Kithara
THE PULSE OF REALTIME

CAN & CANopen® in Real-Time

Real-Time CAN drivers & CANopen® 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 CAN fieldbus and the automation protocol CANopen® are now supported to enable the implementation of modern automation solutions.

The CAN module provides real-time drivers for CAN interfaces of various manufacturers with a vendor-independent interface. The easy to use function interface also makes filtering of CAN messages possible and provides a precise time stamp for every received CAN message.

Kithara Software also draws your attention to a CANopen® Master, based on real-time CAN drivers, which performs the exchange of process data with connected CANopen® slaves under the Windows® operating system in real-time. For the CANopen® slaves, such as I/O modules or servo drives, all types of communication are supported.

As a special feature, CAN and CANopen® devices can be integrated into a superior EtherCAT® topology, if they are connected via the EL6751 of Beckhoff. This way, CANopen® and EtherCAT®-based slaves can be selected and mixed together by cost and function criterias.

CAN CANopen www.kithara.de

Kithara »RealTime Suite« – CAN & CANopen® Module

CAN Module features:

- » Small and simple hardware-independant API
- » Transmits and receives CAN messages in real-time (baudrates up to 1 MBaud)
- » Full support of standard and extended frame format (fully compatible to CAN 2.0B)
- » Software buffer to prevent message loss even on very high bus-load
- » Time-out function for transmitting messages
- » Installable filter handler for received messages
- » Message processing assignable to any CPU / Core
- » Auto-capturing of high-resolution timestamps
- » „Listen-Only“ mode for analysis
- » „Error-Code-Capture“ register readable

CANopen® Module features:

- » Based on RealTime, Multitasking and CAN Module
- » According to CANopen® standard CiA 301
- » Real-time SDO Expedited/Segmented up/download
- » Real-time process data exchange and state control

CANopen Bus Scan / Configuration

- » Automatic scanning of connected slaves
- » Auto-configuration after reading ESD (Electronic Data Sheet) files according to CiA 306 for slave information
- » PDO mapping, PDO assignement, Watchdog configuration, specific SDO parameters adjustable

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, can be updated independently
- » Data set handler for event-triggered evaluation
- » Process data mapped into shared memory (accessable on kernel-level and user-level)
- » Synchronous or asynchronous PDO transmission, cyclic or acydic, RTR-only PDO transmission

Error detection and run-time diagnosis

- » Cyclic topology check
- » Cyclic slave error check
- » Process data completion check
- » SyncManager / PDI watchdogs
- » Slave-initiated emergency request check
- » Error handler

Currently supported CAN hardware:

- » Interfaces from: EMS, esd, IXXAT, Kvaser, PEAK
- » PCI, PCIe, CompactPCI, CardBus, ExpressCard, USB (PCIe or ExpressCard recommended for real-time)
- » Using the Beckhoff EL6751, CAN and CANopen® can be integrated into a superior EtherCAT® topology (API of EtherCAT Master and CANopen Master is congruent)

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!

Copyright © 2014 Kithara Software GmbH. All rights reserved. No liability for printing errors. Subject to change. Windows is a registered trademark of Microsoft Corp. EtherCAT is a registered trademark of Beckhoff Automation GmbH. CANopen is a registered trademark of CAN in Automation e.V. GigE Vision is a registered trademark of Automated Imaging Association. »RealTime Suite« is a trademark of Kithara Software GmbH. All other trademarks or registered trademarks are property of their respective owners.

Headquarter / Worldwide
Kithara Software GmbH
Alte Jakobstrasse 78 ▪ 10179 Berlin, Germany
fon: +49(0)30 · 27 89 673 · 0 ▪ fax: · 20
info@kithara.de ▪ www.kithara.de

North America
Kithara Software LLC
4795 Bethlehem Road, Suite D ▪ Richmond, VA 23230, USA
fon: +1 · 804 · 349 · 9001
info@kithara.us ▪ www.kithara.us