



M.2 Adapter for WE866C3-P HW User Guide

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APPLICABILITY TABLE

This documentation applies to the following product families:

Module Name	Description
WE866C3-P	Wi-Fi companion device for LE910Cx (4G LTE) module family

Table 1: Applicability Table

The features described by the present document are provided by the products equipped with the software versions equal or higher than the versions shown in the table.

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1. Introduction

1.1. Scope

The scope of this document is to describe the M.2 interface board which is the basic form of the WE866C3-P Development platform.

1.2. Contact Information, Support

For general contact, technical support services, technical questions and report documentation errors, contact Telit Technical Support at:

- TS-EMEA@telit.com
- TS-AMERICAS@telit.com
- TS-APAC@telit.com
- TS-SRD@telit.com

Alternatively, use:

<http://www.telit.com/support>

For detailed information about where you can buy the Telit modules or for recommendations on accessories and components visit:

<http://www.telit.com>

Our aim is to make this guide as helpful as possible. Keep us informed of your comments and suggestions for improvements.

Telit appreciates feedback from the users of our information.

1.3. Text Conventions



DANGER:

Danger – This information **MUST** be followed or catastrophic equipment failure or bodily injury may occur.



WARNING:

Caution or Warning – Alerts the user to important points about integrating the module, if these points are not followed, the module and end user equipment may fail or malfunction.



NOTE:

Tip or Information – Provides advice and suggestions that may be useful when integrating the module.

All dates are in ISO 8601 format, i.e. YYYY-MM-DD.

1.4. Related Documents

Document Title	Document Number
WE866C3 Hardware Design Guide	1VV0301495
Generic Evaluation Board Hardware User Guide	1VV0301249
MultiTech Interface TLB HW User Guide	1VV0301508
AT Commands Reference Guide	80490ST10778A

Table 2: Related Documents

1.5. Document Organization

Chapter 1: “Introduction” provides a scope for this document, target audience, contact and support information, and text conventions.

Chapter 2: “General description” provides an overview of the document.

Chapter 3: “M.2 Interface Form-Factor” provides M.2 pinout.

Chapter 4: “Component assembly diagram” provides layout placement information.

Chapter 5: “Schematics”.

Chapter 6: “Revision history”

1.6. Abbreviations and Acronyms

Term	Definition
EVB	Evaluation Board
IFBD	Interface Board
GPIO	General-purpose input/output
SD	Secure Digital
UART	Universal asynchronous receiver transmitter
UMTS	Universal mobile telecommunications system
USB	Universal serial bus
MTB	Multi Technology Interface Board

Table 3: Abbreviations

2. General description

The M.2 Card is available to provide the customer the means to evaluate the WE866C3-P WiFi module capability and interface with the LE910Cx.

It is designed to interface the Telit LE910Cx module family on an IFBD with the Telit Generic Evaluation Board (EVB) thus forming a complete Development Kit of LE910Cx.

2.1. M.2 Card View

The below pictures shows the top view of the M.2 Card mounted with WE866C3-P:



Figure 1 M.2 Card Top View

The card has no components on the bottom side.

2.2. Mounting Example on MT IFBD (MTB)

The below pictures shows the M.2 plugged into the MTB:

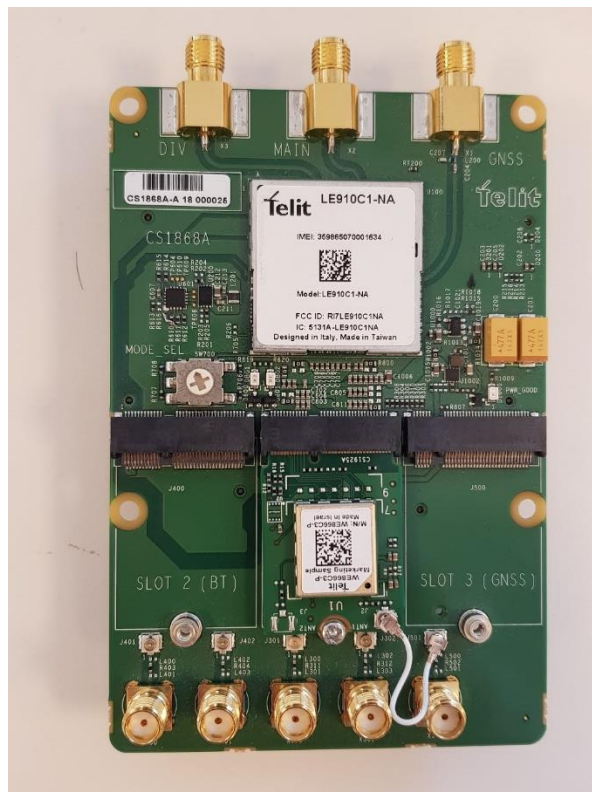


Figure 2 M.2 plugged into MTB

2.3. Detailed Description

This section provides details about the M.2 card, its connection and specification.

2.3.1. The M.2 Specification

The M.2, formerly known as the Next Generation Form Factor (NGFF), is a specification from 2013 for internally mounted computer expansion cards and associated connectors.

The Specification details the buses that can be exposed through the M.2 connector. The buses are PCI Express 3.0, Serial ATA (SATA) 3.0 and USB 3.0, which is backward compatible with USB 2.0. As a result, M.2 modules can integrate multiple functions, including the following device classes: Wi-Fi, Bluetooth, satellite navigation, near field communication (NFC), digital radio, Wireless Gigabit Alliance (WiGig), wireless WAN (WWAN), and solid-state drives (SSDs).

An M.2 module is installed into a mating connector provided by the host's circuit board, and a single mounting screw secures the module into place. Components may be mounted on either side of the module, with the actual module type limiting how thick the components can be; the maximum allowable thickness of components is 1.5 mm per side. Different host-side connectors are used for single- and double-sided M.2 modules, providing different amounts of space between the M.2 expansion card and the host's PCB.

The PCB of an M.2 module provides a 75-position edge connector; depending on the type of module, certain pin positions are removed to present one or more keying notches.

2.3.2. The WE866C3-P M.2 Card

The WE866C3-P M.2 card follows the below M.2 specification:

- SDIO based Socket 1
- 2230 size type
- Key type E

This form-factor card specification is intended to support Wireless Connectivity devices including combinations of Wi-Fi, BT, NFC, and/or GNSS.

The card includes a U.FL miniature RF connector for connecting a compatible WIFI antenna.

3. M.2 Card Pinout

The table below describes the connector pin naming as well as the mapping and usage of each signal of the M.2 WIFI card.

M.2 Connector Pin Number	M.2 Pin Name	M.2 spec description	WE866C3-P Usage
1	GND	GND	GND
3	USB_D+	USB2.0	NC
5	USB_D-		NC
7	GND	GND	GND
9	SDIO CLK	WIFI_SDIO_CLK	WIFI_SDIO_CLK
11	SDIO CMD	WIFI_SDIO_CMD	WIFI_SDIO_CMD
13	SDIO DATA0	WIFI_SDIO DATA0	WIFI_SDIO DATA0
15	SDIO DATA1	WIFI_SDIO DATA1	WIFI_SDIO DATA1
17	SDIO DATA2	WIFI_SDIO DATA2	WIFI_SDIO DATA2
19	SDIO DATA3	WIFI_SDIO DATA3	WIFI_SDIO DATA3
21	SDIO WAKE#	WIFI_WAKEUP	WOW (O)
23	SDIO RESET#	WIFI_RESET	WL_EN & BT_EN (I)
25	ADD-IN CARD KEY E		
27			
29			
31			
33			
35	PERp0	PCIe_RX0_P	NC
37	PERn0	PCIe_RX0_N	NC
39	GND	GND	GND
41	PETp0	PCIe_TX0_P	NC
43	PETn0	PCIe_TX0_N	NC
45	GND	GND	GND
47	REFCLKp0	PCIe_CLK0_P	NC
49	REFCLKn0	PCIe_CLK0_N	NC
51	GND	GND	GND
53	CLKREQ0#	CLOCK REQUEST FROM CARD	NC
55	PEWAKE0#	PCIe WAKE#	NC
57	GND	GND	GND
59	PERp1	PCI_RX1_P	NC
61	PERn1	PCI_RX1_N	NC
63	GND	GND	GND
65	PETp1	PCI_TX1_P	NC
67	PETn1	PCI_TX1_N	NC
69	GND	GND	GND
71	REFCLKp1	PCIe_CLK0_P	NC
73	REFCLKn1	PCIe_CLK0_N	NC
75	GND	GND	GND

M.2 Connector Pin Number	M.2 Pin Name	M.2 spec description	WE866C3-P Usage
2	3.3V	Card Main Power	Generated on IFBD from VBATT
4	3.3V		
6	LED_1#	Card Status 1	NC
8	PCM_CLK/I2S SCK	BT_AUDIO	I2S_SCK (I)
10	PCM_SYNC/I2S WS		I2S_SYNC (I)
12	PCM_OUT/I2S SD_OUT		I2S_SDO (O)
14	PCM_IN/I2S SD_IN		I2S_SDI (I)
16	LED_2#	Card Status 2	NC
18	GND	GND	GND
20	UART WAKE#	CARD_WAKEUP_HOST	NC
22	UART TXD	BT_TXD	HCI_TXD (O)
24	ADD-IN CARD KEY E		
26			
28			
30			
32			
34	UART RTS	BT_RTS	HCI_RTS (O)
36	UART CTS	BT_CTS	HCI_CTS (I)
38	VENDOR_1	VENDOR_1	NC
40	VENDOR_2	VENDOR_2	VDDIO (1.8V from IFBD)
42	VENDOR_3	VENDOR_3	VDDIO (1.8V from IFBD)
44	COEX3	Coexistence RFU	NC
46	COEX_TXD	WCI_TXD	WCI_TXD (O)
48	COEX_RXF	WCI_RXD	WCI_RXD (I)
50	SUSCLK	32KHz Clock in	LF_CLK_IN (I)
52	PERST0#	CARD_MAIN RESET	NC
54	W_DISABLE2	BT_PWRDN	NC
56	W_DISABLE1	WIFI_PWRDN	NC
58	I2C_DATA	I2C (For NFC)	NC
60	I2C_CLK		NC
62	ALERT#	IRQ To Host	NC
64	RFU	RFU	NC
66	UIM_SWP	NFC SWP (for SE)	NC
68	UIM_POWER_SNK	SIM POWER OUT	NC
70	UIM_POWER_SRC	SIM POWER IN	NC
72	3.3V	Card Main Power	Generated on IFBD from VBATT
74	3.3V		

Table 4 M.2 Connector (J1)

4. Component Assembly Diagram

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Document

4.1. Assembly Diagram

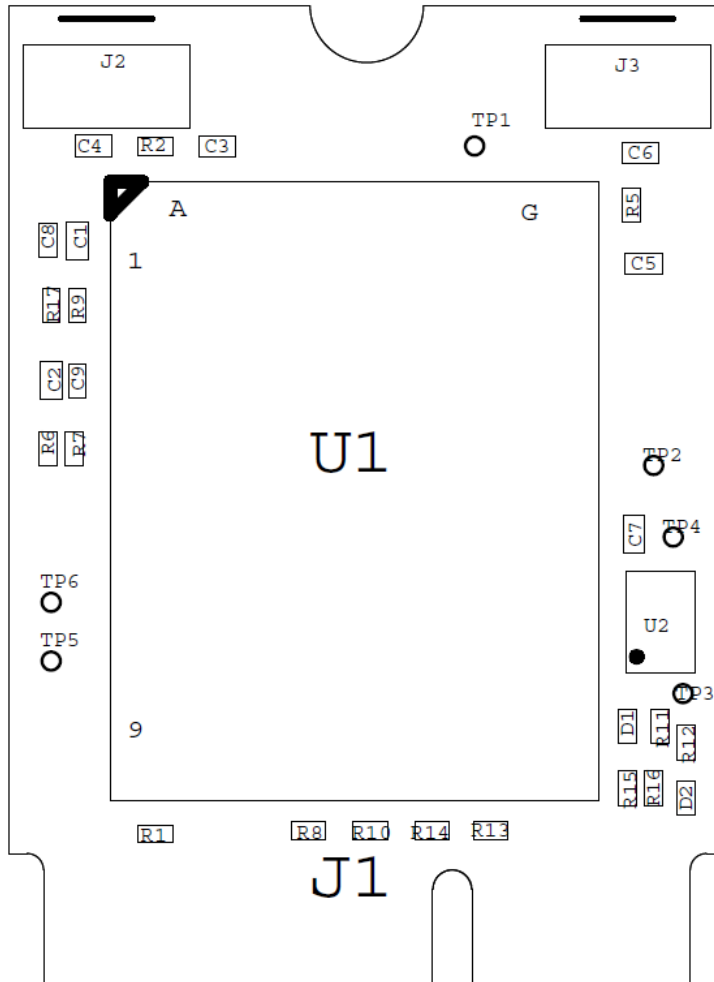


Figure 3 Component Diagram TOP View

5. Schematics

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Document

Parts which are labelled as "DNP" in the schematic are not assembled.

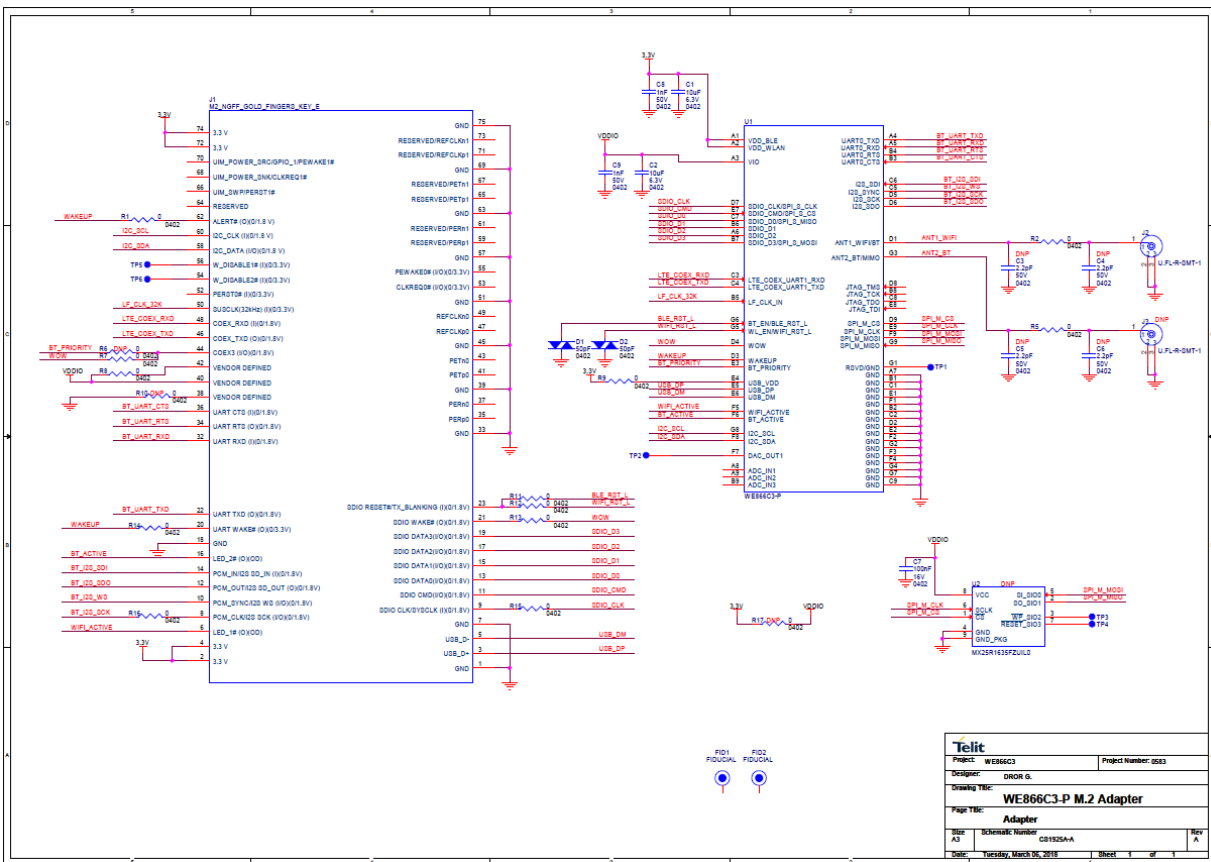


Figure 4 Schematic

6. Revision History

REV	DATE	CHANGES
1	2018-05-14	Initial Version

Table 5: Revision History



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