



Supports Gigabit speed, reliability and quality for next-generation WLAN products

## NXP® 88W8864 Dual-Band 802.11ac 4 x 4 SoC

The NXP Avastar 88W8864 system-on-chip (SoC) is positioned at the forefront of Wi-Fi® transmission technology to speed wireless access and extend range for a stronger, faster Wi-Fi access experience.

### OVERVIEW

Targeted for enterprise access points and hotspots, service provider gateways, video bridges and set top boxes, the Avastar 88W8864 dual band (2.4/5 GHz) IEEE® 802.11ac (draft) 4 x 4 SoC is 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 Avastar 88W8864 SoC 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), 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 Avastar 88W8864 SoC supports a PCI Express® v2.0 interface (backward compatible with v1.1) and is available in a 124-pin (11.8 x 11) aQFN package option.

### APPLICATIONS

The 4 x 4 WLAN configuration has been established as the baseline architecture for enterprise access points, service provider gateways, video bridges and set top boxes. The Avastar 88W8864 SoC 4 x 4 IEEE 802.11ac SoC is designed for high-end enterprise access points and best-in-class wireless connectivity in a broad range of platforms.



The NXP Avastar 88W8864 SoC integrates with applications processors and HD media processor 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 88W8864 SoC offers higher peak throughput, better rate versus range, reliability and robustness via the 4 x 4 beamforming than 3 x 3 802.11ac products.

## KEY FEATURES

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4 x 4 MIMO 3-spatial stream dual-band 802.11ac offering 1.3 Gbit/s WLAN PHY rate
Backward compatible with 802.11a/b/g/n
Channel bandwidth up to 80 MHz
256 QAM modulation scheme
Market-proven implicit and explicit beamforming technology
Low-density parity check (LDPC)
Integrated Arm Cortex-A9 CPU and internal SRAM enable peak data rates approaching theoretical limits while offloading the host CPU from WLAN processing
Integrated spectrum management technology simplifies enterprise and carrier deployments and maintenance by identifying and reporting radio interference that may impact network performance.

## 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 NXP Avastar SoCs, this 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.

Implicit transmit beamforming technology improves performance and increases battery life of any device connecting to the Avastar 88W8864 SoC. Video market service providers will find that the Avastar 88W8864 SoC provides specific enhancements for low latency and PER plus highly reliable, artifact-free video distribution between video gateways/bridges and set top boxes/DVRs.