

Discovery kit for IoT node, multi-channel communication with STM32L4+ Series



B-L4S5I-IOT01A top view. Picture is not contractual.

Product status link

[B-L4S5I-IOT01A](#)

Features

- Ultra-low-power STM32L4+ Series [STM32L4S5VIT6](#) microcontroller based on the Arm® Cortex®-M4 core with 2 Mbytes of Flash memory and 640 Kbytes of RAM in LQFP100 package
- 64-Mbit Quad-SPI Flash memory from Macronix™
- Bluetooth® 4.1 module (SPBTLE-RF) from STMicroelectronics
- 802.11 b/g/n compliant Wi-Fi® module (ISM43362-M3G-L44) from Inventek Systems
- Dynamic NFC tag based on [ST25DV04K](#) with its printed NFC antenna
- 2 digital omnidirectional microphones (MP34DT01) from STMicroelectronics
- Capacitive digital sensor for relative humidity and temperature ([HTS221](#)) from STMicroelectronics
- High-performance 3-axis magnetometer ([LIS3MDL](#)) from STMicroelectronics
- 3D accelerometer and 3D gyroscope ([LSM6DSL](#)) from STMicroelectronics
- 260-1260 hPa absolute digital output barometer ([LPS22HB](#)) from STMicroelectronics
- Time-of-flight and gesture-detection sensor ([VL53L0X](#)) from STMicroelectronics
- Highly-secure solution ([STSAFE-A110](#)) from STMicroelectronics
- 2 push-buttons (user and reset)
- USB OTG FS with Micro-AB connector
- ARDUINO® Uno V3 expansion connector
- Pmod™ expansion connector
- Flexible power-supply options: ST-LINK, USB V_{BUS} or external sources
- On-board ST-LINK/V2-1 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™, Keil®, and STM32CubeIDE

Description

With the [B-L4S5I-IOT01A](#) Discovery kit for IoT node, users develop applications with direct connection to cloud servers. The Discovery kit enables a wide diversity of applications by exploiting low-power communication, multiway sensing and Arm® Cortex®-M4 core-based STM32L4+ Series features. The support for ARDUINO® Uno V3 and Pmod™ connectivity provides unlimited expansion capabilities with a large choice of specialized add-on boards.

1 Ordering information

To order the [B-L4S5I-IOT01A](#) 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. Ordering information

Order code	Board reference	User manual	Target STM32
B-L4S5I-IOT01A	MB1297	UM2708	STM32L4S5VIT6U

1.1 Product marking

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.

This board features 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.

1.2 Codification

The meaning of the codification is explained in [Table 2](#).

Table 2. Codification explanation

B-L4S5I-IOT01A	Description	B-L4S5I-IOT01A
B	Discovery kit with a variety of sensors	Sensor node
L4S5	MCU product line in STM32 32-bit Arm Cortex MCUs	STM32L4R5/S5 in the STM32L4+ Series
I	STM32 Flash memory size: • I for 2 Mbytes	2 Mbytes
IOT	Dedicated to IoT applications	Discovery kit for IoT applications

The order code is mentioned on a sticker placed on the top or bottom side of the board.

2 Development environment

The B-L4S5I-IOT01A runs with the STM32L4S5VI 32-bit microcontroller based on the Arm® Cortex®-M4 core.

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



2.1 System requirements

- Windows® OS (7, 8 and 10), Linux® 64-bit, or macOS®
- USB Type-A to Micro-B cable

Note: macOS® is a trademark of Apple Inc. registered in the U.S. and other countries.
All other trademarks are the property of their respective owners.

2.2 Development toolchains

- IAR™ - EWARM (see [note](#))
- Keil® - MDK-ARM (see [note](#))
- STMicroelectronics - STM32CubeIDE

Note: 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.

3 Laser consideration

The VL53L0X contains a laser emitter and the corresponding drive circuitry. The laser output is designed to remain within Class 1 laser safety limits under all reasonably foreseeable conditions including single faults in compliance with IEC 60825-1:2014 (third edition). The laser output will remain within Class 1 limits as long as the STMicroelectronics recommended device settings are used and the operating conditions specified in the STM32L4+ datasheets are respected. The laser output power must not be increased by any means and no optics should be used with the intention of focusing the laser beam. Figure 1 shows the warning label for Class 1 laser products.

Figure 1. Class 1 laser product label



Revision history

Table 3. Document revision history

Date	Version	Changes
14-Apr-2020	1	Initial release.

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