

can4linux - Linux Device Driver

Overview

can4linux is an universal LINUX™ device driver. It can be used to control ISA or PCI interface boards with CAN interface, or embedded CAN controller solutions. The GPLed sources are currently supporting CAN controllers (Philips SJA1000, Intel 82527, Infineon SAK82C900 and Motorola FlexCAN, TwinCAN). The driver can be compiled for all LINUX™ kernel versions 2.4 to 2.6. (older version for kernel versions 2.0 to 2.2 are available.)

Application

The *can4linux* Project started already in 1997 in cooperation with the LINUX™ LLP project to control laboratory or automation devices via CAN. Derived from this driver is the new *can4linux* version line 2.x and follow-up. Designed to be used in embedded applications as well as on the desktop this version is configured at compile time for the right hardware. Originally with support only for SJA1000 there is now support for Intels 82527 and new support for Infineons TwinCAN. Within the scope of the uClinux project a version supporting Motorolas FlexCAN was created.

Driver Interface

Using the LINUX™ kernels `/proc` interface, the driver is highly configurable. The driver is controlled by the standard driver functions `open()`, `close()`, `read()`, `write()` and `ioctl()`.

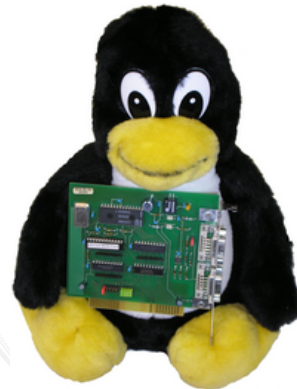
Any number of CAN interfaces can be accessed using the device nodes `/dev/can0 ... /dev/cann`. *can4linux* uses the device major number 91.

Hardware

The driver supports different interface boards, ISA, PCI or PC-104, with one or two channels.

- *port* AT-CAN-MINI (PeliCAN mode 29bit)
- EMS CPC-PCI
- IXXAT PCI03 (only SJA1000)
- Advantech Pcm-3680 (PC 104)
- DIL-NET TRM/816
- DigiTec PCMatic® Feldbusmodul FC-CAN
- ESD PC104/200
- Blackfin BF534/536

Originally the driver worked only on Intel-based PCs. In the mean time we have gained experiences with porting this driver also to embedded LINUX™ architectures. One is a PowerPC 863e with two Intel 82527 controllers, the other is ARM based with an external SJA1000, the microcontroller XC164CS with TwinCAN controller or the NetARM 150 with its four internal CAN channels.



Available Products

can4linux can be used as CAN interface for different products of *port*. Some of these tools are available as demo versions, to be downloaded from our [web site](http://www.port.de). (<http://www.port.de/shop.html>)

The simplest application with access to the CAN layer-2, that means transmit and receive CAN messages, is *horch*. It can be started interactively within an *xterm* or in the background as TCP/IP Server. For this server a graphical and programmable CAN-analyzer application CAN-RE*port* is available too.

To implement CANopen protocols for devices in CANopen networks, an ANSI-C communication library is available for development of own applications. Based on the library code, a so-called CANopen Server application is available. The Server provides easy access to CANopen services through a TCP/IP socket interface.

System Requirements

can4linux is freely available under the GPL license. It can be compiled for the LINUX™ kernels 2.0 to 2.6 for different hardware architectures.

Ordering Information

0530/13 *can4linux* Device Driver

Engineering Services

port 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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