深圳开源通信有限公司

OpenVox-Best Cost Effective Asterisk Cards

OpenVox B100P User Manual for Bristuff

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Table of Contents

Chapter 1 Overview

1. What is B100P

B100P is a PCI 2.2 compliant card supporting one BRI S/T interface. It can be configured as a NT/TE mode.

B100P 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:
One integrated S/T interface
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
Port 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.

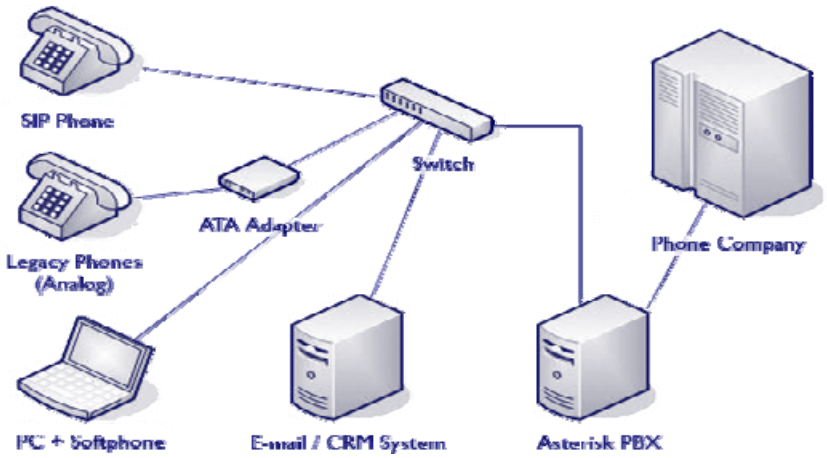

Figure 1: Asterisk Setup

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).

Chapter 2 Card Installation and Configuration

1. Hardware Installation and Setup

1) Configure the Jumper Settings

Please check jumper setting for details. To install B100P, user should follow these steps:

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

1. If a port will work on NT mode, you should set jumper (SW1) to NT mode and SW2 to connect (ON status). Please refer the hardware setting for setting in chapter 3.
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).

B. Power Supply Selection

B100P will automatically detect the Power supply. It supports 3.3V and 5.0 V PCI slot.

2) Power off PC, remembering unplug the AC power cable

3) Insert B100P into a 3.3v or 5.0v PCI slot

4) Plug back the AC power cable, and power on PC

2. Software Installation and Setup

B100P supports original Bristuff driver from junghanns.net. Customers can download it from http://www.junghanns.net/. There are few steps to install the driver drivers.

1) Checking the B100P hardware by command: **lspci -vvvvvvvvv**

```
01:02.0 Network controller: Cologne Chip Designs GmbH ISDN network controller [HFC-PCI] (rev 02)
        Subsystem: Cologne Chip Designs GmbH ISDN Board
        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: 16 (4000ns max)
        Interrupt: pin A routed to IRQ 58
        Region 0: I/O ports at 9c00 [disabled] [size=8]
        Region 1: Memory at dfdfec00 (32-bit, non-prefetchable) [size=256]
        Capabilities: [40] Power Management version 1
                Flags: PMEClk- DSI+ D1+ D2+ AuxCurrent=0mA PME(D0+,D1+,D2+,D3hot+,D3cold-)
                Status: D0 PME-Enable- DSel=0 DScale=0 PME+
```

2) Checking the support 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. 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-2 zaphfc]# pwd
/usr/src/bristuff-0.3.0-PRE-1y-j/zaphfc
[root@new-host-2 zaphfc]# cd ..
[root@new-host-2 bristuff-0.3.0-PRE-1y-j]# ls -l
total 27252
lrwxrwxrwx  1 root root       15 Dec  4 02:01 asterisk -> asterisk-1.2.23
drwxr-sr-x 25 root root     4096 Dec  4 17:50 asterisk-1.2.23
-rw-r--r--  1 root root 19005440 Nov 28 14:07 asterisk-1.2.23.tar
-r--r--r--  1 root root    17933 Jul 25 15:40 CHANGES
-rwxrwxrwx  1 root root     2181 Jun  9  2006 compile.sh
dr-xr-xr-x  3 root root     4096 Dec  4 17:47 cwain
-rwxrwxrwx  1 root root      558 Dec  4 02:01 download.sh
-r--r--r--  1 root root     2314 Apr 27  2005 INSTALL
-rwxrwxrwx  1 root root       40 Dec  4 02:01 install.sh
dr-xr-xr-x  2 root root     4096 Mar 26  2007 ISDNguard
lrwxrwxrwx  1 root root       14 Dec  4 02:01 libgsmat -> libgsmat-0.0.2
drwxr-xr-x  2 root root     4096 Dec  4 17:47 libgsmat-0.0.2
lrwxrwxrwx  1 root root       12 Dec  4 02:01 libpri -> libpri-1.2.4
drwxr-xr-x  2 1000 1000     4096 Dec  4 17:47 libpri-1.2.4
-rw-r--r--  1 root root   348160 Nov 28 14:06 libpri-1.2.4.tar
dr-xr-xr-x  2 root root     4096 Jun 25  2007 patches
dr-xr-xr-x  3 root root     4096 Jan  3 02:05 qozap
-rw-r--r--  1 root root    63208 Nov  8 16:07 qozap.c
dr-xr-xr-x  4 root root     4096 Jul 11  2005 SAMPLES
dr-xr-xr-x  3 root root     4096 Jul 11  2005 TESTING
dr-xr-xr-x  3 root root     4096 Jan  3 22:42 zaphfc
lrwxrwxrwx  1 root root       13 Dec  4 02:01 zaptel -> zaptel-1.2.19
drwxr-xr-x 10 root root    12288 Dec 19 22:51 zaptel-1.2.19
-rw-r--r--  1 root root  8345600 Nov 28 14:07 zaptel-1.2.19.tar
drwxr-xr-x  3 root root     4096 Dec  4 17:47 ztgsm
```

C. 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.

D. Modifying and loading modules for zaptel and zapata. of **vi /etc/zaptel,** and edit the zaptel.conf like this:

loadzone=nl

defaultzone=nl

span=1,1,3,ccs,ami

bchan=1,2

dchan=3

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

modprobe zaptel

make load

ztcfg -vvvvvvvvvvvvvvv and dmesg

```
zaphfc: CCD/Billion/Asuscom 2BD0 configured at mem e08c8c00 fifo d4a78000(0x14a78000) IRQ 58 HZ 1000
zaphfc: Card 0 configured for TE mode
zaphfc: 1 hfc-pci card(s) in this box.
Registered tone zone 3 (Netherlands)
```

E. If user wants to modify the call rules, edit zapata.conf and extensions.conf file under /etc/asterisk to make sure asterisk run successfully:

```
; Zapata telephony interface
;
; Configuration file

[channels]
;
; Default language
;
;language=en
;
; Default context
;
;
switchtype = euroisdn
; p2mp TE mode
signalling = bri_cpe_ptmp

; p2p TE mode
;signalling = bri_cpe
; p2mp NT mode
;signalling = bri_net_ptmp
; p2p NT mode
;signalling = bri_net

pridialplan = dynamic
prilocaldialplan = local
nationalprefix = 0
internationalprefix = 00

echocancel=yes
echotraining = 100
echocancelwhenbridged=yes

immediate=yes
group = 1
context=demo
channel => 1-2
```

Set with TE Mode

Channels

```
[demo]
;
; We start with what to do when a call first comes in.
;
exten => s,1,Wait,1                     ; Wait a second, just for fun
exten => s,n,Answer                     ; Answer the line
exten => s,n,Set(TIMEOUT(digit)=5)      ; Set Digit Timeout to 5 seconds
exten => s,n,Set(TIMEOUT(response)=10)  ; Set Response Timeout to 10 seconds
exten => s,n(restart),BackGround(demo-congrats) ; Play a congratulatory message
exten => s,n(instruct),BackGround(demo-instruct)        ; Play some instructions
exten => s,n,WaitExten          ; Wait for an extension to be dialed.

exten => 2,1,BackGround(demo-moreinfo)  ; Give some more information.
exten => 2,n,Goto(s,instruct)
```

F. Start running asterisk:

asterisk -vvvvvvvvvgc and check the zap channesl

```
*CLI> zap show channels
   Chan Extension  Context         Language   MusicOnHold
 pseudo            demo
      1            demo
      2            demo
```

Make inbound call and play IVR

```
*CLI>     -- Going to extension s|1 because of immediate=yes
    -- Accepting voice call from '82535095' to 's' on channel 0/2, span 1
    -- Executing Wait("Zap/2-1", "1") in new stack
    -- Executing Answer("Zap/2-1", "") in new stack
    -- Executing Set("Zap/2-1", "TIMEOUT(digit)=5") in
    -- Digit timeout set to 5
    -- Executing Set("Zap/2-1", "TIMEOUT(response)=10") in new stack
    -- Response timeout set to 10
    -- Executing BackGround("Zap/2-1", "demo-congrats") in new stack
    -- Playing 'demo-congrats' (language 'en')
```

Inbound call

Notes:

Test environments:

OS: CentOS 5

Kernel version: 2.6.18-8.15

Bristuff version: bristuff-0.3.0-PRE-1y-j

Hardware: OpenVox B100P

References:

http://www.asteriskguru.com/tutorials/bri.html

http://www.voip-info.org/wiki/index.php

http://www.voip-info.org/wiki-Asterisk+zaphfc+install

asterisk.org

www.opevox.com.cn

http://www.junghanns.net/

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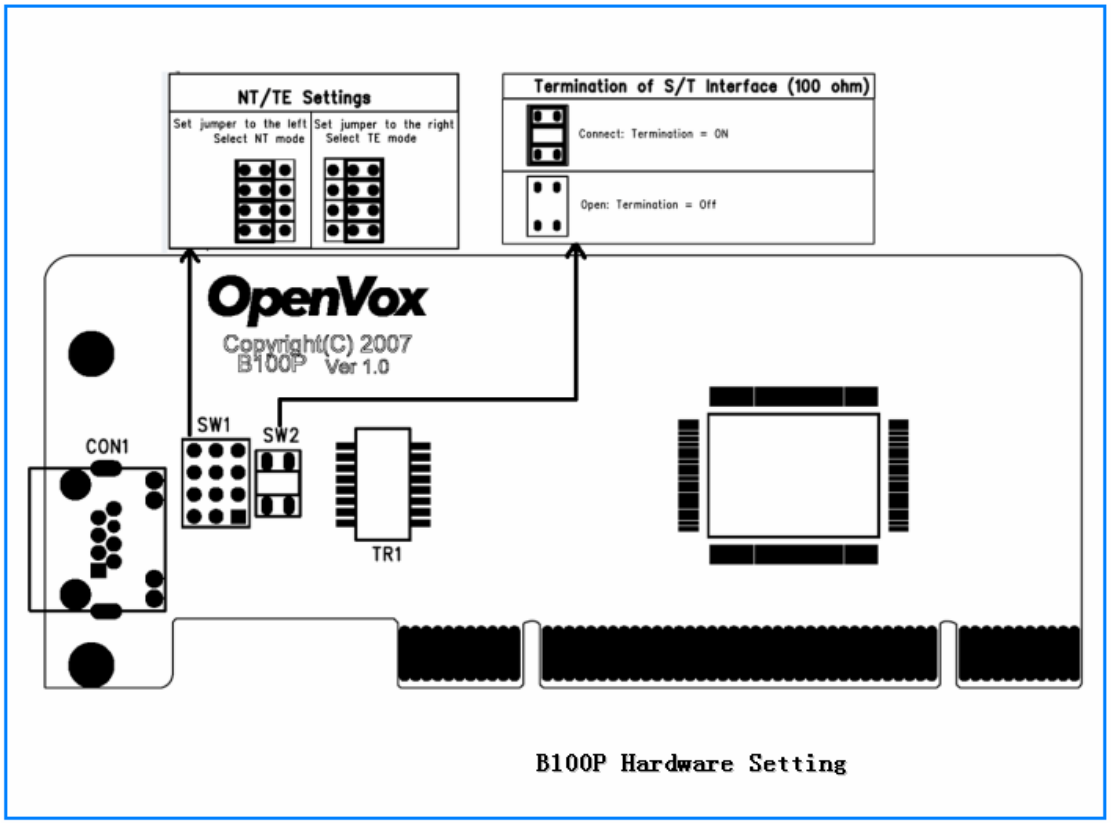
Chapter 3 Hardware Setting



B100P Hardware Setting