Instructions

SIM7020 Series SUB Kit_User Guide

Version:1.01

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About Document

Document Information

Document	
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Revision History

Revision	Date	Owner	Status / Comments
1.00	Jun11, 2018	Ming,Zhu	First Release.
1.01	Aug 08, 2018	Light, Wu	Revised

Related Documents

SIM7020 Hardware Design_V1.02
SIM7020 Series_AT Command Manual_V1.01
SIM7020 Series_Low Power Mode_Application Note_V1.01
SIM7020 Series_TCPIP_Application_Note_V1.00

This document applies to the following products:

Name	Type	Size (mm)	Comments
SIM7020C	NB	17.6*15.7	Band 1/3/5/8
SIM7020E	NB	17.6*15.7	Band 1/3/5/8/20/28

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Contents

1 Purpose of this document

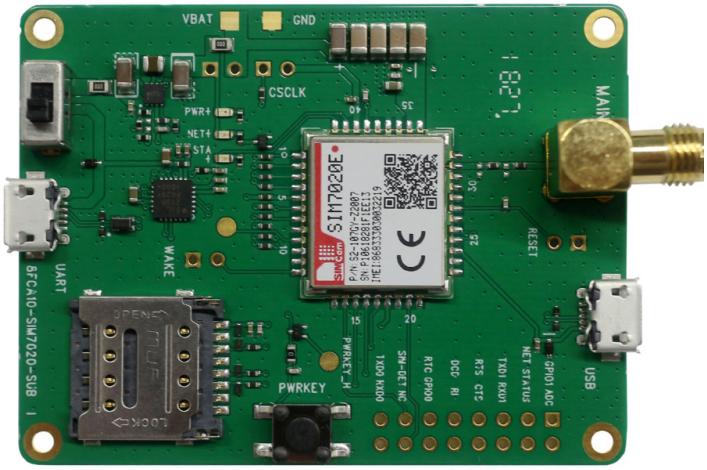
With SIM7020 SUB Kit, developer could verify each function quickly and easily.
This document is aim to introduce every interface usage of this SUB kit, and send AT command to demo module functions.

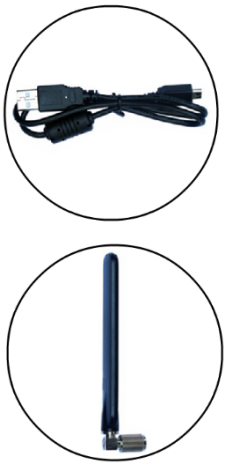
2 Evaluation Board Overview

2.1 SIM7020SUB Kit Overview

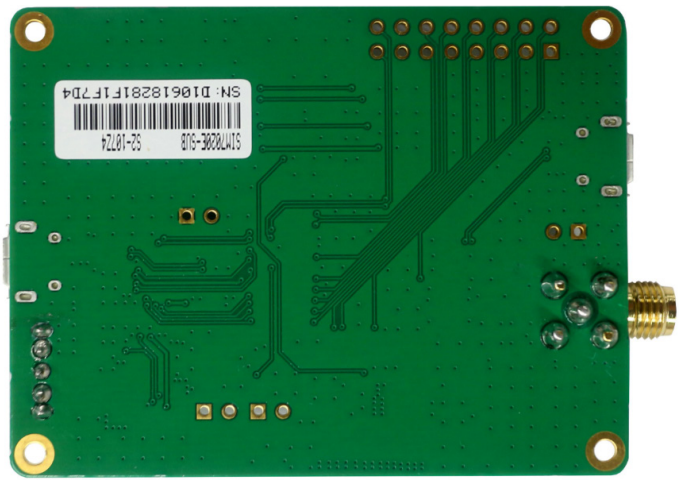
Here is an overview of the total SUB Kit package.
SUB kit package list is following,

1) SIM7020x-SUB (x stands for C/E)
2) Micro USB cable
3) LTE antenna





Here is the bottom view of SIM7020x-SUB.



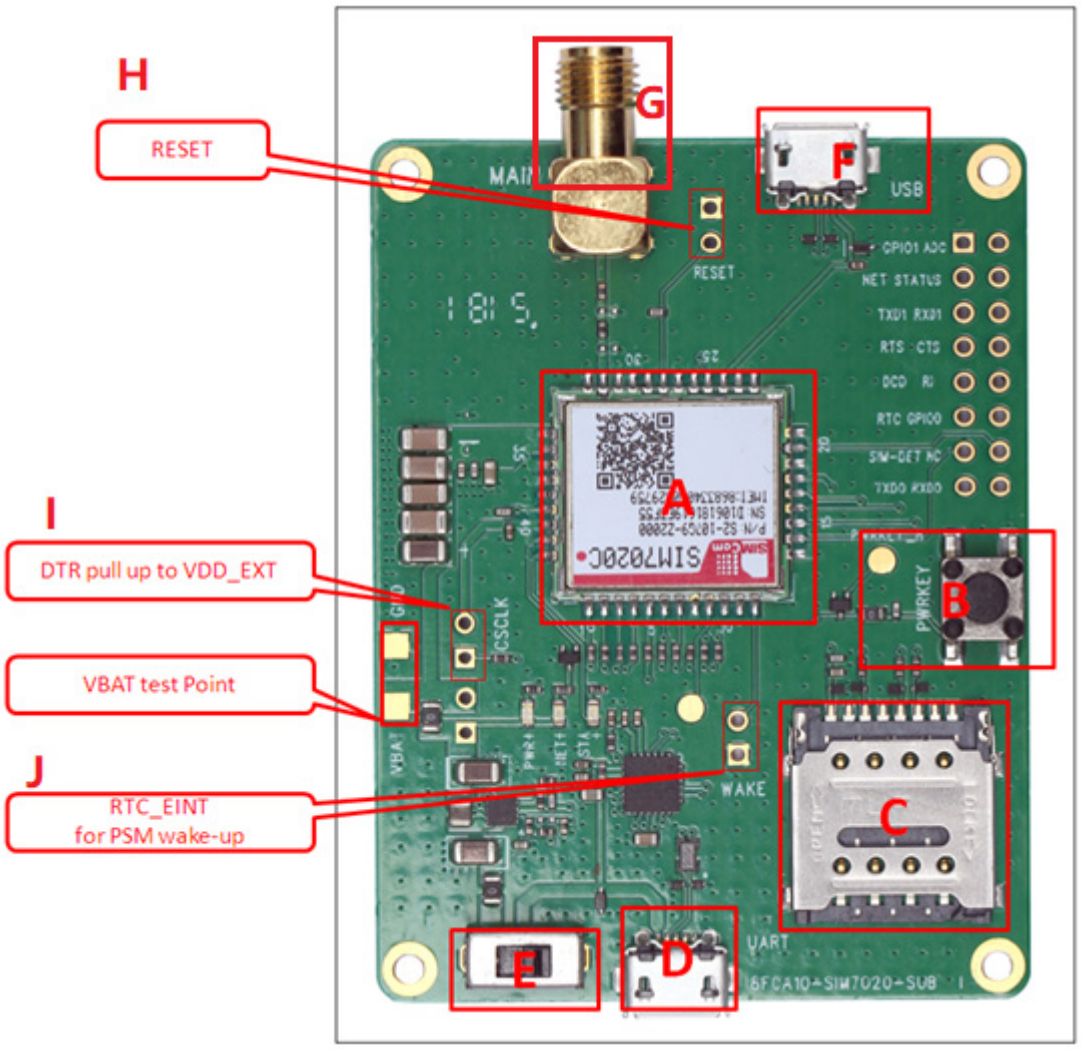
In order to get proper part to do the evaluation test, here is brief list for SIM7020x-SUBKIT part numbers.

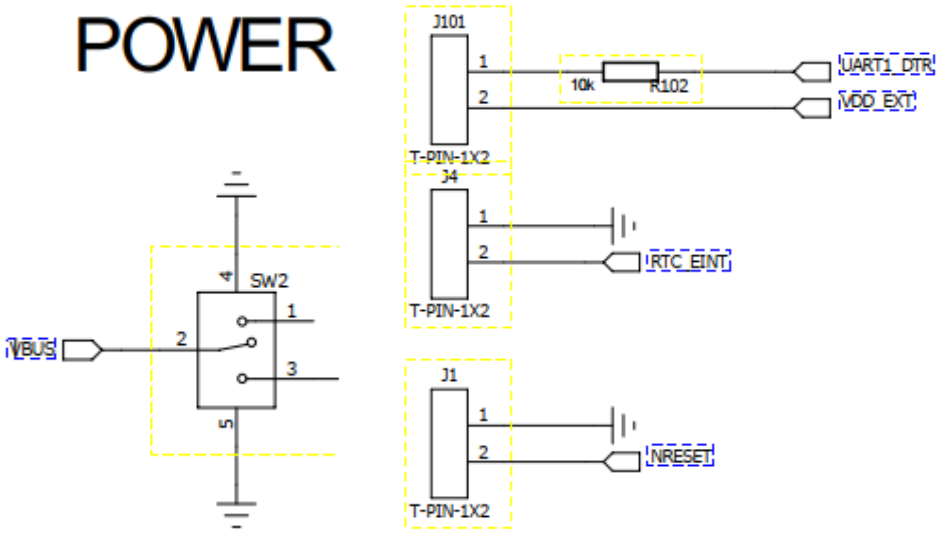
Kit type	Part Number	Comments
SIM7020C-SUBKIT	**S2-107ZF**	For China
SIM7020E-SUBKIT	**S2-107ZG**	For Europe, Australia and South Asia etc.

2.2 Interface Introduction

From above overview on the SIM7020x-SUB, we can see many signal interfaces, communication ports and antenna interface. Now, we will describe them in detail.

Index	Position	Description
A	Uxxx	SIM7020x Module
B	SW1	PWRKEY Button
C	J400	SIM Card holder
D	J204	1. UART ports of SIM7020x, for AT communication and FW update. 2. Power Supply
E	SW2	Power Switch (Left is ON, PWR+ red LED light)
F	J104	USB port of SIM7020x, for debugging
G	J3	LTE antenna SMA connector
H	J1	Reset and GND reserve locations, for resetting the module
I	J101	DTR and VDD_EXT reserve locations, for sleep mode (AT+CSCLK=1)
J	J4	RTC_EINT and GND reserve locations, for waking up module from the PSM mode





Note: For the detail about SIM7020 SUB board schematic, please contact with SIMCom Support team.

※ 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

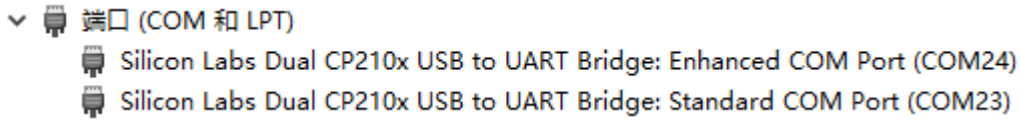
3.1 Driver installation

There are two USB jacks, one is USB to UART (position **D**), and the other one is USB (position **F**).

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 are two virtual USB ports, for example COM23 and COM24 as below.



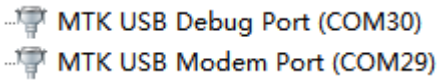
Interface	Number	SIM7020 UART	Comments
Enhanced	COM 24	UART1	Full mode for AT communication
Standard	COM 23	UART2	No hardware flow control, for FW upgrade

3.1.2 Module USB interface driver installation

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

contact SIMCom Support Team.

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 (debug) log only.

Notes: For the detail, please refer to "**SIM7020 Series_Genie_Logging_Tool_User_Guide_V1.0**".

3.2 Accessories installation

Now, in order to do the functional test, necessary accessories need to be installed into SIM7020 SUB board.

1) Insert NBIOTSIM card to sim card slot (position **C**);
2) Install LTE antenna (position **G**);
3) Insert micro USB cable to USB jack (position **D**) for power supply and UART (AT and FW update) communication;
4) Insert micro USB cable to USB jack (position **F**) for taking genie log. (**Option**)

3.3 AT command Communication

3.3.1 Power on device

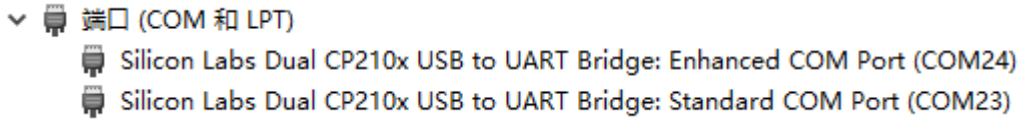
1) Switch "Power Switch" (Position **E**) to Left, then PWR+ red LED will light, which means VBAT power is on.
2) Press "PWRKEY" button (Position **B**) for one second to power up SIM7020.

Now PWR+ LED light is solid on, while NET+ LED light is blinking with below behaviors.

NET+ (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
OFF	Power off or in PSM mode

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 COM24, 115200bps-8-1-N.



Interface	Number	SIM7020 UART	Comments
Enhanced	COM 24	UART1	Full mode for AT communication
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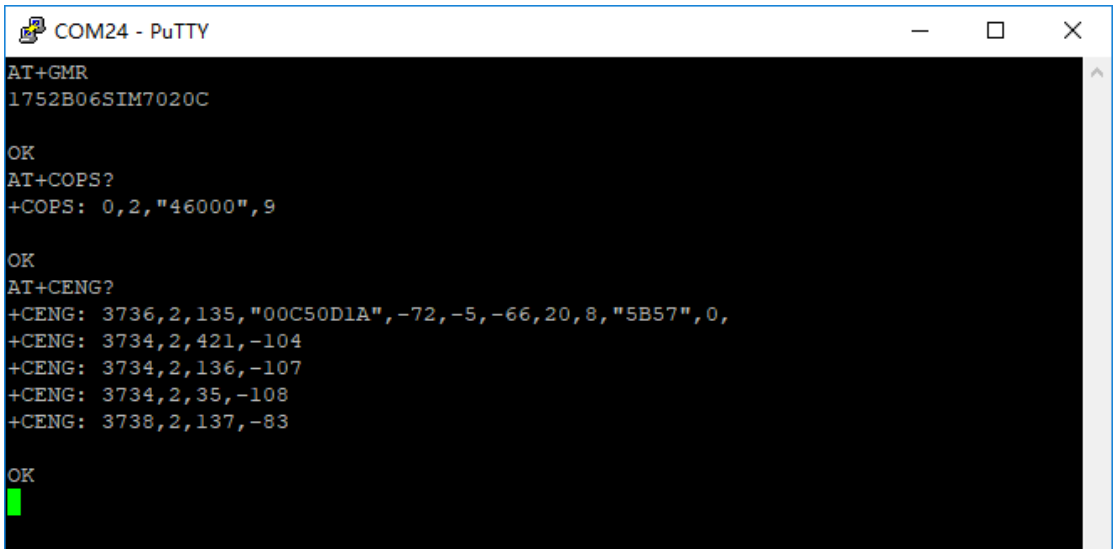
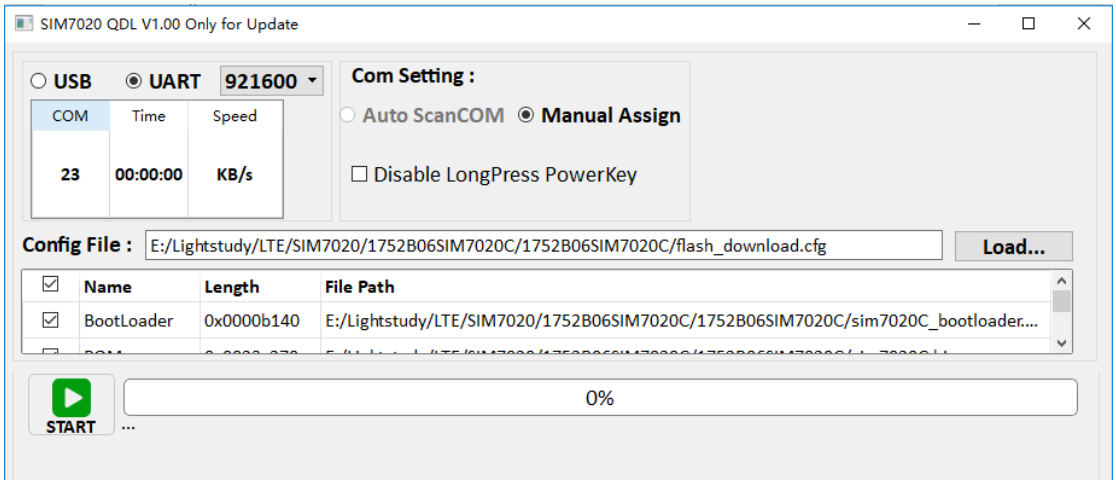


4 Firmware Update

1), Insert micro USB cable to USB jack (position **D**) and connect to the PC.

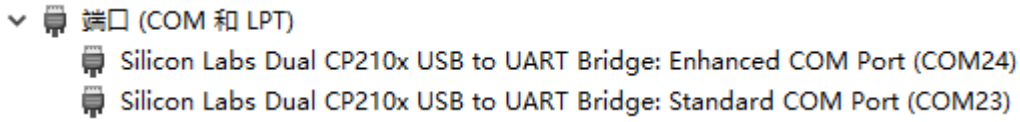
2), Open Windows flash tool SIM7020 QDL V1.00 Only for Update as show below.



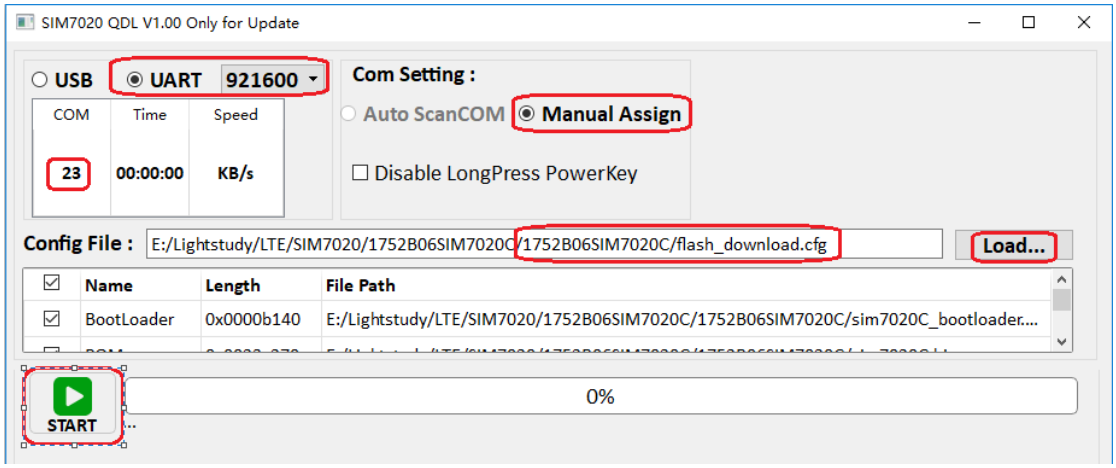
FW update Tool

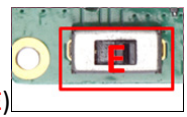
3), Select "UART" and baud rate "921600".

4), Double click the "COM" port part and enter the right COM port number (23 in following example), the "Standard COM port" is used for FW update.

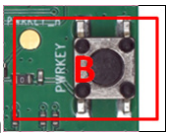


5), Click "Load" button and assign correct file path (.cfg file is inside the FW package).

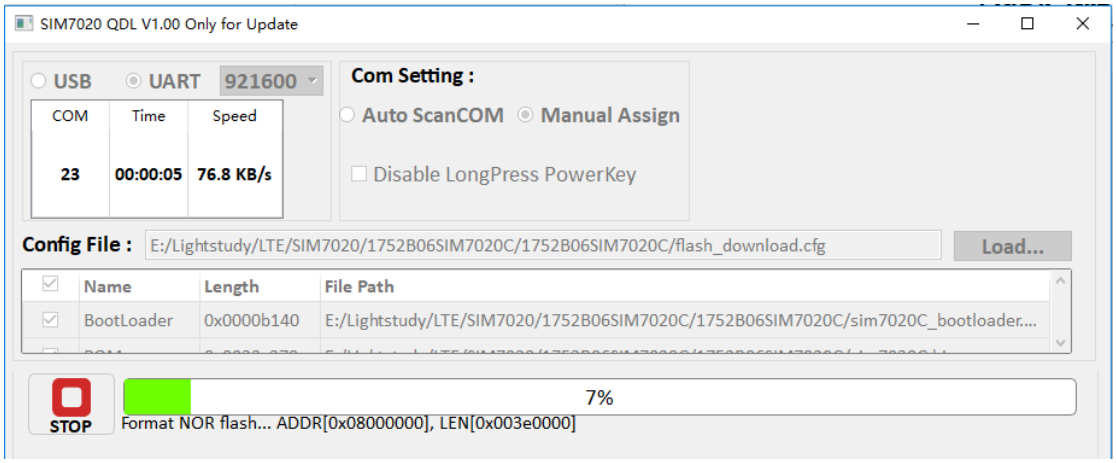


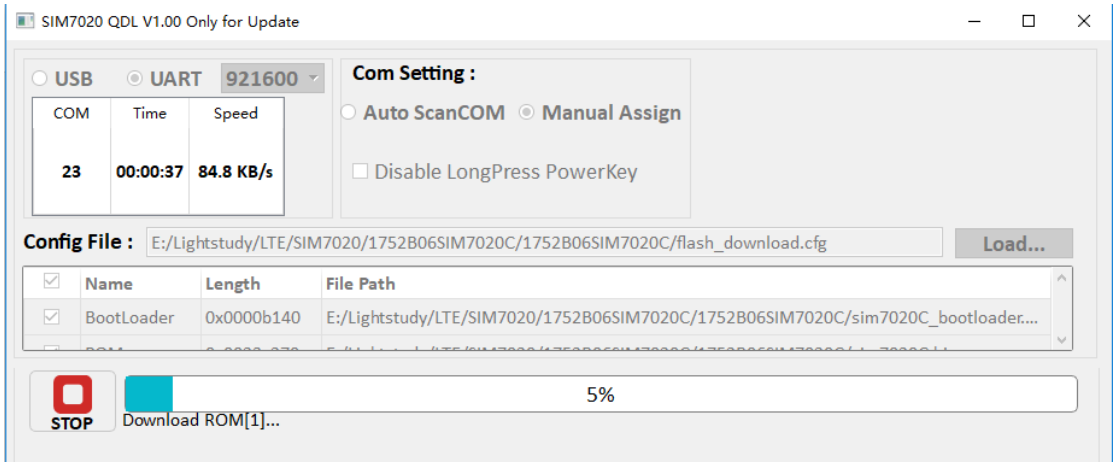
6), Switch "Power Switch" (Position **E**)  to Left, then PWR+ red LED will light, which means VBAT power is on.

7), Press “Start” button 

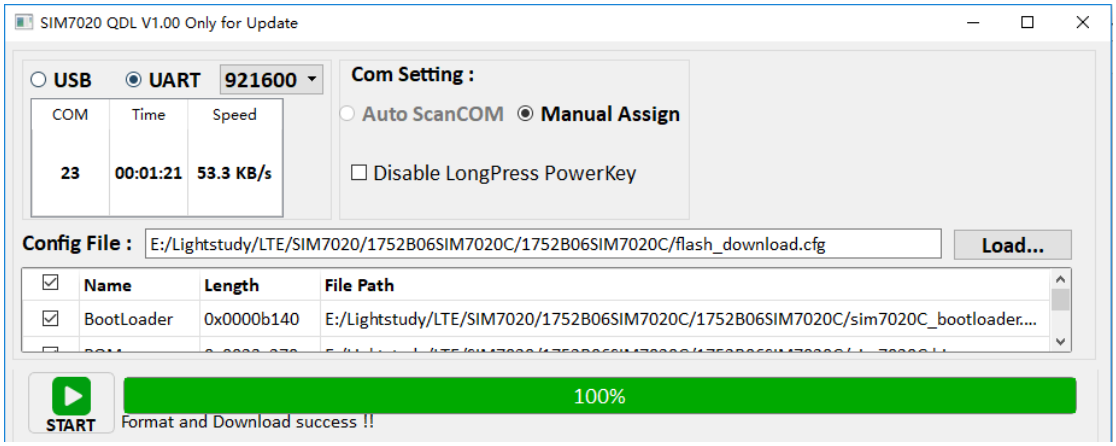
, then press the “PWRKEY” button 

for one second. And then it will do the FW update automatically.





FW update ongoing

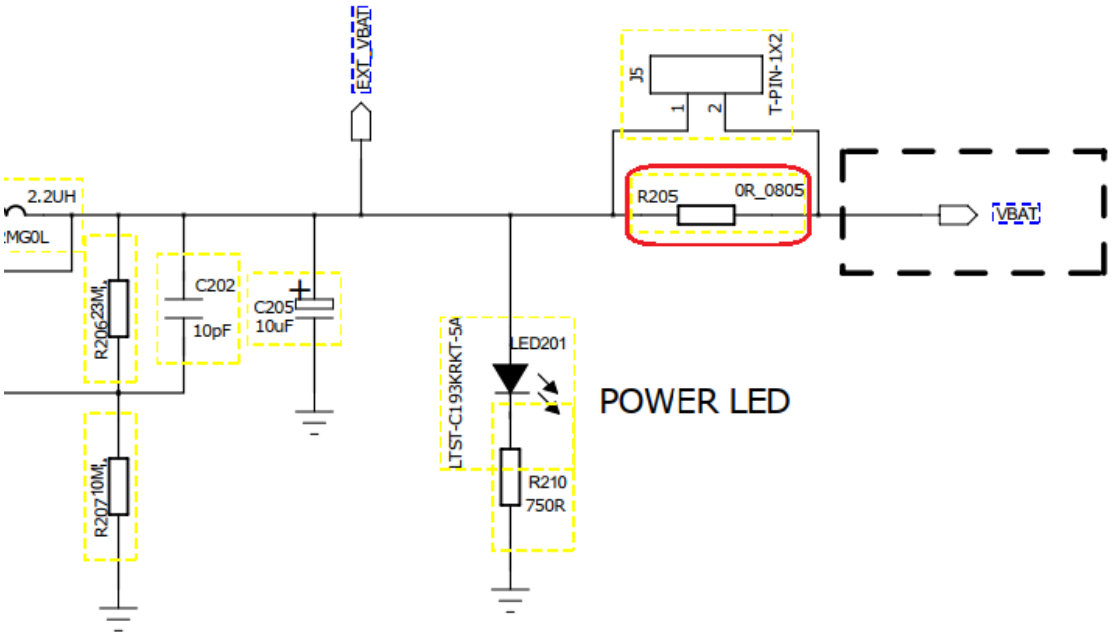


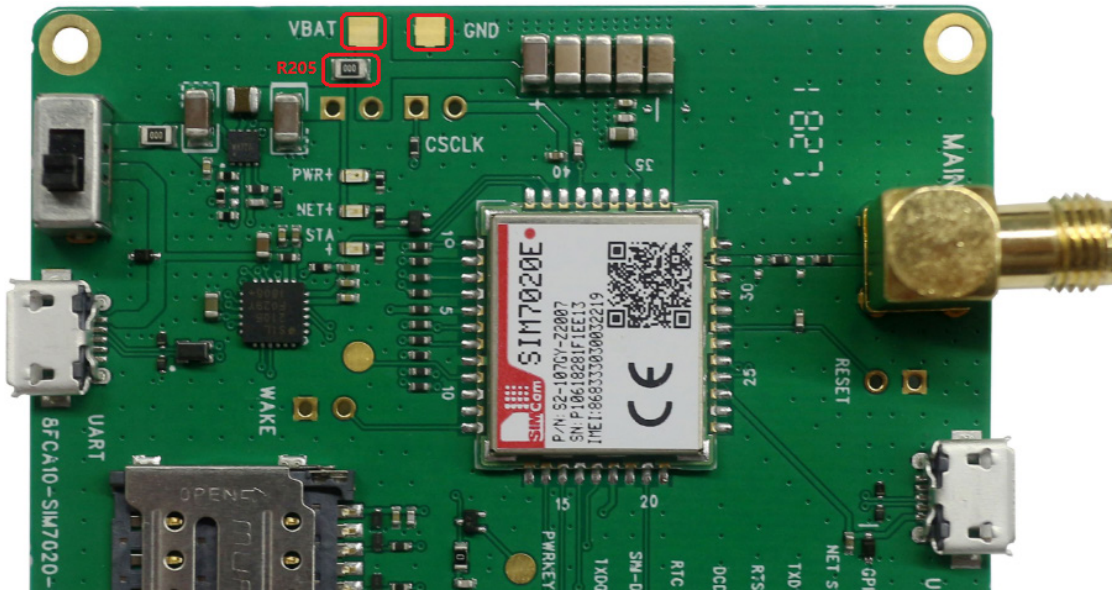
FW update finished

5 Power Consumption HW Test Set Up

1), Delete R205 on SIM7020 SUB board

2), Connect external power supply to VBAT & GND pads (for SIM7020 module only)





Notes: For the detail, please refer to "**SIM7020 Series_Low Power Mode_Application Note_V1.01**".

Contact

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