

BALI/BALI M.2 SDIO

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 wake on wireless energy and many host off-loading features.

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

Features

- ❖ Host interfaces : SDIO 3.0 for WiFi and UART for BT.
- ❖ 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
- ❖ 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 : WoW, Wake-on-BLE, FW Offloading
- ❖ Enterprise security (STA only)
- ❖ 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 PA
- ❖ Bluetooth stack : Fluoride, 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

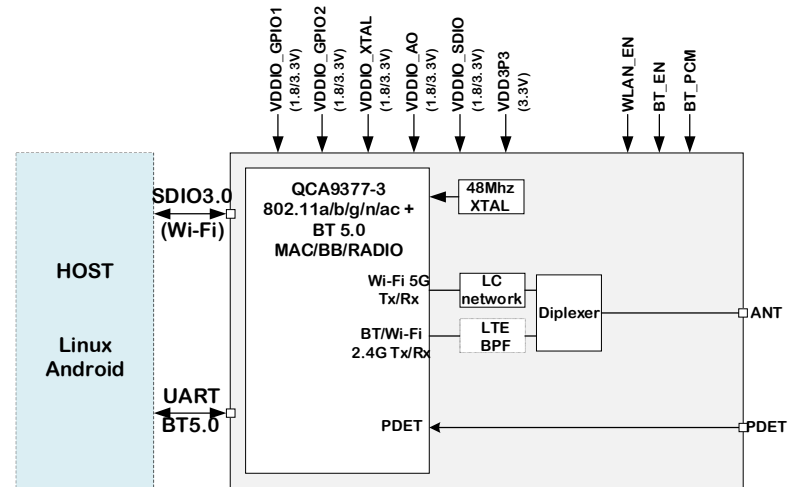


BALI: 11.8mm x 12mm x 1.6mm

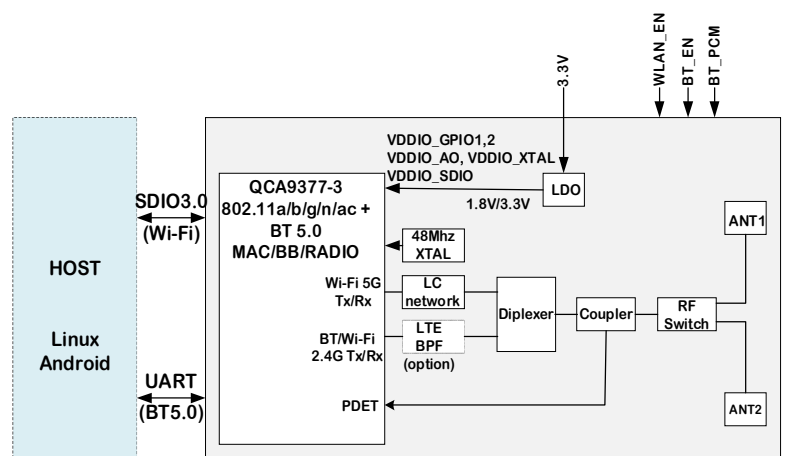


BALI M.2: 12mm x 16mm x 1.9mm

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 Android
Host interfaces	WiFi – SDIO 3.0 / SDR104 Bluetooth - UART and PCM
Max throughput	330Mbps
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

Additional information

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

BALI SDIO module Part Ordering

I950HCRO-IOLT	BALI SDIO module with Antenna Pin, Tray packing
I950HCRO-IOLR	BALI SDIO module with Antenna Pin, Tape and Reel packing

BALI SDIO EVK/DVK Part Ordering

I950HCRO-IOL-EVK	BALI SDIO Industrial Temp, Antenna Pin EVK
I950HCRO-IOL-uSD-EVK	BALI SDIO Industrial Temp, Antenna Pin, uSD connector EVK
I950HCRO-IOL-DVK	BALI SDIO Industrial Temp, Antenna Pin DVK Kit

BALI M.2 SDIO module Part Ordering

I950HCRO-I61T	BALI M.2 SDIO module with Antenna Diversity, Tray packing
I950HCRO-I61R	BALI M.2 SDIO module with Antenna Diversity, Tape and Reel packing

BALI M.2 SDIO EVK/DVK Part Ordering

I950HCRO-I61-EVK	BALI M.2 SDIO Industrial Temp, Antenna Diversity EVK
I950HCRO-I61-uSD-EVK	BALI M.2 SDIO Industrial Temp, Antenna Pin, uSD connector EVK
I950HCRO-I61-DVK	BALI M.2 SDIO Industrial Temp, Antenna Diversity DVK Kit

Development Kit

- ❖ SDIO EVK along with USB-UART FTDI converter
- ❖ SDIO-M.2 along with USB-UART FTDI converter
- ❖ SDIO Micro SD EVK along with USB-UART FTDI converter for Bluetooth HCI UART
- ❖ SDIO-M.2 Micro SD along with USB-UART FTDI converter for Bluetooth HCI UART
- ❖ 1 x Micro USB cable
- ❖ 2 x Legs for SDIO EVK
- ❖ 1 x Rubber Duck antenna with SMA converter
- ❖ Toradex Ixora Board with power adaptor
- ❖ IDC-DB9 male adapter cable
- ❖ USB-serial converter