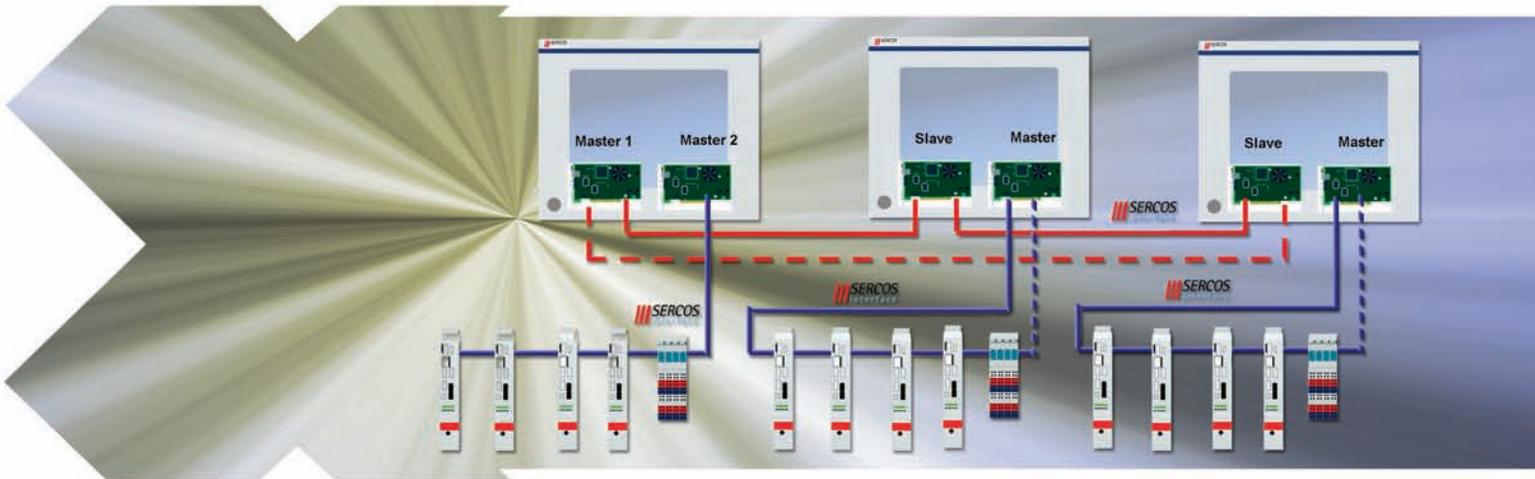




## Xilinx SERCOS III Solution: The Solution For Fast and Highly Precise Industrial Applications



### The Challenges to Industrial Network Design

- Provide high performance, cost-effective Ethernet-based communication technology for control applications
- Integrate design changes or upgrades to meet future specifications
- Support multiple and future interface protocols with a common hardware design
- Assure Safety Level SIL3 for integration with enterprise networks

### The Xilinx SERCOS III Solution

- Full compliance with SERCOS III master and slave specifications
- Low-cost SERCOS III IP cores implemented in Spartan™-3 generation devices
- Applications include motion control, safe networks and process networks

SERCOS III is ideal for fast and highly precise industrial applications. SERCOS III uses Ethernet's 100 Mbps data rate to provide a 6-fold increase over the maximum possible 16 Mbps in SERCOS II.

### Maximum Performance and Integrability

SERCOS III nodes send collective Ethernet telegrams based on a "time-slot" technique as opposed to individual telegrams. Collective telegrams are processed as they pass through a node, reducing the number of required Ethernet telegrams. Ethernet protocol also allows various office (such as LAN/WAN) and fieldbus networks to directly communicate both Real-Time and Non-Real Time data with SERCOS slave devices.

### Centralized and Decentralized Drive Concepts

The low-cycle time of SERCOS III allows it to implement both centralized and decentralized drive concepts.

### Deterministic and "Jitter-Free" Communication

SERCOS III maintains tight synchronization between nodes and specifying mechanisms to ensure low jitter and collision-free transmission. Designers have the option of varying the cycle time and the number of slave devices to control the behavior of a network.

## Fault Tolerance Redundancy and Reliability

SERCOS III uses a line or ring topology to provide maximum redundancy and reliability. A "hot-plugging" capability allows for insertion and removal of slaves during on-going operations.

## Cross-Communication Between Devices (Controllers/Slaves)

In applications requiring physical as well as real-time (logical) coupling, cross communication between devices allows them to exchange data and monitor each other's performance.

## CIP Safety Protocols

SERCOS III uses CIP Safety™ as the functional safety protocol for the underlying SERCOS communication protocol. Due to the protocol's routing capability, a safety network can stretch across several underlying and diverse communication networks.

## Implementing SERCOS III with the Xilinx FPGA Platform

The Spartan-3 generation device platform offers easy, cost effective SERCOS III implementations, unparalleled design flexibility, and high performance data processing. Xilinx FPGAs allow system designers to integrate processors and discrete functions while improving system timing and reliability, and providing inherent flexibility and scalability to your SERCOS III implementations, while lowering Bill of Material (BOM) costs.

## Greater Performance, Design Flexibility, and Ease-of-Implementation

An on-board, customizable MicroBlaze™ processor removes dependence on an external processor. Xilinx FPGAs also allow seamless bridging between multiple interface protocols, and the capability to reprogram to accommodate updates and design changes. Implementation is easy with off-the-shelf SERCOS III IP core software.

## Security, Power Management, and Reliability

Spartan-3 generation FPGAs utilize unique DeviceDNA 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

### SERCOS III Resources

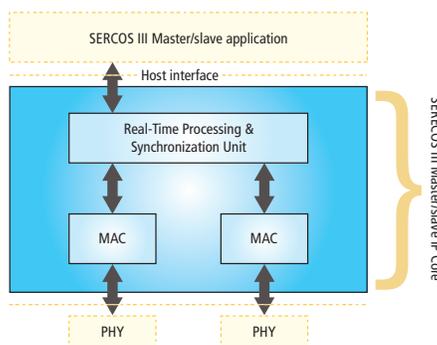
SERCOS International: <http://www.sercos.de/>

### Xilinx Industrial, Scientific, Medical Resources

<http://www.xilinx.com/esp/ism.htm>

### Spartan-3 Generation FPGAs

[http://www.xilinx.com/products/silicon\\_solutions/fpgas/spartan\\_series/index.htm](http://www.xilinx.com/products/silicon_solutions/fpgas/spartan_series/index.htm)



## Corporate Headquarters

Xilinx, Inc.  
2100 Logic Drive  
San Jose, CA 95124  
USA  
Tel: 408-559-7778  
Web: [www.xilinx.com](http://www.xilinx.com)

## Europe

Xilinx Europe  
One Logic Drive  
Citywest Business Campus  
Saggart, County Dublin  
Ireland  
Tel: +353-1-464-0311  
Web: [www.xilinx.com](http://www.xilinx.com)

## Japan

Xilinx K.K.  
Art Village Osaki Central Tower 4F  
1-2-2 Osaki, Shinagawa-ku  
Tokyo 141-0032 Japan  
Tel: +81-3-6744-7777  
Web: [japan.xilinx.com](http://japan.xilinx.com)

## Asia Pacific Pte. Ltd.

Xilinx, Asia Pacific  
5 Changi Business Park  
Singapore 486040  
Tel: +65-6407-3000  
Web: [www.xilinx.com](http://www.xilinx.com)



[www.xilinx.com](http://www.xilinx.com)