

EMSYS_GIGABIT_LINK



Embedded IEEE 802.3 Gigabit Ethernet Core for vision application

Introduction

The *EMSYS_GIGABIT_LINK* is a scalable, high performance IP-Module for usage in ASIC- and FPGA- Designs to integrate an IEEE 802.3 Gigabit Ethernet Controller to an embedded system. It provides an ease of use programming interface for the usage of almost every 8/16/32 bit microcontroller or DSP. The *EMSYS_GIGABIT_LINK* is optimized for camera/vision applications.

The key features of the *EMSYS_GIGABIT_LINK* are:

- Fully compliant to IEEE 802.3-2002 Specification
- Generic 8/16/32 bit microcontroller interface
- Supports GMII or RGMII interface (compliant to RGMII Specification Version 2.0) to the gigabit ethernet phy
- Support of 10, 100 and **1000 Mbit/s** transfer rates in half or full duplex mode
- Support of Jumbo frames up to 16kbyte for all TX/RX modes
- Provides full Ethernet Controller functionality (OSI Layer 1 and 2)
- RX/TX fifo for non high speed data (asynchronous transmit and receive) with scaleable FIFO sizes
- RX fifo can hold multiple packets
- High speed transmit by separate hardware channel (high bandwidth data channel)
- Supports simple hardware interface for high bandwidth data channel
- Supports UDP hardware generated packets for high bandwidth data channel, easy to configure via config register's or generic hardware generated packets for custom ethernet packets
- Performs hardware CRC generation and check
- Technology independent, fully synchronous RTL implementation
- PCI evaluation module available

The *EMSYS_GIGABIT_LINK* is optimized for vision applications. The asynchronous transmit and receive interface is optimized for area, but supports all necessary ethernet controller functionality.

Additionally the *EMSYS_GIGABIT_LINK* supports high speed transmit through its high-bandwidth interface. This external interface is optimized for speed and

bandwidth. This interface supports hardware generated UDP packets. So the *EMSYS_GIGABIT_LINK* is ideal for audio as well as video streaming applications.

Licenses

The *EMSYS_GIGABIT_LINK* core can be purchased using one of the following project based licenses:

- VHDL source code for ASIC designs
- Synopsys Design Ware Component for ASIC designs
- VHDL/Verilog/EDIF Netlist for FPGA designs

Other license models can be discussed upon request. The design kit contains the following parts:

- The IP component, depending on the selected license
- VHDL pre-compiled simulation models
- VHDL/Verilog automatic test suite
- IP integration guideline
- Synthesis scripts
- Optional: PCI evaluation board

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