

# How to Add CAN Support to the PhyCORE-Vybrid PD13.1.0 Linux BSP

## Step-by-step guide

### Software Setup:

#### 1. Kernel:

- a. Apply the CAN patches to the linux source code: [0002-mvf-fixed-flexcan-driver-and-added-support-for-flexc.patch](#) and [0003-pcm052-added-flexcan-support-for-the-phyCORE-Vybrid.patch](#)

```
cd build_armv7l-timesys-linux-gnueabi/linux-3.0/
patch -p1 < 0002-mvf-fixed-flexcan-driver-and-added-support-for-flexc.patch
patch -p1 < 0003-pcm052-added-flexcan-support-for-the-phyCORE-Vybrid.patch
```

#### b. Rebuild the kernel:

```
make kernel-restage; make kernel-build; make kernel-install-image
```

#### 2. Root filesystem

- a. The root filesystem must include iproute2 and can-utils. Use the menuconfig command in the Timesys Factory to select them:

```
make menuconfig
|      -> Target Software                               |
|      -> Software Packages                             |
|      -> Networking                                     |
|      -> Miscellaneous                                 |
|      [*] iproute2 --->                               |
|
|      -> Target Software                               |
|      -> Software Packages                             |
|      -> Networking                                     |
|      CAN Bus --->                                     |
|      [*] canutils --->                               |
```

#### b. Build these packages:

```
make
```

### Test the CAN Interface:

We recommend using PCAN-USB and PCAN-View Software to test the CAN interface.



Download the device driver for PCAN-USB here: <http://www.peak-system.com/PCAN-USB.199.0.html?&L=1>

Open PCAN-View, install from here: <http://www.peak-system.com/PCAN-View.242.0.html?&L=1> (set to 1Mbit/s)

1. Open PCAN view on your host computer and configure the bitrate. In this example it is set to 1Mbit/s.
2. Setup the CAN interface on the Vybrid, from the Linux target console run:

```
ip link set can0 down
ip link set can0 type can bitrate 1000000 triple-sampling on
ip link set can0 up
```



Make sure that the bitrate set here matches the one set on your host computer in PCAN-View.

3. Transmit a message to the host computer. Type the following from the target console:

```
cansend can0 222 173 190 239 202 254 186 190
```

- a. You should see the following in the 'Receive' section of PCAN-View:

```
Should view the following:
Message          DLC          Data
01h              8          DE AD BE EF CA FE BA BE
```

4. Receive a message from the host computer. Type the following from the target console:

```
candump
[CTRL+C to quit candump]
```

- a. On PCAN-View 'Transmit':

- i. Right Click -> New Message
- ii. Create a message
- iii. Click OK
- iv. Double Click the message in the 'Transmit' window
- v. When running candump - should see the message in target console



#### CAN Not Working?

See this message: "ip: either "dev" is duplicate, or "type" is garbage"

[http://www.armadeus.com/wiki/index.php?title=CAN\\_bus\\_Linux\\_driver](http://www.armadeus.com/wiki/index.php?title=CAN_bus_Linux_driver)

**Solution:** Run "which ip", if it states "/bin/ip" - make sure you are using the correct filesystem (iproute2) -- should result in "/sbin/ip"

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