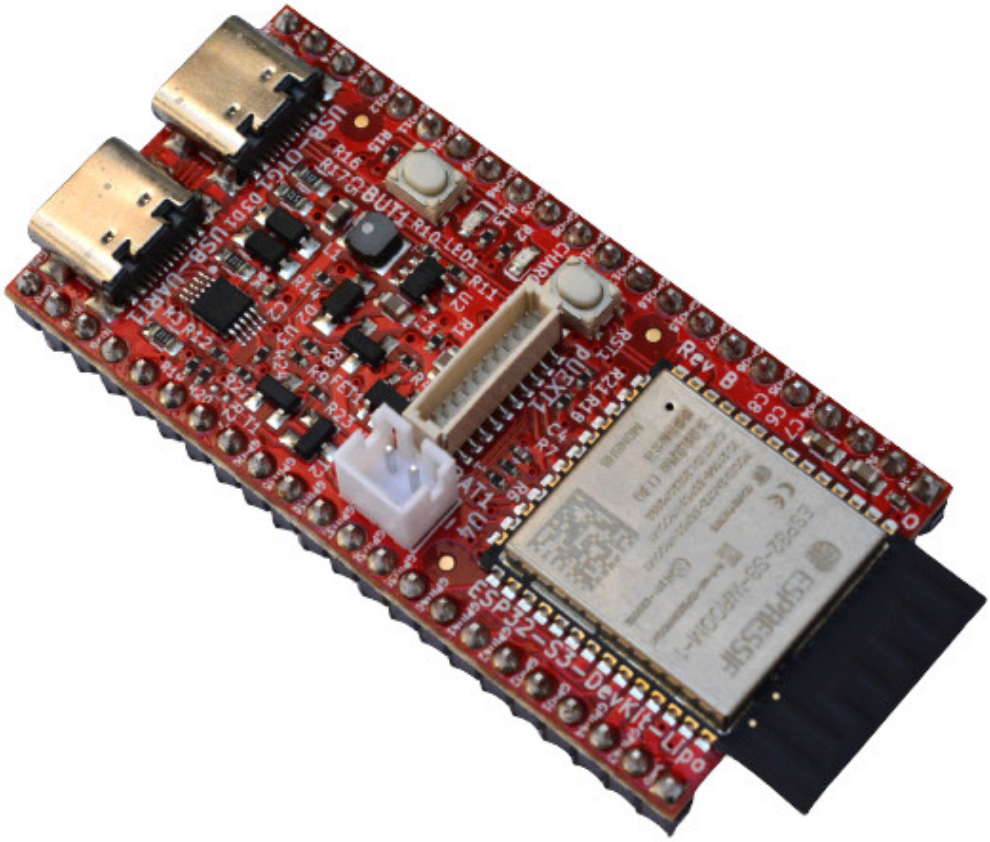

ESP32-S3-DevKit-LiPo

User Manual

Document revision 2.0, August 2024 **www.olimex.com**

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Introduction to ESP32-S3-DevKit-LiPo

ESP32-S3 is a dual-core XTensa LX7 MCU, capable of running at 240 MHz. Apart from its 512 KB of internal SRAM, it also comes with integrated 2.4 GHz, 802.11 b/g/n Wi-Fi and Bluetooth 5 (LE) connectivity that provides long-range support. It has 45 programmable GPIOs and supports a rich set of peripherals. ESP32-S3 supports larger, high-speed octal SPI flash, and PSRAM with configurable data and instruction cache.

The board has two variants: **ESP32-S3-DevKit-Lipo** comes with module with PCB antenna as seen in the picture on the first page, while **ESP32-S3-DevKit-Lipo-EA** comes with U.FL connector for external antenna.

ESP32-S3-DevKit-LiPo board is a development board with Espressif ESP32-S3 module and these features:

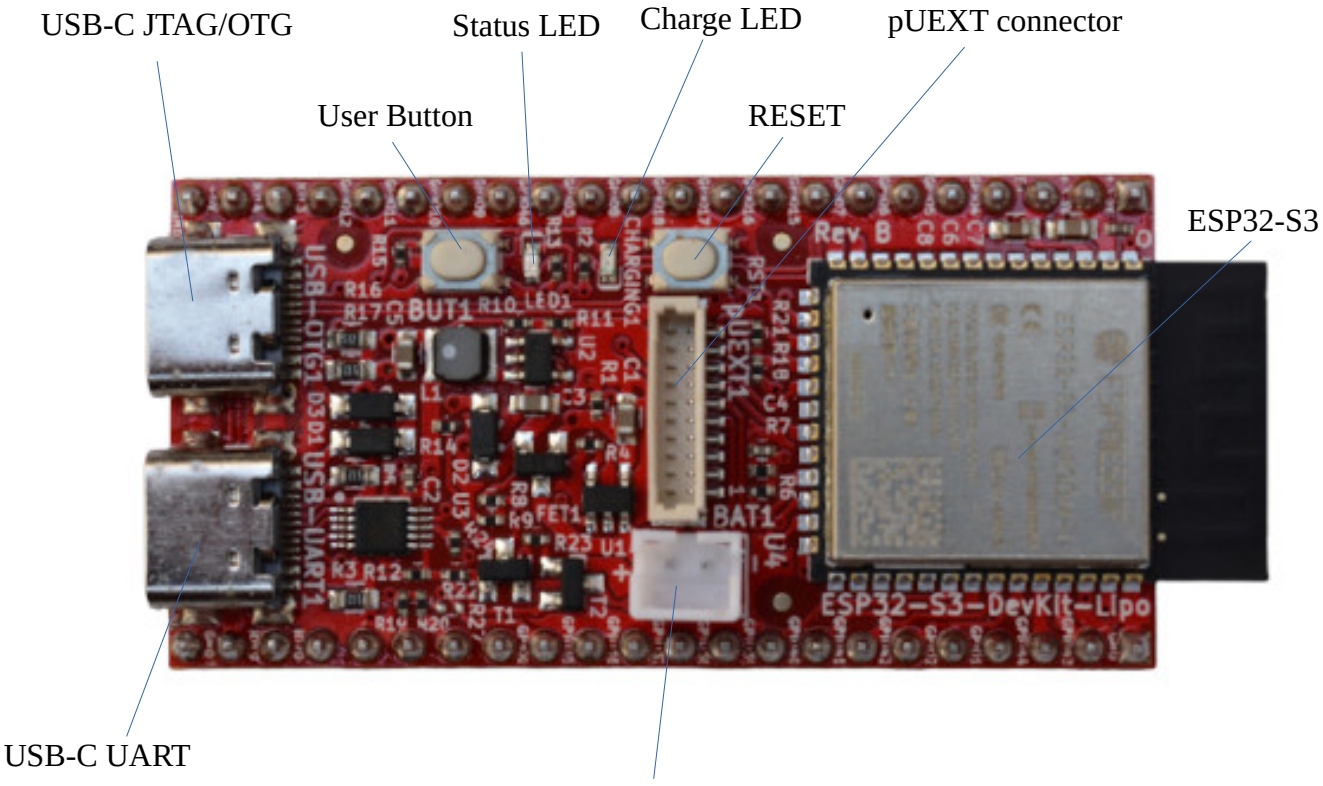
- ESP32-S3-WROOM-1-N8R8 8MB RAM 8MB flash
- Green status LED
- Yellow battery charge LED
- pUEXT 1.0 mm step connector
- USB-C for power supply and USB-serial programmer
- USB-C for OTG JTAG/serial connector
- LiPo battery charger
- LiPo battery connector
- External power sense
- Battery measurement
- Automatic power supply switch between USB and LiPo
- RESET button
- USER button
- Dimensions: (1.1×2.2)" ~ (27.94×55.88)mm

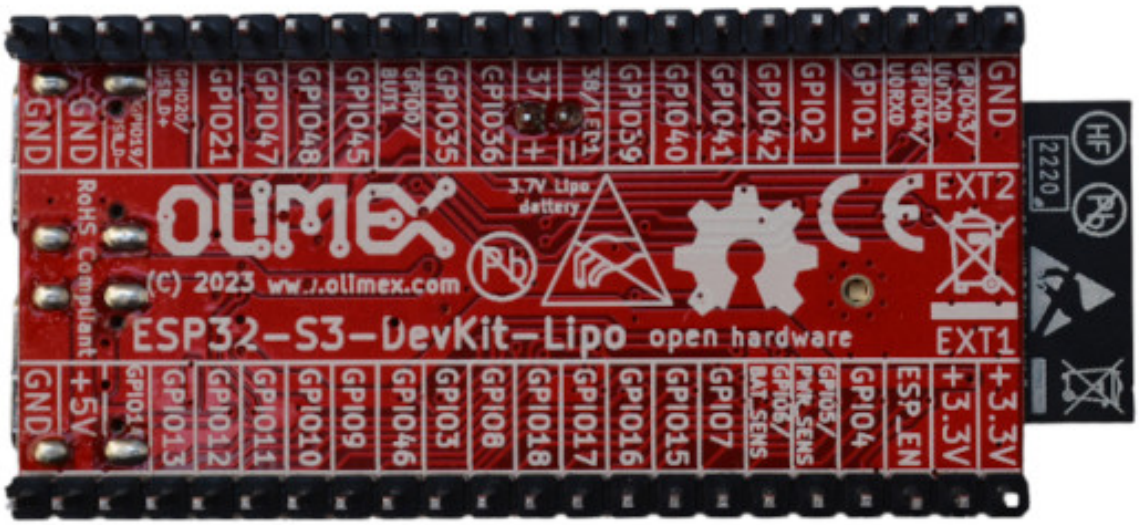
Order codes for ESP32-S3-DevKit-Lipo and accessories:

ESP32-S3-DevKit-LiPo	ESP32-S3 development board with USB JTAG/debugger and LiPo charger
USB-CABLE-A-TO-C-1M	USB-C power and programming cable
LiPo	A number of compatible batteries
UEXT	Extension modules and sensors

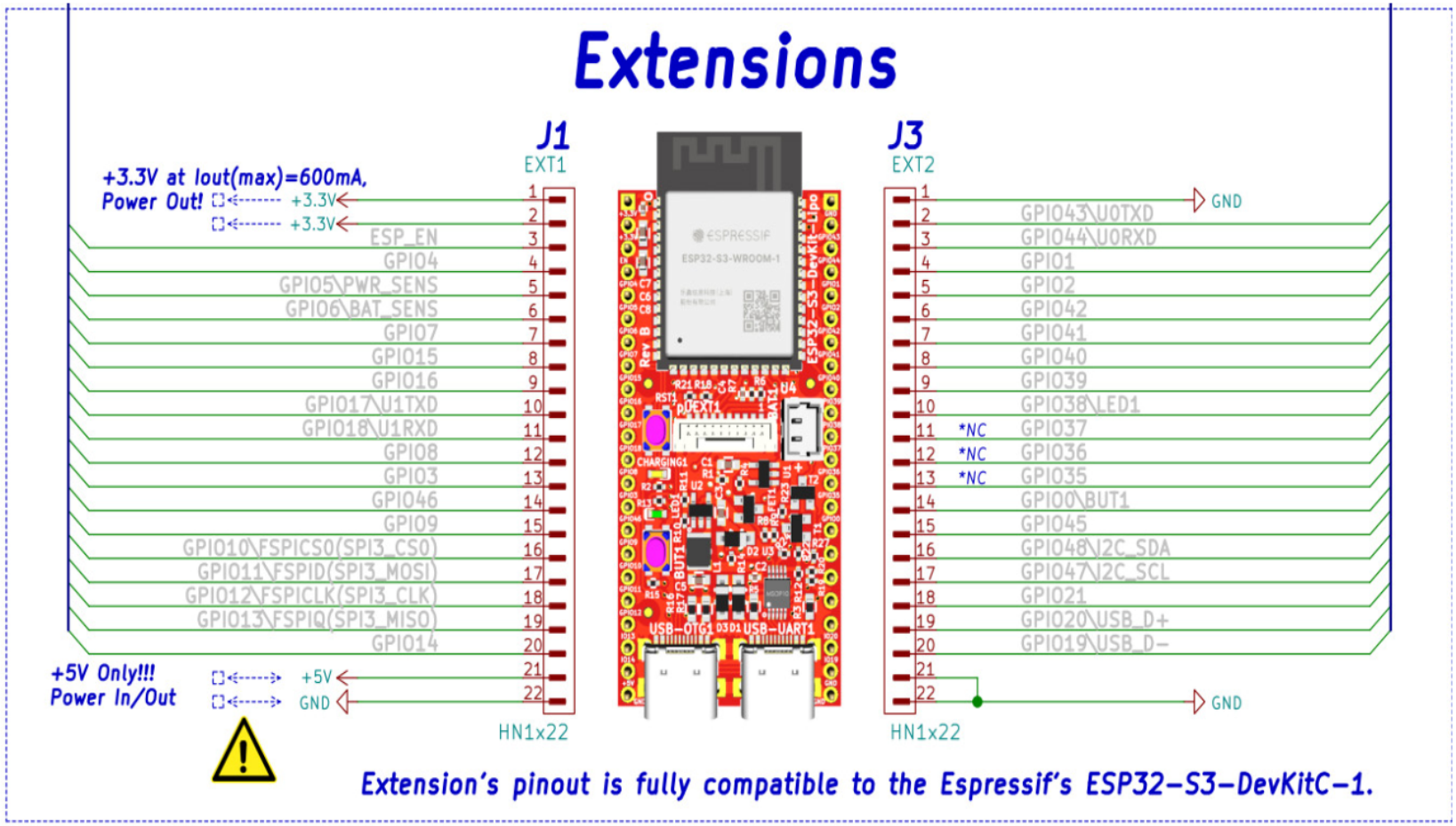
HARDWARE

ESP32-S3-DevKit-LiPo layout:




GND
GPIO43/ U0TXD
GPIO44/ U0RXD
GPIO1
GPIO2
GPIO42
GPIO41
GPIO40
GPIO39
38/LED1
37
36
GPIO35
GPIO0/ BUT1
GPIO45
GPIO48
GPIO47
GPIO21
GPIO20/ USB_D+
GPIO19/ USB_D-
GND
GND
EXT2
EXT1
2220
3.7V Lipo battery
OLIMEX
(C) 2023 www.olimex.com
ESP32-S3-DevKit-Lipo open hardware
RoHS Compliant
GND
+5V
GPIO14
GPIO13
GPIO12
GPIO11
GPIO10
GPIO9
GPIO46
GPIO3
GPIO8
GPIO18
GPIO17
GPIO16
GPIO15
GPIO7
GPIO5/ PWR_SENS
GPIO6/ BAT_SENS
GPIO4
ESP_EN
+3.3V
+3.3V

ESP32-S3-DevKit-LiPo GPIOs:



POWER SUPPLY:

This board can be powered by:

+5V	**EXT1.pin 21** can be input or output
USB-UART	USB-C connector
USB-OTG1	USB-C connector
LiPo battery	

ESP32-S3-DevKit-Lipo schematics:

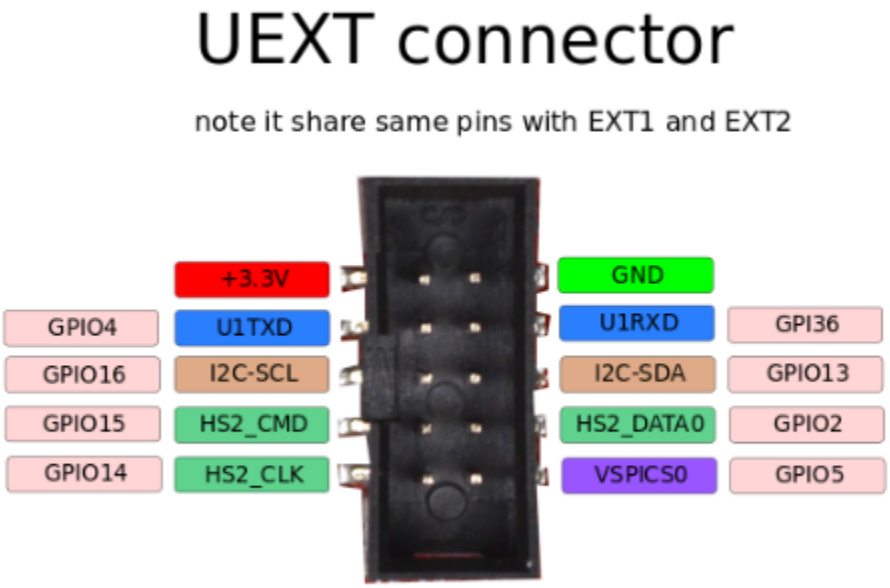
ESP32-S3-DevKit-LiPo latest schematic is on GitHub

UEXT connector:

UEXT connector stands for Universal EXTension connector and contain +3.3V, GND, I2C, SPI, UART signals.

UEXT connector can be in different shapes.

The original UEXT connector is 0.1” 2.54mm step boxed plastic connector. All signals are with 3.3V levels.



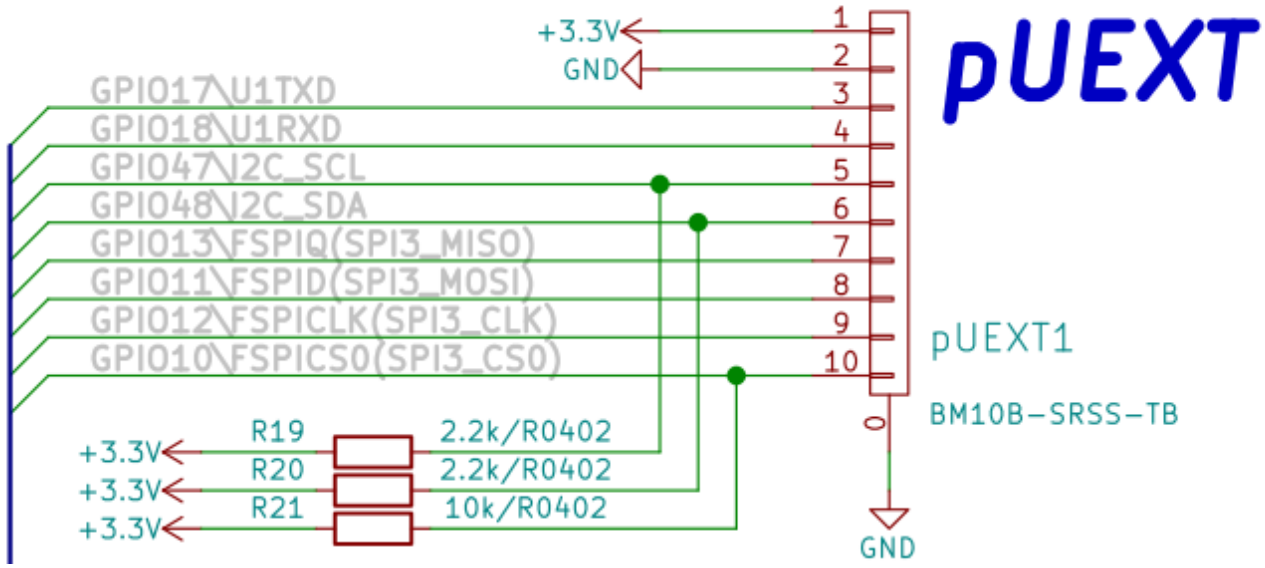
As the boards become smaller and smaller some smaller packages were introduced too beside the original UEXT connector

- mUEXT is 1.27 mm step boxed header connector which is with same layout as UEXT

- pUEXT is 1.0 mm single row connector (this is the connector used in RP2040-PICO30)

Olimex has developed number of MODULES with this connector. There are temperature, humidity, pressure, magnetic field, light sensors. Modules with LCDs, LED matrix, Relays, Bluetooth, Zigbee, WiFi, GSM, GPS, RFID, RTC, EKG, sensors and etc.

pUEXT signals:



SOFTWARE:

Olimex ESP32-S3-DevKit-LiPo has support in the ESP32 package for Arduino IDE. From the board selector there is entry “OLIMEX ESP32-S3-DevKit-Lipo”.

The module is also supported in ESP-IDF.

Additionally we’ve seen some customer project for booting Linux off the board:

- ESP32-S3-DevKit-Lipo Linux image
- ESP32-S3-DevKit-LiPo Linux build instructions from jcmvbkbc and here
- ESP32-S3-DevKit-Lipo Linux build instructions form ESP32DE

Revision History

Revision 1.0 July 2023

Revision 2.0 August 2024