

# AR8035

Ultra low-power single RGMII  
Gigabit Ethernet PHY

## Qualcomm® ETHOS®

The Need. Hunger for bandwidth  
on today's media rich networks.  
The Feed. Ethernet.  
Qualcomm Engineered.



### Qualcomm ETHOS

Qualcomm ETHOS technologies provide customers with industry-leading low-power and solution size to enable Fast or Gigabit Ethernet connectivity in networking equipment, consumer electronics and computing platforms. Our PHY, controller and switch solutions support the IEEE 802.3az standard for Energy Efficient Ethernet, to extend battery-charges on computing platforms and deliver power-efficiencies in networking equipment. Qualcomm also enables incremental power-saving techniques to offer our customers the very lowest power Ethernet in the industry today. The unmatched efficiency and advanced carrier-class features of Qualcomm ETHOS solutions give customers a competitive edge when designing products for energy-conscious consumers and businesses.

### Solution Highlights

- General purpose PHY targeting computing, home networking, consumer electronics and infrastructure
- Qualcomm ETHOS-Designed Green Ethernet (EDGE™) power-saving technologies
- Integrated MDI termination resistors
- Power saving based on cable length and link status
- RGMII MAC interface
- Full IEEE 802.3az support
- Qualcomm proprietary SmartEEE support
- Hardware Wake-on-LAN (WoL) Support
- Cable Diagnostics Technology (CDT) with
- Support up to 10K Bytes Jumbo Frame
- Single 3.3V supply
- Co-layout support with 802.3az 10/100M PHY-AR8030

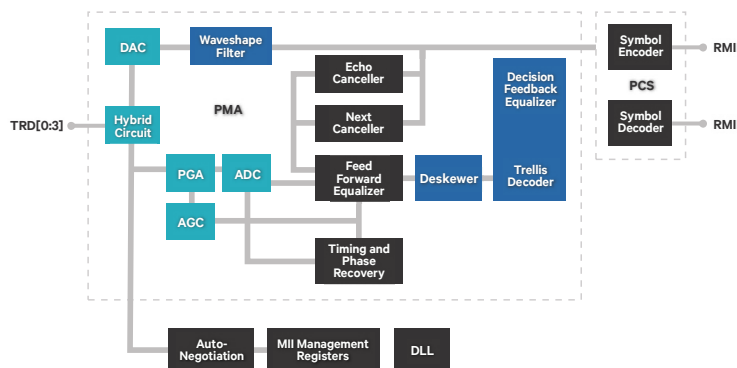
### AR8035 Product Overview

The AR8035 is part of the Arctic family of PHYs – which includes the AR8030, AR8031, and the AR8033. It is Qualcomm's 4th generation, single port 10/100/1000 Mbps tri-speed Ethernet PHY. It supports an RGMII interface to the MAC with wide RGMII I/O voltage support from 1.5V to 3.3V.

The AR8035 integrates Qualcomm's latest ETHOS-Designed Green Ethernet (EDGE) power-saving technologies and significantly saves power in all operating and idle modes.

Qualcomm EDGE power-savings include ultra-low power in cable unplugged mode or port power-down mode, and automatic optimized power-saving based on cable length. The AR8035 supports the latest IEEE 802.3az-2010, Energy Efficient Ethernet (EEE) standard with proprietary SmartEEE technology to improve energy efficiency in systems using legacy MAC devices without 802.3az support – enabling customers to fully realize the energy benefits of the new standard by just replacing the PHY devices in their designs.

### AR8035 System Architecture



The AR8035 supports Wake-on-LAN (WoL), embeds CDT (cable diagnostics test) technology on-chip and integrates a voltage regulator on chip enabling it to operate from a single 3.3V supply. It reduces the termination R/C circuitry on both the MAC interface (RGMII) and line side. The AR8035 provides a low power, low BOM (bill-of-materials) solution for a wide range of applications – including consumer, enterprise, carrier and home network products such as set-top box, connected TV, printer, game console, xDSL/xPON CPE, telecom embedded system, voice and video phone, digital media player/eReader devices, and LAN-on-motherboard.

The AR8035 supports co-layout with the AR8030 Fast Ethernet PHY.

### AR8035 Specifications

10/100/1000Base-T IEEE 802.3 compliant

Supports 1000Base-T PCS and auto-negotiation with next page support

Supports RGMII interface to MAC devices with a broad I/O voltage level options including 3.3V, 2.5V, 1.8V and 1.5V.

RGMII timing modes support internal delay and external delay on both Rx and Tx paths

Error-free operation up to 140 meters of CAT5 cable

Qualcomm's latest ETHOS-Designed Green Ethernet (EDGE) power-saving modes with internal automatic DSP power saving scheme

Supports 802.3az (Energy Efficient Ethernet) and Proprietary Smart EEE

Fully integrated digital adaptive equalizers, echo cancellers, and near end crosstalk (NEXT) cancellers

IEEE 802.3u compliant Auto-Negotiation

Software programmable LED modes

Multiple Loopback modes for diagnostics

Single power supply: 3.3V

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.

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