



Product Specification

XW225E

IEEE802.11ABGN 2T2R PCIe Mini-Card

Version: 1.0

Date: Dec. 27, 2012

Release History

DATE	REV	Description of Change
2010/06/30	0.1	Initial release
2011/02/20	0.2	Update Power Consumption
2011/04/21	0.3	Update Power Consumption & Spec.
2012/12/27	1.0	Update RF Spec. Formal release



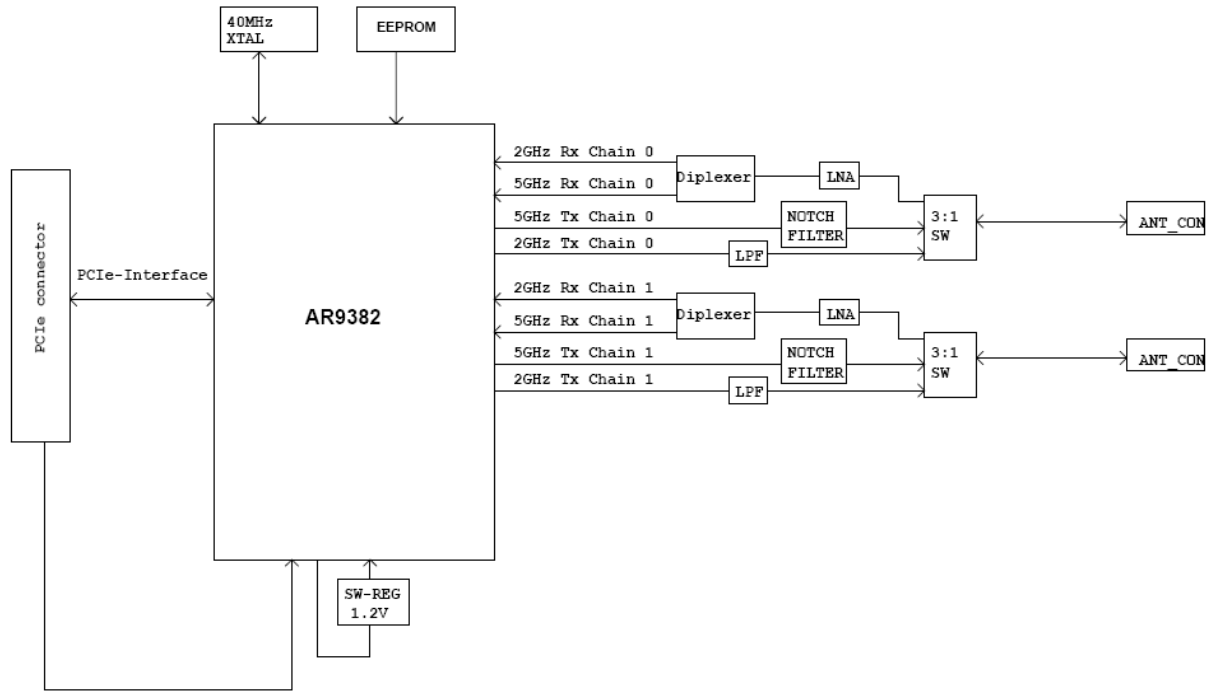
XW225E

IEEE802.11ABGN 2T2R PCIe Mini-Card

1 Product Features

- Half size Mini PCI Express card.
- Dynamic frequency selection (DFS) in required 5-GHz bands.
- Interoperable with IEEE802.11a/b/g/n WLANs.
- 2x2 MIMO technology improves effective throughput and range over existing 802.11a/b/g products.
- Supports 150 Mbps for 20MHz and 300Mbps for 40MHz channel operations.
- Wireless multimedia enhancements quality of service support (QoS).
- 802.11e-compatible bursting.
- Support for IEEE802.11e, 11h and 11i standards.
- WEP, TKIP, and AES hardware encryption.
- PCI express 1.1 compatible
- 20 and 40 MHz channelization.
- Reduced (short) guard interval
- Frame aggregation.

2 Block Diagram

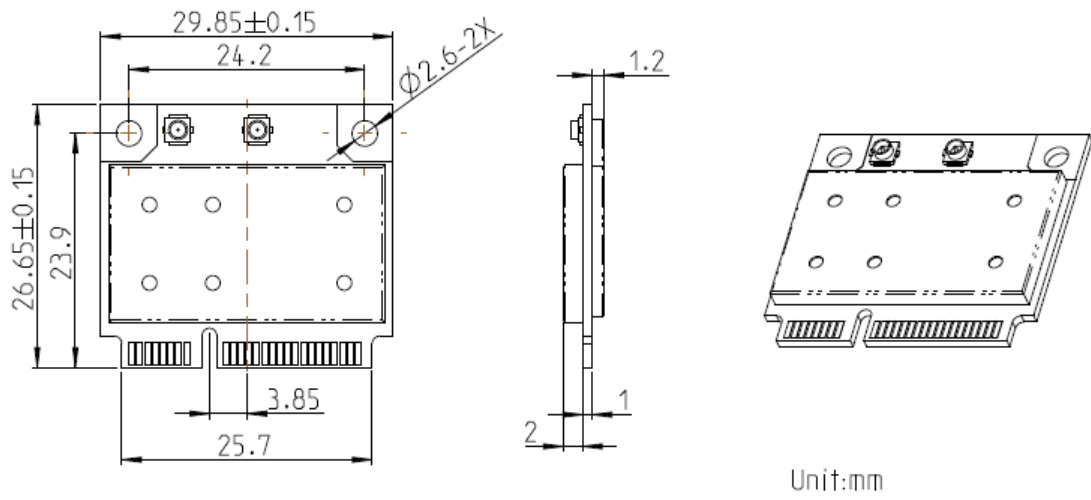


3 General Specifications

■ Module Name					
<ul style="list-style-type: none"> XW225E 					
■ Product Description					
<ul style="list-style-type: none"> WLAN Standard 	IEEE 802.11a/b/g/n				
<ul style="list-style-type: none"> Host interface 	Mini PCI Express complaints with PCI express 1.1				
<ul style="list-style-type: none"> Major Chipset 	Atheros AR9382				
<ul style="list-style-type: none"> PID 	0x30	Atheros defined			
<ul style="list-style-type: none"> VID 	168C	Atheros defined			
<ul style="list-style-type: none"> SSID 	1800	XAVI defined			
<ul style="list-style-type: none"> SVID 	1B9A	XAVI defined			
<ul style="list-style-type: none"> Firmware(Calibration tool version) 	ART2 2.14	Calibration tool will be updated from Atheros			
<ul style="list-style-type: none"> Dimensions 					
		Minimum	Typical	Maximum	Unit
	Length	26.5	26.65	26.8	mm
	Width	29.7	29.85	30.0	mm
	Height		3.2		mm
	Weight		4.5		g

• Antenna Connector	U.LF connectors					
■ Operating Condition						
		Minimum	Typical	Maximum	Unit	
• Voltage	DC	3.15	3.3	3.45	V	
• Temperature		0		70	°C	
• Storage temperature		-20		70	°C	
• Humidity Non-Operating		5		80	%	
■ Electrical Specification						
• Frequency Range	2.4GHz/ 5GHz ISM band					
• Modulation	BPSK, QPSK, 16QAM, 64QAM, DBPSK, DQPSK, and CCK					
• Output power		Minimum	Typical	Maximum	Unit	
802.11b Mode	11MHz	14.5	17	19.5	dBm	
802.11g Mode	54MHz	11.5	14	16.5	dBm	
802.11a Mode	54MHz	7.5	10	12.5	dBm	
802.11n Mode 2.4GHz	HT20-MCS7	11.5	14	16.5	dBm	
802.11n Mode 2.4GHz	HT40-MCS7	10.5	13	15.5	dBm	
802.11n Mode 5GHz	Lo Ch (5180MHz)	HT20-MCS7	7.5	10	12.5	dBm
	Hi Ch (5825MHz)		4.5	7	9.5	
802.11n Mode 5GHz	Lo Ch (5190MHz)	HT40-MCS7	6.5	9	11.5	dBm
	Hi Ch (5795MHz)		3.5	6	8.5	
• Receiver Sensitivity		Minimum	Typical	Maximum	Unit	
802.11b Mode	11Mbps		-90	-88	dBm	
802.11g Mode	54Mbps		-75	-73	dBm	
802.11a Mode	54MHz		-74	-72	dBm	
802.11n Mode 2.4GHz	HT20 MCS7		-72	-70	dBm	
802.11n Mode 2.4GHz	HT40 MCS7		-70	-68	dBm	
802.11n Mode 5GHz	HT20 MCS7		-70	-68	dBm	
802.11n Mode 5GHz	HT40 MCS7		-68	-65	dBm	
■ Security						
• WEP, TKIP, and AES hardware encryption						

4 Mechanical Dimensions



5 Connector Pin-out Definitions

Pin	Definition	Type	Description
1	WAKE_L	I	Wake on Wireless LAN
2	3.3V	P	3.3V power supply.
3	WLAN_Active	I/O	WLAN Active
4	GND	P	Ground.
5	BT_Active	I/O	Bluetooth Active.
6	RESERVED		1.5V (No connect.)
7	CLKREQ_L	O	Reference clock request signal.
8	NC		No connect.
9	GND	P	Ground.
10	NC		No connect.
11	REFCLK-	I	Differential reference clock.
12	NC		No connect.
13	REFCLK+	I	Differential reference clock.
14	NC		No connect.
15	GND	P	Ground.
16	NC		No connect.
17	NC		No connect.
18	GND	P	Ground.
19	NC		No connect.
20	W_DISABLE_L	I	WLAN disable: Active low.
21	GND	P	Ground.
22	PERST	I	PCI express reset signal: Active low.
23	PERn0	O	PCI express transmit differential signal.
24	RESERVED		3.3VAUX (No connect.)
25	PERp0	O	PCI express transmit differential signal.
26	GND	P	Ground.
27	GND	P	Ground.
28	RESERVED		1.5V (No connect.)
29	GND	P	Ground.
30	NC		No connect.

Pin	Definition	Type	Description
31	PETn0	I	PCI express receive differential signal.
32	NC		No connect.
33	PETp0	I	PCI express receive differential signal.
34	GND	P	Ground.
35	GND	P	Ground.
36	NC		No connect.
37	NC		No connect.
38	NC		No connect.
39	3.3V	P	3.3VAUX
40	GND		Ground.
41	3.3V	P	3.3VAUX
42	NC		No connect.
43	GND	P	Ground.
44	LED_WLAN_L	O	LED signal.
45	NC		No connect.
46	NC		No connect.
47	NC		No connect.
48	RESERVED		1.5V (No connect.)
49	NC		No connect.
50	GND	P	Ground.
51	NC		No connect.
52	3.3V	P	3.3V power supply.

P: Power/Ground; I: Input; O: Output.