Single-port Gigabit Transceiver with GMII/MII Support
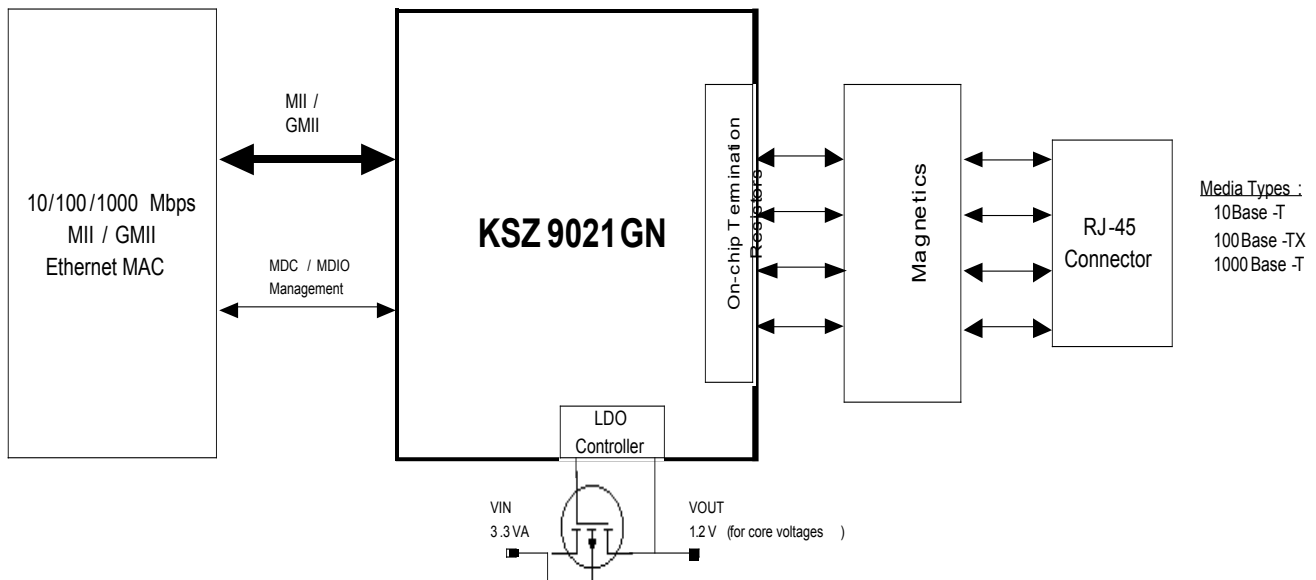
Description

The KSZ9021GN is a single-port 10/100/1000Base-T Gigabit transceiver in industry's smallest footprint, 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 applications such as GEPON ONU router.

The KSZ9021GN provides the industry standard GMII/MII (Gigabit Media Independent Interface / Media Independent Interface) for direct connection to GMII/MII MACs in Gigabit Ethernet Processors and Switches for data transfer at 1000 Mbps or 10/100 Mbps speed.

The device is available in RoHS-compliant 64-pin QFN package. Industrial grade is also available.

The datasheet and support documentation can be found on Micrel's web site at: www.micrel.com.

Functional Diagram

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Features / Benefits

Features	Benefits
GMII and MII MAC interfaces	**Standard compliant MAC interface supports direct connection to MACs in Ethernet processors and switches at 10/100/1000 Mbps data speeds.**
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®TDR-based cable diagnostics	**Built-in LinkMD® 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	**Auto-MDI/MDIX eliminates the need for cross-over cable, thus reduces installation costs. Easy to use.**
Integrated 125MHz reference clock	**125MHz clock output to the MAC eliminates external 125MHz oscillator and lowers the Bill Of Materials cost.**

Applications

- GEON ONU router
- SOHO Media Center
- Voice-over-Internet Protocol (VoIP) Gateway
- Network Attached Storage
- Laser Printers and Projectors

- Wired/wireless Gigabit SOHO/SMB 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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