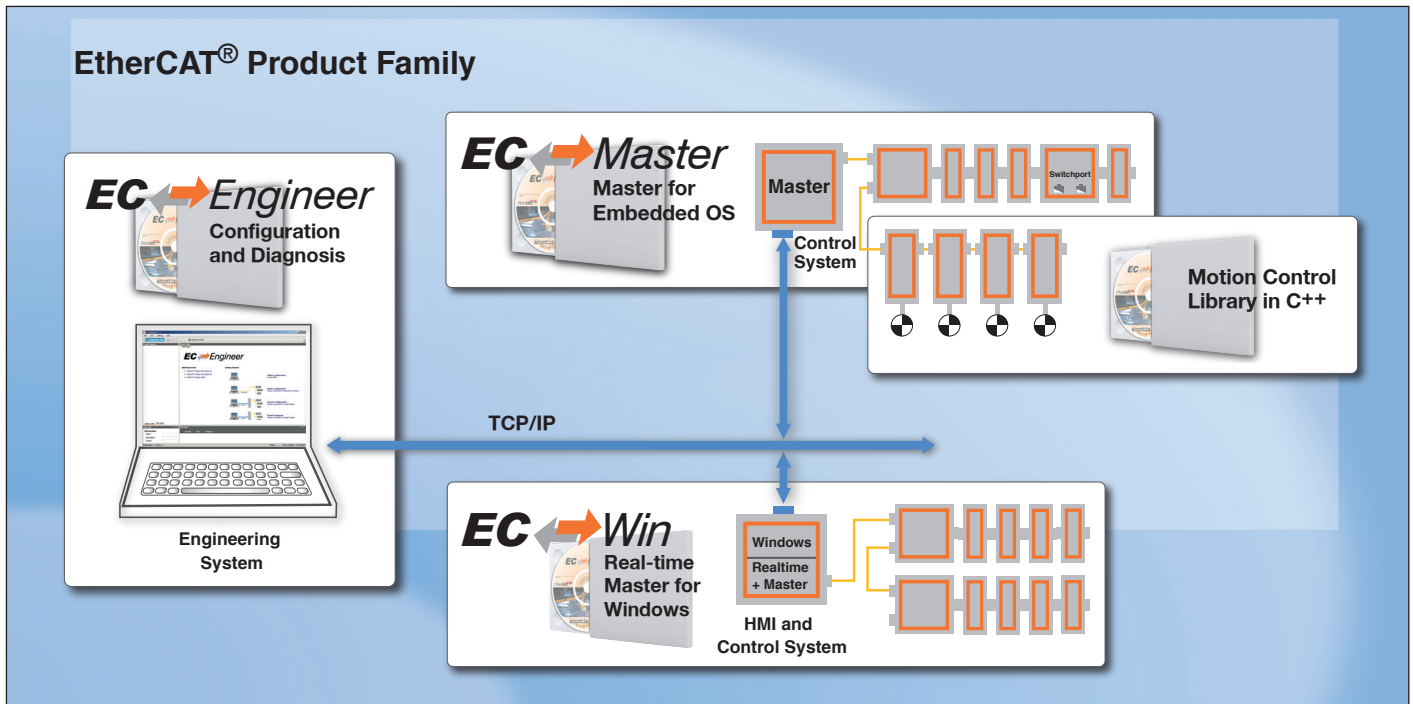


# EtherCAT®

## Master Stack Software



### EtherCAT® Master Stack

The EtherCAT® Master Stack is specifically optimized to run on embedded (real-time) operating systems:

- Compliant to EtherCAT Master Classes Directive (ETG.1500)
- Highly portable: independent from Operating System and Compiler
- Ready-to-run implementations for many operating systems
- High performance, minimum CPU load
- CPU architectures: x86, ARM, PowerPC, SH, MIPS
- Optimized for SMP multi-core operation (symmetric multiprocessing)
- Reliable and well proven in many customer applications worldwide. Market leading companies in the Semiconductor, Robotics, PLC/Motion, Measurement and other industries rely on this software.
- Two product editions available:  
Class A: Full-featured  
Class B: Basic features

### Features Class B Edition

- Support of EtherCAT network information (ENI) configuration file
- Topology check: comparison of configured and actual network during boot-up
- Cyclic process data exchange
- CANopen over EtherCAT (CoE) protocol: SDO upload and download, SDO information services (to access CANopen object dictionary), emergency request
- Servo Profile over EtherCAT (SoE) protocol
- Ethernet over EtherCAT (EoE) protocol (virtual switch)
- Slave to Slave Communication
- Support of Safety over EtherCAT (FSoE) slaves
- Access to Slave EEPROM and Registers
- Sophisticated error detection and diagnosis functions

### Features Class A Edition

- All Class B features
- Synchronization with Distributed Clocks (DC) including Master Synchronization (DCM)
- ADS over EtherCAT (AoE) mailbox protocol
- File Transfer over EtherCAT (FoE) mailbox protocol
- Vendor over EtherCAT (VoE) mailbox protocol

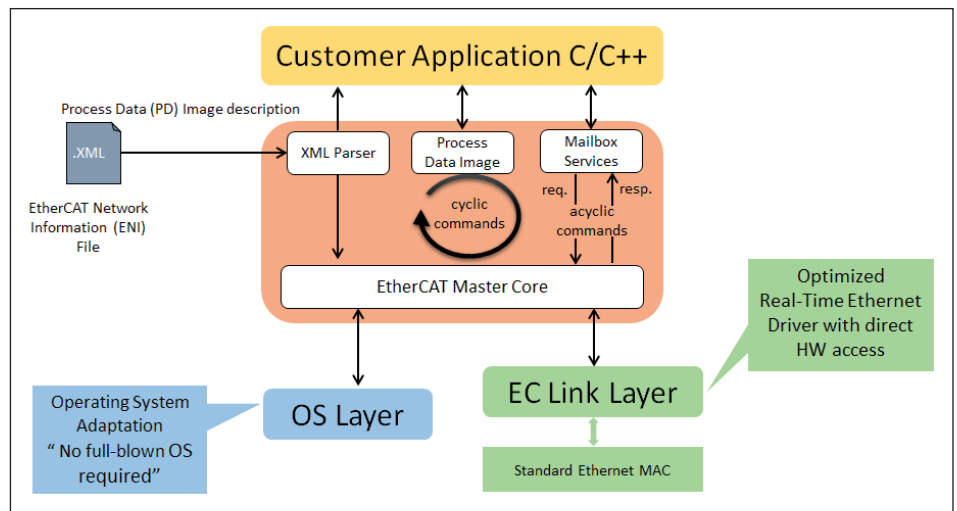
### Feature Packs (Options)

- Hot Connect support to dynamically connect and disconnect slaves while others are in full operation
- Redundancy support (ring topology), can be combined with Hot Connect Feature Pack
- Control of multiple, independent EtherCAT busses
- Master Object Dictionary with objects for master and slave state, error history, bus-scan result.
- TCP/IP remote interface with identical API for remote and local operation. Useful feature for diagnostic and configuration tools.

## Modular Architecture

EC-Master consists of the following components:

- **EtherCAT® Master Core:**  
The main EtherCAT® master functionality is implemented in the core layer. All protocol handling, e.g. process data transfer and mailbox protocols (CoE, EoE, FoE, SoE, AoE) are executed here.
- **Real-Time Ethernet Driver:**  
Data exchange between master and slaves. Zero-copy and/or polling techniques together with the core layer are supported to achieve best real-time performance and minimize CPU load.
- **OS-Layer:**  
The operating system calls are encapsulated here. To achieve best performance the most functions are implemented using simple „C“-language macros.



## System integration

- You will get professional partnership in setting up your custom control system. On request we handle the complete system integration.
- Customer specific development including porting the EtherCAT® master to other embedded operating systems
- Workshops and Consulting
- Analysis and optimization of system performance
- Development of Ethernet network drivers and software

## Operating System Support

### Wind River VxWorks

- All VxWorks Versions from 5.4 up to 7.0 (SMP)
- VxWin (VxWorks + Windows)
- x86, x64, ARM, PowerPC

### Microsoft® Windows® CE/EC

- Windows CE 6.0, EC 7.0, EC 2013
- CeWin (Windows CE + Windows)
- x86, ARM

### On Time RTOS-32

- Version 5.x
- RTOS32Win (RTOS-32 + Windows)

### QNX Neutrino

- Version 6.x, 7.0
- x86, x64, ARM

### Linux

- Kernel 2.6.24 and higher
- x86, x64, ARM, PowerPC

### IntervalZero RTX

- 32-Bit and 64-Bit

### TenAsys INtime®

- Version 4.x, 5.x and 6.x

### Windows® without Real-Time

- Windows 7/10 (32-Bit and 64-Bit)
- WinPCap Link Layer

### Windows® with Real-Time

- Windows 7/10 (32-Bit and 64-Bit)

### Xenomai

- Kernel 2.6.24 and higher
- x86, x64, ARM

### T-Kernel (iTron)

- Version 2.x

### Other operating systems

- ecos, FreeRTOS
- uC3, TI-RTOS
- More, on request

## acontis technologies – EtherCAT® Products and Services

As a services company we offer both, the product as well as support and development services. Get your benefit using our knowledge on many different embedded operating systems as well as in implementing high-performance networking solutions.

Many market leading companies rely on our EtherCAT® expertise to get optimum and competitive solutions.

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