DeviceNet Slave Development Kit

Overview

DeviceNet connectivity for your products. DeviceNet is used in a wide range of industrial automation products and equipment. port provides a DeviceNet Slave Developers Kit (DSDK) that helps engineers to add the DeviceNet protocol quickly to a host of slave devices such as weld and robot controllers, sensors and medical equipment, and more.

The DSDK allows developers of embedded products to add UCMM (Unconnected Message Manager support) capable DeviceNet Slave functionality using field proven library. Designed for rapid integration into your DeviceNet products, the kit includes complete documentation, source code, and example application code for both an AMD 80188EM/SJA1000 CAN controller and the Infineon (Siemens) C167CR with internal CAN. All source code, with the exception of some microprocessor-specific startup code, is written in C.

Additional implementations for running the DeviceNet slave as an Linux application using the can4linux device driver and implementations using Texas Instruments DSPs TMS320F24x with internal CAN are available. Sample projects for these targets can be provided on request.

Features

DSDK features:

- Compiler support for the x188 and Infineon SABC167CR microcontroller
- Scalable for Group 2 Only or UCMM (Unconnected Message Manager support) capable devices
- Predefined group 2 connection set support for "Explicit Message" "Cyclic" "Polling" "Change of State" "Strobe Connections"
- UCMM (Unconnected Message Manager support) Explicit Message Server/Client
- Non-Volatile or DIP-Switch net parameter support
- Fragmentation of both Explicit and I/O messages
- Offline Connection Set
- Device Heartbeat Message producer
- Device Heartbeat Message consumer
- CAN controller supported:
  - Philips SJA1000 — stand alone CAN controller
  - Infineon SABC167CR — with integrated CAN controller
  - TMS320F2407 und TMS320F2812 — with integrated CAN controller
  - can4linux — Linux device driver
- supported Objects
  - Identity
  - DeviceNet
  - Connection
  - Assembly
  - Ack Handler
  - Message Router
  - Allen-Bradley Non-Volatile-Storage
  - Debug Template
  - Position Controller Supervisor Template
  - Position Controller Template

An adaptation of the DeviceNet software to meet the requirements of processors and CAN controllers not listed above can usually be accomplished within a few days using standard C code. We will gladly accomplish such an adaptation of the DeviceNet software on inquiry.

Position Control

For the development of a drive unit with a DeviceNet interface port provides a special add-on module. The Position Control Module bases on the objects Position Controller Supervisor and Position Controller and accelerates the device development by the handling of command and response messages and the drive-specific handshake for I/O messages. Routines for the services "Get Attribute Single" and "Set Attribute Single" make the drive configuration easier. Additional error indication functions supports the error handling. The Position Control Module allows the user to implement its own drive functionality, such as various profile types, special control algorithms, application-specific limit functions, standardized and individual modes.
Development Tools

The CAN-Analyzer CAN-RE\textit{p}ort is an efficient and versatile tool for analysis and starting of CAN-based networks like DeviceNet. The DeviceNet-specific interpretation of CAN messages is provided by a supplementary software module. This module contains commands to establish communication channels and to read and write object attributes. It can be used to test the DeviceNet communication of devices built using the DSDK.

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Functional demo versions of the CAN-analyzer CAN-RE\textit{p}ort with DeviceNet extension are available for download on http://www.canopentools.com

Engineering Services

\textit{p}ort is providing engineering services and trainings for our business activities:

- CAN and CAN-based protocols: CANopen, J1939, DeviceNet
- Industrial Ethernet Protocols: POWERLINK, EtherNet/IP, EtherCAT
- Implementation of devices according to CANopen device profiles
- VHDL based solutions for industrial applications
- application specific implementations or enhancements
- embedded LINUX projects

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