

## **R3000 Circuit/Operational Description**

R3000 is 4 Port Ethernet LAN, one Ethernet WAN/concurrent 2.4GHz and 5GHz Wireless Gateway. It provides 4 10/100/1000 Based Ethernet LAN ports and one 10/100/1000 Based Ethernet WAN with embedded 802.11/b/g/n/ac wireless Access Points. R3000 is based on Broadcom BCM63138 high performance Broadband Communication Processor.

Main features:

1) Processor

BCM63138's integrated ADSL2+ transceiver and Analog Front End (FAE) with high performance, 1GHz dual-core ARM cortex A9 network controller and several networking interfaces.

### Hardware Features

- Supports APDL2+
- Integrated 8-port Ethernet Switch with
  - Four integrated LAN 10/100/1000 Auto MDIX Gigabit Ethernet PHY transceivers with Energy Efficient Ethernet support
  - Two RGMII LAN ports with Energy Efficient Ethernet support
  - Two Configurable LAN ports (RGMII, RGMII/RvMII/MII/TMII, 10/100/1000 Gigabit Ethernet PHY, Active Ethernet)
- Configurable WAN port (RGMII, RGMII/RvMII/MII/TMII, 10/100/1000 Gigabit Ethernet PHY, Active Ethernet)
- 2 X USB2.0/3.0 controllers for independent host/device controller configuration
- Simultaneous dual-band concurrent WIFI support via two PCI Express ports
- SPI, NAND, UART
- Flexible GPIO pins
- 800MHz DDR3

### Software Features

- Networking: 802.1d Transparent bridging, Learn bridging, Static Bridging, RIP, PPPoE (RFC 2516), PPP (RFC 1661), PPPoA (RFC 2364), IP Protocols
- IP Protocols: Ipv4, Ipv6, TCP, UDP, ARP, ICMP
- User Authentication
- ATM Support
- Applications: DHCP Sever, DHCP Client, DNS proxy, Telnet Server, TFTP Sever, HTTP Server, SNMP v1/2/3
- Address Translation: NAT, NAPT
- Firewall

## 2) SDRAM and Flash

R3000 provides 128MB DDR3 and 128MB NAND Flash memory for the system.

## 3) 2.4GHz and 5GHz 802.11 a/b/g/n/ac wireless LAN

R3000 uses on-board single chip 802.11ac Draft 3 x 3 BCM4360/43602 SOC compliant MAC/PHY/Radio for 2.4GHz. Quantenna QT3840BC base band and QT1528B RFIC are used for 5GHz 802.11ac.

Radio transceiver provides 802.11 a/b/g/n/ac wireless LAN connectivity supporting data rate up to 450 Mbps in the 2.4-GHz 40MHz mode and up to 1.7 Gbps PHY/Data link Speed in 80MHz mode for 5GHz radio.

## 4) Ethernet

R3000 has 4 10/100/1000 LAN Ethernet ports and one 10/100/100 Wan Ethernet port

## 5) Miscellaneous

R3000 also provides miscellaneous LEDs for indications, a WPS push button for setup a connection with access point, reset button for restoring factory default settings, etc.