



Single-Chip 802.11G Router Reference Board

HARDWARE FEATURES

- Implements a best-in-class 802.11g router with BroadRange™ technology and dual receive paths, increasing receive sensitivity for a greater range.
- Uses the world's first true single-chip 802.11g router system-on-a-chip (SOC), the BCM5354. The BCM5354 integrates a high-performance MIPS32®, five-port 10/100 Ethernet switch, 2.4-GHz direct conversion radio, and Broadcom® 54g™ wireless MAC/baseband with BroadRange technology.
- Achieves line-rate Ethernet routing using Broadcom's 240-MHz MIPS32-based packet processing architecture and DDR SDRAM.
- Built-in 54g™ wireless on the main board, with PCB and external antenna options.
- One 10/100-Mbps Ethernet WAN port, and four 10/100-Mbps Ethernet LAN ports.
- The integrated Fast Ethernet switch supports 802.1q VLAN, IGMP snooping, and IPTOS.
- IEEE 802.3™-compliant, and supports frame sizes up to 1536 bytes.
- 16-bit SDRAM data bus with DDR SDRAM operating at 240 MHz (effective data bus).
- Memory configuration supports parallel or serial flash, low-cost SDRAM, and code size as small as 1-MB flash and 4-MB SDRAM.
- Eight GPIOs for attachment to various external devices.
- JTAG and UART ports for debugging development and attaching data terminal equipment (DTE).
- 2-layer system PCB for lower overall system cost.
- True single-chip router SOC enables smallest possible form factor with 4-layer and 6-layer system PCBs.
- Wi-Fi Protected Setup (WPS) and/or SecureEasySetup™ (SES) push-button for simple Wi-Fi setup and WPA security configuration.

SOFTWARE FEATURES

- Production quality reference code is 100% compatible with the OEM value-added code shipping on the majority of IEEE 802.11g™ routers worldwide today.
- Portable kernel, BSP, and driver packages.
- Intuitive browser-based configuration and management tools—routing configuration and management interface.
- Selected router features:
 - Built-in firewall
 - Static routing
 - Multi-WAN support
 - PPPoE, DHCP client, and static IP option on the WAN
 - Wireless security, including WPA2/WPA/WEP/802.1X
 - Wired and wireless MAC filtering
 - Port forwarding for application/game support
 - Network time protocol for time-based filtering and access control
 - UPnP IGD 1.0
 - DHCP server and DHCP client
 - 802.1D bridging with spanning tree support
 - Wireless distribution system support
 - DMZ on 10/100 LAN port
 - Secure local administration password
 - Connection logging
 - Firmware upgrade over WAN or LAN

AIRFORCE FAMILY FEATURES

- 125 High Speed Mode™—standards-plus performance enhancement delivers best real-world performance when both client and AP support High Speed Mode.
- BroadRange technology—standards-compliant feature increases receive sensitivity to improve range at the higher data rates.
- Security
 - WPA™ and WPA2™-CERTIFIED for powerful encryption and authentication.
 - AES in hardware for faster data encryption and IEEE 802.11i compatibility.
 - SecureEasySetup™ for simple Wi-Fi® setup and WPA security configuration.
- Worldwide support—global products supported with worldwide homologated design.

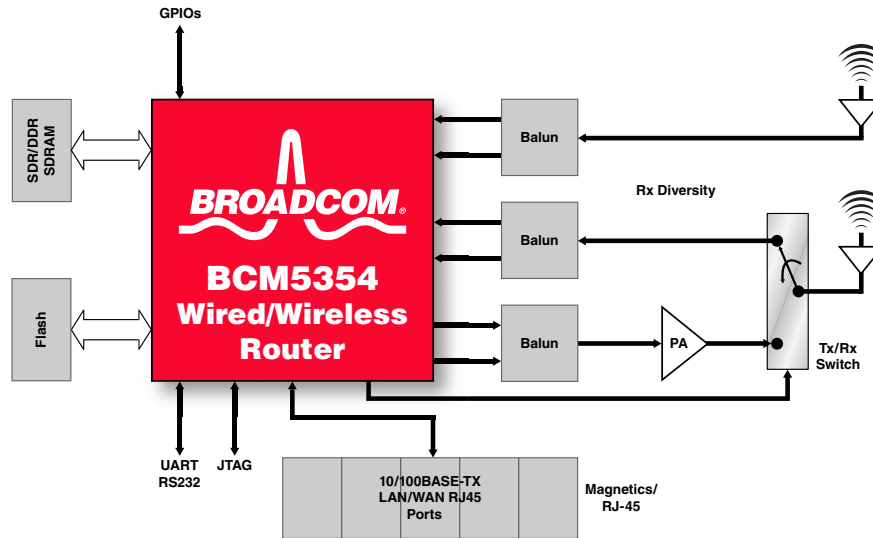
BCM95354GR Reference Design



Wireless Management Software



OVERVIEW



Reference Board Block Diagram

The BCM95354GR reference design is a fully integrated router SOC with BroadRange technology for use in residential, small business, and enterprise markets. With an integrated 2.4-GHz direct conversion radio, the BCM5354 offers the best price/performance ratio of any wireless network processor on the market, delivering wireless and wired performance and security in a cost-effective package. The BCM5354 also integrates a high-performance MIPS32 processor, IEEE 802.11b/g MAC/baseband, SDRAM controller, and a configurable five-port switch.

The production-ready BCM95354GR reference design includes the richest set of software features in the industry, and 100% software compatibility with the AirForce™ product family. The turn-key, customizable software is code-compatible with the BCM4702, BCM4704, BCM4712, BCM5350, and

BCM5352 devices, allowing OEMs to quickly migrate proprietary features built into IEEE 802.11b/g access points and routers into the BCM95354GR. Software features include advanced security protocols such as WPA, WPA2, IEEE 802.11i, and IEEE 802.1x browser-based network management tools, and the ability to run a turn-key wireless router.

Broadcom's superior technology and innovation benefit manufacturers with faster time-to-market, lower system costs, and end products that are differentiated from the competition through rich features and exceptional range and reliability. The BCM95354GR, with BroadRange technology, is the most feature-rich router SOC that serves as the core for a variety of reliable, flexible, and competitive end products that carry low overall system costs.

BCM95354GR Specifications:

Radio Standards	IEEE Standard 802.11g 2003, IEEE Standard 802.11b 1999
Radio Power	Transmit power configurable up to +19 dBm (IEEE 802.11g), +20 dBm (IEEE 802.11b)
Data Rates	802.11g: 54 Mbps, 48 Mbps, 36 Mbps, 24 Mbps, 18 Mbps, 12 Mbps, 9 Mbps, and 6 Mbps; 802.11b: 11 Mbps, 5.5 Mbps, 2 Mbps, and 1 Mbps
Frequencies Supported	2.4 GHz–2.497 GHz
Modulation	OFDM, CCK, DQPSK, and DBPSK
Antenna	2 external antennas, PCB antenna
Delay Tolerance	>250-ns delay tolerance at 11 Mbps
Channels	11 channels in US/Canada/New Zealand, 13 channels in Europe, 4 channels in France/Singapore, and 14 channels in Japan
Available Ports	4x 10/100 Ethernet LAN, 1x 10/100 Ethernet WAN, IEEE 802.11b/g
Processor Speed	240 MHz
Memory	Flash: 1 MB to 8 MB; SDRAM: 4 MB/8 MB/16 MB/32 MB (ships with 4-MB Flash, 32-MB DDR SDRAM)
Security	Platform support for WPA, WPA2, WEP, closed networks, MAC address filtering, SES
Manageability	Link status, browser-based management, HTTP software upgrade, and UPnP IGD 1.0
Protocols	Routing, roaming, DHCP client, DHCP server, logging, IEEE 802.11D bridging, spanning tree, TFTP, WDS, wireless Ethernet bridging
Operating System	Linux® (kernel version 2.4), VxWorks® Tornado® 2.1
LEDs	Power; WLAN: link/activity; SES; LAN/WAN: link/activity/speed
Power Supply	External 3.3V
Size	138 mm x 160 mm

Ordering Information: BCM95354GR router SOC reference design

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