

802.11ac/b/g/n Wi-Fi + Bluetooth NGFF card

WNFQ-255ACN(BT)

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Feature

- Standard: 802.11ac/b/g/n
- Interface: NGFF
(PCIe: WLAN; USB: Bluetooth)
- Chipset: Qualcomm Atheros QCA6174
- Antenna: 2 x IPEX MHF4 connector, 2T2R
- Concurrent Wi-Fi and BT co-existence
- Data rate up to 867Mbps (MCS9)
- Enhanced wireless security: WEP, WPA, WPA2, 802.1x
- Support Win7/Win8.1,

Dual-Band 802.11ac Solution

SparkLAN WNFQ-255ACN(BT) is an 802.11ac/b/g/n Dual-Band WiFi + Bluetooth NGFF card based on Qualcomm Atheros QCA6174 chipset. It supports 2T2R (Support WiFi/BT co-existence) technology, which runs up to 867Mbps and 1~3Mbps EDR for BT. The WNFQ-255ACN(BT) supports 20/40/80MHz and 256-QAM to maximize bandwidth efficiency.

Higher throughput for Enterprise Networking

Adopting the latest 802.11ac solution, WNFQ-255ACN(BT) is ideal for next-generation high throughput enterprise networking solution.

Secure Wireless Connection

Incorporated with advanced security encryption, such as WEP, WPA, WPA2, and 802.1x, it helps prevent users' devices from malicious attacks.

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Specification

Standard

IEEE802.11ac/b/g/n, Bluetooth V4.1,V4.0 LE, V3.0+HS, V2.1+EDR

Chipset

Mac/BB/RF Qualcomm Atheros QCA6174

Host Interface

PCI express: WLAN, USB: Bluetooth

Form Factor

NGFF1630

Data Rates

802.11a: 6~54 Mbps / 802.11b: 1~11 Mbps / 802.11g: 6~54 Mbps
802.11n (HT20): MCS0 ~MCS15 / 802.11n (HT40): MCS0 ~ MCS15
802.11ac(HT20): MCS0 to MCS9 / 802.11ac(HT40): MCS0 ~ MSC9 / 802.11ac(HT80): MCS0 ~ MSC9
BT: 1~3Mbps + EDR

Radio

Antenna 2 x IPEX MHF4 connector, 2T2R
Support WLAN / BT co-existence

Operating Frequency 11b/g/n: 2.412GHz ~ 2.4835GHz

11ac/a/n: 5.15GHz ~ 5.85GHz
BT: 2.402GHz ~ 2.480 GHz

Modulation 802.11a: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) / 802.11b: DSSS (DBPSK, DQPSK, CCK)
802.11g: 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) /
BT: Header: GFSK, Payload 2M: 4-DQPSK, Payload 3M: 8-DPSK

Output Power (1T) 802.11a: 11dBm ± 2dBm@54Mbps / 802.11b: 19dBm ± 2dBm@11Mbps
802.11g: 16dBm ± 2dBm@54Mbps
802.11gn HT20: 13dBm ± 2dBm@MCS7 / 802.11gn HT40: 13dBm ± 2dBm@MCS7
802.11an HT20: 11dBm ± 2dBm@MCS7 / 802.11an HT40: 9dBm ± 2dBm@MCS7
802.11ac(VHT40): 7dBm ± 2dBm@MCS9 / 802.11ac(VHT80): 6dBm ± 2dBm@MCS9
BT: (Class 1 Device) 0 ≤ Output Power ≤ +10 dBm

Receive Sensitivity (1R) 802.11a: ≤ -65dBm@54Mbps / 802.11b: ≤ -76dBm@11Mbps
802.11g: ≤ -65dBm@54Mbps 802.11gn HT20: ≤ -64dBm@MCS7 / 802.11gn HT40: ≤ -61dBm@MCS7
802.11an HT20: ≤ -64dBm@MCS7 / 802.11an HT40: ≤ -61dBm@MCS7
802.11ac (VHT40): ≤ -54dBm@MCS9 / 802.11ac (VHT80): ≤ -51dBm@MCS9
BT: < 0.1% BER at -70dBm

Power consumption

TX Mode 605 mA

RX Mode 214 mA

Operating Voltage

DC 3.3V

Environmental

Temperature Range 0 ~ 70°C (Operating) / -40 ~80°C (Storing)

Humidity (Non-Condensing) 5% ~ 90% (Operating) / 5% ~ 90% (Storing)

Physical Specification

Dimensions 16.5 mm X 30 mm x 2.0 mm (±0.5mm)

Weight ≤1.9g

Software

Driver Win7/Win8.1,

Security WEP, WPA, WPA2, 802.1x

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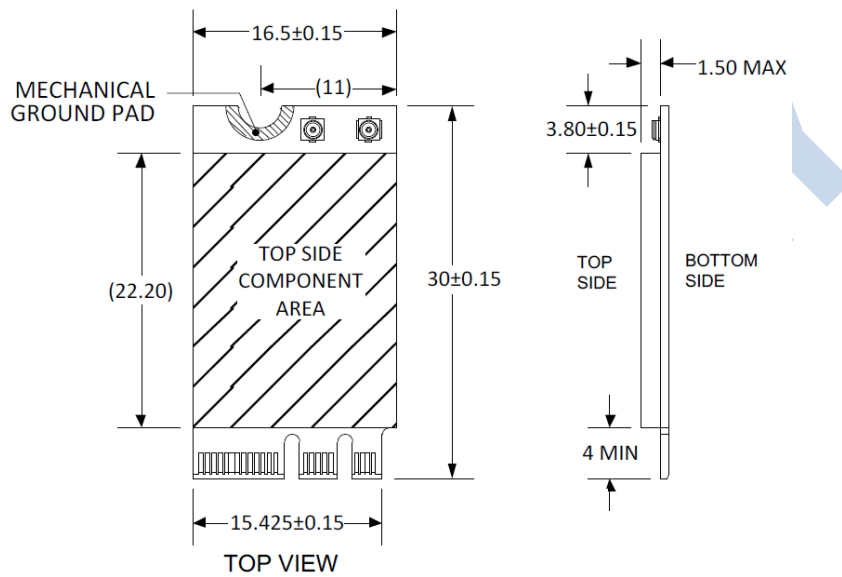


Connections Made Easy

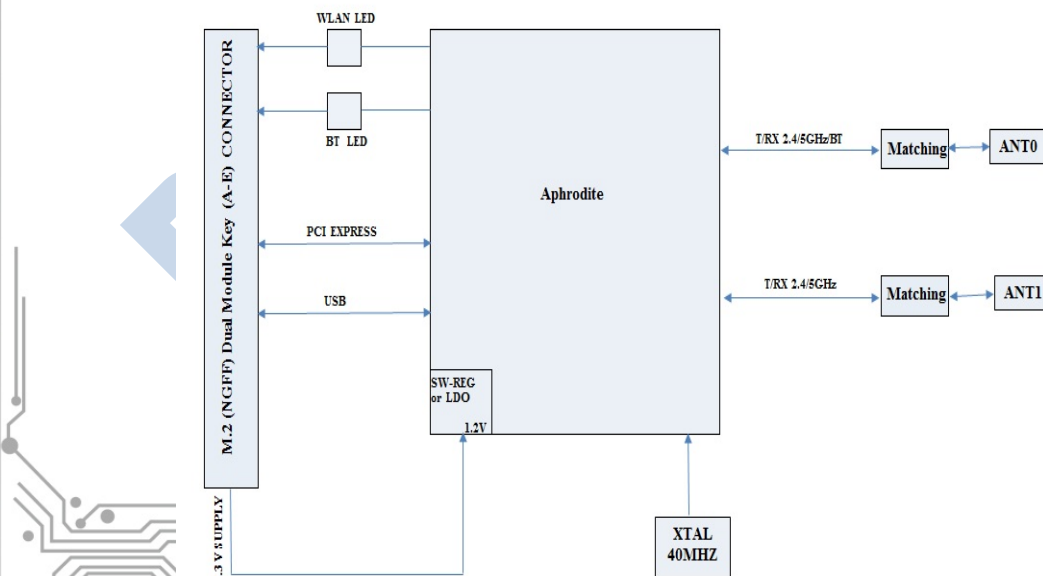
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Mechanical Dimension (mm)



Block Diagram



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Pin Assignment

| Pin# | Pin Name | Description | Pin# | Pin Name | Description |
|------|---------------|--|------|--------------------|---|
| 1 | GND | GND | 2 | +3.3V | +3.3V |
| 3 | USB_D+ | USB_D- | 4 | +3.3V | +3.3V |
| 5 | USB_D- | USB_D- | 6 | LED_WPAN_L (OPT) | Output and open drain active low signal. This signal is used to allow the USB module add-in card to provide status indicators via LED devices that will be provided by the system |
| 7 | GND | GND | 8 | No Connection | - |
| 9 | No Connection | - | 10 | No Connection | - |
| 11 | No Connection | - | 12 | No Connection | - |
| 13 | No Connection | - | 14 | No Connection | - |
| 15 | No Connection | - | 16 | BT_DISABLE_L (OPT) | These pins are reserved for definition with future revisions of this specification. |
| 17 | No Connection | - | 18 | GND | GND |
| 19 | No Connection | - | 20 | No Connection | - |
| 21 | No Connection | - | 22 | No Connection | - |
| 23 | No Connection | - | 24 | No Connection | - |
| 25 | No Connection | - | 26 | No Connection | - |
| 27 | No Connection | - | 28 | No Connection | - |
| 29 | No Connection | - | 30 | No Connection | - |
| 31 | No Connection | - | 32 | No Connection | - |
| 33 | GND | GND | 34 | No Connection | - |
| 35 | PERb0 | PCI Express x1 data interface: one differential transmit pair | 36 | No Connection | - |

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|----|-------------|--|----|--------------------|--|
| 37 | PERn0 | PCI Express x1 data interface: one differential transmit pair | 38 | Reserved | - |
| 39 | GND | GND | 40 | Reserved | - |
| 41 | PETp0 | PCI Express x1 data interface: one differential transmit pair | 42 | Reserved | - |
| 43 | PETn0 | PCI Express x1 data interface: one differential transmit pair | 44 | COEX3(OPT) | Coexistence between WiFi+BT/LTE_COEX0system |
| 45 | GND | GND | 46 | COEX2(OPT) | Coexistence between WiFi+BT/LTE_COEX1system |
| 47 | REFCLK+ | Input signal for PCI Express differential reference clock (100 MHz) | 48 | COEX1(OPT) | Coexistence between WiFi+BT/LTE_COEX2 |
| 49 | REFCLK- | Input signal for PCI Express differential reference clock (100 MHz) | 50 | No Connection | - |
| 51 | GND | GND | 52 | PERST_L | Input signal for functional reset to the card |
| 53 | CLKREQ_L | Output for reference clock request signal | 54 | BT_DISABLE_L (OPT) | These pins are reserved for definition with future revisions of this specification. |
| 55 | WAKE_L(OPT) | Output and open Drain active Low signal. This signal is used to request that the system return from a sleep/suspended state to service a function initiated wake event. | 56 | W_DISABLE_L(OPT) | Input and active low signal. This signal is used by the system to disable radio operation on add-in cards that implement radio frequency applications. When implemented, this signal requires a pull-up resistor on the card |
| 57 | GND | GND | | | |

*NA→No active, OPT→Optional