Introduction to RTOS Part 2

Notes week 2

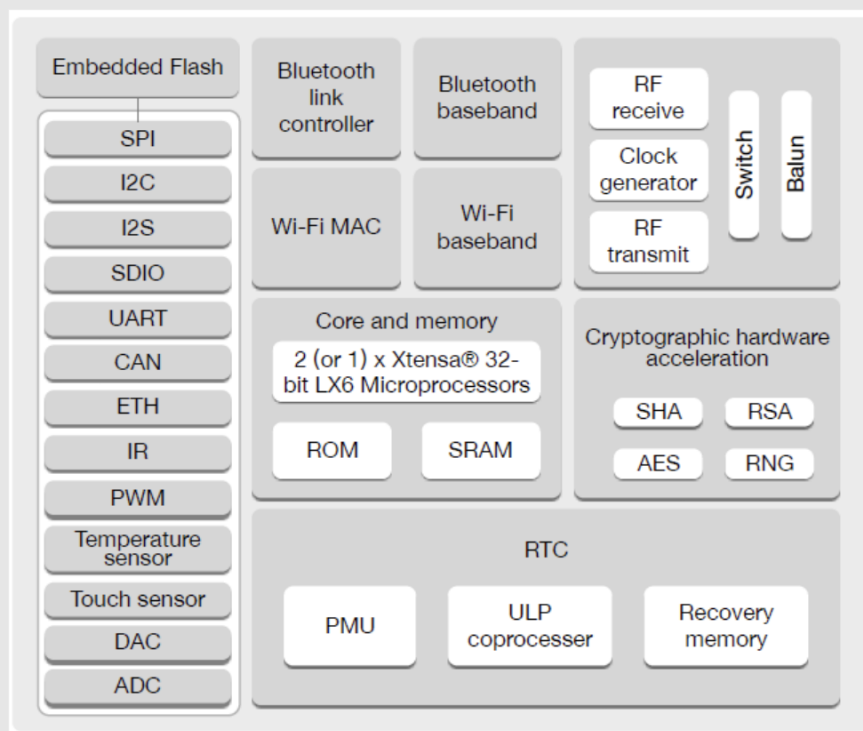Download Free RTOS source code to include in non-Arduino project

⌐ freertos.org

ESP 32

∿ runs modified version of Free RTOS inside its ESP-IDF Framework

∿ Symmetric Multiprocessing (SMP)

Embedded Flash	Bluetooth link controller	Bluetooth baseband	RF receive		
SPI			Clock generator	Switch	Balun
I2C					
I2S	Wi-Fi MAC	Wi-Fi baseband	RF transmit		
SDIO					
UART	**Core and memory**		**Cryptographic hardware acceleration**		
CAN	2 (or 1) x Xtensa® 32-bit LX6 Microprocessors				
ETH			SHA		RSA
IR	ROM	SRAM			
PWM			AES		RNG
Temperature sensor	**RTC**				
Touch sensor					
DAC	PMU	ULP coprocesser		Recovery memory	
ADC					

Function Block Diagram

∿ supported in Arduino

∿ Getting started :
- Install Arduino IDE
- File → Preferences → Additional Board Manager URLs
- add https://dl.espressif.com/dl/package_esp32_index.json
- Tools → Board → Board manager → ESP32 - Espressif systems package (most recent version) - install

Code:

- Define a constant that constricts ESP32 to using only 1 core when we create tasks

- Define LED pins

- task
  - function returns nothing
  - accept 1 void pointer as parameter
  - while loop

- setup
  - output – LED pin
  - call TaskCreate function
  - smallest stack size –768 bytes
  - define CPU core

Tools → Board → ESP32 Arduino Board – upload