

Development Kit Manual SIM908 EVB kit_User Guide_V1.00





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Version History

Data	Version	Description of change	Author
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SCOPE

This document give the usage of SIM908 EVB, user can get useful info about the SIM908 EVB quickly through this document. Using SIM908 EVB, user can demo SIM908 module.

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1 Overview





Figure 2: BOTTOM view

A: 60-pin connector, SIM908 module interface

B1-B5: LED indicator B1: VBAT ON/OFF

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B2: GSM net status

B3: The GSM part of the module ON/OFF status

B5: DBG RXD/TXD STATUS

C1-C9: Key control for various functions

C1: GSM part power-up / power down control (button Z101)

C2: VBAT ON/OFF control (shifter S102)

C3: VCHG ON/OFF control (shifter S105)

C4: GSM part program download control (shifter S101)

C7: debug port RXD/TXD LED status selective shifter (shifter S106)

D: Power source adapter interface

E1-E3: Audio interface

E1: Handset interface

E2: Headphone interface

E3: Buzzer

F1-F2: Serial ports

F1: Main serial port for downloading, AT command transmitting, data exchanging

F2: Debug serial port default for GPS NMEA information output

G1-G2: Hole for antenna fixed

G1: Hole for GSM antenna fixed

G2: Hole for GPS antenna fixed

H: Expand port, such as serial ports, display port

L1-L4: Hole for EVB board fixed

K: SIM card connector

L: 3.3V Back-up battery for GSM part



2 EVB accessory



Figure 3: EVB accessory

- A: 5V DC source adapter
- B: GSM antenna
- C: GPS antenna
- D: RF cable
- E: Earphone
- F: Two USB to serial port lines



3 Accessory interface

3.1 Power interface



Figure 4: Power interface

D' .	<u><u>(</u>),]</u>	T/O	Density
Pin	Signal	1/0	Description
1	Adapter input	I	5V/2.5A DC source input

STHOW



3.2 Audio interface



Figure 5: Audio interface

Headset interface

Pin	Signal	I/O	Description
1	MIC1N	Ι	Negative microphone input
2	SPK1N	0	Negative microphone input
3	SPK1P	0	Positive microphone input
4	MIC1P	Ι	Positive microphone input

Headphone interface:

Pin	Signal	Input/Output	Description
5	MIC2P&SPK2P	I/O	Auxiliary positive input and output



3.3 SIM card interface



Figure 6: SIM card interface

Note: Please refer to SIM908 Hardware design, detailed in Chapter 4.8 SIM Card interface.

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3.4 Antenna interface

3.4.1 GSM antenna interface



Figure 7: GSM antenna interface



3.4.2 GPS antenna interface





Figure 8: GPS antenna interface



3.5 RS232 interface



Figure 9: GSM part serial ports

Serial Port 1

Pin	Signal	I/O	Description
1	DCD	0	Data carrier detection
2	TXD	0	Transmit data
3	RXD	Τ	Receive data
4	DTR		Data Terminal Ready
5	GND	P	GND
7	RTS	Ι	Request to Send
8	CTS	0	Clear to Send
9	RI	0	Ring Indicator

Serial Port 2

Pin	Signal	I/O	Description
2	DEBUG_TX	0	Transmit data
3	DEBUG_RX	Ι	Receive data
5	GND		GND

3.6 Operating status LED

3.6.1 GSM part



Figure 10: GSM part LED

Name	Description	STATUS
VBAT_LED	VBAT ON/OFF indicator	Bright: VBAT ON; Extinct: VBAT OFF
GSM_NET_LED	GSM_NET status indicator	Blinking at a certain frequency according to various GSM net status
MO_STATUS_LED	GSM part status indicator	Not used, will be configured in our latter software.

3.6.2 Debug indicator



Figure 11: Debug port LED

Name	Description	STATUS
Debug_RXD/TXD_LED	Run or download indicator	Run normally: Blinking at 1Hz Download: Blinking rapidly

4 Test interface



Figure 12: Test interface overview



4.1 GSM serial ports



Figure 13: GSM serial ports

Pin	Signal	I/O	Description
1	TXD	0	Transmit data
2	RXD	T	Receive data
3	DCD	0	Data carrier detection
4	RI	0	Ring Indicator
5	CTS	0	Clear to Send
6	GND		GND
7	DTR	Ι	Data Terminal Ready
8	DEBUG_RX	Ι	Receive data
9	RTS	Ι	Request to Send
10	DEBUG_TX	0	Transmit data

4.2 LCD & ADC





Pin	Signal	I/O	Description
1	DISP_CS	0	Display enable output
2	GPIO0	I/O	GPIO port
3	DISP_CLK	0	Display clock output
4	BUZZER	0	Buzzer output.
5	DISP_DATA	I/O	Display data line
6	ADC0	Ι	Adc input
7	DISP_D/C	0	Display data or address select
8	SIM_PRESENCE	Ι	SIM Card Detection
9	DISP_RESET	0	Display reset outplay
10	TEMP_BAT	Ι	For measure the batter temperature



4.3 GPS serial ports and power





Figure 15: GPS serial port

Pin	Signal	I/O	Description
5	GPS_VCC_RF	0	Power supply for 3V active antenna.
6	GPS_VANT	Ι	External DC power supply for an active antenna.
9	GND		GND
10	GND		GND



5 EVB and accessory equipment

At normal circumstance, the EVB and its accessory are equipped as the following figure:



Figure 16: EVB and accessory equipment

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6 Illustration

6.1 GSM part

6.1.1 Running

- (1) Connect the SIM908 module to the 60pins connector on the SIM908 EVB, insert the 5V DC source adapter, switch shifter S101 on the RUN state, shifter S102 on the ON state; Connect the GSM antenna to the SIM908 module using an antenna transmit line, insert SIM card into the SIM card interface, and insert headphone or handset into relevant interface.
- (2) Press the GSM_ON/OFF button Z101 for about 2 seconds, then the GSM part of SIM908 is powered on.

Note: You will see the light GSM_NET on the EVB glittering at a certain frequency corresponding to various states, then you can judge whether the EVB and SIM908 is running or not. No function and test can be executed when we have not connected necessary accessories.

6.1.2 Connecting Net and calling

Connect the serial port line to the GSM_MAIN serial port, open the HyperTerminal (AT command windows) on your personal computer, the location of the HyperTerminal for Windows XP is START →All programmes→ Accessories→ communications →HyperTerminal.



Figure 17: open Hyper Terminal



New Connection - HyperTerminal File Edit View Call Transfer Help	
	Connection Image: Connection Enter a name and choose an icon for the connection: Name: Icon: Icon:
Disconnected Auto detect	Auto detect SCROLL CAPS NUM Capture Print echo

Figure 18: name Hyper Terminal

(2) Set the correct baud rate and COM number. The default baud rate of SIM908 is 57600 bps, and the COM number based on which port your serial port line insert in, conform it in the device manager, customers should select such as COM1, COM3 or COMx etc.



Figure 19: confirm port number



(3)Choose the correct port number:

SIMCom Properties	?×	
Connect To Settings		
SIMCom Change <u>I</u> con		
Country/region: United States (1)		
Enter the area code without the long-distance prefix.		6
Ar <u>e</u> a code: 89		
Phone number:		XY
Connect using:		
Agere Systems HDA Modem COM31 COM32 COM15		¥
<u>Use country/ COM3</u> Redial on bus TCP/IP (Winsock)		
ОК С	ancel	

Figure 20: select port number

(4)Set baud rate (default is 57600, no flow control) :

	?
Port Settings	
<u>B</u> its per second:	57600
<u>D</u> ata bits:	8
<u>P</u> arity:	None
<u>Stop</u> bits:	1
Elow control:	None

Figure 21: set baud rate



(5) Typing the AT commands in the HyperTerminal, and then the SIM908 module will execute its corresponding function. For detail AT commands related with GSM part please refer to *SIM908_AT Command Manual_V1.01*.

6.1.3 Downloading

SIM908 module shares the same flash loader with SIM900 which is a similar product also from SIMCom.

Connect the serial port cable to the GSM_MAIN serial port, plug 5V DC adapter, Shifter S101 on

the D/L state (S102 is off now), run the download program and press the **START** key, then switch S102 to the on state, and then the download procedure is executing immediately.

	✓ Trite ✓ Erase Security down Erase Option Application ★ ✓ Update firmware
	Offset Olex.) 0x00030000 Length Olex.) 0x00280000
	Time 2011-09-26, 13:56:35 Size 0x002AC674
	Application Dinary file R:\Project\STM908\1137E02STM908M84_ST_2011_09_26_13_5
	Upload File E:\aaa Browse
	Communication settings
	COM Port COM3 Speed 450800
	STOP
ĆN	On'ON - Waiting for board reset
$\langle \rangle$	100'00"000 - Please power up the target.

Figure 22: SIM908 flash loader

Notes: customers must pay attention to the sequence of the operation, run the download program and press the start key is the first step, then switch S102 follow the description above, so the module and PC tool can make a handshake successful and execute download procedure.



6.1.4 Turn off

Press the GSM_ON/OFF button Z101 for about 1 second, the GSM part of SIM908 will be turned off, and the GSM_NET led indicator will extinct.

6.1.5 Charging

Connect the SIM908 module to the 60pin connector interface and the external battery to charging interface, which have been provided on the EVB. Insert the direct current source adapter; switch shifter S102 on the OFF state, shifter S105 on the ON state, then the SIM908 will go to the charging state.

6.2 GPS part

SIMCom provides a GPS tool kit named "*SIMCom NMEA GPS DEMO*" to assist customers in the projects design, which provides an easy way to do some test about GPS. It has the same function as AT Command, this chapter will introduce these two methods briefly.

6.2.1 Running:

- Connect the module to the 60pins connector on the EVB, insert the 5V DC adapter, power on SIM908 EVB follow steps mentioned in chapter 6.1
- (2) Connect SIM908 EVB to PC via two USB-Serial lines, connect to GSM_DEBUG and GSM_MAIN ports respectively.
- (3) Click icon (3)

port number in device manager, click

to finish configuration.



SINCom NNEA GPS DERO VI.11					II I 🛛
	Signal View	FixState	AV	G Power	3600
Basic Information UTC Time: BJ Time: Latitude: Latitude: Altitude: Speed:	CNO	 Debug p	 Port on EV	 B	3000 300 3000 450 600 2700 900 2400 1207
TTFF: Monitor View	CH GPS	Com: COM3 •	Baud Rate	: 115200 -	2100 1500
	Main port	OK ON EVB	Cancel	Tant Times:	FixTimeOut: 60 s
Command:			- Send	Info:	U Timesj [AVG TTFF:0s]
			القديدي ا	0.03970.74	

Figure 23: setting GPS tool

(4) Click to run, and if the \$GPGGA/\$GPGSA NMEA sentences appear in Monitor

View, the SIM908 is acquiring the GPS signal.

SIMCom NME	A GPS DEMO V1.11														
		Sigr	al Vi	ew		N	0 FIX	: [No si	gnal			3600
Basic Informa	ation														3300 150 300
UTC Time:	00:04:07 9:04:07	CNo													3000 450 600
Latitude:	0.04.07														2700900
Longtitude:	м														
Speed:	0.0000Km	s۷			 		 	[[2100 1500
TTFF:	8	СН	1	2	3	4	5	6	7	8	9	10	11	12	1800
Monitor View									Pa	use	St	tart T	ype:	COL	D
\$GPRMC.0004(\$GPVTG.,T.,M, \$GPGGA.0004(\$GPGLL,000 \$GPGSA.A.1 \$GPGSV,1,1,00 \$GPRMC.0004(06.000,∨,,,101010,,,№, ,N,K,№2C 07.000,∨,№79 1407.000,∨,№79 *1E 07.000,∨,101010,,,№	4E 4F								2	 [IN [IN [F7 [IN 	F0:] F0:] AIL:] F0:]	AT+C Waitt No GF GPS	GPS ing fo PS NME	RST=0 Module reset! r GPS NMEA output MEA outputlplease check. A output pass!
\$GP∨TG.,T.,M,	.,N,,K,N*2C									2	, <	est Ti	imes	: 1	[0 Times] [AVG TTFF:0s]
Command: A	T+CGPSRST=1								•	Send	IN	IFO:		1	Start Stop

Figure 24: power on GPS



AT Command can also run the GPS, Open HyperTerminal, type in "AT+CGPSPWR=1" to power on GPS, and "AT+CGPSRST=1" to reset GPS in cold start mode, cold start mode is recommended for first time reset. For detail AT Commands about GPS please refer to *SIM908_AT Command Manual_V1.01*.

No function and test can be executed when we have not connected necessary accessories.

Notes: There are two types of GPS antenna: One is active antenna, if the customer uses the active GPS antenna in the SIM908-EVB kit to demo GPS, for providing the power to the active GPS antenna, it is necessary to connect GPS_VANT with GPS_RF_VCC, the picture as below: The other is passive antenna, if customers want to use passive GPS antenna to demo GPS, there is no need to provide power to the antenna.



Figure 25: GPS_VANT and GPS_RF_VCC

6.2.2 Position fixed

After position has been fixed, the GPS information can be viewed in two methods: Monitor View and Signal View.





Figure 26: Position fixed

6.2.3 TTFF Test

SIMCom NMEA DEMO TOOL supports SIM908 TTFF test. The TTFF information is shown in the following figure:



Figure 27: TTFF test



6.2.4 Turn off and Reset

(1) Turn off: SIMCom NMEA DEMO TOOL supports AT Command input at the running state, customers can turn off the GPS module by type in "AT+CGPSPWR=0", and click the



Figure 28: power off GPS part

Note: customers can also turn off GPS in Hyper Terminal with the same command.

(2) Reset: Similar with turn off operation, customers can type in "AT+CGPSRST=0" to reset GPS in cold start mode, cold start mode is recommended for first time reset

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