FIBOCOM
Perfect Wireless Connection

EVK-GT8230 User Manual

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Revision History

Version	Date	Remarks
V1.0.0	2013-09-03	Initial Version
V1.0.1	2013-01-04	Update the name of the document
V1.0.2	2013-01-30	1. Update developer kit product picture. 2. Add some notes for mini PCIe. 3. Delete POWER_ON and POWER_OFF.
V2.0.0	2013-09-13	Update the name of the document; Add chapter 3

Applicability Table

No.	Type	Note
1	H330	Need ADP-H330-xxx-yy
2	H350	Need ADP-H350-xxx-yy
3		

Contents

1 EVK Introduction

1.1 Product Review

EVK-GT8230 is the developer board of Fibocom 3G module, it worked with corresponding adapter.

This Manual describes the developer board EVK-GT8230, ensures the users can quickly and conveniently develop wireless communications using Fibocom Module.
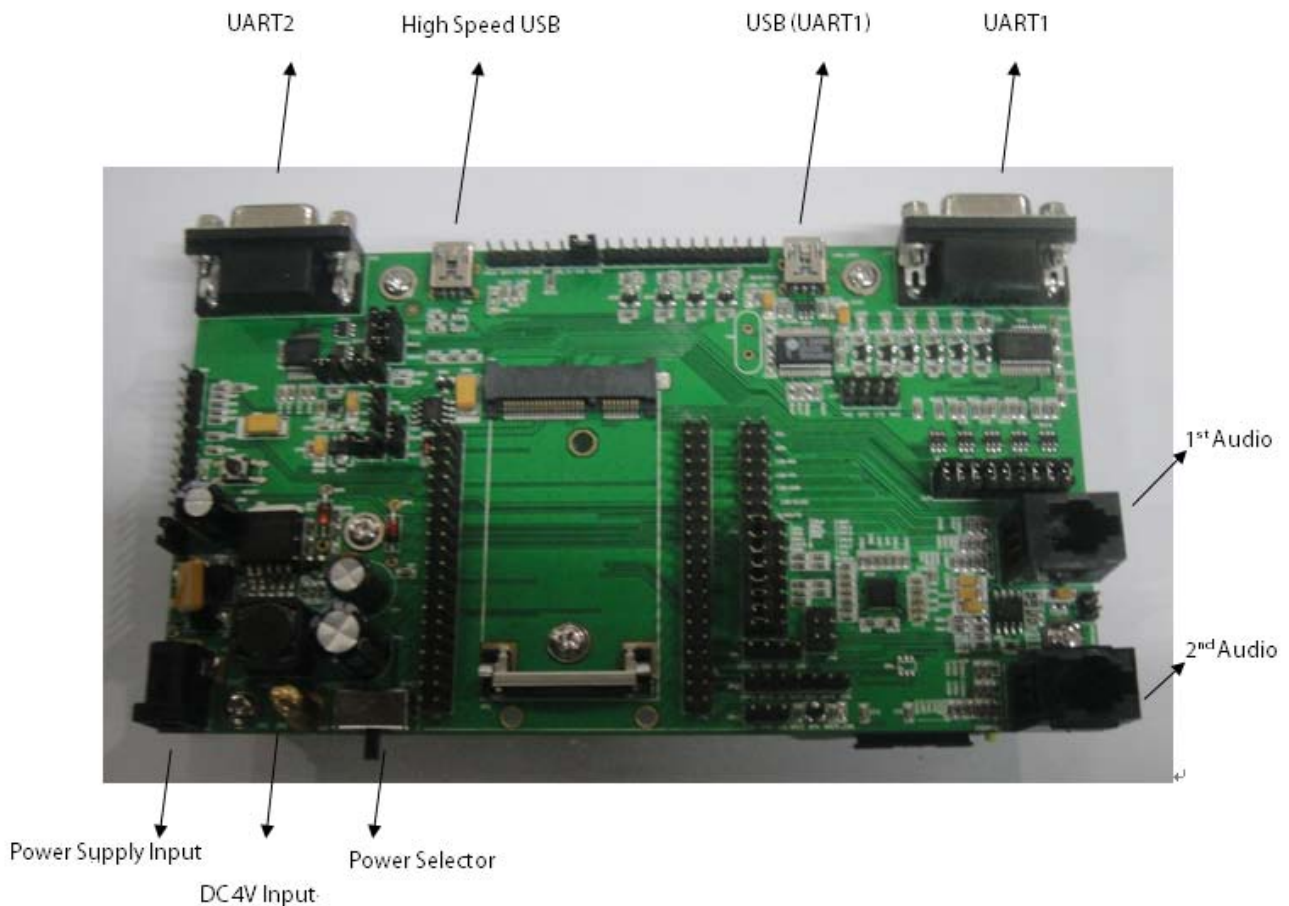
1.2 Developer Board Structure

Figure 1-1 GT8230

1.3 Block Diagram

GT8230 includes four functional blocks: Interface, Button, Test point and Power.

This picture shows the Block Diagram:
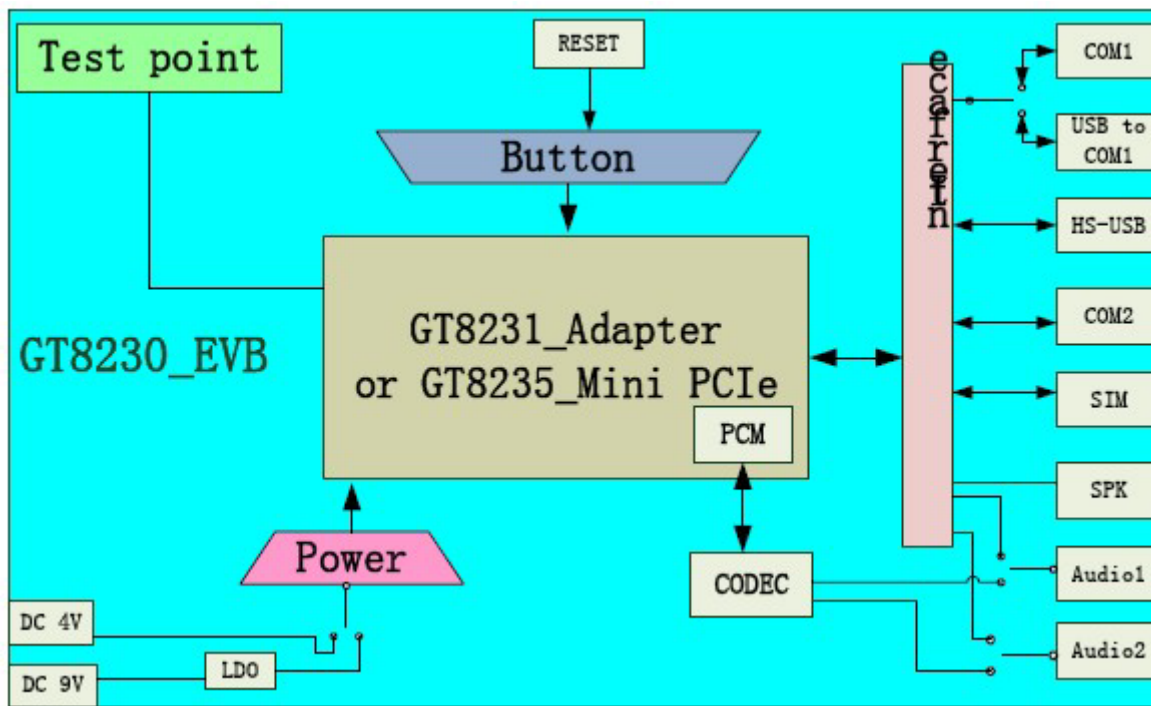

Figure 1-2 Block Diagram

Note: Reset button only reset Mini PCIe, it cannot reset adapter.

2 EVB Function Description

This section describes the different functions of each block; take ADP-H330 (H330 Adapter) as an example.

2.1 Power Supply

This developer board supports two kinds of power supply inputs.

The first power supply option can be directly connected with V40BAT (pin JP3) and GND (Pin JP2) to 4V (Note: For mini PCIe, use DC3.3V power supply), and second Power Supply option can be connected through the DC-DC adaptor, supplying 9V through (JP1).

As shown in Figure 2-1：

- Selection of Direct Power Supply, set the power selector switch (SWP1) to the left
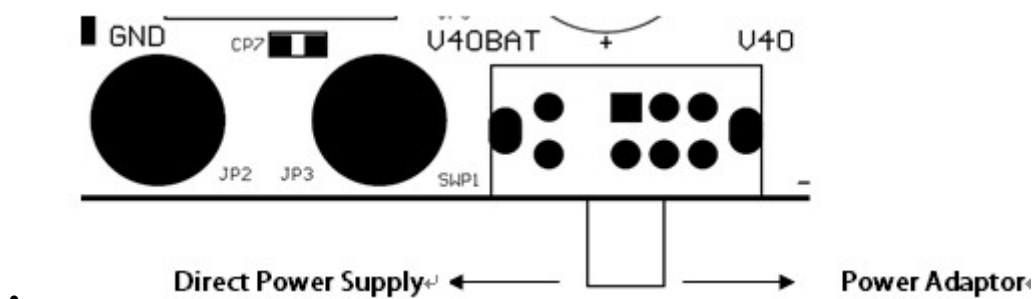- Selection of Power Adaptor, set the power selector switch (SWP1) to the Right

Figure 2-1 Power Switch

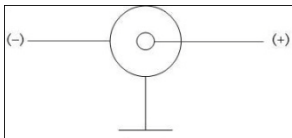## 2.1.1 Direct Power Supply

Direct Power Supply: The power supply is connected directly to the module, so the voltage range must comply with the H330 Specifications.

Power Connector	Description
V40BAT(JP3) GND(JP2)	DC Power Supply Voltage Range: 3.3 V ~ 4.2 V Recommended Voltage: 4.0V Input Current: > 2.0A

Note：Please use correct Voltage to avoid damage.

2.1.2 Power Adaptor

When an external power adaptor is plugged in, the developer board will use a DC-DC Buck circuit to convert to 4V supply and LV40 indicator will be ON.

Power Connector	Description
	Straight Insert Voltage Socket, Φ2.5mm; Input Voltage: 8V~15V; Input Power: ≥9W.

2.1.3 Power Supply Peripherals

There are two LDO chips (UP2 and UP3) on the developer board. 3.3V voltage generated after VBAT40 pass through UP2, 1.8V voltage generated after VDD33 pass through UP3, these two set of voltages support other IC, LED and circuit on the developer board.

Jumper Switch	Description
JP4	Jumper In: Turn ON 3.3V voltage output Jumper Out: No 3.3V Voltage Output
JP6	Jumper In : Enable LED Indicator for UART, GPIO Jumper Out : No LED indicator
JM5	Jumper In : Enable LED Indicator for Power ON Jumper Out : No LED indicator
JM11	Select Power Supply for CODEC inside the module; Jumper on Pin 1: VBAT connected with VSPK_M: power supplied by VBAT Jumper on Pin 3: VDD33 connected with VSPK_M: power supplied by VDD33
JM12 (Not Used)	Supply power to VDD_MMC inside the module; 1V8 connected with VDD_MMC: power supplied by 1V8; VDD33 connected with VDD_MMC: power supplied by VDD33
JA2	Supply power to CODEC on the developer board; Jumper on Pin 1: VBAT connected with VSPK: power supplied by VBAT; Jumper on Pin 3: VDD33 connected with VSPK: power supplied by VDD33

Note: When you test the parameter of current, please unplug the above six jumpers. The tested current will be the current consumed by module only.
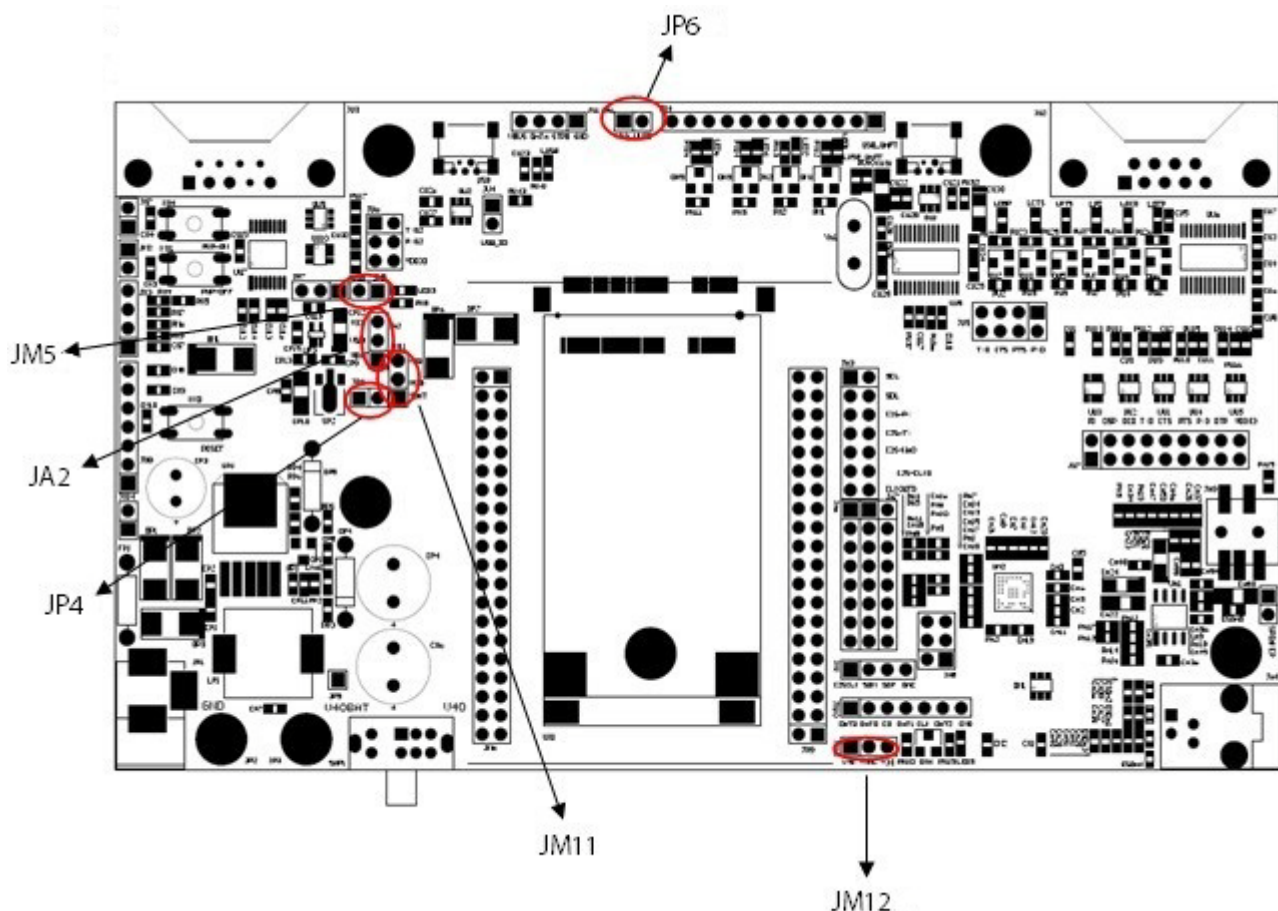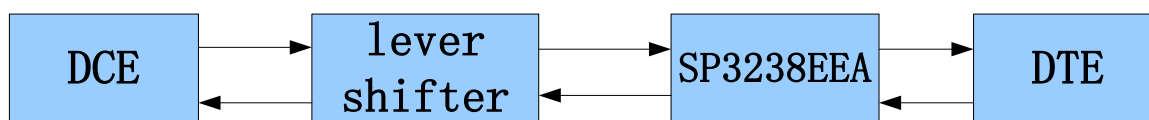
Jumpers Locations:

Figure 2-2 Jumpers Locations

2.2 UART1 (COM)

UART1 is a full 8-line interface, there are six LED indicators (LRI/LDCD/LDSR/ DTR/LRTS/LCTS), used to display the corresponding pin logic level in the module, it can be directly connected to PC or other DTE equipments. Developer board contains RS-232 Transceiver SP3238EEA inside.

PC and other DTE equipments can test all the functions of the module through this interface and AT Commands. The following picture shows the connection of UART1:

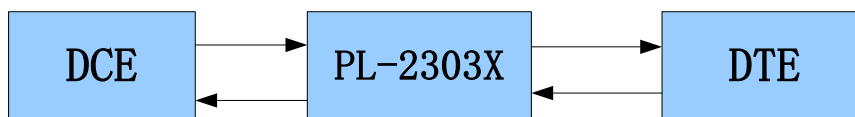| Jumper Switch	Description
JU7	All 9 Jumpers In, Turn ON UART1 Signal connection

Figure 2-3 Jumpers Locations

Note: For mini PCIe, connect the mini USB cable to the high speed USB port of the developer board, in the meantime, unplug jumper switch JP7, otherwise, this port cannot be used.

2.3 UART1 (USB)

U ART1 (USB) connector and UART1 connector are using the same internal UART interface inside the developer board, so they have the same functions and commands. The developer board contains a UART to USB converter chip (PL2303), it provides four lines（TXD/RXD/CTS/RTS）to UART interface of module after conversion, this USB connector is the mini USB connector, users can connect to the PC through switching cable (USB transfer to mini USB).

There is a LED indicator（LUSB-UART）next to the USB interface, used to display the connection between the interface and PC. If it is connected successfully, the light will on. The following picture shows the connection of USB (UART1):

Jumper Switch	Description
JU9	Turn on/off USB interface as communication interface

Note：

- You cannot use USB (UART1) and UART1 interface at the same time, please switch between JU9 and JU7.

- Install corresponding driver (USB to Serial port driver，EVB use PL2303 interface chip) when use USB interface.

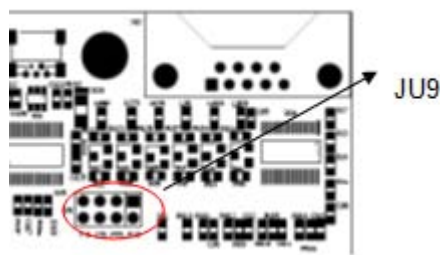- Mini PCIe doesn't support this port.

Figure 2-4 Jumpers Locations

2.4 USB Interface

The USB interface is a high-speed data transmission interface, a LED indicator (LUSB) used to display the connection between the interface and PC terminal. This USB interface is a mini USB interface, users can connect to the PC through switching cable (USB transfer to mini USB). If it is connected successfully, the light will on. The following picture shows the connection of High Speed USB:
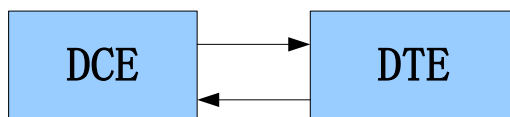
Jumper Switch	Description
JU4	for connecting to USB_ID

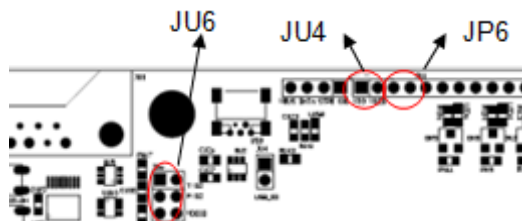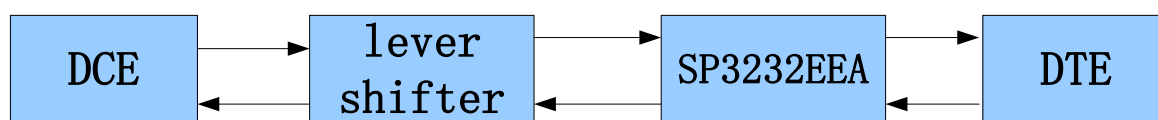Note：Install corresponding driver（driver for H330 module）when use USB interface.

Figure 2-5 Jumpers Locations

2.5 UART2（COM）

UART2 is a 2-lines interface (RXD/TXD) which can test the second UART of H330. It can be directly connected to PC or other DTE equipments. The following picture shows the communication process:

Jumper Switch	Description
JU6	Enable/disable UART2

Note: For mini PCIe, connect the mini USB cable to the high speed USB port of the developer board, in the meantime, unplug jumper switch JP7, otherwise, this port cannot be used.

2.6 SIM Card Interface

Developer board includes a complete SIM card socket and interface circuit. The following picture shows the diagram:
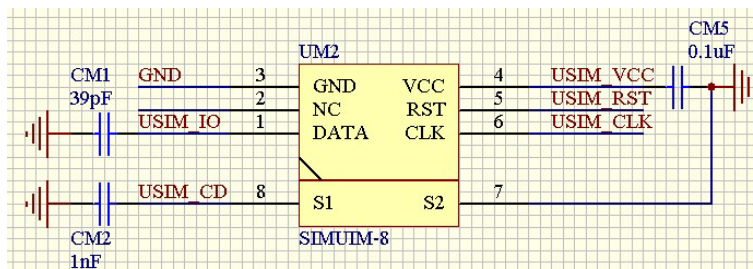

Figure 2-6 SIM Card Circuit

2.7 Audio Interface

Developer board includes two audio interfaces and a speaker interface. The second audio interface and speaker interface are connected to the same audio network of the module, so you cannot use these two interfaces at the same time.

Besides, developer board provides two Audio frequency modulation Options.

- Option 1: use of the CODEC inside the module

  Some modules does not support CODEC, please refer to the module hardware user manual.

- Option 2: use the External CODEC in the EVB

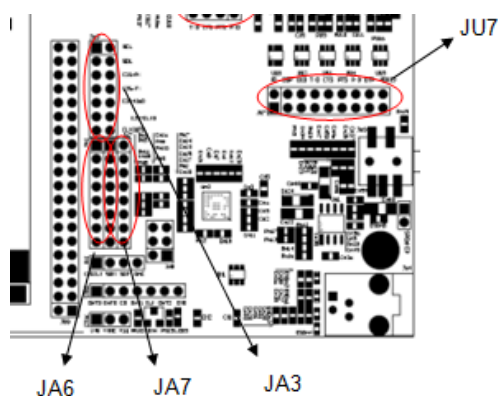| Jumper Switch	Description
JA6	Jumper to JA6 select the CODEC inside the module
JA7	Jumper to JA7 select the use of External CODEC in the EVB
JA3	Jumper to JA3 select the use of External CODEC in the EVB

Figure 2-7 Jumpers Locations

2.7.1 Audio1

The handle socket JA1 on the developer board is the first channel audio interface.

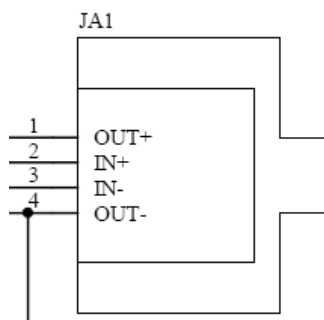| Jumper Switch	Description	
JA6	JA6(5-6pin)	On/off，connect to MIC+ of the headset
	JA6(7-8pin)	On/off，connect to MIC- of the headset
	JA6(9-10pin)	On/off, connect to EAR- of the headset
	JA6(11-12pin)	On/off, connect to EAR+ of the headset

As shown in this picture:

Figure 2-8 Handle Socket JA1

2.7.2 Audio2

The handle socket JA4 on the developer board is the second channel audio interface.

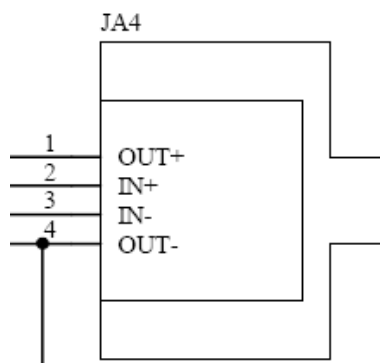| Jumper Switch	Description	
JA4	JA4(1-2pin)	On/off，connect to AUXI- of the handle
	JA4(3-4pin)	On/off，connect to AUXI+ of the handle
	JA4(13-14pin)	On/off，connect to AUXO+ of the handle
	JA4(15-16pin)	On/off，connect to AUXO- of the handle

As shown in this picture:

Figure 2-9 Handle Socket JA4

2.7.3 Speaker

The speaker interface and handle socket are connected to the same audio interface of the module, therefore, these two interfaces cannot be used simultaneously.

Jumper Switch	Description	
JA8	JA8(1-2pin)	On/off, connect to AUXO- of the speaker
	JA8(3-4pin)	On/off, connect to AUXO+ of the speaker
	JA8(5-6pin)	On/off, PA power supply

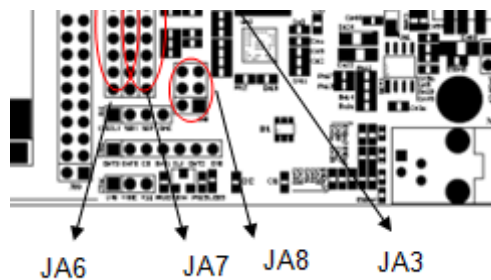

Figure 2-10 Jumpers Locations

2.8 RESET Button

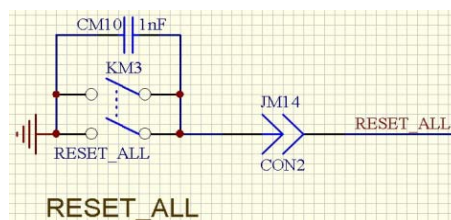The developer board has a RESET button. The following picture shows the diagram:

Figure 2-11 RESET Circuit

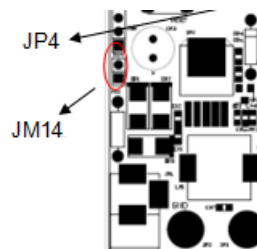| Jumper Switch	Description
JM14	Enable/disable，RESET switch

Figure 2-12 Jumpers Locations

2.9 Test Point

For testing and debugging, there are several multi-group test pin on the developer board, please refer to the following table:

Jumper Switch	Test group	Test PIN
JM3	VRTC & ADC	pin 1: VRTC_1V8
		pin 2: VBACKC
		pin 3: ADC2
		pin 4: ADC1
Jumper Switch	Test group	Test PIN
JM8	CLOCK & EINT	pin1: CLKOUT0
		pin2: CLK32K
		pin3: USIF1_SCLK
		pin4: T_OUT0
		pin5: EINT2
		pin6: GND
		pin7: EINT1
JM10	MMC	pin1: MMC_DAT3
		pin2: MMC_DAT0
		pin3: MMC_CD
		pin4: MMC_DAT1
		pin5: MMC_CLK
		pin6: MMC_DAT2
		pin7：MMC_CMD
JA3	PCM	pin1: I2C_SCL
		pin3: I2C_SDA

		pin5: I2S_RX
		pin7: I2S_TX
		pin9: I2S_WA0
		pin11: I2S_CLK0
		pin13: CLKOUT0
JU1	HSIC	pin1: USB_VBUS
		pin2: HSIC_USB_DATA
		pin3: HSIC_USB_STRB
		pin4: GND
JM4	MIPI	pin 1: 1V8
		pin 2: NC
		pin 3: MIPI_RX_DATA / SPI MISO
		pin 4: MIPI_RX_FLG / SPI MOSI
		pin5: MIPI_RX_RDY / SPI Clock
		pin6: MIPI_RX_WAKE
		pin7: MIPI_TX_DATA / SPI_MRDY
		pin8: MIPI_TX_FLG / SPI_SRDY
		pin9: MIPI_TX_RDY
		pin10: MIPI_TX_WAKE
		pin11: GPIO_049
		pin12: GND
JM1	Other	pin 1: I2SCLK1

		pin 2: USIM_DM
		pin 3: USIM_DP
		pin 4: DACOUT

2.10 Default Jumper Switch

The following picture shows the default jumper switch position on the developer board:
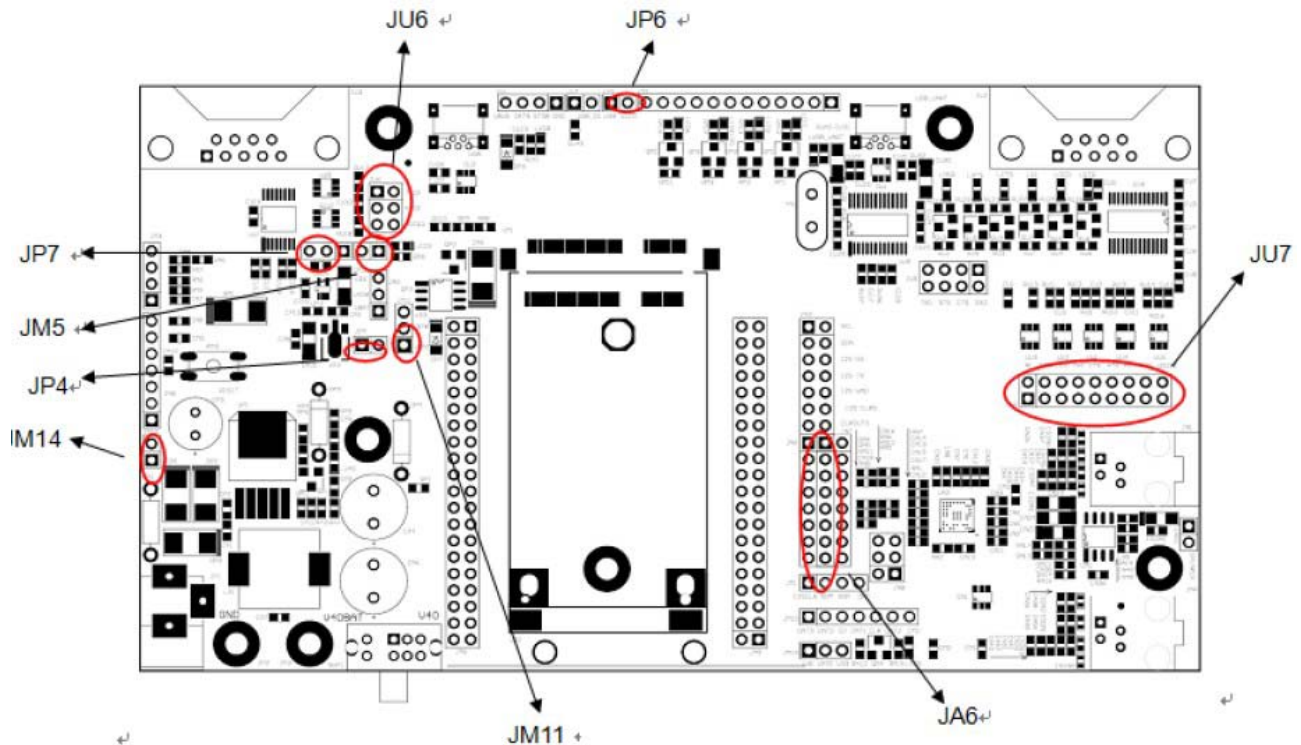

Figure 2-13 Jumpers Location

No.	Jumper Switch	Quantity	Description
1	JM14	1	RESET connection
2	JP4	1	4V switch to 3.3V connection
3	JM5	1	Module output 1.8V to indicator
4	JP7 (pin2-pin3)	1	Supply 1.8V connection from power
5	JU6	3	UART2 connection
6	JP6	1	Power supply for LED indicator
7	JU7	9	UART1 connection
8	JA6	8	Audio connection
9	JM11 (pin2-pin3)	1	Power supply for CODEC inside the module

3 Adapter Introduction

3.1 Adapter Overview

The adapter is used to connect module and developer board together, here take H330 Adapter (ADP-H330) as an example.

3.2 Appearance

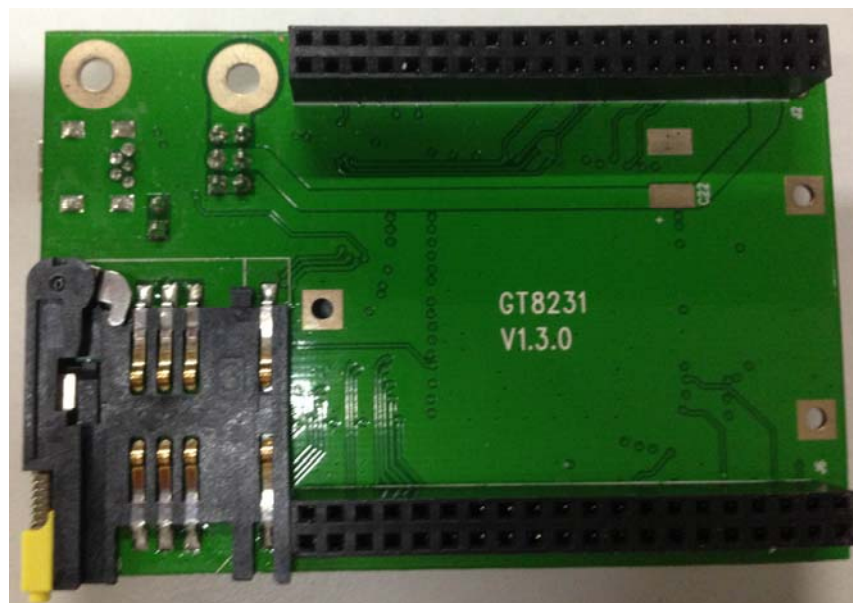The following figure shows ADP-H330.

Figure 3-1 ADP-H330 Top View

Figure 3-2 ADP-H330 Bottom View

3.3 Adapter Structure
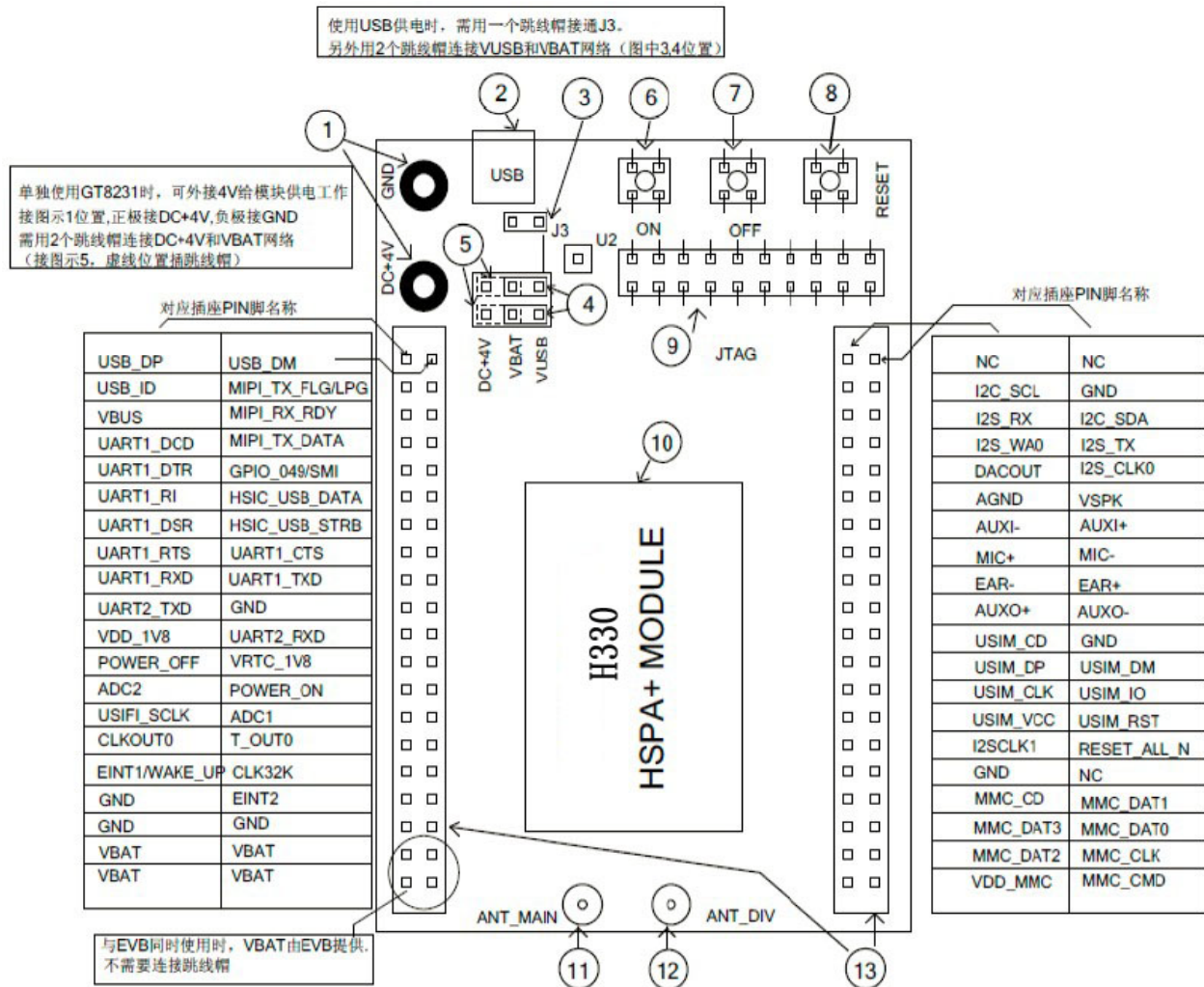

Figure 3-3 ADP-H330

No.	Category	Description
1	Test point	DC4V interface
2	USB interface	USB communication interface
3	Jumper	USB power supply switch control
4	Jumper	Power selection: connect VUSB and VBAT, VUSB supplies the power
5		Power selection: connect DC4V and VBAT, DC4V supplies the power
6	Button	On button, power on the module
7	Button	Off button, power off the module
8	Button	Reset button, reset the module (standard module is power off after reset)
9	Test point	JTAG test point, used for Debug
10	Module	H330 communication module

11	Antenna interface	Main antenna interface, U.FL connector
12	Antenna interface	Diversity antenna interface, U.FL connector
13	Connector	Connector between Adapter and EVB; 80Pin

Note: If you connect Adapter to the developer board, please remove jumper ③ and ④.

3.4 Adapter Operation

3.4.1 Work with GT8230

1) Adapter doesn't need power supply; the jumper of adapter can be removed.

2) Please notice the direction of adapter and developer board.

3) Adapter 80 Pin corresponds to developer board 80 Pin socket.

Note: Misplace may cause damage to the module.

4) USIM card can be installed at the bottom of adapter or developer board GT8230.

Note: Do not insert the SIM card at the same time, it may works abnormal.

3.4.2 Only Adapter

Use external DC+4V power first, jumpers connect to ⑤ pin (as shown in Figure3-3), press Power ON.

If you want to use USB to supply the power, please connect the jumpers in ③ and ④.

Note: The load capacity of USB port must be 5V, 700mA or above, otherwise the module maybe abnormal.

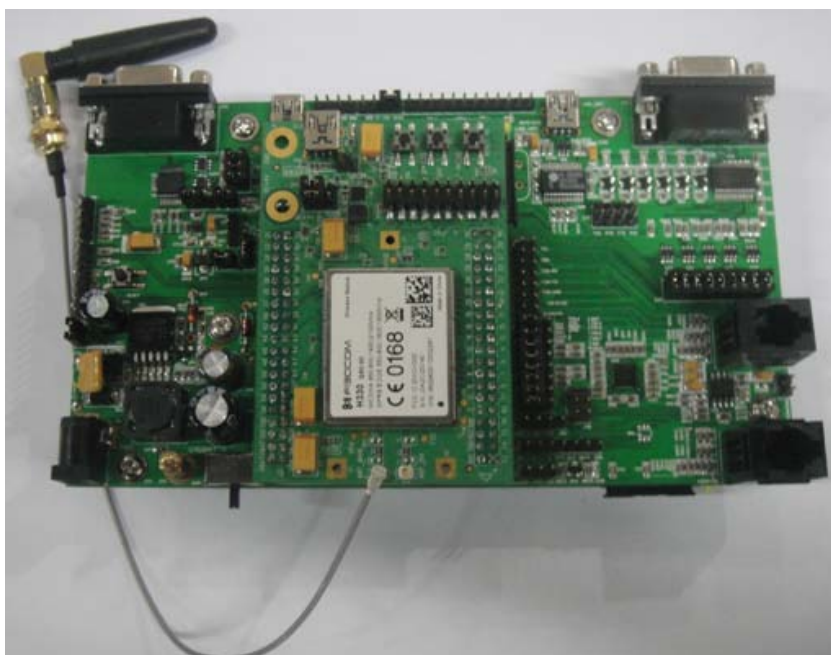# 3.5 Installation

Adapter installation:

Figure 3-4 Adapter (H330 Adapter) Installation Diagram

Note: Please pay attention to the direction of Adapter to avoid damage.

MINI PCI Installation:

Figure 3-5 H330 Mini PCIe Installation Diagram

Note: Before install Mini PCIe, please remove the J5 screw on the developer board, otherwise it cannot be installed.