QuecPython U-235 EVB User Guide

QuecPython Solutions

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About the Document

Revision History

Version	Date	Author	Description
-	2023-06-30	Felix YE	Creation of the document
1.0	2023-08-03	Felix YE	First official release

Contents

Figure Index

1 Introduction

This document introduces how to use the U-235 EVB of the EC600U series to quickly master the development of LTE Cat 1 large-screen applications, including the appearance display, the introduction to firmware and script download, and the onboard resources and function instructions.

2 Development Preparation

2.1. Hardware

Regarding hardware, you need to prepare a U-235 EVB, the appearance of which is shown by the figures below:
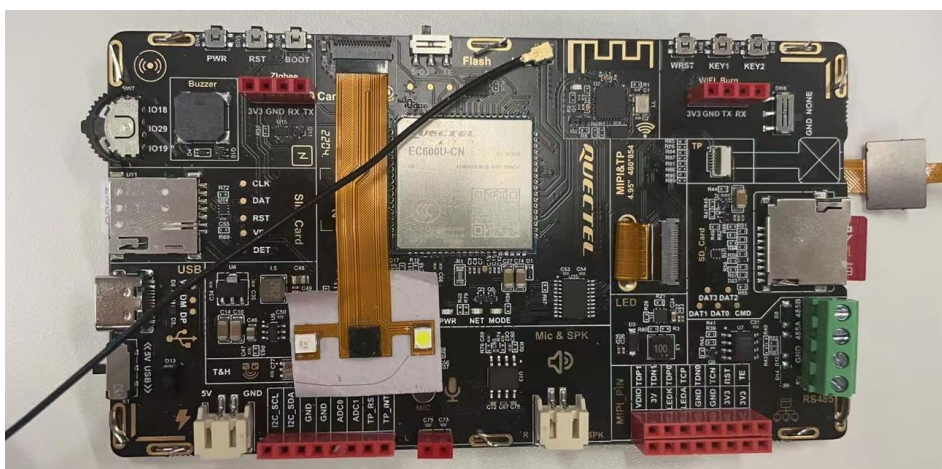

Figure 1: Top View

Figure 2: Bottom View

2.2. Software

Regarding software, you need to prepare the firmware package and the script file corresponding to the module. Meanwhile, you need to acquire the downloading tool QPYcom.

To acquire the firmware, the script file, and the tool, please visit *QuecPython > Download* on the QuecPython website or contact Quectel Technical Support.

2.2.1. Download Firmware or Script

Before opening QPYcom, please connect the USB port on the EVB to a PC with a USB-to-Serial adapter cable.

Step 1: Open QPYcom on the PC and select "**Quectel USB Serial-1 Port**" for the "COM Port".

Step 2: Click "**Download**" and create a project in the left navigation bar.

Step 3: Click "**Choose FW**" to browse and select the path of the obtained firmware package.

Step 4: Click "▼" in the lower right corner to select "**Download FW**" or "**Download script**" in the drop-down list and then click the "**Download FW**" or "**Download script**" button to download the firmware or scripts.

The steps are displayed in the following figures. You can download the firmware first and then download the script, and you can also combine and download them together. See *QuecPython Documentation > Doc > Advanced > Tools > QPYcom Instructions* for detailed application note for QPYcom.

2.2.2.   Run Script

QuecPython can automatically execute user codes after the module is powered on. After the script is downloaded, when the module is powered on and runs, QuecPython will search for the program file named "main.py" in the user partition and automatically run the script. After the script is run, the UI of U-235 EVB is shown by the following figure.

Figure 3: Run Script

3 Resources

This section introduces abundant onboard resources of U-235 EVB and instructions for related functions.

3.1. Resource Introduction

The abundant onboard resources of U-235 EVB are illustrated by the figure below:
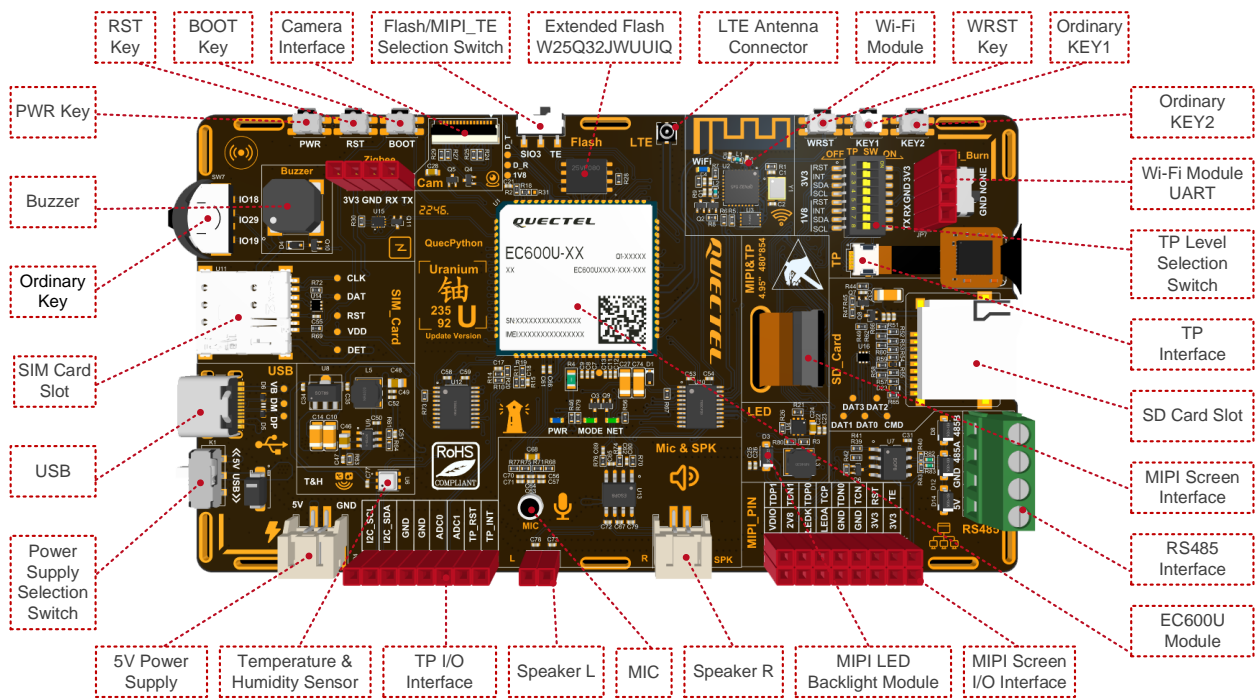

Figure 4: Onboard Resources

Starting from the "EC600U Module" indicator box in the figure above, the EVB resources are introduced as follows in a clockwise direction.

- EC600U Module: The CPU with a Flash of 8 MB and a RAM of 16 MB.
- MIPI Screen I/O Interface
- MIPI LED Backlight Module
- Speaker R: The right channel speaker
- MIC: The microphone interface

- Speaker L: The left channel speaker
- TP I/O Interface
- Temperature & Humidity Sensor
- 5V Power Supply: The interface for 5V power supply
- Power Supply Selection Switch: The switch to select USB power supply or external power supply
- USB: The USB interface for downloading program codes and debugging scripts
- SIM Card Slot
- Ordinary Key: Three ordinary keys (no default function)
- Buzzer
- PWR Key: The power key for turning on/off the EC600U module
- RST Key: The reset key for reseting the EC600U module
- BOOT Key: The USB boot key for force-downloading firmware
- Camera Interface: The camera interface supporting taking photos and scanning
- Flash/MIPI_TE Selection Switch: If you need to use an external Flash, you must switch to the SIO3 side because the SIO3 of the Flash conflicts with the MIPI_TE pin. And most MIPI screens do not use MIPI_TE, so this switch is usually switched to the SIO3 side.
- Extended SPI Flash: The memory of the Flash W25Q32JWUUIQ is 4 MB.
- LTE Antenna Connector
- Wi-Fi Module
- WRST Key: The reset key for resetting the Wi-Fi module
- Ordinary KEY1 (no default function)
- Ordinary KEY2 (no default function)
- Wi-Fi Module UART
- TP Level Selection Switch: The switch to select the voltage level (1.8 V or 3.3 V) of the touch panel
- TP Interface
- SD Card Slot
- MIPI Screen Interface
- RS-485 Interface: SP3485EIM/TR is used

The MIPI interface and the TP interface are available synchronously to improve the reusability of U-235 EVB.

3.2. Function Instruction

This section provides instructions for some functions of the U-235 EVB.
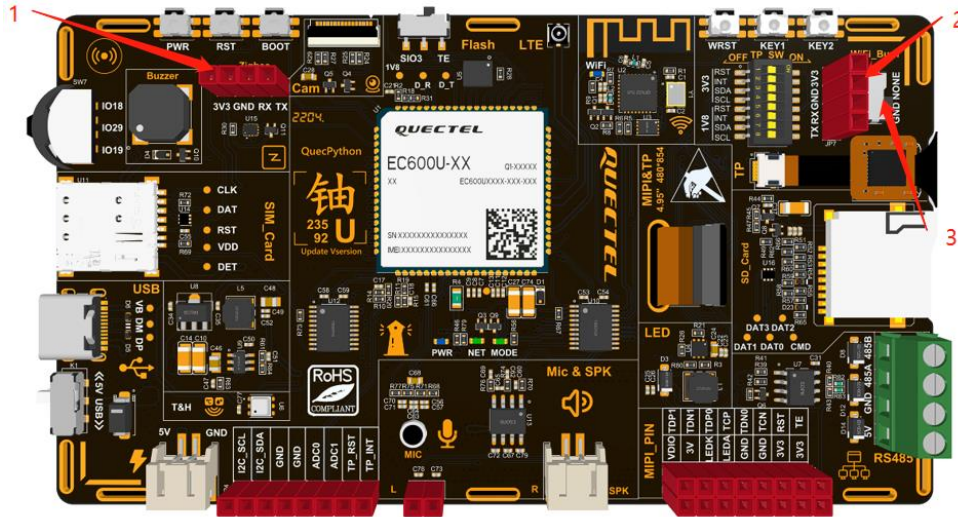
Figure 5: Function Instruction

1. **SD Card:**
   Pull up Pin 53 (QuecPython GPIO27) of the EC600U module.

2. **Wi-Fi Module:**
   Pull the switch marked with "3" in the figure above to the "**GND**" side to download the firmware of the Wi-Fi module through the UART of the Wi-Fi module (marked with "2" in the figure above). After the download is complete, pull the switch marked with "3" to the "**NONE**" side, and reboot the Wi-Fi module. To enable the communication between the Wi-Fi module and the EC600U module, pull up Pin 3 of the EC600U module to switch the pin from UART 1 to Wi-Fi UART and pull up Pin 121 to power the Wi-Fi module.

3. **Zigbee:**
   When Pin 3 of the EC600U module is at a low level, the serial port marked with "1" in the figure above functions as UART 1. When this pin is at a high level, the serial port marked with "1" functions as Zigbee.

4. **MIC & SPK:**
   Both the left channel and the right channel of the microphone and the speaker interfaces are available.

5. **External Power Supply:**
   Pull the Power Supply Selection Switch to the "**5V**" side, and connect the external power supply through the 5V Power Supply Interface. The maximum input voltage is 6.5 V.

6. **Buzzer:**

    Pull up or down Pin 119 of the EC600U module to control the buzzer sound.

7. **RS-485:**

    The RS-485 interface is connected to a physical serial port by default and communicates through UART 2.

8. **MIPI:**

    Pull up Pin 118 (QuecPython GPIO 8) of the EC600U module.

9. **Audio:**

    To enable PA, pull up Pin 4 (QuecPython GPIO 11) of the EC600U module.

> **NOTE**
>
> In the QuecPython solution, for details about the correspondence between GPIOs and pins of EC600U series, please refer to *QuecPython Documentation > Wiki > Peripherals > machine – Hardware > class Pin – Control I/O Pins*.

4 Appendix Terms and Abbreviations

Table 1: Terms and Abbreviations

Abbreviation	Description
Cat	Category
EVB	Evaluation Board
GND	Ground
GPIO	General Purpose Input/Output
IO	Input/Output
LED	Light Emitting Diode
LTE	Long Term Evolution
MIC	Microphone
MIPI	Mobile Industry Processor Interface
PA	Power Amplifier
PC	Personal Center
RAM	Random Access Memory
SD	Secure Digital Memory
SPI	Serial Peripheral Interface
TP	Touch Panel
UART	Universal Asynchronous Receiver/Transmitter
USB	Universal Serial Bus