

Introduction

The MorethanIP PhyworkX Quad-PHY Ethernet Development Kit provides an Ethernet PHY Daughter Board enabling triple-speed 10/100/1000 Ethernet copper connectivity using four standard RJ45 connectors.

The board implements four independent Ethernet interfaces with several system interface options and can be used in single and multi-channel applications.

The daughter board implements a High Speed Mezzanine Card (HSMC) connector that implements parallel (GMII, RGMII) and serial interfaces (e.g SGMII).

In combination with the MorethanIP Ethernet Cores (e.g. MAC, Switch, IEEE 1588) the PHY daughter board can be used to quickly design, implement, prototype and test embedded Ethernet Telecom or Industrial / Military applications from 10 Mbps to Gigabit speeds.

The board is optionally available with a MAC, with an IEEE1588, for precise time synchronization applications, or with a 4-port Switch switching reference design.

The board can be used with any Altera (e.g. Arria GX, Stratix II GX, Cyclone III) or MorethanIP board that implements a HSMC connector.



Figure 1: Quad PHY PhyWorkx Board

PhyworkX Hardware Features Overview

- Daughter Board with high performance Marvell 88E1145 10/100/1000 Ethernet Quad-PHY device
- 4x RJ45 Standard Ethernet copper connectors for 10Base-T, 100 Base-T and 1000 Base-T networks
- PHY Implements Autonegotiation for automatic speed selection and automatic cable crossover configuration individual per port
- High Speed Mezzanine Card (HSMC) connector to mainboard
- HSMC connector supports parallel as well as serial MAC interfaces
- Implements a combined MII/GMII or RGMII on one port (Port 0)
- Implements RGMII on the other 3 ports (Ports 1 to 3)
- Implements serial 1.25Gbps MII (SGMII) or 1000Base-X (GBIC) interfaces on all ports as an option allowing use of embedded SERDES technologies (e.g. ArriaGX or Stratix IIGX).
- 2-Wire PHY MDIO Management Interface for PHY configuration / status available on the HSMC
- Status LEDs providing PHY current speed information and traffic indications per port
- Single 3.3V power HSMC supply with on board regulators
- 2.5V I/Os voltage compatibility on the HSMC parallel RGMII and MII/GMII interfaces
- Support for 3.3V I/Os on the HSMC parallel RGMII and MII/GMII interface available on request

Design Package and Support

- Includes 10/100/1000 Ethernet Marvell 88E1145 Quad-PHY daughter Board
- Detailed user's and reference guides
- Optional reference designs in bitstream format for Altera FPGAs
- Optional C Software for Reference Designs with associated drivers and examples

Ordering Information

MTIP-PHYWORKX-Quad-M
MTIP-PHYWORKX-Quad-M-SX (Switch Redesign)
MTIP-PHYWORKX-Quad-M-1588 (1588 Redesign)

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