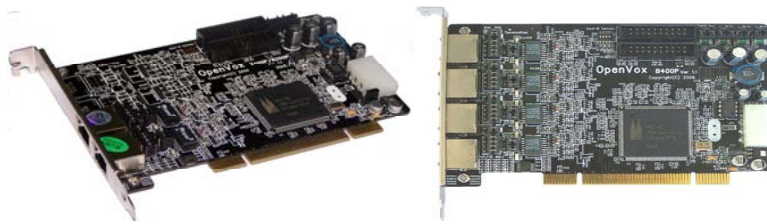




深圳开源通信有限公司

*OpenVox-Best Cost Effective Asterisk Cards*

## OpenVox B200P B400P B400E User Manual



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## Chapter 1 Overview

### 1. What is B200P/B400P/B400E

B200P/B400P/B400E series is a PCI/PCI Express card supporting 2/4 BRI S/T interfaces, with an onboard multi NT power feeding circuit. NT/TE mode can be independently configured on each of the 2 or 4 ports.

B200P/B400P/B400E series can be implemented for building Open Source Asterisk based systems such as ISDN PBX and VoIP gateway.

#### Target Applications:

High Performance ISDN PC Cards

ISDN PABX for BRI

VoIP Gateways

ISDN LAN Routers for BRI

ISDN Least Cost Routers for BRI

ISDN Test Equipment for BRI

#### Main Features:

Two/Four integrated S/T interfaces

ITU-T I.430 and TBR 3 certified and S/T ISDN supporting in TE and NT mode

Integrated PCI bus interface (Spec.2.2) for 3.3V and 5V signal environments

Support PCI Express for B400E

DTMF detection on all B-channels

Multiparty audio conferences bridge

Onboard power feeding

PCM bus connectors daisy chaining

Each of the 2/4 ports can be independently configured for TE or NE mode

Full software and hardware compatible with bristuff and mISDN driver

Application ready: use Asterisk to build your IP-PBX/Voicemail system

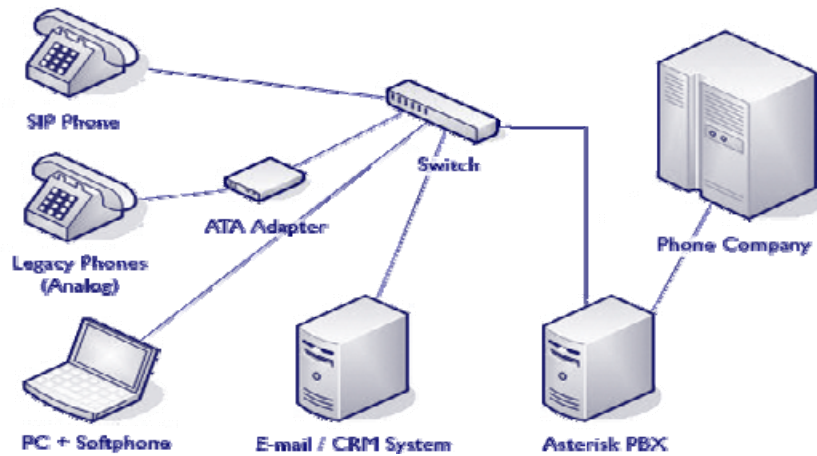
RoHS compliant

Certificates: CE and FCC

### 2. What is Asterisk:

The Definition of Asterisk is described as follow:

Asterisk is a complete PBX in software. It runs on Linux, BSD, Windows (emulated) and provides all of the features you would expect from a PBX and more. Asterisk does voice over IP in four protocols, and can interoperate with almost all standards-based telephony equipment using relatively inexpensive hardware.



**Figure 1: Asterisk Setup**

Source (<http://www.siriusit.co.uk/uploads/images/consulting/asteriskSetup.gif>)

Asterisk provides Voicemail services with Directory, Call Conferencing, Interactive Voice Response, Call Queuing. It has support for three-way calling, caller ID services, ADSI, IAX, SIP, H.323 (as both client and gateway), MGCP (call manager only) and SCCP/Skinny([voip-info.org](http://voip-info.org)).

## Chapter 2 Card Installation and Configuration

### 1. Hardware Installation and Setup

#### 1) Configure the Jumper Settings

Please check jumper setting for details. To install B200P/B400P/B400E, user should follow these steps:

##### A. Setting Card ID Switch

If user wants to install more than one cards of B200P or B400P in one pc, you should take care of the card id switch. It has three rules, which user must follow:

1. The card id of the first card must be set to 0, and the second card should be set to 1, and so on.
2. The First Card is a card that will be initialized (i.e installing driver) first when system is booting.
3. At most of cases, Linux will initialize PCI devices according to PCI slot order. The slot is nearest to the CPU will be initialized first; the slot at the far end from CPU will be initialized at last. That is to say, if user has more than one cards of B200P or B400P in pc, the one is nearest to CPU should be set to card id 0.

##### B. Adjusting Termination of S/T Interface (100 ohm)

1. If a port will work on NT mode, you should set jumper to CONNECT (ON).
2. If a port will work on TE mode, Theoretically it should be to OPEN(OFF), but user might connect to some non-standard isdn terminal equipments that do not have terminal resistors, for such equipments, you should set it to CONNECT(ON).

##### C. Power Feeding Connector

These jumpers control whether the card will feed power to the external isdn terminal. User should adjust accordingly.

- ✧ If the port will work on TE mode, user MUST set the jumper to OPEN(OFF)
- ✧ If this port will work on NT mode, the ISDN terminal requires ISDN power supply, user should set the jumper to CONNECT(ON).  
*ISDN terminal does not require ISDN power supply, user should set the jumper to OPEN(OFF).*

##### D. Power Feeding Input

If one of the four power feeding connectors is CONNECT (ON), user should connect a D-type connector from pc power supply to this jack, the D-type connector is used to provide power to your CDRom and 3.5" HDD.

E. Power Supply Selection

Some newest model PCs do not provide +5V on the PCI slots, at those cases, use has to set the jumper to 3.3v. there is no need power supply selection for B400E.

F. PCM IN/PCM OUT

These are for future usages.

- 2) Power off PC, remembering unplug the AC power cable
- 3) Insert B200P or B400P into a 3.3v or 5.0v PCI slot or B400E into PCI Express slot
- 4) Plug the hard disk power supply cable( D style) to power feeding input jack if need providing power to external equipment, please refer jumper setting section for the detail
- 5) Plug back the AC power cable, and power on PC

## 2. Software Installation and Setup

B200P/B400P/B400E supports original bristuff driver from [junghanns.net](http://www.junghanns.net). Customers can download it from <http://www.junghanns.net/>. There are few steps to install the driver drivers.

- 1) Checking the B200P/B400P/B400E hardware by command: `lspci -vvvvvvvvv`

```
02:04.0 ISDN controller: Cologne Chip Designs GmbH ISDN network Controller [HFC-4S] (rev 01)
Subsystem: Cologne Chip Designs GmbH Unknown device e888
Control: I/O+ Mem+ BusMaster- SpecCycle- MemWINV- VGASnoop- ParErr- Stepping- SERR- FastB2B-
Status: Cap+ 66MHz- UDF- FastB2B- ParErr- DEVSEL=medium >TAbort- <TAbort- <MAbort- >SERR- <PERR-
Interrupt: pin A routed to IRQ 169
Region 0: I/O ports at a000 [size=8]
Region 1: Memory at f7004000 (32-bit, non-prefetchable) [size=4K]
Capabilities: [40] Power Management version 2
Flags: PMEClk- DSI+ D1+ D2+ AuxCurrent=0mA PME(D0+,D1+,D2+,D3hot+,D3cold-)
Status: D0 PME-Enable- DSel=0 DScale=0 PME+

02:09.0 Ethernet controller: Marvell Technology Group Ltd. 88E8001 Gigabit Ethernet Controller (rev 13)
Subsystem: Giga-byte Technology Marvell 88E8001 Gigabit Ethernet Controller (Gigabyte)
Control: I/O+ Mem+ BusMaster+ SpecCycle- MemWINV- VGASnoop- ParErr- Stepping- SERR- FastB2B-
Status: Cap+ 66MHz+ UDF- FastB2B+ ParErr- DEVSEL=medium >TAbort- <TAbort- <MAbort- >SERR- <PERR-
Latency: 64 (5750ns min, 7750ns max), Cache Line Size: 32 bytes
Interrupt: pin A routed to IRQ 201
Region 0: Memory at f7000000 (32-bit, non-prefetchable) [size=16K]
Region 1: I/O ports at a400 [size=256]
[virtual] Expansion ROM at 50000000 [disabled] [size=128K]
Capabilities: [48] Power Management version 2
Flags: PMEClk- DSI- D1+ D2+ AuxCurrent=0mA PME(D0+,D1+,D2+,D3hot+,D3cold-)
Status: D0 PME-Enable- DSel=0 DScale=1 PME-
Capabilities: [50] Vital Product Data
```

## 2) Checking the supporting packages

Note that if there is no kernel source in the system, user should install them. User can run **yum** again: `yum install kernel-devel`. If user runs this command **yum** will install the sources for your current version of the kernel.

It is time to check for the availability of some other packages:

```
rpm -q bison
rpm -q bison-devel
rpm -q ncurses
rpm -q ncurses-devel
rpm -q zlib
rpm -q zlib-devel
rpm -q openssl
rpm -q openssl-devel
rpm -q gnutls-devel
rpm -q gcc
rpm -q gcc-c++
```

If any of those packages are not installed install them by using yum

```
yum install bison
yum install bison-devel
yum install ncurses
yum install ncurses-devel
yum install zlib
yum install zlib-devel
yum install openssl
yum install openssl-devel
yum install gnutls-devel
yum install gcc
yum install gcc-c++
```

## 3) Downloading, unzipping and compiling driver

- A. Download the stable version of bristuff drivers from <http://www.junghanns.net/>, and copy the tar file to /usr/src/:

```
cp bristuff-<version>.tar.gz /usr/src
cd /usr/src/
tar -xvzf bristuff-<version>.tar.gz
```

- B. Download OpenVox patch called qozap.c from [www.openvox.com.cn](http://www.openvox.com.cn).

It contains a patched qozap.c file, overwrite the original qozap.c file with the new qozap.c under /usr/src/bristuff-<version>/qozap.



## C. Make links with kernel source:

```
ln -s /usr/src/kernels/2.6.18-8.el5-i686/ /usr/src/linux-2.6
```

Here, under /usr/src there is kernel source, user must create link linux-2.6 under /usr/src/. There are many files under /usr/src/bristuff-0.3.0-PRE-1y-j, please check:

```
[root@new-host bristuff-0.3.0-PRE-1y-j]# ls
asterisk          CHANGES  download.sh  ISDNguard    libpri
asterisk-1.2.23  compile.sh INSTALL     libgsmat     libpri-1.2.4
asterisk-1.2.23.tar cwain     install.sh   libgsmat-0.0.2 libpri-1.2.4.tar
[root@new-host bristuff-0.3.0-PRE-1y-j]# cd ..
[root@new-host src]# cd bristuff-0.3.0-PRE-1y-j/
[root@new-host bristuff-0.3.0-PRE-1y-j]# ls
asterisk          CHANGES  download.sh  ISDNguard    libpri
asterisk-1.2.23  compile.sh INSTALL     libgsmat     libpri-1.2.4
asterisk-1.2.23.tar cwain     install.sh   libgsmat-0.0.2 libpri-1.2.4.tar
[root@new-host bristuff-0.3.0-PRE-1y-j]# ls -l
total 27188
lrwxrwxrwx  1 root root      15 Sep 19 13:36 asterisk -> asterisk-1.2.23
drwxr-sr-x  25 root root    4096 Sep 20 12:14 asterisk-1.2.23
-rw-r--r--  1 root root 19005440 Aug 20 16:50 asterisk-1.2.23.tar
-rw-r--r--  1 root root   18405 Jul 25 15:40 CHANGES
-rwxrwxrwx  1 root root    2181 Jun  9 2006 compile.sh
drwxr-xr-x  3 root root    4096 Sep 20 12:08 cwain
-rwxrwxrwx  1 root root    781 Sep 20 09:45 download.sh
-rw-r--r--  1 root root   2377 Apr 27 2005 INSTALL
-rw-r--r--  1 root root    40 Jul 12 2004 install.sh
drwxr-xr-x  2 root root    4096 Sep 19 12:18 ISDNguard
lrwxrwxrwx  1 root root    14 Sep 19 13:36 libgsmat -> libgsmat-0.0.2
drwxr-xr-x  2 root root    4096 Sep 20 12:08 libgsmat-0.0.2
lrwxrwxrwx  1 root root    12 Sep 19 13:36 libpri -> libpri-1.2.4
drwxr-xr-x  2 1000 1000    4096 Sep 20 12:08 libpri-1.2.4
-rw-r--r--  1 root root  348160 Sep 19 10:23 libpri-1.2.4.tar
drwxr-xr-x  2 root root    4096 Sep 19 12:18 patches
drwxr-xr-x  3 root root    4096 Sep 20 12:08 qozap
-rwxr-xr-x  1 root root    558 Sep 19 13:36 run_download.sh
drwxr-xr-x  4 root root    4096 Sep 19 12:18 SAMPLES
drwxr-xr-x  3 root root    4096 Sep 19 12:18 TESTING
drwxr-xr-x  3 root root    4096 Sep 20 12:09 zaphfc
lrwxrwxrwx  1 root root    13 Sep 19 13:36 zaptel -> zaptel-1.2.19
drwxr-xr-x 10 root root   12288 Sep 20 12:07 zaptel-1.2.19
-rw-r--r--  1 root root  8345600 Sep 19 10:23 zaptel-1.2.19.tar
drwxr-xr-x  3 root root    4096 Sep 20 12:08 ztgsm
[root@new-host bristuff-0.3.0-PRE-1y-j]#
```

## D. Compiling Bristuff

```
cd /usr/src/usr/src/bristuff-0.3.0-PRE-1y-j
```

```
chmod 777 install.sh
```

```
./install.sh
```

Above steps will install zaptel, libpri and asterisk.

After finishing the three steps, under asterisk directory, running **make samples** if user install asterisk for first time.

- E. Modifying and loading modules for zaptel and qozap  
**vi /etc/zaptel**, and edit the zaptel.conf like this:

```
loadzone=nl
defaultzone=nl
# qozap span definitions
# most of the values should be bogus because we are not really zaptel
span=1, 1, 3, ccs, ami
span=2, 2, 3, ccs, ami
span=3, 3, 3, ccs, ami
span=4, 4, 3, ccs, ami

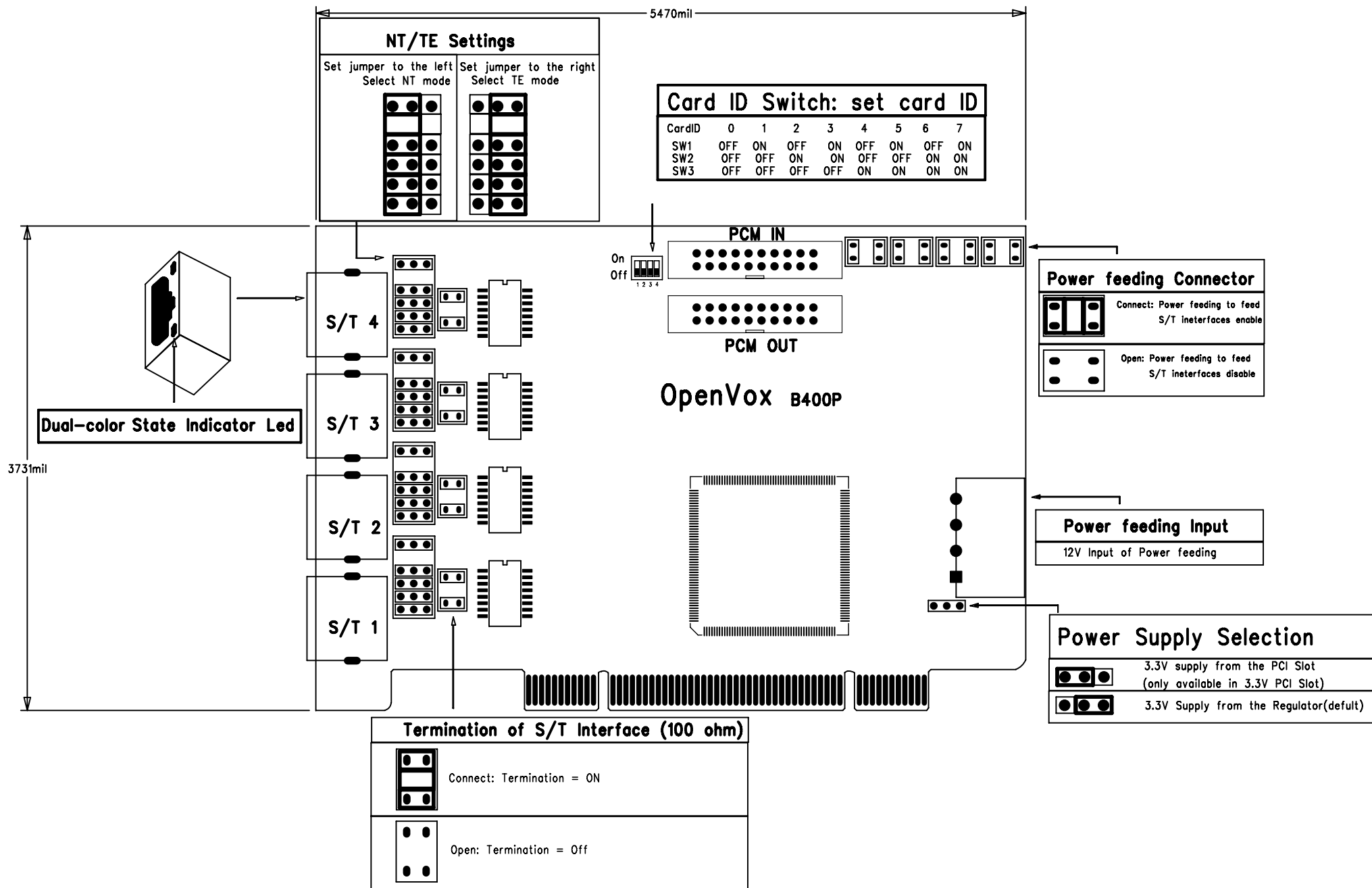
bchan=1, 2
dchan=3
bchan=4, 5
dchan=6
bchan=7, 8
dchan=9
bchan=10, 11
dchan=12

cd /usr/src/bristuff-0.3.0-PRE-1y-j/qozap
modprobe zaptel
modprobe qozap.ko (for kernel 2.6.o)
ztcfg - vvvvvvvvvvvvvvvv
```

- F. If user wants to modify the call rules, edit zapata.conf file under  
/etc/asterisk to make sure asterisk run successfully  
**asterisk - vvvvvvvvvvvc**

**Notes:****Test environments:****OS: Centos 5****Kernel version: 2.6.18-8.15****Bristuff version: bristuff-0.3.0-PRE-1y-j****Hardware: OpenVox B400P****Setting NT mode in B400E, you do not need power supply.**

## Chapter 3 Hardware Setting



OpenVox B400P Jumper Setting