WL18xxCOM82SDMMC WL18XX SDMMC and UART Adapter Board

User's Guide

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1 General Description

This board is designed for simple connection between the edge 100-pin edge connector COM (WiLink chip on module) solutions board to the host platforms through an SDIO edge connector for WLAN, a 20-pin FPC connector for *Bluetooth*®, and PCM interfaces or wire cable.

2 Features

- Ease of connection to multiple host platforms using 1.8-V and 3.3-V interfaces through level shifting.
- Evaluation and debugging of the COM8 module through an onboard USB port with four debug interfaces
- Onboard power (through a USB port) and clock, enables distribution to the module

3 Hardware Description

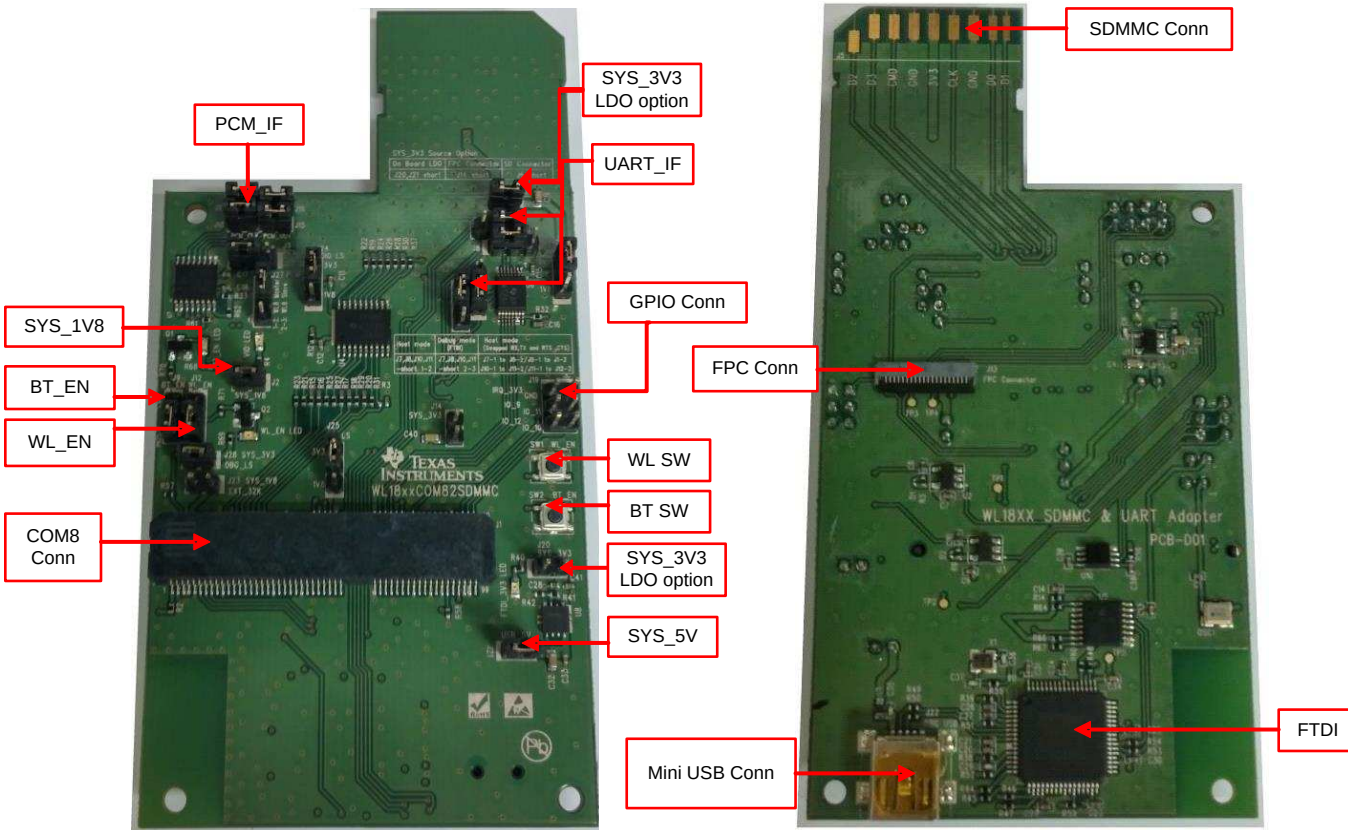

Figure 1. SDMMC Adapter Board Overview

WiLink is a trademark of Texas Instruments.
Bluetooth is a registered trademark of Bluetooth SIG.

3.1 Connector and Jumper Descriptions

3.1.1 Jumper Settings

Schematics Reference	Description	Comments
J2	VIO, 1.8-V source	
J3	*Bluetooth* PCM LS (1.8 V/3.3 V) selection	(1-2) is 1.8 V (2-3) is 3.3 V (default)
J4	*Bluetooth* UART LS (1.8 V/3.3 V) selection	(1-2) is 1.8 V (2-3) is 3.3 V (default)
J24	WLAN SDIO LS (1.8 V/3.3 V) selection	(1-2) is 1.8 V (2-3) is 3.3 V (default)
J25	*Bluetooth*/WL Enable LS (1.8 V/3.3 V) selection	(1-2) is 1.8 V (2-3) is 3.3 V (default)
J6, J14, J20, J21	3.3-V power selection connect one of three options	J6 power from SD connector. (default)
		J14 power from FPC connector.
		J20 power from onboard LDO J21 must be closed to supply the LDO from USB.
J7, J8, J10, J11	*Bluetooth* HCI source selection	Host mode: J7, J8, J10, J11 (1-2). (default) Debug mode: J7, J8, J10, J11 (2-3) Host mode (swapped): J7-1 to J8-2 / J8-1 to J7-2 / J10-1 to J11-2 / J11-1 to J12-2
J9	*Bluetooth* enable control	(1-2): EN control by push-button. (2-3): Control by host. (default)
J12	WL enable control	(1-2): EN control by push-button. (2-3): Control by host. (default)
J15, J16, J17, J18	PCM Interface	Option to drive the PCM interface from host through FPC connector or connect usign the external blue wire cable.
J23	Slow clock	Supply slow clock to the module. (NU by default)
J19	Debug header	Option for WL_IRQ and GPIO9 through GPIO12 to connect using the external blue wire cable.

3.1.2 Push-Buttons

Reference	Usage	Comments
SW1	BT_EN	Module *Bluetooth* enable control
SW2	WL_EN	Module WLAN enable control

3.1.3 LEDs

Reference	Color	Description	Comments
LED1	Red	SYS_1V8	ON, when SYS_1V8 is available
LED2	Red	SYS_3V3	ON, when 3V3 supply is available
LED3	Blue	BT_EN	ON, when BT_EN is supplied from host/on board
LED4	Green	WL_EN	ON, when WLAN_EN is supplied from host/on board

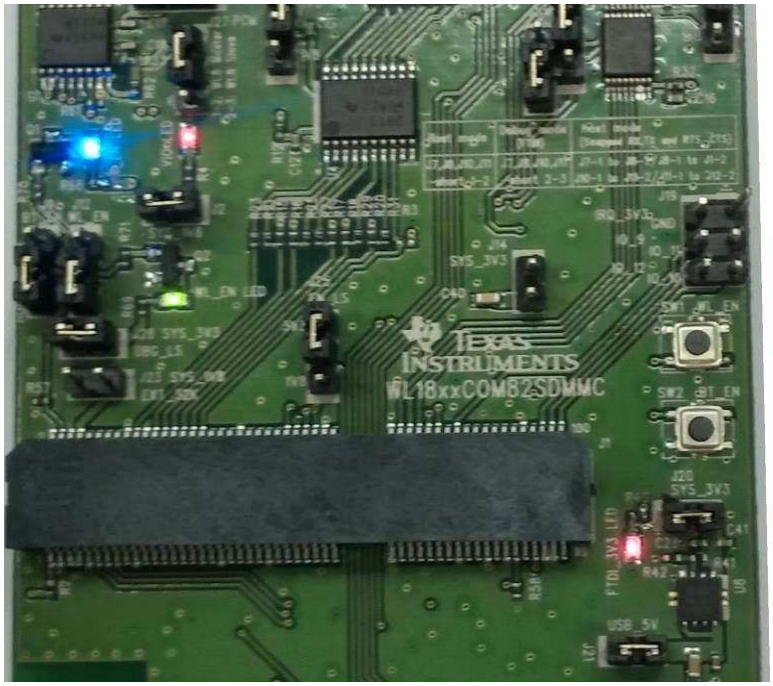

Figure 2.

3.2 Power Supply

The board is designed to accept power from the SD/FPC connector of Host platform or onboard LDO generated from 5 V of the USB connector.

3.2.1 3.3 V From SD Connector

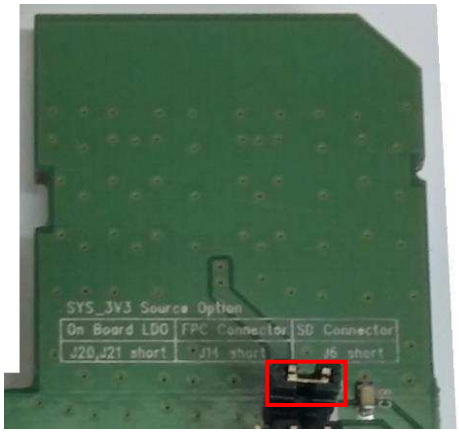

Figure 3. Supply 3V3 from SD Connect (J6 short)

3.2.2 3.3 V From FPC Connector

Figure 4. Supply 3V3 From FFC Connect (J14 Short)

3.2.3 3.3-V Onboard LDO Supply

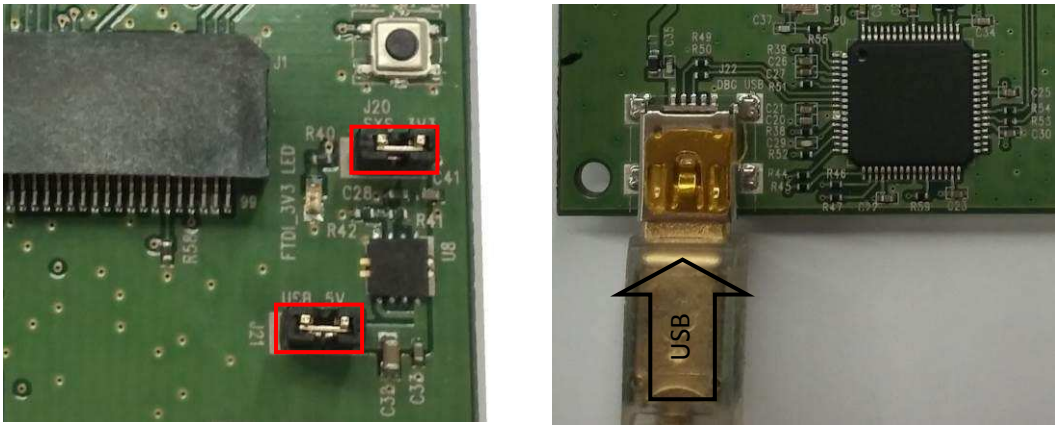

Figure 5. Supply 3V3 From Onboard LDO (J20, J21 Short)

3.3 Slow Clock Source

There is an option on board to supply the slow clock of 32.768 kHz to the module. By default, this option is not used because the COM board has an onboard oscillator.

Figure 6. Slow Clock (J23 Short)

3.4 Debug

An onboard FTDI chip on the adapter board drives all the debug interfaces on one mini USB port.

The FTDI chip provides the ability to have *Bluetooth*/WiFi firmware logger and *Bluetooth* HCI/WLAN RS-232 control interfaces routed easily to a single USB port that can supply the entire system.

The board can be operated with debug capabilities in two ways:

1. Use the board as a stand-alone COM board debug.
   (a) Generate the 3.3 V/1.8 V from the onboard LDO through the USB port J22 (J2, J21, and J20 assembled).
   (b) Enable lines can be controlled from the board (*Bluetooth* J9 pins 1-2 short; WLAN J12 pins 1-2 short).
   (c) If the COM8 board does not have onboard slow clock, drive the slow clock to the module (J23).
   (d) All four interfaces are driven to the FTDI device and through the USB port. Four virtual ports will be created on the PC in the following order: *Bluetooth* UART, *Bluetooth* logger, WLAN RS232, WLAN logger (UART J7, J8, J10, J11 short 2-3; Debug LS: J28 assembled)
2. Use the firmware loggers to monitor the operation of the device while running with a host.
   (a) Make sure that **only one source** is driving the SYS_3V3 (**J6** or **J14**) and **J20** is disconnected.
   (b) For the logger operation, connect the USB cable to J22 and make sure J21 and J28 are assembled.
   (c) On the virtual ports of the PC, *Bluetooth* logger will be identified as second port and WLAN as the fourth.

4 Connecting Application

The WL18xxCOM82SDMMC board is designed to connect the WiLink™ 8 evaluation board (WL18xxMODCOM8x) or any other COM (connectivity on module) board using MEC6 edge 100-pin connector to any host platform using SD card/FPC connector/single-wire ribbon.

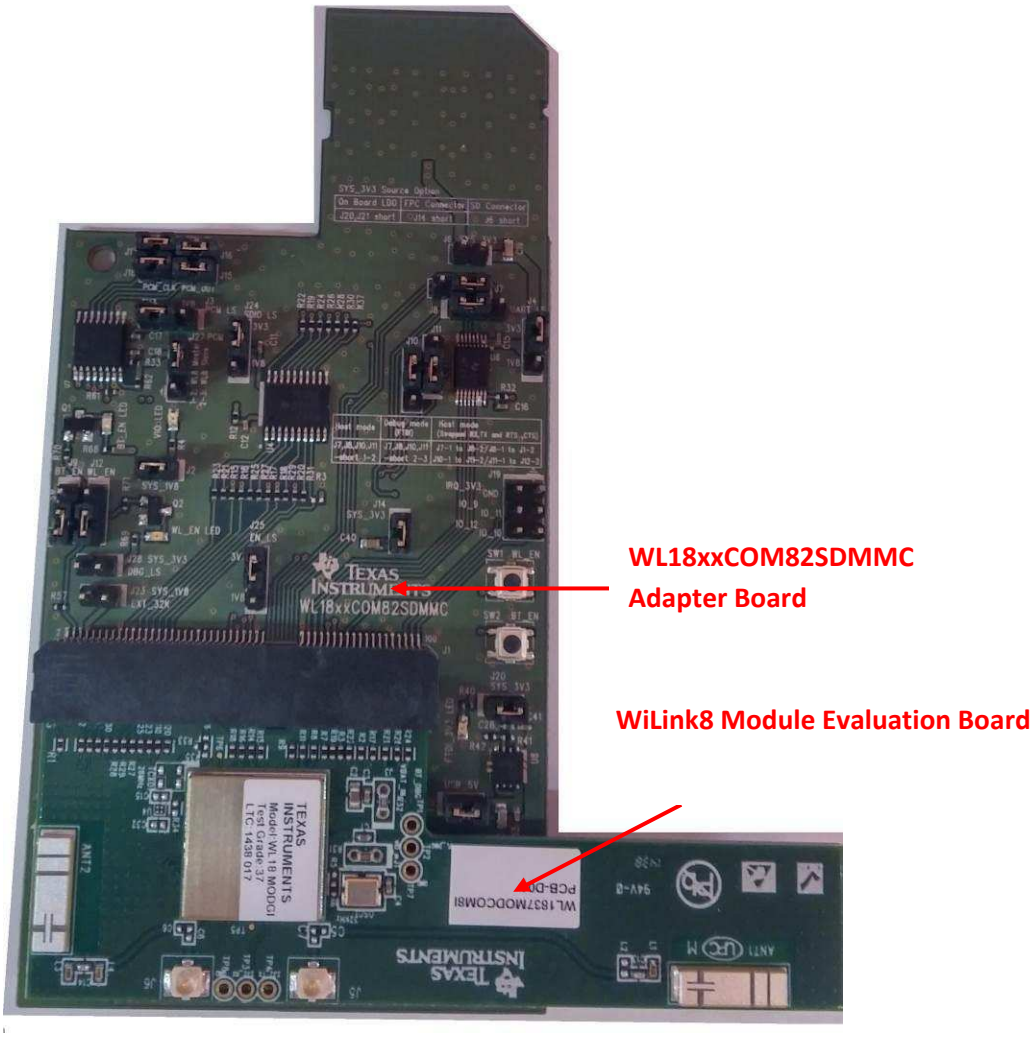

Figure 7. WiLink8 COM8 Board With Adapter Board Overview

4.1 Connecting to Platform

4.1.1 General Connection Options

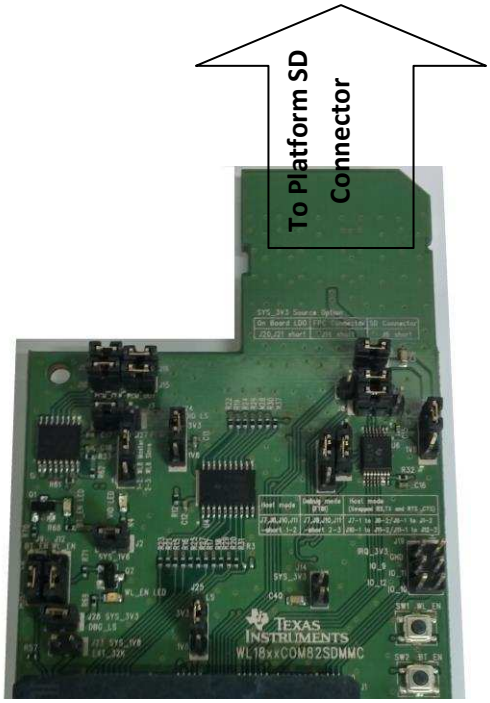

Figure 8. Connect to Platform With SDMMC for SDIO Interface

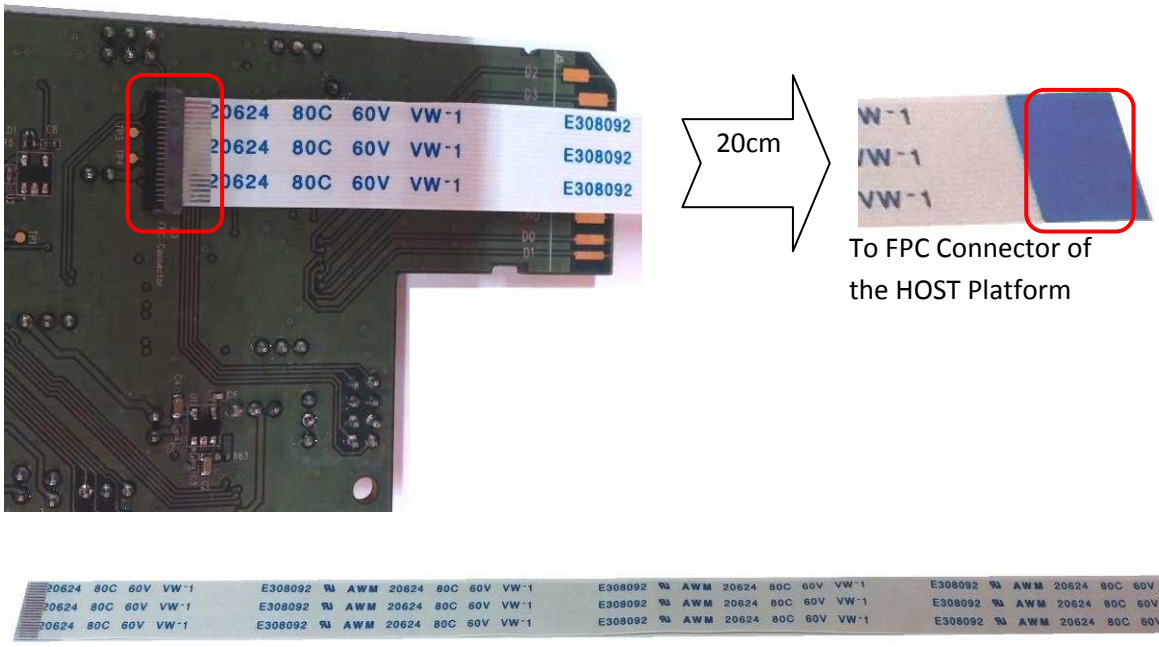

Figure 9. Connect to Platform With FPC Cable

4.1.1.1 Example of Connection Procedure Using the Wire-up Kit

Figure 10 shows an example of the connection procedure using the wire-up kit.

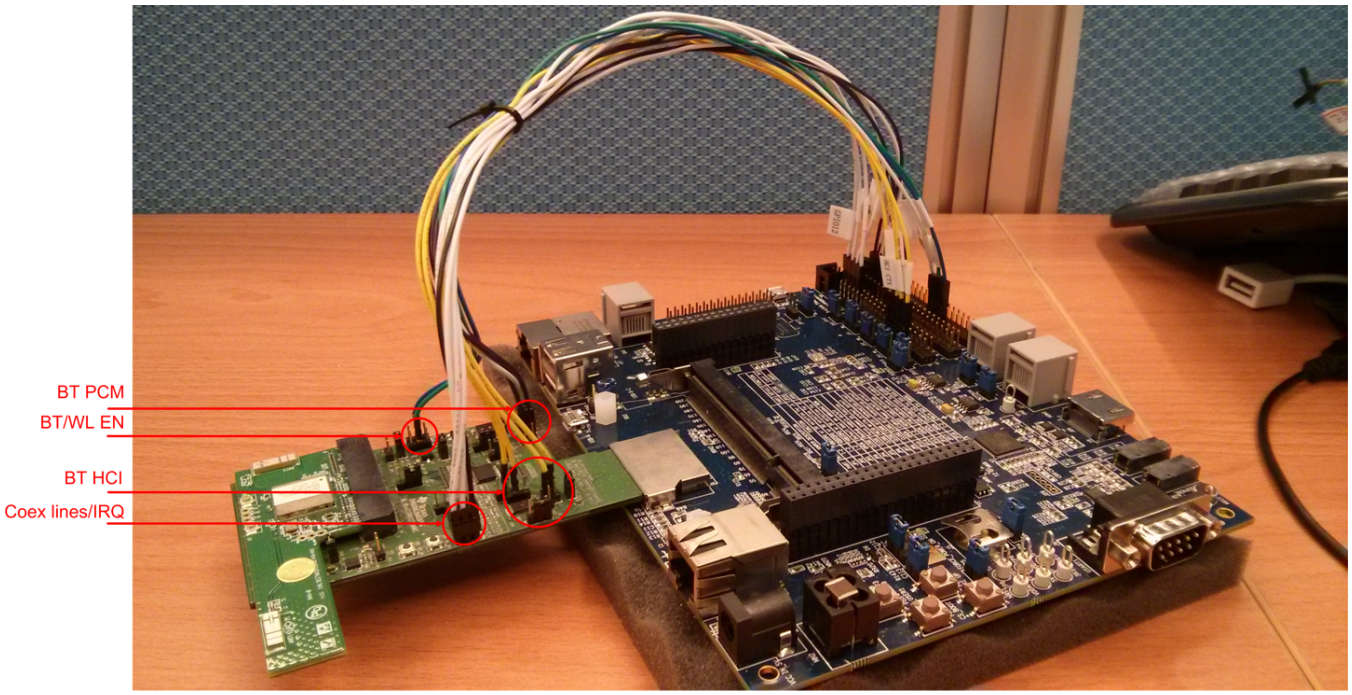

Figure 10. General Wire-up Connection

4.1.2 Freescale Sabre Board Connectivity

COM8 100-pin	WL8 Naming	Adapter Board FPC(J13)	Sabre Board FPC(J13)[1]
66	HCI_TX	3	J13.18 (SPINOR_MISO)
68	HCI_RX	5	J13.16 (SPINOR_CS0)
70	HCI_CTS	4	J13.17 (KEY_ROW4)
72	HCI_RTS	2	J13.19 (KEY_COL4)
89	BT_EN	15	J13.6 (KEY_ROW6)
34	WL_IRQ	19	J13.2 (SPINOR_CLK)
4	WL_EN	20	J13.1 (SPINOR_MOSI)
5,7	3.3V	6,7	J13.14 and J13.15
52	BT_AUD_CLK	10	
54	BT_AUD_FSYNC	9	
56	BT_AUD_IN	11	
58	BT_AUD_OUT	12	
WiFi_IF[2]	SDIO0-3, SDIO_Clk, SDIO_CMD, Power	J5	J500

(1) For Sabre board operation, ensure that R212, R213, R209, R214, R210, R215, R211 are assembled

(2) WiFi SDIO interface is connected directly from J5 connector on adapter board to J500 SD slot on Sabre board

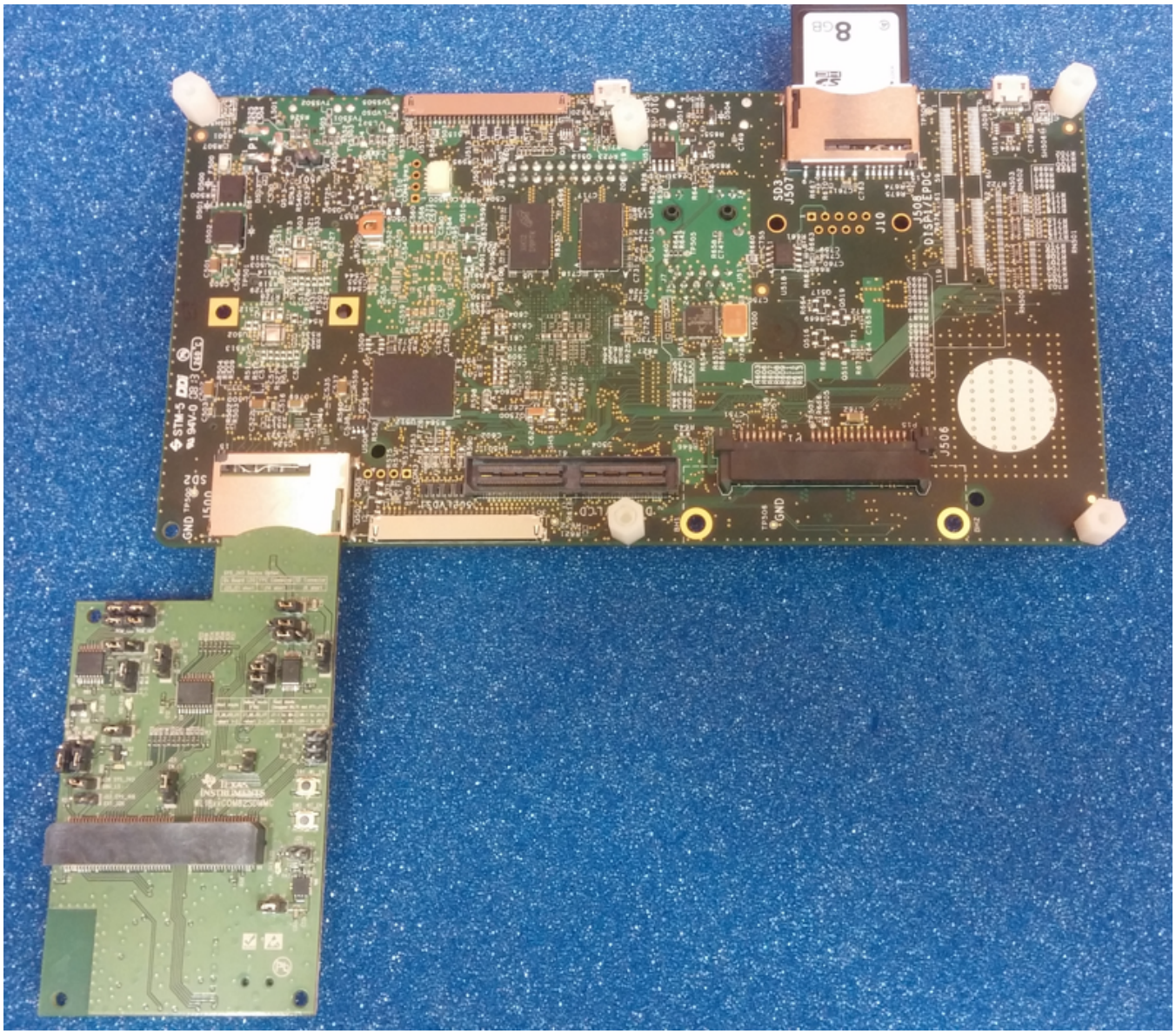

Figure 11. Connection Diagram (Top)

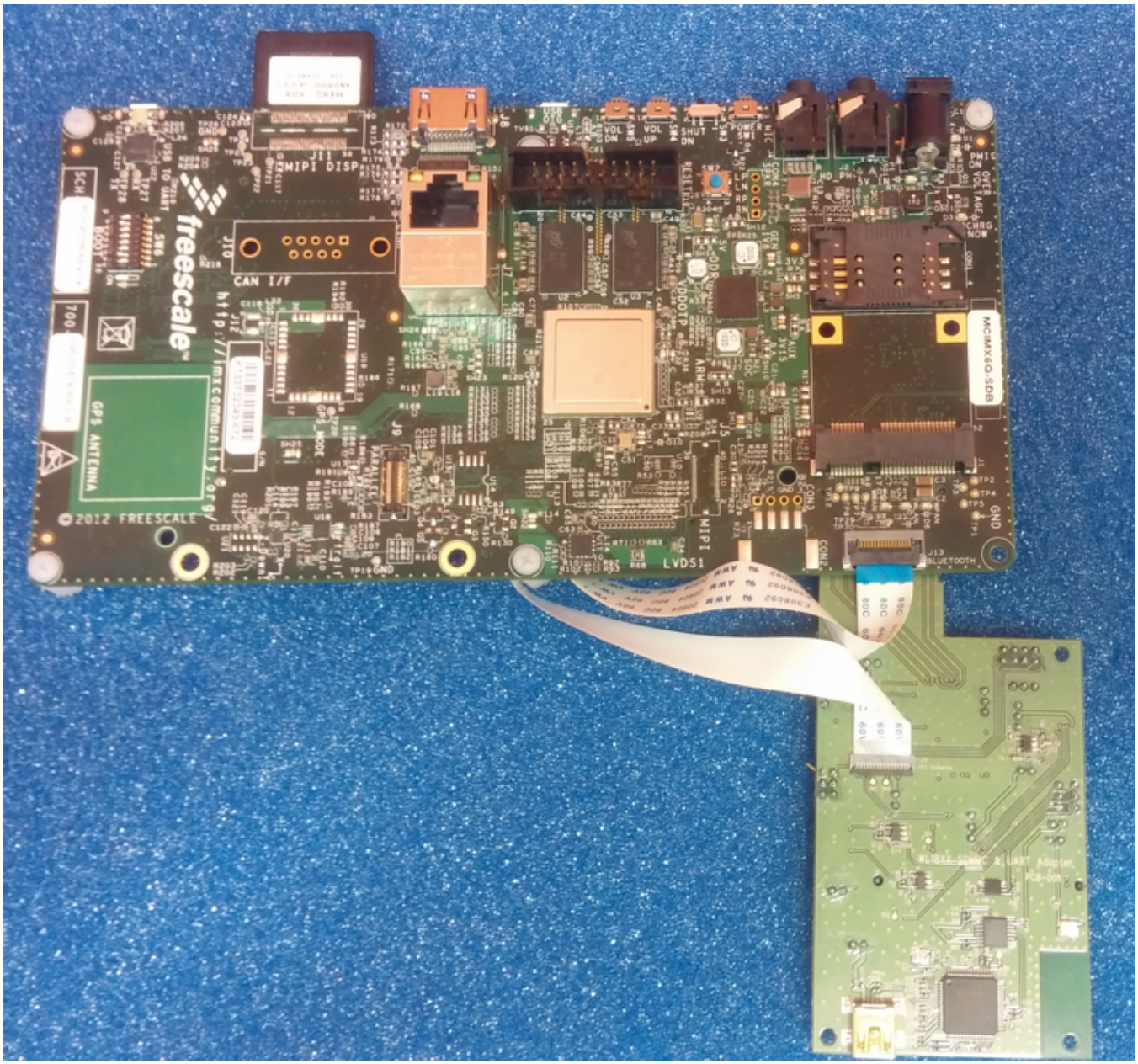

Figure 12. Connection Diagram (Bottom)

5 Revision History

Date	Revision	Details
January 2015	*	Initial Release

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