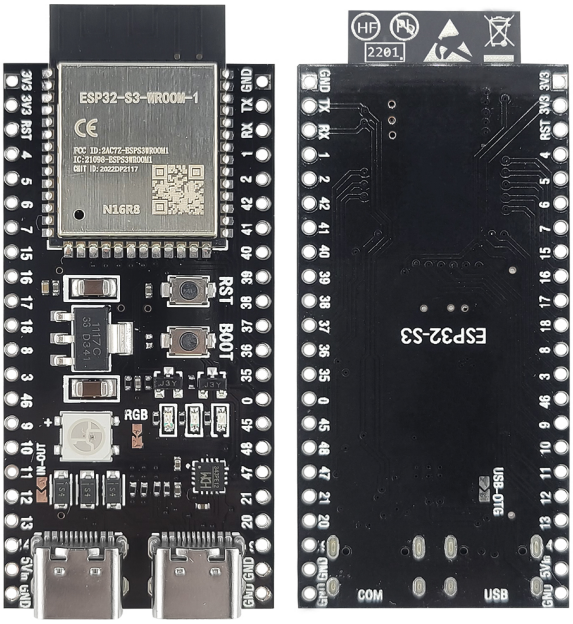
ESP32 S3 Development Board

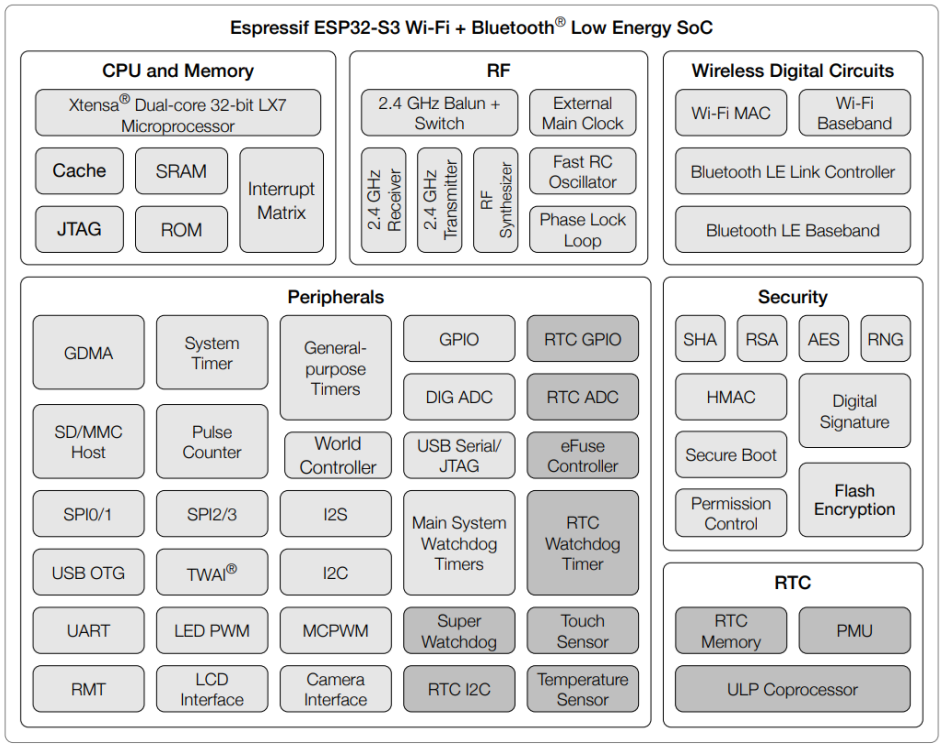
N8R2/N168R CH343P Serial with USB Micro Type-C

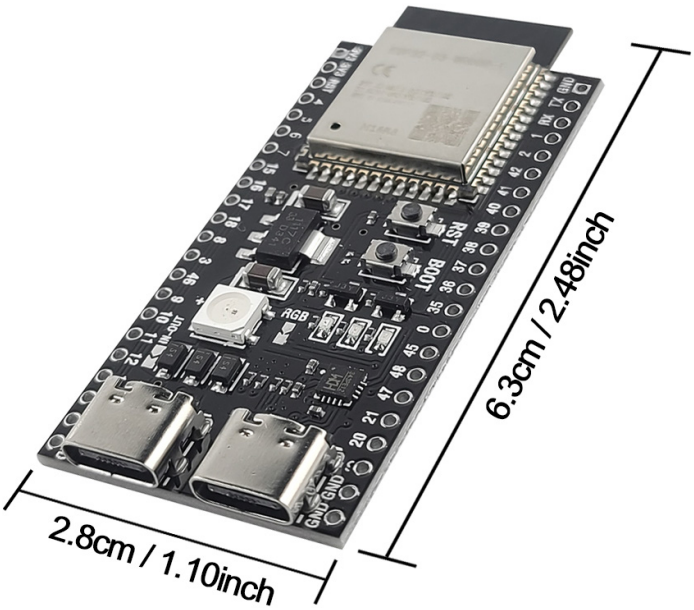


Product Overview

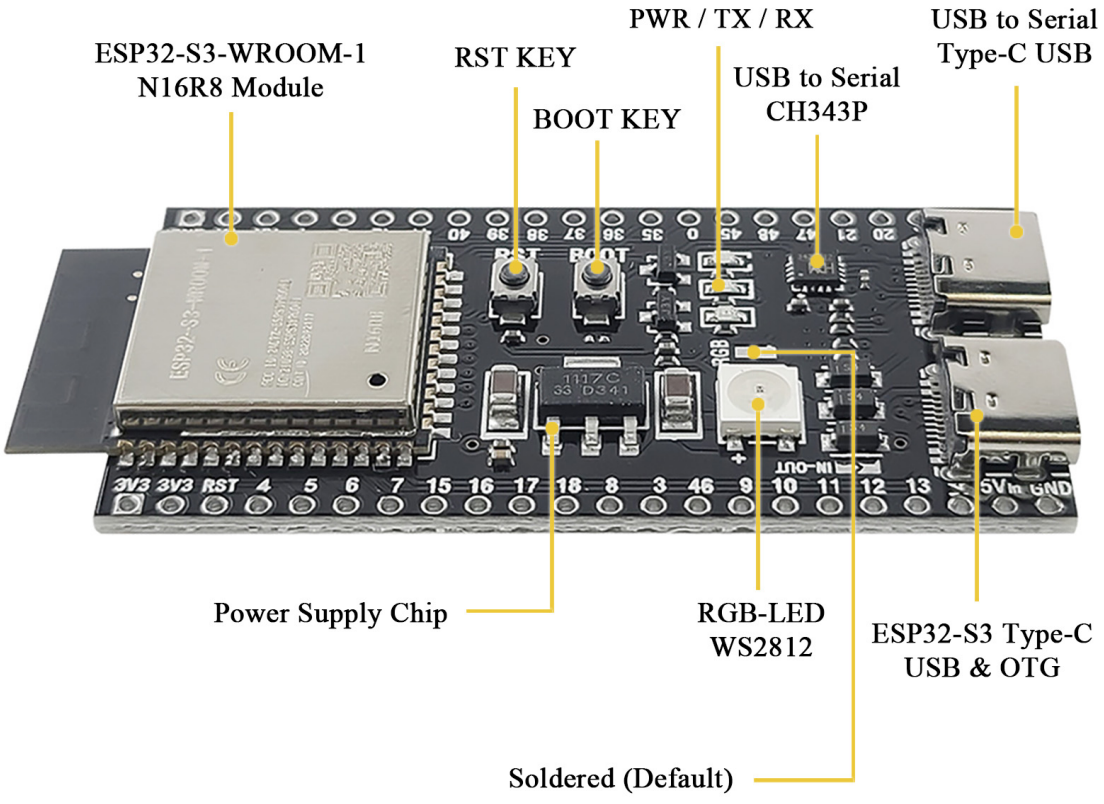
ESP32-S3 is a low-power MCU-based system on a chip (SoC) with integrated 2.4 GHz Wi-Fi and Bluetooth® Low Energy (Bluetooth LE). It consists of high-performance dual-core microprocessor (Xtensa® 32-bit LX7), a low power coprocessor, a Wi-Fi baseband, a Bluetooth LE baseband, RF module, and numerous peripherals.

The functional block diagram of the SoC is shown below.

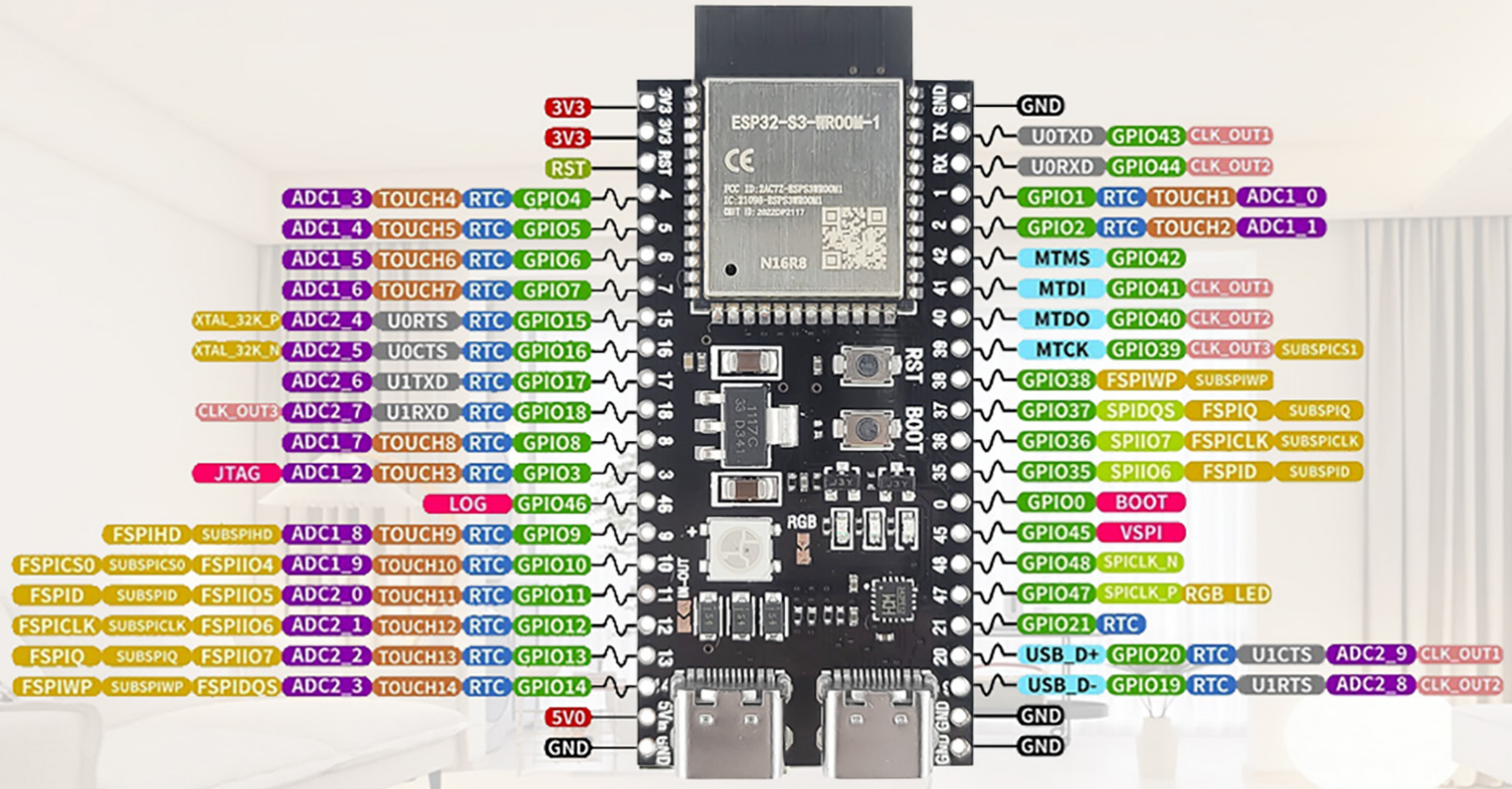




Hardware Introduction



Pin Definitions

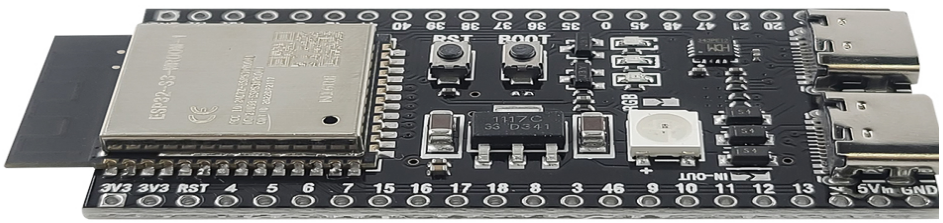


- PWM Capable Pin
- GPIOX — GPIO Input and Output
- JTAG/USB — JTAG for Debugging and USB
- ADCX_CH — Analog-to-Digital Converter
- TOUCHX — Touch Sensor Input Channel
- OTHER — Other Related Functions
- SERIAL — Serial for Debug/Programming
- STRAP — Strapping Pin Functions
- RTC — RTC Power Domain(VDD3P3_RTC)
- GND — Ground
- PWD — Power Rails(3V3 and 5V)
- MISC — Miscellaneous/SPI functions
- CLK_OUTx — Clock Output

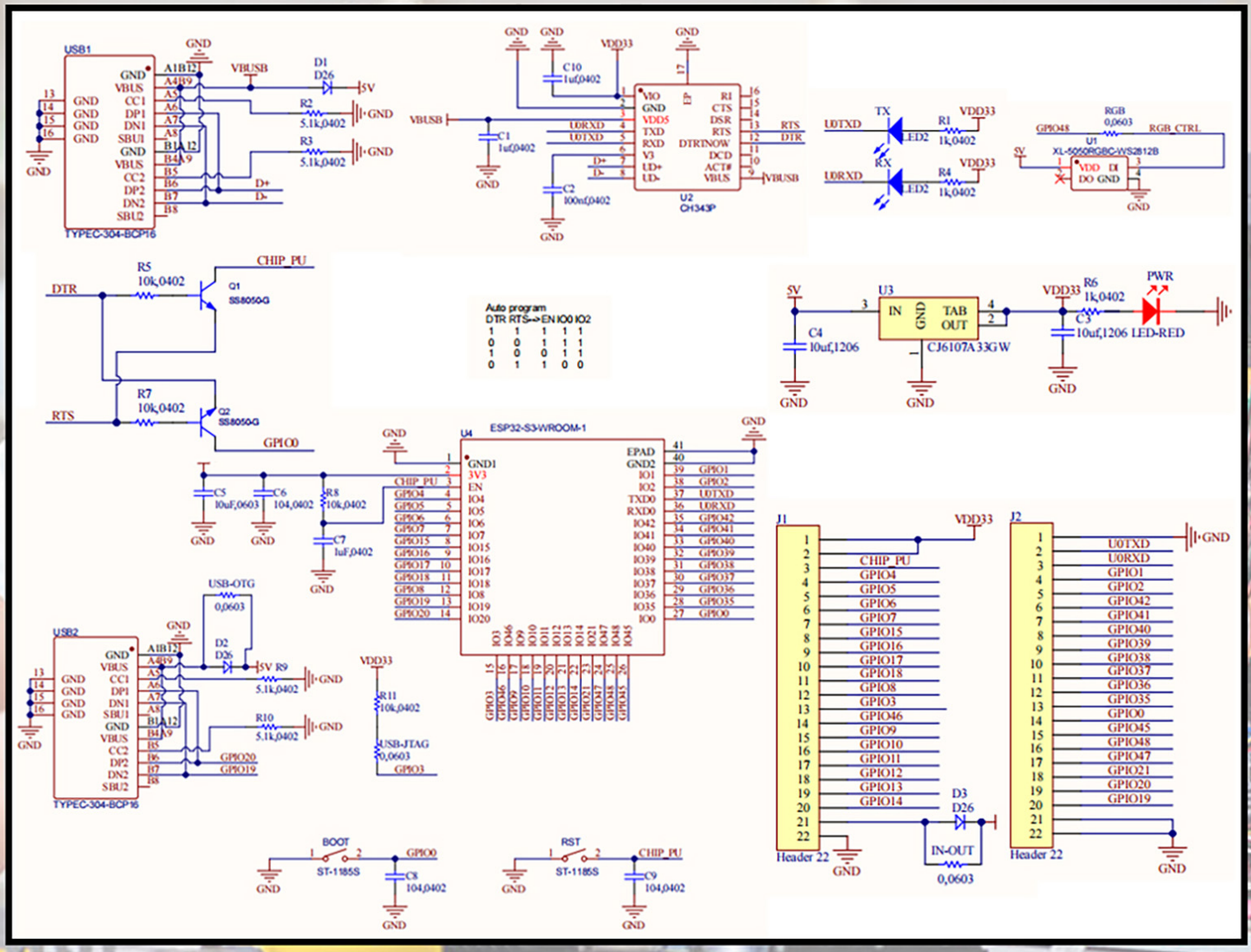
Applications

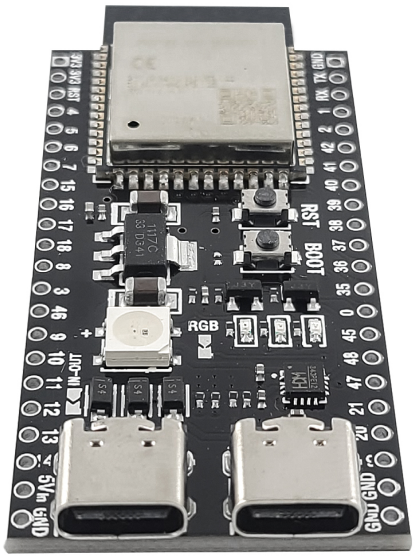
With low power consumption, ESP32-S3 is an ideal choice for IoT devices in the following areas:

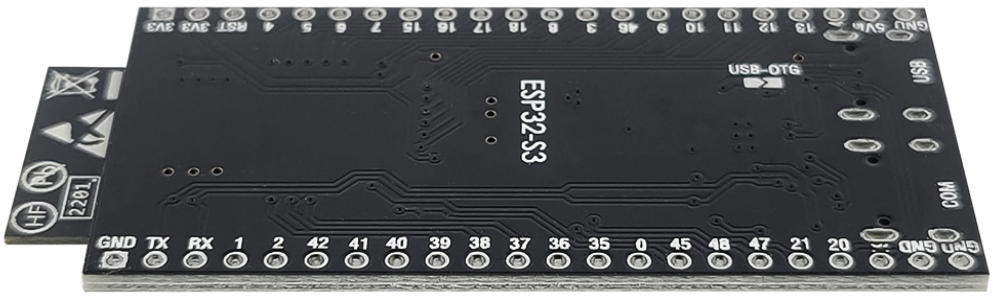
- Smart Home
- Industrial Automation
- Health Care
- Consumer Electronics
- Smart Agriculture
- POS machines
- Service robot
- Audio Devices
- Generic Low-power IoT Sensor Hubs
- Generic Low-power IoT Data Loggers
- Cameras for Video Streaming□USB Devices
- Speech Recognition
- Image Recognition
- Wi-Fi + Bluetooth Networking Card
- Touch and Proximity Sensing



Schematic

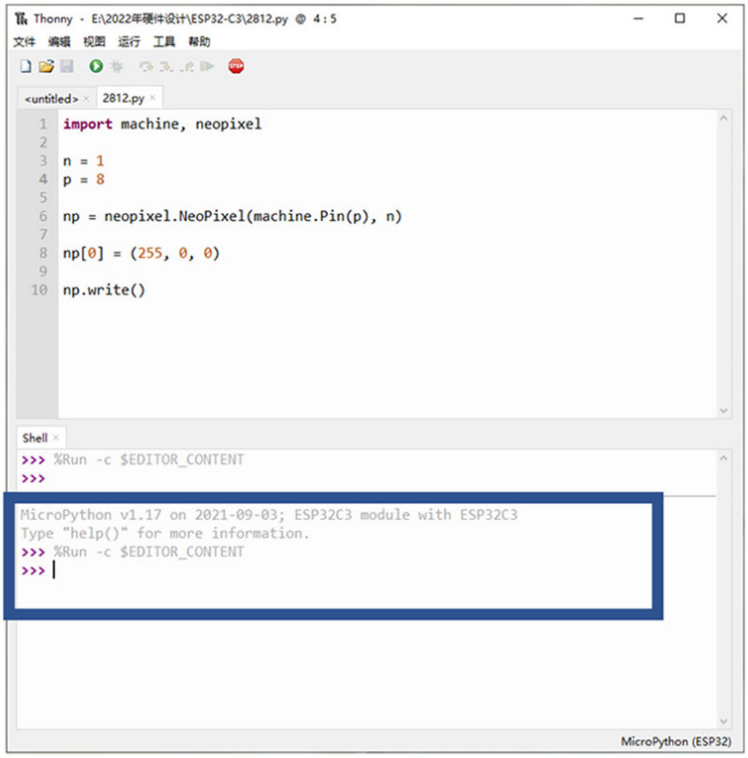

USB1
TYPEC-304-BCP16
D1
D26
5V
R2
5.1k,0402
R3
5.1k,0402
VBUSB
C10
1uf,0402
C1
1uf,0402
C2
100nf,0402
U2
CH343P
U0TXD
U0RXD
RTS
DTR
TX
RX
LED2
R1
1k,0402
R4
1k,0402
VDD33
RGB
0,0603
GPIO48
RGB_CTRL
U1
XL-5050RGBC-WS2812B
VDD DI
DO GND
R5
10k,0402
Q1
SS8050-G
R7
10k,0402
Q2
SS8050-G
CHIP_PU
GPIO0
DTR
RTS
Auto program
DTR RTS→EN IO0 IO2
1 1 1 1 1
0 0 1 1 1
1 0 0 1 1
0 1 1 0 0
U3
CJ6107A33GW
C4
10uf,1206
C3
10uf,1206
R6
1k,0402
PWR
LED-RED
U4
ESP32-S3-WROOM-1
C5
10uF,0603
C6
104,0402
R8
10k,0402
C7
1uF,0402
USB2
TYPEC-304-BCP16
USB-OTG
0,0603
D2
D26
R9
5.1k,0402
R10
5.1k,0402
R11
10k,0402
USB-JTAG
0,0603
BOOT
ST-1185S
C8
104,0402
RST
ST-1185S
C9
104,0402
J1
Header 22
D3
D26
IN-OUT
0,0603
J2
Header 22


RST
BOOT
RGB

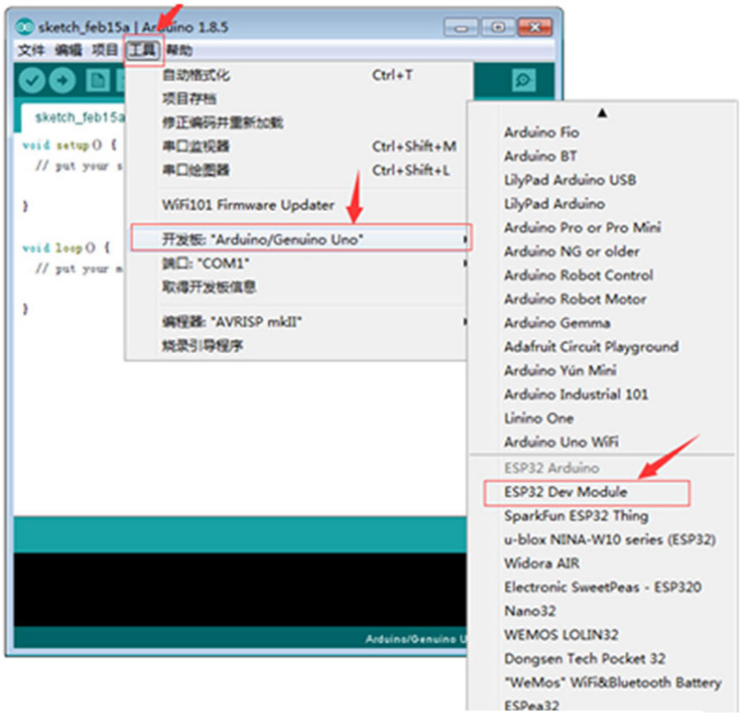


ESP32-S3 IDE software using python

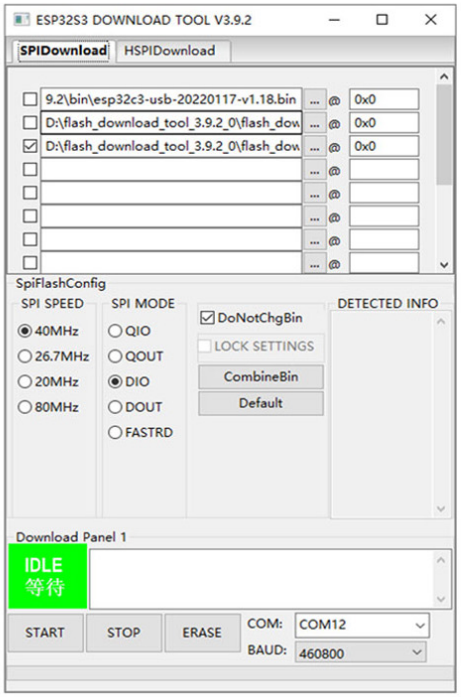
ESP32-S3 can be programmed and controlled using Micropython for the Python language IDE is recommended to use the MIT-licensed Thonny software developed at the University of Estonia.



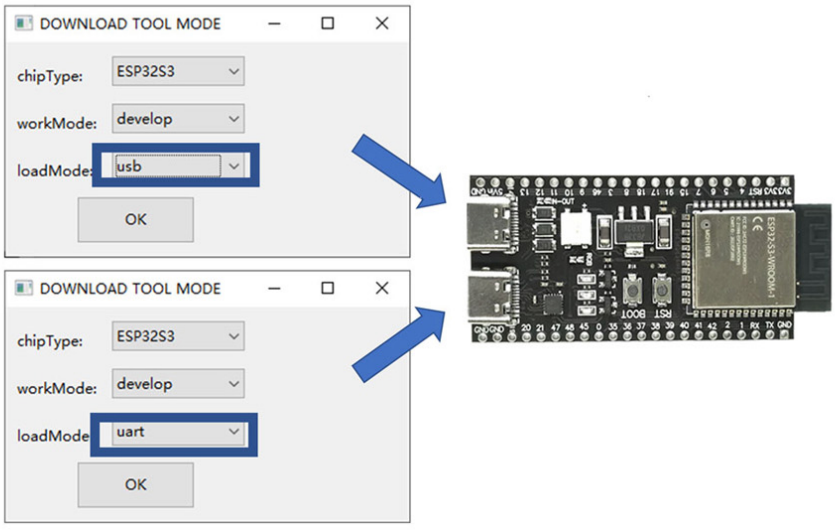
ESP32-S3 using Arduino's IDE software



ESP32-S3 Download Burn File Software



About ESP32-S3 how to Download



Instruction Manual and Tool Code:

https://drive.google.com/drive/folders/1pUhX27FFfIQ1B9MJt1R6m3KUoKkXlrxL?usp=sharing