OrbitLink Consulting

UNLOCKING THE POTENTIAL OF SPACECRAFT CONTROL AND COMMUNICATIONS

PRODUCT BRIEF / CHIP-DOWN ESP32-C6 DEVELOPMENT BOARD

A breadboard-friendly ESP32-C6 with a 50 Ω RF path.

A development board built on the **bare ESP32-C6 chip** instead of a module, with battery charging, microSD and Qwiic on board. A 50 Ω RF path feeds a PCB antenna or u.FL, so it also serves as a reference for chip-down RF designs.

Wi-Fi 6
2.4 GHz, on the ESP32-C6

BLE 5 + 802.15.4
Thread and Zigbee capable

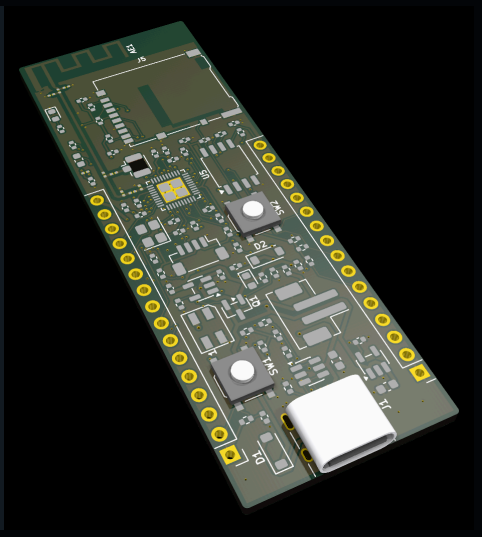
25.4 × 72 mm
Four-layer board, parts on top

23 GPIO
All user pins on two 0.1 in headers

8 MB
W25Q64JV SPI flash

LiPo + USB-C
Charger with automatic switchover

DESIGN RENDERING



01
RF

- **TI AN043** PCB antenna or **u.FL**, chosen by a 0201 link
- 50 Ω microstrip RF feed

02
Power

- **MCP73831** single-cell LiPo charger, JST-PH
- Battery voltage readable on **GPIO0**
- 3.3 V, 600 mA **AP2112K** LDO

03
USB

- **USB-C** for power and programming
- Built-in USB Serial/JTAG for flashing and console
- No separate USB-UART bridge

04
Peripherals

- **Qwiic / STEMMA QT** on the LP I²C pins
- **microSD** slot in SPI mode with card detect
- SK6812MINI RGB LED; BOOT and RESET buttons

05
Breadboard fit

- Two **1 × 16** 0.1 in headers, 0.9 in apart
- Brings out 3V3, VSYS, VBAT, EN and GND
- Antenna and USB-C at opposite ends

06
Build

- Four-layer board, all parts on top
- Runs from USB-C or a single-cell LiPo

NOTICES

Figures are design values or estimates, not measurements. Available for US Government use and as evaluation kits for product developers, software developers and system integrators.

Building on the ESP32-C6?

Request a quote for boards or a custom chip-down design.

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