Kithara
THE PULSE OF REALTIME

EtherCAT® Master in Real-Time

Freely programmable
Real-Time EtherCAT® Master on Windows®

During the years the »RealTime Suite«™ has been used for high-performance solutions for Windows® by numerous manufacturers of testing rigs, as well as in mechanical engineering, automation and robotics. The integrated real-time EtherCAT® Master is a fundamental basis for building modern automation solutions.

Kithara Software provides an EtherCAT® Master handling the process data exchange with the connected EtherCAT slaves in real-time under the Windows operating system.

This allows transfering of actual data even in largest EtherCAT topologies with the shortest possible cycle times. EtherCAT slaves (e.g. I/O modules or servo drives) of all leading manufacturers are supported.

The EtherCAT® Master of the Kithara »RealTime Suite« provides the flexible exchange of process and service data as well as the protocols CoE, EoE and FoE. Based on the "Distributed-Clocks" technology, slaves can be synchronized among each other and with the PC very precisely. The EtherCAT implementation is hot-pluggable and provides cable redundancy.

Also, Safety-over-EtherCAT® logic can be part of the topology.

The functional interface of the Kithara EtherCAT® Master is both easy to use and highly flexible, so different applications can be implemented.

EtherCAT®

www.kithara.de

Kithara »RealTime Suite« – EtherCAT® Module

EtherCAT® Module features:

» Real-time process data exchange (PDO)

» Real-time mailbox access, SDO up/download and state control

EtherCAT Bus Scan / Configuration

» Automatically reading SII (EEPROM)

» SDO evaluation

» Evaluation of device configuration files XML/EDS

» Auto-configuration based on EtherCAT bus scan

» PDO mapping, PDO assignment, Watchdog configuration, specific SDO parameters adjustable

» GUI program Kithara »Master Monitor« for topology/bus analysis and configuration available

Process Data Exchange

» User triggered update (e.g. by cyclic real-time task)

» Update and evaluation in real-time context

» Grouping of process data in "data sets", multiple data sets possible

» Data sets can be updated with different frequencies

» Process data mapped into shared memory (accessable on kernel-level and user-level)

» Data set handler for event-triggered evaluation

Error detection and run-time diagnosis

» Cyclic topology check

» Cyclic slave error check

» SyncManager / PDI watchdogs

» Slave-initiated emergency request check

» Error handler

Mailbox features

» CANopen® over EtherCAT (CoE = SDO up/download, SDO info service, emergency request)

» File-over-EtherCAT (FoE = File up and download, firmware download in bootstrap state)

» Ethernet-over-EtherCAT (EoE = real-time or Windows® network interface connections via EoE slaves, e.g. EL6601)

» ServoDrive-over-EtherCAT (SoE = SERCOS interface)

Distributed Clock (DC)

» Automatic configuration of DC-Units

» Automatic time distribution

» DC-synchronous process data exchange

» Configuration of slave's SYNC-unit & LATCH-unit

» DC Op-Mode selectable

» DC-parameter evaluation from XML file of the device

» Jitter < 100 ns

Safety-over-EtherCAT®:

» Safety solutions according to FSoE protocol ("Safety-over-EtherCAT")

» Safety up to SIL3 (IEC 61508)

» All available "TwinSAFE" slaves are supported

EtherCAT® Automation Protocol:

» High-speed factory level/control level communication

» PDO/SDO/FoE between PCs with up to 10 Gbit/s

Additional features:

» Direct low-level slave register access

» Direct low-level SII (Slave Information Interface) access

» Hot Connect (dynamic topology change supported)

» Cable Redundancy

Operating systems:

» Windows 8 / 8.1 (32-bit & 64-bit)

» Windows 7 (32-bit & 64-bit)

» Windows Vista (32-bit)

» Windows XP (32-bit), >= SP 3

» Windows Server and Embedded versions also supported

Programming languages:

» C/C++, Delphi, C# and others

» To achieve real-time capabilities, native 32-bit or 64-bit code (x86/x64) must be generated by the compiler

» Access via COFF or OMF import library, ANSI C

» Recommended: Microsoft® Visual Studio®/C++ 2010 or Embarcadero® C++Builder®

For the latest list of features, supported hardware, operating systems and programming languages, visit our web site at www.kithara.de.
We recommend downloading a test/evaluation version. Please contact us for any questions regarding your project!

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