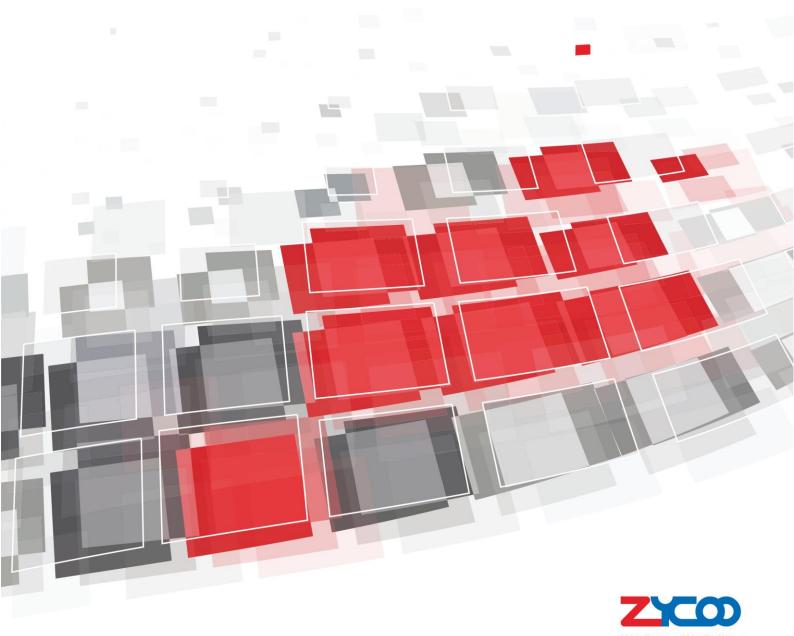# BRI Driver Installation Guide

This guide of BRI driver installation is applicable for P1/P2 Hardware Appliance which is used to be installed with opensource asterisk or custom software.

If your system need BRI trunk for telephony communication, please following this guide to install BRI driver.

1. Installation Requirements
● You should detect your centos system, and it must include this similar kernel head file folder:
  /lib/modules/2.6.*/build
● Please prepare the relative installation packages provided by Zycoo(See below pictures).
● BRI can be inserted to slot2 only (for P2)

libpri-1.4.12.tar.gz	2014/10/13 星期...	好压 GZ 压缩文件	333 KB
misdn-2014-10-13.tar.gz	2014/10/14 星期...	好压 GZ 压缩文件	2,951 KB
mISDNuser-1.1.9.1-0.i386.rpm	2014/10/13 星期...	好压 RPM 压缩文...	363 KB

Notice: The driver can work normally at centos 5.5 /centos 5.9 version and the corresponding kernel version 2.6.18/2.6.34; other system or kernel version is not guaranteed by Zycoo.

2. Install driver
Please upload relative package to your system and install it by following steps:

(1) Install misdn driver with the commands:

        [root@localhost ~]# tar –xvf misdn-2014-10-14.tar.gz
        [root@localhost ~]# cd misdn
        [root@localhost misdn]# make
        [root@localhost misdn]# make install

        If error occurs when you compile, please copy the misdn driver head files into the kernel head file folder, then compile it again
        [root@localhost misdn]# cp include/linux/* /lib/modules/2.6.34/build/include/linux/

(2) Install mISDNuser,
        rpm   –ivh mISDNuser-1.1.9.1-0.i386.rpm   --force –nodeps
        After installation, you can discover the command "misdnportinfo" in your system, and you can use this command to detect BRI interfaces. For example:

```
   -> Layer 2 protocol 0x02000002 is detected, but not allowed for NT lib.
 * Port NOT useable for PBX (maybe there is already a PBX running?)
--------
Port  2: NT-mode BRI S/T interface port (for phones)
   -> Layer 2 protocol 0x02000002 is detected, but not allowed for NT lib.
 * Port NOT useable for PBX (maybe there is already a PBX running?)
--------
Port  3: TE-mode BRI S/T interface line (for phone lines)
   -> Interface is Poin-To-Point.
   -> Protocol: DSS1 (Euro ISDN)
   -> Layer 4 protocol 0x04000001 is detected, but not allowed for TE lib.
      (You can see this error ifyour driver module was not startedwith an appropriate layermask=option, eg, layermask=0xf,0xf,0xf,0xf)
   -> childcnt: 2
 * Port NOT useable for PBX (maybe there is already a PBX running?)
--------
Port  4: TE-mode BRI S/T interface line (for phone lines)
   -> Interface is Poin-To-Point.
   -> Protocol: DSS1 (Euro ISDN)
   -> Layer 4 protocol 0x04000001 is detected, but not allowed for TE lib.
      (You can see this error ifyour driver module was not startedwith an appropriate layermask=option, eg, layermask=0xf,0xf,0xf,0xf)
   -> childcnt: 2
 * Port NOT useable for PBX (maybe there is already a PBX running?)
--------
```

(3) Install libpri-1.4.12.tar.gz

[root@localhost ~]# tar –xvf libpri-1.4.12.tar.gz

[root@localhost ~]# cd libpri-1.4.12

[root@localhost ~]# ./configure

[root@localhost ~]# make install

3. Driver configuration and insmod

(1) Add the line "blacklist xhfc" in the "/etc/modprobe.d/blacklist.conf" to block the driver to load automatically while system starts running every time.

(2) Insmod misdn driver protocol as the following order:

modprobe mISDN_core debug=0

modprobe mISDN_l1 debug=0

modprobe mISDN_l2 debug=0

modprobe l3udss1 debug=0

(3) Load the misdn application with the following commands:

modprobe xhfc debug=0 protocol=0x412,0x412,0x412,0x412 layermask=0x3,0x3,0x3,0x3 pcm=1 pcm_config=0x0D000000 EchoCancel=16 encoding=2

Parameter Explanation:

- debug :driver output log, 0= disable.
- protocol mode: NT_PTP:0x412 ;   NT_PTMP:0x12;   TE_PTP:0x402;   TE_PTMP:0x02
- layermask: NT_PTP &NT_PTMP protocol value 0x3;   TE_PTP & TE_PTMP protocol value 0xf
- Other parameters needn't to be changed; the driver of BRI module in the above example is NT_PTP mode.
- Encoding=2 (fixed value), it means ulaw or alaw codec is used in misdn. The value 2 is alaw codec which is default fixed value, you cannot change it.
- EchoCancel: Enable / Disable hardware echo cancellation. 16 – disable; 17 - enable.

(4) Remove driver

rmmod   xhfc   (you must close asterisk first)

4. Compile asterisk

Notice: ZYCOO system is based on asterisk 1,8.7.1 and working normally. Please test by yourself if your system is not based on this version.

To compile asterisk, you need choose chan_misdn module; after compiling, please config your asterisk misdn.conf file, also you can refer to ZYCOO system configuration.

For example: /etc/asterisk/misdn.conf include configuration of 4 ports

```
[trunk_1]
astdtmf = yes
trunkname = 1    ; GUI metadata
ports = 1
context = from-voip
method = standard
echocancel = no
overlapdial = no
[trunk_2]
astdtmf = yes
trunkname = 2    ; GUI metadata
ports = 2
context = from-voip
method = standard
echocancel = no
overlapdial = no
[trunk_3]
astdtmf = yes
trunkname = 3    ; GUI metadata
ports = 3
context = from-voip
method = standard
echocancel = no
overlapdial = no
[trunk_4]
astdtmf = yes
trunkname = 4    ; GUI metadata
ports = 4
```

```
context = from-voip
method = standard
echocancel = no
overlapdial = no
```

Add misdn trunk plan into the asterisk dialplan /etc/asterisk/extension.conf (ZYCOO added misdn trunk plan into asterisk dialplan /etc/asterisk/extensions_additional.conf)

/etc/asterisk/extensions.conf

```
[globals]
trunk_1 = misdn/g:trunk_1/
trunk_2 = misdn/g:trunk_2/
trunk_3 = misdn/g:trunk_3/
trunk_4 = misdn/g:trunk_4/
```

```
[from-internal]
exten = _1.,1,Dial(trunk_1/${ EXTEN:1})
exten = _2.,1, Dial(trunk_2/${ EXTEN:1})
exten = _3.,1 ,Dial(trunk_3/${ EXTEN:1})
exten = _4.,1, Dial(trunk_4/${ EXTEN:1})
[from-voip]
exten=_X.,1,playback(hello-world)
```