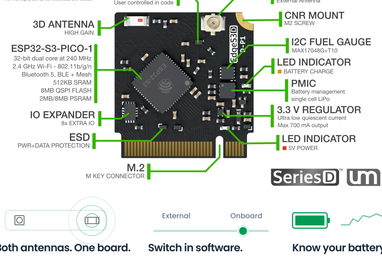
EdgeS3D™

Meet EdgeS3[D]

EdgeS3[D] is a complete ESP32-S3 development board on a removable M.2 B-Key module. Plug it into a carrier PCB, pull it out and reuse it in your next project. It has an onboard antenna and a u.FL connector, switchable from your code, an I²C fuel gauge for battery monitoring, and eight extra IO from its onboard expander.





Both antennas. One board.

Onboard antenna and external antenna connector. No separate versions to choose between.



Switch in software.

Change antennas from your code, even while your code is running.

Know your battery.

An I²C fuel gauge for battery monitoring, plus onboard LiPo charging.

NOTE The onboard antenna is selected by default, so you never need to worry about the RF switch being in a bad state, or the ESP32-S3 getting damaged if you forget to plug in an external antenna.

Features & Specifications

PROCESSOR	FLASH	PSRAM	GPIO
ESP32-S3-PICO	**8 MB**	**2 MB**	**29**
32-bit · Dual-core LX7 · up to 240 MHz	QSPI	QSPI	

WIRELESS

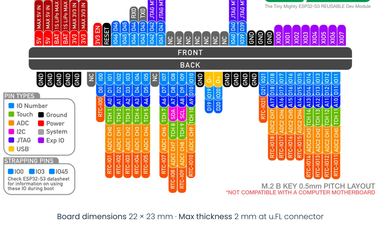
Wi-Fi 4 2.4 GHz · 802.11b/g/n **BLE 5 + Mesh**

Coprocessor	RISC-V ultra-low-power coprocessor
Expansion	8 additional GPIO through the onboard IO expander
USB	Native USB + USB Serial/JTAG through the carrier
Power	700 mA · 3.3 V regulator
Sleep	Ultra-low deep sleep current
Battery	LiPo charging · I²C battery fuel gauge
Antenna	3D high-gain antenna and u.FL connector · software switching
Connection	M.2 B-Key edge connector
Size	22 × 23 mm
Thickness	2 mm at u.FL connector

In the box

Included	Colour pinout card Antistatic bag
Optional	M.2 B-Key connector external 2.4GHz antenna

Pinout



Board dimensions 22 × 23 mm · Max thickness 2 mm at u.FL connector

Note: EdgeS3[D] is only available in a 2MB QSPI PSRAM version right now. There *may* be an 8MB OPI PSRAM version later, depending on silicon availability.

Which B-Key M.2 Connector will I get?



The M.2 connector I use on the EdgeS3[D] Carrier PCB, and that I ship here is the Amphenol MDT2758030001, which is a side entry B-Key connector that is 2.75mm in height, and has the EdgeS3[D] sitting 1mm off the PCB.

Available at Mouser and other online distributors.

Note: EdgeS3[D] is not compatible with a M.2 slot in your computer. Please don't attempt to insert it "just to see".

Compare the modules.

Find your next module.	 EdgeS3[D]	 OMGS3	 NanoS3	 TinyPICO Nano
MCU	ESP32-S3-PICO	ESP32-S3-PICO	ESP32-S3FN8	ESP32-PICO-D4
Processor	Dual-core LX7 · up to 240 MHz	Dual-core LX7 · up to 240 MHz	Dual-core LX7 · up to 240 MHz	Dual-core LX6 · up to 240 MHz
Flash	8 MB	8 MB	8 MB	4 MB
PSRAM	2 MB	2 MB	8 MB	4 MB
Available IO	29 + 8	17	27	27
2.4 GHz Wi-Fi	Wi-Fi 4	Wi-Fi 4	Wi-Fi 4	Wi-Fi 4
Bluetooth	BLE 5 + Mesh	BLE 5 + Mesh	BLE 5 + Mesh	Classic BT + BLE 4.2
Zigbee / Thread	—	—	—	—
Format / connection	M.2 B-Key module	Surface-mount module	Surface-mount module	Surface-mount module
USB	Via carrier · USB OTG / JTAG	Via carrier · USB OTG / Serial / JTAG	Via carrier · USB OTG / Serial / JTAG	Via carrier · USB-to-serial
3.3 V regulators	1 × 700 mA	1 × 700 mA	1 × 700 mA	1 × 700 mA
STEMMA QT	—	—	—	—
RGB LED	—	NeoPixel	NeoPixel	—
Antenna	Onboard + u.FL · software switch	Onboard	Onboard	Onboard
Battery	I²C fuel gauge + LiPo charging	I²C fuel gauge + LiPo charging	LiPo charging	LiPo charging
Size	22 × 23 mm	25 × 10 mm	28 × 12.7 mm	27 × 13 mm

Code any way you like!

Ships with CircuitPython pre-installed!

The EdgeS3[D] ships with the latest version of CircuitPython that supports the ESP32-S3. It also ships with the UF2 bootloader, so you can easily update your EdgeS3[D] with the latest CircuitPython firmware, whenever you desire.

Of course, you can choose from a wonderful array of other languages and platforms. Explore them all below....

CircuitPython	MicroPython	Arduino	ESP-IDF	PlatformIO
.NET nanoFramework	Rust	PHP	TinyGo	

Downloads

Download EdgeS3[D] resources, including the schematic, 3D model, KiCAD footprint and more.

Schematic

Download ↓

GitHub

The Unexpected Maker Series[D] GitHub repository includes:

- 3D STEP files for EdgeS3[D] and its carrier
- High-resolution pinout reference card for EdgeS3[D]
- Helper libraries for Arduino and CircuitPython shipping files

Open GitHub repository →

ESP32-S3 datasheet

For detailed information about the ESP32-S3, including full IO capabilities and other functionality, refer to the datasheet from Espressif.

View ESP32-S3 datasheet →

Certification

EdgeS3[D] ships uncertified. If you use an EdgeS3[D] on a project that requires certification, you'll be required to also certify the WiFi and Bluetooth radios as part of your final product.