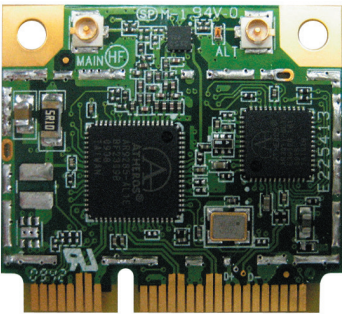




DHXA-195: 802.11n b/g 1x1 wifi and Bluetooth combo PCIe half-size mini card, WB195/ AR9285+AR3011



Model: DHXA-195



DHXA-195 is the industry's first 1-stream 802.11n WiFi and Bluetooth v2.1 combo solution on a single half-size mini card in PCIe form factor.

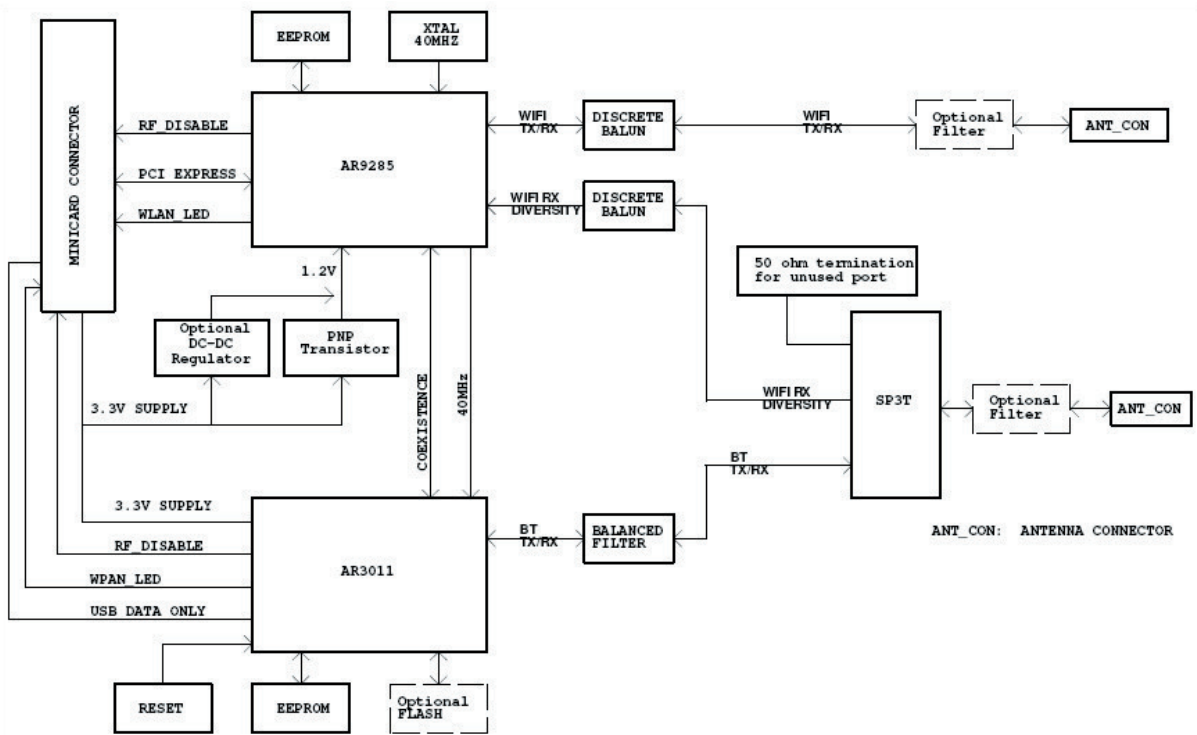
The WiFi part of DHXA-195 uses AR9285, which integrates the radio transceiver and the media access controller/baseband sections into a single chip along with the power amplifier, low-noise amplifiers, and antenna switch, can deliver 11n single stream (1x1 SISO) at data rate to 150 Mbps. The Bluetooth connectivity is implemented with AR3011 chip complying with the Bluetooth 2.1 + EDR (extended data rate) standard and upgradeable to Bluetooth 3.0.

DHXA-195 high-performance WiFi/Bluetooth coexistence scheme allows faster Web surfing and file transfers, smooth media streams, and clear voice transmissions on the WiFi link, all with uninterrupted synching of wireless PC peripherals like mice and keyboard on the Bluetooth link. Windows XP/Vista/7 and Linux driver support enables ASD (Application Specific Device) manufacturers to quickly and easily employ multi-radio coexistence on one platform with trouble-free WiFi and Bluetooth integration.

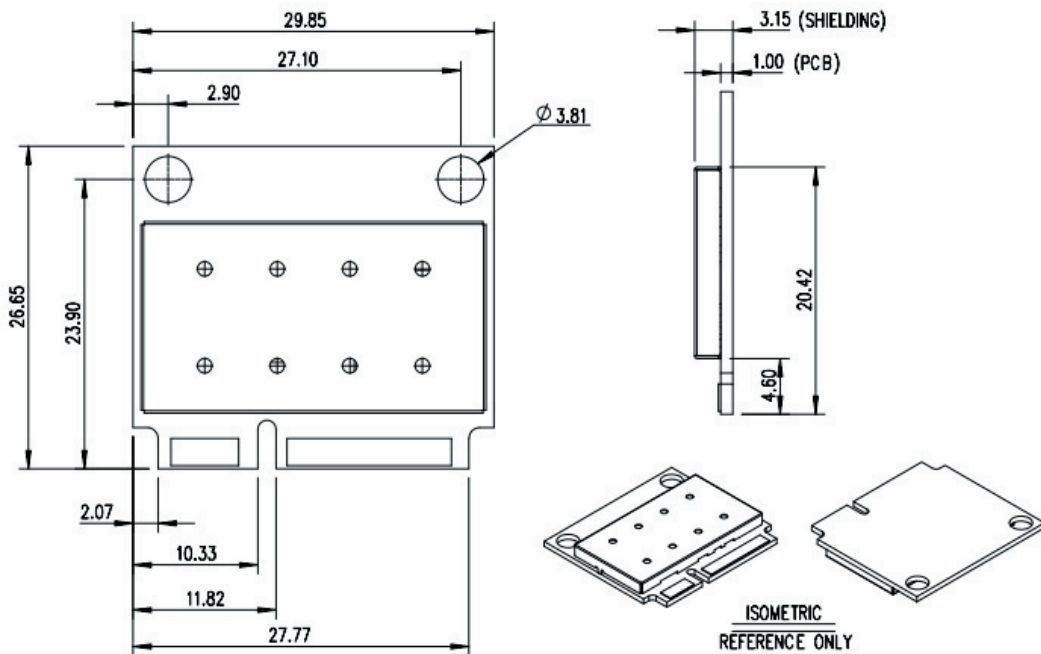
Key Features:

- 802.11n 1Tx/1Rx WiFi and Bluetooth v2.1 combo solution on a single half-size mini card in PCIe form factor is ideal for embedding into ultra-compact devices or embedding together with complimentary 3G technology on the same platform.
- Simultaneous WiFi and Bluetooth operation.
- Advanced high-performance WiFi/Bluetooth coexistence scheme allows faster Web surfing and file transfers, smooth media streams, and clear voice transmissions on the WiFi link, all with uninterrupted synching of wireless PC peripherals like mice and keyboard on the Bluetooth link.
- Windows XP/Vista/7 and Linux drivers enable ASD manufacturers to quickly and easily employ multi-radios coexistence on one platform with trouble-free WiFi and Bluetooth integration.
- Backward compatible to 802.11g and forward compatible to 802.11n provide the optimal upgrade path from legacy 802.11g solutions.
- Up to 150Mbps PHY rate capability reduces congestion and increases capacity for additional wireless devices.
- Complies with Bluetooth 2.1 + EDR (extended data rate) standard and upgradeable to Bluetooth 3.0.
- RoHS 2002/95/EC compliance meets environment-friendly requirement

Hardware Block Diagram



Outline



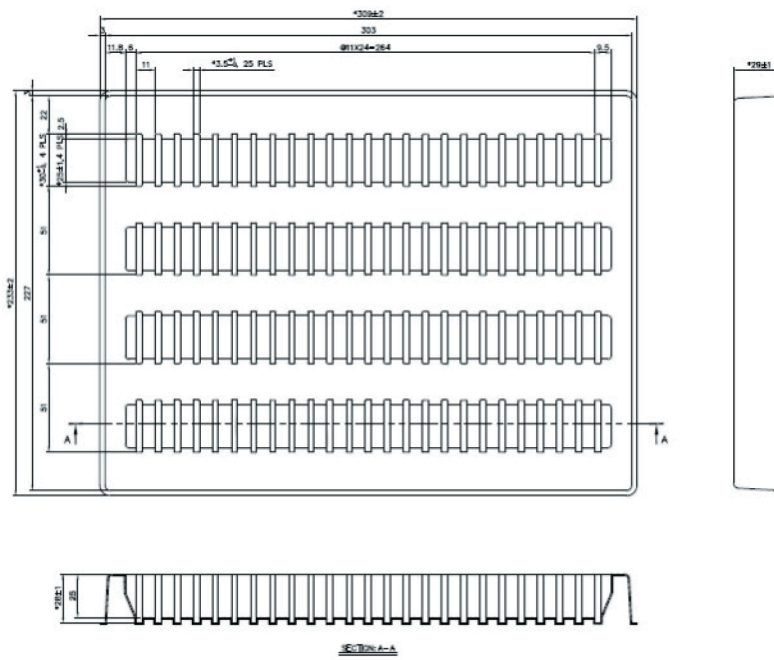
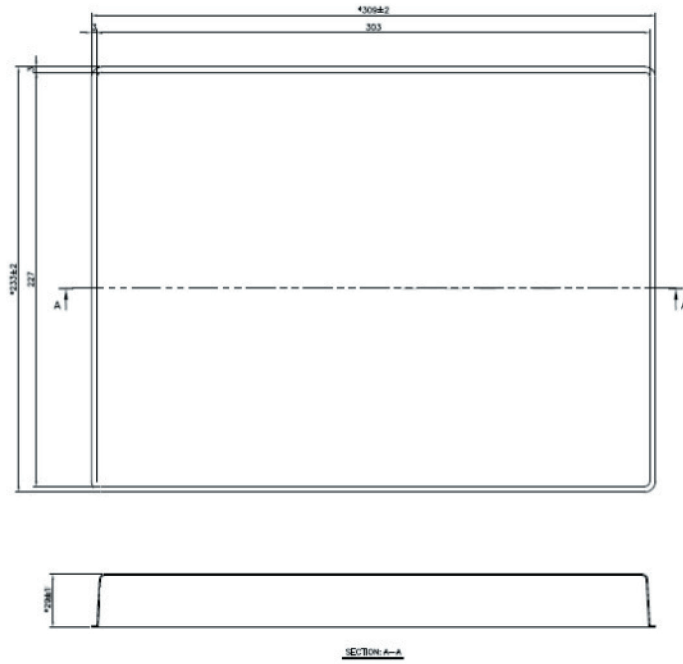
Pin Assignment:			
Pin No.	Name	Direction	Description
4,9,15,18,21,26,27,29,34,35,40,50	GND	-	Ground
37,43	RESERVED	-	Tied to ground.
45,47,49	RESERVED	-	No connection.
39,41	RESERVED	-	Reserved for 3.3VAUX.
51	RESERVED	-	Reserved for BT_DISABLE or 3.3V.
3	RESERVED	I/O	No connection
5	RESERVED	I/O	Reserved for RX_CLEAR
8,10,12,14,16,17,19	NC	-	No connection
33	PETp0	Analog input signal	Differential receive
31	PETn0	Analog input signal	Differential receive
25	PERP0	Analog output signal	Differential transmit
23	PERN0	Analog output signal	Differential transmit
13	REFCLK+	Analog input signal	Differential reference clock (100MHz)
11	REFCLK-	Analog input signal	Differential reference clock (100MHz)
20	WLAN_DISABLE_L	I/O	WLAN DISABLE
7	CLKREQ_L	A digital output signal with open drain	Reference clock request, open drain
22	PERST_L	Input signals with weak internal pull-down, to prevent signals from floating when left open	PCI Express reset with weak pull down
1	WAKE_L	A digital output signal with open drain	Reserved for 3.3V or WAKE2_L (Request to service a function-initiated wake event, open drain).
32	SMB_DATA	-	No connection.
30	SMB_CLK	-	No connection.
46	LED_WPAN_L	O	Status indication
44	LED_WLAN_L	O	GPIO
42	LED_WWAN_L	-	No connection.
38	USB_D+	I/O	USB_P
36	USB_D-	I/O	USB_N
6,28,48	1.5V	-	No connection.
2,52	3.3V	-	3.3V
24	3.3VAUX	-	3.3V or 3.3VAUX

Remarks

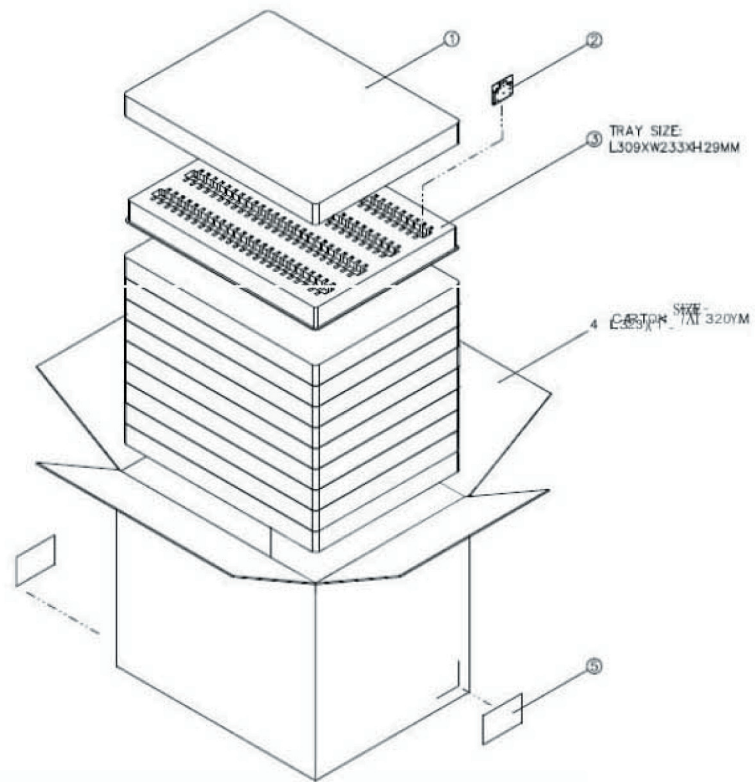
1. The pin definitions follow the minicard standard.
2. The pin 51 is defined as a BT disable control pin.
3. The pin 46 is for BT LED, default is enabled.
radio ON => LED ON(always on, no blinking)
radio OFF => LED OFF

Packing

Tray Box: 100 pcs/tray box, 309mm (L) x 233mm (W) x 29mm (H)



Carton: 10 tray box/carton or 1,000 pcs/carton, 323mm (L) x 247mm (W) x 320mm (H)



WiFi portion Specifications:															
Main Chipset	Atheros® AR9285														
Tx/Rx	1T1R														
Standard Conformance	802.11b, 802.11g, and 802.11n														
Frequency Range	<ul style="list-style-type: none"> ▪ USA: 2.400 ~ 2.483GHz ▪ Europe: 2.400 ~ 2.483GHz ▪ Japan: 2.400 ~ 2.497GHz ▪ China: 2.400 ~ 2.483GHz 														
Interface	PCI Express ® mini-card rev. 1.2														
Channel Spacing	5MHz														
Operating Channels	<ul style="list-style-type: none"> ▪ USA/Canada: 11 (1~11) ▪ Major Europe Countries: 13 (1~13) ▪ France: 4 (10~13) ▪ Japan: 14 on 802.11b (1~13 or 14th), 13 on 802.11g (1~13) ▪ China: 13 (1~13) 														
Data Rate	<ul style="list-style-type: none"> ▪ 802.11b: 1, 2, 5.5 and 11Mbps ▪ 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps ▪ 802.11n: <ul style="list-style-type: none"> ◦ 20MHz channel: 1Nss: 65Mbps @ 800GI, 72.2Mbps @ 400GI (Max.) ◦ 40MHz channel: 1Nss: 135Mbps @ 800GI, 150Mbps @ 400GI (Max.) 														
Power Consumption	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">802.11n(2.4GHz)</th> </tr> <tr> <th></th> <th style="text-align: center;">Avg./Max. (mA)</th> </tr> </thead> <tbody> <tr> <td>FTP Tx</td> <td style="text-align: center;">295/410</td> </tr> <tr> <td>FTP Rx</td> <td style="text-align: center;">250/390</td> </tr> <tr> <td>AP scanning, no association with AP</td> <td style="text-align: center;">204/408</td> </tr> <tr> <td>Driver Enable/Radio Disable by HW Disable</td> <td style="text-align: center;">110/130</td> </tr> <tr> <td>Driver Disable</td> <td style="text-align: center;">15/30</td> </tr> </tbody> </table>		802.11n(2.4GHz)		Avg./Max. (mA)	FTP Tx	295/410	FTP Rx	250/390	AP scanning, no association with AP	204/408	Driver Enable/Radio Disable by HW Disable	110/130	Driver Disable	15/30
	802.11n(2.4GHz)														
	Avg./Max. (mA)														
FTP Tx	295/410														
FTP Rx	250/390														
AP scanning, no association with AP	204/408														
Driver Enable/Radio Disable by HW Disable	110/130														
Driver Disable	15/30														
Output Power (Tolerance ±2dB)	<ul style="list-style-type: none"> ▪ 802.11b: +17dBm ▪ 802.11g: <ul style="list-style-type: none"> ◦ +17dBm @ 6, 9, 12,18,24Mbps ◦ +17dBm @ 36Mbps ◦ +16dBm @ 48Mbps ◦ +15dBm @ 54Mbps ▪ 802.11n: <ul style="list-style-type: none"> ◦ 2.4GHz/HT20: <ul style="list-style-type: none"> ◦ +17dBm @ MCS 0 ~ 4 ◦ +16dBm @ MCS 5 ◦ +14dBm @ MCS 6 ◦ +13dBm @ MCS 7 ▪ 802.11n <ul style="list-style-type: none"> ◦ 2.4GHz/HT40: <ul style="list-style-type: none"> ◦ +16dBm @ MCS 0 ~ 4 ◦ +15dBm @ MCS 5 ◦ +13dBm @ MCS 6 ◦ +11Bm @ MCS 7 														

Receiver Sensitivity		Data Rate	IEEE Spec. (dBm)	Typical/Maximum(dBm)
	802.11b	DBPSK(1M)	not specified	-95/-90
DQPSK(5.5M)		not specified	-93/-88	
802.11g	CCK(11M)	not specified	-90/-85	
	BPSK(6M)	-82	-94/-89	
	BPSK(9M)	-81	-93/-88	
	QPSK(12M)	-79	-91/-86	
	QPSK(18M)	-77	-89/-84	
	16-QAM(24M)	-74	-86/-81	
	16-QAM(36M)	-70	-82/-77	
	64-QAM(48M)	-66	-78/-73	
	64-QAM(54M)	-65	-77/-72	
802.11b/g/n HT20	BPSK(MCS0)	-82	-92/-87	
	QPSK(MCS1)	-79	-89/-84	
	QPSK(MCS2)	-77	-87/-82	
	16-QAM(MCS3)	-74	-84/-79	
	16-QAM(MCS4)	-70	-80/-75	
	64-QAM(MCS5)	-66	-76/-71	
	64-QAM(MCS6)	-65	-75/-70	
	64-QAM(MCS7)	-64	-74/-69	
802.11b/g/n HT40	BPSK(MCS0)	-79	-89/-84	
	QPSK(MCS1)	-76	-86/-81	
	QPSK(MCS2)	-74	-84/-79	
	16-QAM(MCS3)	-71	-81/-76	
	16-QAM(MCS4)	-67	-77/-72	
	64-QAM(MCS5)	-63	-75/-68	
	64-QAM(MCS6)	-62	-72/-67	
	64-QAM(MCS7)	-61	-71/-66	
Operation Distance		Outdoor	Indoor	
802.11b	100m @ 11Mbps 200m @ 1Mbps	50m @ 11Mbps 100m @ 1Mbps		
802.11g	100m @ 54Mbps 200m @ 6Mbps	50m @ 54Mbps 100m @ 6Mbps		
802.11n	30m @ MCS7/40Mhz 50m @ MCS7/20MHz 200m @ MCS0/20MHz	30m @ MCS7/40Mhz 50m @ MCS7/20MHz 80m @ MCS0/20MHz		
MAC Protocol	CSMA/CA with ACK architecture 32-bit MAC			
Modulation Technique	<ul style="list-style-type: none"> ▪ DSSS with CCK, DQPSK, DBPSK ▪ OFDM with BPSK, QPSK, 16QAM, 64QAM 			
Operation Voltage	3.3V ± 5%			
Security	<ul style="list-style-type: none"> ▪ 64-bit, 128-bit and 152-bit WEP encryption ▪ 802.1x authentication ▪ AES-CCM & TKIP 			
Operation Systems Supported	Windows 2000/XP/Vista/7 and Linux			
Dimension	26.65 x 29.85 mm (±0.15mm) x 1.0 mm (±0.10mm)			
Operation Temperature Range	0°C ~ +60°C ambient			
Storage Temperature Range	-20°C ~ +80°C			
Regulation Compliance	Atheros WB195 FCC, CE...etc. certification status			
Operating Humidity	15% ~ 95%, non-condensing			
Storage Humidity	max. 95%, non-condensing			
Environment-Friendly Compliance	RoHS			
Antenna	two Hirose U.FL ultra-miniature coaxial antenna connectors (Main connector for WiFi only, ALT connector for WiFi Rx Diversity or Bluetooth)			

Bluetooth portion Specifications:							
Main Chipset	Atheros® AR3011						
Standard Conformance	Bluetooth v2.1 + EDR						
Frequency Range	2.400 ~ 2.4835GHz						
Frequency Tolerance	±40kHz (typical)						
Modulation Technique	frequency hopping, 1600 hops/sec.						
Channel Spacing	1MHz						
Channel Support	79 channels						
Operation Voltage	3.3V ± 5%						
Power Consumption	<table border="1"> <thead> <tr> <th></th> <th>Avg. (mA)</th> </tr> </thead> <tbody> <tr> <td>Idle mode</td> <td>15.1</td> </tr> <tr> <td>Continuous DH5 Tx</td> <td>68.8</td> </tr> </tbody> </table>		Avg. (mA)	Idle mode	15.1	Continuous DH5 Tx	68.8
	Avg. (mA)						
Idle mode	15.1						
Continuous DH5 Tx	68.8						
Output Power	<ul style="list-style-type: none"> 2dBm typical class 2 device (-6dBm < out power < 4dBm) 						
Receiver Sensitivity	-85dBm typical for pi/4-DQPSK, 0.1% BER						
Operation Temperature Range	0°C ~ +60°C ambient						
Storage Temperature Range	-20°C ~ +80°C						
Antenna	one Hirose U.FL ultra-miniature coaxial antenna connector (ALT connector for WiFi Rx Diversity or Bluetooth)						

Ordering Information:	
DHXA-195	802.11n b/g 1x1 wifi and Bluetooth combo PCIe half-size mini card, WB195/AR9285+AR3011



Unex Technology Corp.
- Durable Bridge to Wireless

sales-a@unex.com.tw
<http://www.unex.com.tw>