WL865E4-P Porting Reference Guide

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APPLICABILITY TABLE

PRODUCTS

- WL865E4

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CONTENTS

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1. INTRODUCTION

1.1. Scope

This document provides an overview about the WL865E4 porting procedures.

1.2. Audience

This document is intended only for Telit customers who need to perform porting fromGS2K to WL865E4 module.

1.3. 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.

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1.4. Text Conventions

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

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.

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.

1.5. Related Documents

- TBD

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2. HARDWARE SPECIFICATION

2.1. Comparison

Function	GS2011M/GS210xM	GS2200M	WL865E4-P	Comments
Power Supply Input Pins	**VIN_3V3**: Module supply **VRTC**: RTC supply **VDDIO**: IO domain voltage **VPP**: Supply for OTP write (not required)	**VIN_3V3**: Module supply **VRTC**: RTC supply **VDDIO**: IO domain voltage **VREG**: 1.7V to 3.6V input to 1.2V LDO **VPP**: Supply for OTP write (not required)	**VDD_WLAN**: Module supply **VDD_BLE**: RTC supply **VDD_VIO**: IO domain voltage **VUSB**: USB interface supply (Only for programming/debug)	There are no separate VRTC or VPP supply pins for WL865E4-P
Antenna	Inbuilt/External (has uFL connector)	Inbuilt/External (has uFL connector)	External	Telit provides WL865E4-P *PCB antenna* reference design.
Programming Interface	UART or SPI	UART or SPI	USB	
Over The Air Firmware Update	Yes	Yes	Yes	
Serial Interfaces Supported	SPI, UART UART: Supports up to 921600 baud SPI: Acts as Slave Supports Command-response protocol up to 10MHz Supports Byte stuffing protocol up to 2MHz	SPI, UART UART: Supports up to 921600 baud SPI: Acts as Slave Supports Command-response	SPI, UART, SDIO UART: Supports up to 115200 - 3Mbps baud SPI: Supports both Master and Slave up to 48Mhz Clock. SDIO: Supports Slave up to 48Mhz Clock. Compliant to SDIO v2.0 specification	

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		protocol up to 10MHz Supports Byte stuffing protocol up to 2MHz			
Radio Regulatory **Certification & Compliance**	Wi-Fi Certified, FCC, IC, RED, TELEC, ROHS	Wi-Fi Certified, FCC, IC, RED, TELEC, ROHS	Wi-Fi: Wi-Fi Alliance BT-SIGv5 FCC, IC, RED, TELEC*, KCC*, ROHS, REACH	*Not available in first release	
Outline Dimension	22.8 mm x 32.5 mm x 3.63 mm; 18 mm x 25 mm x 2.7 mm	13.5mm x 17.85mm x 2.1 mm	24.4mm x 24.4mm x 2.6 mm (Telit 865 Form Factor)		
Radio Protocol	IEEE 802.11b/g/n	IEEE 802.11b/g/n	Wi-Fi - 802.11 a/b/g/n (2.4GHz, 5GHz), BLE5 (2.4GHz		
I/O Interface	SPI, UART, SDIO, I2C, I2S, GPIO (27), ADC (2), JTAG, PWM (3), RTC (3) SPI, UART, SDIO, I2C, I2S, GPIO, 16&12bit ADC, JTAG	SPI, UART, SDIO, I2C, I2S, GPIO (19), 16&12bit ADC, JTAG, PWM (3), RTC	SPI (Master and Slave), UART, SDIO 2.0 (Slave), I2C, I2S, GPIO, 12bit ADC, JTAG, PWM, USB (for programming/debug only)		
Internal Flash	4 MB	4 MB	4 MB		
Operating Temperature	-40°C to +85°C (Industrial Grade	-40°C to +70°C	-40°C to +85°C (Industrial Grade		
Radio Characteristics	Tx Power: 17 dBm (with 802.11b) Rx Sensitivity: -91 dBm (with 802.11b) Tx Power: 14 dBm (with 802.11b) Rx Sensitivity: -91 dBm (with 802.11b)	Tx Power: 15 dBm (with 802.11b) Rx Sensitivity: -91 dBm (with 802.11b)	Tx Power: 19 dBm (with 802.11b) Rx Sensitivity: -96 dBm (with 802.11b)		

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3. SOFTWARE SPECIFICATION

3.1. Comparison

Feature	GS2K	WL865
Phy Modes	802.11 b/g/n	802.11 a/b/g/n
Wi-Fi Band	Single Band(2.4GHz)	Dual Band(2.4GHz and 5GHz)
Wi-Fi/BLE	WiFi	Combo Module(Wi-Fi + BLE 5)
Command Modes	Legacy AT Command	Legacy(GS2K compliant) and New Telit Style AT Command
Serial Interfaces Supported	Supports both single and dual(one for commands and another for data) interfaces UART: Supports up to 921600 baud Single interface(SPI (Byte-Stuffing and Command-Response) Supports Command-response protocol up to 10MHz Supports Byte stuffing protocol up to 2MHz SDIO: Dual interface: UART (command)+UART (data) UART (command)+SPI (data)	Supports single interface only Two UART: UART0(HS-UART):Up to 3Mbps(S2W Application supported up to 115200B) UART1(LS-UART):Up to 115200B SPI: Up to 3MHz - 48MHz SDIO: Up to 24MHz

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Feature	GS2K	WL865
	UART (command)+SDIO (data)	
AT+WSEC command supported security settings	Auto(0), Open(1), WEP(2), WPA PSK(4), WPA2 PSK(8), WPA Enterprise(16), WPA2 Enterprise(32) AES+TKIP(64)	Auto(0), WEP(2), WPA Enterprise(16), WPA2 Enterprise(32), AES+TKIP(64) are NOT supported
AT+FWINFOGET	Yes	No
No of Layer 2 Station supported	16	10
EAP Types	EAP-FAST-MSCHAP, EAP-FAST-GTC, EAP-TLS-MSCHAP, EAP-TTLS-MSCHAP, EAP-PEAP V0-MSCHAP, EAP-PEAP V1-GTC, EAP-TTLS-PAP	EAP-TLS-MSCHAP, EAP-TTLS-MSCHAP, EAP-PEAP V0
Format for the SETTIME: AT+SETTIME=, [System time in milliseconds since epoch (1970)]	Yes	No
EAP: PMK Cache	Yes	No
EAP: Pseudo-random Function (PRF)	Yes	No
EAP: Common Name(CN) and Organizational Unit(OU)	Yes	No
EAP: Anonymous Identity Authentication	Yes	No
Unsolicited Data Support	Supports both unsolicited Tx and Rx.	Supports only unsolicited Tx. Using Promiscuous mode receive the data.

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Feature	GS2K	WL865
WiFi Direct(P2P)	Yes	No
WPS/WPS 2.0	Supported both Enrollee and Registrar	Supported only Enrollee Note: Default PIN method is not supported
Provisioning	Verified Provisioning, Concurrent Mode Provisioning, Group Provisioning	Verified WiFi Provisioning, BLE Provisioning
Digital Signature Verification(DSV)	Yes	No
System Power save	Deep Sleep, Standby and Hibernate	Not Supported
Socket Options Configuration(AT+NXSETSOCKOPT)	Yes	No
SSL	SSL 1.0/1.1/1.2	SSL 1.0/1.1/1.2
Cert size	1k, 2k and 4k	1k, 2k and 4k
GSLink	Yes	Yes. Not supported in New mode.
SSL Configuration	Subject Alternative Names is supported	Subject Alternative Names NOT supported
Cross-Origin Resource Sharing (Access Control Allow Origin Policy).	Yes	No
Device Provisioning Protocol(DPP)	Yes	No
Azure SDK	No	Yes
Secure Boot	No	Yes
File System AT commands	No	Yes

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Feature	GS2K	WL865
Drivers through AT command like I2C, ADC, PWM, GPIO	Yes	No
Development Environment	IAR licensed based development environment	Eclipse based development environment called ADE with free GCC compiler.
CPU	Two CPU: APP and WLAN CPU	Three CPU: APP, WLAN and BLE

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4. DOCUMENT HISTORY

Revision	Date	Changes
0	2020-02-10	First issue
1	2021-05-19	Added AT+FWINFOGET command details in Software Specification

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SUPPORT INQUIRIES

Link to **www.telit.com** and contact our technical support team for any questions related to technical issues.

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