



# Marvell Avastar 88W8864 Dual-Band 802.11ac 4x4 SoC

Supports Gigabit Speed, Reliability and Quality for Next-Generation, Very High Throughput WLAN Products

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## OVERVIEW

The Marvell® Avastar™ 88W8864 is at the forefront of Wi-Fi transmission technology to speed wireless access and extend range to give users a stronger, faster Wi-Fi access experience. Targeted for Enterprise Access Points and Hotspots, Service Provider Gateways, Video Bridges and Set Top Boxes, the Marvell Avastar 88W8864 is a dual-band (2.4/5 GHz) IEEE 802.11ac (draft) 4x4 System-on-Chip (SoC), specifically designed to support the gigabit speed, reliability and quality requirements of next-generation, Very High Throughput (VHT) WLAN products. Beamforming technology is fully supported, enabling a simplified, integrated solution. For security, the Marvell Avastar 88W8864 supports high-performance 802.11i security standards through implementation of the Advanced Encryption Standard (AES)/Counter Mode CBC-MAC Protocol (CCMP), Wired Equivalent Privacy (WEP) with Temporal Key Integrity Protocol (TKIP), Advanced Encryption Standard (AES)/Cipher-Based Message Authentication Code (CMAC) and WLAN Authentication and Privacy Infrastructure (WAPI) security mechanisms.

802.11e Quality of Service (QoS) is supported for video, voice and multimedia applications. Also supported is 802.11h Dynamic Frequency Selection (DFS) for detecting radar pulses when operating in the 5 GHz band. The Marvell Avastar 88W8864 supports a PCI Express v2.0 interface (backward compatible with v1.1) and is available in a 124-pin (11.8x11) aQFN package option.

## APPLICATIONS

4x4 WLAN configuration has been established as the baseline architecture for Enterprise Access Points, Service Provider Gateways, Video Bridges and Set Top Boxes. Marvell is a leader in Wi-Fi development. The Marvell Avastar 88W8864 delivers a 4x4 IEEE 802.11ac SoC for high-end enterprise access points and best-in-class wireless connectivity for a broad range of Marvell platforms. The Marvell Avastar 88W8864 integrates with Marvell ARMADA™ application processors and HD media processors SoC families, as well as other connectivity IPs such as Ethernet, GPON and G.Hn, to enhance range and throughput for Enterprise APs, Hotspots, Service Provider Gateways and Video Set Top Boxes. The Marvell Avastar 88W8864 offers higher peak throughput, better rate versus range, reliability and robustness, via the 4x4 beamforming, than 3x3 802.11ac products.

## BEAMFORMING TECHNOLOGY

Beamforming is a specialized method of radio-frequency transmission used in Wi-Fi access points. Beamforming enhances the signal reception at the client, extending the Wi-Fi signal coverage by two to four times. A feature of all Marvell Avastar SoCs, Marvell's beamforming technology doesn't require a special antenna nor will it incur any other cost increase of the wireless subsystem. The result is an increased throughput performance of up to 20x over existing technology, depending on the environment. Marvell's beamforming also outperforms other digital signal processing techniques for range extension by at least six times.

The Marvell Implicit Transmit (Tx) beamforming technology improves performance and increases battery life of any device connecting to the Avastar 88W8864. Video market service providers will find the Avastar 88W8864 provides specific enhancements for low latency and PER plus highly reliable artifact free video distribution between video gateways/bridges and Set Top Boxes/DVRs.

## KEY FEATURES

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4x4 MIMO 3-spatial Stream Dual-band 802.11ac offering 1.3Gbps WLAN PHY rate
Backward compatible with 802.11a/b/g/n
Channel Bandwidth up to 80MHz
256 QAM Modulation Scheme
Market proven Implicit and Explicit Transmit Beamforming technology
Low Density Parity Check (LDPC)
Integrated ARM® Cortex A9 CPU and internal SRAM enables peak data rates approaching theoretical limits while offloaded the host CPU from WLAN processing
Marvell's Integrated Spectrum Management technology simplifies Enterprise and Carrier deployments and maintenance by identifying and reporting radio interference that may impact network performance

**THE MARVELL ADVANTAGE:** Marvell chipsets come with complete reference designs which include board layout designs, software, manufacturing diagnostic tools, documentation, and other items to assist customers with product evaluation and production. Marvell's worldwide field application engineers collaborate closely with end customers to develop and deliver new leading-edge products for quick time-to-market. Marvell utilizes world-leading semiconductor foundry and packaging services to reliably deliver high-volume and low-cost total solutions.

**ABOUT MARVELL:** Marvell is a leader in storage, communications, and consumer silicon solutions. Marvell's diverse product portfolio includes switching, transceiver, communications controller, processor, wireless, power management, and storage solutions that power the entire communications infrastructure, including enterprise, metro, home, storage, and digital entertainment solutions. For more information, visit our Web site at [www.marvell.com](http://www.marvell.com).



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