Zephyr™ Project
Developer Summit
June 8-10, 2021 • @ZephyrIoT

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ESP32 Family Support Status

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"I love that we as a company can work on some cutting-edge engineering problems; make meaningful contributions through our products, operating systems, and open-source projects"…

~Teo Swee-Ann, CEO

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"Espressif has made Wi-Fi connectivity easier and more accessible by participating in the open-source movement. This brought many people to the community surrounding Espressif's products and, eventually, the same attracted me to Espressif itself."

~Ivan, VP of Software Platforms

Third Party Frameworks / Platforms

- About ESP-IDF
- The Third Party Frameworks / Platforms team: April/2020
- Our Projects:
  - Nuttx
  - **Zephyr**
  - **MCUBoot**
- Location:
  - Core team: Campinas,
  - Collaboration from Brno, Pune and Shanghai
  - (With people from several other places)

Project Goals

- Current Devices:
- **ESP32**
- ESP32S2
- ESP32C3

Project Starting Goals

- CPU support.
- Wifi / Bluetooth.
- Basic Peripherals
- Product Capabilities.
- Other Peripherals

Current Support Status: ESP32

Peripheral	Status	Peripheral	Status
CPU	Supported	ADC	NOT SUPPORTED
IRQ	Supported*	PWM	Supported*
TIMERS	Supported	TRNG	NOT SUPPORTED
UART	Supported	DMA	NOT SUPPORTED
I2C	Supported*	Watchdog	Supported
SPI (Flash)	Supported	Low Power	NOT SUPPORTED
SPI (RAM)	Supported	DFS	NOT SUPPORTED***
SPI (general)	Supported	RTC	Partially Supported
Cryptography	NOT SUPPORTED	USB	NOT SUPPORTED
Wifi	Supported**	ETHMAC	NOT SUPPORTED
Bluetooth	Supported	SDIO	NOT SUPPORTED
GPIO	Supported	I2S	NOT SUPPORTED
DAC	NOT SUPPORTED	ULP	NOT SUPPORTED****
EFUSE	NOT SUPPORTED	SMP	Partially Supported

Current Goals

- Support All SOCs
- Wifi / Bluetooth on all available devices.
- MCUBoot on ESP32, ESP32S2 and ESP32C3
- Update the System!
- Basic Security.

ESP32 Development

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Activity	Status	Delivery Forecast
MCUBoot	Started	Q3/21
OTA + Update	Scheduled	Q4/21
IRQ Refactoring	Started	Q3/21
I2C Refactoring	Started	Q3/21
Hardware Cryptography	Scheduled	Q4/21

ESP32S2 Development

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Activity	Status	Delivery Forecast
CPU Support	Started	Early Q3/21
UART	Started	Q3/21
SPI (all)	Scheduled	Q3/21
I2C	Scheduled	Q3/21
IRQ	Scheduled	Q4/21
Wifi	Scheduled	Q4/21
Bluetooth	Scheduled	Q4/21
GPIO	Started	Early Q3/21

ESP32C3 Development

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Activity	Status	Delivery Forecast
CPU Support	Started	Early Q3/21
UART	Started	Q3/21
SPI (all)	Scheduled	Q3/21
I2C	Scheduled	Q3/21
IRQ	Scheduled	Q4/21
Wifi	Scheduled	Q4/21
Bluetooth	Scheduled	Q4/21
GPIO	Started	Early Q3/21

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What’s next?

Future Goals

- Before you ask, of course, we will support future chips.
  - Our support starts on ESP-IDF.
- Scheduled for **ZEPHYR** Support to start on late Q4/21 or early Q1/2022:
  - ESP32-S3
  - ESP32-C6

Next Goals: forecast

- Keep support on future ESP32** devices.
- Improve ESP32 reliability on Zephyr

  (and then C3. And then S2. And then C6. And then S3… not necessarily in this order…)
- Increase peripheral support.
- Collaborate with the Community.

Under Study

- Dynamic Frequency Scaling: ESP32 family supports dynamic frequency scaling. This saves a lot of energy. Can we port it from ESP-IDF/FreeRTOS to Zephyr? Can we make it better while doing it?
- Zephyr on-chip WiFi native stack integration
- MCU Manager: it could be interesting.
- UpdateHUB: great service. After MCUBoot, it should be fairly easy for non-Espressifers to support it.
- ESP-Rainmaker: make easy for current rainmaker users to adopt Zephyr.

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We have been busy…
And it seems we will keep busy.


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