Application

SIM7000 Series EVB Quick Start Guide

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About Document

Document Information

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Document Status	Released/Confidential

Revision History

Revision	Date	Owner	Status / Comments
1.0	April 8, 2018	Albert	First Release.

Related Documents

This document applies to the following products:

Name	Type	Size (mm)	Comments
SIM7000E/C/A/G	Cat-M1(/NB1/ GSM)	24*24	N/A
SIM7000E-N SIM7000C-N	NB1	24*24	N/A

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Contents

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

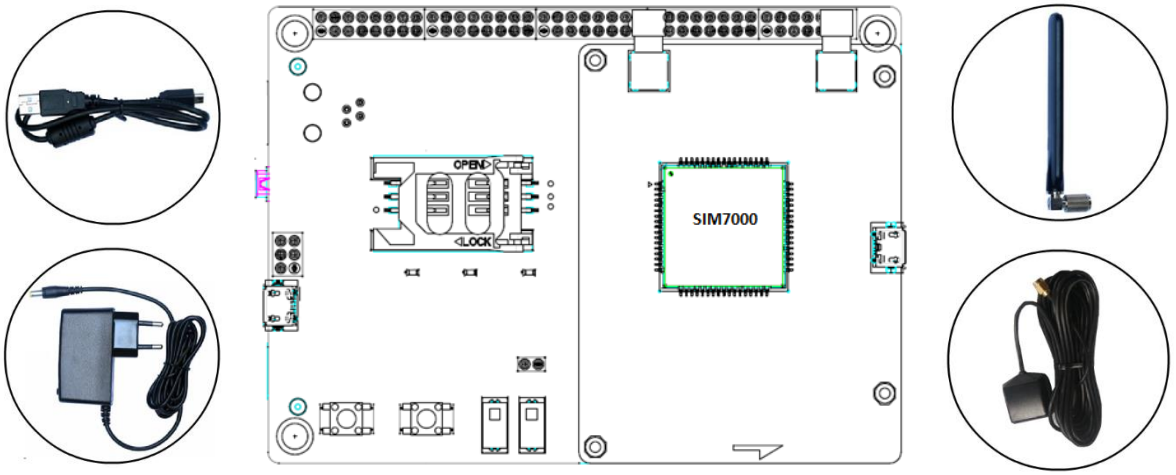
2.1 SIM7000 EVB full Kit Overview

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

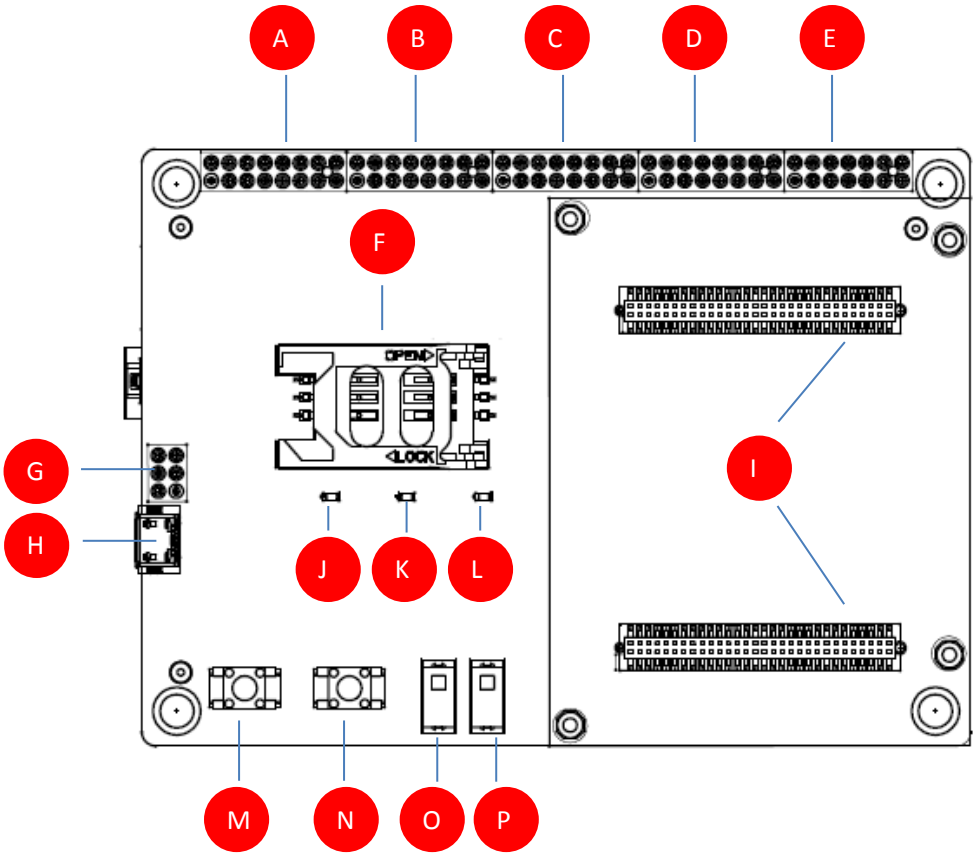
1) SIMCom evaluation board;
2) 5V DC Adapter (EU standard or US standard);
3) Micro USB cable.

SIM7000X (x stands for A, C or E version) TE Kit package list is following,

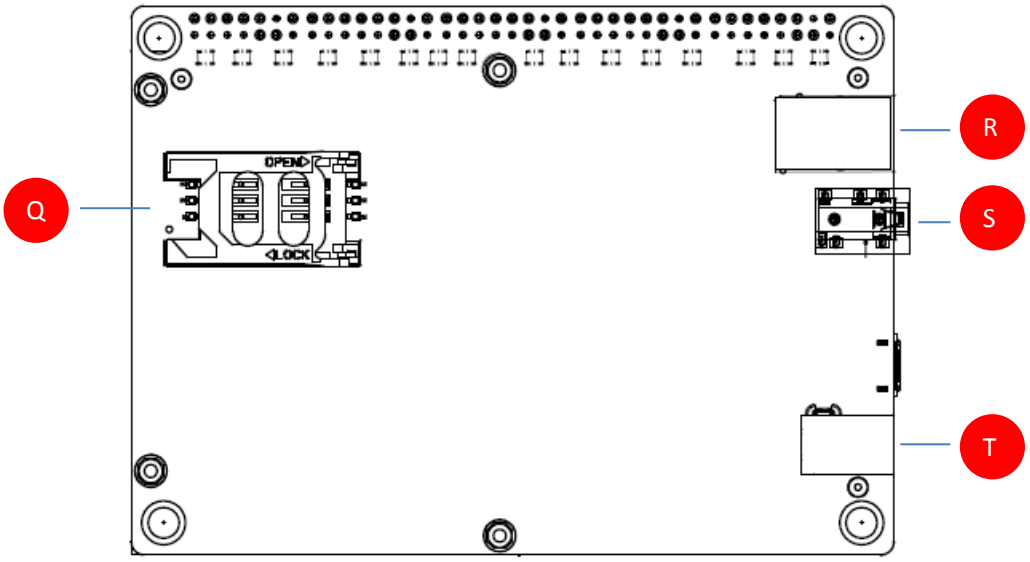
1) SIM7000x TE board;
2) LTE antenna;
3) GNSS active antenna.



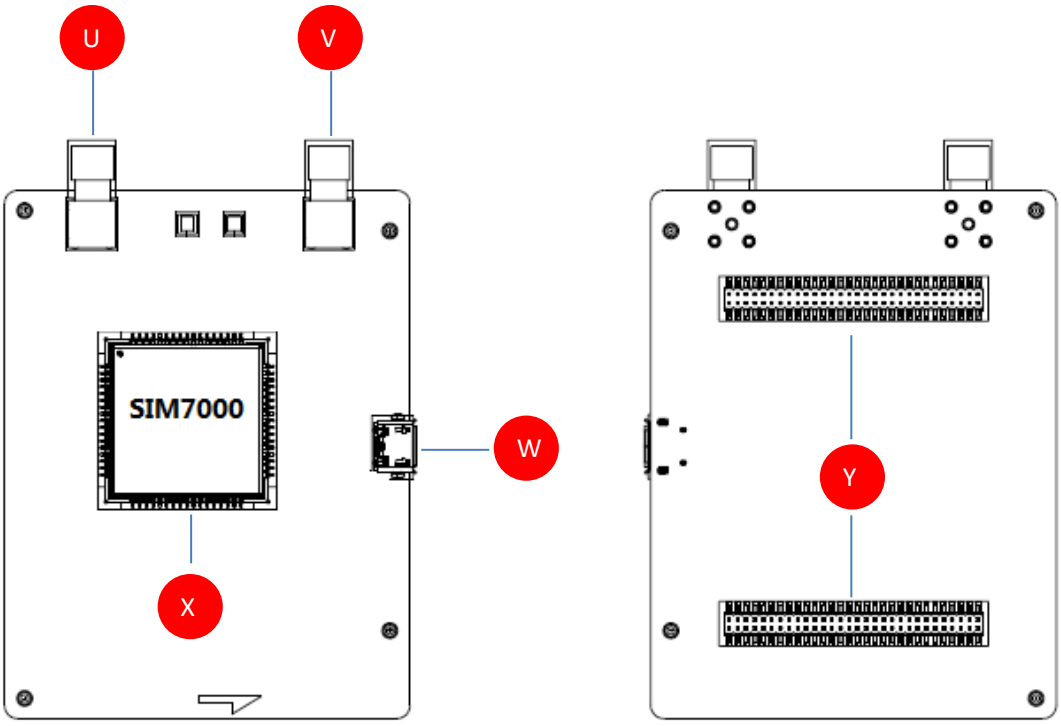
Here is top view of SIMCom EVB.



And bottom view of SIMCom EVB.



For SIM7000 TE board, we can see below overview.



(Top view) (Bottom view)

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

Kit	Part Number	Comments
SIMCom EVB Kit	S2-106XN	Applied to SIM7000, SIM7500,SIM7600 and SIM7020 TE
SIM7000E-TE Kit	S2-10735	For Europe, Australia and South Asia.
SIM7000C-TE Kit	S2-10734	For China, India
SIM7000A-TE Kit	S2-1073B	For Verizon network
SIM7000A-A-TE kit	S2-107HE	For AT&T network
SIM7000JC-TE kit	S2-1073F	For Japan
SIM7000G-TE Kit	S2-197HC	Global roaming
SIM7000C-N-TE Kit	S2-1073L	NB1 only
SIM7000E-N-TE Kit	S2-1073T	NB1 only

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
A	J301_PIN_1	PWRKEY
	J301_PIN_2	RESET
	J301_PIN_3	NC
	J301_PIN_4	MDM_LOG_TX
	J301_PIN_5	RI
	J301_PIN_6	DCD
	J301_PIN_7	DTR
	J301_PIN_8	RXD
	J301_PIN_9	CTS
	J301_PIN_10	RTS
	J301_PIN_11	TXD
	J301_PIN_12	NC
	J301_PIN_13	ADC1
	J301_PIN_14	NC
	J301_PIN_15	NC
	J301_PIN_16	NETLIGHT

Index	Position	Description
B	J302_PIN_1	STATUS
	J302_PIN_2	NC
	J302_PIN_3	NC
	J302_PIN_4	NC
	J302_PIN_5	NC
	J302_PIN_6	NC
	J302_PIN_7	NC
	J302_PIN_8	GPIO11
	J302_PIN_9	NC
	J302_PIN_10	NC
	J302_PIN_11	GPIO12
	J302_PIN_12	NC
	J302_PIN_13	NC
	J302_PIN_14	NC
	J302_PIN_15	SIM_DET
	J302_PIN_16	NC

Index	Position	Description
C	J303_PIN_1	NC
	J303_PIN_2	NC
	J303_PIN_3	NC
	J303_PIN_4	NC
	J303_PIN_5	NC
	J303_PIN_6	NC
	J303_PIN_7	NC
	J303_PIN_8	NC
	J303_PIN_9	VDD_EXT
	J303_PIN_10	GND
	J303_PIN_11	VCC_3V3
	J303_PIN_12	VCC_1V8
	J303_PIN_13	NC
	J303_PIN_14	NC
	J303_PIN_15	NC
	J303_PIN_16	NC

Index	Position	Description
D	J304_PIN_1	GPIO4
	J304_PIN_2	NC
	J304_PIN_3	NC
	J304_PIN_4	NC
	J304_PIN_5	NC
	J304_PIN_6	NC
	J304_PIN_7	NC
	J304_PIN_8	NC
	J304_PIN_9	NC
	J304_PIN_10	NC
	J304_PIN_11	NC
	J304_PIN_12	PCM_CLK
	J304_PIN_13	PCM_IN
	J304_PIN_14	PCM_OUT
	J304_PIN_15	PCM_SYNC
	J304_PIN_16	NC

Index	Position	Description
E	J305	NC
O	S201	Power switch
P	S401	RF switch
Q	J203	sim slot (n/a)
R	J502	Handset jack
S	X501	Audio jack
T	J103	+5V DC input
U	TE_J105	LTE antenna SMA
V	TE_J103	GNSS antenna SMA
W	TE_J102	USB interface
Y	TE_201/202	To EVB

Index	Position	Description
F	J202	Main sim slot
G	J401	n/a
H	J204	USB-2-UART
I	J101 / J102	To TE board
J	D402	Status LED
K	D401	Network LED
L	D201	Power LED
M	SW401	PWRKEY
N	SW402	Reset
X	TE_U1	SIM7000 module

※ **Notice**

1) Module GPIO pins are at 1.8V logical level. Can not be connected to external 3.0V or higher level signals directly.

3 Installations and Communication

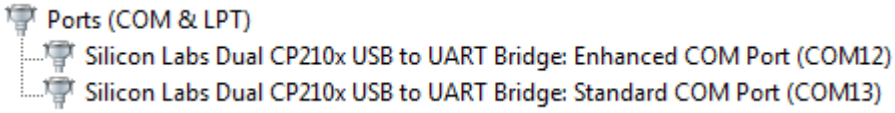
3.1 Driver installation

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

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.

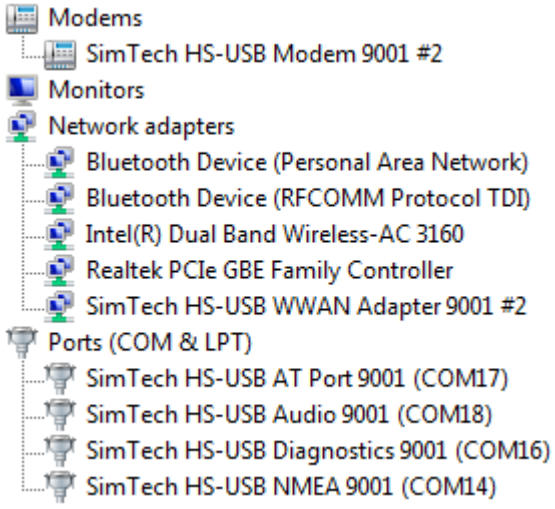


Here Enhanced port (COM12) is for AT command communication, while Standard port (COM13) usually is reserved for debug.

3.1.2 Module USB interface driver installation

SIM7000 Chipset is from Qualcomm. SIMCom provide proper driver to developer, please contact local FAE.

After USB driver installed properly and completely, there will be 6 virtual ports, AT port, Audio port, Diagnostics port, NMEA port, modem port and WWAN adapter port.



3.2 Accessories installation

Now, in order to do function test, we need install necessary accessories to EVB and TE board.

1) insert SIM card to main sim card slot (position **F**);
2) install LTE antenna (position **U**) and GNSS antenna (position **V**);
3) Insert micro USB cable to EVB board (position **H**) for UART communication or TE board (position **W**) for USB communication.
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 SIM7000 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.

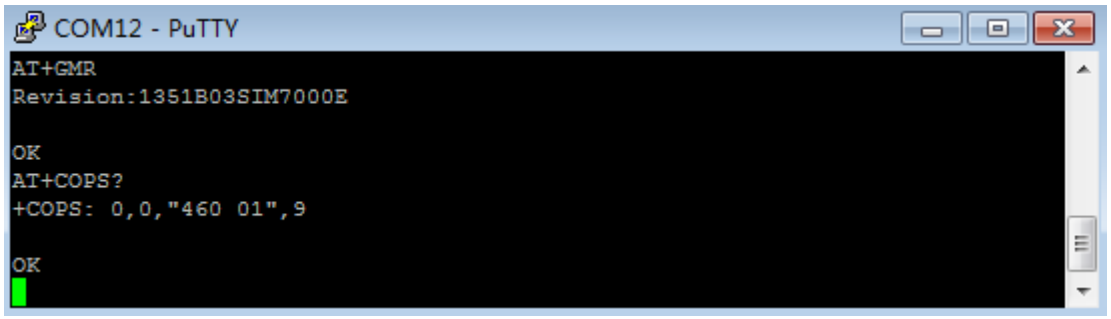
Network LED	Status Description
64ms on, 800ms off	Network scanning, not registered
64ms on, 3000ms off	Registered network (PS service)
64ms on, 300ms off	Data communication (PPP or TCPIP)

For AT communication, Putty, Tera Term or other serial port program could be used.

3.3.2 Communication through UART interface

SIM7000 UART communication supports auto baud rate, as well as other baud rates up to 4Mbps.

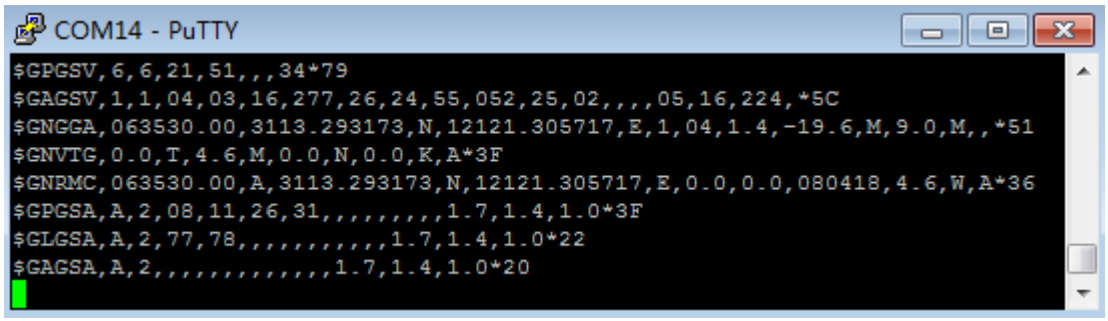
Here take Putty for example, configure serial port with COM12, 115200bps-8-1-N.



3.3.3 Communication through USB Interface

USB AT port and modem port are available for AT command communication, while modem port usually is recommended for pure data communication like PPP or TCP transparent mode.

Also, to enable GNSS NEMA communication send command AT+CGNSPWR=1 through AT port.



※ Notice

Regarding FW upgrade, only support USB interface. Please refer to SIM7000 series FW upgrade user guide.

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