Wireless Solutions

Libertas™
Wireless LAN 802.11b Access Point Chipset
88W8000 and 88W8500

Libertas™

PRODUCT OVERVIEW

The Marvell® Libertas™ 88W8000 and 88W8500 Wireless LAN (WLAN) chipset comprises the world's most integrated 802.11b Access Point solution. The 88W8000 product performs all of the functions of an RF transceiver by integrating a 20 dBm power amplifier, low noise amplifier, voltage-controlled oscillator, frequency synthesizer, as well as other necessary RF and analog functions onto one CMOS chip. The 88W8500 device is a single chip that combines the functions of the Direct Sequence Spread Spectrum (DSSS) baseband processor, Medium Access Control (MAC) processor, on-chip CPU, on-chip memory, advanced encryption, external SDRAM/FLASH memory controller, and one Fast Ethernet port (MAC and PHY). The high level of integration reduces the overall Bill of Materials (BOM) cost for an access point by eliminating the need for an external CPU and Fast Ethernet port for wired infrastructure connectivity. Together, the Libertas 88W8000 and 88W8500 chipset supports IEEE 802.11b data rates of 1, 2, 5.5 and 11 Mbps, as well as a proprietary data rate of 22 Mbps. The 88W8000 and 88W8500 chipset provides an optimal solution for access points as well as wireless home gateway applications.

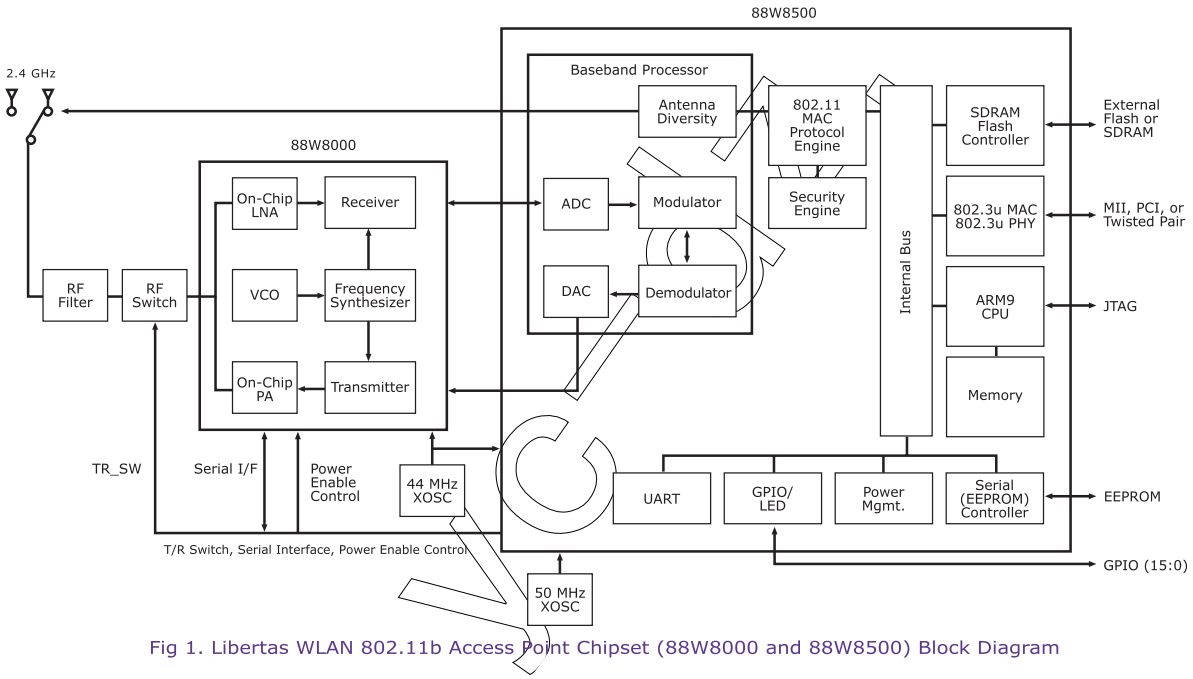

Fig 1. Libertas WLAN 802.11b Access Point Chipset (88W8000 and 88W8500) Block Diagram

88W8000 FEATURES	BENEFITS
• 2.4 GHz ISM Band Radio	• One single chip supports all RF to analog baseband functions of the popular 802.11b standard
• Integration of all RF to analog baseband transmit and receive functionalities	• Reduces BOM cost, simplifies board layout and provides smaller form factor
• On-chip power amplifier with 20 dBm output power at the antenna connector	• Reduces cost and increases range
• On-chip power amplifier is programmable from 0 dBm to 20 dBm	• Allows transmit power control to be implemented for power savings and extended battery life for host system
• Integrated power loop control	• Stabilizes power amplifier output at user designated values across temperature, voltage supply and semiconductor variations
• 2x higher receiver sensitivity	• Improves detection of weak signals and increases range
• Programmable frequency synthesizers with integrated VCOs and I/Q generation	• Provide for longer range in terms of adaptive gain adjustments for best signal reception

MARVELL®

Libertas™ Wireless LAN 802.11b Access Point Chipset

MOVING FORWARD FASTER®

88W8500 FEATURES	BENEFITS
• Up to 4x better multi-path delay spread tolerance	• Longer range and better link robustness (reduces drop-outs)
• Packet-based antenna diversity	• Longer range and better transmit and receive performance
• Marvell custom DSP design	• Lower system power and provides better immunity to 2.4 GHz jammers and interferers
• On-chip MAC supports 802.11b standard data rates (1, 2, 5.5, and 11 Mbps) and the Marvell proprietary 22 Mbps high data rate mode	• Fully compliant to 802.11b standard and also provides a "boost" for high data rate applications
• On-chip, embedded ARM CPU core	• Eliminates need for external CPU, lowers BOM cost and guards against any potential IEEE standards modifications
• User selectable MII or PCI external interface	• For external connection to multi-port switches and external system bus
• Integrated 10/100 Mbps Fast Ethernet MAC and PHY with Virtual Cable Tester™ (VCT) technology	• Reduces BOM cost and provides a method to diagnose cabling and connection faults
• Supports up to 256 MB external SDRAM and FLASH memory	• Provides increased support of additional wireless clients
• Hardware security implementation for WEP and IEEE 802.11i AES encryption and decryption	• Allows the most secure wireless connections
• Supports 802.1x secure port protocol for advance security authentication	• Adds further authentication mechanism for improved security in corporate environments

APPLICATIONS

The Marvell Libertas 88W8000 and 88W8500 chipset supports 802.11b access point and wireless gateway applications. Access point applications are greatly simplified with the on-chip CPU and integrated 10/100 Fast Ethernet PHY and MAC. In addition, the MII interface from the 88W8500 device can be used to support an external Marvell 5-port switch for a wireless and wired gateway application.

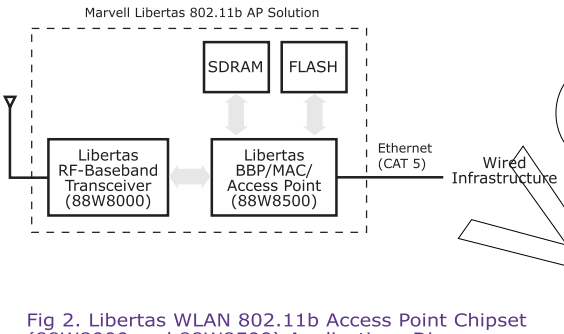

Fig 2. Libertas WLAN 802.11b Access Point Chipset (88W8000 and 88W8500) Applications Diagram

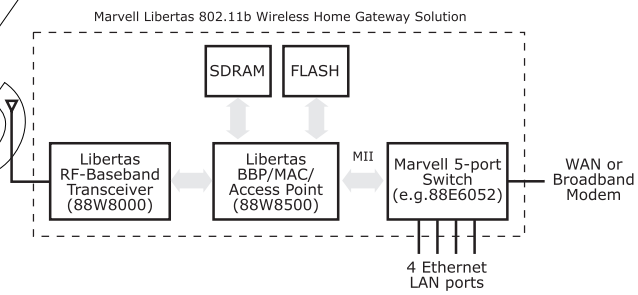

Fig 3. Libertas WLAN 802.11b Access Point Chipset (88W8000 and 88W8500) Home Gateway Applications Diagram

THE MARVELL ADVANTAGE: The Libertas 802.11b WLAN access point chipset also comes with complete reference designs which include such items as board layout designs, firmware, software, documentation, and other items to assist customers with product evaluation and production. Marvell's worldwide field applications engineers collaborate closely with end customers to develop and deliver new competitive products to market on time. Marvell utilizes recognized world-leading semiconductor foundry and packaging services to reliably deliver high-volume and low cost total solutions.

For more information, visit our website at www.marvell.com.

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