

# Enabling HD Video and Streaming Entertainment Wirelessly Anywhere in the Home



## Founded

Quantenna was founded in 2006 by leading experts in the semiconductor, wireless and networking industries. The team's shared vision is to create wireless semiconductor solutions that solve the whole home wireless networking challenge and how to reliably move HD video from the PC to the TV screen and other devices throughout the home using ubiquitous Wi-Fi technology.

## Financing

The company has received more than \$80 million in funding from leading venture capital firms, including DAG Ventures, Grazia Equity, Sequoia Capital, Sigma Partners, Southern Cross Venture Partners and Venrock Associates. The funding is being used to help extend Quantenna's global leadership position in 4x4 MIMO 802.11n Wi-Fi chipsets and accelerate product deployment through carriers and retail channels worldwide.

## Management Team

Quantenna is led by a team of experienced executives with a long track record of building successful companies.

### Sam Heidari, Ph.D.

Chief Executive Officer

### Lionel Bonnot

Vice President, Sales and Business Development

### Narayanan (Nara) Bharath

Vice President, Customer Engineering and Marketing

### Behrooz Rezvani, Ph.D.

Founder and Chairman

## Company

Quantenna has over 60 employees with a majority being PhDs. The company is headquartered in Fremont, California with offices in Australia, China, and Taiwan.

## Company Overview

Quantenna Communications, Inc. is a leading developer of Full-11n™ semiconductor solutions for the next generation of ultra-reliable, 802.11n Wi-Fi networks. The first company to introduce a commercially available, standards-based 802.11n 4x4 Multiple Input Multiple Output (MIMO) solution, Quantenna is focused on enabling a new wave of wireless networking and digital entertainment products and services that have significantly higher quality and reliability requirements than earlier 3x3 MIMO technology can deliver. The company's chipsets offer carrier-grade, industry-standard 802.11n features which are essential for distributing multiple HD video streams throughout the home at full, 1080p resolution.

Quantenna's technology is targeted at devices such as home residential gateways, set-top boxes, routers, HDTVs and consumer electronic devices that require extremely predictable performance, rock-solid reliability, and easy service deployment in order to support whole-home, full HD video distribution and networking services over standard Wi-Fi networks.

## HD Video Wi-Fi Technology

Quantenna fully integrated 4x4 MIMO 802.11n Wi-Fi chipsets incorporate the full complement of next-generation features required for video entertainment networking, including:

- 4x4 MIMO technology with support for up to four spatial streams that are capable of unequal modulation to optimize SNR
- Dynamic digital beamforming, low density parity check (LDPC), mesh networking, and channel monitoring and optimization. These features enable dramatically higher levels of Wi-Fi throughput, quality, reliability and coverage for whole-home networking and HD video entertainment.

## Quality and Reliability Advantage

Quantenna's unique combination of Full-11n technologies effectively achieves improvements including up to five times the coverage and as much as twice the throughput of existing, alternative solutions. Networks based on Quantenna's Full-11n technology will deliver the same quality as wired Ethernet, and support the so-called "Gold Standard" for carrier deployment of wireless networking and digital entertainment by delivering up to four HD video streams at more than 100 Mbps data rates, over 100 feet, with near-zero packet error rate (PER) data transfers, regardless of signal impairments and other interferences in the home.

## Customers

Quantenna's chipsets have been integrated into products that are available at retail outlets from leading manufacturers including NETGEAR. They also have entered field trials with over 15 carriers, worldwide and including Swisscom who have deployed the first high-definition (HD) video-over-Wi-Fi service from a major worldwide provider.

## Quantenna's Products

Quantenna products enable a new level of ultra-reliable, whole-home wireless networking, for the best possible consumer experience. Quantenna's 4x4 MIMO wireless solutions include:

- **QHS600x Chipset:** The world's first Full-11n 4x4 MIMO solution. Applications include wireless video bridges for ultra-reliable Wi-Fi video delivery throughout the home. Operating in the IEEE 802.11a/n 5GHz frequency band, the QHS600x supports high PHY/data link speed with superior wireless data throughput at maximum range. With dynamic digital beamforming and other key features, the QHS600x delivers ultra-reliable HD-quality video to multiple rooms and devices simultaneously.
- **QHS610 Reference Design:** The QHS610 reference design includes an evaluation board, cables and a comprehensive software developer's kit (SDK), and is based on Quantenna's third-generation 4x4 MIMO solution, which has been optimized for volume production and future-proofed with a feature set that is considerably ahead of alternative solutions. The company has cut device size in half and power consumption by one-third as compared to previous solutions, and incorporated features that simplify transceiver certification in the U.S., Europe and Asia. Quantenna also has optimized error vector magnitude (EVM) and phase-noise performance to boost range and reliability with best-in-class receiver linearity, and increased channel bandwidth to 80MHz to support higher throughput for such emerging standards as 802.11ac, which is expected to deliver speeds of up to 1.2 Gbps.

## Features

Protected by 14 core and fundamental patents, Quantenna's family of Full-11n solutions delivers industry-standard wireless networking and digital entertainment while pioneering a new level of consumer quality and carrier deployment reliability.

- **Whole-home coverage of any size of residence, regardless of "dead" zones and other interferences:** Quantenna technology ensures whole-home coverage by including the entire complement of Full-11n features, including 4x4 MIMO, dynamic digital beamforming, LDPC, mesh networking, and channel monitoring and optimization.
- **Unrivaled reliability and performance:** Quantenna chipsets are the first and only to deliver at least 100 Mbps data rates, over at least 100 feet, nearly 100 percent of the time, through near-zero packet error rate (PER) data transfers anywhere in the home.
- **Unmatched integration with industry-low BOM cost:** Quantenna's Full-11n solutions eliminate the need for additional front-end module devices such as external high-efficiency power amplifiers (PAs) with low-noise amplifiers (LNAs), or variable gain amplifiers (VGAs), switches, baluns or diplexers. Designers can achieve superior performance with significantly lower total BOM costs as compared to alternative solutions.
- **High level of Security and Quality for Services (QoS):** Quantenna ensures content and privacy security without compromising performance by using an integrated digital signal processing (DSP) engine for higher-layer security acceleration. The company's Full-11n solutions comply all Wi-Fi security standards, as well as Wi-Fi multimedia (WMM) 802.11e QoS specifications that allow for reliable handling of multimedia transmissions between various third-party Wi-Fi devices.
- **Simplified Setup:** A number of Quantenna features ensure ultra-simplified setup, including auto detection of access point and bridge mode, and security pre-configuration via single-touch Wi-Fi Protected Setup when new devices are added to the network.



### Quantenna Communications, Inc.

3450 W. Warren Avenue      Email [info@quantenna.com](mailto:info@quantenna.com)  
Fremont, CA 94538      Tel +1 510 743 2260  
[www.quantenna.com](http://www.quantenna.com)      Fax +1 510 743 2261

©2011 Quantenna Communications, Inc. All rights reserved.  
Quantenna™, the logo, and Full-11n™ are the trademarks  
of Quantenna Communications.