ESP32-DevKitC

Getting Started Guide

Version 1.0

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About This Guide

This user guide introduces the basic features and operations of the ESP32-DevKitC.

The document is structured as follows:

Chapter	Title	Content
Chapter 1	Overview	Introduction to the ESP32-DevKitC.
Chapter 2	Download Process	Introduction to the boot modes and download operations.

Release Notes

Date	Version	Release notes
2016.09	V1.0	Initial release.

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1. Overview

ESP32-DevKitC is a small sized ESP32-based development board developed by Espressif. Most of the I/O pins are led out to the pin headers on both sides for easy interfacing. Developers can connect these pins to peripherals as needed. Standard headers also make development easy and convenient when using a breadboard.

Figure 1-1 shows the layout of the board.

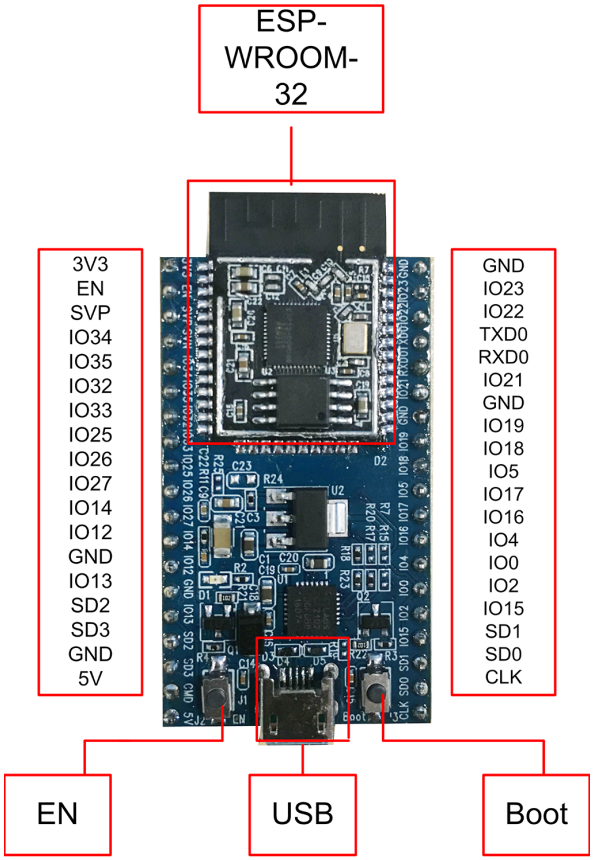

Figure 1-1. ESP32-DevKitC Layout

2. Download Process

You will need the hardware listed below:

- 1 × ESP32-DevKitC
- 1 × PC (with Windows OS as an example in this document)
- 1 × USB cable

2.1. Create Serial Communication

Connect the ESP32-DevKitC to the PC using the USB cable. Check the list of identified external COM ports in the Windows Device Manager and confirm the COM port number of the ESP32-DevKitC.

2.2. Set Download Mode and SPI Boot Mode

As shown in Figure 1-1, the ESP32-DevKitC features two buttons: one marked as “EN” located on the bottom left corner is the reset button and the other “Boot” button on the bottom right corner is the download button.

- Download mode:

While the “Boot” button is pressed, press the “EN” button to initiate download mode. The system should then enter the download mode and output the following on the terminal:

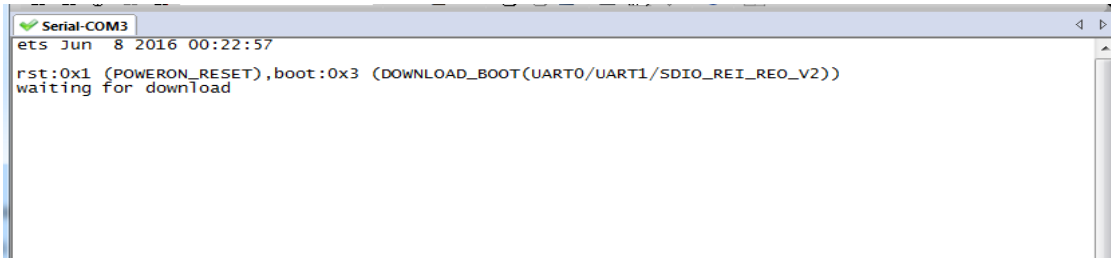

Figure 2-1. Download Mode Output

- SPI boot mode:

Simply press the “EN” button and the ESP32-DevKitC will enter the SPI boot mode. If download operation was completed successfully, the system will output some information on the terminal as shown in Figure 2-3.

2.3. Download Methods

Use ESP32 DOWNLOAD TOOL

Please download *ESP32 DOWNLOAD TOOL V3.4.1* from Espressif website.

Open the ESP32 DOWNLOAD TOOL. Select ***bootloader.bin***, ***paritions_singeapp.bin***, and ***testje.bin*** to be downloaded to addresses 0x1000, 0x4000, and 0x10000 respectively. Press "***START***" and wait for the prompt that indicates the download result.

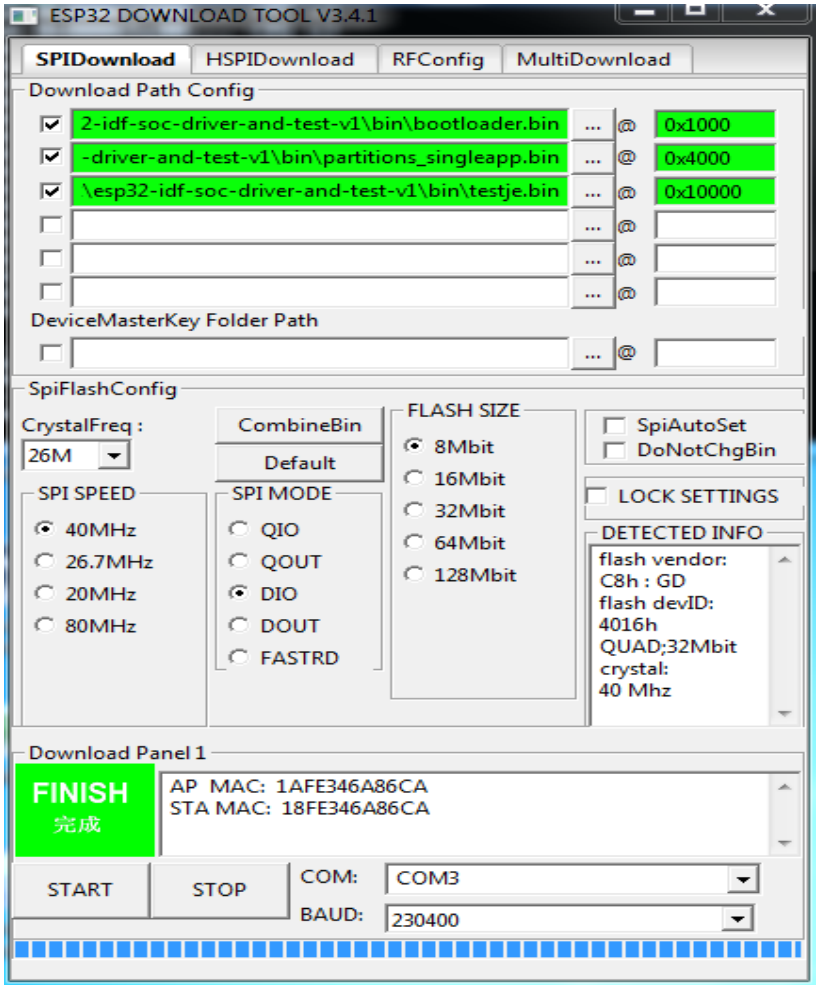

Figure 2-2. ESP32 DOWNLOAD TOOL Interface

Use Python Scripts

Get Python scripts from ***esp-idf/components/esptool_py/esptool/esptool.py*** in the ESP-IDF.

The download process will require the system to have a command terminal. For the Windows System, open the "Windows PowerShell" or "Windows Command Terminal".

On the terminal, set the current directory to where the downloaded Python scripts are saved, and then type in the following commands:

```
python esptool.py -b 115200 -p COM3 write_flash -ff 40m -fm dio   -ih
0x0 -il 0x00  0x1000 bootloader.bin 0x4000 partitions_singleapp.bin
0x10000 testje.bin
```

> 📖 ***Notes:***
>
> - *The parameters highlighted in blue represent the baud rate, serial port, flash frequency, and the flash mode, respectively. You can change these parameters as needed.*
> - *Currently only* **DIO** *mode is supported. Espressif will upgrade the download tool and scripts to support both* **QIO** *and* **DIO** *modes.*
> - *Type in* `python esptool.py -h` *for help information,* `python esptool.py write_flash -h` *for download commands.*

2.4. Check the Serial Output

Launch the serial terminal on the PC and press the “EN” button on the development board. The system is now expected to enter the SPI boot mode and output the following:

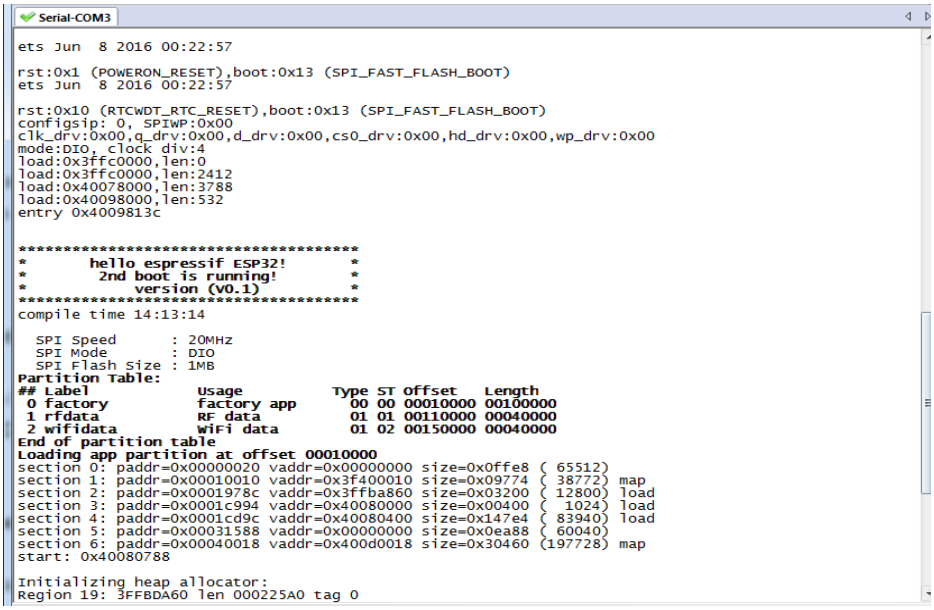

Figure 2-3. SPI Boot Mode Output

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