

Popular Board Comparison Table

Board Comparison Table

The table below covers the most widely deployed boards for LoRa mesh networking as of 2025 - 2026, across both Meshtastic and MeshCore platforms. All TX power figures are nominal maximum; actual radiated power depends on antenna gain and any regulatory caps applied in firmware.

Board	MCU	Radio	TX Power	RX Current	Sleep	Battery	GPS	Screen	Platform	Notes
T-Beam v1.1	ESP32	SX1262	22 dBm	~40 mA	~10 mA	18650 holder	NEO-6M	Optional OLED	Meshtastic / MeshCore	Classic all-in-one. AXP192 PMIC.
T-Beam Supreme	ESP32-S3	SX1268	22 dBm	~45 mA	~8 mA	18650 holder	NEO-M10S	Optional OLED	Meshtastic	Newer variant; better GPS.
Heltec LoRa 32 V3	ESP32-S3	SX1262	22 dBm	~40 mA	~800 μ A	JST LiPo	No	0.96" OLED	Meshtastic / MeshCore	Cheap, OLED display useful for debug. USB-C.
RAK4631	nRF52840	SX1262	22 dBm	~8 mA	~2 μ A	JST LiPo	Optional RAK1910/1920	No (separate module)	Meshtastic / MeshCore	Modular WisBlock system. Best power efficiency for ESP32-free builds.

Board	MCU	Radio	TX Power	RX Current	Sleep	Battery	GPS	Screen	Platform	Notes
LilyGO T-Echo	nRF52840	SX1262	22 dBm	~8 mA	~12 μ A	JST LiPo	L76K GNSS	1.54" ePaper	Meshtastic	Excellent battery life. ePaper shows info with no power draw. Popular for hiking.
Heltec T114	nRF52840	SX1262	28 dBm	~8 mA	~12 μ A	JST LiPo	Optional	1.14" TFT	MeshCore primary	28 dBm (+6 dB vs standard boards). nRF52840 efficiency. Preferred MeshCore repeater platform.
Seed XIAO S3 + LoRa	ESP32-S3	SX1262	22 dBm	~40 mA	~14 μ A	JST LiPo	No	No	Meshtastic / MeshCore	Tiny form factor. Good for compact builds.

Board	MCU	Radio	TX Power	RX Current	Sleep	Battery	GPS	Screen	Platform	Notes
ZebraH at 1W	ESP32	SX1262 +PA	30 dBm	~45 mA active	~10 mA	External	No	No	Meshtastic	1W transmitter. For mountain-top infrastructure where extra power matters. Requires heat management.
Ikoka 2W Module	-	SX1262 +PA	33 dBm	~80 mA TX	-	External	No	No	Meshtastic / MeshCore	External power amplifier add-on. 2W output. For long-distance point-to-point links.

Per-Platform Notes

ESP32 Boards (T-Beam, Heltec LoRa 32)

Easy to source, wide support, larger community. Higher power consumption limits battery life. Built-in USB serial is convenient for development. Not ideal for solar-only deployments where current draw matters.

nRF52840 Boards (RAK4631, T-Echo, T114)

Dramatically lower power consumption. RAK4631 is modular - add sensors, GPS, cellular as needed. T-Echo has excellent all-in-one form factor with ePaper. Preferred for long-term battery or solar deployment.

High-Power Options (ZebraHat, Ikoka)

Legal in the US under FCC Part 15.247 within EIRP limits. Higher TX power is not always better - increases interference with nearby nodes and requires more power. Use for specific long-range requirements after confirming EIRP compliance.

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