Multi-Gigabit speed, reliability and quality for next-generation, very high throughput WLAN products

NXP® 88W8964 4 x 4 Wi-Fi® 802.11ac Wave2 Dual-band SoC

The Avastar 88W8964 SoC features 160 MHz bandwidth and multi-user multi-input multi-output (MIMO) while achieving 2.6 Gbit/s peak data rate for high-speed, secure and reliable access points and smart gateways.

OVERVIEW

For security, the Avastar 88W8964 SoC supports high-performance 802.11i security standards through implementation of the Advanced Encryption Standard (AES)/Counter Mode CBC-MAC Protocol (CCMP) and 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.

The 88W8964 delivers 802.11e Quality of Service (QoS) to reduce latency for video, voice and multimedia applications. In addition, it provides 802.11h dynamic frequency selection (DFS) for detecting radar pulses when operating in the 5 GHz band. The Avastar 88W8964 SoC has a PCI Express® v2.0 host interface that is backwards compatible with v1.1.

APPLICATIONS

Equipped with a peak PHY rate of 2.6 Gbit/s, the 88W8964 SoC is targeted at enterprise access points and hotspots, retail access points, service provider gateways and set top boxes and enables retail access points with the highest data rates. The high data rates and 4 x 4 configuration, in combination with the industry's most mature and proven explicit and implicit beamforming implementation, enable service provider gateways and set top boxes capable of multi-stream 4K video content distribution over wireless in residential environments.

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, significantly extending the Wi-Fi signal coverage. A feature of all Avastar SoCs, 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 over a range compared to existing technology, depending on the environment. In addition to improving rate over range, the NXP transmit (Tx) beamforming technology increases the battery-life of any device connecting to the Avastar 88W8964 SoC.
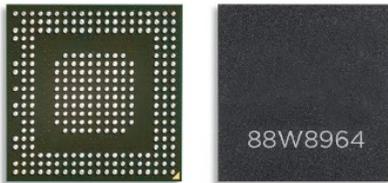
MULTI-USER MIMO TECHNOLOGY

Fig 1. Photo of 88W8964

KEY FEATURES

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4 x 4 MIMO dual-band 802.11ac Wave-2 soltion enabling 2.6 Gbit/s WLAN PHY rate
Multi-User MIMO support to three 1 x 1 or a mix of 2 x 2 and 1 x 1 client devices
Backward compatible with 802.11a/b/g/n
Channel bandwidth up to 160, 80, 40 and 20 MHz
256 QAM modulation scheme
Market-proven implicit and explicit transmit beamforming technology
Low-density parity check (LDPC)
Integrated Arm dual-core Cortex-A9 CPU and internal SRAM enables significantly enable 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
802.11mc support for precision indoor locations

Multi-User MIMO allows simultaneous sessions from one access point to several client devices at the same time. The 88W8964 SoC supports three 1 x 1 or a mix of 2 x 2 and 1 x 1 connections at the same time.

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