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Version History

Data	Version	Description of change	Author
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1. Introduction

This document give the usage of SIM68 EVB-Kit, user can get useful information about the SIM68 EVB quickly through this document.

This document is subject to change without notice at any time.

1.1 Acronyms and abbreviation

Table 1: Acronyms and abbreviations

DC	Direct Current
I/O	Input/Output
LED	Light Emitting Diode
SPI	Serial Peripheral Interface
USB	Universal Serial Bus
UART	Universal Asynchronous Receiver & Transmitter



2 SIM68 EVB Overview

2.1 Detailed description of SIM68-EVB

The chapter introduces the functions of each component.



Figure 1: SIM68-EVB components function

A: USB interface, support USB communication with SIM68, and also power the SIM68-EVB.

B: S301, Power switch, push up to power the EVB and module, push down to power off.

C: S304, Reserved.

D: S302, DOWNLOAD switch, push up to going into download mode.

E: S303,sleep switch,push up to going into sleep mode,push down to wakeup from sleep mode.

F: S201 select power source for level shift.

G: S202, NMEA output select. Push up to choose main port, push down to choose USB port.

H: RESET button, pressed to reset SIM68

I: MODULE connector, insert module and TE for test

J: DEBUG port, for debug and download

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Q: MAIN port, for communication

L: test point area

M: J302, the jumper of VANT which is the source of active of antenna

N: Select for receiving NEMA data from A or Q. Jump the left and middle needle is select A port, jump the middle and right needle is select Q port.

O: Select for transmitting NEMA data from A or Q. Jump the left and middle needle is select A port, jump the middle and right needle is select Q port.

2.2 USB Interface

There is one Mini-USB interface on SIM68-EVB, which is transferred to UART by a USB to UART chip CP2103 on the EVB board. User need to install CP2103 driver in their PC first, then connect the EVB board to the PC by a USB cable, and push S301 up to power the SIM68-EVB.

Please download the latest CP2103 driver according to the PC's OS from the following link: http://www.silabs.com/products/mcu/pages/usbtouartbridgevcpdrivers.aspx

Or contact SIMCom support for it.



Figure 2: USB interface

Pin	Signal	I/O	Description
1	VBUS	Ι	5V input
2	D-	ΙΟ	Data minus
3	D+	ΙΟ	Data plus
4, 5	GND		GND

Table 2: USB pin definition



3. Illustration

User need to install CP2103 driver in their PC first before using SIM68-EVB.

Please download the latest CP2103 driver according to the PC's OS from the following link: http://www.silabs.com/products/mcu/pages/usbtouartbridgevcpdrivers.aspx

Or contact SIMCom support for it.

3.1 An example of USB driver installation

Step1.exectue Setup file (CP210x_VCP_Win_XP_S2K3_Vista_7)

Silicon Laboratories CP210x VCP Drivers for Windo 📃 🗖 🔀
Existing Installed Instances Detected Select the appropriate application instance to maintain or update.
Setup has detected one or more instances of this application already installed on your system. You can maintain or update an existing instance or install a completely new instance. Install a new instance of this application. Maintain or update the instance of this application selected below:
Display Name
Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vista/7 Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vista/7_2 (c:\SiL
InstallShield Cancel

Figure 3: USB driver installation step1

Step2.select "next" button then "next"



Silicon Laboratories	CP210x VCP Drivers for Windows XP/
	Welcome to the InstallShield Wizard for Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vista/7 v6.00
	The InstallShield Wizard will copy Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vista/7 v6.00 onto your computer. To continue, click Next.
	< Back Next > Cancel

Figure 4: USB driver installition step2

Step3. Accept the license agreement and "next"

Silicon Laboratories CP210x WCP Drivers for Windows XP/ 🔀
License Agreement Please read the following license agreement carefully.
END-USER LICENSE AGREEMENT IMPORTANT: READ CAREFULLY BEFORE AGREEING TO TERMS SILICON LABORATORIES INC., SILICON LABORATORIES INTERNATIONAL PTE. LTD., AND THEIR AFFILIATES (COLLECTIVELY, "SILICON LABS") HAVE DEVELOPED CERTAIN MATERIALS (E.G., DEVELOPMENT TOOLS, EXAMPLE CODE, EMBEDDABLE CODE, DLLs, SOFTWARE/COMPUTER PROGRAMS AND OTHER THIRD PARTY PROPRIETARY MATERIAL) ("LICENSED MATERIALS") THAT YOU MAY USE IN CONJUNCTION WITH SILICON LABS" MCU PRODUCTS. ANY USE OF THE LICENSED MATERIALS IS SUBJECT TO THIS END-USER LICENSE I accept the terms of the license agreement I go not accept the terms of the license agreement
InstallShield <u>Back</u> <u>N</u> ext > Cancel

Figure 5: USB driver installation step3

Step4. Choose Driver Destination Location



Silicon Laboratories CP210x VCP Drivers for Windows XP/ 🗙
Choose Destination Location Select folder where setup will install files.
Setup will install Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vista/7 v6.00 in the following folder.
To install to this folder, click Next. To install to a different folder, click Browse and select another folder.
Destination Folder
c:\\MCU\CP210x\Windows_XP_S2K3_Vista_7_3
InstallShield
< <u>B</u> ack <u>N</u> ext > Cancel

Figure 6: USB driver installation step4

Step5. Confirm Installation, select "Install" button

Silicon Laboratories CP210x VCP Drivers for Windows XP/ 🗙
Ready to Install the Program The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield Cancel

Figure 7: USB driver installition step5

Step6. Launch the CP210x VCP Driver Installer



Silicon Laboratories	CP210x VCP Drivers for Windows XP/200
	InstallShield Wizard Complete The InstallShield Wizard has successfully copied the Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vista/7 v6.00 to your hard drive. The driver installer listed below should be executed in order to install drivers or update an existing driver. ✓ Launch the CP210x VCP Driver Installer. Click Finish to complete the Silicon Laboratories CP210x VCP Drivers for Windows XP/2003 Server/Vista/7 v6.00 setup.
	< Back Finish Cancel

Figure 8: USB driver installition step6

Step7. Select "Install" button



Figure 9: USB driver installation step7

Step8. Installation completed.



Figure 10: USB driver installation step8

Step9. After completing CP2103 driver installation, connect SIM68-EVB to PC by the bus cable,



and set S301 switch to VBUS, then "Silicon Labs CP210x USB to UART Bridge (COMX)" will appear in the device manager:



Figure 11: USB driver installation step9

3.2 Connecting and run

To test the SIM68 module, the following operations are needed:

- 1. Install CP2103 driver
- 2. Install GPS test tool
- 3. Connect the active antenna to the RF connector, and insert SIM68-TE to module connector
- 4. Connect the SIM68-EVB to PC with USB cable
- 5. Make sure that S304 is switched off, S201 is pushed up.
- 6. Push up the power switch of S301.
- 7. Push up the switch of S202 to select UART signal
- 8. Open GPS test tool to test



4. ST GPS Testing Tool

Please contact SIMCom to get the newest version of ST GPS Testing tool.

4.1 Port setting

In the testing configuration panel, in the "device" tab, choose NMEA Port number as the one in device manager. (Since the testing tool only support the port from 1 to 20, you may change the port number if it is bigger than 20.) Set the debug port number if you need debug output. Both the NMEA and DEBUG Baudrate are 115200. Filling the "Path" blank and it is where you save the log files.



Figure 12: Port setting



4.2 Click to RUN

In the testing tab, choose the running mode in the "test" pull-down list, COLD, WARM, HOT, TRACK24H etc.

Figure 13: Choose the Running Mode

In a TTFF test mode, you need to write down the times you want to run for the test. The Min delay and Max delay means the stopping time between each fix test, it is recommended not to change the value 15 and 40 for a reliable test result.

After setting the test mode, press the "add" button and it will appear on the right blank. Choose it and press the "OK" button, then the module will work.



🚮 GPS Testing Tool		
Option Testing ?		
5	Testing Configuration Panel	
Option Testing ?	Testing Configuration Panel Device Testing General Test COLD • Roof Antenna © Simulator © LabSat Test Setting Number 50 • TIFF Min Delay [s] 15 • TITFK Max Delay [s] 45 Sate 5 Time 10 Atmanacs Loading File	
	Cancel Save OK	

Figure 14: Click to RUN

4.3 Position fixed

After position has been fixed, the GPS information can be viewed in the device NMEA WINDOW. In the middle of the window, you can see the information of each GPS singal that has been tracked. The position details(Lat, Lon, Alt etc.) are below it.





Figure 15: Position fixed

You can see the real time NMEA output when you deselect the "NMEA Decoding" box.



ars testing toot	
Option Testing ?	
🖅 Devicel NIEA VINDOV	X
Product ID:	
SPEMIC (03955) 000 A 3113 321 N 12121 2501E, 0.0.0.0.170212.0.0.V-7E SPEGA, 09955, 000 3113 321 N 1212 12501E, 1.10.0.9.039 32.M, 7.9M, ~55 SPEVTG, 0.0.1, M. ON NO, 1.K ~51 SIMSGA, A. 306, 77,,, 15.0.31, 2*22 SPEGA, 09952, 221.231, 5114 18,, 15.0.31, 2*22 SPEGS, 9.3.112, 025, 5116 10, 109, 14.950, 4012, 42, 058, 431, 44, 330, 44*77 SPESS, 3.212, 150, 105, 551, 14, 116, 44, 22, 72, 284, 452, 563, 120, 45*78 SGFESV, 3.112, 025, 4161 14, 416, 44, 22, 72, 287, 41, 019, 77, 16, 297, 27*61 S*51M151, 109, 14466, 41, 300, 33, 76, 61, 277, 28, 75, 41, 019, 77, 16, 297, 27*61 S*51M151, 109, 14466, 44, 14, 417, 417, 416, 71, 420, 71, 627, 72*61 S*51M151, 109, 14466, 41, 300, 336, 43, 14, 41, 7666, 000, 93, 42, 197, 44, 452, 452, 2012, 27, 901, 554, 37, 00, 000, 000 S*51M151, 109, 14466, 41, 300, 338, 423, 142, 43862, 21, 2497, 761 S*51M151, 109, 14466, 41, 300, 384, 31, 744, 300, 34, 2197, 424, 452, 2016, 510, 2000, 000 S*51M151, 129, 144474539, 34, 46396, 301, 41, 168820, 1645277, 65, 1510, 2005, 341, 217, 426, 455, 2910, 534, 37, 00, 000, 000, 900, 000, 000, 000, 000	
Comm Port 7 Baudrate 115200 Kmea Decoding Open Close	

Figure 16: NMEA output

4.4 TTFF Test

If you choose the TTFF test mode in the following step, then you can choose the testing pull-down list on the top to start or stop. When pressing start, after each test a TTFF value will appear on the bottom.





Figure 17: TTFF tset



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