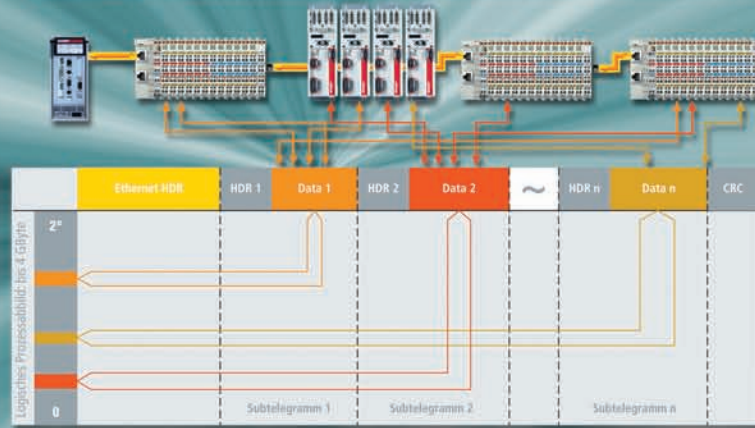




Xilinx EtherCAT Solution:

The High-Performance, Low-Cost, Ethernet Field Bus Solution



The Challenges to Industrial Network Design

- Provide high-performance, cost-effective Ethernet-based communication technology for control applications
- Integrate design changes to meet future specification changes
- Bridge between multiple interface protocols and support multiple technologies with one hardware platform

The Xilinx EtherCAT Solution

- Full compliance with EtherCAT specifications
- Low-cost EtherCAT Slave controller IP implemented in Spartan™-3 generation devices
- EtherCAT Master built on Xilinx Ethernet MAC blocks

EtherCAT is a high-performance, industrial Ethernet fieldbus system. It features high data transfer rates, short data processing times, and high synchronicity with low jitter. EtherCAT is ideally suited for machine control applications such as: machine, plant or building automation, I/O, drives, sensors, and measurement tools.

Data "Processing On The Fly" With EtherCAT

EtherCAT delivers 100Mb frame processing. EtherCAT Slaves read data addressed to them specifically, and insert input data while the telegram passes through the device. This "processing on the fly" allows the entire network to be addressed in just one frame.

The Most Flexible Network Topology

EtherCAT provides the most flexible network topology. It supports line, tree, ring, and star topologies with up to 65,000 nodes per segment.

The Most Cost-Effective & Safe Solution

EtherCAT is a low-cost networking solution. Since no active infrastructure components, such as hubs or switches, are necessary Masters are implemented in software, or on any standard Ethernet MAC. Slave devices benefit from low-cost FPGA implementations. Safe data communication, in compliance with IEC 61508 (SIL3), can be implemented utilizing the Safety over EtherCAT protocol.

Implementing SoC with the Xilinx FPGA Platform

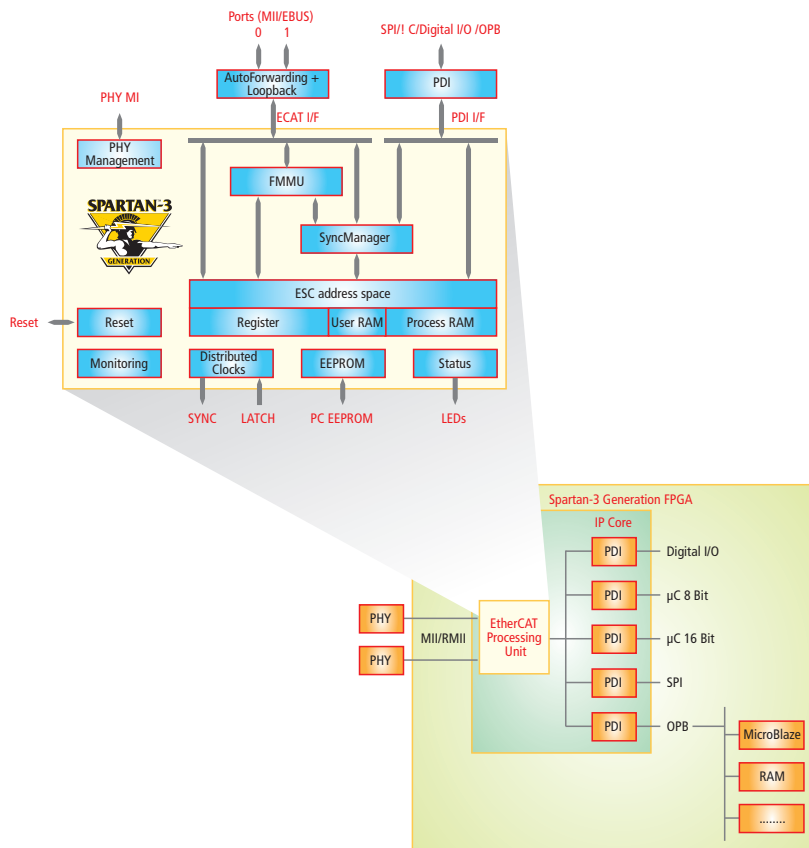
Xilinx FPGAs offer the most cost-effective platforms for implementing full SoC with EtherCAT. Xilinx FPGAs allow designers to integrate processors and discrete devices, while improving system timing and reliability. Xilinx FPGAs inherently provide stability and scalability to your EtherCAT implementations.

Greater Performance and Easier Implementation

An on-board, customizable MicroBlaze™ 32-bit soft processor allows implementation of process control and Real-Time Ethernet as a SoC. Xilinx EtherCAT Master and Slave controllers insure the best use of Spartan-3 Generation FPGA resources. IP is readily available through Beckhoff Automation, the company that invented EtherCAT.

Security and Power Management

Spartan-3 generation FPGAs utilize unique Device DNA serial numbers to prevent design cloning, unauthorized overbuilding, and reverse engineering. The Spartan-3 generation FPGAs also offer the industry's first flexible power management modes for lower power consumption.



Take The Next Step

EtherCAT Resources

EtherCAT Technology Group: <http://www.ethercat.org> Xilinx Resources

Xilinx Industrial, Scientific, Medical: <http://www.xilinx.com/esp/ism.htm>

Spartan-3 Generation:

http://www.xilinx.com/products/silicon_solutions/fpgas/spartan_series/index.htm

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