

INTENSI-FI® XLR 2 × 2 IEEE 802.11N 2.4 GHZ + 5 GHZ SOC

FEATURES

- High-performance, low-cost IEEE 802.11n-compliant System-on-a-Chip (SoC) CPU/MAC/baseband/radio for enterprise wireless Access Point (AP) solutions
- Optimized Intensi-fi® XLR platform with Accelerange™ Technology—a unique set of hardware and software enhancements that ensure more robust wireless coverage
- Integrated 533 MHz MIPS32® 74K® core
 - 32 KB I-cache, 32 KB D-cache
 - 64-entry translation lookaside buffer (TLB)
- Enhanced 10/100/1000 Ethernet MAC controller
- Integrated dual-band radio transceiver
- On-chip SRAM for latency-sensitive applications
- State-of-the-art security (IEEE 802.1X/WPA™/WPA2™)
- USB 2.0 EHCI host ports
- Up to 2 Gb DDR SDRAM and up to 32 MB Flash memory

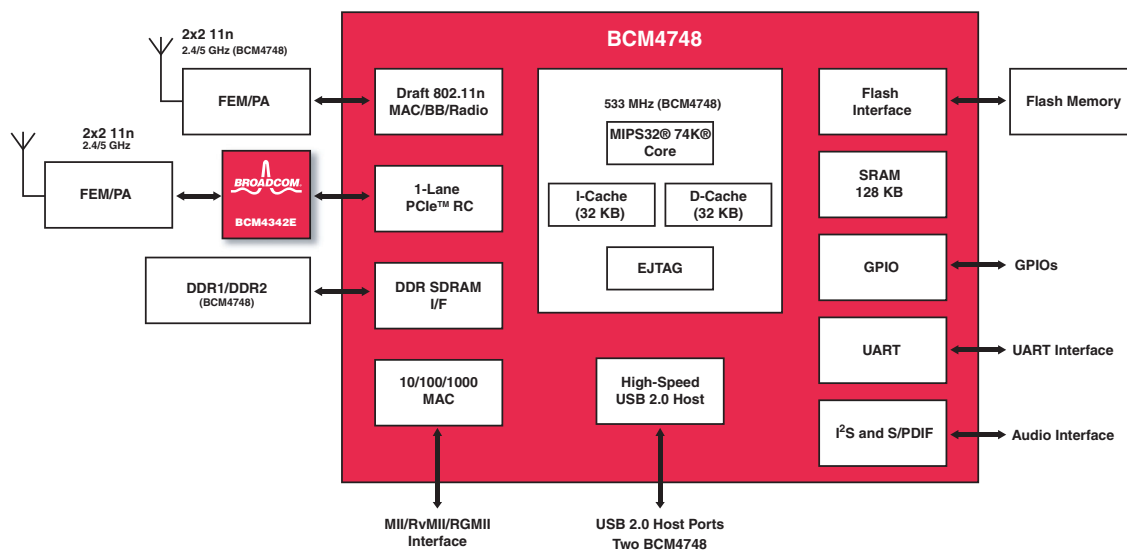
SUMMARY OF BENEFITS

- Single-chip IEEE 802.11n with reduced power consumption enables compact form factors with low cost and high-performance.
- Optimized reduced bill of materials (RBOM) and PCB enable smallest cost delta over IEEE 802.11g designs.
- Reduced host CPU utilization
- Enhanced system performance
- Two-stream spatial multiplexing with data rates up to 300 Mbps
- Multiple memory (DDR/Flash) configurations supported to enable low-end to high-end performance options

APPLICATIONS

- Single- and dual-band IEEE 802.11n enterprise wireless APs
- Simultaneous dual-band AP with additional MAC/PHY/radio (e.g., BCM4342)

Functional Block Diagram



OVERVIEW

The Broadcom BCM4748 processor is the highest performance SoC in the Intensi-fi XLR processor family. This device is an IEEE 802.11n-compliant CPU/MAC/baseband/radio AP solution designed for enterprise applications. Integrated on-chip is a powerful 533 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.

Using multiple in/multiple out (MIMO) signaling with IEEE 802.11n protocol, information is sent and received over two or more antennas simultaneously using the same frequency band, thus providing greater range and increasing throughput while maintaining compatibility with legacy IEEE 802.11a/b/g devices. This improved functionality is accomplished through a combination of enhanced MAC and PHY implementations, including spatial multiplexing modes in the transmitter and receiver as well as advanced digital signal processing techniques to improve receive sensitivity.

With its fully integrated dual-band radio transceiver, the chip architecture supports two streams with two antennas for TCP throughput of over 200 Mbps per radio. Switched antenna diversity operation is also supported for three antenna configurations.

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.

Embedded hardware acceleration enables increased system performance and significantly reduces host CPU utilization in both client and AP configurations. The BCM4748 supports Broadcom FASTPATH® Unified Access Point (UAP) software to enable complete enterprise AP solutions for standalone or switch-managed products.

The BCM4748 integrates two USB 2.0 EHCI host ports. The device also includes an 8/16-bit parallel external bus interface (EBI) for Flash memory as well as other generic parallel devices. The 16 dedicated GPIOs are another feature of the device .

Device Features

Feature	BCM4748
Package ball count	570 pins
CPU	480 MHz
SDRAM	32-bit DDR2 up to DDR2-533
Flash	Serial or 8-bit parallel Flash
Ethernet (External PHY + MII/RGMII)	Yes
PCIe™	Yes
USB 2.0 port	Two hosts
I ² S	Multiplexed onto six parallel Flash pins
GPIO	16
Band	2.4 GHz/5 GHz
Support for up to three antennas	Yes
External LNA support	Yes, multiplexed onto eight GPIOs
Reference design	BCM95474EAP

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4748-PB00-R

05/06/09

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