BCM4322/BCM4323 PRODUCT Brief

BROADCOM®

Connecting everything®

802.11n DRAFT 2.0 SINGLE-CHIP

FEATURES

- Single-chip all-in-one die Baseband/MAC/Radio for 2x2 802.11n applications

- Advanced 65 nm CMOS process for lowest power consumption and highest integration

- 802.11n Draft 2.0 compliant Wi-Fi™ solution. Fully compatible with IEEE 802.11n Draft 1.0 and 802.11a/b/g legacy devices.

- Two transmitters and two receivers with optional 802.11n. Draft 2.0 modes allow data rates supporting 300 Mbps.

- Flexible two and three antenna configurations for improved range and performance

- Support for optional 802.11n features for improved rate, range performance
  - Greenfield preamble
  - Space Time Block Code (STBC)
  - Short Guard Interval

- Multiple Host Interfaces supported: PCIe™, PCI, mPCI, USB 2.0 (BCM94323 only)

- Integrated ARM® Cortex M3 CPU for USB host offload

- Low RBOM count and optimal packaging for cost effective PCB designs

- High-performance 802.11a/b/g/n features standard across the Intensi-fi™ and AirForce® product lines
  - OneDriver™
    - Single driver across platforms simplifies driver update process and improves customer satisfaction
  - BroadRange™
  - Afterburner™ high-speed modes
  - High-performance whole home coverage
  - SecureEasySetup® and Wi-Fi protected set-up for simple wi-fi setup and security configuration
  - WPA™/WPA2™
  - Cisco® Compatible Extensions (CCXv4, CCXv5)
  - Full-rate AES engine in hardware
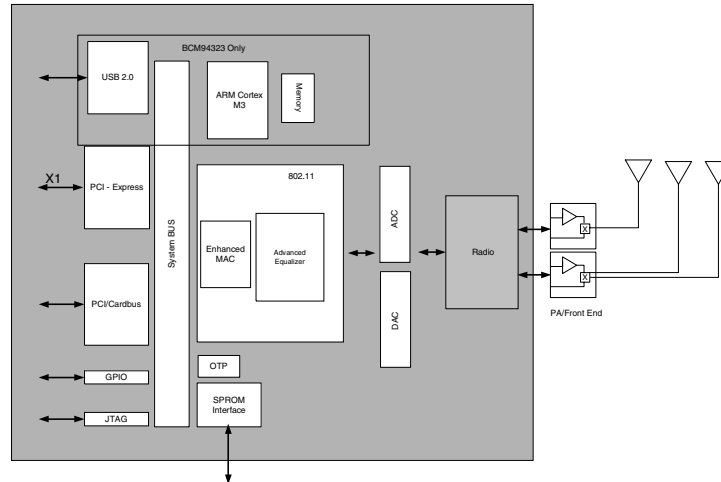 - WMM® for quality of service

SYSTEM/CHIP BENEFITS

- Single-chip 65nm solution and high system integration drives down the cost of 802.11n solutions to enable a new generation of media/consumer applications

- CMOS integration and low power modes results in a 50% power reduction compared to previous generation solutions

- Ultra-low RBOM count is 40% lower than previous generation Broadcom 802.11n solutions for small form factor modules

- Upgradable architecture reduces manufacturing test time and to address the 802.11n standardization process

- Increased rate/range provides user satisfaction and reduces product support call volume

- Self-calibrating architecture allows high yield board manufacturing

- 2x2 antenna structure maintains form-factor compatibility with high volume 802.11a/g industrial designs

- Low-cost CMOS implementation for MAC, Baseband and Radio allows integration with Broadcom's Cable/DSL/Set-top/VoIP chipsets

- Designs meet Pb-free/RoHS worldwide requirements

BCM4322 PCI Express® Half Mini Card Implementation

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BCM94322 System Block Diagram

BCM94322 Specifications

Host Interfaces	PCI/Cardbus/PCIe USB (BCM4323)
Standard	IEEE 802.11n, 802.11b/g, 802.11a
Data Rate, Mbps	54, 48, 36, 24, 18, 12, 9, 6, 11, 5.5, 2, 1 20 MHz BW: 150, 130, 117, 104, 78 * 40 MHz BW: 300, 270, 243, 216, 162, 108 * *Many other data rates are supported by the hardware. Above specifies only the higher rates for each bandwidth.
Modulation	PSK/CCK, DQPSK, DBPSK, OFDM
Network Architecture	Infrastructure and ad hoc
Operating Frequencies	2.4 GHz—2.497 GHz, 4.9 GHz—5.85 GHz
Operating Channels	11 for North America, 13 for Europe, 14 for Japan
RF Output Power	2.4GHz: 18dBm, 5GHz: 15dBm, Higher power options available
Antenna Connectors	Two or more antennas allowing transmission or reception on both simultaneously
Power Requirements and Consumption	3.3V, Average standby <75mW (@3.3V)
Security	802.1x, WEP/WEP, WPA/WPA2, TKIP, Weak-key avoidance, CCX, CCX 2.0, CCX 3.0, 128-bit OCB mode AES, 802.11i
Software Support	Windows® XP, Windows 2000, Windows Vista, Linux®, VxWorks
Certifications	IEEE 802.11 compliant, Wi-Fi 802.11n Draft 2.0 and 802.11a/b/g certified, PCIe 1.1
Product ordering information	BCM94703NR—10/100 AP/Router Reference Design BCM94322MP—Mini PCI Reference Design BCM94322MC—PCIe Minicard Reference Design BCM94322HMC—PCIe Half-minicard Reference Design BCM94322USB—USB 2.0 Reference Design

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