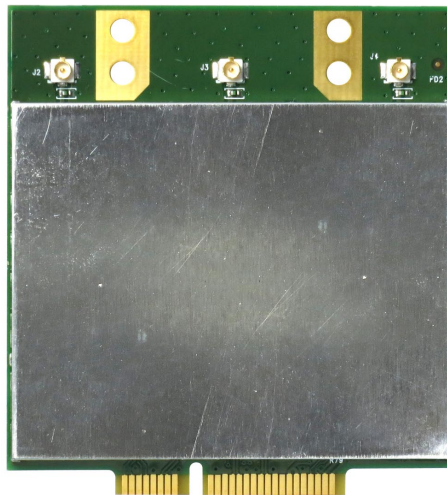




DAXA-92 Specification

802.11ac/na single band 3x3 PCIe mini card, QCA9890



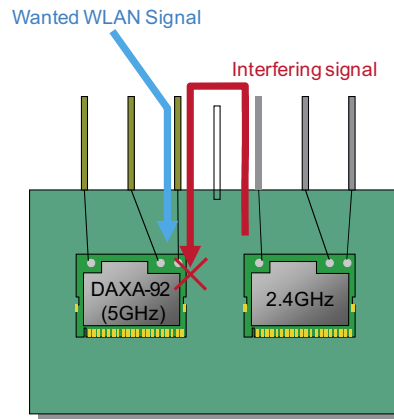
Overview:

DAXA-92 is a 3x3 802.11ac/na wifi module in PCIe mini card form factor designed to deliver up to 1.3Gbps wireless data rates and target next-generation dual-band, dual-concurrent (DBDC) enterprise wireless access points for a variety of high-reliable and bandwidth-intensive video-over-wireless applications.

A new, highly efficient architecture reduces processing requirements and power consumption, while nearly tripling wireless performance of 802.11n 3x3, to enable broad adoption of enterprise wireless networking. DAXA-92 propels the industry forwarding and diverse needs of high reliable enterprise networking, with optional enhanced in-building location and spectral sensing capabilities.

Key Features:

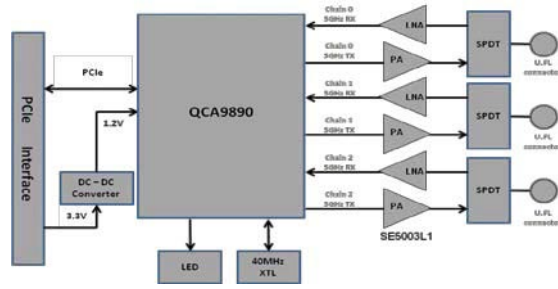
- » Extra Rx filter provides the excellent radio rejection against the interfering signal from the 2nd WiFi module on con-current 2.4 & 5GHz (dual band dual con-current, DBDC) application to dramatically improve the data throughput/ range performance.



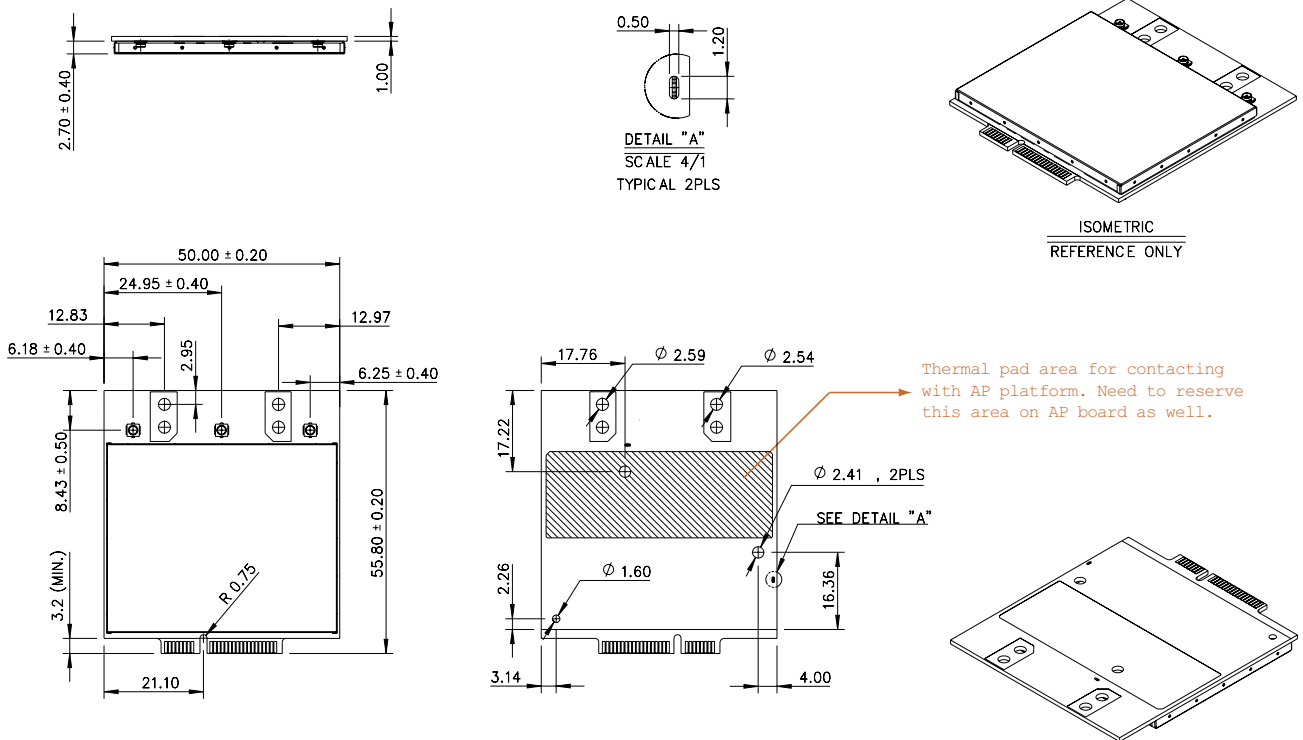
One DAXA-92 and one 2.4GHz wifi module can work simultaneously (dual band dual con-current, DBDC) in the same platform under different frequency band, DAXA-92 in 5GHz and the other WiFi module in 2.4GHz, without Rx sensitivity degradation.

- » Supports 20/40/80MHz channel and 256 QAM to maximize bandwidth efficiency.
- » Single band 802.11ac/na supports 3Tx/3Rx to enables antenna port data rate up to 1.3Gbps.
- » 50 x 50.8 mm full PCIe mini card form factor with standard screw mounting hole to firmly embed onto main board.
- » Three U.FL antenna connectors enable design flexibility to utilize different transmit/receive chains to communicate with different users.
- » REACH SVHC 73 (2011/12/19) and RoHS compliance ensure a high level protection of human health and the environment from risks that can be posed by chemicals.

Block Diagram



Mechanical Outline



Pin Denifition:

Pin No.	Pin Name	Direction	Description
4, 9, 15, 18, 21, 26, 27, 29, 34, 35, 40, 50	GND	---	Ground
43	RESERVED	---	Ground
37	RESERVED	---	No connection
39, 41	RESERVED	---	3.3V
49, 51	RESERVED	I	Reserved for 3.3V
3	RESERVED	I/O	Reserved for QCA GPIO
47	RESERVED	I/O	Reserved for QCA smart antenna control (GPIO2)
45	RESERVED	I/O	Reserved for QCA smart antenna control (GPIO2)
5	RESERVED	I/O	Reserved for QCA smart antenna control (GPIO2)
8, 10, 12, 14, 16, 17, 19	NC	---	No connection
33	PETPO	Analog input signal	Differential receive
31	PETNO	Analog input signal	Differential receive
25	PERPO	Analog input signal	Differential transmit
23	PERNO	Analog input 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	Reserved for QCA GPIO0
7	CLKREQ_L	A digital output signal with open drain	Reference clock request, open drain

Pin No.	Pin Name	Direction	Description
22	PERST_L	Input signals with weak internal pul-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	No connection
44	LED_WLAN_L	O	Reserved for QCA GPIO1
42	LEN_VWVAN_L	---	No connection
38	USB_D+	I/O	USB_D+
36	USB_D-	I/O	USB_D-
6, 28, 48	1.5V	---	No connection
2, 52	3.3V	---	3.3V
24	3.3VAUX	---	Reserved for 3.3V

Specifications:

Main Chipset QCA9890

Tx/Rx 3T3R

Standard Conformance 802.11ac, 802.11na, and 802.11a

Frequency Range

- » USA: 5.15 – 5.35GHz, 5.47 – 5.725GHz, 5.725 – 5.825GHz
- » Europe: 5.15 – 5.35GHz, 5.47 – 5.725GHz
- » Japan: 5.15 – 5.35GHz, 5.47 – 5.725GHz
- » China: 5.725 – 5.85GHz

Interface PCI Express® mini-card rev. 1.2

Operating Channels

- » USA/Canada: 12 non-overlapping channels
- » Major Europe Countries: 19 non-overlapping channels
- » Japan: 19 non-overlapping channels
- » China: 5 non-overlapping channels

Operation Voltage

- » 3.3V ±5%

Power Consumption (typical level, with $\pm 50\text{mA}$ tolerance)

	Average (mA)
11a continue Tx @ 6M_3Tx_20dBm	1060
11a continue Tx @ 54M_3Tx_18dBm	880
11ac continue Tx @ VHT20 MCS0_NSS3_20dBm	1030
11ac continue Tx @ VHT40 MCS0_NSS3_20dBm	960
11ac continue Tx @ VHT80 MCS0_NSS3_20dBm	940
11ac continue Tx @ VHT20 MCS9_NSS3_15dBm	680
11ac continue Tx @ VHT40 MCS9_NSS3_14dBm	650
11ac continue Tx @ VHT80 MCS9_NSS3_14dBm	660
Idle	60
Standby	260

Average Tx Power (typical power level per chain, with $\pm 2\text{dB}$ tolerance)

	IEEE 802.11 a/na/ac		
	» 20MHz BW		
	CH36 ~ 48 MHz	CH52 ~ 64 MHz	CH100 ~ 165 MHz
6Mbps	20	20	20
9Mbps	20	20	20
12Mbps	20	20	20
18Mbps	20	20	20
24Mbps	20	20	20
36Mbps	20	20	20
48Mbps	20	20	20
54Mbps	18	18	18
HT20 MCS0	20	20	20
HT20 MCS1	20	20	20
HT20 MCS2	20	20	20
HT20 MCS3	20	20	20
HT20 MCS4	20	20	20
HT20 MCS5	20	20	20
HT20 MCS6	20	20	20
HT20 MCS7	18	18	18
VHT20 MCS8	16	16	16

» 40MHz BW

	CH36 ~ 48 MHz	CH52 ~ 64 MHz	CH100 ~ 165 MHz
HT40 MCS0	20	20	20
HT40 MCS1	20	20	20
HT40 MCS2	20	20	20
HT40 MCS3	20	20	20
HT40 MCS4	20	20	20
HT40 MCS5	20	20	20
HT40 MCS6	20	20	20
HT40 MCS7	18	18	18
VHT40 MCS8	16	16	16
VHT40 MCS9	16	16	16

» 80MHz BW

	CH36 ~ 48 MHz	CH52 ~ 64 MHz	CH100 ~ 165 MHz
VHT MCS0	20	20	20
VHT MCS1	20	20	20
VHT MCS2	20	20	20
VHT MCS3	20	20	20
VHT MCS4	20	20	20
VHT MCS5	20	20	20
VHT MCS6	20	20	20
VHT MCS7	18	18	18
VHT MCS8	16	16	16
VHT MCS9	16	16	16

Receiver
Sensitivity
(typical 3 chains
combined
sensitivity level
with +4/-2dB
tolerance)

IEEE 802.11 a/na/ac

» 20MHz BW

	CH36 ~ 48 MHz	CH52 ~ 64 MHz	CH100 ~ 165 MHz
6Mbps	-95	-95	-95
9Mbps	-95	-95	-95
12Mbps	-94	-94	-94
18Mbps	-92	-92	-92
24Mbps	-88	-88	-88
36Mbps	-86	-86	-86
48Mbps	-81	-81	-81
54Mbps	-80	-80	-80
HT20 MCS0	-95	-95	-95
HT20 MCS1	-94	-94	-94
HT20 MCS2	-92	-92	-92
HT20 MCS3	-87	-87	-87
HT20 MCS4	-84	-84	-84
HT20 MCS5	-79	-79	-79
HT20 MCS6	-78	-78	-78
HT20 MCS7	-76	-76	-76
VHT20 MCS8	-72	-72	-72

» 40MHz BW

	CH36 ~ 48 MHz	CH52 ~ 64 MHz	CH100 ~ 165 MHz
HT40 MCS0	-92	-92	-92
HT40 MCS1	-91	-91	-91
HT40 MCS2	-88	-88	-88
HT40 MCS3	-85	-85	-85
HT40 MCS4	-82	-82	-82
HT40 MCS5	-78	-78	-78
HT40 MCS6	-77	-77	-77
HT40 MCS7	-75	-75	-75
VHT40 MCS8	-71	-71	-71
VHT40 MCS9	-69	-69	-69

» 80MHz BW

	CH36 ~ 48 MHz	CH52 ~ 64 MHz	CH100 ~ 165 MHz
VHT MCS0	-90	-90	-90
VHT MCS1	-88	-88	-88
VHT MCS2	-86	-86	-86
VHT MCS3	-82	-82	-82
VHT MCS4	-79	-79	-79
VHT MCS5	-75	-75	-75
VHT MCS6	-74	-74	-74
VHT MCS7	-72	-72	-72
VHT MCS8	-68	-68	-68
VHT MCS9	-66	-66	-66

Dimension

50(W) x 55.8(L) mm

Operation
Temperature
Range

-10°C ~ +60°C ambient

Storage Temperature Range -20°C ~ +80°C

Operating Humidity 15% ~ 95%, non-condensing

Storage Humidity max. 95%, non-condensing

Human Health & Environment-Friendly Compliance REACH and RoHS

Antenna Connector three U.FL ultra-miniature coaxial antenna connectors

Ordering Information:

DAXA-92 802.11ac/na single band 3x3 PCIe mini card, QCA9890

Wireless radio modules are ESD sensitive, especially the components such as RF switch and the power amplifier. To avoid damage by electrostatic discharge, the following installation procedure is recommended:

- » Touch your hands and the bag or tray containing the radio module to a ground point on the host board (for example one of the mounting holes).
- » Install the radio module in the corresponding socket of host board.
- » Install the pigtail cable in the cutout of the enclosure. This will ground the pigtail to the enclosure.
- » Touch the I-PEX connector of the pigtail to the mounting hole (discharge), then plug onto the radio module.
- » Use external lightning protection for outdoor applications.
- » Make sure all antennas are being connected with the radio module (don't leave I-PEX connector open) before powering on the host device.