



# EtherCAT Master

## EtherCAT® Master Stack for several (Real-Time) OS

The EtherCAT Master Stack is written in ANSI-C designed with high performance, small resource usage and scalability in mind. The core components are operating system (OS) and CPU architecture independent. An adaptation to many prevalent (real-time) operating systems is available from stock which guarantees a cost efficient fast time-to-market integration into a custom application.

### Key Features

- Configuration and management of EtherCAT networks with enhanced error detection and diagnostic.
- Cyclic exchange of process data. The cycle can be defined by the EtherCAT Master or the application.
- Mailbox based communication with:
  - CAN application protocol over EtherCAT (CoE) with support for Service Data Object (SDO) upload/download, SDO information services and CoE emergency messages.
  - Ethernet over EtherCAT (EoE)
  - File over EtherCAT (FoE)
  - Servo Drive over EtherCAT (SoE)
- Sophisticated API common to all implementations as interface between the application and the EtherCAT Master Stack.
- The master can either be configured with standardized XML based EtherCAT network information (ENI) files (OS independent XML parser included) or via the API if the OS doesn't support a file system. ENI configuration files may reside in ZIP/GZ archives.
- Allows application defined asynchronous communication in parallel to the cyclic data exchange (e.g. read the EtherCAT slave EEPROM).
- Built-in detailed diagnostic and profiling functions.
- Slave-to-slave copy support (required for FSoE).
- Support for remote access to configure, control and monitor the network with the esd EtherCAT Workbench (separate product).
- Support for cable redundancy with 2<sup>nd</sup> Network Interface Controller (NIC) to handle single fault malfunctions (cable break, damaged plug, EMI, slave breakdown) without communication interruption or data loss.
- Support for Distributed Clock (DC) based slave synchronization with initial calculation of delay compensation parameter.
- Support for multi master mode to address independent slave segments via several physical NICs or via a VLAN tag enabled Ethernet switch with a single NIC.
- Support to handle binary EtherCAT Slave Information (ESI) data EtherCAT Master Class A according to ETG.1500.
- The well defined OS layer and interface to the NIC facilitates a simple adaption to platforms not yet supported.
- Comprehensive manual and example application in source code.

### Applications

Easy and fast integration of EtherCAT Master support into industrial control and automation systems, testbed systems or production control systems.

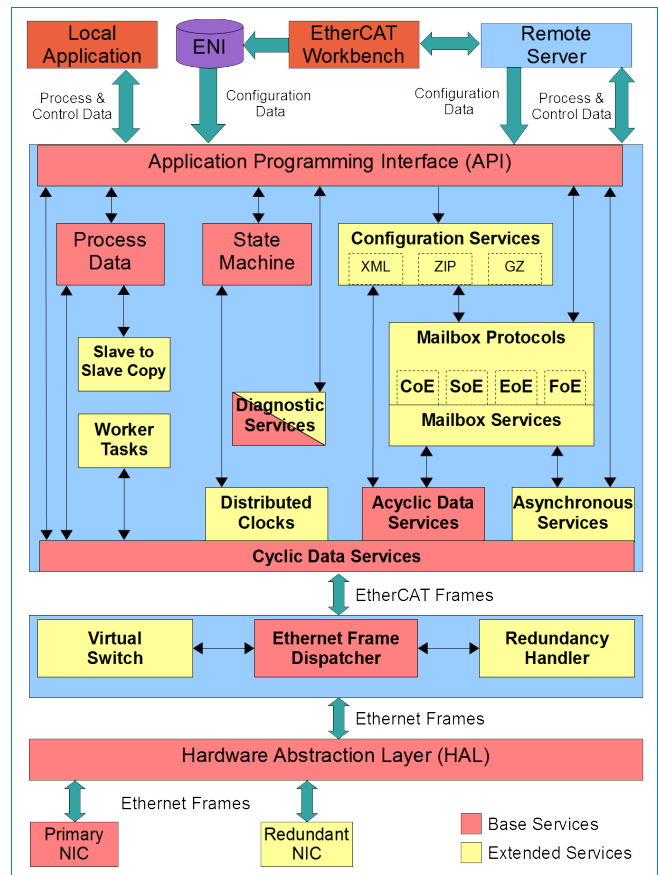
### Technical Specifications:

Hardware Requirements:	
Standard Network Interface Controller (NIC)	
Platform Support:	
Operating System:	CPU Architecture:
VxWorks 5.4.x / 5.5.x / 6.x	x86 / PPC
QNX 6.5.x / 6.6.x	x86 / PPC / ARM
QNX 7.x	x86 / x86_64 / ARM
RTX 2009 / 2011 / 2012	x86
RTX64 2014	x64
OS-9 5.2	PPC
Linux	x86 / x86_64 / PPC / ARM
Windows XP/Vista/7/8/10	x86 / x86_64

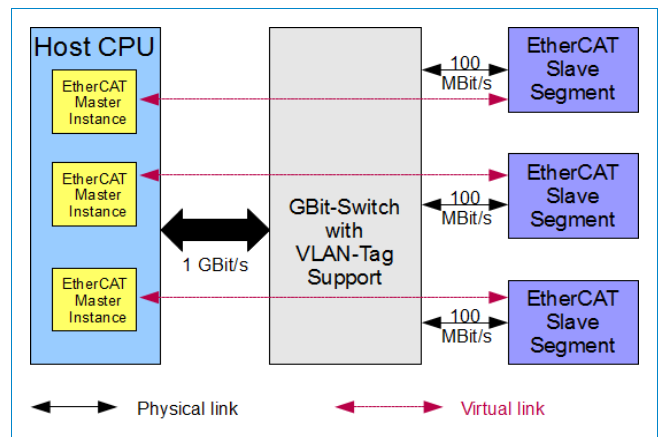
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## EtherCAT®



Stack Architecture Overview



Switch based Multi Master Mode using single NIC

### Order Information:

Designation	Order No.
EtherCAT Master, single license	P.4500.xx
EtherCAT Master, project license	P.4501.xx
EtherCAT Master, demo versions*	P.4502.xx

Please contact esd for platform specific order number details or further supported platforms.

\* Demo versions are not available for all supported platforms.

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