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# AC101-QF/TF

# PRODUCT Brief

## 10/100BASE-TX SINGLE-CHANNEL ALTI-PHY™ TRANSCEIVER

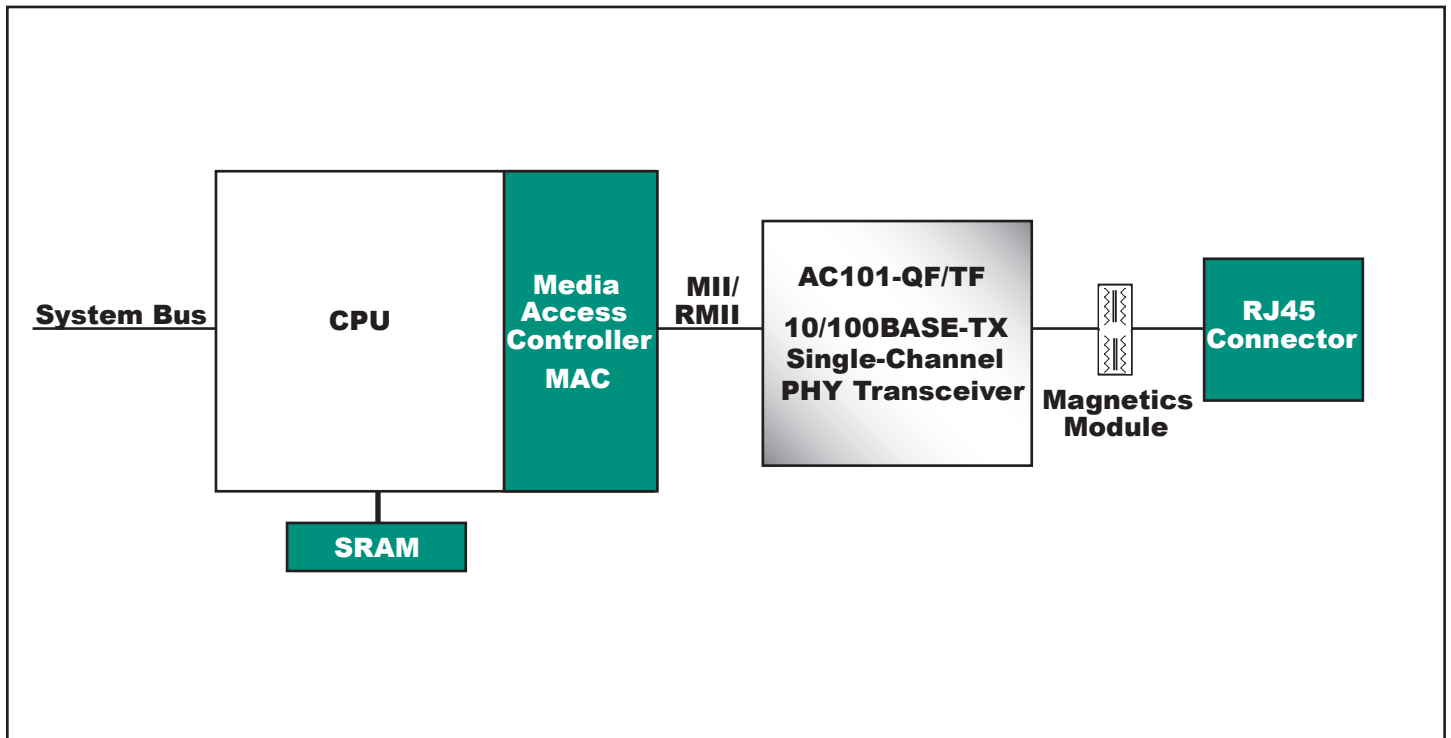
### AC101-QF/TF FEATURES

- Cost optimized, full custom circuit design
- 10BASE-T/100BASE-TX/FX IEEE 802.3u Fast Ethernet transceiver
- Power consumption: <280 mW
- Unique energy detection circuit to enable intelligent power management
- Selectable TX drivers for 1:1 or 1.25:1 transformers to enable additional power reduction
- Legacy interface support
  - 10BASE-T 7-wire
  - 10M symbol
  - 100M symbol
- Industrial temperature range (-40 to 85C)
- +/-10% voltage tolerance
- Supports eight interrupts
- 100-pin PQFP or 80-pin TQFP

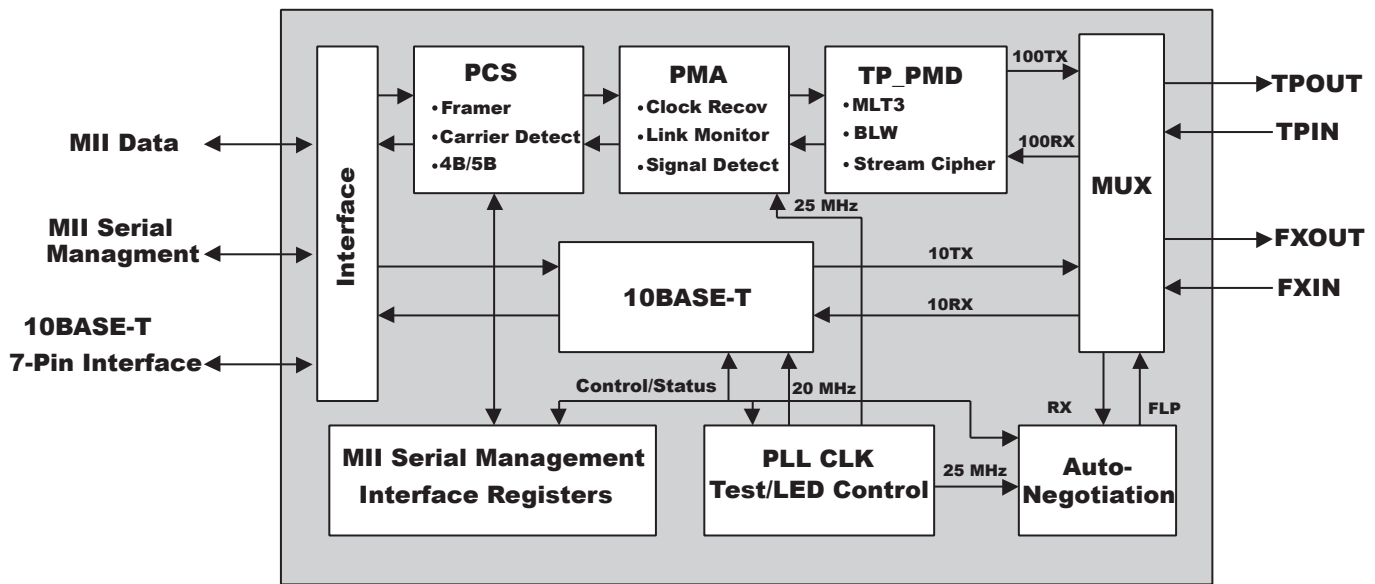
### SUMMARY OF BENEFITS

- Includes basic Ethernet connectivity for cost-sensitive applications.
- Features low power and intelligent power management.
  - Increased active working time
  - Prolonged battery life in active standby
  - Increased reliability
- Targets embedded microprocessor applications.
  - Wide variety of interfaces for legacy and next generation microprocessors
  - Able to operate in industrial temperature and voltage environments
  - Multiple interrupts for system design flexibility
- Package options simplify board-level design.

### AC101-QF/TF Typical Design Implementation



Block Diagram



**Cost-Effective, Lowest Power 3.3V Fast Ethernet PHY**

Broadcom’s Alti-PHY technology targets cost-sensitive applications where basic Ethernet functionality is required. The AC101-QF/TF provides all of the required features of a fully compliant IEEE 802.3u 10/100BASE-TX/FX transceiver. A full custom circuit design optimizes the cost of the AC101-QF/TF, making it particularly appealing for value brand and small/medium business applications.

With a power dissipation of 280 mW, the AC101-QF/TF is the industry’s lowest power Fast Ethernet PHY. In addition, the AC101-QF/TF has several intelligent power-down states that conserve power, yet allows products based on it to turn on automatically when needed. The AC101-QF/TF includes a unique intelligent power-management feature that powers down the device if energy is not detected on the cable. This feature is especially useful for portable and power-sensitive applications, such as laptop LAN card adapters. The AC101-QF/TF allows PCMCIA or CardBus adapters to remain plugged in and draw virtually no energy even if the client is no longer connected to the network. Because most laptop users do not remove their LAN PC cards when working remotely, this feature results in a noticeably extended battery life for laptop computer users. For lowest power consumption, the AC101-QF/TF can be put in a power-down state (<3.3 mW).

With three different physical media interfaces, four different system interfaces, and multiple packages available, the AC101-QF/TF provides significant system design flexibility. These numerous options allow the AC101-QF/TF to be designed into many different applications, reducing the number of separate transceivers needed to meet multiple design requirements.

For the system/MAC interface, seamless support is provided for the Motorola QUICC products, such as the MPC68360 or the MPC860T families, as well as a variety of other embedded microprocessors. For the physical media connectivity, support is provided for 10BASE-T, 100BASE-TX, and 100BASE-FX.

**Applications**

Applications for the AC101-QF/TF that take advantage of its cost-optimized design and low power include:

- PCMCIA/CardBus cards
- LAN on Motherboard
- IP phones
- Cable modems
- Set-top boxes
- Print servers
- Wireless access points
- Embedded telecom



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**ALTIMA COMMUNICATIONS, INC.**  
16215 Alton Parkway, P.O. Box 57013  
Irvine, California 92619-7013