



DUAL-SPEED 10GBASE-T / 1000BASE-T ETHERNET PHYSICAL LAYER DEVICE

INTRODUCTION

The TN1010 is the Industry's first integrated single-chip PHY for 10GBase-T applications. The TN1010 additionally supports IEEE compliant 1000Base-T lower-speed rates, enabling ease of upgradeability. The TN1010 is ideal for applications ranging from aggregation ports on switch uplinks, to 10GBase-T NIC/Adapter cards for servers, to dense 24- and 48-port 10 Gigabit Ethernet switches for data center applications.

FEATURES HIGHLIGHTS

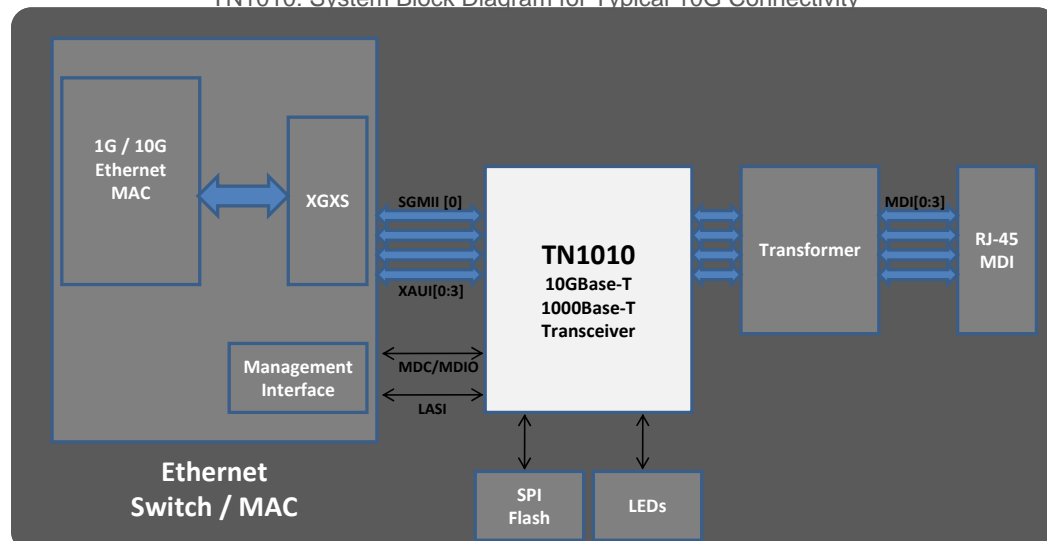
- Industry's First Single Chip, Integrated 10GBase-T Ethernet PHY
- Fully IEEE 802.3an-2006 compliant
- 100m 802.3an compliant cable reach
- Auto-negotiated Dual-speed operation:
 - 10GBase-T
 - 1000Base-T

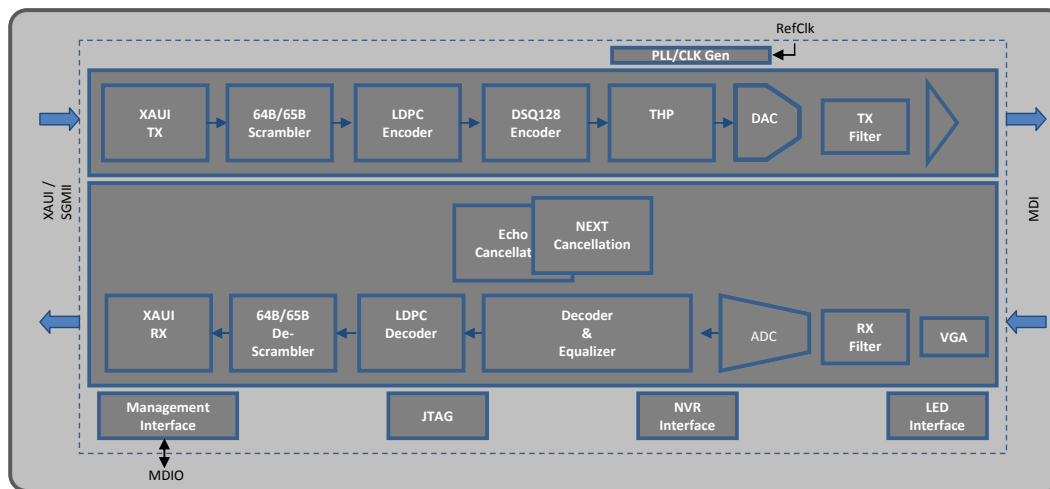
- Flexible MAC/Switch interface:
 - 10G XAUI - 4 lane, 3.125G
 - 1G SGMII - 1 lane, 1.25G
- Detection/Correction of wiring pair or polarity swaps
- IEEE 1149.1 (JTAG) boundary scan
- Compact 25x25mm BGA packaging
- Cable Monitoring diagnostics
- Flexible 25Mhz or 125Mhz reference clock input
- Power: 10W @ 100m cable reach
 - Adaptive Voltage Scaling for optimal power efficiency

TN1010 BENEFITS

- Single chip with efficient, compact packaging offers efficient board space utilization.
- Dual-speed operation enables compatibility with existing installed base, with added upgrade path to increased bandwidth.
- Adaptable 25 MHz or 125 MHz reference clock input eases BOM restraints in various 10G applications.
- Cable diagnostics enables fault detection, BER measurements, and pair skew measurements.

TN1010: System Block Diagram for Typical 10G Connectivity





TN1010: Block Diagram

OVERVIEW

The TN1010 is an integrated single-chip 10Gbase-T / 1000Base-T Ethernet Copper Physical Layer (PHY) device. Fully IEEE 802.3an compliant, the TN2010 is ideal for 10 Gigabit Ethernet data transport over conforming structured copper cable up to 100m. Key features include dual-speed support and small footprint, supporting adapter card application requirements through to dense 10G switch applications.

On the system side, the TN1010 supports both 4-lane XAUI for 10G applications and 1-lane SGMII for 1G applications. On the line side, the TN2010 enables legacy line support with auto-negotiated IEEE compliant 10G Ethernet or 1G Ethernet line rates. 10G and 1G Ethernet support enables compatibility with existing installed base, with added upgrade path to increased bandwidth as long as link segment requirements are met.

The TN1010's adaptable 25 MHz or 125 MHz reference clock input offers BOM (Bill Of Materials) flexibility in reducing overall systems costs. Designs are not limited to strict reference clock BOM requirements.

The TN1010 incorporates various advanced features for ease of design and performance monitoring. The Cable Diagnostics features enables fault detection and BER/skew management. Multiple loopback modes are supported for verification and debugging.

The TN1010 10GBase-T Ethernet PHY is a first generation Physical Layer Device. The TN1010 is a part of a full multi-generation family of 10 Gigabit Ethernet Physical Layer (PHY) devices offered by Teranetics. Teranetics offers a family of single and dual port solutions based on application requirements.

ABOUT TERANETICS

Teranetics provides state-of-the-art silicon solutions that enable 10 Gigabit rates over the traditional UTP and STP copper cabling; an order of magnitude improvement over rates available in today's enterprise networks. Teranetics products allow data centers and enterprise networks to increase scalability and improve throughput while dramatically lowering the cost of ownership for 10 Gigabit links. Teranetics solutions are being adopted by many of the networking industry's leading OEMs and equipment providers.

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