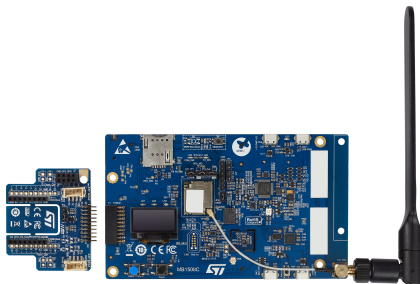## Discovery kit for LTE Cat M/NBIoT with STM32L4 Series

B-L462E-CELL1 top view. Picture is not contractual.

Product status link
B-L462E-CELL1

Features

- LBAD0ZZ1SE module from Murata powered by STM32L462RE with built-in eSIM (ST4SIM-200M), LTE Cat M/NBIoT modem (LBAD0XX1SC-DM), and 1 Mbyte of Quad-SPI Flash memory
- Ultra-low-power STM32L4 Series STM32L462REY6TR microcontroller based on the Arm® Cortex®-M4 core with 512 Kbytes of Flash memory and 160 Kbytes of RAM in a WLCSP64 package
- 64 Mbytes of onboard Quad-SPI Flash memory from Micron®, exclusive with the 1 MByte of Quad-SPI Flash memory inside the module
- 16 Kbytes of I^{2}C EEPROM (M24128-DFMN6TP) from STMicroelectronics
- 0.96-inch 128 x 64 OLED screen with SPI interface
- Low-power Audio CODEC with PCM bus and I^{2}C interface (MAX9867ETJ+ from Maxim)
- Ultra-low-power 3D accelerometer and 3D magnetometer (LSM303AGR) from STMicroelectronics
- Capacitive digital sensor for relative humidity and temperature (HTS221) from STMicroelectronics
- 260-1260 hPa absolute digital output barometer (LPS22HH) from STMicroelectronics
- 3 user LEDs
- 2 push-buttons (user and reset)
- Board connectors:
  - SMA antenna connector
  - Two 50-pin 2.54 mm pitch headers
  - STMod+
  - micro-SIM card slot
  - 3.5 mm CTIA stereo headset jack including analog microphone input
  - USB Micro-B connectors for power, USARTs, USB device, and ST-LINK/V2-1
  - TAG10
  - mikroBUS™ expansion connectors
  - ESP-01 expansion connector
  - Grove Seeed Studio™ breadboard, I^{2}C, and UART expansion connectors
- Flexible power-supply options: ST-LINK USB, User USB, UART USB, Power USB, or three AAA batteries
- On-board ST-LINK/V2-1 debugger/programmer with USB re-enumeration capability: mass storage, Virtual COM port, and debug port
- End-to-end connectivity applications
- Low-power cellular network services from Truphone®
- Support of a wide choice of Integrated Development Environments (IDEs) including IAR Embedded Workbench®, MDK-ARM, and STM32CubeIDE

DB4249 - Rev 4 - March 2021
For further information contact your local STMicroelectronics sales office.

www.st.com

1 Description

The B-L462E-CELL1 Discovery kit is a turnkey development platform for cellular IoT devices. The Discovery kit contains a low-power Discovery main board powered by an LBAD0ZZ1SE module, a global coverage antenna, and a fan-out board. The LBAD0ZZ1SE module includes an STM32L462REY6TR microcontroller, an LBAD0XX1SC-DM ultra-small LTE Cat M/NB modem, and an ST4SIM-200M GSMA-certified embedded SIM with a prepaid cellular connectivity data plane. ST4SIM-200M can also be used as an embedded secure element (eSE) for application.

STMod+ and extended pins connectivity provide unlimited expansion capabilities with a large choice of specialized add-on boards. Moreover, the fan-out board supports add-on boards using mikroBUS™, ESP-01, Grove I^{2}C, Grove UART, and breadboard. The B-L462E-CELL1 Discovery kit includes an ST-LINK debugger/programmer and comes with the comprehensive STM32Cube software libraries together with packaged software examples to demonstrate end-to-end connectivity.

2 Ordering information

To order the B-L462E-CELL1 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 references	User manual	Target STM32
B-L462E-CELL1	• MB1508 • MB1280[(1)]	• UM2743 • UM2695	STM32L462RE

1. Fan-out board.

2.1 Product marking

The stickers located on the top or bottom side of the PCB provide product information:
- Product order code and product identification for the first sticker
- Board reference with revision, and serial number for the second sticker

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.

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.

2.2 Codification

The meaning of the codification is explained in Table 2.

Table 2. Codification explanation

B-L462E-CELL1	Description	B-L462E-CELL1
B	Discovery kit with a variety of sensors	Sensor node
L462	MCU product line in STM32 32-bit Arm Cortex MCUs	STM32L462 in the STM32L4 Series
E	STM32 Flash memory size: • E for 512 Kbytes	512 Kbytes
CELL	Dedicated to cellular applications	Discovery kit for cellular applications

3 Development environment

The B-L462E-CELL1 runs with the STM32L462RE 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.*

3.1 System requirements

- Windows® OS (7, 8, or 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.*

Linux® is a registered trademark of Linus Torvalds.

All other trademarks are the property of their respective owners.

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 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	Version	Changes
10-Nov-2020	1	Initial release.
3-Dec-2020	2	Updated Murata module name in *Features*.
19-Jan-2021	3	Updated title and *Features* regarding Truphone® plan connectivity.
23-Mar-2021	4	Added cellular network services link from Truphone® in Features.

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