SIERRA WIRELESS
HEART OF THE WIRELESS MACHINE®

Q26 Elite Interface Ports
WI_DEV_Q26EL_APN_007-001

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APN Content Level	BASIC		INTERMEDIATE		ADVANCED	✓	Confidentiality	Public	✓	Private		

Software Compatibility*	FW:	R1A	Open AT® SW Suite:	N/A	Plug-Ins:	TCP/IP		C-GPS		Compiler Used:	ADS GCC	Reference Hardware	No
						Internet		Bluetooth				Reference Software	Yes
			M2mpower			MQTT		M2MC					

** refer to software compatibility matrix section for more detail*

Wireless CPU Compatibility																	
	Plug & Play:	M1306B		M2106B													
	Quik (CDMA):	Q2438F		Q2438R		CM52											
		Q2400A		Q2406A		Q2406B		Q2426B		Q2501B							
	Quik (GSM):	GR64		GS64		Q2686H		Q2687H		Q26 Elite	✓						
		Q24 Classic		Q24 Plus		Q24 Extended		Q24 Auto									
	Wireless Microprocessor	WMP100		WMP150													

1 Introduction

This application note describes capabilities and limitations of the user-accessible ports on the Q26 Elite—UART1, UART2 and USB.

The Q26 Elite Wireless CPU® provides two Universal Asynchronous Receiver/Transmitters (UARTs). Both UART's are configured as EIA232 DCE devices.

The Q26 Elite Wireless CPU® provides a Universal Serial Bus (USB) interface port.

Refer to the Q26 Elite Product Technical Specification for more information about the UART and USB configurations and pin-outs. Refer to the Q26 Elite Wireless CPU® Software User Guide and AT Command Specification for more information about configuring and interfacing to the UARTs and USB ports.

2 UART1

Capabilities

UART1 is the command and data interface to the Q26 Elite. AT commands, unsolicited reports and data are transferred between the Wireless CPU® and the user's Terminal Equipment (TE). UART1 can be configured for serial data rates between 300 and 230,400 bits per second, The Q26 Elite UART1 default serial port settings are 115,200 bps, 8 bits, no parity, 1 stop bit and hardware flow control enabled. UART1 is the only interface over which the full set of AT commands and responses and data of the Q26 Elite is available.

UART1 modem control lines are also used as discrete control and indicator signals. Data Terminal Ready (DTR) can be used by the TE to suspend or terminate data connections or wake the Wireless CPU® from deep sleep. Ring Indicator (RI) can be used by the Wireless CPU® to notify or wake the host application on receipt of calls, short messages or timed events.

UART1 supports the Q26 Elite 3GPP2 27.010 MUX-like protocol called CMUX. CMUX allows multiplexing separate channels known as Data Link Connections (DLC's) over the single UART1 port. DLC Identifier 1 (DLCI 1) is the AT command channel, DLCI 2 is the data channel (both TCP/IP and Dial-Up Networking) and DLCI 3 is used to receive GPS information in NMEA format. Refer to the "CMUX Feature for Q26 Elite Application Note" for further information about CMUX.

Limitations

UART1 cannot be used to display GPS information in NMEA format unless CMUX is used. GPS location information can be obtained by using the AT+GPSFIX command.

3 UART2

Capabilities

UART2 is a Diagnostics Interface port to the Q26 Elite. UART2 can used to provide limited diagnostic logging and update capability for support personnel. However, the Diagnostic Interface port provided by the USB driver is the preferred interface for this purpose.

Only one port at a time can be the designated Diagnostics Interface port. The AT+WDMX command is used to select either UART2 or USB as the Diagnostics Interface port.

Limitations

UART2 can only be used as a Diagnostics Inteface port.

4 USB

Capabilities

The USB port conforms to the USB 2.0 specification. The Q26 Elite is implemented as a self-powered slave or B-device operating at Full Speed. Sierra Wireless supplies Windows-compatible USB drivers for the Q26 Elite that enumerate three devices--a wireless modem, a Diagnostics Interface port and a GPS location information device in NMEA format.

The wireless modem allows the application to establish circuit-switched and packet data connections. These connections use the TE PPP and IP stack to establish end-to-end connectivity with a remote host on the wireless network.

The Diagnostics Interface port is used for provisioning, logging and firmware updates on the Q26 Elite.

Limitations

The wireless modem device can only be used as a modem.

The Q26 Elite cannot enter deep sleep while the USB port cable is detected by the Wireless CPU®.

The USB port cannot be used to charge a battery connected to the Wireless CPU®.

The USB port does not participate in USB On-The-Go (OTG) SRP or HNP negotiations. The Q26 Elite is always a slave or B-device.

The Q26 Elite does not support USB analog interface connections.

5 SOFTWARE COMPATIBILITY MATRIX

List all current software configurations and compatibility with this application note.

Core	Open AT®	IP	Compatibility
R1A	N/A	N/A	YES

6 SUPPORT

For direct clients: contact your Sierra Wireless FAE

For distributor clients: contact your distributor FAE

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7 DOCUMENT HISTORY

Level	Date	History	Author
001	August 17, 2009	Creation	Sierra Wireless R&D

8 LEGAL NOTICE

Important Notice

Due to the nature of wireless communications, transmission and reception of data can never be guaranteed. Data may be delayed, corrupted (i.e., have errors) or be totally lost. Although significant delays or losses of data are rare when wireless devices such as the Sierra Wireless modem are used in a normal manner with a well-constructed network, the Sierra Wireless modem should not be used in situations where failure to transmit or receive data could result in damage of any kind to the user or any other party, including but not limited to personal injury, death, or loss of property. Sierra Wireless accepts no responsibility for damages of any kind resulting from delays or errors in data transmitted or received using the Sierra Wireless modem, or for failure of the Sierra Wireless modem to transmit or receive such data.

Safety and Hazards

Do not operate the Sierra Wireless modem in areas where blasting is in progress, where explosive atmospheres may be present, near medical equipment, near life support equipment, or any equipment which may be susceptible to any form of radio interference. In such areas, the Sierra Wireless modem MUST BE POWERED OFF. The Sierra Wireless modem can transmit signals that could interfere with this equipment. Do not operate the Sierra Wireless modem in any aircraft, whether the aircraft is on the ground or in flight. In aircraft, the Sierra Wireless modem MUST BE POWERED OFF. When operating, the Sierra Wireless modem can transmit signals that could interfere with various onboard systems.

Note *Some airlines may permit the use of cellular phones while the aircraft is on the ground and the door is open. Sierra Wireless modems may be used at this time.*

The driver or operator of any vehicle should not operate the Sierra Wireless modem while in control of a vehicle. Doing so will detract from the driver or operator's control and operation of that vehicle. In some states and provinces, operating such communications devices while in control of a vehicle is an offence.

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