

COM6L-T5

User Guide



LS RESEARCH, LLC
WIRELESS PRODUCT DEVELOPMENT

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1 Introduction

1.1 Purpose & Scope

The purpose of this document is to provide details regarding the setup and use of the COM6L-T5 board. This document covers a description of the COM6L-T5 board and its features.

1.2 Applicable Documents

- *TiWi5 Datasheet (330-0042)*
- *LSR Dual Band 2.4/5.5 GHz Antenna Datasheet (330-0094)*
- *LSR TiWi5 Antenna Design Guide (330-0093)*

1.3 Revision History

Date	Change Description	Revision
8-30-2012	Initial release	1.0

Table 1 Revision History

2 COM6L-T5 Board Description

The COM6L-T5 Board is an evaluation platform for the LS Research TiWi5 802.11 a/b/g/n Wi-Fi, Bluetooth, and Bluetooth Low Energy (BLE) module.

Interfacing to the TiWi5 module mounted to the COM6L-T5 board is made through the 100 pin card-edge connector. This connector is a common interface to many of Texas Instruments MPU development platforms.



Figure 1 COM6L-T5 Board with TiWi5 Module (Top View)

3 COM6L-T5 Board Hardware

3.1 Antenna

The COM6L-BLE board has one antenna option:

- 1) External dipole antenna used in combination with U.FL to Reverse Polarity SMA cable, via the U.FL connector on the TiWi5 module.



	Part Number	Description
	LS Research 001-0009	2.4/5.5 GHz Dipole Antenna with Reverse Polarity SMA Connector
	LS Research 080-0001	U.FL to Reverse Polarity SMA Bulkhead Cable 105mm

Table 2 COM6L-T5 External Antenna Solution

3.1.1 Dipole Antenna

The LSR 001-0009 2.4/5.5 GHz Dipole Antenna is used in conjunction with the LSR 080-0001 U.FL to Reverse Polarity SMA Cable, and the Hirose U.FL connector mounted to the COM6L-T5 board, to provide an externally mounted antenna solution for the COM6L-T5 board.

Since this module and its associated set of approved antennas has been certified by the FCC and Industry Canada (IC) as a Modular Radio, the end user is authorized to integrate this module into an end-product, and is solely responsible for the Unintentional Emissions levels produced by the end-product.

3.2 Connectors

The primary connector on the COM6L-T5 Board is the 100 pin (50 on each side) edge connector J1. It is integral to the PCB and mates with Samtec connector MEC6-150-02-L-D-RA1.

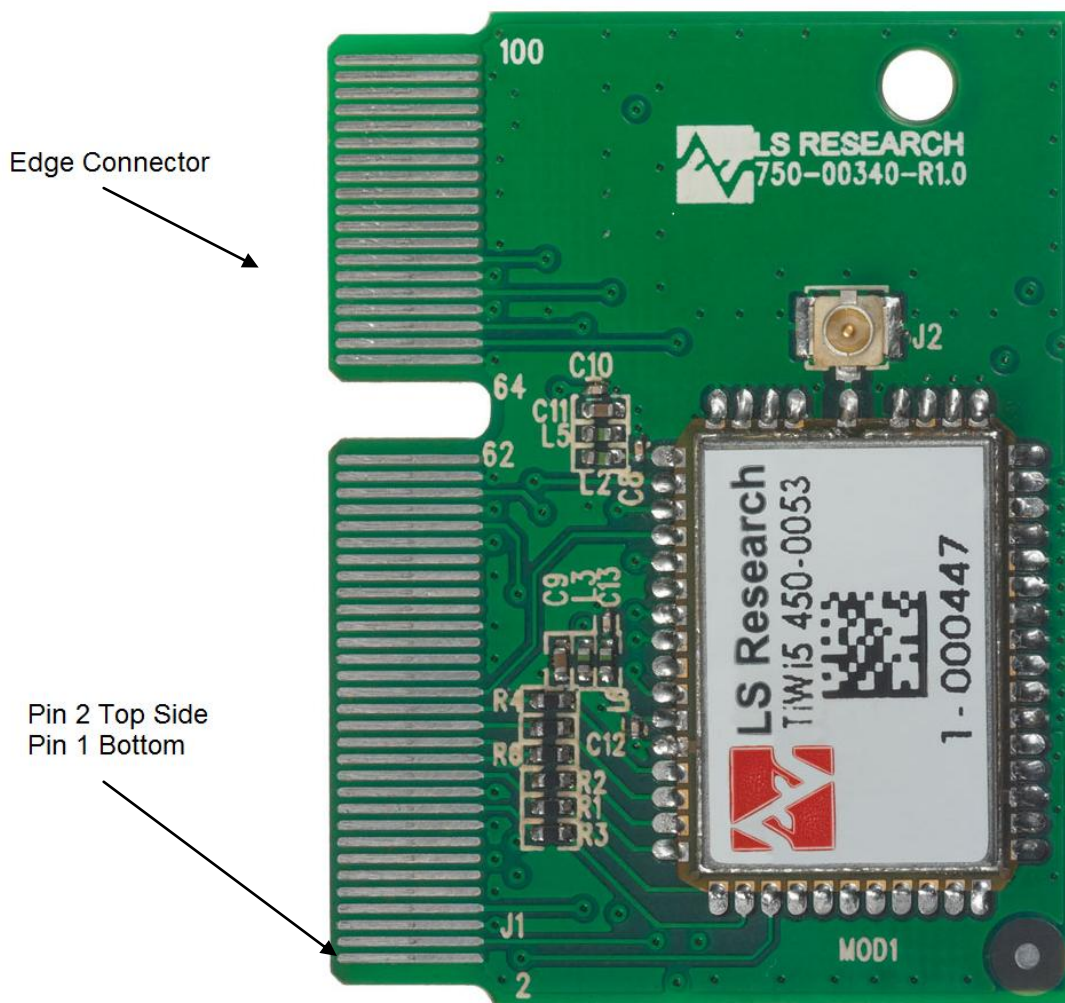


Figure 2 COM6L-T5 Board Connector



Figure 3 COM6L-T5 Mating Connector (Samtec MEC6-150-02-L-D-RA1)



Figure 4 COM6L-T5 Attached to Host PCB with Mating Connector

3.3 COM6L-T5 Connector Required Signals

Not all pins on the COM6L-T5 edge connector are used for the TiWi5 module. Table 3 outlines the active pins. All pins not specifically listed in Table 3 are left unconnected on the COM6L-T5 PCB.

Connector Pin	Name	Description
1	SLOW_CLK	SLEEP CLOCK (32 kHz), 1.8 VDC DIGITAL DOMAIN
2	GND	Ground
3	GND	Ground
4	WLAN_EN	WLAN Enable
5	3V6	3.6 VDC Nominal (3.0-4.8 VDC)
6	GND	Ground
7	3V6	3.6 VDC Nominal (3.0-4.8 VDC)
8	1V8	POWER SUPPLY FOR 1.8 VDC DIGITAL DOMAIN
9	GND	Ground
11	WL_RS232_TX	WLAN TEST UART TX (*)
13	WL_RS232_RX	WLAN TEST UART RX (*)
15	WL_UART_DGB	WL_UART_DBG
18	GND	Ground
19	GND	Ground
20	SDIO_CLK	SDIO_CLK HOST PULL UP REQUIRED
22	GND	Ground
24	SDIO_CMD	SDIO_CMD HOST PULL UP REQUIRED
26	SDIO_D0	SDIO INTERFACE, HOST PULL UP REQUIRED
28	SDIO_D1	SDIO INTERFACE, HOST PULL UP REQUIRED
30	SDIO_D2	SDIO INTERFACE, HOST PULL UP REQUIRED
32	SDIO_D3	SDIO INTERFACE, HOST PULL UP REQUIRED
34	WLAN_IRQ	WLAN Interrupt Request
37	GND	Ground
42	GND	Ground
47	GND	Ground
52	AUD_CLK	PCM I/F or FM_I2S_CLK (*)
54	AUD_FSYNC	PCM I/F or FM_I2S_FSYNC

Connector Pin	Name	Description
56	AUD_IN	PCM I/F or FM_I2S_DI (*)
58	AUD_OUT	PCM I/F or FM_I2S_DO (*)
60	GND	Ground
63	GND	Ground
64	GND	Ground
66	HCI_TX	Bluetooth UART TX
68	HCI_RX	Bluetooth UART RX
70	HCI_CTS	Bluetooth UART CTS
72	HCI_RTS	Bluetooth UART RTS
74	HOST_WU	Host Wake Up
76	BT_UART_DBG	Bluetooth UARTD (DEBUG) (*)
87	GND	Ground
89	BT_EN	Bluetooth Enable
93	BT_WAKE_UP	Bluetooth Wake Up/ DC2DC mode (*)
95	GND	Ground
97	GND	Ground

Table 3 TiWi5 Edge Card Pinout

(*) indicates that pin is capable of bidirectional operation, but is used as the type shown.

All pins not specifically listed in Table 3 are left unconnected on the COM6L-T5 PCB.

3.4 Connecting COM6L-T5 Board to Host Platform

The COM6L-T5 Board is intended to allow for evaluation of and early development of a TiWi5 module. The interface to COM6L-T5 Board meets all the requirements of the Texas Instruments COM (Connectivity On Module) solutions. The COM6L-T5 with the LS Research TiWi5 module can be readily interfaced to the following Texas Instruments MPU Platforms:

- BeagleBoard - with adapter
- BeagleBoard-xM – with adapter
- Mistral OMAP35x
- Mistral AM37x Board
- Centaurus AM387x

Information about the specific Platforms can be found at the following web sites:

[Wireless Connectivity Solutions](#)

[Low Power RF & Wireless Connectivity Section of the TI E2E Support Community](#)

[Texas Instruments Embedded Processors Wiki](#)

beagleboard.org

[Mistral Solutions](#)

3.5 Schematic

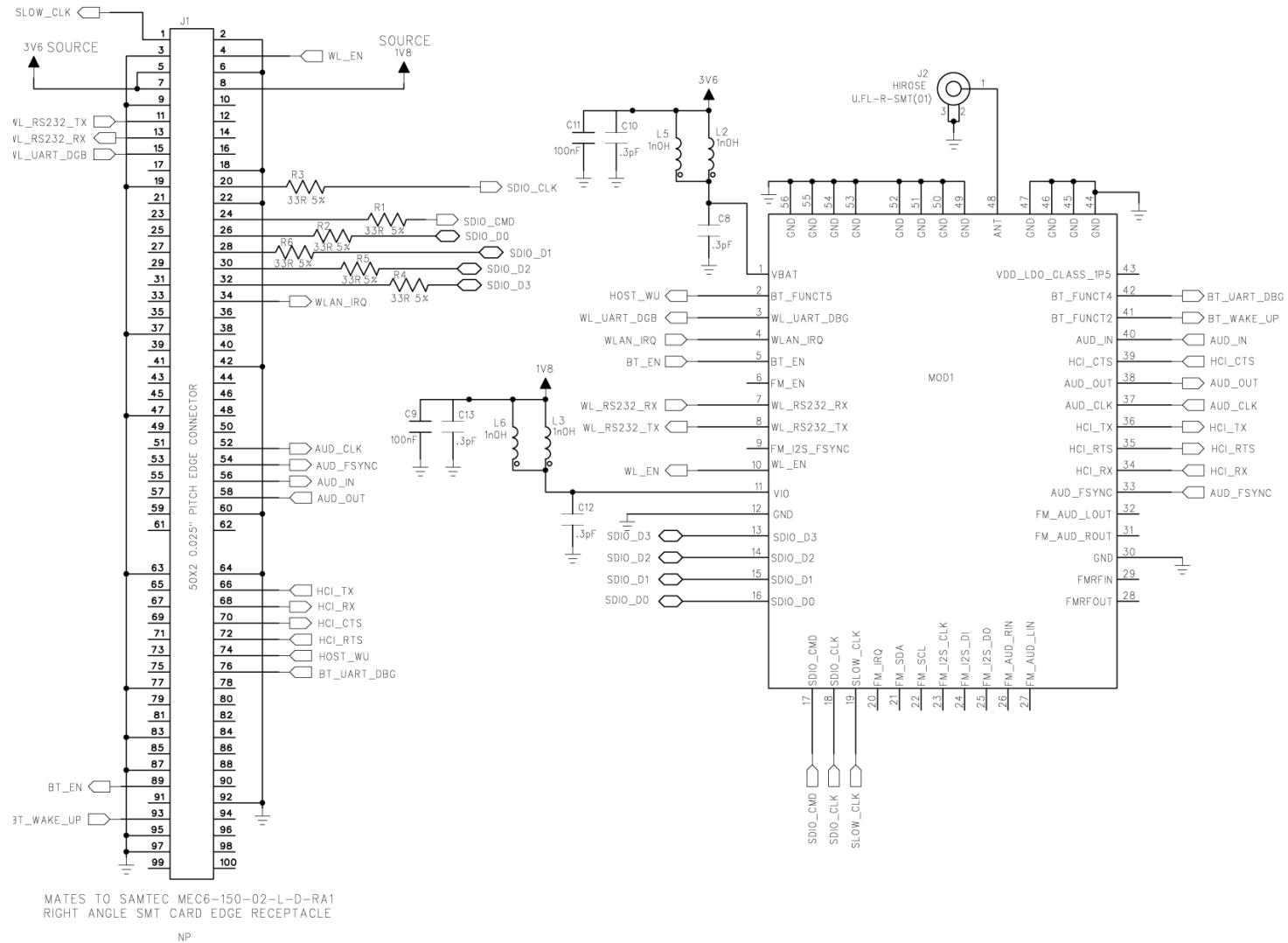


Figure 5 COM6L-T5 Board Schematics

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3.6 Bill Of Material (BOM)

Reference Designator	Description
C8 C10 C12 C13	0201 SIZE SMT CERAMIC CAPACITOR
C9 C11	0402 SIZE SMT CERAMIC CAPACITOR
J1	50X2 0.025" PITCH EDGE CONNECTOR
J2	MINIATURE COAXIAL RECEPTACLE
L2 L3	MONOLITHIC 0402 SIZE SMT INDUCTOR
L5 L6	MONOLITHIC 0402 SIZE SMT INDUCTOR
MOD1	TiWi5 Module
PCB1	BARE PRINTED CIRCUIT BOARD
R1 R2 R3 R4 R5 R6	THICK FILM 0402 SMT RESISTOR

Table 4 COM6L-T5 Board BOM

4 Contacting LS Research

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