-	VIN (7-12 V) power input for Nucleo board

Table 16. **ARDUINO® analog connector (CN8) pinout**

Pin number	Pin name	Signal name	MCU pin	MCU function
1	A0	ADC	PA0	ADC_INP1
2	A1	ADC	PA1	ADC_INP2
3	A2	ADC	PA5	ADC_INP13
4	A3	ADC	PB0	ADC_INP12/15
5	A4	ADC	PB11	ADC_INP14
6	A5	ADC	PC1	ADC_INP7

Table 17. **ARDUINO® digital[7:0] connector (CN9) pinout**

Pin number	Pin name	Signal name	MCU pin	MCU function
1	D0	UART_RX	PD11	USART4_RX
2	D1	UART_TX	PD12	USART4_TX
3	D2	I/O	PC7	I/O / TIM8_CH3
4	D3	PWM	PB3	SWO / TIM2_CH2
5	D4	I/O	PC12/PA4	I/O / TIM13_CH1 / DAC1_OUT1
6	D5	PWM	PA10	TIM3_CH1
7	D6	PWM	PA9	TIM3_CH3 / TIM2_ETR
8	D7	I/O	PC6	I/O / TIM8_CH1

Table 18. **ARDUINO® Digital[15:8] connector (CN5) pinout**

Pin number	Pin name	Signal name	MCU pin	MCU function
1	D8	I/O	PB6	I/O / TIM8_CH2
2	D9	PWM	PB15	TIM15_CH2 / ADC2_INP15
3	D10	PWM/CS	PB7	SPI1_NSS / TIM12_CH1
4	D11	PWM/MOSI	PB2/PA7	SPI1_MOSI / ACD2_INP12 / TIM3_CH4 / TIM8_CH1N / TIM17_CH1
5	D12	MISO	PC11	SPI1_MISO
6	D13	SCK	PG3	SPI1_SCK
7	GND	-	-	GND
8	AREF	-	-	VREF+
8	D14	SDA	PB9	I2C1_SDA / I3C1_SDA / TIM17_CH1
10	D15	SCL	PA15/PE2	I2C1_SCL / I3C1_SCL / TIM3_CH1 / TIM1_CH1

8.3 ST morpho connectors (CN7, CN10)

The ST morpho connectors consist of the CN7 and CN10 2.54-pitch male pin headers. They can be used to connect the STM32G5 Nucleo-64 board to any of the following:

- Extension board
- Prototype/wrapping board
- Oscilloscope
- Logic analyzer
- Voltmeter

Figure 15 shows the location of the ST morpho connectors on the board. Table 19 and Table 20 show the pin assignments for the connectors.

Note: Alternate function availability depends on the target MCU. Refer to the product datasheet to determine the alternate functions available to the ST morpho connector.

Figure 15. ST morpho connectors

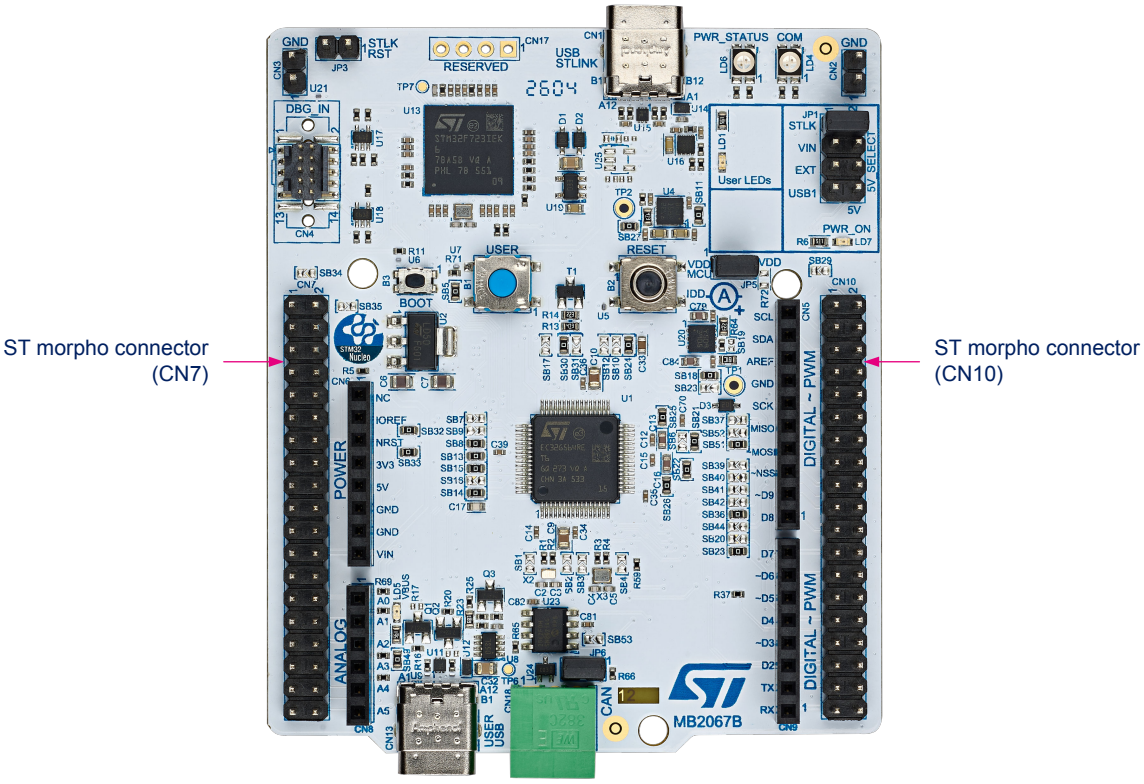


Table 19. ST morpho connector (CN7, left) pinout

MCU pin	ST morpho connector pin number		MCU pin
PB12/PB9	1	2	PB13/PE2
PB10	3	4	-
VDD	5	6	5V_EXT
BOOT0	7	8	GND
-	9	10	-
-	11	12	3V3
PA13(1)	13	14	NRST
PA14(1)	15	16	3V3
PB7	17	18	5V
GND	19	20	GND
-	21	22	GND
PC13	23	24	VIN
PC14	25	26	-
PC15	27	28	PA0
PH0	29	30	PA1
PH1	31	32	PA5
VDD	33	34	PB0
PB14	35	36	PB11/PB10
PC3	37	38	PC1

1. *PA13and PA14 are shared with the SWD signals connected to STLINK-V3EC, do not use them as I/O pins.*

Table 20. ST morpho connector (CN10, right) pinout

MCU pin	ST morpho connector pin number		MCU pin
PA8	1	2	PE2
PA15/PE2	3	4	-
PB9	5	6	PC2
VREF[1]	7	8	5V_STLK
GND	9	10	NC
PG3	11	12	PD11/PG3/PA12
PC11	13	14	PG2/PA11
PB2/PA7	15	16	PG2
PB7	17	18	PC0
PB15	19	20	GND
PB6	21	22	PB5
PC6	23	24	PB1
PA9	25	26	PB1
PA10	27	28	PB4
PA4/PC12	29	30	PA7
PB3	31	32	AGND
PC7	33	34	PA6
PD12	35	36	-
PD11	37	38	-

1. *The ADC input range is 0 <= VIN <= VREF.*

9 NUCLEO-G564RE product information

9.1 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:

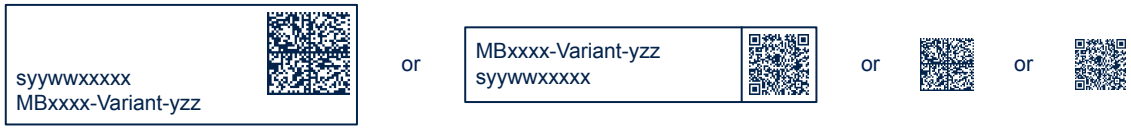
  

  Dual-sticker example:

- 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.

9.2 NUCLEO-G564RE product history

Table 21. Product history

Order code	Product identification	Product details	Product change description	Product limitations
NUCLEO-G564RE	NUG564RE$CR1	MCU: STM32G564RET3 silicon revision "A"	Initial revision	No limitation
		MCU errata sheet: *STM32G564xx, STM32G554xx, and STM32G553xx device errata* (ES0656)		
		Board: MB2067-G564RE-B02 (main board)		

9.3 Board revision history

Table 22. Board revision history

Board reference	Board variant and revision	Board change description	Board limitations
MB2067 (main board)	G564RE-B02	Initial revision	No limitation

10 Compliance statements and conformity declarations

10.1 Federal Communications Commission (FCC) compliance statement

Part 15.19

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Part 15.21

Any changes or modifications to this equipment not expressly approved by STMicroelectronics may cause harmful interference and void the user's authority to operate this equipment.

Part 15.105

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Note: Use only shielded cables.

Responsible Party - U.S. Contact Information:

Francesco Doddo
STMicroelectronics, Inc.
200 Summit Drive | Suite 405 | Burlington, MA 01803
USA
Telephone: +1 781-472-9634

10.2 Innovation, Science and Economic Development Canada (ISED) compliance statement

This product complies with the ICES-003 standard class B of the ISED regulation.

ISED Canada ICES-003 Compliance Label: CAN ICES (B)/NMB (B).

Note: Use only shielded cables.

Ce produit est conforme à la norme NMB-003 classe B de la ISDE.

Étiquette de conformité à la NMB-003 d'ISDE Canada : CAN ICES (B) / NMB (B).

Note: Utiliser uniquement des câbles blindés.

10.3 UKCA conformity

Simplified UK declaration of conformity

Hereby, the manufacturer STMicroelectronics, declares that the equipment type NUCLEO-G564RE and is in compliance with the UK Electromagnetic Compatibility Regulations 2016 (UK SI 2016 No. 1091) and with the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 (UK SI 2012 No. 3032).

Note: Use only shielded cables.

10.4 CE conformity

10.4.1 Simplified EU declaration of conformity

Hereby, STMicroelectronics declares that the equipment type NUCLEO-G564RE and is in compliance with directives 2011/53/EU and 2015/863/EU (RoHS), and 2014/30/EU (EMC).

Note:
- *RoHS: Restriction of hazardous substances*
- *EMC: Electromagnetic compatibility*

Note: Use only shielded cables.

10.4.2 Déclaration de conformité UE simplifiée

STMicroelectronics déclare que l'équipement électrique du type NUCLEO-G564RE et est conforme aux directives 2011/53/UE et 2015/863/UE (LdSD), et à la directive 2014/30/UE (CEM).

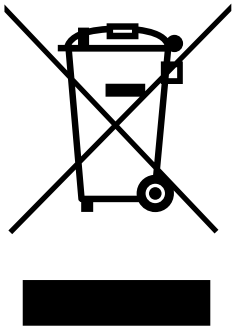
Note:
- *LdSD : directive sur la limitation de l'utilisation des substances dangereuses*
- *CEM : compatibilité électromagnétique*

Note: Utiliser uniquement des câbles blindés.

11 Product disposal

Disposal of this product: WEEE (Waste Electrical and Electronic Equipment)

(Applicable in Europe)



This symbol on the product, accessories, or accompanying documents indicates that the product and its electronic accessories must not be disposed of with household waste at the end of their working life.

To prevent possible harm to the environment and human health from uncontrolled waste disposal, separate these items from other types of waste and recycle them responsibly at a designated collection point to promote the sustainable reuse of material resources.

Household users:

Contact the retailer that you purchased the product from or your local authority for details of your nearest designated collection point.

Business users:

Contact your dealer or supplier for further information.

Revision history

Table 23. **Document revision history**

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

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