



# QCA8081

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## A single port, four speed (10 M/100 M/1 G/2.5 G) Ethernet PHY transceiver

The QCA8081 supports six different Ethernet protocols: 10BASE-T<sub>e</sub> half-duplex, 10BASE-T<sub>e</sub> full-duplex, 100BASE-TX half-duplex, 100BASE-TX full-duplex, 1000BASE-T full-duplex, and 2500BASE-T full-duplex. The QCA8081 provides physical layer functions to transmit and receive data over standard Category 5 (Cat5) or Category 6 (Cat6) unshielded twisted-pair cables. ....

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## Features

- 10BASE-T<sub>e</sub>: use reduced transmit amplitude
- 100BASE-TX and 1000BASE-T: Low Power Idle (LPI) mode to turn off unused analog and digital blocks to save power when data traffic is idle. Furthermore, the Wake-on-LAN (WoL) feature manages and regulates total system power requirements. The QCA8081 supports both IEEE 1588 V2 and synchronous Ethernet to offer a complete time synchronization solution.
- Clock synchronization between slave and master by the exchange of PTP packets. Supports IEEE 1588 V2 by offering a packet parser, accurate timestamping, and insertion to support both onestep and two-step clock modes.
- Supports synchronous Ethernet by offering clock output recovered from received data on the network-line side. The QCA8081 supports MACsec, which is defined by IEEE 802.1AE to offer hop-by-hop link layer security based on symmetric key AES-GCM encryption and authentication.
- Complete inline processing without software intervention in the data path
- IEEE 802.1AE standard compliant
- Robust Electro-Static Discharge (ESD) protection without external protection circuit
- Fully integrated digital adaptive equalizers, echo cancelers, and Near End Crosstalk (NEXT) cancelers
- Transmit and receive functions:
  - Automatic Channel Swap (ACS)
  - Automatic MDI/MDIX crossover
  - Automatic polarity correction
- Management interface supports 1.8 V I/O voltage
- 1.05 V and 1.8 V power supplies for reduced power operation
- 50 MHz crystal/differential clock/single-ended clock
- Green ETHOS<sup>®</sup> power-saving modes
  - Power saving at media disconnected state
  - Low-power mode
- ESD
  - Robust Electro-Static Discharge (ESD) protection without external protection circuit
  - Robust lightning surge protection without external protection circuit
- Ordinary, boundary, transparent, and grandmaster clock mode
- Multiple loopback modes for diagnostics
- Cable Diagnostic Test (CDT)
- CRC checker and packet counter
- 1.05 V and 1.8 V power supplies for reduced power operation

## Specifications

<b>Process</b>	<b>Process Node and Technology:</b> 28 nm
<b>Ethernet</b>	<b>Ethernet Standards:</b> IEEE 802.3
<b>Battery</b>	<b>Output Voltage:</b> 1.8 V
<b>Package</b>	<b>Package Type:</b> MQFN <b>Pins:</b> 56 pins

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