



SIM7020 Series EVB Quick Start Guide

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About Document

Document Information

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Revision	Date	Owner	Status / Comments
1.0	April 17, 2018	Albert	First Release.

Related Documents

This document applies to the following products:

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SIM7020E	NBI	17.6*15.7	Band 1/3/5/8/20/28

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1 Purpose of this document

With SIMCom Evaluation board (EVB) kit, developer could verify each function quickly and easily. This document is aim to introduce every interface usage of this EVB kit, and send AT command to demo module functions.

2 Evaluation Board Overview

2.1 SIM7020 EVB full Kit Overview

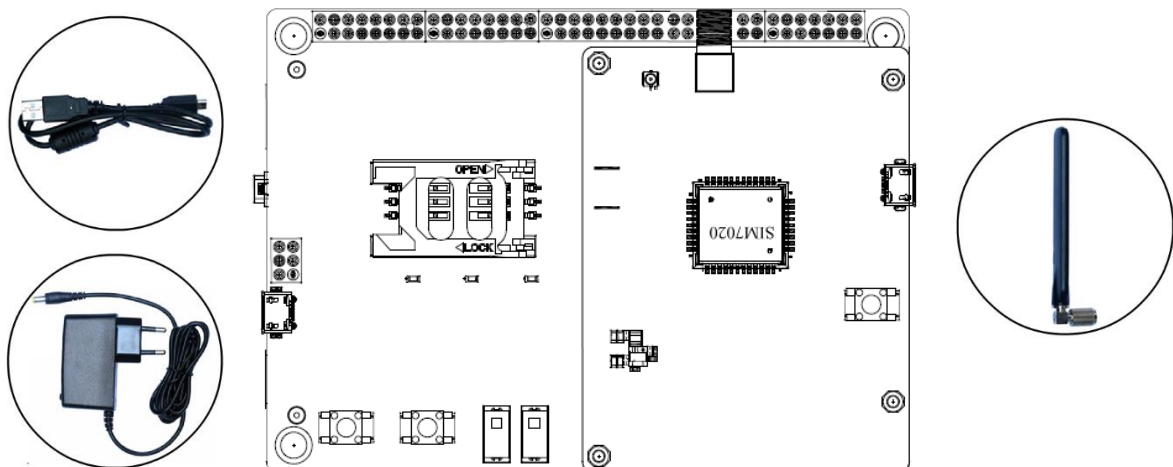
Here is an overview of the total package, which includes EVB kit and TE kit.

EVB kit package list is following,

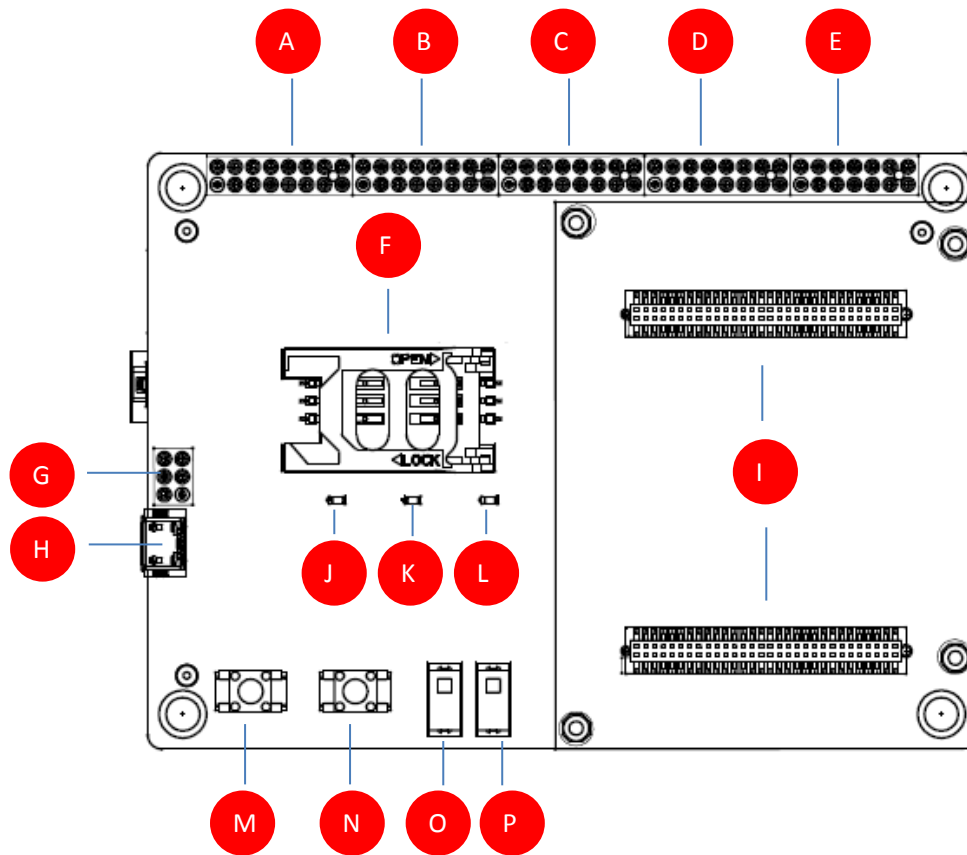
- 1) SIMCom evaluation board;
- 2) 5V DC Adapter (EU standard or US standard);
- 3) Micro USB cable.
- 4) LTE antenna;

SIM7020X (x stands for C or E) TE Kit package list is following,

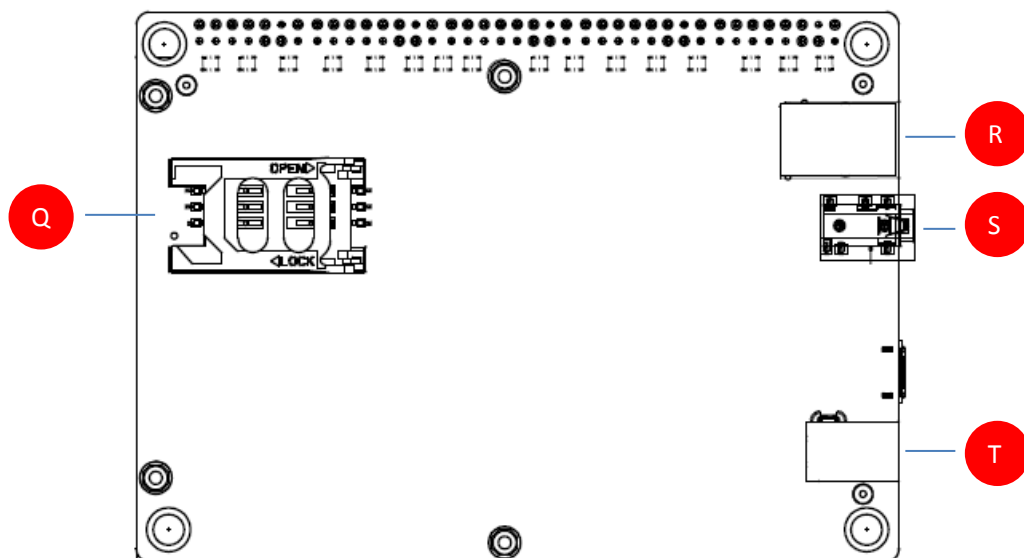
- 1) SIM7020x TE board;



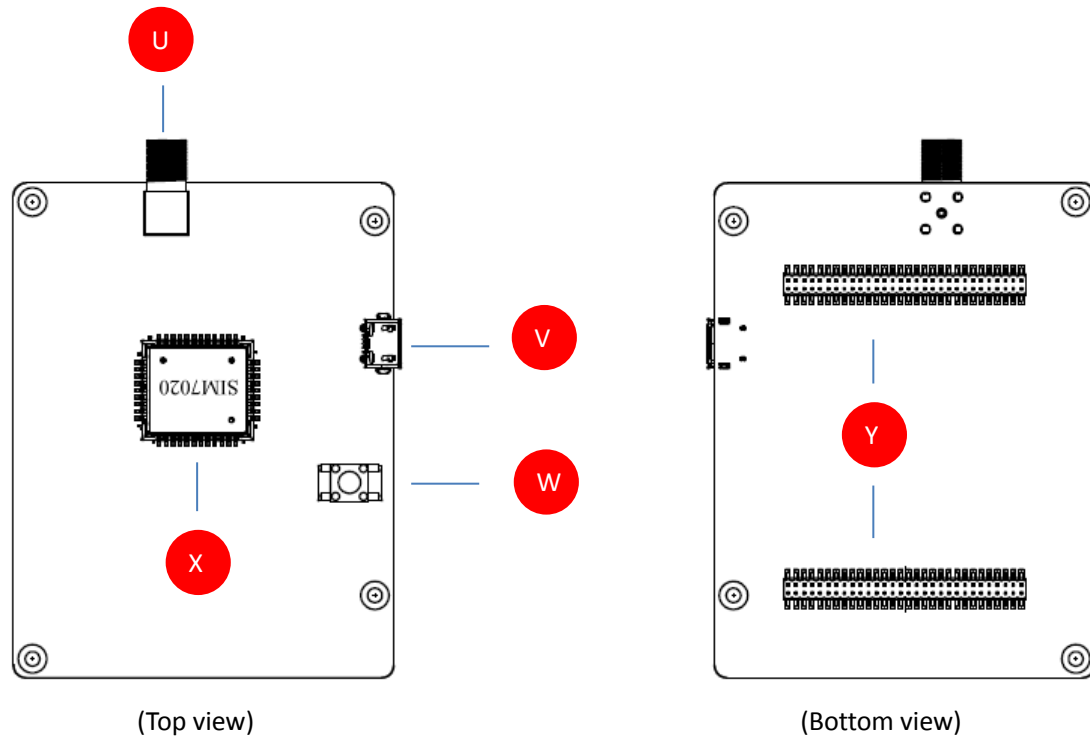
Here is top view of SIMCom EVB.



And bottom view of SIMCom EVB.



Below illustration is top and bottom view of SIM7020 TE board.



In order to get proper part to test functions, here is brief list for EVB and TE kit part numbers.

Kit type	Part Number	Comments
SIMCom EVB Kit	S2-106XN	Applied to SIM7000, SIM7500, SIM7600 and SIM7020 TE
SIM7020E-TE Kit	S2-107G5	For Europe, Australia and South Asia.
SIM7020C-TE Kit	S2-107G4	For China, India

2.2 Interface Introduction

From above overview on the EVB, we can see many signal interfaces, communication ports or antenna interface. Now, we will describe them in detail.

Index	Position	Description	Index	Position	Description
A	J301_PIN_1	PWRKEY	B	J302_PIN_1	STATUS
	J301_PIN_2	RESET		J302_PIN_8	GPIO1
	J301_PIN_3	URAT2_RXD		J302_PIN_15	SIM_DET
	J301_PIN_4	URAT2_TXD		J302_PIN_x	NC
	J301_PIN_5	RI	C	J303_PIN_9	VDD_EXT
	J301_PIN_6	DCD		J303_PIN_10	GND
	J301_PIN_7	DTR		J303_PIN_12	VDD_1.8V
	J301_PIN_8	RXD		J303_PIN_x	NC
	J301_PIN_9	CTS	D	J304	NC
	J301_PIN_10	RTS	E	J305	NC
	J301_PIN_11	TXD	F	J202	Main sim slot
	J301_PIN_12	NC	G	J401	n/a
	J301_PIN_13	ADC	H	J204	USB-2-UART
	J301_PIN_14	NC	I	J101 / J102	To TE board
	J301_PIN_15	NC	J	D402	Status LED
	J301_PIN_16	NETLIGHT	K	D401	Network LED
Index	Position	Description	Index	Position	Description
S	X501	Audio jack	L	D201	Power LED
T	J103	+5V DC input	M	SW401	PWRKEY
U	TE_J105	LTE antenna SMA	N	SW402	Reset
V	TE_J202	USB interface	O	S201	Power switch
W	TE_SW101	PSM wake button	P	S401	RF switch
X	TE_U1	SIM7020 module	Q	J203	sim slot (n/a)
Y	TE_J201/J203	To SIMCom EVB	R	J502	Handset jack

※ Notice

- ✗ Module VBAT range is from 2.1V to 3.6V, typical is 3.3V recommended.
- ✗ Module GPIO pins are at 1.8V logical level. Cannot be connected to external 3.0V or higher level signals directly.
- ✗ SIM7020 series modules are NB1 only, without GNSS technology.

3 Installations and Communication

3.1 Driver installation

There have two USB jacks, one is on EVB board (USB-2-UART, position **H**), and another is on TE board (position **V**).

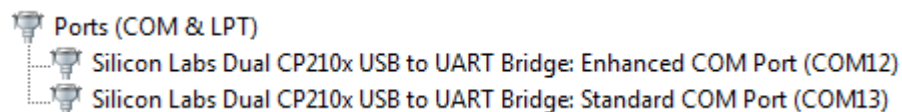
3.1.1 USB-to-UART interface driver installation

This USB-to-UART chipset on board is from Silicon labs.

Here is the driver link.

<https://www.silabs.com/products/development-tools/software/usb-to-uart-bridge-vcp-drivers>

After driver installed properly and completely, there have two virtual USB ports, COM12 and COM13.

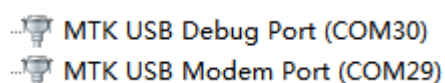


Interface	Number	Module UART	Comments
ECI	COM 12	UART1	Full mode for AT communication
SCI	COM 13	UART2	no hardware flow control, for FW upgrade

3.1.2 Module USB interface driver installation

SIM7020 Chipset is from MTK (MediaTek). SIMCom provide proper driver to developer, please contact local FAE.

After USB driver installed properly and completely, there will be 2 virtual ports, debug port and modem port.



USB interface is used for taking genie log only.

3.2 Accessories installation

Now, in order to do functional test, necessary accessories need to be installed into EVB and TE board.

- 1) insert SIM card to main sim card slot (position **F**);
- 2) install LTE antenna (position **U**) ;
- 3) Insert micro USB cable to EVB board (position **H**) for UART communication or TE board (position **V**) for taking genie log.
- 4) Insert +5V DC adapter to EVB board (position **T**).

3.3 AT command Communication

3.3.1 Power on device

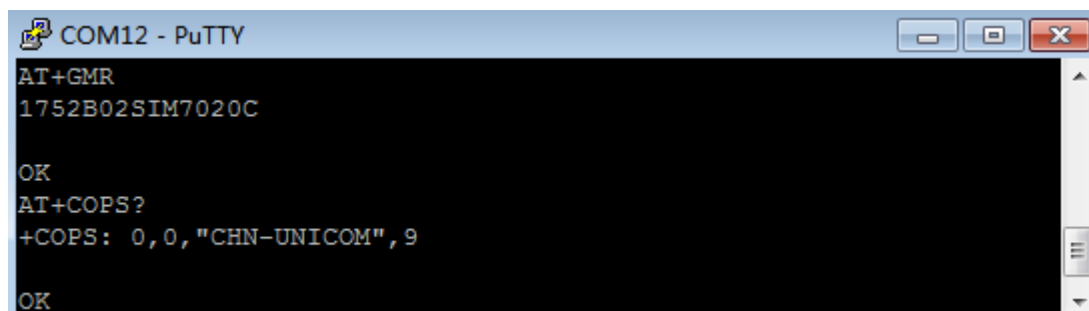
- 1) Switch RF on (n/a for SIM7020 TE, flight mode signal is not connected out);
- 2) Switch power on;
- 3) Press POWER_ON button for second.

Now status LED light is solid on, power LED light is solid on, while network LED light is blinking with below behaviors.

Network LED	Status Description
64ms on, 800ms off	Network scanning, not registered
64ms on, 3000ms off	Registered network (PS service)
64ms on, 300ms off	Data communication (PPP or TCP/IP)

3.3.2 Communication through UART interface

SIM7020 UART communication supports auto baud rate, as well as other baud rates up to 3Mbps. Here take Putty for example, configure serial port with COM12, 115200bps-8-1-N.



```

COM12 - PuTTY
AT+GMR
1752B02SIM7020C
OK
AT+COPS?
+COPS: 0,0,"CHN-UNICOM",9
OK
  
```

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