



EVB-M2-F01

User Guide

V1.2

Disclaimer

Any action you take in the course of using this document is at your own risk, and Fibocom shall not be liable for any damages or losses under any circumstances. Due to product version upgrade or other reasons, Fibocom reserves the right to modify any information in this document at any time without prior notice and any responsibility. Unless otherwise agreed, all statements, information and suggestions in this document do not constitute any express or implied guarantee.

This document may include the third-party information covering products, services, software, data, and so on. Fibocom does not control and assumes no responsibility for the third-party content, including but not limited to the accuracy, compatibility, reliability, availability, legitimacy, appropriateness, performance, non-infringement, and status update, unless otherwise specified in this document. Fibocom does not provide any guarantee or authorization for the third-party content mentioned or referenced in this document. If you need a third-party license, obtain it in an authorized or legal way, unless otherwise specified in this document.

Copyright Notice

Copyright © 2025 Fibocom Wireless Inc. All rights reserved.

Unless specially authorized by Fibocom, the recipient of the documents shall keep the documents and information received confidential, and shall not use them for any purpose other than the implementation and development of this project. Without the written permission of Fibocom, no unit or individual shall extract or copy part or all of the contents of this document without authorization, or transmit them in any form. Fibocom has the right to investigate legal liabilities for any offense and tort in connection with violation of confidentiality obligations, or unauthorized use or malicious use of the said documents and information in other illegal forms.

Trademark Statement

 The trademark is registered and owned by Fibocom Wireless Inc.

Other trademarks, product names, service names and company names appearing in this document are owned by their respective owners.

Contact Information

Website: <https://www.fibocom.com>

Address: 10/F-14/F, Block A, Building 6, Shenzhen International Innovation Valley, Dashi First Road, Xili Community, Xili Subdistrict, Nanshan District, Shenzhen

Tel: 0755-26733555

Contents

Applicable Models	2
Change History	3
1 Product Introduction.....	4
1.1 Overview	4
1.2 Block Diagram	4
1.3 Appearance.....	4
1.4 Accessory	6
2 Assembly	8
3 Power Supply	9
3.1 DC IN Power Supply.....	9
3.2 Type-C USB 3.0&2.0&PD&QC Power Supply	9
3.3 PC Power Supply	10
4 Power Consumption	11
5 Configuration.....	12
5.1 Default Configuration.....	12
5.2 Power ON/OFF Control Configuration of Board	12
5.3 UART Jumper Configuration	13
5.4 PC Jumper&SW Configuration	14
5.5 LED Configuration.....	15
5.6 Audio Board Connection	16
5.7 SIM_DETECT Configuration.....	17
6 Connection.....	19
6.1 High Speed Cable Suite Connection	19
6.2 Antenna Connection.....	20
6.3 Type-C USB3.0 Connection.....	20
6.4 MMW Connection	21
6.5 Debug Connection.....	22
7 Antenna Tuner.....	24

Applicable Models

No.	Applicable Model	Description
1	FB520	LTE WWAN NIC, size 2242
2	L830-EB	LTE WWAN NIC, size 3042
3	L850-GL	LTE WWAN NIC, size 3042
4	L860-GL	LTE WWAN NIC, size 3042
5	NL952-EAU	LTE WWAN NIC, size 3042
6	NL952-NA	LTE WWAN NIC, size 3042
7	FM101-GL	LTE WWAN NIC, size 3042
8	FM350-GL	5G WWAN NIC, size 3052
9	FM150-AE	5G WWAN NIC, size 3052
10	FM150-NA	5G WWAN NIC, size 3052
11	FG132	5G WWAN NIC, size 3052
12	MG661	LTE WWAN NIC, size 3042

Change History

V1.2 (2025-05-28)	Add the MG661 model.
V1.1 (2024-05-10)	Add M.2 module type.
V1.0 (2023-06-20)	EVB-M2-F01 User Guide initial version.

1 Product Introduction

1.1 Overview

EVB-M2-F01 board (referred to as EVB-M2-F01) is a carrier board used for testing and debugging of Broadcom M.2 module. This user guide applies only to EVB-M2-F01 V1.1.

1.2 Block Diagram

Figure 1 Schematic diagram shows the main functions of EVB-M2-F01:

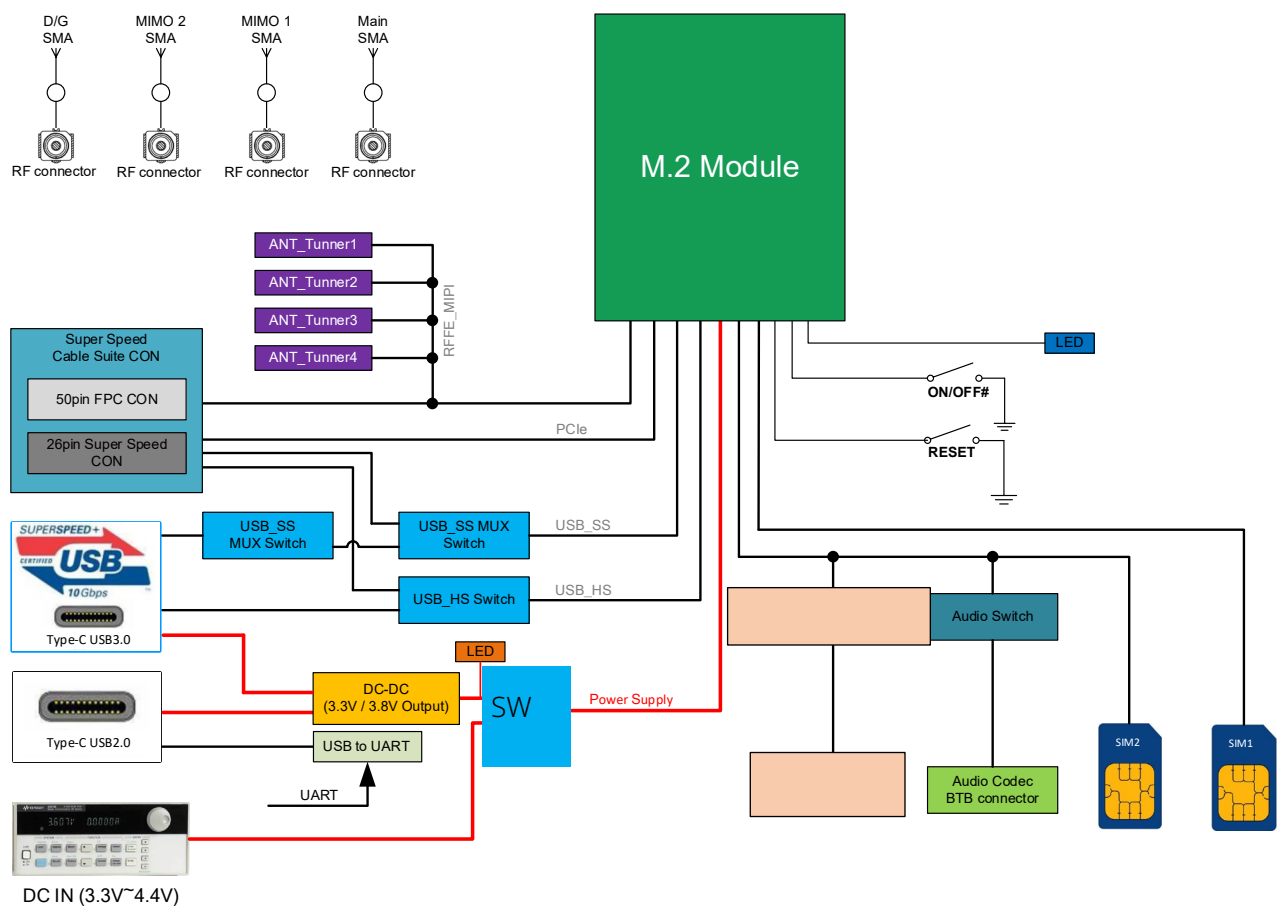


Figure 1. Block diagram

1.3 Appearance

The appearance of EVB-M2-F01 is shown in Figure 2:

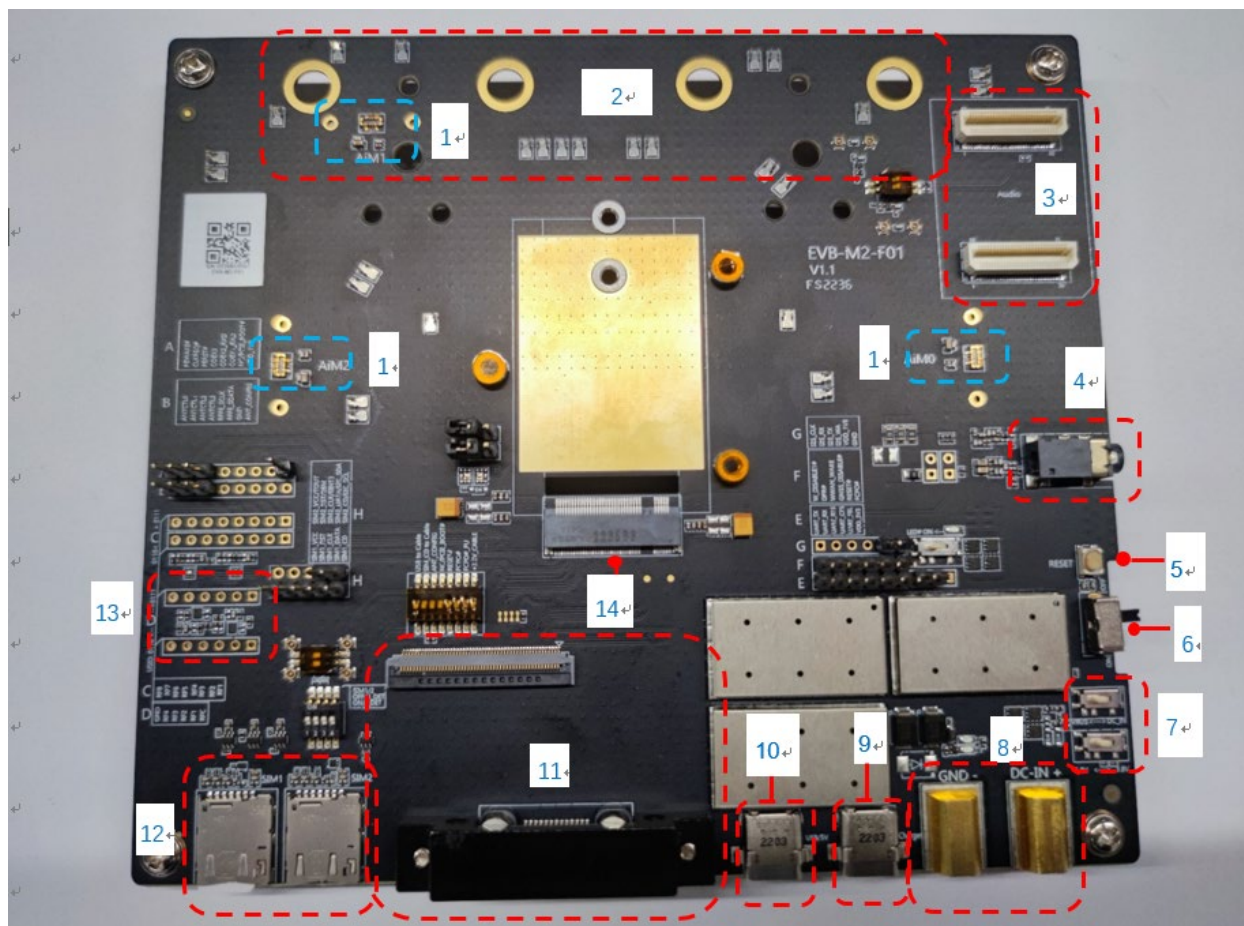

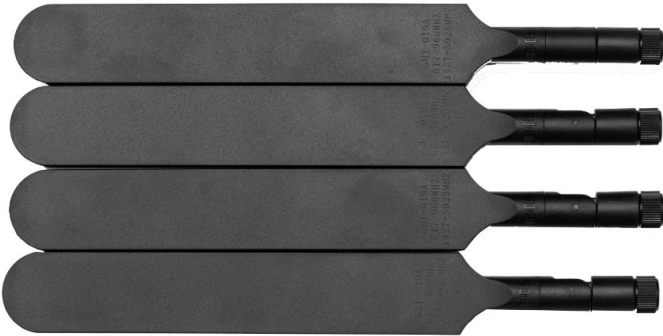




Figure 2. Top view

- 1: MMW interface
- 2: Antenna connector interface
- 3: Audio interface
- 4: 3.5mm interface
- 5: Reset
- 6: Power ON/OFF
- 7: Power supply voltage configuration
- 8: DC input
- 9: Type-C USB2.0&PD3.0&QC3.0
- 10: Type-C USB3.0
- 11: PCIe High Speed interface
- 12: Nano SIM slot
- 13: Antenna tuner
- 14: M.2 interface

1.4 Accessory

Table 1. Development kit of EVB-M2-F01

No.	Accessory List	Figure
1	M.2 high speed cable suite x1	
2	Antenna x4	
3	RF MHF4 cable x4	
4	Type-C to Type-A USB 3.0 cable x2	

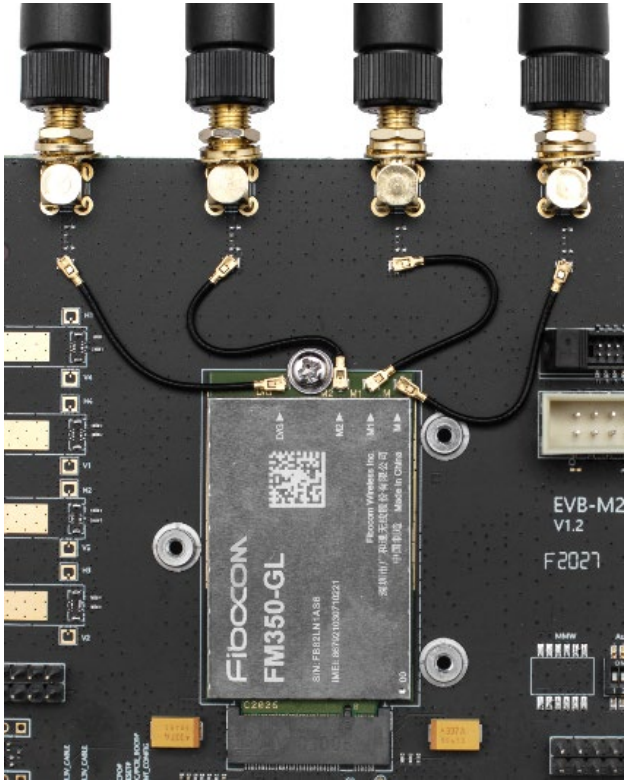
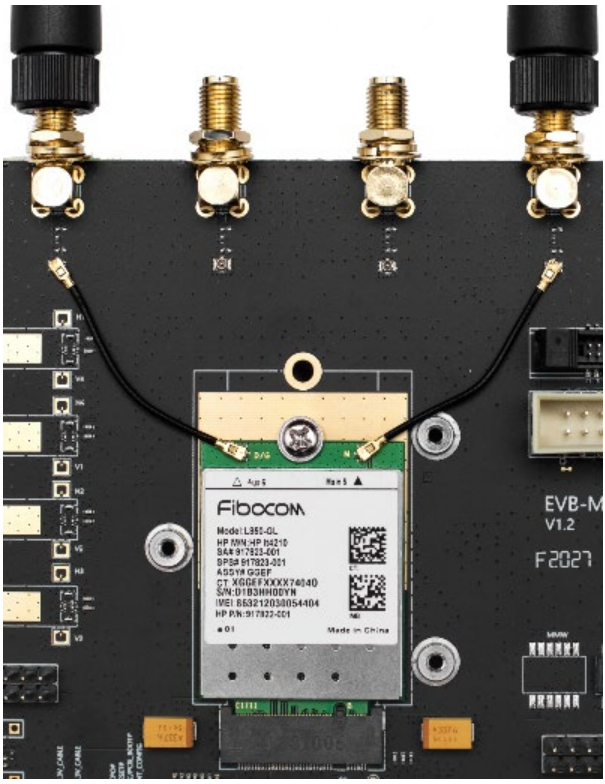
Not all USB cables were USB3.0 cables in the early EVK development kits. One was Type-C USB2.0 and the other was Type-C USB3.0

No.	Accessories List	Figure
1	Type-C to Type-A USB 2.0 cable x1 Type-C to Type-A USB 3.0 cable x1	<div> Purple, USB 2.0 (for power supply)</div> <div> Blue, USB 3.0 (for data transmission)</div>
	<div> Only EVK-F (EVB-M2 Advanced Version Development Kit) has an M.2 high speed line kit, while EVK-S (EVB-M2 Simplified Version Development Kit) does not have an M.2 high speed line kit.</div>	

2 Assembly

The EVB-M2-F01 supports two sizes of M.2 modules. The assembly method is shown in the following table:

Table 2. Assembly method of EVB-M2-F01 module

3052 (Module size: 30 x 52mm)	3042 (Module size: 30 x 42mm)
 The image shows the EVB-M2 V1.2 board with a Fibocom FM350-GL module installed. The module is a 30 x 52mm size. It is connected to the board's M.2 slot. The board has four SMA connectors at the top, each with a black cable. The module is labeled with 'Fibocom FM350-GL', 'SIN: FB80LN1A88', 'IMEI: 867601030710221', and 'Made in China'. The board also has 'EVB-M2 V1.2' and 'F2027' printed on it.	 The image shows the EVB-M2 V1.2 board with a Fibocom L850-GL module installed. The module is a 30 x 42mm size. It is connected to the board's M.2 slot. The board has four SMA connectors at the top, each with a black cable. The module is labeled with 'Fibocom L850-GL', 'Model: L850-GL', 'BP PIN: HP 9122-01', 'S&A: 917823-001', 'BP SA: 917823-001', 'A&S: 1M C-REF', 'CT: XGDF XXXX74040', 'SN: D183HH00YN', 'IMEI: 863212030054404', 'HP PIN: 917822-001', and 'Made in China'. The board also has 'EVB-M V1.2' and 'F2027' printed on it.

3 Power Supply

The EVB-M2-F01 supports 3 modes to supply power:

- DC input power supply
- Type-C power supply
- PC power supply

3.1 DC IN Power Supply

Power on the EVB-M2-F01 with DC IN (3.3V–4.3V). Switch configuration is shown in Figure 3.

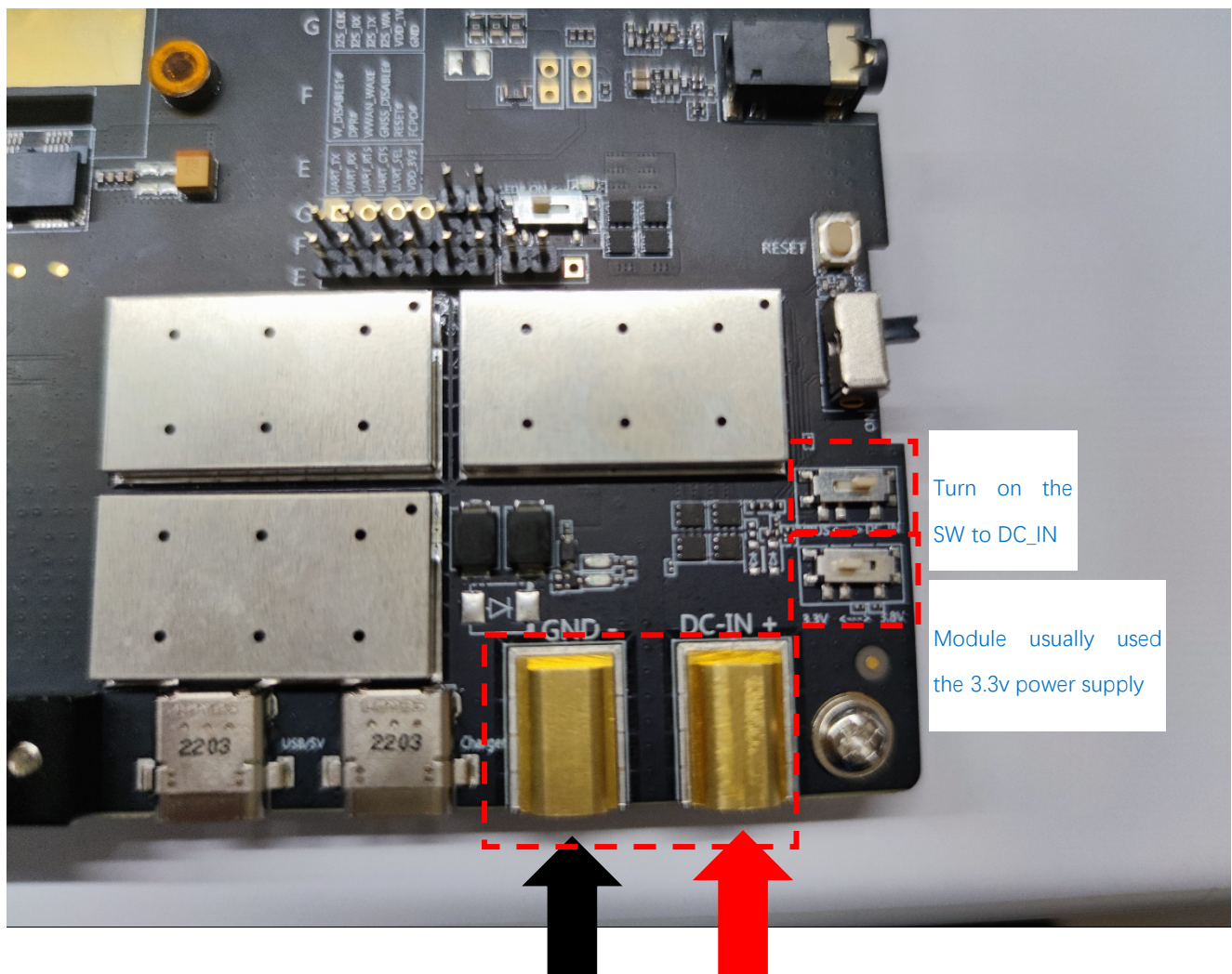


Figure 3. DC IN power SW configuration

3.2 Type-C USB 3.0&2.0&PD&QC Power Supply

There are two types of Type-C interfaces as power supply: Type-C USB2.0&PD&QC which is the main power supply mode with maximum current of 5A. It can support both protocols, USB PD 3.0 and QC 3.0

Type-C USB3.0 which is the auxiliary power supply with Reproduction forbidden without maximum current 3A. The two USB ports can work simultaneously or singly to supply power.

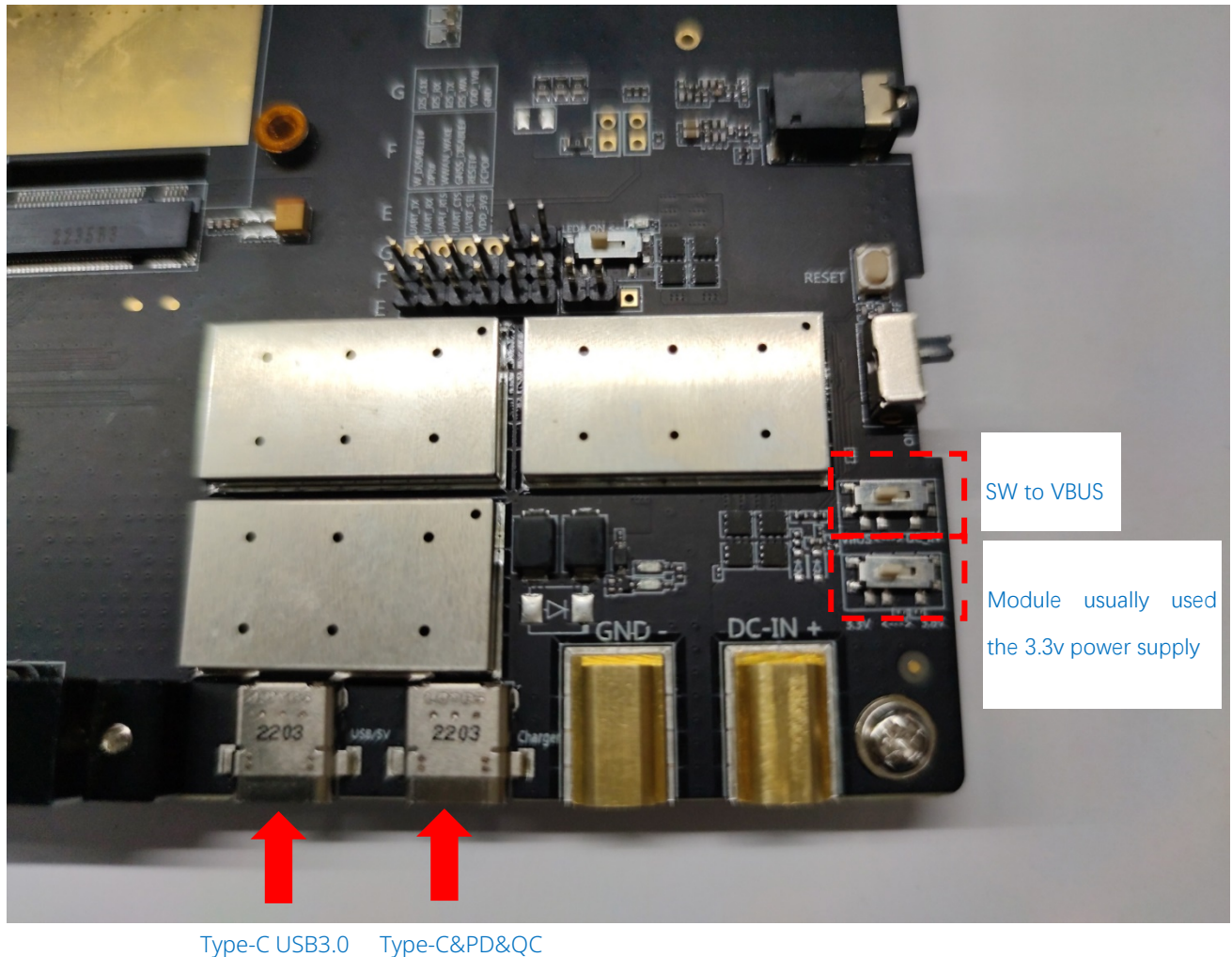


Figure 4. Type-C power supply

3.3 PC Power Supply

Power on the EVB-M2-F01 with PC internal power. For the connection method, refer to section [6.1High Speed Cable Suite Connection](#)

4 Power Consumption

DC power supply can provide power to both module and EVB-M2-F01. For details, refer to section 3.1 [DC IN Power Supply](#). When USB cable is inserted into any Type-C connector (USB3.0 or 2.0&PD&QC) of the EVB-M2-F01 board, the LDO and control circuits are powered through Type-C. In this case, the output power of DC power source is allocated to the module wholly. We can test module power consumption to DC power supply when the USB cable is connected.

5 Configuration

5.1 Default Configuration

Figure 5 shows the factory default switch configuration of the EVB-M2-F01.

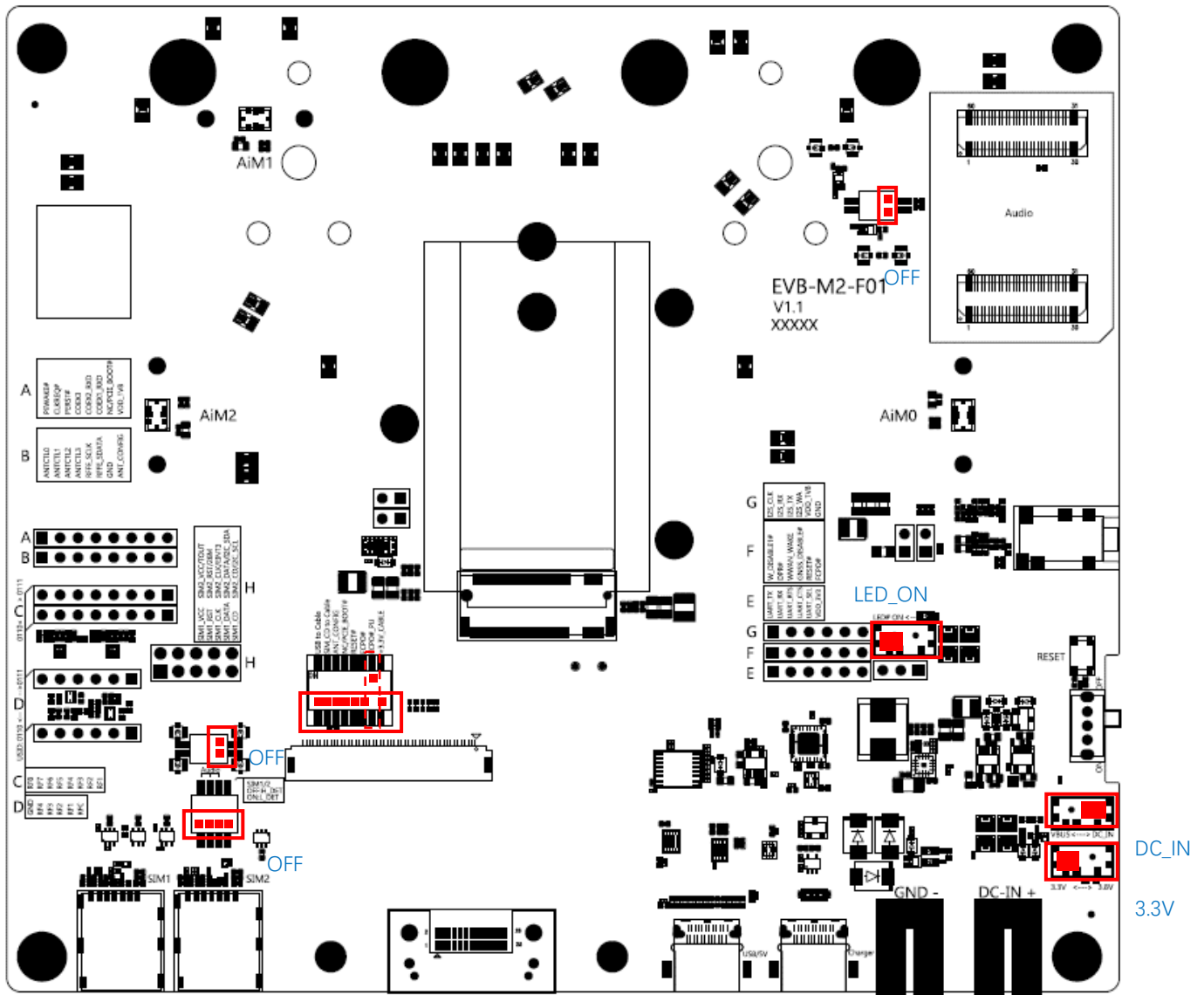


Figure 5. Default configuration

5.2 Power ON/OFF Control Configuration of Board

If the power ON/OFF switch on the board can't control the module ON or OFF, it should be turn on the FCPO#_PU as below figure 6 and then the power ON/OFF switch can do it.



For an Intel platform module, such as L860-GL-00, SIM_DET detection level must set to L_DET, as shown in Figure 6.

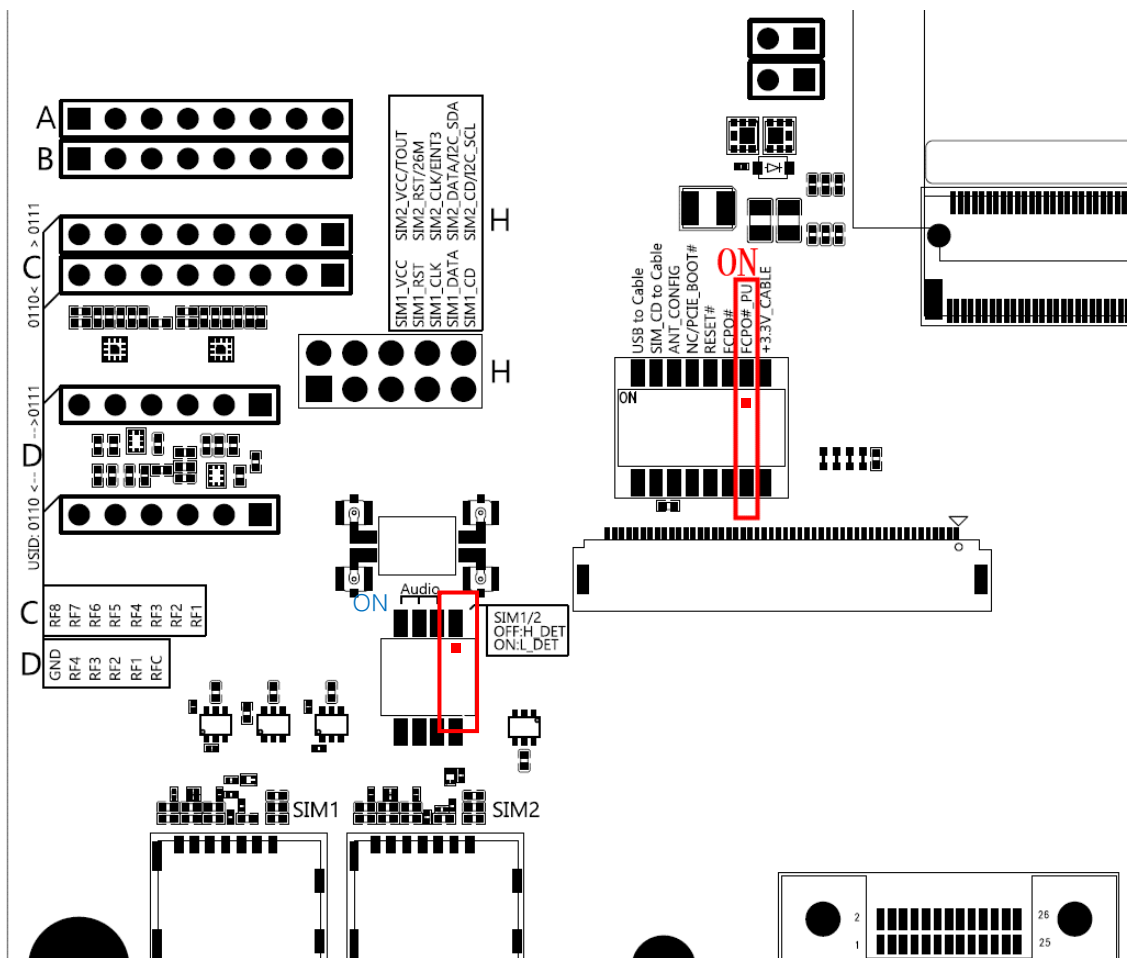


Figure 6. Power ON/OFF configuration

5.3 UART Jumper Configuration

EVB-M2-F01 can only be connected to the row pin on the board from the UART TP point welding debugging wire on the back of the module.

Table 3. UART jumper and functions

Name	Condition	Description
Red frame	Short	Four UART signals (UART_RTS/CTS/TX/RX) are connected to the Type-C USB2.0 connector on the EVB-M2-F01 board.
	Open	Four UART signals (UART_RTS/CTS/TX/RX) are disconnected from the Type-C USB2.0 connector on the EVB-M2-F01 board.
IO voltage	Default	UART IO VCC 1.8V.

The four UART signals (UART_RTS/CTS/TX/RX) are named on the module side. For example, UART_TX indicates data transmitting of the module.

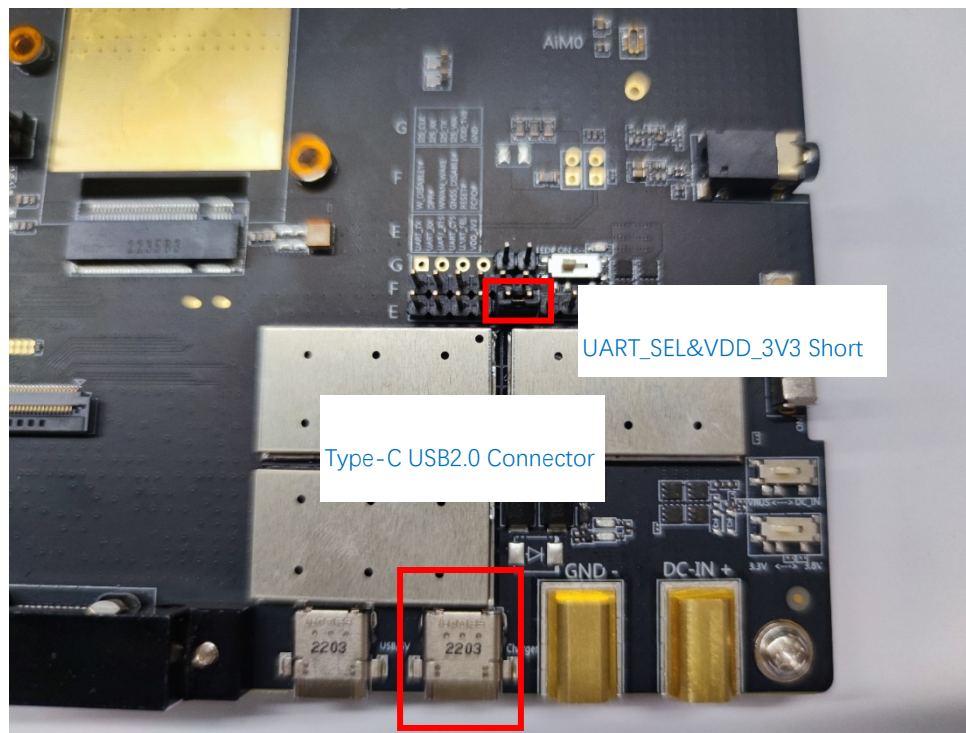


Figure 7. UART Jumper configuration

5.4 PC Jumper&SW Configuration

Table 4. PC jumper&SW configuration

No.&SW	Configuration	State Description
J36&J37	Short	Power Supply from High Speed Cable Suite.
	Open	Power Supply from EVB board (DC IN or Type-C USB) .
1	ON	USB3.0/2.0 is connected to PC through High Speed Cable Suite.
	OFF	USB 3.0/2.0 is connected to Type-C connector on the EVB board.
2	ON	SIM_DETECT is connected to SIM card connector on PC through the High Speed Cable Suite.
	OFF	SIM_DETECT is connected to SIM card connector on EVB board.
3	ON	ANT_CONFIG or USB_FORCE_BOOT is connected to PC through the High Speed Cable Suite.
	OFF	ANT_CONFIG or USB_FORCE_BOOT is connected to EVB board.
4	ON	NC or PCIe_BOOT# is connected to PC through the High Speed Cable Suite.

No.&SW	Configuration	State Description
	OFF	NC.
5	ON	RESET# is connected to PC through the High Speed Cable Suite.
	OFF	RESET# is connected to F area row pin on EVB board.
6	ON	FULL_CARD_POWER_OFF# is connected to PC through the High Speed Cable Suite.
	OFF	FULL_CARD_POWER_OFF# is float.
7	ON	FULL_CARD_POWER_OFF# is connected to EVB board through a 10 K Ω resistor.
	OFF	FULL_CARD_POWER_OFF# is float.
8	ON	Using High Speed Cable Suite having power supply of 3.3V, must have to short at-least one of either J36 or J37.
	OFF	Power Supply from EVB board (DC IN or Type-C USB) .

The PC jumper locations are shown in Figure 8.

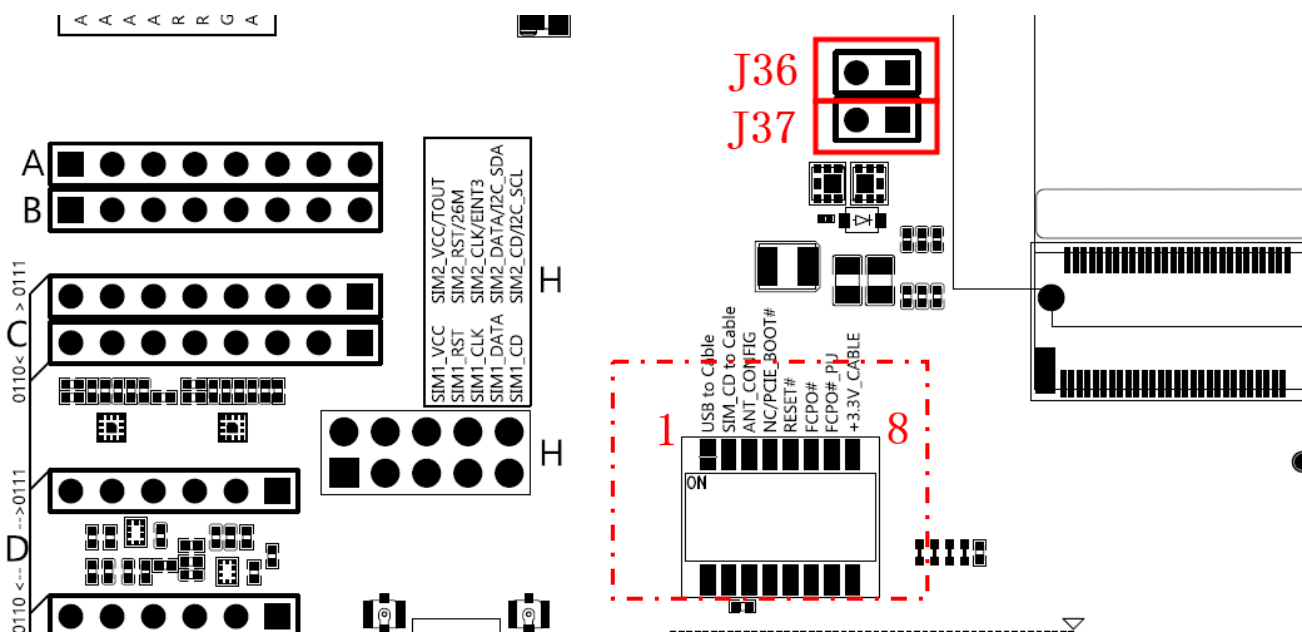


Figure 8. PC jumper locations

5.5 LED Configuration

The LED light of EVB-M2-F01 is controlled by SW. Its function is described in Table 5 and its position is shown in Figure 9:

Table 5. LED configuration

ON	LED# (pin10) is connected to blue LED light negative pole on EVB board and it
----	---

can be used indicator showing state when the module connected Internet or enter Airplane mode .

OFF LED# (pin10) is connected to 3.3V on EVB board through a 100KΩ resistor.

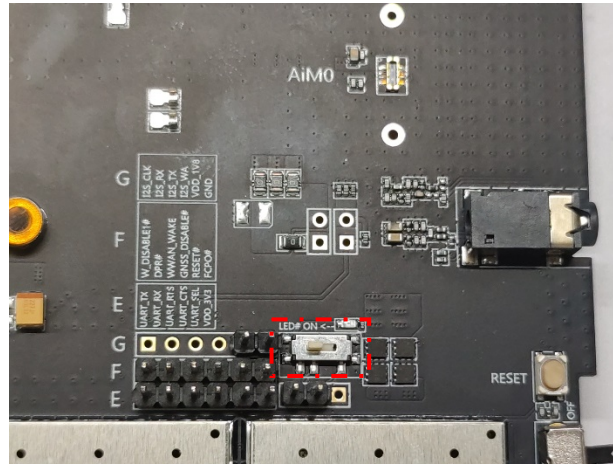


Figure 9. LED SW Location

5.6 Audio Board Connection

EVB can be used to test the module's audio function through an audio board. The switch (SW601) is used to connect audio board control signals of the module to the audio board. Not all modules support audio function, and the connection methods also vary. The detailed audio board control and connection methods of different modules are listed in the following table:

Table 6. Audio function and connection

Applicable Module	Audio Function	Connection Way	Remark
L850-GL	Not support	SW601 Turn OFF	- -
L860-GL			
FM350-GL			
FM380-GL	Support	SW601 Turn ON	- -
L830-EB			
FM150-AE		SW601 Turn OFF, Need Jumper wire	- -
FM150-NA			
NL952-EAU			
NL952-NA			

SW601 has two statuses: ON and OFF. 'ON' means the audio board control signals are connected to the audio board, and 'OFF' means the audio signals are disconnected. The detailed signal definitions of SW601 and their locations are shown in the following figure 10.

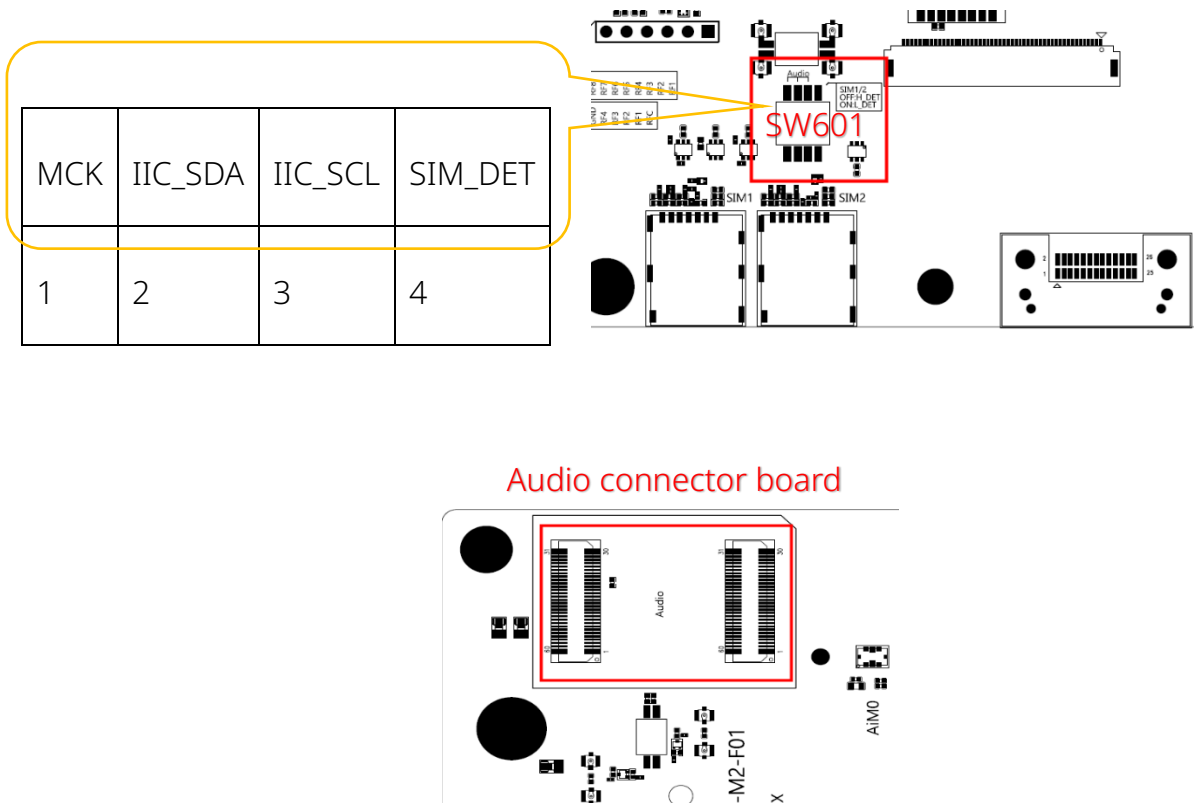


Figure 10. Audio board control signal definition and location

5.7 SIM_DETECT Configuration

EVB-M2-F01 supports SIM_DETECT to be configured as active high or active low through switch. When the switch pin 2 is OFF in default, the SIM card detection signal (SIM_DETECT) is active high. It means when a SIM card is inserted, SIM_DETECT is at high state. When the SIM card is plugged out, SIM_DETECT is at low state. The detail configuration is shown in Figure 11.

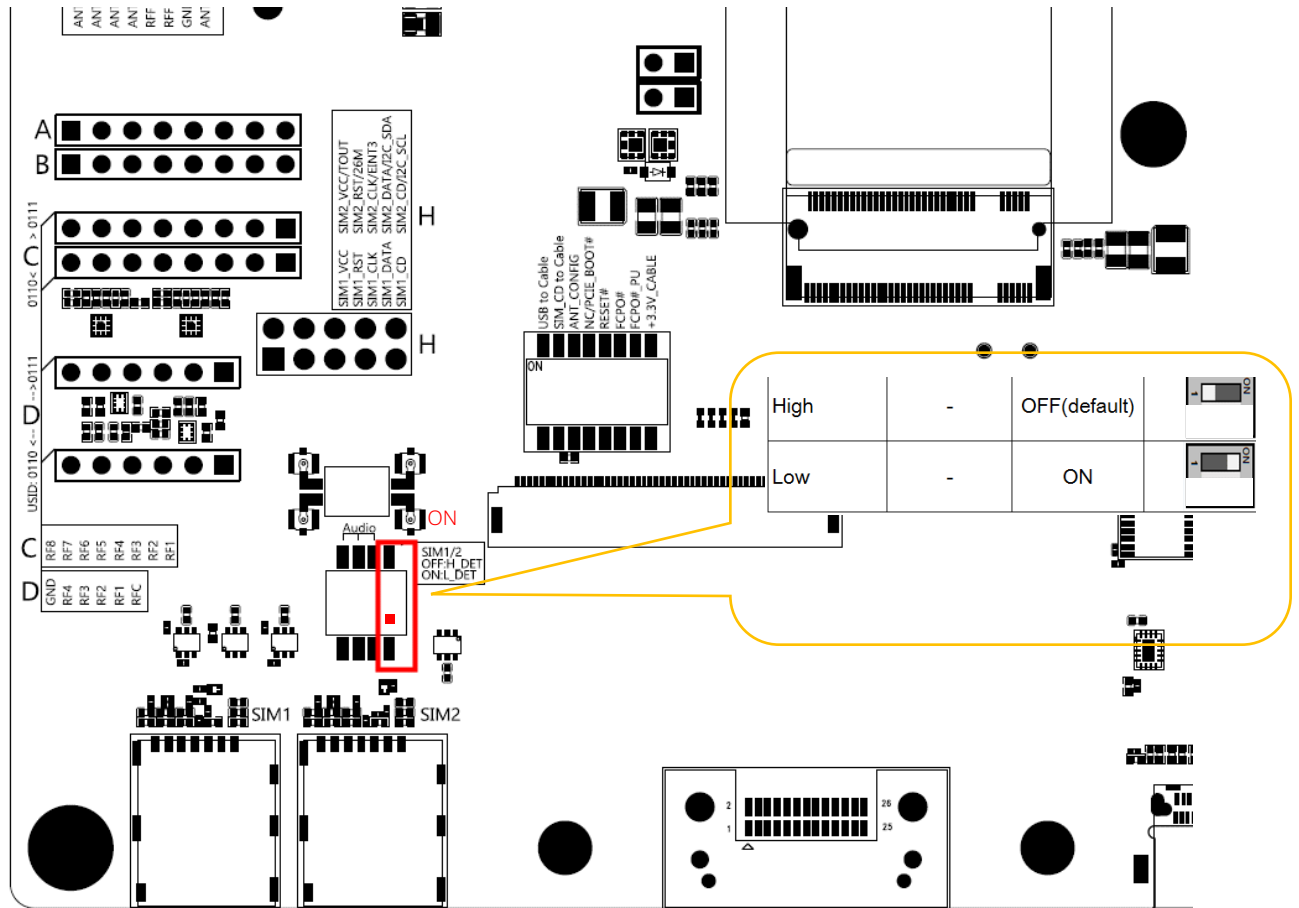


Figure 11. SIM_DETECT switch location

6 Connection

6.1 High Speed Cable Suite Connection

The high speed cable suite supports PCIe Gen3 and USB3.1. Through the high speed cable suite, the module can be built into PC's M.2 slot. The module can be debugged and tested with the high speed cable suite. The connection of the high speed cable suite is shown in Figure 12, 13 and 14.

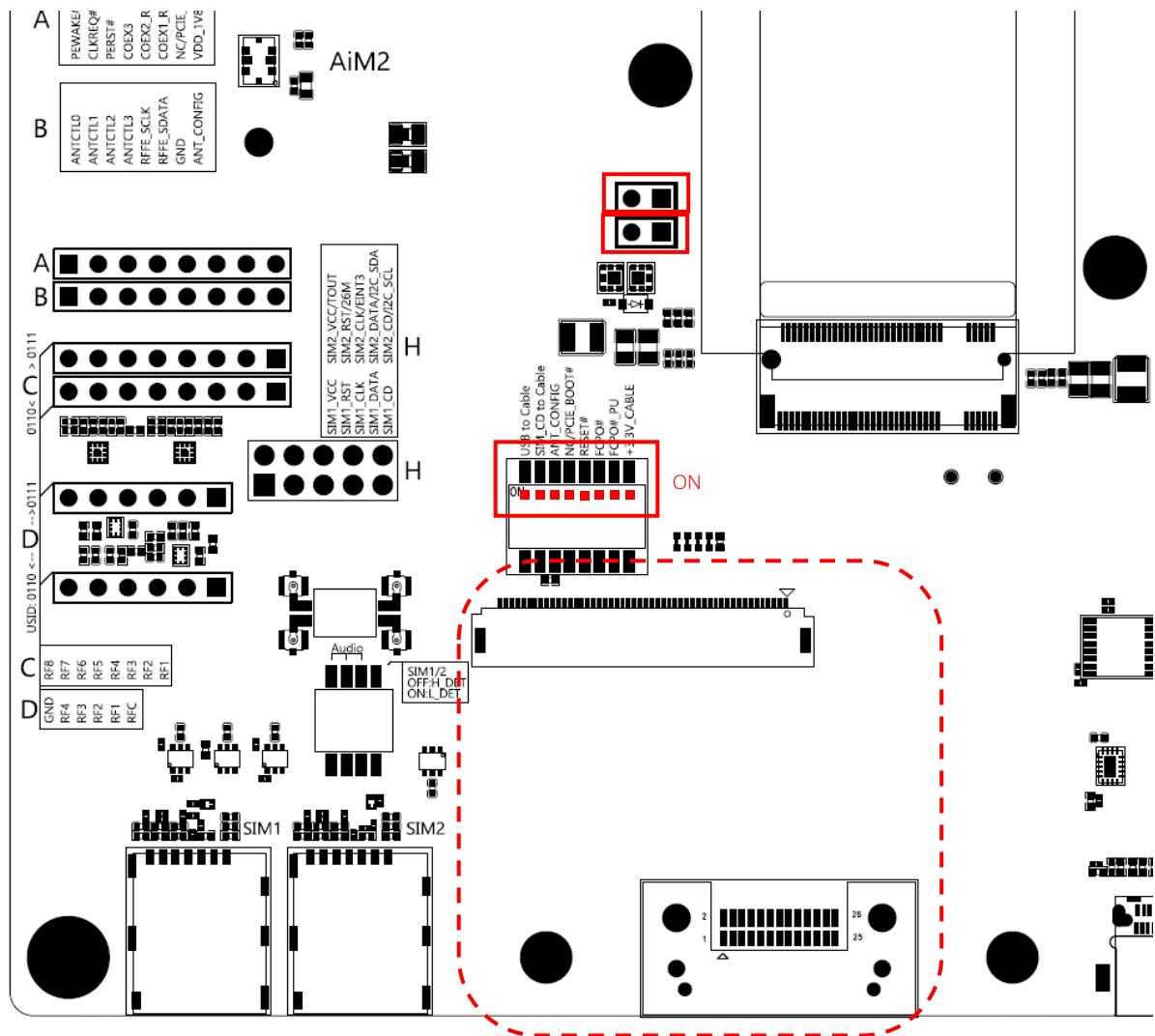


Figure 12. High speed cable suite connection

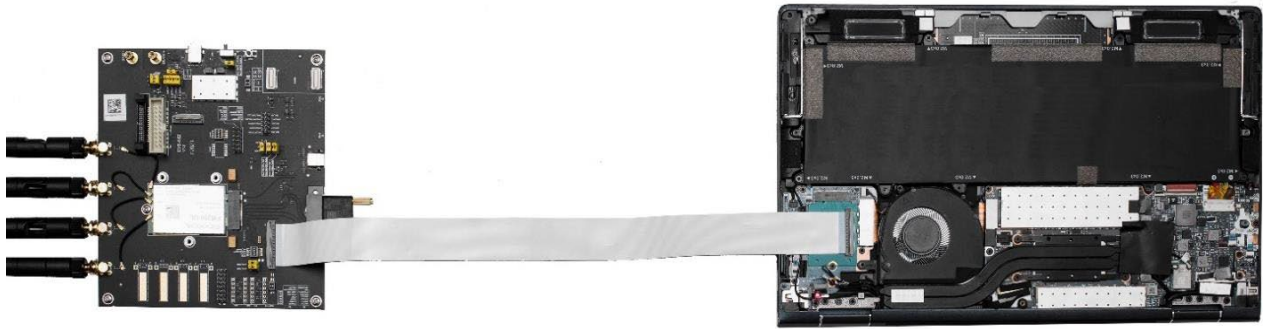


Figure 13. Connection and assembly method of M.2 high speed cable suite

Fibocom can provide standard PCIe high speed cable suite to match standard PCIe slot, not M.2 slot.



Figure 14. Standard PCIe high speed cable suite

6.2 Antenna Connection

The module's antenna interface can be connected to the antenna connector on the EVB board by using RF MHF4 cable. The connection method is shown in Figure 15.

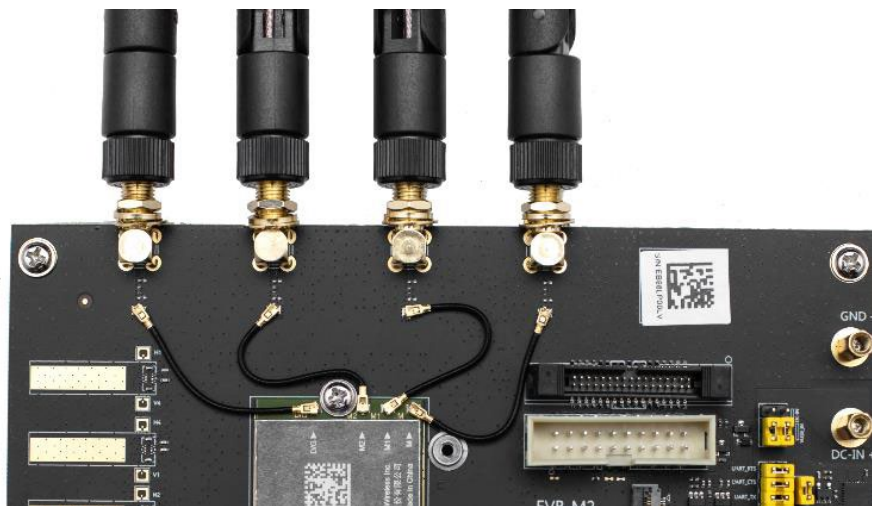


Figure 15. Antenna connection

6.3 Type-C USB3.0 Connection

The module can be connected to PC through Type-C USB 3.0 interface. At this time, the USB to Cable switch needs to be turned OFF. Refer to [5.4 PC Jumper&SW Configuration](#).

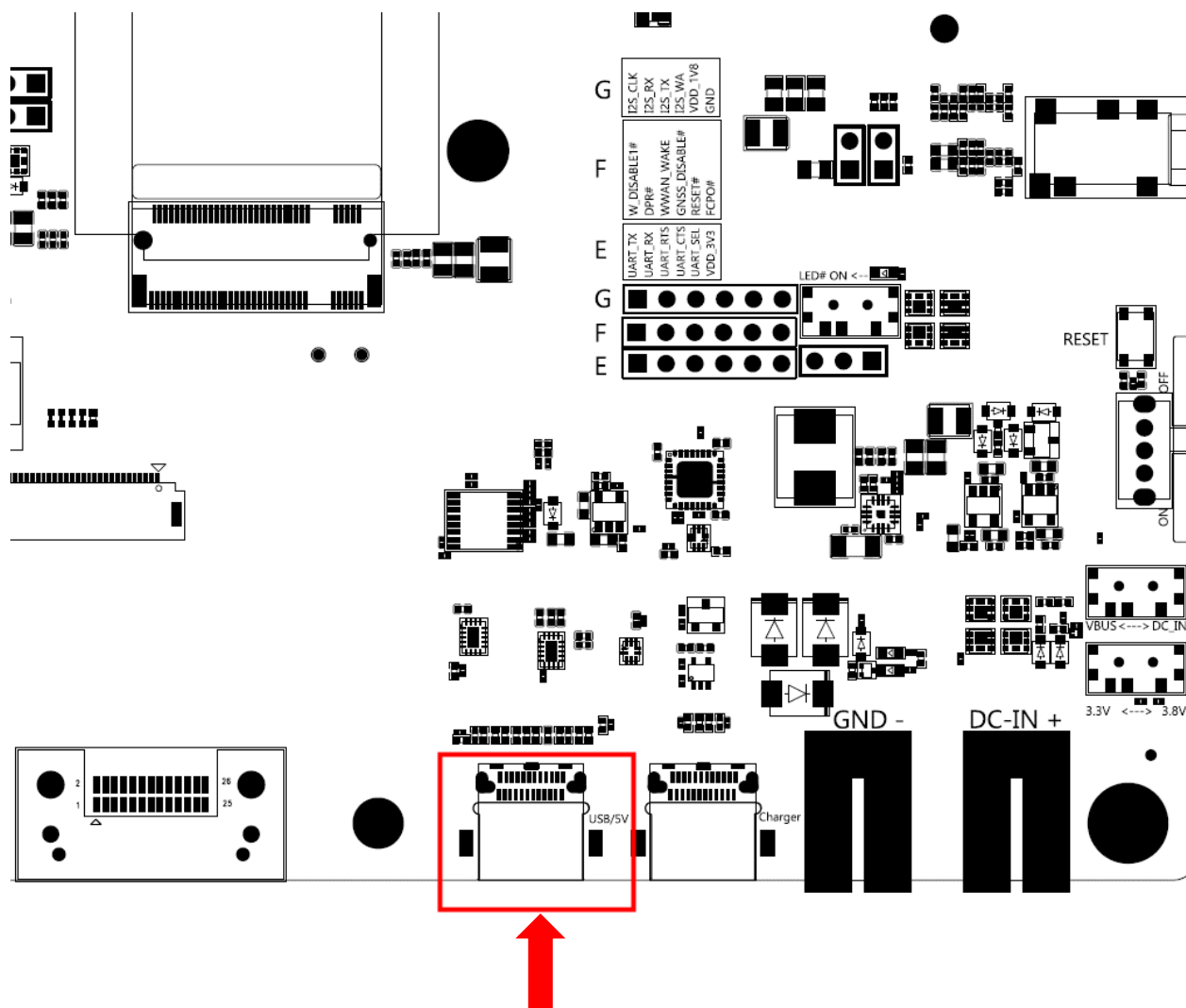


Figure 16. Type-C USB 3.0 configuration

6.4 MMW Connection

EVB-M2-F01 have three MMwave interfaces in total, and the module can be connected to the MMwave emission module through dedicated FPC and AiM interfaces, as shown in Figure 17 below.

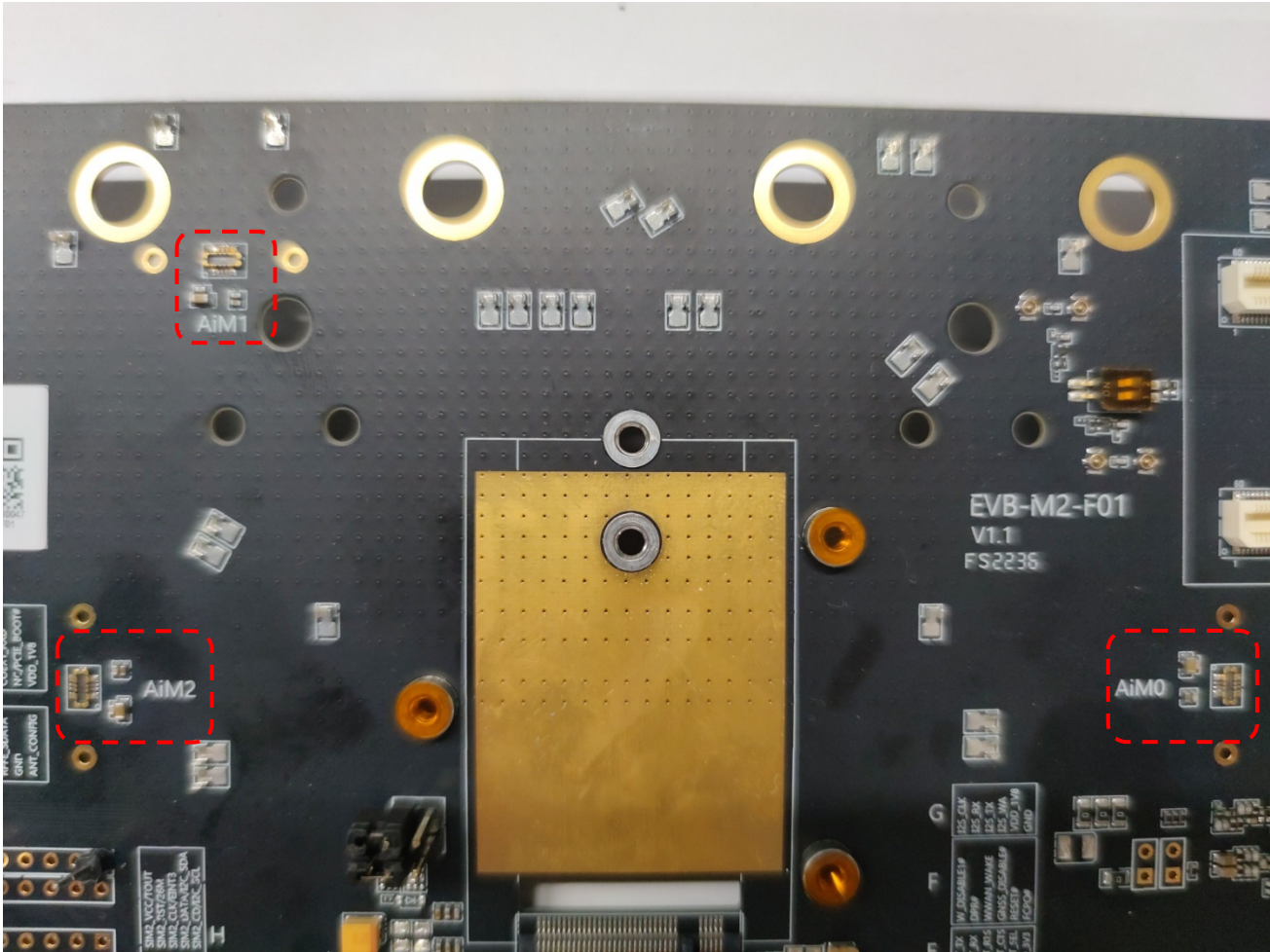


Figure 17. MMW Location

6.5 Debug Connection

EVB-M2-F01 supports only UART debugging.

Table 7. debug function

Function	Connector	Applicable Module	Remark
UART	Type-C USB2.0	All Support UART modules	- -

Firstly, take a cable connected with the module’s UART-TP, then connect cable at the UART-TX and UART-RX point of EVB-M2-F01 board by using busbar, and then the Type-C USB2.0 cable can be used to debug the module or capture the Log. For the method of serial port jumper, see 5.3 UART Serial Port Jumper Configuration.

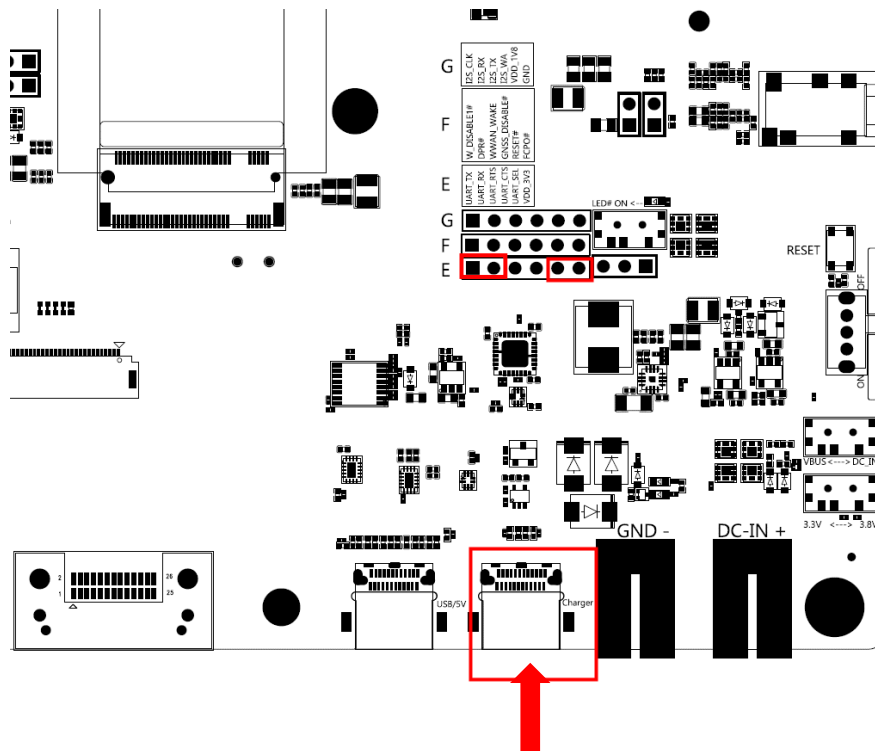


Figure 18. UART connection

7 Antenna Tuner

EVB-M2-F01 has four antenna tuners. SW301 is used to enable the RFFE signal for the antenna tuners on the EVB board. Tuner models and signals are shown in Figure 19.

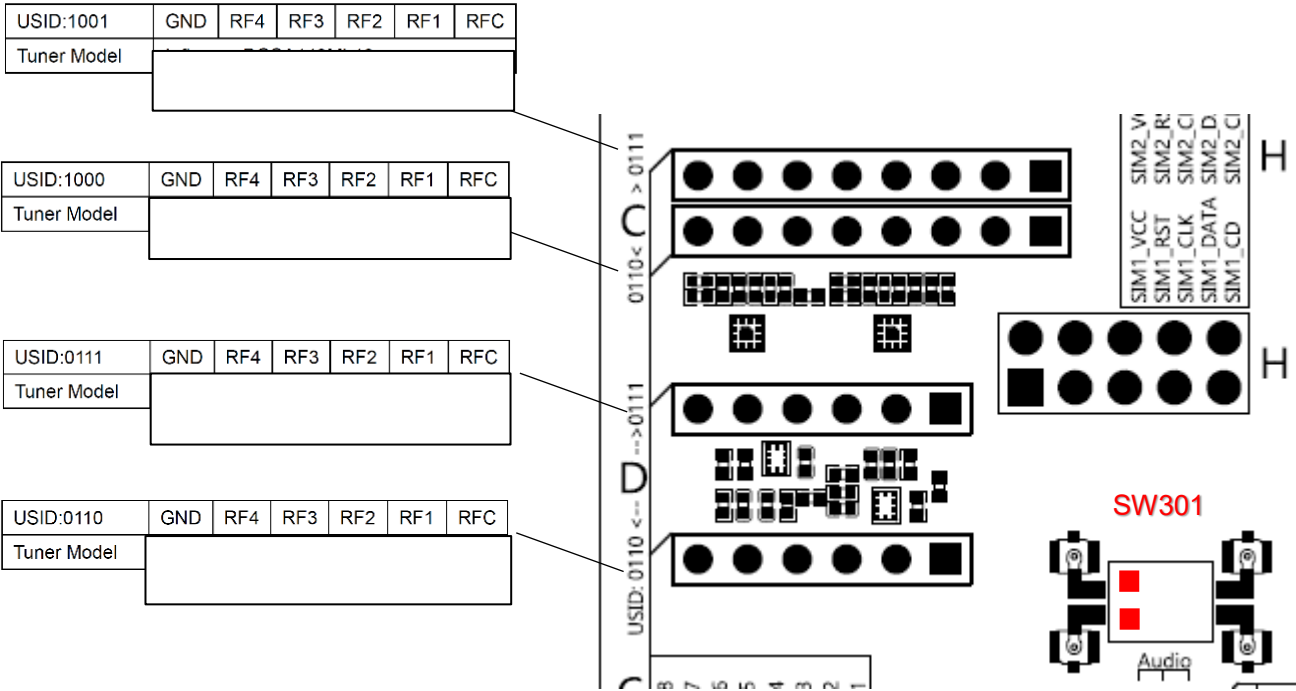


Figure 19. Antenna tuners