NAME

cdce - USB Communication Device Class Ethernet (CDC ECM/NCM) driver

SYNOPSIS

To compile this driver into the kernel, place the following lines in your kernel configuration file:

device uhci
device ohci
device usb
device miibus
device uether
device cdce

Mobile Devices (eg. Huawei E3372, E5573 and others) may need additionally the u3g command port:

device ucom
device u3g

Alternatively, to load the driver as a module at boot time, place the following line in loader.conf(5):

if_cdce_load="YES"

DESCRIPTION

The **cdce** driver provides support for USB Host-to-Host (aka USB-to-USB) and USB-to-Ethernet bridges based on the USB Communication Device Class Ethernet Control Model (CDC ECM) and Network Control Model (CDC NCM) specifications. It also provides device-side CDC ECM support.

The USB bridge appears as a regular network interface on both sides, transporting Ethernet frames.

For more information on configuring this device, see ifconfig(8).

USB 1.x bridges support speeds of up to 12Mbps, and USB 2.0 speeds of up to 480Mbps.

Packets are received and transmitted over separate USB bulk transfer endpoints.

The **cdce** driver does not support different media types or options.

Mobile **cdce** Network Devices may need a connect command sequence via u3g serial command port before they activate the NCM/ECM/ACM network interface. For example:
echo 'AT^NDISUP=1,1,"internet"' > /dev/cuaU[0].0

where "internet" is your providers apn name.

HARDWARE

The following devices are supported by the **cdce** driver:

- Prolific PL-2501 Host-to-Host Bridge Controller
- Sharp Zaurus PDA
- Terayon TJ-715 DOCSIS Cable Modem
- Huawei 3G/4G LTE (eg. E3372, E5573) and other mobile network devices

DIAGNOSTICS

cdce%d: no union descriptor The driver could not fetch an interface descriptor from the USB device. For a manually added USB vendor/product, the CDCE_NO_UNION flag can be tried to work around the missing descriptor.

cdce%d: no data interface
cdce%d: could not read endpoint descriptor
cdce%d: unexpected endpoint
cdce%d: could not find data bulk in/out For a manually added USB vendor/product, these errors indicate that the bridge is not compatible with the driver.

cdce%d: watchdog timeout A packet was queued for transmission and a transmit command was issued, however the device failed to acknowledge the transmission before a timeout expired.

cdce%d: no memory for rx list -- packet dropped! Memory allocation through MGETHDR or MCLGET failed, the system is running low on mbufs.

cdce%d: abort/close rx/tx pipe failed
cdce%d: rx/tx list init failed
cdce%d: open rx/tx pipe failed
cdce%d: usb error on rx/tx

SEE ALSO

arp(4), cdceem(4), intro(4), ipheth(4), netintro(4), urndis(4), usb(4), ucom(4), u3g(4), ifconfig(8)

Universal Serial Bus Class Definitions for Communication Devices,
http://www.usb.org/developers/devclass_docs/usbcdc11.pdf.

Data sheet Prolific PL-2501 Host-to-Host Bridge/Network Controller,
http://tech.prolific.com.tw/visitor/fcabdl.asp?fid=20679530.

HISTORY

The **cdce** device driver first appeared in OpenBSD 3.6, NetBSD 3.0 and FreeBSD 6.0.

AUTHORS

The **cdce** driver was written by Craig Boston *<craig@tobuj.gank.org>* based on the aue(4) driver written by Bill Paul *<wpaul@windriver.com>* and ported to OpenBSD by Daniel Hartmeier *<dhartmei@openbsd.org>*.

CAVEATS

Many USB devices notoriously fail to report their class and interfaces correctly. Undetected products might work flawlessly when their vendor and product IDs are added to the driver manually.