

# Preliminary Product Brief

## Teranetics Confidential



TERAPHY™

# TeraPHY™ TN1010

## 10GBASE-T Ethernet PHY

TN 1010

### TN5000 FEATURES

- Operates at 10 Gb/s data rate over up to 100m of enhanced STP cable (Cat-7) or UTP cable (Cat-6a), or 55m of standard UTP cable (Cat-6).
- Interfaces to Ethernet MAC/switch chips via an 802.3ae Clause 47 compliant XAUI interface.
- Hardware and Non Volatile Register (NVR) support to simplify XENPAK and X2 interface requirements.
- 802.3ae Clause 45 compliant MDIO/MDC interface for station management.
- Supports Auto-Negotiation with other 1G PHYs.
- Automatic detection and correction of wiring pair swaps and/or polarity swaps.
- LED indicators for cable quality to simplify installation, fault identification, and isolation.
- Built-in cable monitoring and diagnostic features, allows Network Management to monitor key link segment parameters.
- Minimizes external component count.
- Small footprint BGA package.
- IEEE 1149.1 (JTAG) boundary scan.
- Full manufacturing test support.
- 0.13um CMOS process for low power and high reliability.

### SUMMARY OF BENEFITS

#### Industry Standard Interfaces

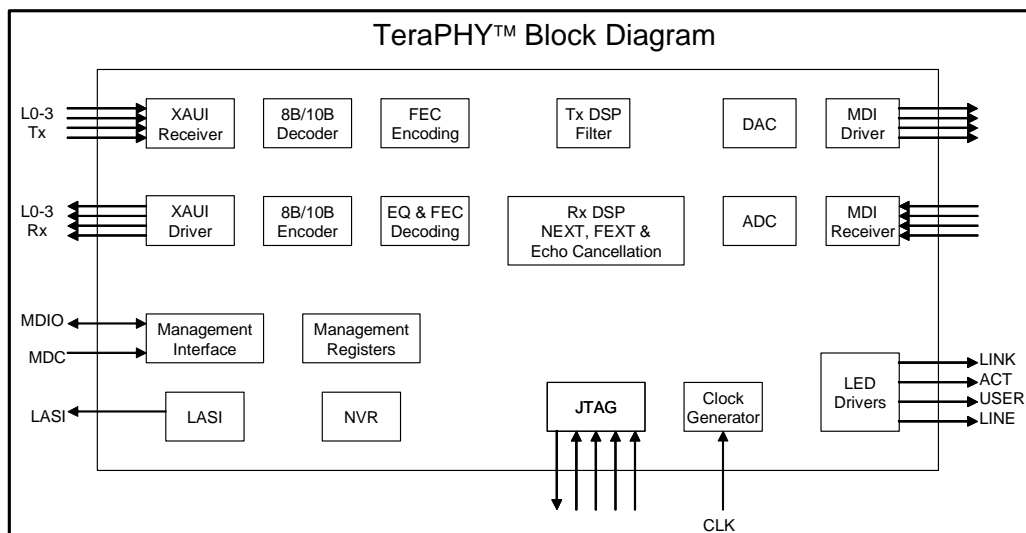
Low EMI/RFI emissions – designed to meet FCC Class A/B and VDE requirements via a standard RJ-45 MDI. Offers direct support of the XENPAK and X2 electrical connector and management register specifications. Implements the IEEE 802.3ae 10 Gb/s Attachment Unit Interface (XAUI) and XGMII Extender Sublayer (XGXS). MDIO interface allows full management of all device sub layers, and access to enhanced cable diagnostics

#### Applications

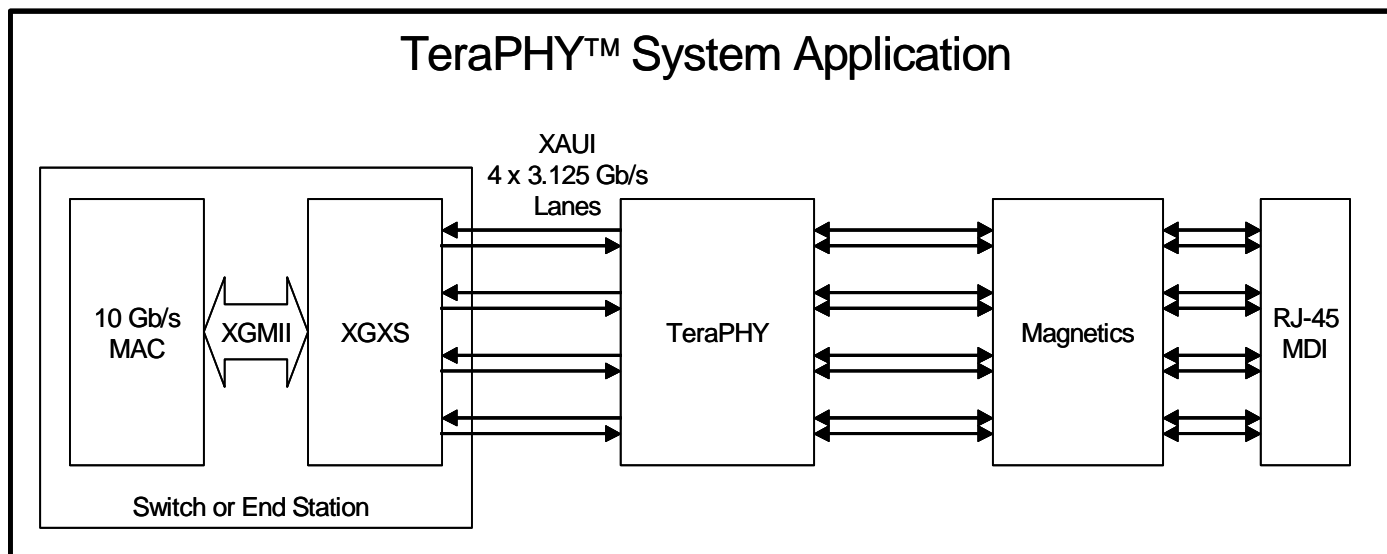
The TeraPHY™ is optimized for high performance servers, switches, routers, storage systems and adapter cards which require uncompromised distance, speed and reliability of 10 Gb/s data rates over UTP cabling, while retaining the Ethernet frame format.

#### Designed to Speed Time-to-Market

Demonstration board allows rapid evaluation using existing 10 Gb/s hardware platforms.



### TeraPHY™ System Application



#### TeraPHY™ Toolkit

The TeraPHY™ Evaluation Toolkit is a XENPAK compatible mechanical and electrical format, offering a complete 10GBASE-T PHY solution. The kit includes the XENPAK electrical connector, TeraPHY™ chip, external discrete components, magnetics and RJ-45 connector.

The TeraPHY™-based module implements the Low Power Start-up (LPS) mode. This allows the device to be placed in a low power mode with only the MDIO/MDC interface operating. The system can then determine, from the management interface, if the power requirements of the module are compatible with the system, before enabling the module.

The module also supports the Link Alarm Status Interrupt (LASI). Management can alter the conditions which will activate the LASI.

The TeraPHY™ also incorporates support for the Non Volatile Registers (NVRs) mandatory in the XENPAK specification.

#### Complete Silicon Solution

The TeraPHY™ Evaluation Toolkit is shipped with the following:

- A full data sheet
- Component parts list
- Recommendations for suitable magnetics vendors  
Layout recommendations for minimization of EMI/RFI
- Full PCB layout information



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