

## Single-port 10/100/1000Base-T Gigabit Transceiver

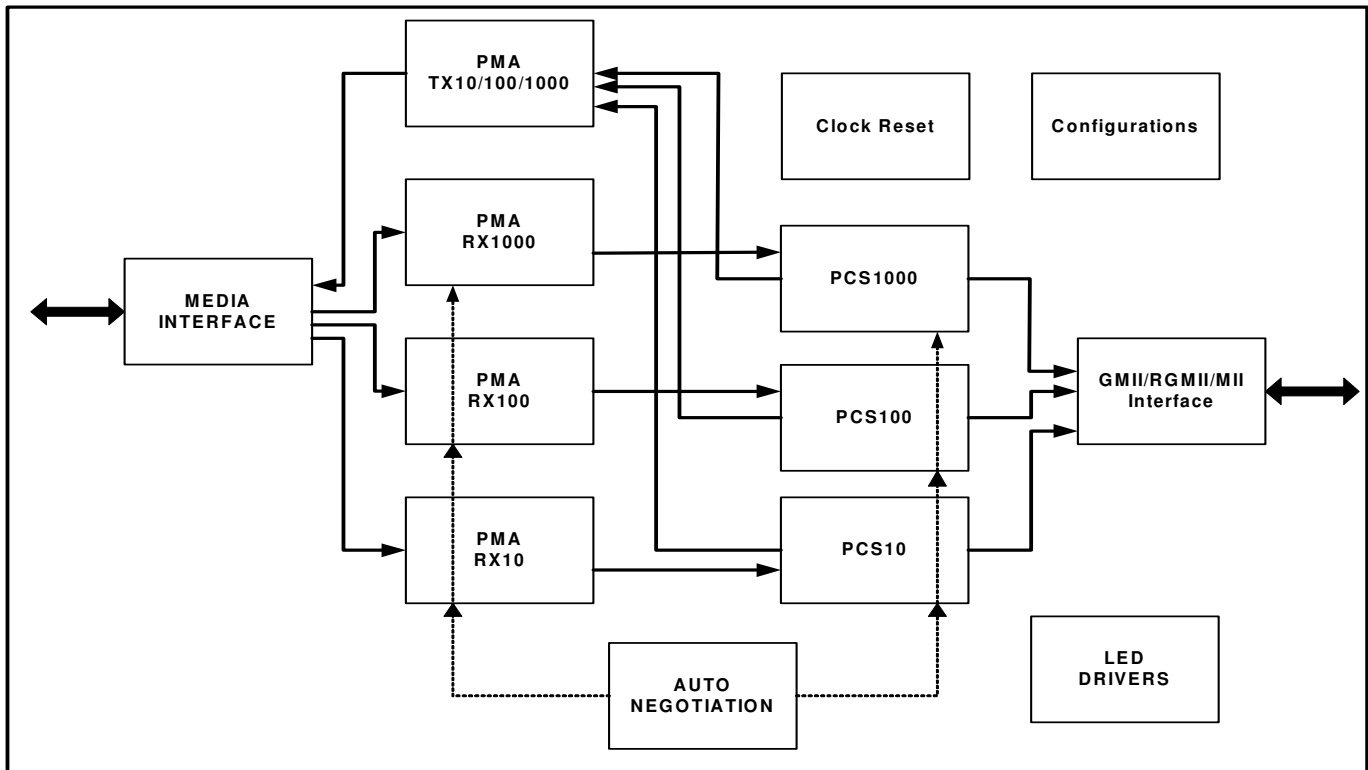
### Description

The KSZ9021GQ and KSZ9021RL are single-port 10/100/1000Base-T Gigabit transceivers, supporting data transfer over standard CAT-5 unshielded twisted pair cable. This device offers robust performance and low power consumption. On-chip integration of termination resistors and LDO controller, along with built-in diagnostic features, significantly reduces the cost and the complexity of Gigabit Ethernet applications. This device is ideal for enabling Gigabit Ethernet performance in SOHO and SMB networking applications, such as media converter, GEAPON ONU router, wired/wireless Gigabit SOHO/SMB router, and VoIP gateway.

The device is available in two RoHS-compliant package options - 128-pin QFP (KSZ9021GQ, supporting GMII/MII) and 64-pin E-LQFP (KSZ9021RL, supporting RGMI). Industrial grade is also available.

The datasheets and support documentation can be found on Micrel's web site at: [www.micrel.com](http://www.micrel.com).

### Block Diagram



Features	Benefits
10/100/1000Base-T IEEE 802.3 compliance	Standard compliance ensures to work with other standard compliant, already deployed devices.
GMII, RGMII, and MII MAC interfaces	Flexible MAC interfaces (GMII/MII for KSZ9021GQ and RGMII for KSZ9021RL) support direct connection to MACs in Ethernet processors and switches at various data rates.
Integration of termination resistors on the chip	On-chip termination (eliminating 8 external resistors) not only simplifies PCB design and reduces system BOM, but also improves overall signal integrity and EMI emission.
Integration of a LDO controller on the chip	Integration of a LDO controller permits a low cost MOSFET to supply the 1.2V core, which reduces board cost and simplifies board layout.
LinkMD <sup>®</sup> TDR-based cable diagnostics	Built-in LinkMD <sup>®</sup> diagnostics helps identification of common cabling problems, including those not addressed by IEEE. It simplifies network deployment and reduces network downtime.
Automatic MDI/MDIX crossover for IEEE 802.3 and EIA/TIA 568 standards at all speeds of operation	<b>Auto-MDI/MDIX eliminates the need for cross-over cable, thus reduces installation costs. Easy to use.</b>

## Applications

- Wired/wireless Gigabit SOHO/SMB Router
- SOHO Media Center
- Voice-over-Internet Protocol (VoIP) Gateway
- Network Attached Storage
- Laser Printers and Projectors
- GEPON ONU Router
- Media Converter
- VPN/Firewall based SMB/SME Router
- Gigabit Ethernet LAN on Motherboard
- Integrated Broadband CPE (ADSL/VDSL/FTTH) Router

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