SPECIFICATIONS

802.11 b/g/n Wireless LAN and Bluetooth 3.0+HS Combo Half Mini Card

Q802XKN3B

Ver. 1A

Date: 03/12/2010

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Approved by:

Contents:

Device Overall Description

The **Q802XKN3B** is designed to provide wireless LAN and Bluetooth function on a small form factor with PCI Express interface for wireless LAN and USB interface for Bluetooth to the host system. The interface of Bluetooth is full compliant with USB V1.1 and compatible with USB V2.0 Full Speed (12Mbits/s). The wireless LAN function is based on Ralink RT3090 MAC/BBP/Transceiver and high gain power amplifier, fully comply with current draft IEEE 802.11n and IEEE 802.11 b/g standards. The Bluetooth function is based on CSR BlueCore4-ROM (PC08 ROM) Single Chip Bluetooth System, witch implements the full speed class 2 Bluetooth operations with full 7 slave Piconet support.

Features

Wireless LAN Features

- Ralink RT3090 MAC/BBP/Transceiver
- 1T1R Modes
- 11b: 1,2,5.5,11Mbps
- 11g: 6,9,12,18,24,36,48,54Mbps
- 11n: Legacy, Mixed and Green Field Modes，Support 20/40MHz Bandwidth MCS0-7(150Mbps PHY Rate Support)
- Reverse Direction Grant Data Flow
- Frame aggregation
- Block Ack
- Hardware WEP, TKIP, AES Engines
- Cisco CCX Support
- PCI Express 1.1

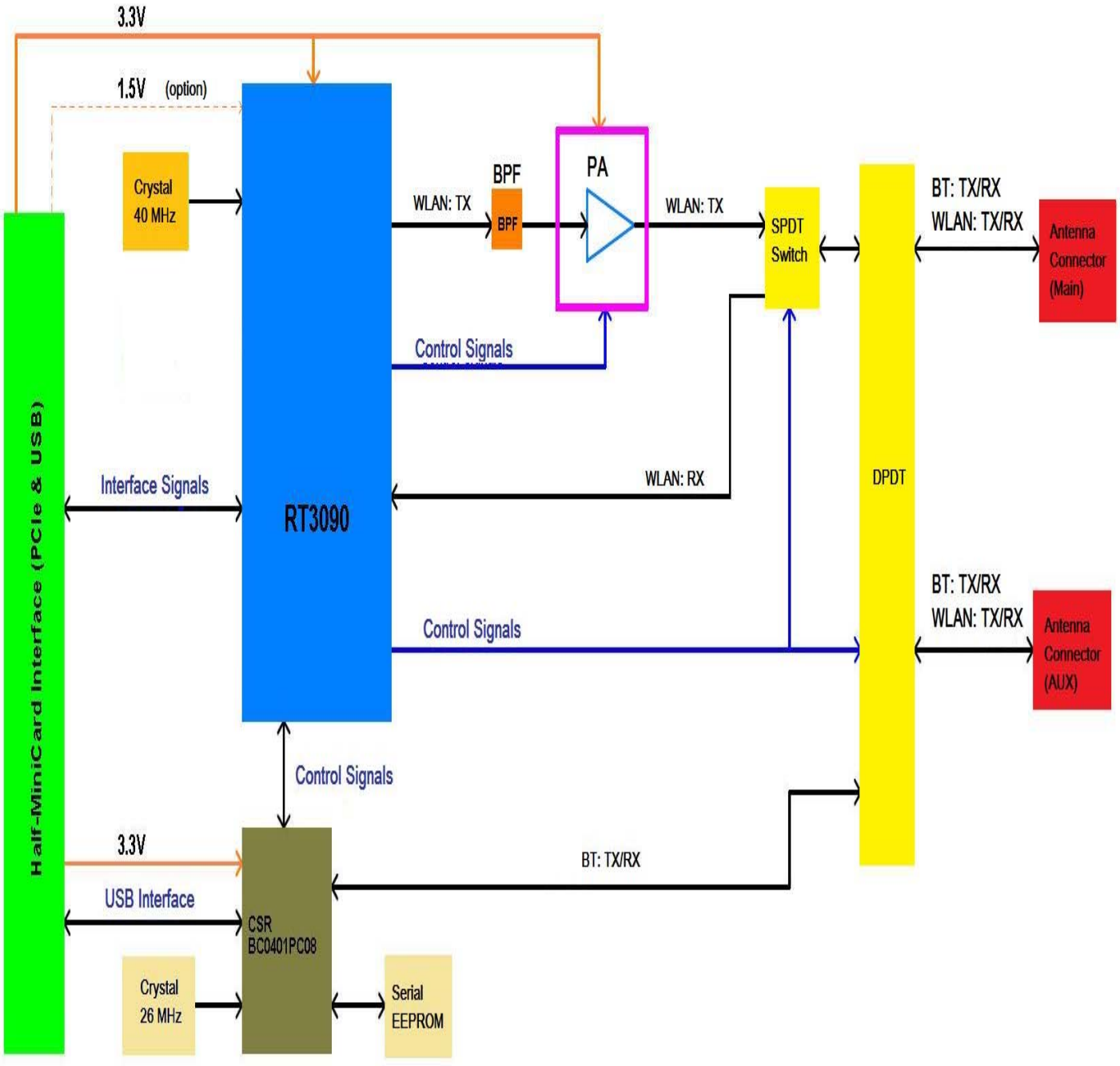
Bluetooth Features

- CSR BlueCore4-ROM (PC08 ROM) Single Chip Bluetooth System
- Bluetooth Specification V2.1+EDR and 3.0+HS compliant support
- Class 2 Bluetooth operations with full 7 slave Piconet support.
- Full Speed USB interface compliant with USB V1.1 and compatible with USB V2.0

Block Diagram

RT3090: Ralink, Wireless LAN Integrated Medium Access Controller with Baseband Processor, and 2.4GHz Transceiver

BlueCore4 PC08 ROM: CSR Single Chip Radio and based band IC for Bluetooth 2.4GHz systems including enhanced data rates (EDR) to 3Mbits/s



Channel Assignment

Wireless LAN Channel Assignment

Channel	Frequency	FCC (US)	IC (CA)	ETSI (EU)	Japan (JP)
1	2412MHz	V	V	V	V
2	2417MHz	V	V	V	V
3	2422MHz	V	V	V	V
4	2427MHz	V	V	V	V
5	2432MHz	V	V	V	V
6	2437MHz	V	V	V	V
7	2442MHz	V	V	V	V
8	2447MHz	V	V	V	V
9	2452MHz	V	V	V	V
10	2457MHz	V	V	V	V
11	2462MHz	V	V	V	V
12	2467MHz			V	V
13	2472MHz			V	V
14	2484MHz				V

KEY:

US = United States, CA = Canada, EU = European Countries (except France and Spain)
JP = Japan
Many countries and region are currently revising the channel assignment.
V = Supported

Bluetooth Channel Assignment

Channel	Frequency	RF Channel
Europe & USA	2400~2483.5 MHz	Freq.=2402+k MHz k=0~78
Japan	2400~2483.5 MHz	Freq.=2402+k MHz k=0~78

Most Europe area except Spain and France

Security

- Complete Security Features - WEP 64/128, WPA, WPA2, 802.1x, and 802.11i
- Cisco CCS Compliant

Certification

- WHQL
- Cisco CCX
- Wi-Fi Certification: 802.11 b/g, WPA, WPA2, WMM, WMM-PS

Bluetooth SIG Listing

Bluetooth SIG Controller Subsystem: B016406

Bluetooth SIG Host Subsystem: B016464

Software and OS Support

Operating System	Driver
Windows 7, Vista and Windows XP	Available

Bluetooth Support Profile

Windows 7/Vista/XP SP3 native built-in driver support Profiles – DUN, HCRP, HID, OPP, PAN-U and SPP

Motorola Bluetooth Stack Included Profiles- A2DP, AVRCP, BIP, BPP, DUN, FTP, FAX, GAP , GAVDP, GOEP, HCRP, HFP, HID, HSP, OPP, PAN, SDAP, SPP and SYNC.

Mechanical Drawing

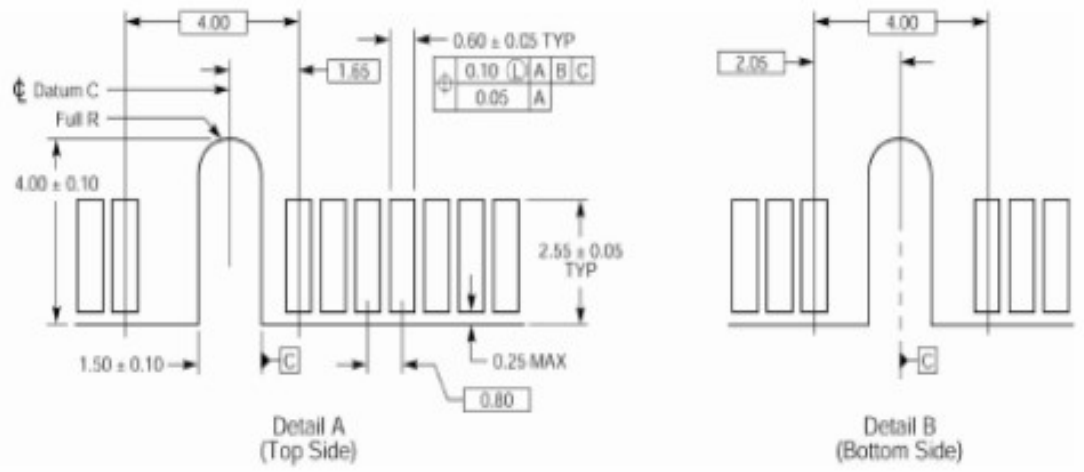


Figure 2-5: Card Top and Bottom Details A and B

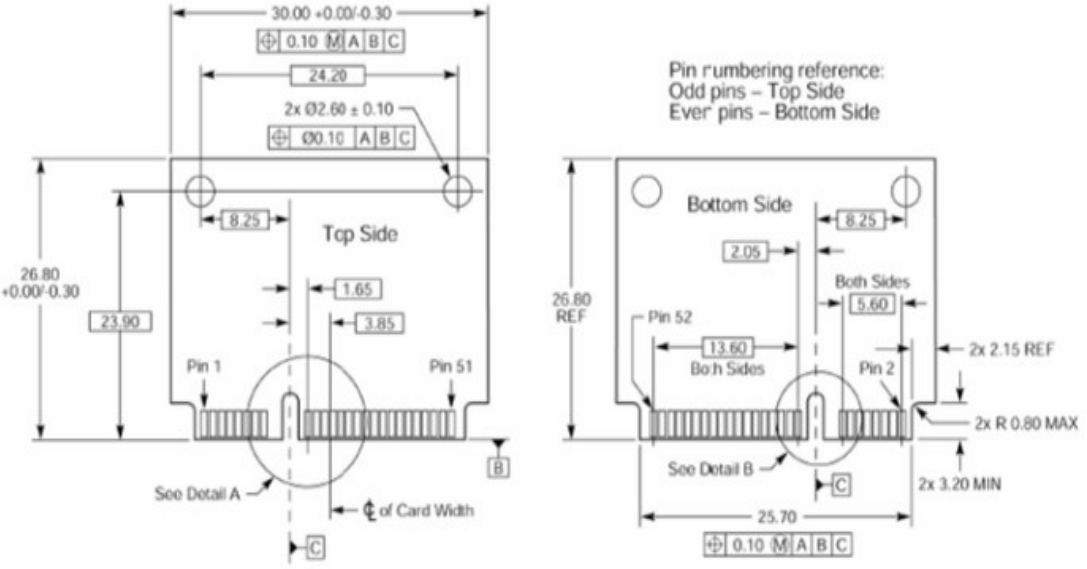


Figure 2-4: Half-Mini Card Top and Bottom

Antenna Connector

Connector	Vendor	Part#
Antenna *2	I-pex/Hirose	CL331-0471-0-10(U.FL-R-SMT) or compliance

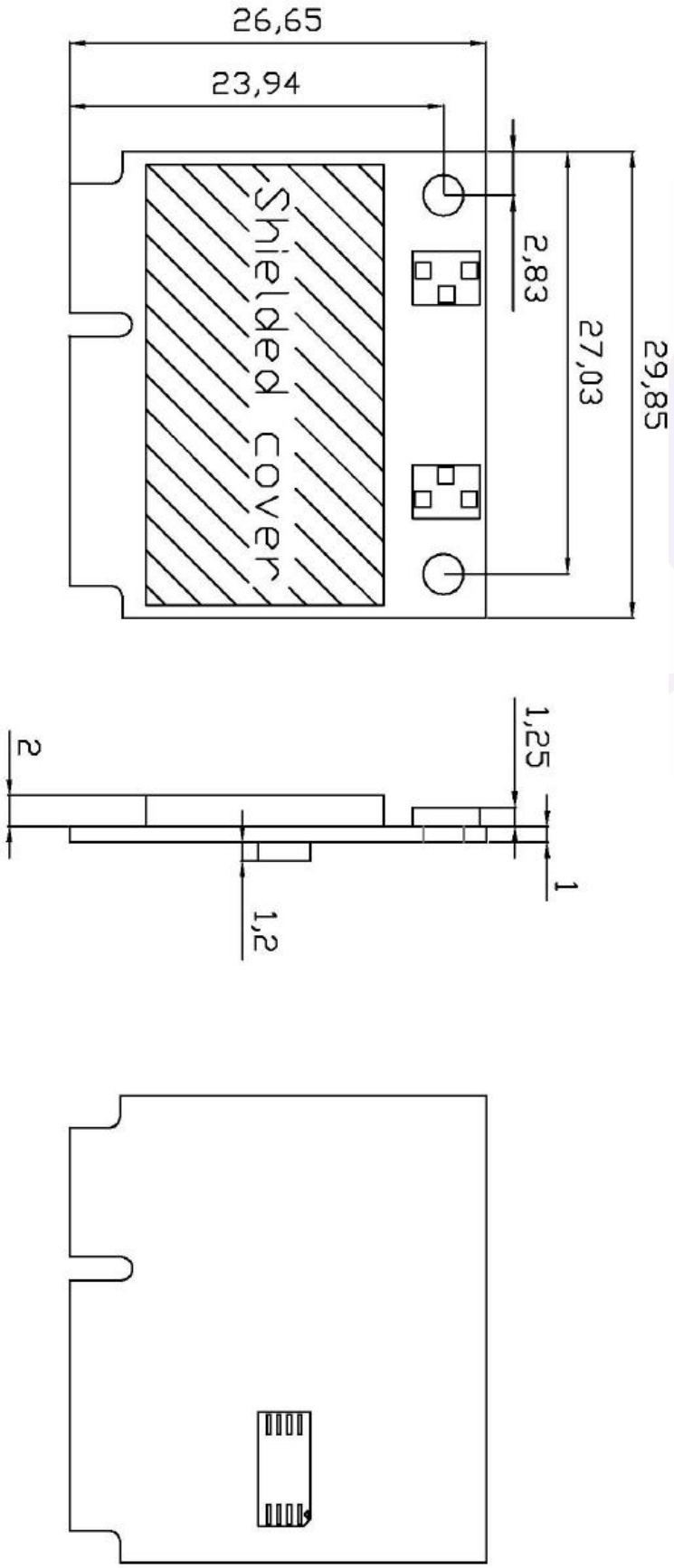
LED Status

- **Wireless LAN LED Status**

LED status	WLAN card activity
LED on	Associated, and authenticated but not transmitting or receiving.
LED Slow Blink	Scanning for AP.
LED Intermittent Blink	Activity proportional to transmitting/receiving speed.
LED off	Radio off.

- **Bluetooth LED Status**
  - Power up state: Solid Off
  - Inquiry state: blinking 4 time/second
  - Page state: blinking 1 time/second
  - Connected State: blinking 2 time/second
  - Transmit/Receive State: blinking 2 time/second
  - USB Suspend: Solid Off
  - Radio Disable: Solid off
  - Sleep state: Disable

Mechanical Photograph



Pin Definition

Pin #	Name	Pin #	Name
51	Reserved*	52	+3.3V
49	Reserved*	50	GND
47	Reserved*	48	Reserved*
45	Reserved*	* 46	LED_WPAN#
43	Reserved*	* 44	LED_WLAN#
41	Reserved*	42	LED_WWAN#
39	Reserved*	40	GND
37	Reserved*	38	USB_D+
35	GND	36	USB_D-
33	PETp0	34	GND
31	PETn0	32	Reserved*
29	GND	30	Reserved*
27	GND	28	Reserved*
25	PERp0	26	GND
23	PERn0	24	+3.3Vaux
21	GND	22	PERST#
19	Reserved*** (UIM_C4)	* 20	W_DISABLE# BT_DISABLE#
17	Reserved*** (UIM_C8)	18	GND
Mechanical Key			
15	GND	16	Reserved*
13	REFCLK+	14	Reserved*
11	REFCLK-	12	Reserved*
9	GND	10	BT_APM
7	CLKREQ#	8	Reserved*
5	Reserved**	6	Reserved*
3	Reserved**	4	GND
1	WAKE#	2	3.3V

* Note: Pin 20 is control pin of WLAN and BT radio enable/disable
Pin 44 LED_WLAN is the LED indicator signal for WLAN
Pin 46 LED_WPAN is the LED indicator signal for BT

Operating Conditions

Voltage Range	**3.3V +-0.3V**
Operating Temperature Range	**0°C - 65°C**
Storage Temperature Range	**-20°C - 85°C**
Relative Humidity during Operating	**Max. 95% (Non-Condensing)**
Relative Humidity during Storage	**Max. 95% (Non-Condensing)**