



## Olimex ESP32 products and chips inside:

[ESP32-EVB](#), [ESP32-GATEWAY](#), [ESP32-POE](#), [ESP32-POE-ISO](#), [ESP32-DevKit-Lipo](#), [ESP32-PRO](#), [ESP32-ADF](#) use **ESP32** chips and modules.

[ESP32-S2-DevKit-Lipo](#) and [ESP32-S2-DevKit-Lipo-USB](#) use **ESP32-S2** chips and modules.

[ESP32-C3-DevKit-Lipo](#) uses **ESP32-C3** chip and module.

[ESP32-C6-EVB](#) uses **ESP32-C6** chip and module.

[ESP32-S3-DevKit-Lipo](#) uses **ESP32-S3** chip and module.

## Comparison table of different ESP32 chips used in Olimex products

	ESP32	ESP32-S2	ESP32-C3	ESP32-C6
<b>Announcement Date</b>	2016, September	2019, September	2020, November	2021, April
<b>Main processor</b>	Tensilica Xtensa 32-bit LX6 (up to 240MHz) (optionally dual core)	Tensilica Xtensa 32-bit LX7 (up to 240MHz)	RISC-V 32-bit (up to 160MHz)	RISC-V 32-bit (up to 160MHz)
<b>SRAM</b>	520KB	320KB	400KB	512KB
<b>ROM</b>	448KB	128KB	384KB	320KB
<b>JTAG</b>	Yes	Yes	Yes	Yes
<b>L1 cache</b>	64KB	8/16KB (configurable)	16KB	32KB
<b>WiFi</b>	Wi-Fi 4	Wi-Fi 4	Wi-Fi 4	Wi-Fi 6
<b>Bluetooth</b>	BLE 4.2 (upgrade to 5.0, with limitations)	BLE 5.0	BLE 5.0	BLE 5.3
<b>Ethernet</b>	Yes	No	No	No
<b>Camera</b>	DVP 8/16-bit	DVP 8/16-bit	No	No
<b>RTC memory</b>	16KB	16KB	8KB	16KB
<b>PMU</b>	Yes	Yes	Yes	Yes
<b>ULP coprocessor</b>	Yes	ULP-RISC-V	No	No
<b>Cryptographic Accelerator</b>	SHA, RSA, AES, RNG	SHA, RSA, AES, RNG, HMAC, Digital Signature	SHA, RSA, AES, RNG, HMAC, Digital Signature	SHA, RSA, AES, RNG, HMAC, Digital Signature

	ESP32	ESP32-S2	ESP32-C3	ESP32-C6
<b>Secure boot</b>	Yes	Yes	Yes	Yes
<b>Flash encryption</b>	Yes	XTS-AES-128/256	XTS-AES-128	XTS-AES-128
<b>SPI</b>	4	4	3	1
<b>I2C</b>	2	2	1	2
<b>I2S</b>	2	1	1	1
<b>UART</b>	3	2	2	3
<b>SDIO Host</b>	1	2	0	0
<b>SDIO Slave</b>	1	0	0	0
<b>GPIO</b>	34	43	22	22
<b>LED PWM</b>	16	8	6	6
<b>MCPWM</b>	6	0	0	0
<b>Pulse counter</b>	8	4	0	No
<b>GDMA**</b>	0	0	6-channel	6-channel
<b>USB</b>	No	USB OTG 1.1	Serial/JTAG converter	Serial/JTAG converter
<b>TWAI***</b>	1	1	1	2
<b>ADC</b>	2x12-bit ADC, up to 18 channels	2x13-bit ADC, up to 20 channels	2x12-bit ADC, up to 6 channels	1x12-bit ADC, 7 channels
<b>DAC</b>	2x 8-bit	2x 8-bit	No	No
<b>RMT</b>	8xtransmission/ reception	4xtransmission/ reception	2xtransmission + 2x reception	2xtransmission + 2xreception
<b>Timer</b>	4x64-bit	4x64-bit	2x54-bit + 1x52-bit	2x54-bit + 1x52-bit
<b>Temperature Sensor</b>	Yes	Yes	Yes	Yes
<b>Hall Sensor</b>	Yes	No	No	No
<b>Touch Sensor</b>	10	14	No	No

**Important! Table was composed using espressif documentation. The information from this table should be used as a general-guide line which chip has the features you need. The information applies only for the Espressif chip! Most Olimex boards use ESP32 modules, not just chips. Furthermore, different board variants might use different chip variants!**

\*\* All the MCUs have some sort of DMA. However, if this field is not checked, it means that the user hasn't the direct control over DMA. With *General DMA* term, Espressif intends a specific DMA peripheral in full control of user. He will be responsible to manage such peripheral.

\*\*\* In some old datasheet and documentation, it was referred as CAN bus.