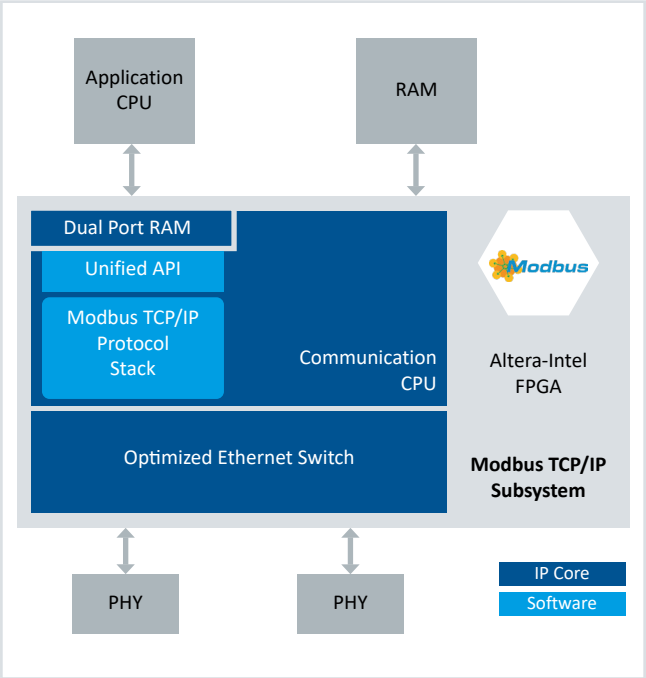
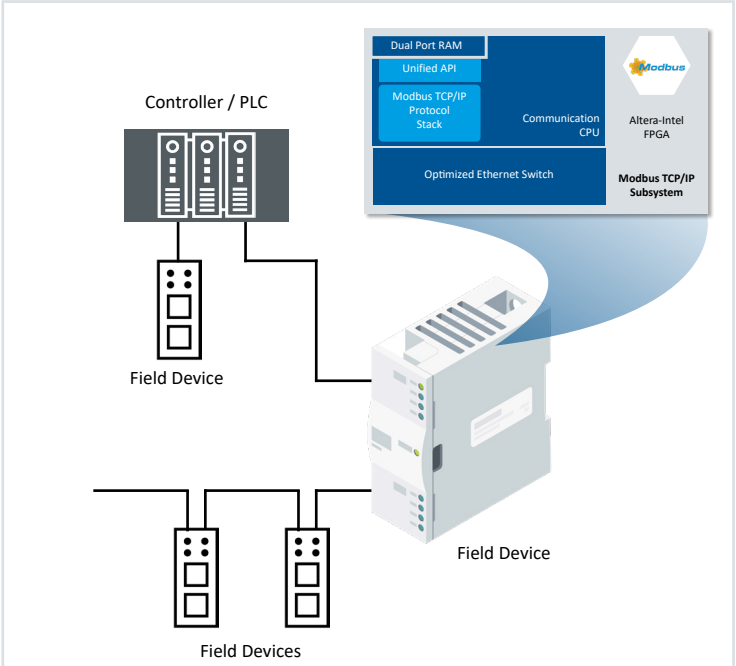
Modbus TCP/IP Subsystem for Altera-Intel FPGA

Switch IP Core and Communication Processor for the Integration of Modbus TCP/IP Server on Altera-Intel FPGA

- **Simplifies Modbus TCP/IP connectivity for field devices with Altera-Intel FPGA**
- **Optimized switch IP core and pre-installed software handle the entire protocol**
- **Modbus TCP/IP and other industrial networks are supported by the same API**
- **Fast and robust operation by hardware/logic support**





Easy-to-Integrate Modbus TCP/IP Server Subsystem for FPGAs

- Entire protocol is handled by pre-installed software, no need for any porting
- Example project for fast hands-on experience
- Adaptation to the application requirements by extensive configuration options
- Large choice of supported FPGA families and sizes

Low Total Cost of Ownership

- No dependency on special ASICs
- Risk-free implementation thanks to Softing's consulting, integration, and pre-certification services
- Re-configuration and extension possible even after production
- Simple addition of further protocols

Pre-certified to Latest Standards

- Compliant to current Modbus/TCP specifications
- Tested against Modbus.org's latest conformance test tool (version 3.0)

Fast and Robust Operation

- Industrial switch IP core with cut-through forwarding and filtering (firewall)
- Device application software is separated from protocol software

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Technical Data

IP Core configuration	▪ Switch IP core with 2 external ports and 1 or 2 internal ports ▪ Communication CPU IP core for processing the Modbus TCP/IP protocol ▪ DPRAM interface to application processor (FPGA-internal or external)
Switch clock	125 MHz
Supported FPGA families	Cyclone III, Cyclone IV, Cyclone V, Cyclone V SoC, Cyclone 10 LP, MAX 10
Functionality	▪ Modbus TCP/IP server compliant to Modbus TCP/IP specification ▪ Supported Modbus Services: - 0x01 Read Coils - 0x02 Read Discrete Inputs - 0x03 Read Holding Registers - 0x04 Read Input Registers - 0x05 Write Single Coil - 0x06 Write Single Register - 0x0F Write Multiple Coils - 0x10 Write Multiple Registers ▪ Assignable Standard Objects: - VendorName - ProductCode - MajorMinorRevision - ProductName ▪ I/O Data Size up to 1024 Bytes ▪ Optional 2nd internal switch port for direct connection of the application CPU
Application Programming Interface	Simple Device Application Interface (SDAI)

Scope of Delivery

IP / Logic	▪ Complete Modbus TCP/IP server subsystem ▪ Supplementary IP cores ▪ Sample application FPGA design
Software	▪ Ready-to-run protocol software (executable) for the Modbus TCP/IP server subsystem ▪ API library for the application processor (including source code) ▪ Sample application software (including source code)
Documentation	Download: Modbus TCP/IP subsystem implementation guide and additional information

Order Numbers

Please contact us for details	**Modbus TCP/IP Server Subsystem for Altera-Intel FPGA** We are happy to discuss your particular requirements and adequate licensing options with you.

Additional Products and Services

SIA-YY-012501	Integration workshop for implementing Modbus TCP/IP
SIA-YY-012503	Integration support provided by e-mail or phone
Please contact us for details	Integration and pre-certification services

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