



## DRAFT-802.11n PRODUCT FAMILY

### FEATURES

- First IEEE 802.11n draft-compliant Wi-Fi® solution
- BCM4321—MAC/baseband controller for draft-802.11n and 802.11a/b/g devices (PCI/PCI Express®/CardBus)
- BCM2055—2x2 dual-band single-chip radio—3x3 and 4x4 antenna options for increased range and performance
- All CMOS implementation of the world's most advanced system architecture for draft-802.11n networks
- Fully backward-compatible with IEEE 802.11a/b/g legacy devices
- Allows cost-effective system design using low-cost PCB and single-sided assembly
- High-performance features across the Intensi-fi® product line
  - High-performance whole house wireless coverage
  - OneDriver™
  - SecureEasySetup®
  - SmartRadio®
  - WPA™/WPA2™
  - Cisco® Compatible Extensions (CCX4)
  - Full-rate Advanced Encryption Standard (AES) engine in hardware
  - WMM® for quality of service

### SYSTEM/CHIP BENEFITS

- Reference Designs
  - BCM94321CB2—CardBus reference design
  - BCM94321MP—Mini PCI reference design
  - BCM94321MC—PCI Express Mini Card reference design
  - BCM94704NR/BCM94703NR—AP/Router reference design
  - BCM94705NR—GbE AP/Router reference design
- Two spatially multiplexed streams support data rates up to 270 Mbps.
- Increased rate/range performance enhances user satisfaction while reducing product support calls.
- Self-calibrating architecture allows high-yield board manufacturing.
- 2x2 antenna structure maintains form factor compatibility with high-volume IEEE 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.
- OneDriver: Single driver across platforms simplifies driver update process and improves customer satisfaction.
- Designs meet Pb-free/RoHS worldwide requirements.
- SecureEasySetup for simple Wi-Fi setup and security configuration.

### APPLICATIONS

- Wireless client cards for desktop and notebook PCs (PCI, PCI Express, Mini Card, Mini PCI, and CardBus form factors)
- High-performance draft-802.11n router solutions with the BCM4704 SoC, BCM4703, and BCM4705 SoCs
- Home multimedia entertainment wireless networks
- Consumer Wi-Fi devices and other embedded applications requiring high-performance throughput and range

### Intensi-fi Reference Designs



AP/Router Reference Design



PCI Express  
Mini Card  
Reference Design



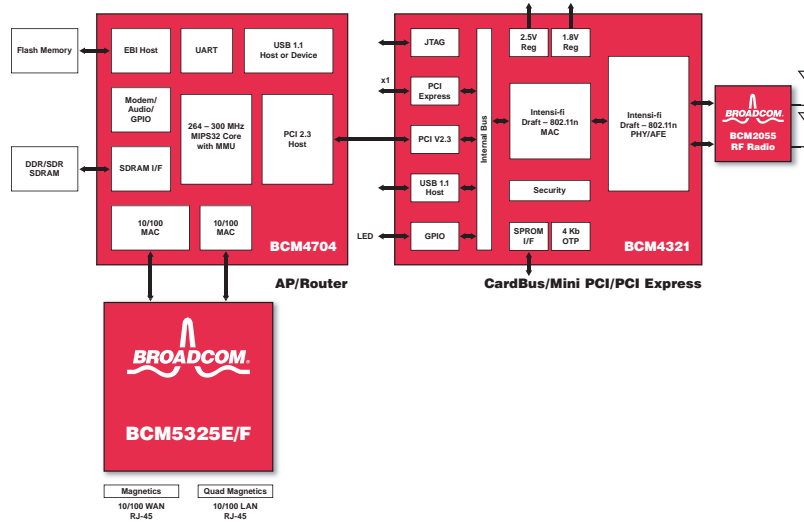
Mini PCI  
Reference Design



CardBus  
Reference Design

# OVERVIEW

## BCM4321 and BCM2055 AP/Router Block Diagram



### Intensi-fi Specifications

Interface/System bus support	PCI/CardBus/PCI Express
Standard	IEEE 802.11g, 802.11b, 802.11a, Intensi-fi draft-802.11n
Data rate (Mbps)	54, 48, 36, 24, 18, 12, 9, 6, 11, 5.5, 2, 1 20 MHz BW: 130, 117, 104, 78, 52, 39, 26, 13 40 MHz BW: 270, 243, 216, 162, 108, 81, 54, 27
Modulation	PSK/CCK, DQPSK, DBPSK, OFDM
Network architectures	Infrastructure and ad hoc
Operating frequencies	2.4 GHz—2.5 GHz, 4.9 GHz—5.85 GHz
Operating channels	2.4 GHz: 11 for North America, 13 for Europe, and 14 for Japan 5 GHz: 12 for North America, 19 for Europe, and 4 for Japan
RF output power	2x2: 2.4 GHz 16 dBm $\pm$ 1.5 dB, 5 GHz 14.5 dBm $\pm$ 1.5 dB
Antenna connectors	Two or more antennas for simultaneous transmission and reception
Power requirements	1.8V (3.3V for reference designs)
Power consumption	Average standby <130 mW
Security	IEEE 802.1x, WEP/WEP2, WPA/WPA2, TKIP, Weak-key avoidance, CCX, CCX 2.0, CCX 3.0, CCX4.0, 128-bit OCB mode AES, IEEE 802.11i
Software support	Microsoft® Vista®, Windows® XP, Windows® 2000, Linux®, VxWorks®
Certifications	Worldwide regulatory, Wi-Fi 802.11a/b/g, WHQL, CCX

### ORDERING INFORMATION

BCM94321CB2	2.4-GHz Intensi-fi Draft-802.11n CardBus reference design
BCM94321MP	2.4/5-GHz Intensi-fi Draft-802.11n Mini PCI reference design
BCM94321MC	2.4/5-GHz Intensi-fi Draft-802.11n PCI Express Mini Card reference design
BCM94703NR	Low-cost 2.4/5-GHz Intensi-fi Draft-802.11n AP/Router reference design
BCM94704NR	2.4/5-GHz Intensi-fi Draft-802.11n AP/Router reference design
BCM94705NR	2.4/5-GHz Intensi-fi draft-802.11n GbE AP/Router reference design

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Intensi-fi-PB03-R 06/27/08

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