

BALI/BALI M.2 PCIe

Wi-Fi 802.11ac (1x1) + Bluetooth 5 Dual mode Module

Description

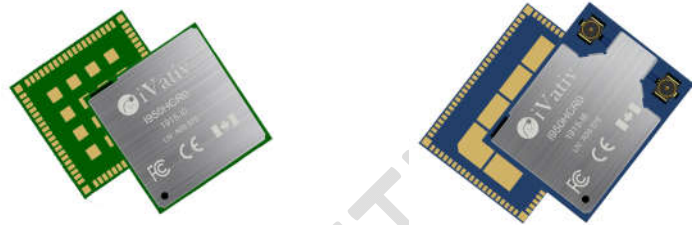
BALI is a high performance multi-protocol certified wireless module supporting dual-band 1-stream (1T1R) Wi-Fi 802.11 a/b/g/n/ac and BT5.0. This small form-factor module provides superior throughputs and long range by integrating high performance baseband, MAC, fine-tuned RF front end, power amplifiers, filters, switches, diplexer and crystals.

With advanced coexistence algorithms, this module delivers low-latency and high performance WiFi and Bluetooth for superior user experience. This module enables low-power designs by utilizing multiple advanced power-saving techniques including many host off-loading features.

BALI is based on Qualcomm QCA9377 SoC and connects to host processor with PCIe (WiFi) and USB (BT) host interfaces.

Features

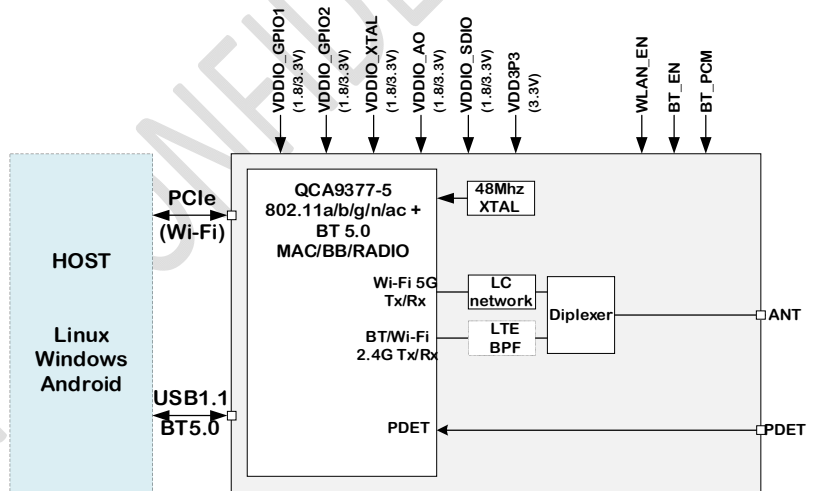
- ❖ Host interfaces : PCIe for WiFi and USB for Bluetooth
- ❖ WLAN + Bluetooth coexistence
- ❖ This module is available in **M.2** form-factor also
- ❖ WiFi technology - Low power dual-band (2.4 and 5 GHz), 1-stream MU-MIMO 802.11ac
- ❖ Enterprise security (STA only)
- ❖ Operating modes : STA, SoftAP, P2P Group Owner, P2P Client, STA + SoftAP, STA + P2P Group Owner, STA + P2P Client, Support for multiple BSSID (2 softAPs + STA)
- ❖ Module Power save : Deep sleep mode, protocol power save modes - Legacy, UAPSD and GreenTx
- ❖ Host Power save : Wake-on-BLE, Firmware Offloading
- ❖ WMM, DFS (Master, Client)
- ❖ Roaming : 11r/FT, Legacy fast roaming
- ❖ 802.11ai : FILS-SK in STA mode
- ❖ Bluetooth technology - Bluetooth 5.0 + HS and Bluetooth Low Energy
- ❖ Bluetooth class : Supports Bluetooth for Class-1 and Class-2 transmissions without requiring an external power amplifier
- ❖ Bluetooth stack : Bluez
- ❖ BT stack core profiles : SDP, L2CAP, GAP - Bluetooth 5.0
- ❖ BLE concurrent roles : BLE concurrent central and peripheral
- ❖ BT stack profiles : All BT SIG (BR/EDR and BLE) profiles including HFP 1.6, A2DP/BT Audio



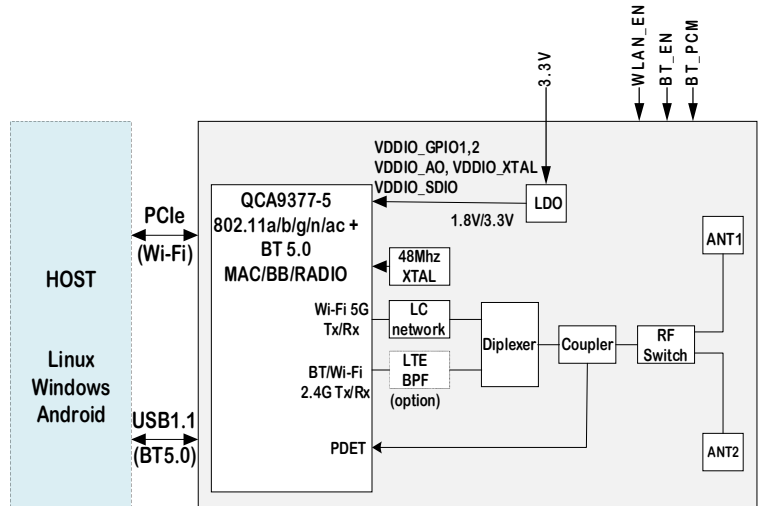
BALI: 11.8mm x 12mm x 1.6mm

BALI M.2: 12mm x 16mm x 1.9mm

Block Diagram (BALI module)



Block Diagram (BALI M.2 module)



Specifications

WLAN Technology	802.11 abgn, 1-stream MU-MIMO 802.11ac
BT Technology	Bluetooth v5.0 + HS
Frequency band	2.4GHz, 5GHz
On air data rates	2.4GHz 11b - 1,2,5.5,11Mbps 11g - 6,9,12,18,24,36,48,54Mbps 11n - MCS0 to MCS7 or up-to 150Mbps 5GHz 11a - 6,9,12,18,24,36,48, 54Mbps 11n/ac - MCS0 to MCS9 or Up to 433Mbps
Security features	WPA/WPA2 -PSK TKIP/AES, WPS 2.0, Enterprise Security (EAP) STA only
Modulation schemes	2.4GHz 11b - BPSK,QPSK, CCK 11g - BPSK, QPSK, 16QAM, 64 QAM 11n - PSK, QPSK, 16QAM, 64 QAM 5GHz 11a/n/ac - BPSK,QPSK, 16QAM, 64 QAM
Antenna options	BALI: Antenna pin BALI M.2 : Antenna Diversity
Supported Host OS	Linux Windows 10 Android
Host interfaces	WiFi - PCIe 2.1 Bluetooth - USB 1.1 and PCM
Max throughput	310Mbps
Maximum Transmit Power	WiFi 20dBm BT 15dBm BLE 4dBm
Receive Sensitivity	WiFi -97.5dBm BT -96dBm BLE -99dBm
WLAN bandwidths	20/40/80MHz
Power supply	3.3v to 5.5v
Operating Temperature	-40°C to 85°C
Humidity	5-90% non-condensing
Package	11.8mm x 12mm x 1.6mm LGA (BALI) 12mm x 16mm x 1.9mm LGA (BALI M.2)
Certifications & approvals	Module certifications - FCC, IC, CE BT 5.0 SIG certification

BALI PCIe module Part Ordering

I951HCR0-IOLT	BALI PCIe module with Antenna Pin, Tray packing
I951HCR0-IOLR	BALI PCIe module with Antenna Pin, Tape and Reel packing

BALI PCIe EVK/DVK Part Ordering

I951HCR0-IOL-EVK	BALI PCIe Industrial Temp, Antenna Pin EVK
I951HCR0-I04-EVK	BALI Half Mini PCIe Industrial Temp, Antenna Pin EVK
I951HCR0-IOL-DVK	BALI PCIe Industrial Temp, Antenna Pin DVK Kit

BALI M.2 PCIe module Part Ordering

I951HCR0-I61T	BALI M.2 PCIe module with Antenna Diversity, Tray packing
I951HCR0-I61R	BALI M.2 PCIe module with Antenna Diversity, Tape and Reel packing

BALI M.2 EVK/DVK Part Ordering

I951HCR0-I61-EVK	BALI M.2 PCIe Industrial Temp, Antenna Diversity EVK
I951HCR0-I61-DVK	BALI M.2 PCIe Industrial Temp, Antenna Diversity DVK Kit

Development Kit

- ❖ Full Mini PCIe EVK
- ❖ Full Mini PCIe-M.2 EVK
- ❖ Half Mini PCIe EVK
- ❖ Rubber Duck antenna with SMA converter cable
- ❖ Toradex Ixora Board with power adaptor
- ❖ IDC-DB9 male adapter cable
- ❖ USB serial converter

Additional information

For the latest collaterals, please visit
<http://www.ivativ.com>