



# DR6000

## IPQ6000 WiFi 6 (802.11ax) Embedded Board

### Dual Band Dual Concurrent / MU-MIMO OFDMA

#### Features

- Qualcomm-Atheros IPQ6000
- Quad-core ARM 64 bit A53s 1.2GHz processor
- 2.4GHz, 2x2 MU-MIMO OFDMA Technology, up to 573Mbps
- 5GHz, 2x2 MU-MIMO OFDMA Technology, up to 1201Mbps
- 2 on board radios (Dual Band Concurrent Radio)
- Supports Dynamic Frequency Selection (DFS)



#### Applications

- 802.11ax MU-MIMO OFDMA Access Point
- Mesh router supporting EasyMeshHotel Wireless application
- Smart AP TWT

#### Product Description

DR6000 based on IPQ6000 chipset is an enterprise wireless module integrated with 2x2 5G high power Radio module and 2x2 2.4G high power Radio module designed specifically to provide users with mobile access to high-bandwidth video streaming, voice, and data transmission for office and challenging RF environment in factories, warehouses establishment.

#### Absolute Maximum Rating

Parameter	Rating	Unit
Supply Voltage	12	V
Operating Temperature Range	-20 to +70	°C
Storage Temperature Range	-45 to +90	°C
Operating Humidity Range	5 to +95 (non-condensing)	%
Storage Humidity Range	0 to +90 (non-condensing)	%

## Hardware Specifications

Symbol	Parameter
CPU	Qualcomm-Atheros IPQ6000
CPU Frequency	Quad-core ARM 64 bit A53 @1.2GHz processor
System Memory	DDR3L 512MB 16-bit interface
Nand Flash	128MB
NOR Flash	16MB
Ethernet Port	2x 1Gbps Ethernet Ports
DC Jack Input	1x DC Jack Connector: 12V
Power Consumption (Board Only)	1TD
On Board Radio	2 radios (Dual band concurrent radio)
Wireless	On-board 2x2 2.4GHz MU-MIMO OFDMA 802.11b/g/n/ax, max 20dBm per chain On-board 2x2 5GHz MU-MIMO OFDMA 802.11a/n/ac/ax, max 20dBm per chain 2x U.FL Connectors, diplexer allows dual band concurrent operation
Frequency Range	2.412~2.472GHz, 5.150~5.825GHz
2.4GHz Data Rate	2x2 MU-MIMO OFDMA Technology, up to 573Mbps
5GHz Data Rate	2x2 MU-MIMO OFDMA Technology, up to 1201Mbps
Modulation Techniques	OFDMA: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, 1024QAM
LED	4x LED Indicators
USB /Header	1x MicroUSB 2.0 Port
Serial Port	1x Serial Interface 12 Pin Connectors
Certification	TBD
Humidity	Operating: 5% to 95% (non-condensing) Storage: Max. 90% (non-condensing)
Temperature Range	Operating: TBD Storage: -40° C to 90° C
Dimension (Diameter x Height)	100mm x 23.5mm (Without Heatsink)

## Radio TX Specifications For 2.4GHz

Operating Mode	Data Rate	Power		Tolerance
		1 Chain	2 Chains	
2.4GHz 802.11b	1Mbps	20dBm	23dBm	± 2dB
	2Mbps	20dBm	23dBm	± 2dB
	5.5Mbps	20dBm	23dBm	± 2dB
	11Mbps	20dBm	23dBm	± 2dB
2.4GHz 802.11g	6Mbps	20dBm	23dBm	± 2dB
	9Mbps	20dBm	23dBm	± 2dB
	12Mbps	20dBm	23dBm	± 2dB
	18Mbps	20dBm	23dBm	± 2dB
	24Mbps	20dBm	23dBm	± 2dB
	36Mbps	20dBm	23dBm	± 2dB
	48Mbps	20dBm	23dBm	± 2dB
	54Mbps	18dBm	21dBm	± 2dB
2.4GHz 802.11n HT40	MCS 0	19dBm	22dBm	± 2dB
	MCS 1	19dBm	22dBm	± 2dB
	MCS 2	19dBm	22dBm	± 2dB
	MCS 3	19dBm	22dBm	± 2dB
	MCS 4	19dBm	22dBm	± 2dB
	MCS 5	19dBm	22dBm	± 2dB
	MCS 6	18dBm	21dBm	± 2dB
	MCS 7	17dBm	20dBm	± 2dB
2.4GHz 802.11n HT40	MCS 0	18dBm	21dBm	± 2dB
	MCS 1	18dBm	21dBm	± 2dB
	MCS 2	18dBm	21dBm	± 2dB
	MCS 3	18dBm	21dBm	± 2dB
	MCS 4	18dBm	21dBm	± 2dB
	MCS 5	18dBm	21dBm	± 2dB
	MCS 6	17dBm	20dBm	± 2dB
	MCS 7	16dBm	19dBm	± 2dB

## Radio TX Specifications For 2.4GHz

Operating Mode	Data Rate	Power		Tolerance
		1 Chain	2 Chains	
2.4GHz 802.11ax HE20	MCS0	19dBm	22dBm	±2dB
	MCS1	19dBm	22dBm	±2dB
	MCS2	19dBm	22dBm	±2dB
	MCS3	19dBm	22dBm	±2dB
	MCS4	19dBm	22dBm	±2dB
	MCS5	19dBm	22dBm	±2dB
	MCS6	18dBm	21dBm	±2dB
	MCS7	17dBm	20dBm	±2dB
	MCS8	15dBm	18dBm	±2dB
	MCS9	15dBm	18dBm	±2dB
	MCS10	14dBm	17dBm	±2dB
MCS11	14dBm	17dBm	±2dB	
2.4GHz 802.11ax HE40	MCS0	18dBm	21dBm	±2dB
	MCS1	18dBm	21dBm	±2dB
	MCS2	18dBm	21dBm	±2dB
	MCS3	18dBm	21dBm	±2dB
	MCS4	18dBm	21dBm	±2dB
	MCS5	18dBm	21dBm	±2dB
	MCS6	17dBm	20dBm	±2dB
	MCS7	16dBm	19dBm	±2dB
	MCS8	15dBm	18dBm	±2dB
	MCS9	15dBm	18dBm	±2dB
	MCS10	14dBm	17dBm	±2dB
MCS11	14dBm	17dBm	±2dB	

## Radio TX Specifications For 5GHz

Operating Mode <small>VHT20</small>	Data Rate	Power		Tolerance
		1 Chain	2 Chains	
5GHz 802.11a	6Mbps	20dBm	23dBm	± 2dB
	9Mbps	20dBm	23dBm	± 2dB
	12Mbps	20dBm	23dBm	± 2dB
	18Mbps	20dBm	23dBm	± 2dB
	24Mbps	20dBm	23dBm	± 2dB
	36Mbps	20dBm	23dBm	± 2dB
	48Mbps	20dBm	23dBm	± 2dB
	54Mbps	18dBm	21dBm	± 2dB
5GHz 802.11n/ac	MCS 0	20dBm	23dBm	± 2dB
	MCS 1	20dBm	23dBm	± 2dB
	MCS 2	20dBm	23dBm	± 2dB
	MCS 3	20dBm	23dBm	± 2dB
	MCS 4	20dBm	23dBm	± 2dB
	MCS 5	20dBm	23dBm	± 2dB
	MCS 6	18dBm	21dBm	± 2dB
	MCS 7	17dBm	20dBm	± 2dB
	MCS 8	17dBm	20dBm	± 2dB
5GHz 802.11n/ac VHT40	MCS 0	20dBm	23dBm	± 2dB
	MCS 1	20dBm	23dBm	± 2dB
	MCS 2	20dBm	23dBm	± 2dB
	MCS 3	20dBm	23dBm	± 2dB
	MCS 4	20dBm	23dBm	± 2dB
	MCS 5	20dBm	23dBm	± 2dB
	MCS 6	18dBm	21dBm	± 2dB
	MCS 7	17dBm	20dBm	± 2dB
	MCS 8	17dBm	20dBm	± 2dB
	MCS 9	16dBm	19dBm	± 2dB
5GHz 802.11ac VHT80	MCS 0	20dBm	23dBm	± 2dB
	MCS 1	20dBm	23dBm	± 2dB
	MCS 2	20dBm	23dBm	± 2dB
	MCS 3	20dBm	23dBm	± 2dB
	MCS 4	20dBm	23dBm	± 2dB
	MCS 5	20dBm	23dBm	± 2dB
	MCS 6	18dBm	21dBm	± 2dB
	MCS 7	17dBm	20dBm	± 2dB

	MCS 8	16dBm	19dBm	± 2dB
	MCS 9	16dBm	19dBm	± 2dB

## Radio TX Specifications For 5GHz

Operating Mode <small>/HT20</small>	Data Rate	Power		Tolerance
		1 Chain	2 Chains	
5GHz 802.11ax HE20	MCS 0	20dBm	23dBm	± 2dB
	MCS 1	20dBm	23dBm	± 2dB
	MCS 2	20dBm	23dBm	± 2dB
	MCS 3	20dBm	23dBm	± 2dB
	MCS 4	20dBm	23dBm	± 2dB
	MCS 5	20dBm	23dBm	± 2dB
	MCS 6	18dBm	21dBm	± 2dB
	MCS 7	17dBm	20dBm	± 2dB
	MCS 8	17dBm	20dBm	± 2dB
	MCS 9	16dBm	19dBm	± 2dB
	MCS 10	15dBm	18dBm	± 2dB
	MCS 11	15dBm	18dBm	± 2dB
5GHz 802.11ax HE40	MCS 0	20dBm	23dBm	± 2dB
	MCS 1	20dBm	23dBm	± 2dB
	MCS 2	20dBm	23dBm	± 2dB
	MCS 3	20dBm	23dBm	± 2dB
	MCS 4	20dBm	23dBm	± 2dB
	MCS 5	20dBm	23dBm	± 2dB
	MCS 6	18dBm	21dBm	± 2dB
	MCS 7	17dBm	20dBm	± 2dB
	MCS 8	17dBm	20dBm	± 2dB
	MCS 9	16dBm	19dBm	± 2dB
	MCS 10	15dBm	18dBm	± 2dB
	MCS 11	15dBm	18dBm	± 2dB
802.11ax HE80	MCS 0	20dBm	23dBm	± 2dB
	MCS 1	20dBm	23dBm	± 2dB
	MCS 2	20dBm	23dBm	± 2dB
	MCS 3	20dBm	23dBm	± 2dB
	MCS 4	20dBm	23dBm	± 2dB
	MCS 5	20dBm	23dBm	± 2dB
	MCS 6	18dBm	21dBm	± 2dB
	MCS 7	17dBm	20dBm	± 2dB
	MCS 8	16dBm	19dBm	± 2dB

	MCS 9	16dBm	19dBm	$\pm 2$ dB
	MCS 10	15dBm	18dBm	$\pm 2$ dB
	MCS 11	15dBm	18dBm	$\pm 2$ dB
	MCS 0	20dBm	23dBm	$\pm 2$ dB