XWAY™ PHY11G
10/100/1000 Mbps PHY with SerDes and DC/DC Regulator

Ethernet Features

- Energy-Efficient Ethernet:
  - 10BASE-Te
  - 100BASE-TX
  - 1000BASE-T
  - Wake-on-LAN
  - Auto Power-Down Modes
- Jumbo Frames of up to 10 kB
- Cable Diagnostics
- Auto-Downspeed
- Wiring Fault Tolerant:
  - Auto-MDI/MDI-X
  - Auto Polarity Correction
- Copper + Fiber Applications:
  - Single-Media
  - Dual-Media
  - Media Converter
- RGMII v1.3 and v2.0 MAC interface with Delay Compensation (RGMII-ID)
- Standards:
  - IEEE 802.3-2008 (relevant clauses)
  - IEEE 802.3az (Energy-Efficient Ethernet)
  - ANSIX3.263-1995
  - IEEE 1149.1

Main Features

- Full-Duplex and Half-Duplex modes for 10BASE-T(e), 100BASE-TX, 1000BASE-T and 1000BASE-X
- Low-EMI linedriver with integrated line termination
- Single power supply at 2.5 - 3.3 V using the integrated DC/DC Switching Regulator
- Industry's smallest footprint using the VQFN48 (reduced xMII only) or LQFP64 package variants
- Ultra-low power consumption of typically 400 mW

The XWAY™ PHY11G family of Physical Layer (PHY) ICs incorporates a set of single Gigabit-Ethernet (GbE) PHY devices that support the 10BASE-T(e), 100BASE-TX, 1000BASE-T and 1000BASE-X standards in both the half-duplex and full-duplex modes. The performance requirements set by these standards are exceeded by the XWAY™ PHY11G family. Implementation of an integrated SerDes allows for support of 1000BASE-X and SGMII.

The XWAY™ PHY11G family is characterized by an ultra-low power consumption of 400 mW in 1000BASE-T mode. Support of Energy-Efficient Ethernet allows for an even further reduction in power consumption that depends on link utilization. Power savings at system level are introduced using the Wake-on-LAN feature. The comprehensive design of the ICs integrates support for single-media, dual-media and media-conversion applications for both copper and fiber media. In applications using the copper medium, the low-EMI line driver with integrated termination facilitates a simplified PCB design. The PHY devices are available in the VQFN48 and LQFP64 small-package variants, thereby setting a new benchmark in footprint minimization. Both package types support the RMII, RGMII interface types, while the latter additionally supports GMII.

Optionally, the devices can be operated from a single power supply, with a range of 2.5 V to 3.3 V by using the integrated DC/DC switching regulator with minimal external cost. The XWAY™ PHY11G devices are configurable via pin-strapping, by means of the MDIO interface, or optionally by connecting an external EEPROM.
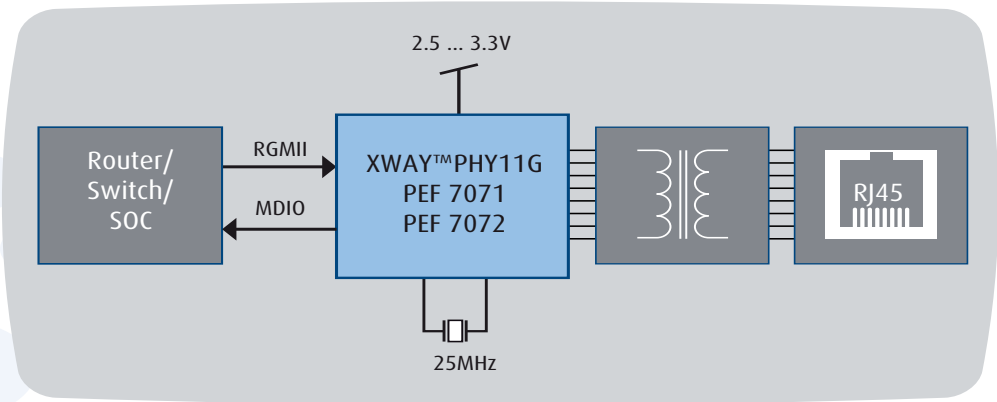
Applications

- Broadband Appliances:
  - xDSL Routers and PON Routers
- Home Gateway:
  - Home Server, Home Storage (NAS)
  - Gigabit SMB/SOHO Routers
- IP Phone
- Consumer Applications:
  - IPTV, Set-Top Boxes, Game Consoles
  - Printers
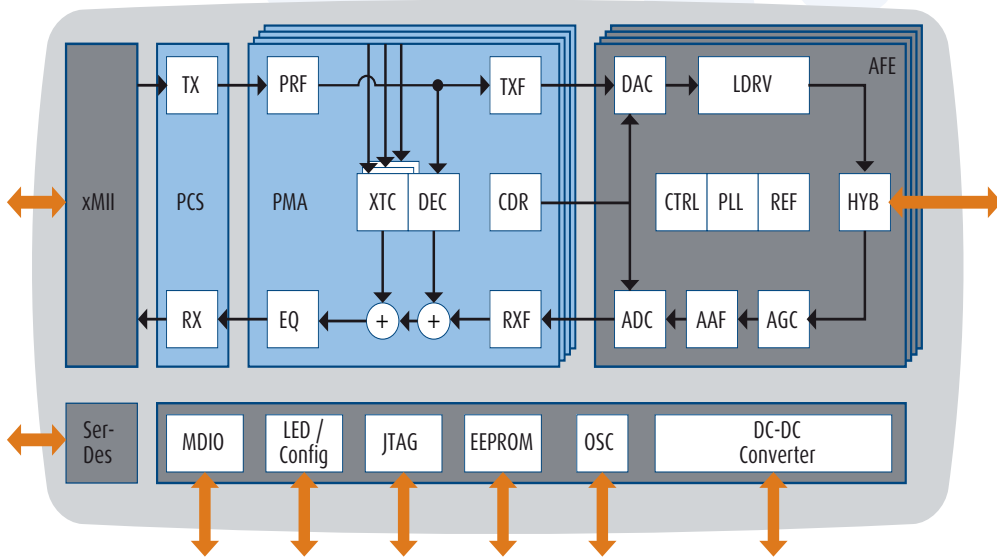- Media Converter (Copper to Fiber)

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XWAY™ PHY11G Application Example

XWAY™ PHY11G Block Diagram

Product Summary

Product Name	Sales Code	Description	Package
XWAY™ PHY11G	PEF 7071	10/100/1000 Mbps Ethernet PHY with RMII, RGMII, and SGMII	PG-VQFN-48
XWAY™ PHY11G	PEF 7072	10/100/1000 Mbps Ethernet PHY with MII, RMII, GMII, RGMII and SGMII	PG-LQFP-64

How to reach us: http://www.Lantiq.com

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