PERFECT WIRELESS EXPERIENCE

FG132

ADP User Guide

V1.2

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Change History

V1.2 (2024-10-26)	Update power consumption test description
V1.1 (2024-7-5)	Add power consumption control jumper
V1.0 (2023-11-14)	Initial version

1 Overview

1.1 Functional Architecture

The FG132 series development boards integrate a variety of external interfaces, which can provide a complete development and debugging platform for application developers, and help developers carry out rapid product development, verification and demonstration.

The following figure shows the function block diagram of the development board.

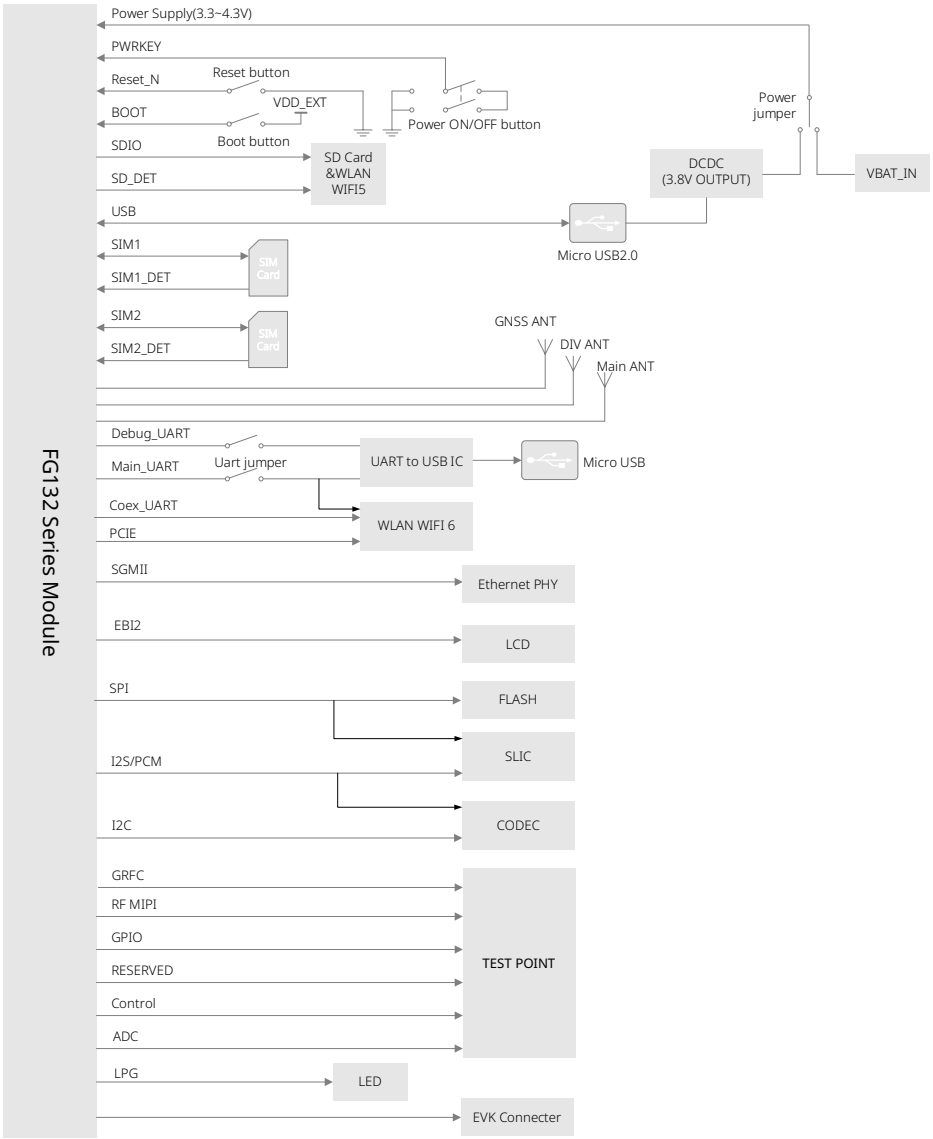

Figure 1. Function block diagram of the development board

1.2 Appearance & Interface

The size of the development board is 85 mm × 80 mm. The following figure shows the appearance of

the development board.

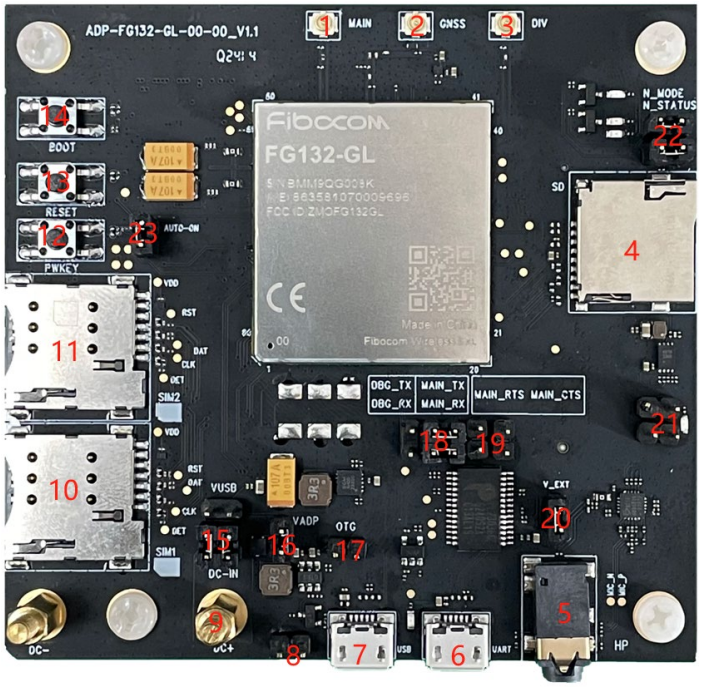

Figure 2. Front view

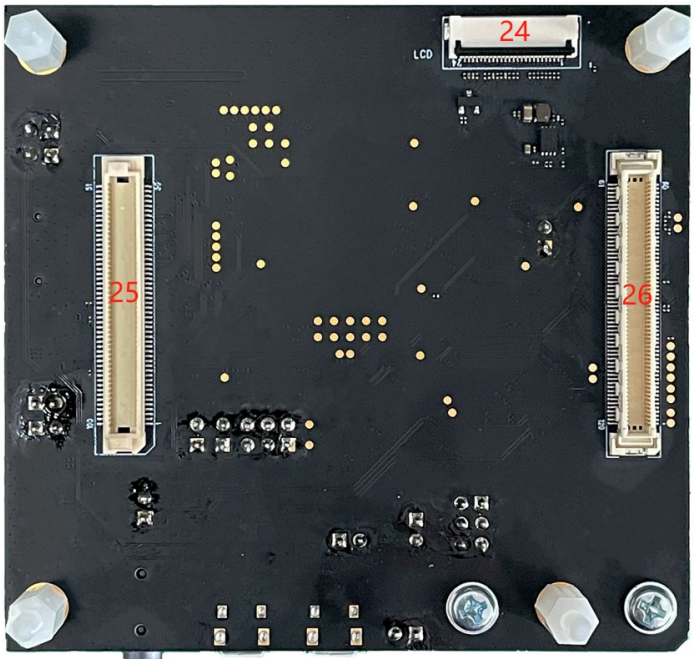

Figure 3. Rear view

The following table describes the interfaces of the development board.

Table 1. Interfaces of the development board

No.	Interface Name	Description
1	Main antenna interface	LTE/5G NR

No.	Interface Name	Description
2	GNSS antenna interface	- -
3	Diversity antenna interface	- -
4	TF card holder*	Only applicable to 1.8 V SIM card
5	Headphone jack	Earphone signal output by external audio CODEC
6	USB interface 1	Two-channel serial-to-USB interface
7	USB interface 2	Support USB 2.0, AT command sending and receiving, and download
8	OTG power jumper	BOOST 5 V power output
9	Power interface	3.3 V to 4.3 V, 3.8 V recommended
10	SIM card 1 interface	Support 1.8 V and 3 V SIM cards, with hot plugging function
11	SIM card 2 interface	Support 1.8 V and 3 V SIM cards, with hot plugging function
12	Power-on/off key	Press to turn on or off the module
13	Restart key	Press to restart the module
14	Force download key	Used upon firmware upgrade. Press and hold this key before powering on the module.
15	Power selection jumper	Selection of either mains power supply or USB power supply
16	External power jumper	Remove the jumper when testing the power consumption
17	OTG enable jumper	BOOST power enable signal
18	Serial interface selection jumper	Choose either of the main serial interface (AT command sending and receiving/data communication) function and the Debug serial interface (log capture/debugging) function.
19	Serial interface flow control jumper	Main serial interface flow control
20	VDD_EXT power jumper	Module IO 1.8V power supply
21	Reserved function jumper	Reserved function USB_ID* and GNSS_1PPS*
22	Net mode/status LED jumper	Net mode/status LED control
23	Auto-on jumper	Auto power on
24	LCD connector*	Applicable to the screen with EBI interface
25, 26	EVB connector	Connected to the EVB-LGA-F01 EVB

The "*" symbol in the document indicates that the item is under development.

1.3 Circuit Control

You can change the motherboard circuits by configuring the jumper to achieve the debugging of different functions.

Table 2. Jumper configuration

Category	No.	Description
External power jumper	16	Short-connected: Power on TF/CODEC/LED/OTG/LCD/GNSS (default) Disconnected: Power off TF/CODEC/LED/OTG/LCD/GNSS
Serial interface selection jumper	18	Short-connected to the right: Convert the main serial interface to the USB interface (default). Short-connected to the left: Convert the Debug serial interface to the USB interface.
	19	Short-connected: Connect the hardware flow control interface of the main serial interface. Disconnected: Disconnect the hardware flow control interface of the main serial interface (default).
OTG power jumper	8/17	Short-connected: Enable OTG power output. Disconnected: Disable OTG power output (default).
Power selection jumper	15	Short-connected to the top: Power on the module through the USB 2.0 interface. Short-connected to the bottom: Power on the module through the DC power supply (default).
Auto-on jumper	23	Short-connected: Auto-on (default). Disconnected: manual power on
VDD_EXT power jumper	20	Short-connected: VDD_EXT power supply on(default) Disconnected: VDD_EXT disconnect with device
Net mode/status LED jumper	22	Short-connected: Net mode/status LED control enable (default) Disconnected: Net mode/status LED control disable
Reserved function jumper	21	Short-connected: Reserved function enable Disconnected: Reserved function disable (default)

2 Device Configuration

2.1 Power Supply

When the power supply mode needs to be changed, take out all jumpers at the same time and make changes. It is strictly forbidden to select two power supply modes simultaneously, which may cause short circuit of the module.

2.1.1 DC Power Supply

The procedure for selecting the DC power supply is as follows:

1. Configure the jumpers.

Configure the following jump caps to select the power supply.

2. Connect the positive and negative poles of the power supply.

Connect the positive pole of the power supply to the DC+ terminal, and the negative pole of the power supply to the DC- terminal.

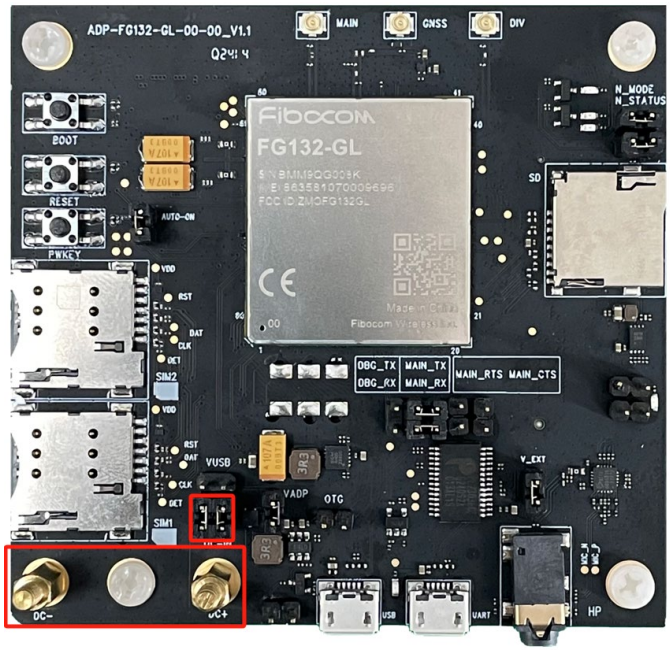

Figure 4. Power supply

2.1.2 Power Supply by USB

When using power supply by USB, ensure that the DC power interface is not connected to the power supply.

The procedure is as follows:

1. Configure the jumpers.

The power selection jumper is configured as the upper two jumper caps, as shown in Figure 5.

2. Connect the USB cable.

Connect the USB cable to the USB interface.

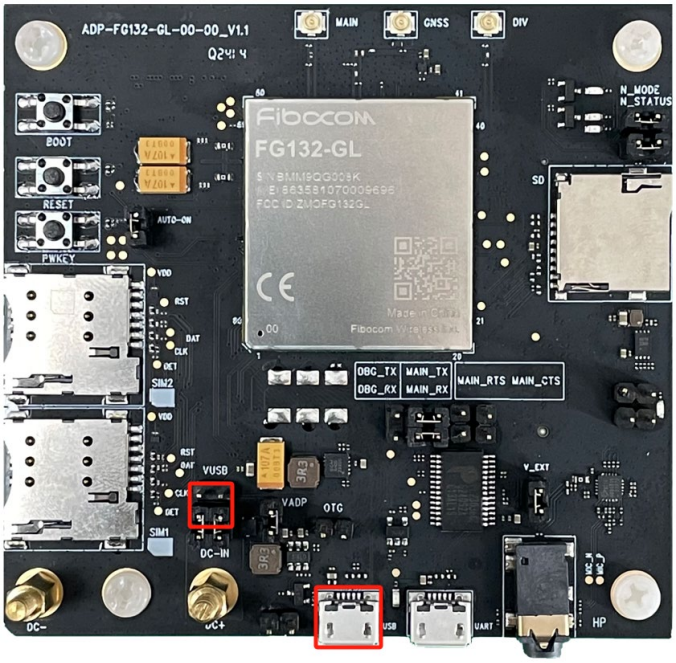

Figure 5. Power supply by USB

2.2 Installing the SIM and TF Cards

SIM card and TF card can be installed on ADP. Pay attention to the direction of the cards. The module supports hot plugging detection of dual SIM card and TF card.

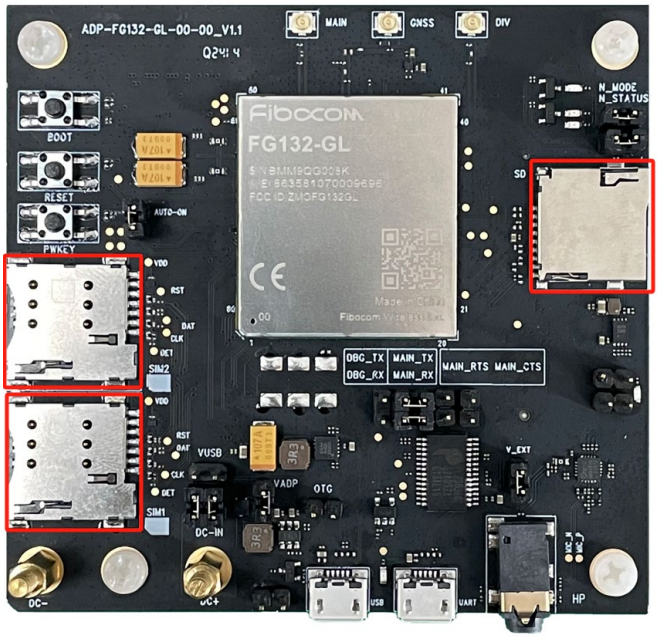

Figure 6. SIM and TF card slots

2.3 Connecting to the PC

2.3.1 USB

You can connect the module to the PC through the USB interface to upgrade firmware or send and receive AT commands. In particular, connect the USB interface of the development board to the USB interface of the PC. The USB interface is in the type of Micro USB.

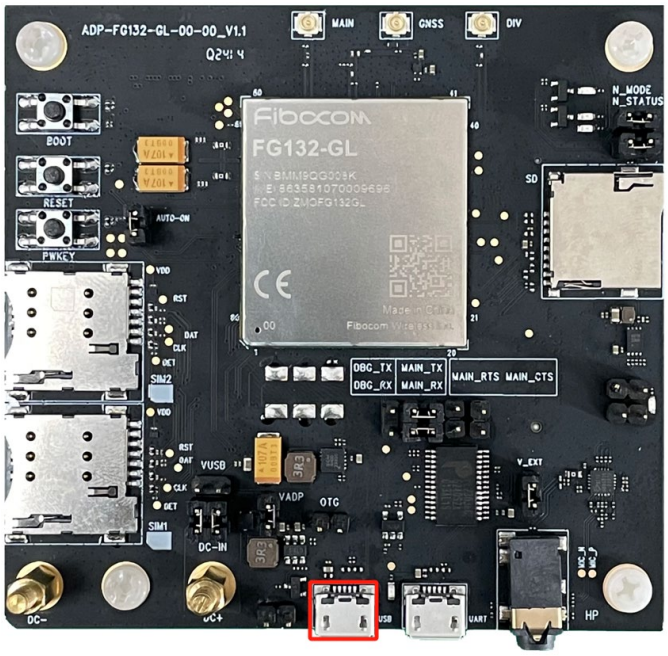

Figure 7. USB communication

2.3.2 UART

The development board has a built-in UART-to-USB chip (PL2303), which is connected to the module's two sets of UART interfaces (4-wire Main serial interface and 2-wire Debug serial interface). The USB interface type is micro USB. Users can connect the module to the PC using a micro USB cable.

The procedure is as follows:

1. Configure the jumpers.

Insert the jump cap to the left or right to select the serial interface.

2. Connect to the PC.

Connect the UART interface of the development board and the USB interface of the PC.

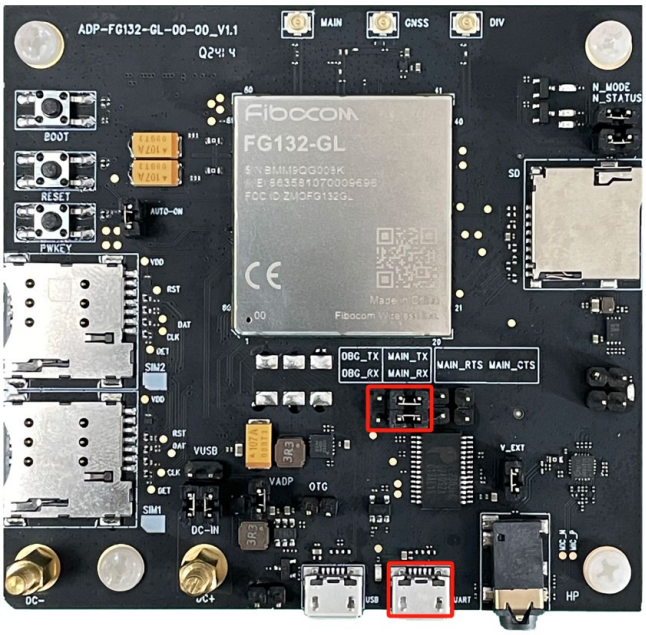

Figure 8. Communication of serial interface

Do not use UART and the UART-to-USB interfaces simultaneously.

3 PC Configuration

3.1 Installing the Driver and Tool

The procedure for installing the driver is as follows:

1. Unzip and install the USB driver of the platform.
2. Download the PL2303 UART-to-USB driver installation package from Prolific official website and install it.
3. Install the serial interface tool such as FiboCenter.

4 Application

4.1 Power-On

The development board supports module power-on by key. In the power-off state, press the power-on/off key for to start up the module.

4.2 Power-Off

In the power-on state, you can press the power-on/off key to power off the module. When the module is automatically started up, you can only cut off the power supply to power the module off.

4.3 Restart

In the power-on state, you can press the restart key to restart the module.

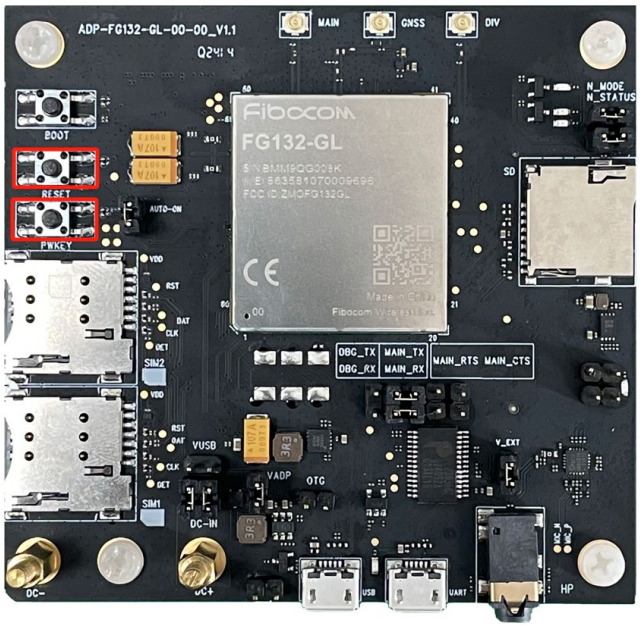

Figure 9. Power-on/off key and restart key

4.4 Download

To upgrade module firmware, you need to use the QFIL download tool provided by Qualcomm.

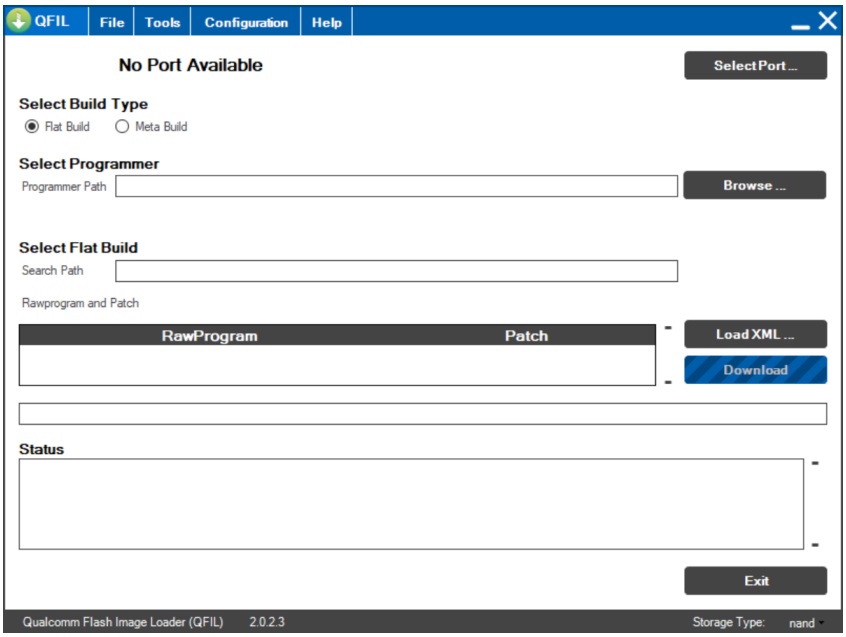

Figure 10. Download tool screen

The procedure for operating the download tool is as follows:

1. Open the download tool, click **Flat Build**, click **Browse...** to select the firmware file to load, and then click **Load XML...** to select the XML file to load.
2. Connect the PC and development board with a Micro USB cable, power on the development board, press and hold the forced download key, and press the power key until port 9008 appears in "**Select Port...**"
3. Click **Download** to start the download process.

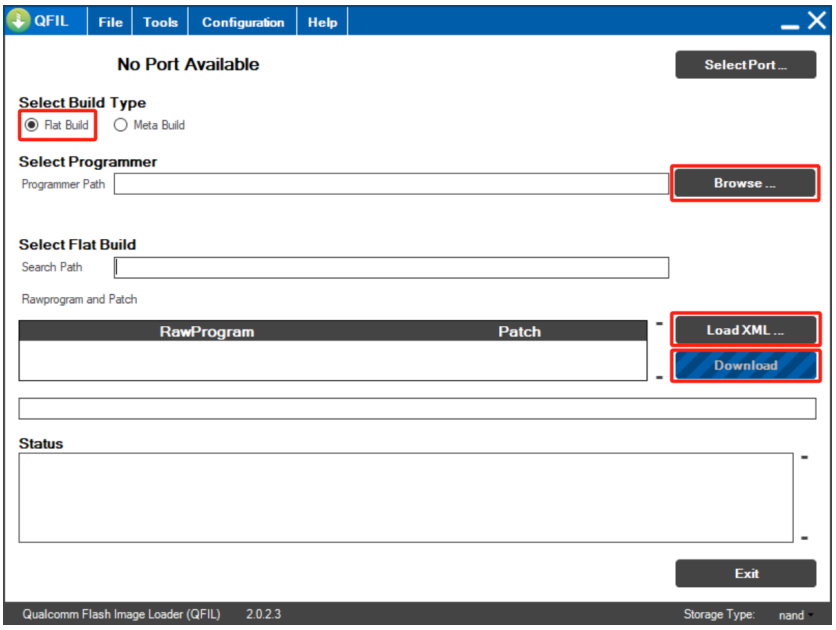

Figure 11. Download tool operation procedure

4.5 Debug

4.5.1 Power Consumption Test

If a low power consumption test is required, prepare the following before the test:

- Unplug all jumper on the board except the power supply selection jumper，as shown in the red box below.
- If you need to test the networking scenario, you need to insert the SIM card before booting up, and after booting up send AT+SIMSWAPCFG=0 and AT+MSMPD=0 respectively to turn off the SIM hot plug function. Finally, restart the module before testing.

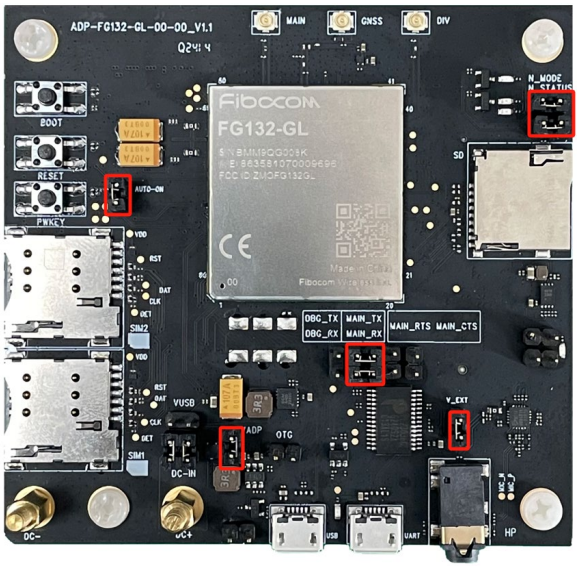

Figure 12. Remove jumper before power consumption test