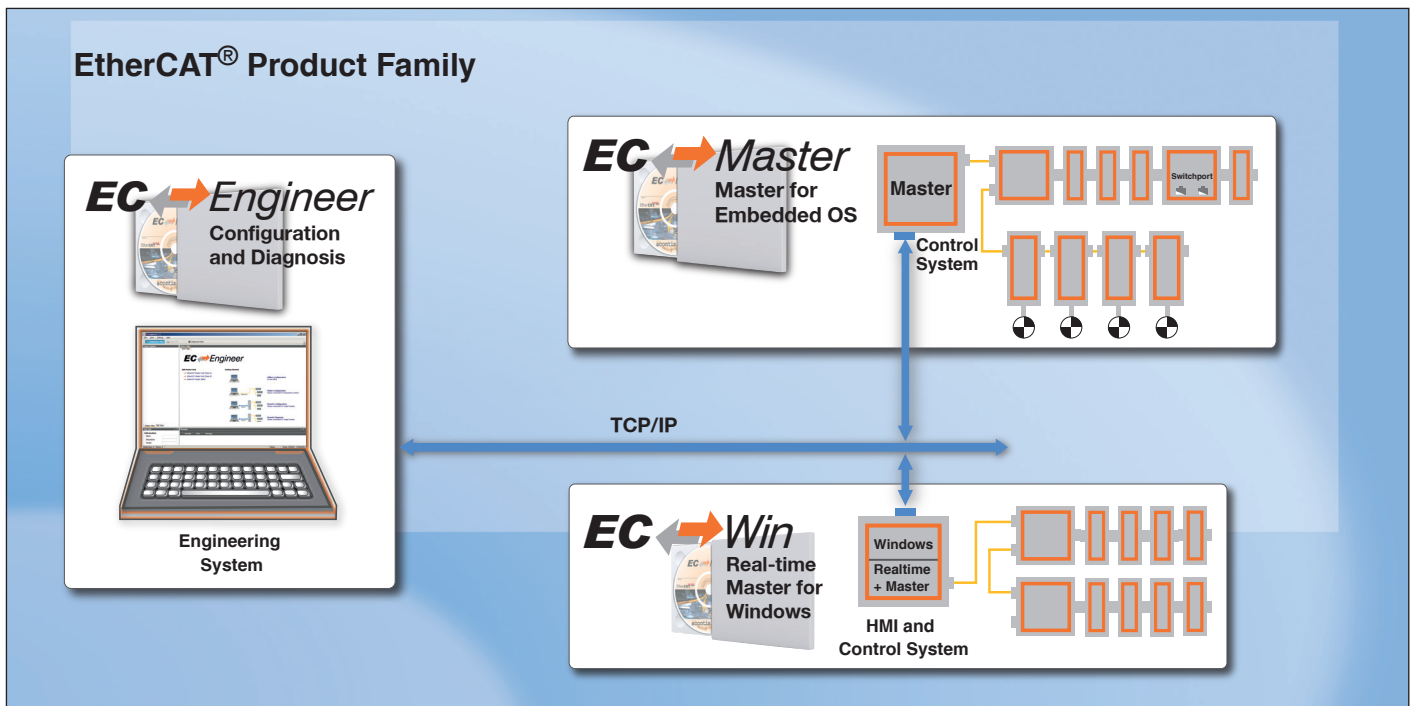


# EtherCAT® Master Stack Software



## 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.



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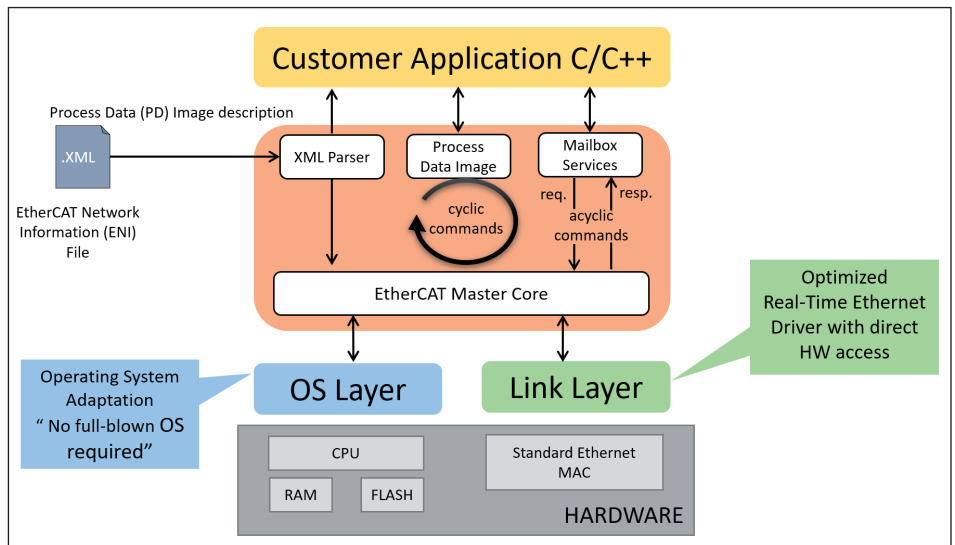
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# EtherCAT® Master Stack Software

## 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.



## acontis technologies EtherCAT® Products & Services

- You will get professional partnership in setting up your custom control system. On request we handle the complete system integration.
- Workshops and Consulting
- Analysis and optimization of system performance
- Customer specific development including porting the EtherCAT® master to other embedded operating systems
- Many market leading companies rely on our EtherCAT® expertise to get optimum and competitive solutions.

## Operating System Support

### Linux

- Kernel 2.6.24 and higher
- x86, x64, ARM, ARM64, PowerPC
- Real-time Hypervisor LxWin

### 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
- x86, ARM

### On Time RTOS-32

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

### QNX Neutrino

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

### 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

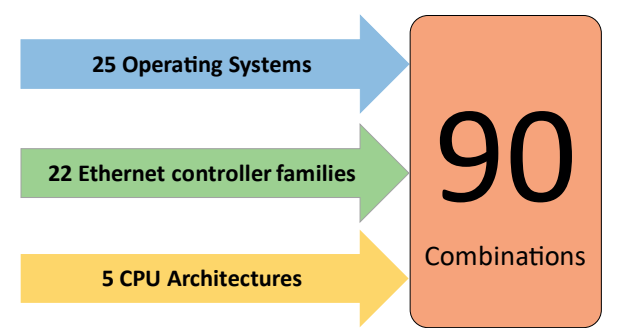
### T-Kernel (iTron)

- Version 2.x

### Other operating systems

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

## EC-Master Widely Available



EtherCAT® is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.