

## Marvell Avastar 88W8897 WLAN/BT/NFC SoC

2x2 MIMO Wi-Fi Combination Radio Chip Supports 802.11ac, NFC, Bluetooth and Wireless Display



### ▶ PRODUCT OVERVIEW

The Marvell® Avastar™ 88W8897 is the first 802.11ac mobile MIMO combo wireless solution. It is a dual-band (2.4/5 GHz) IEEE 802.11a/b/g/n/ac 2x2 System-on-Chip (SoC), specifically designed to support the reliability and quality requirements of next-generation, Very High Throughput (VHT) WLAN products. The Avastar 88W8897 is a low-power radio chip built to vastly improve the mobile computing and high-definition multimedia experience for consumers. The Avastar 88W8897 2X2 combination radio chip delivers the seamless wireless connectivity that gives consumers that Always On, Always Connected (AOAC) wireless experience wherever they go. This is achieved by pairing today's most cutting edge wireless technologies – near field communications (NFC) and Bluetooth 4.2 – with mobile multiple input multiple output (MIMO), transmit beamforming and support for the upcoming WI-FI CERTIFIED Miracast™ specification for point to point HD video streaming.

This latest addition to the Avastar family of solutions includes advanced power management features and is designed specifically for ultrabooks, tablets, gaming consoles and smart TVs. Additionally, the 88W8897 system-on-a-chip (SoC) offers the highest level of integration available, which enables a footprint reduction of 40-to-50 percent and a rest of bill of materials (RBOM) cost reduction of 75 percent compared to previous wireless solutions.

The Avastar 88W8897 single-chip WLAN/Bluetooth/NFC solution provides both simultaneous and independent operation of the following:

- IEEE 802.11ac (draft) compliant, 2x2 MIMO spatial stream multiplexing with data rates up to MCS9 (866.7 Mbps)
- Bluetooth 4.2 + EDR/BDR/High-speed/Low Energy Dual Mode Controller
- Near Field Communication (NFC) connectivity technology, per NFC Forum specification, for short-range, contactless communication

In addition, internal coexistence arbitration and a Mobile Wireless Systems (MWS) serial transport interface provide the functionality for connecting an external Long Term Evolution (LTE) device. For security, the 802.11i security standard is supported through several protocols. For video, voice, and multimedia applications, 802.11e Quality of Service (QoS) is supported. Dynamic Rapid Channel Switching (DRCS) is also available enabling concurrent STA, AP and Wi-Fi Direct GO operating modes in separate channels.. The device supports 802.11h Dynamic Frequency Selection (DFS) for detecting radar pulses when operating in the 5 GHz range. Generic interfaces include High-Speed Inter-Chip (HSIC), USB 2.0, SDIO 3.0, low-power PCI Express, high-speed UART and PCM interfaces for connecting WLAN and Bluetooth and NFC to the host processor. The device is available in QFN and CSP flip chip package options.

### ▶ APPLICATIONS

Instead of forcing portable platform manufacturers to multiple wireless SoCs with mobile processors, Marvell implements various wireless technologies onto a single chip saving BOM and improving time to market, and providing manufacturers added flexibility for a complete and seamless wireless experience. Therefore, a number of electronic devices will significantly benefit from Marvell's Avastar 88W8897 chip, especially ultrabooks, tablets, gaming consoles and smart TVs. For example, the chip is capable of performing at data rates up to 867 Mbps, which allows consumers to transmit multiple HD videos in tandem. Wireless chips with NFC capabilities transform mobile device into electronic wallets, enabling ecommers from consumer electronic produces. NFC is also a complementary technology to Wi-Fi and Bluetooth as it can be uses to pair wireless devices by simply touching them together. Mobile MIMO extends the range of Wi-Fi connectivity and 11ac increases the performance of wireless devices by nearly 3x as compared to 11n, therefore enabling reliable video streaming, live gaming and improving overall connectivity in the home and on the go. By leveraging WI-FI CERTIFIED Miracast™ and DRCS, consumers can stream video on their ultrabook while simultaneously surfing the Internet without losing the connection. In addition, when paired with ultrabooks, the 88W8897 enables constant connectivity, keeping e-mail, social media and digital content up-to-date even when a device is in standby mode – a capability lacking in today's personal computing products. By coupling Marvell's full Wi-Fi offload solution with Windows® 8 features such as Wake On Wireless functionality and connected standby, the 88W8897 meets the demands of today's consumer and delivers the AOAC computing experience.

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### ▶ APPLICATIONS (continued)

Sample applications include:

- WLAN, Bluetooth, and NFC enabled super phones and tablets
- Personal computing systems including notebooks and ultrabooks
- Wireless home audio and video entertainment systems including DTV, set-top boxes, blue-ray DVD players, media servers, and gaming platforms

**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.

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Marvell Semiconductor, Inc.  
5488 Marvell Lane  
Santa Clara, CA 95054  
Phone 408.222.2500  
[www.marvell.com](http://www.marvell.com)

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