



# JWX6052

## 802.11ac/abgn 3T3R Mini-PCI-Express Module

### Technical Specifications

#### System Information

#### Data Rate

#### Operating Frequency

#### Interface

#### Modulation

#### Recommended Operating Conditions

#### Driver Support

#### Certification

#### Block Diagram

#### Dimension

#### Pin Assignment

#### Output Power & Sensitivity

### System Information

Wireless: IEEE 802.11ac/abgn (3T3R)

Chipset: Qualcomm Atheros QCA9880

### Data Rate

802.11b : 11Mbps

802.11a/g : 54Mbps

802.11n : 450Mbps

802.11ac : 1.3Gbps

### Operating Frequency

IEEE 802.11ac/abgn ISM Band, 2.412GHz ~ 2.472GHz, 5150MHz ~ 5825MHz

### Interface

Mini PCI-e, Antenna Ports : U.FL \* 3 for 3T3R

### Modulation

802.11a/g : OFDM (BPSK, QPSK, 16-QAM, 64-QAM)

802.11n : OFDM (BPSK, QPSK, 16-QAM, 64-QAM)

802.11ac : OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM)

### Recommended Operating Conditions

Operating Voltage: DC 3.3V  $\pm$  5%  
Operating Temperature Range: -20°C to 70°C  
Storage Temperature Range: -40°C to +80°C  
Operating Humidity (non-condensing): 10% ~ 90%  
Storage Humidity (non-condensing): 5% to 90%  
Current consumption: 4W (Max.)  
Dimension (in mm): 30 x 50 mm

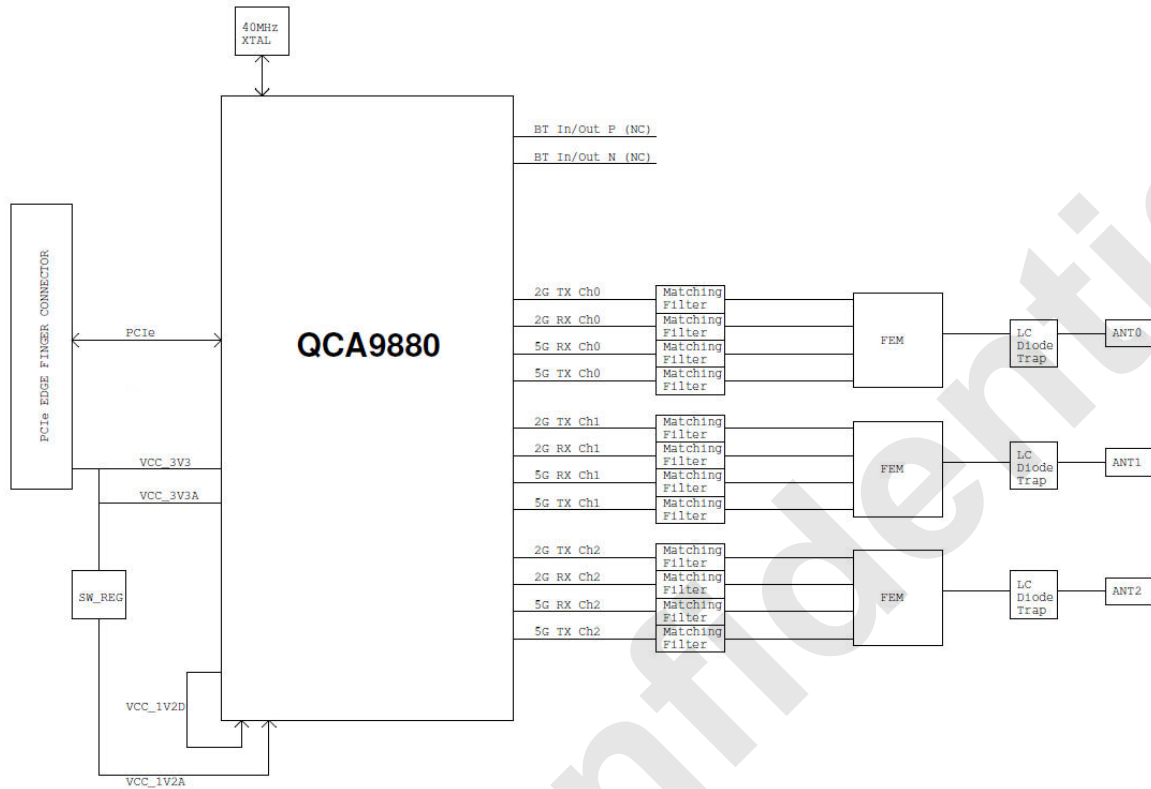
### Driver Support

TBD

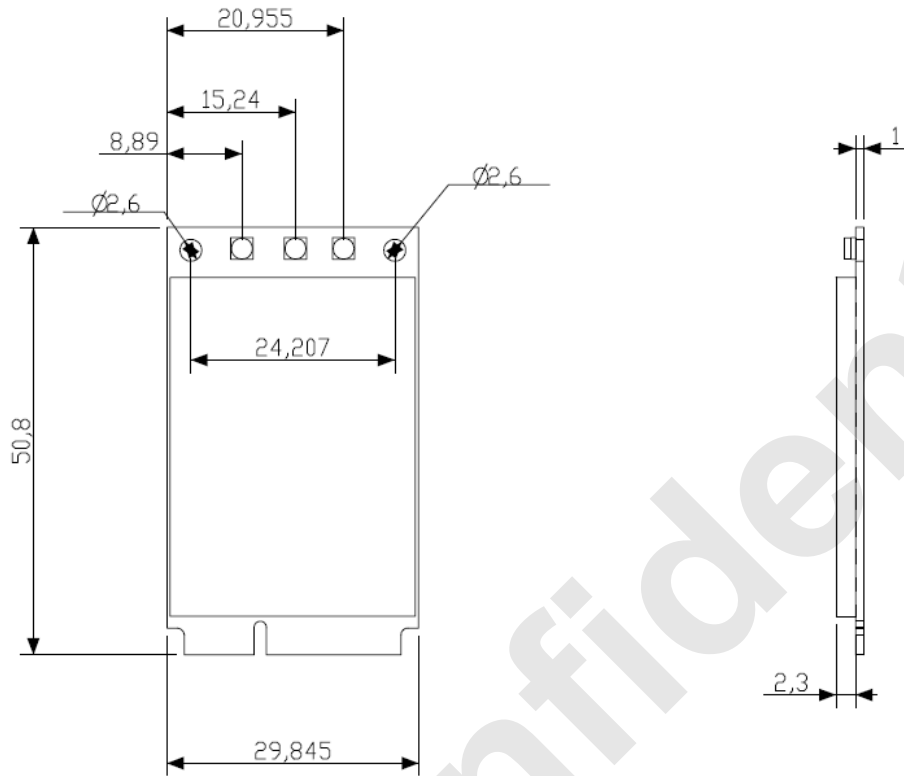
### Certification

FCC / CE

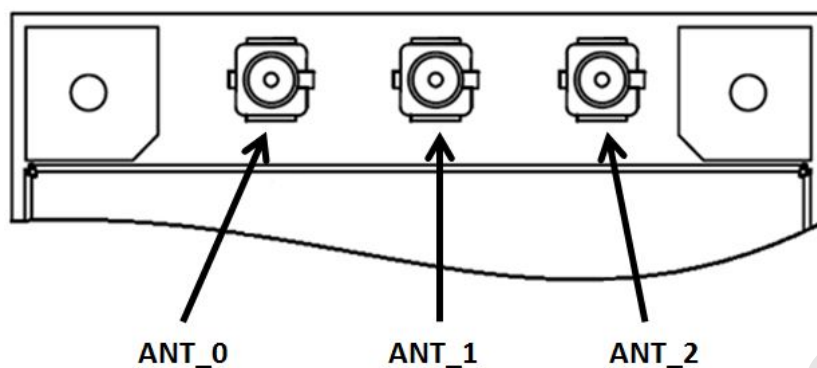
## Block Diagram



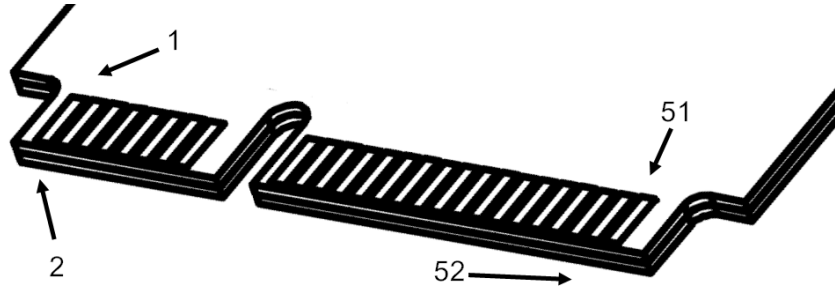
Dimension



## Pin Assignment



Pin Name	Description
ANT_0, ANT_1, ANT_2	RF Antenna for WiFi 2.4GHz/5GHz



PIN#	Pin Name	Design Status	PIN#	Pin Name	Design Status
1	WAKE_L	Yes (PCIE_WAKE_L)	2	+3.3Vaux	YES
3	COEX1	NC	4	GND	YES
5	COEX2	NC	6	+1.5V	NC
7	CLKREQ_L	YES (PCIE_CLKREQ_L)	8	UIM_PWR	YES (Reserved)
9	GND	YES	10	UIM_DATA	YES (Reserved)
11	REFCLK-	YES (PCIE_REFCLK_N)	12	UIM_CLK	YES (Reserved)
13	REFCLK+	YES (PCIE_REFCLK_P)	14	UIM_RESET	YES (Reserved)
15	GND	YES	16	UIM_VPP	NC
17	UIM_C8	NC	18	GND	YES
19	UIM_C4	NC	20	W_DISABLE_L	YES
21	GND	YES	22	PERST_L	YES (PCIE_RST_L)
23	PERn0	YES (PCIE_TX_N)	24	+3.3Vaux	YES
25	PERp0	YES (PCIE_TX_P)	26	GND	YES
27	GND	YES	28	+1.5V	NC
29	GND	YES	30	SMB_CLK	NC
31	PETn0	YES (PCIE_RX_P)	32	SMB_DATA	NC
33	PETp0	YES (PCIE_RX_N)	34	GND	YES
35	GND	YES	36	USB_D-	NC
37	GND	YES	38	USB_D+	NC
39	+3.3Vaux	YES	40	GND	YES
41	+3.3Vaux	YES	42	LED_WWAN_L	NC
43	GND	YES	44	LED_WLAN_L	YES (GPIO1_WLAN_LED)
45	RESERVED	NC	46	LED_WPAN_L	YES (GPIO17_BT_LED)
47	RESERVED	NC	48	+1.5V	NC
49	RESERVED	YES (VCC_FEM_4V)	50	GND	YES
51	RESERVED	NC	52	+3.3Vaux	YES

## Output Power & Sensitivity

802.11b g		
Data Rate	Tx +/- 2dB	Rx Sensitivity +/- 2dB
1~11Mbps	18dBm	-90dBm
6Mbps	18dBm	-92dBm
9Mbps	18dBm	-91dBm
12Mbps	18dBm	-90dBm
18Mbps	18dBm	-87dBm
24Mbps	18dBm	-84dBm
36Mbps	16dBm	-81dBm
48Mbps	15dBm	-76dBm
54Mbps	13dBm	-75dBm

802.11g n				
	Data Rate	Tx +/- 2dB (1TX)	Tx +/- 2dB (3TX)	Rx Sensitivity +/- 2dB
HT 20	MCS 0	17dBm	22dBm	-90dBm
	MCS 1	17dBm	22dBm	-89dBm
	MCS 2	17dBm	22dBm	-87dBm
	MCS 3	16dBm	21dBm	-82dBm
	MCS 4	16dBm	21dBm	-79dBm
	MCS 5	16dBm	21dBm	-75dBm
	MCS 6	14dBm	19dBm	-74dBm
	MCS 7	11dBm	16dBm	-72dBm
HT 40	MCS 0	17dBm	22dBm	-88dBm
	MCS 1	17dBm	22dBm	-85dBm
	MCS 2	17dBm	22dBm	-84dBm
	MCS 3	16dBm	21dBm	-79dBm
	MCS 4	16dBm	21dBm	-74dBm
	MCS 5	16dBm	21dBm	-72dBm
	MCS 6	14dBm	19dBm	-71dBm
	MCS 7	11dBm	16dBm	-69dBm

802.11a		
Data Rate	Tx +/- 2dB	Rx Sensitivity +/- 2dB
6Mbps	16dBm	-87dBm
9Mbps	16dBm	-86dBm
12Mbps	16dBm	-85dBm
18Mbps	16dBm	-82dBm
24Mbps	16dBm	-79dBm
36Mbps	15dBm	-76dBm
48Mbps	14dBm	-71dBm
54Mbps	13dBm	-70dBm

802.11an				
	Data Rate	Tx +/- 2dB (1TX)	Tx +/- 2dB (3TX)	Rx Sensitivity +/- 2dB
HT 20	MCS 0	16dBm	21dBm	-90dBm
	MCS 1	16dBm	21dBm	-89dBm
	MCS 2	16dBm	21dBm	-87dBm
	MCS 3	15dBm	20dBm	-82dBm
	MCS 4	15dBm	20dBm	-79dBm
	MCS 5	13dBm	18dBm	-75dBm
	MCS 6	11dBm	16dBm	-74dBm
	MCS 7	11dBm	16dBm	-72dBm
HT 40	MCS 0	16dBm	21dBm	-88dBm
	MCS 1	16dBm	21dBm	-85dBm
	MCS 2	16dBm	21dBm	-84dBm
	MCS 3	15dBm	20dBm	-79dBm
	MCS 4	15dBm	20dBm	-74dBm
	MCS 5	13dBm	18dBm	-72dBm
	MCS 6	11dBm	16dBm	-71dBm
	MCS 7	11dBm	16dBm	-69dBm



802.11ac				
	Data Rate	Tx +/- 2dB (1TX)	Tx +/- 2dB (3TX)	Rx Sensitivity +/- 2dB
VHT20	MCS 0	16dBm	21dBm	-90dBm
	MCS 1	16dBm	21dBm	-89dBm
	MCS 2	16dBm	21dBm	-87dBm
	MCS 3	15dBm	20dBm	-82dBm
	MCS 4	15dBm	20dBm	-79dBm
	MCS 5	13dBm	18dBm	-75dBm
	MCS 6	11dBm	16dBm	-74dBm
	MCS 7	11dBm	16dBm	-72dBm
	MCS 8	10dBm	15dBm	-68dBm
VHT40	MCS 0	16dBm	21dBm	-88dBm
	MCS 1	16dBm	21dBm	-87dBm
	MCS 2	16dBm	21dBm	-84dBm
	MCS 3	15dBm	20dBm	-80dBm
	MCS 4	15dBm	20dBm	-77dBm
	MCS 5	13dBm	18dBm	-73dBm
	MCS 6	11dBm	16dBm	-72dBm
	MCS 7	11dBm	16dBm	-70dBm
	MCS 8	10dBm	15dBm	-66dBm
	MCS 9	10dBm	15dBm	-64dBm
VHT80	MCS 0	16dBm	21dBm	-85dBm
	MCS 1	16dBm	21dBm	-83dBm
	MCS 2	16dBm	21dBm	-81dBm
	MCS 3	14dBm	19dBm	-77dBm
	MCS 4	14dBm	19dBm	-73dBm
	MCS 5	12dBm	17dBm	-69dBm
	MCS 6	11dBm	16dBm	-67dBm
	MCS 7	11dBm	16dBm	-66dBm
	MCS 8	9dBm	14dBm	-62dBm
	MCS 9	9dBm	14dBm	-61dBm