

WG1300-00 EM Board

User Guide

Revision 0.1

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1. INTRODUCTION

The purpose of this user guide is to help user understanding how to use WG1300-00 EM (Evaluation Module) board to complete hardware setup for test to evaluate the performances of CC3000-WG1300-00 SiP Module.

2. WG1300-00 EM BOARD

In the following sub-sections, it'll divide into TOP and BOTTOM Side to explain details on the key parts and its features.

2.1. TOP Side

Figure 1 is TOP-Side picture of WG1300-00 EM Board.

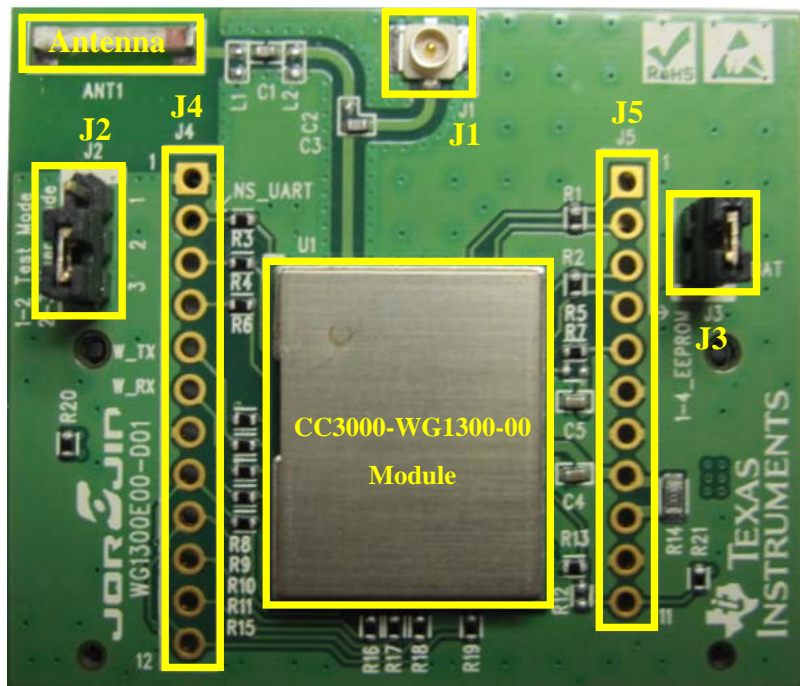


Figure 1. TOP Side of WG1300-00 EM Board

The picture above marks some key parts and jumpers and Table 1 below shows the explanations to them in the details.

Items	Key Parts	Descriptions
1	CC3000-WG1300-00 Module	The core module for performance evaluation. It's related feature can be referred to its datasheet.
2	Antenna	It can used for radiated test by reworking capacitor to correct pads.
3	J1	It's a U.FL RF connector via which you can proceed conducted power test.
4	J2	It is a jumper via which we can swap testing modes, test mode and operation mode. When pin 2 and pin 3 are shorted, it runs in operation mode and it operate in test mode when pin 1 and pin 2 are shorted.
5	J3	It is a jumper for testing power consumption. In operation mode, pins of the jumper is shorted. For power testing, the jumper is removed and ammeter crosses the pins to do the testing.
6	J4	Refer to Table 2. For more details on these through-hole test points
7	J5	Refer to Table 3. For more details on these through-hole test points

Table 1. TOP-Side Key parts of WG1300-00 EM Board

Table 2 below shows the signal descriptions of J4

Pin Number	Pin Name	Pin Type	Descriptions
1	GND		Ground
2	NS_UARTD	I/O	Networking subsystem UART Debug line
3	FUNC4	--	Leave floating
4	WL_UART_DBG	I/O	UART Debug Line
5	WL_RS232_TX	O	Test RS232 transmit output; Leave floating for normal operation
6	WL_RS232_RX	I	Test RS232 receive output; Leave floating

			for normal operation
7	GND		Ground
8	WL_SPI_CS	I	Host interface SPI Chip Select
9	WL_SPI_DOUT	O	Host interface SPI Data Output
10	WL_SPI_IRQ	O	Host Interface SPI Interrupt Request
11	WL_SPI_DIN	I	Host Interface SPI Data Input
12	WL_SPI_CLK	I	Host interface SPI Clock input

Table 2. TOP-Side J4 of WG1300-00 EM Board

Table 3 below shows the signal descriptions of J5

Pin Number	Pin Name	Pin Type	Descriptions
1	SCL_CC3000	O	I2C Clock signal output from CC3000. This pin is connected to SCL_EEPROM via a 0-Ohm resistor and is not used by end users.
2	SCL_EEPROM	I	I2C Clock signal input from EEPROM inside CC3000-WG1300-00 SiP Module. This pin is connected to SCL_CC3000 via a 0-Ohm resistor and is not used by end users.
3	SDA_CC3000	I/O	I2C Data signal from CC3000. This pin is connected to SDA_EEPROM via a 0-Ohm resistor and is not used by end users.
4	SDA_EEPROM	I/O	I2C Data signal from EEPROM inside CC3000-WG1300-00 SiP Module. This pin is connected to SDA_CC3000 via a 0-Ohm resistor and is not used by end users.
5	VBAT_SW_EN	I	Active-high enable signal from Host device.
6	GND		Ground
7	GND		Ground
8	VIO_HOST	PI	VIO power supply from HOST to Module. For MSP430 Host platform, VIO_HOST=VBAT_IN. For other platforms which have different voltage levels from

			Battery voltages', R14 can be remove to support such a case.
9	VBAT_IN	PI	Battery voltage input to Module. For MSP430 Host platform, VIO_HOST=VBAT_IN. For other platforms which have different voltage levels from Battery voltages', R14 can be remove to support such a case.
10	GND		Ground
11	EXT_32KHz	I	External Slow Clock input from Host device. It can be used for the SiP Module inside which hasn't slow clock source.

Table 3. TOP-Side J5 of WG1300-00 EM Board

2.2. BOTTOM Side

Figure 2 is BOTTOM-Side picture of WG1300-00 EM Board.

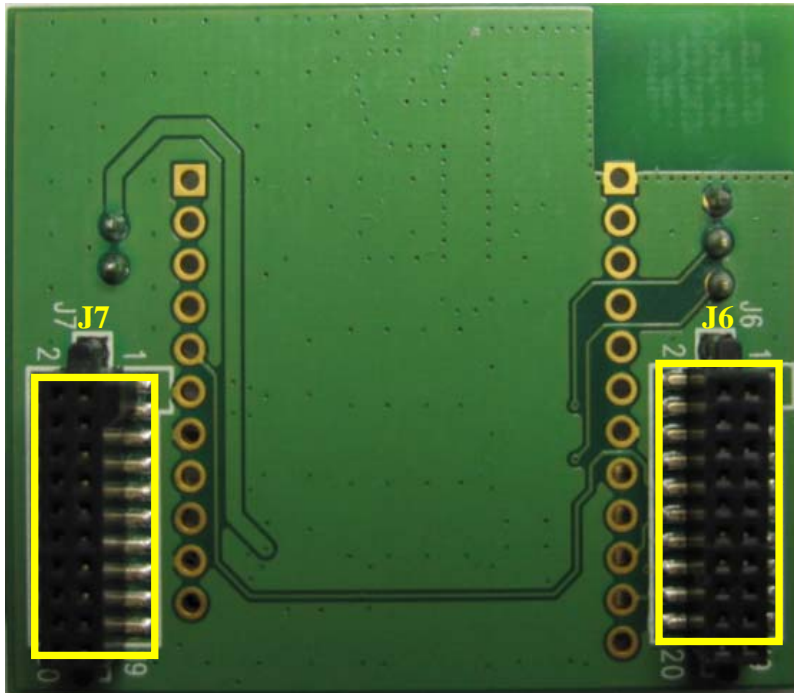


Figure 2. Bottom Side of WG1300-00 EM Board

There are two EM Board mating connectors which are used for connecting to Host platform and are mounted on the bottom side as the picture above. Table 4 and Table 5 show the descriptions on the

signals brought out from these two EM mating connectors.

J6 Pin Number	Pin Name	Module Pin Type	Description
1	GND		Ground
5	EXT_32KHz	I	External Slow Clock input from Host device. It can be used for the SiP Module inside which hasn't slow clock source.
10	VBAT_SW_EN	I	Active-high enable signal from Host device.
12	WL_SPI_IRQ	O	Host Interface SPI Interrupt Request
14	WL_SPI_CS	I	Host interface SPI Chip Select
16	WL_SPI_CLK	I	Host interface SPI Clock input
18	WL_SPI_DIN	I	Host Interface SPI Data Input
19	GND		Ground
20	WL_SPI_DOUT	O	Host interface SPI Data Output

Table 4. BOTTOM-Side J6 of WG1300-00 EM Board

J7 Pin Number	Pin Name	Module Pin Type	Description
2	GND		Ground
7	VBAT_IN	PI	Battery voltage input to Module
9	VBAT_IN	PI	Battery voltage input to Module
15	EXT_32KHz	I	External Slow Clock input from Host device.

Table 5. BOTTOM-Side J7 of WG1300-00 EM Board

2.3. Hardware Setup

Before conducting performance test, EM Board should be connected to Host platform, either with mating connectors, J6 and J7, or single row headers, J4 and J5. For the case of using EM mating connector for hardware connection, the mating EM connector should be lined up and spaced 1.2" apart as Figure 3 below

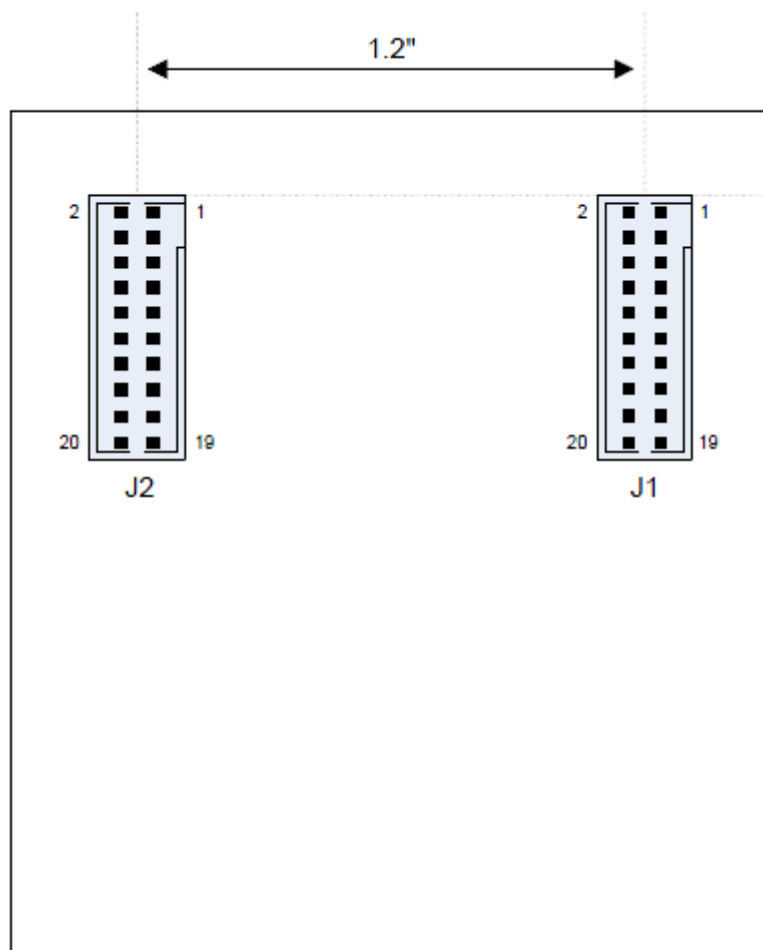


Figure 3. Host PCB Mating Connector Arrangement

For the case of using single row headers, the necessary signals as the ones brought out from EM mating connector need to be wired to Host platform.

2.4. Schematics

Figure 4 is the schematics of WG1300-00 EM Board

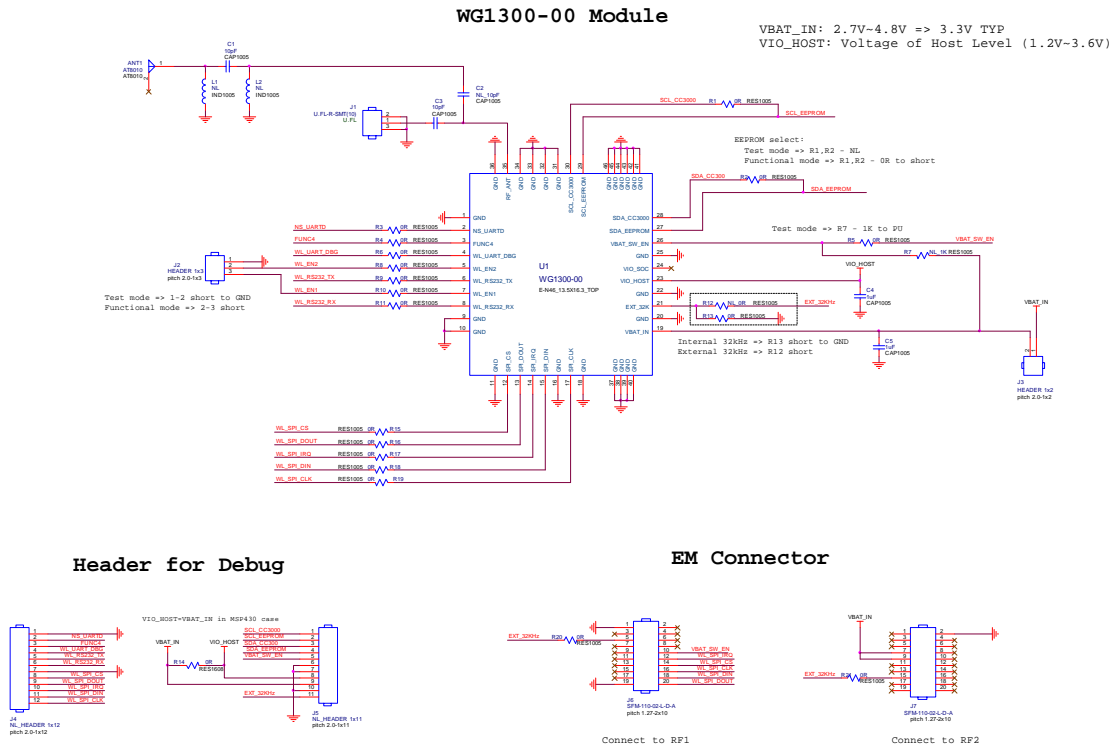


Figure 4. Schematics of WG1300-00 EM Board

2.5. Bill Of Material (BOM)

Items	Reference Designator	Description
1	U1	TI CC3000 WiFi b/g Module (BM)
2	ANT1	ANT / 2.4GHZ / Peak Gain 2.5DB
3	J1	Mini RF Header Receptacle
4	J2	CON Male 1x3 / Pitch 2.0 mm
5	J3	CON Male 1x2 / Pitch 2.0 mm
6	J6,J7	Female Header / Fool Proof H:4.3 / 2x10 / Pitch 1.27mm / SMT
7	C1,C3	CAP 0402 / 10pF / 50V / NPO / ±5%
8	C4,C5	CAP 0402 / 1uF / X5R / 6.3V / ±10% / HF
9	R1,R2,R3,R4,R5,R6,R8,R9, R10,R11,R13,R15,R16, R17,R18,R19,R20,R21	RES 0402 / 0R / Jumper
10	R14	RES 0603 / 0R / Jumper

Table 6. BOM of WG1300-00 EM Board

3. APPLICATION DEVELOPMENT

Texas Instrument had developed a HOST platform, MSP-EXP430FR5730, for evaluating CC3000-based SiP Module. Figure 4 shows the platform and WG1300-00 EM Board

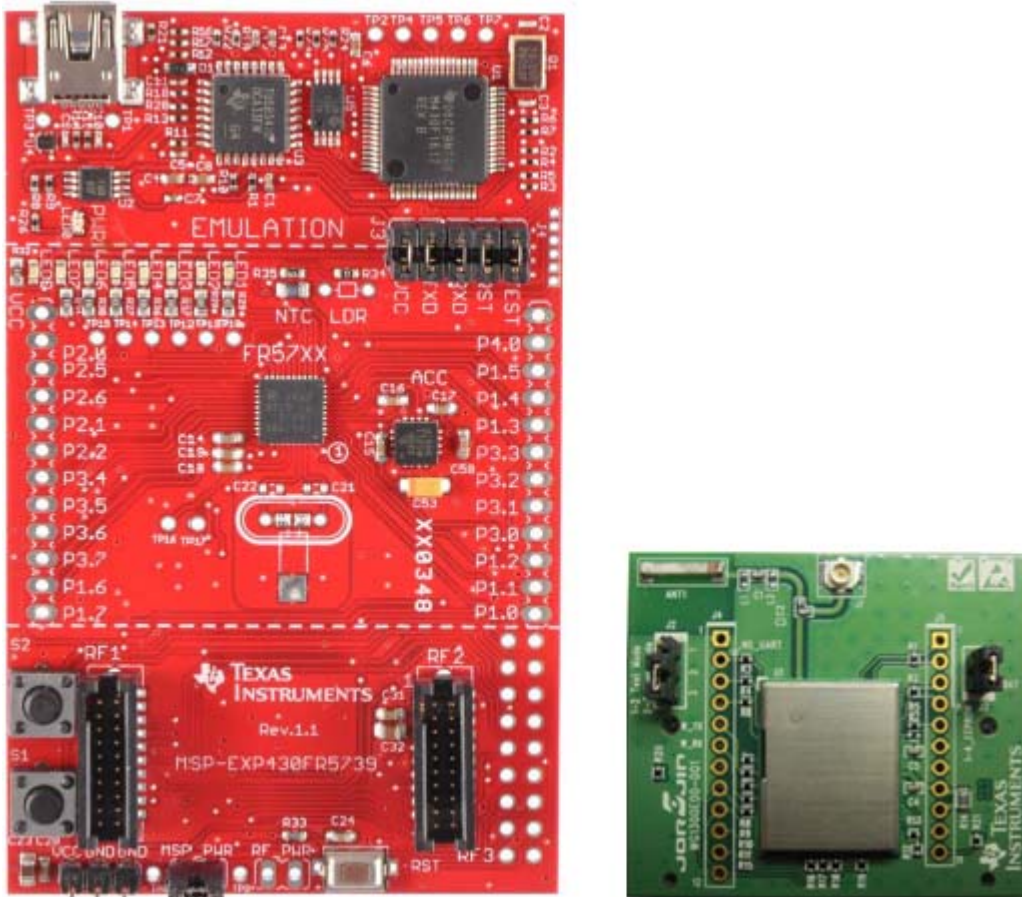


Figure 4. MSP-EXP430FR5730 and WG1300-00 EM Board

The MSP-EXP430FR5739 test platform can be ordered as the link below.

<http://www.ti.com/tool/msp-exp430fr5739>

Specific application examples can refer to the link below

http://processors.wiki.ti.com/index.php/CC3000_Wi-Fi_for_MCU

4. HISTORY CHANGE

Revision	Date	Description
R 0.1	2012/2/28	Release 0.1