

IEEE 802.11b/g and SINGLE-STREAM IEEE 802.11n 2.4 GHz ROUTER WITH ACCELERANGE™ TECHNOLOGY

FEATURES

- Lowest cost, single-chip IEEE 802.11b/g and single stream 802.11n system-on-a-chip (SoC) wireless router
- Integrated 802.11, MAC, baseband, and 2.4 GHz radio
- Includes Accelerange™ Technology—a unique set of hardware and software enhancements that ensure more robust wireless coverage in the far corners of a home
- Integrated five-port 10/100BASE-TX/FX IEEE 802.3u-compliant auto-MDIX transceivers and LAN/WAN switch controller
- High performance superscalar 333 MHz MIPS32[®] 74K™ core
 - 32 KB I-cache, 32 KB D-cache
 - 64-entry translation lookaside buffer (TLB)
- High performance memory subsystem with support for the following interfaces:
 - 16-bit SDR/DDR interface supporting memory sizes from 8 MB to 128 MB
 - Serial Flash interface supporting sizes from 1 MB to 32 MB
- State-of-the-art security (IEEE 802.1X/WPA™/WPA2™)
- Integrated 2.4 GHz power amplifier (PA) that delivers high performance with high efficiency and reliability

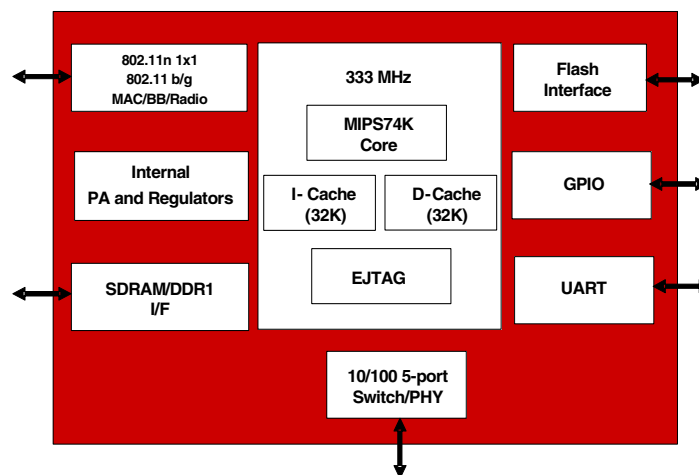
SUMMARY OF BENEFITS

- Single-chip IEEE 802.11b/g and single-stream 802.11n delivering data rates of 150 Mbps and TCP throughput of 100 Mbps.
- High level of integration on chip enables reduction of more than 33% in RBOM compared to 11G solutions.
- Low component count and low PCB trace length enables ultra-compact and 2-layer PCB design, delivering significant reduction in PCB and housing costs.
- Time-to-market is significantly reduced through stable Linux[®], VxWorks[®], and eCos kernels, board support packages (BSPs), drivers, and toolchains.
- Unique Green Wi-Fi mode coupled with 65 nm CMOS design results in significant reduction in power consumption under typical usage scenarios.

APPLICATIONS

- The BCM5356 delivers the lowest cost and highest performance wireless LAN router SoC integration for residential and small office/home office (SOHO) markets.

Functional Block Diagram



OVERVIEW

The Broadcom BCM5356 processor is the lowest cost and most integrated router in the Intensi-fi[®] XLR processor family. It is an IEEE 802.11b/g and single-stream 802.11n CPU/MAC/baseband/radio router solution with an integrated five-port 10/100 Ethernet switch and PHY. Integrated on chip is a powerful 333 MHz MIPS32 74K core with four-way set associative 32 KB instruction cache, a 32 KB two-way set associative data cache, and a 64-entry translation lookaside buffer. Enhanced CPU memory subsystem architecture provides increased system performance.

The BCM5356 supports a WAN connection via its configurable media interfaces. The per-port programmable four-level priority queues enable QoS (IEEE 802.1p) for guaranteed bandwidth applications, DiffServ/TOS, and L2/L3 IGMP snooping. The IEEE 802.1Q VLAN allows flexible implementation of VLAN grouping and WAN port segregation.

With its fully integrated single-band radio transceiver, the BCM5356 chip architecture supports TCP throughput of over 100 Mbps. Switched antenna diversity operation is also supported for two antennas.

State-of-the-art security is provided by industry-standardized system support for WPA, WPA2 (IEEE 802.11i), and hardware accelerated AES encryption/decryption coupled with TKIP and IEEE 802.1X support.

The BCM5356 supports WPS for ease-of-use wireless secured networks.

The BCM5356 has a common reference platform, BCM95356SSNR, which delivers the industry's lowest bill of materials (BOM). The highly integrated chips help to further reduce BOM costs by incorporating a 2.4 GHz power amplifier.

Table 1: Device Options and Features

Feature	BCM5356
Package ball count	348 ball
CPU	333 MHz
SDRAM	16-bit SDR or DDR
Flash	Serial Flash
Ethernet	Integrated 5-port 10/100 switch + PHY
GPIO	18
Band	2.4 GHz
Number of supported antennas	Two with switched antenna diversity
External LNA support	Yes, multiplexed onto 8 GPIOs
Reference design	BCM95356SSNR
Power amplifier	Integrated 2.4 GHz PA Support for optional external PA

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5356-PB00-R

1/14/09

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