QUALCOMM®

QCA7450

500+ Mbps
HomePlug® AV-based IC

QCA7450

500+ Mbps
HomePlug AV-based IC

Qualcomm® AMP™

This old house has a few new tricks. With connectivity utilizing existing infrastructure, we've got performance wired-in.

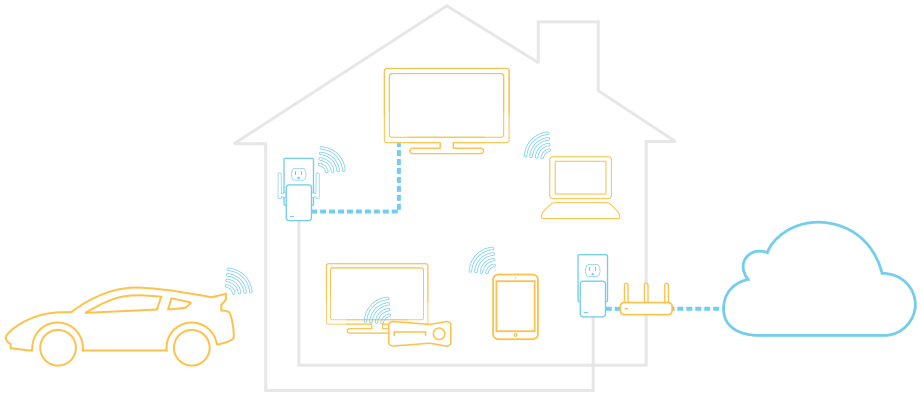
The demands of connectivity are growing, but the house is ready to rock thanks to Powerline technology from Qualcomm. Copper power wiring provides the most flexible and scalable spectrum available, capable of reaching virtually any location in any house. Powerline taps this hidden resource to access today's high performance applications and devices, so everyone can experience the magic. And every home can be a digital home. Qualcomm AMP. Performance is in the house.

Qualcomm is committed to addressing the dramatically expanding connectivity requirements of the digital home. The QCA7450 is the latest in Qualcomm's AMP Powerline solutions portfolio and is compliant to IEEE 1901/ HomePlug AV specifications and pre-compliant to HomePlug AV2 SISO specification. This sixth-generation chipset delivers carrier-grade broadband communications over power lines. For consumers and service providers, QCA7450 technology enables fast, wired networking within a home using the home's existing electrical wiring. It also enables last-mile broadband access in multi-dwelling units without interference. The QCA7450 delivers PHY rates of up to 600 Mbps for faster time-on-wire, while delivering up to 250 Mbps of application throughput over its powerline backbone, providing greater network capacity in multi-node installations.

The QCA7450 is a Powerline Communications (PLC) transceiver IC. This IC is the first in a family of HomePlug AV2 compliant solutions from QCA and delivers best-in-class performance at greater cost efficiencies in rBOM. The chipset operates over a wide spectrum (2 MHz to 68 MHz), delivering upto 600 MbpsMbps resulting in the delivery of high-quality, high-resolution A/V over powerlines. The QCA7450 includes a complete IEEE 1901 and HomePlug AV2 pre-compliant MAC and PHY, RGMII host The QCA7450 includes high-precision A/D (Analog to- Digital) and D/A (Digital-to-Analog) converters required for analog interface to the AR1540 AFE/Line Driver IC. The companion chip is the AR1540 Line Driver IC. The AR1540 Line Driver IC includes a Tx filter, a programmable-gain line driver and a programmable-gain Rx amplifier. The amplifier programmability allows signal optimization and multi-region support to reduce complexity in global product designs.

Solution Highlights

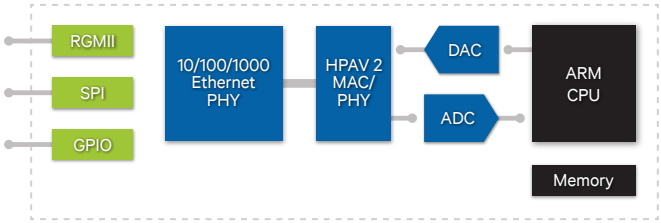
- Supports up to 600 Mbps PHY rates over powerline
- MAC/PHY transceiver, supporting RGMII interface
- Support for low power EuP directive
- IEEE 1901 and HomePlug AV/AV2 pre-compliant PHY:
  - Supports OFDM 4096/1024/256/64/16/8 QAM, QPSK, BPSK and ROBO Modulation Schemes
  - 128-bit AES Link Encryption with key management
  - Windowed OFDM with noise mitigation based on patented line synchronization techniques improves data integrity in noisy conditions
  - Dynamic channel adaptation and channel estimation
  - Advanced Turbo Code Forward Error Correction
- IEEE 1901 and HomePlug AV/AV2 pre-compliant MAC:
  - Priority-based CSMA/CA channel access schemes maximize efficiency and throughput
  - Integrated Quality of Service (QoS) enhancements with programmable packet classification engines and multiple priority queuing
  - Supports IGMP managed multicast sessions
- RoHS Compliant: 12x12 DRQFN RoHS compliant package



AMP Powerline: extending the network to places Wi-Fi can't reach

QCA7450
500+ Mbps HomePlug AV-based IC

QCA7450 System Architecture



PL30 Reference Design Highlights

- NEMA 1-15 two-prong plug
- Standard Coupling to Line-Neutral pair of AC mains
- 1000BASE-T Gigabit Ethernet; IEEE 1901; HomePlug AV; HomePlug AV2 pre-compliant

PL31 Reference Design Highlights

- NEMA 5-15 three-prong plug
- SmartLink Plus Coupling to Line-Neutral and Line-Ground pair of AC mains
- 1000BASE-T Gigabit Ethernet; IEEE 1901; HomePlug AV; HomePlug AV2 pre-compliant

QCA7450 MAC/PHY Transceiver

- IEEE 1901 and HomePlug AV Compliant, HomePlug AV2 pre-compliant
- Supports RGMII interface
- Supports EuP Low Power Directive

AR1540 Line Driver IC

- Powerline driver companion to the QCA7450 MAC/PHY IC
- Supports 2 MHz to 68 MHz operating frequency
- Integrated Tx Line Driver
- Programmable Tx gain control amplifier

QCA7450 Specifications

Frequency Band	2 – 68 MHz
Network Standard	IEEE 1901, HomePlug AV, HomePlug AV2 pre-compliant
Modulation Technology	Windowed OFDM
FEC Coding	Turbo Code
Hardware Encryption	AES 128-bit
Quality of Service	VLAN/TOS/Packet Classifier/Quasi Error Free Delivery for IPTV service
Communications Interface	RGMII
Peripheral Interface	SPI/GPIO
Memory Interface	Internal
Supported Data Rates	Up to 600 Mbps PHY rate
Low Power Design	Supports EuP Low Power Directive
Customization Functionality	LED and Programmable Switches
Security	Supports “Simple Connect” with Push-Button Encryption and Network Management Key
Diagnostic and Management Interface	HomePlug AV generic and vendor-specific Management Message Entries (MME)
Worldwide Regulatory Support	Programmable power amplitude adjustments
Tools	Qualcomm Powerline Toolkit - Supports Linux/Windows/RTOS OS Complete Software Development Kit User Interface Utility

Qualcomm Atheros is a wholly owned subsidiary of Qualcomm Technologies, Inc. and a leading provider of wireless and wired technologies for the mobile, networking, computing and consumer electronics markets. We're focused on inventing technologies that connect and empower people in ways that are elegant and accessible to all.

Our broad connectivity portfolio allows us to offer our global customer base high-performance, end-to-end solutions, featuring Wi-Fi®, GPS, Bluetooth®, FM, Ethernet, HomePlug™ Powerline and PON technologies. By leveraging substantial expertise in RF, signal processing, software and networking we can deliver highly-integrated, low-power, system-level solutions that enable developers to create high-performance, differentiated products.

For more information, please visit us online @ qca.qualcomm.com

QUALCOMM®

QCA7450-9-24-13