



AXE4BL

ATCOM® Digital Card AXE4BL

Product Guide

Version: 1.1

2013-08-23

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Contact ATCOM

The Introduction of ATCOM

ATCOM is the leading VoIP hardware manufacturer in global market. We have been keeping innovating with customer's needs oriented, working with partners to establish a total solution for SMB VoIP with IP phone, IP PBX and Asterisk cards.

With over 10 years' experience of R&D, manufacturing and service in network and VoIP field; mission of creating the biggest value for IP terminals, we commit ourselves in supplying the competitive IP phone and other terminals for IP PBX, softswitch, IMS, NGN providers and carriers; supplying the competitive total VoIP solution for SMB market. We keep improving the customer's experience and creating the bigger value with our reliable products. Until now, our VoIP products has been sold to over 60 countries and used by millions of end users.

Contact sales:

Address	District C, east of 2nd floor, #3, Crown industry buildings, Chegongmiao Industry area, Futian district, Shenzhen, China
Tel	+(86)755-23487618
Fax	+(86)755-23485319
E-mail	sales@atcomemail.com

Contact Technical Support:

Tel	+(86)755-23481119
E-mail	Support@atcomemail.com

Website address: <http://www.atcom.cn/>

Download Center: <http://www.atcom.cn/download.html>

Chapter 1 the Introduction of AXE4BL

Overview of the AXE4BL

AXE4BL Asterisk card is the telephony PCI-E card which supports four ISDN BRI ports. Using AXE4BL digital BRI card, open source Asterisk PBX and stand alone PC, users can create their IP PBX telephony solution included all the sophisticated features of traditional PBX, and extended features such as voicemail in IP PBX. With low profile design, the AXE4BL is suitable for 2U server.

Features

Four ISDN BRI ports

Support Dahdi and mISDN

Support Asterisk, Freeswitch, Yate

Support Elastix, Trixbox, AsteriskNOW, PBX in a Flash

support ISDN phone

Supports NT and TE mode

100% compatible with all features of Asterisk PBX

With low profile design, the AXE4BL is suitable for 2U server.

Application

ISDN BRI IP PBX

ISDN least cost router

Voice over IP BRI termination gateways

IVR system

Traditional Calls/VoIP Calls Conference

Hardware Requirement

1.6-Ghz Pentium IV

512 MB RAM

PCI-E slot

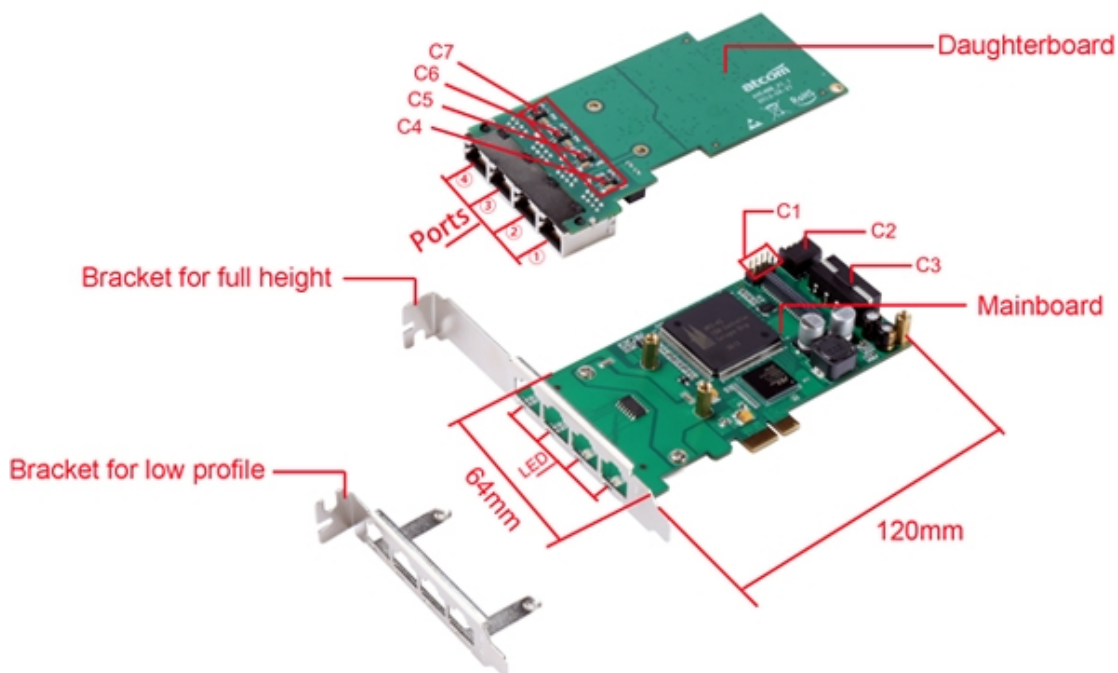
PCI-E Card Dimension

120mm (Length)*64mm (height)

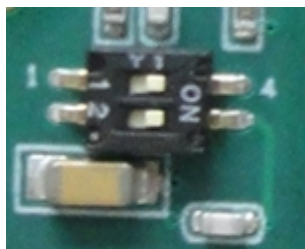
Operating System

Linux (all versions, releases and distributions from 1.0 up)

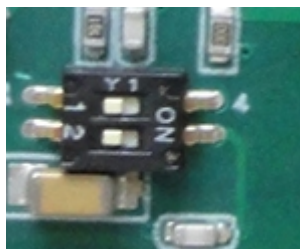
Chapter 2 Hardware Introduction



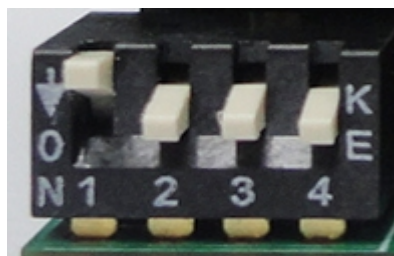
TE/NT Setting: Each port can work in TE or NT mode independently. By default, all of the ports are set to TE mode, because the telecom side always use NT mode, and users should use TE mode. The components of C4, C5, C6, C7 and C2 are used for setting TE/NT mode. For example, in the following pictures, the second port is set to TE mode, and the first port is set to NT mode.



C4



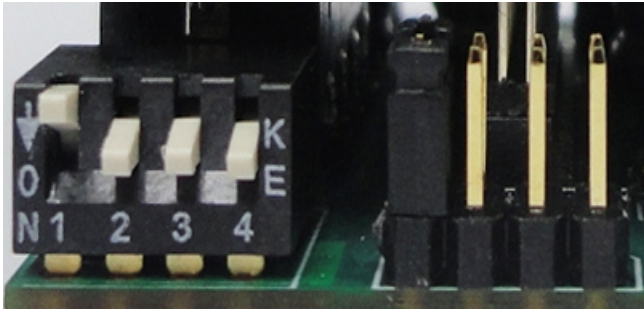
C5



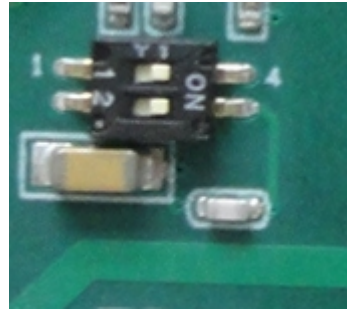
C2

C4, C5, C6, C7 are used for set up port1, port2, port3, port4 orderly and independently; the button 1,2,3,4 are used for setup port1, port2, port3, port4 orderly and independently.

If users connect the ISDN phone to a port, the port should be set to NT mode, they also should set up C1 component, and connect the 4 PIN power supply cable to the C3 interface. For example, if users want to connect the ISDN phone to the port 1, users should set up like the following pictures:

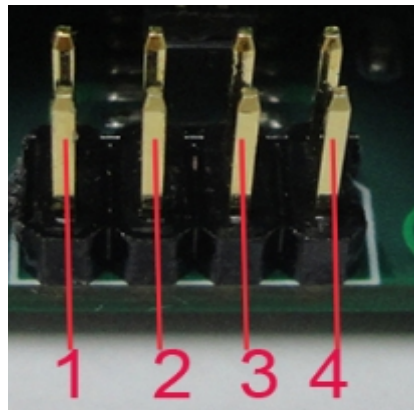


C2



C4

To set up the C1 component, customer should use a jumper to connect two pins, the 1,2,3,4 are used to set port1, port2, port3, port4 orderly and independently. If users do not use ISDN phone, please do not set the C1 component.



C1

LED: If the driver of the card is loaded correctly and the `/etc/dahdi/system.conf` file is configured correctly, the LED of the four ports will be red clearly; If the BRI line is connected correctly, and it synchronizes to the other end successfully, then the LED will be green clearly.



Convert Cable: when users need to connect the ISDN phone to the ISDN card, the card should be provided with extra power supply by C3 component and the power supply of server. At this situation, users may need the extra convert cable, because there is no IDE interface in the power supply of some servers. It contains a convert cable in the package like the picture above.

Chapter 3 Test Environment

Test Environment:

Libpri-1.4.7

dahdi-linux-complete-2.6.2+2.6.2

asterisk-1.8.7.1

Centos6.0

(kernel version: 2.6.32-279.22.1.el6.i686)

AXE4BL

Chapter 4 Software Installation

After inserting the card into the PCI-E slot and boot the server, please use the “lspci” command to check the PCI-E bus compatibility. From the correct output, users can see the following line:

```
-----  
01:05.0 ISDN controller: Cologne Chip Designs GmbH ISDN network Controller [HFC-4S] (rev  
01)  
-----
```

The Cologne Chip will be found, if users can not see one line like the line above, please poweroff the server and try to use another PCI-E slot, if it still does not help, users have to check the compatibility issue between the card and the PCI-E bus.

1. To install asterisk and dahdi, we have to use “yum” command to install the following prerequisite packages:

```
bison bison-devel zlib zlib-devel openssl openssl-devel gnutls-devel gcc gcc-c++
```

2. Download libpri, dahdi-linux-complete, and asterisk

```
[root@localhost src]#
```

```
wget http://downloads.asterisk.org/pub/telephony/libpri/releases/libpri-1.4.12.tar.gz
```

```
[root@localhost src]#
```

```
Wget
```

```
http://downloads.asterisk.org/pub/telephony/dahdi-linux/releases/dahdi-linux-complete-2.5.0.1+2.5.0.1.tar.gz
```

```
[root@localhost src]#
```

```
wget http://downloads.asterisk.org/pub/telephony/asterisk/releases/asterisk-1.8.7.1.tar.gz
```


3. Install libpri
 - 1) [root@localhost src]# tar -xvzf libpri-1.4.12.tar.gz
 - 2) [root@localhost libpri-1.4.12]# make
 - 3) [root@localhost libpri-1.4.12]# make install

4. Install dahdi-linux-complete
 - 1) [root@localhost src]# tar -xvzf dahdi-linux-complete-2.6.2+2.6.2.tar.gz
 - 2) [root@localhost src]# cd dahdi-linux-complete-2.5.0.1+2.5.0.1
 - 3) [root@localhost dahdi-linux-complete-2.5.0.1+2.5.0.1]# make
 - 4) [root@localhost dahdi-linux-complete-2.5.0.1+2.5.0.1]# make install
 - 5) [root@localhost dahdi-linux-complete-2.5.0.1+2.5.0.1]# make config

5. Install asterisk
 - 1) [root@localhost src]# tar -xvzf asterisk-1.8.7.1.tar.gz
 - 2) [root@localhost asterisk-1.8.7.1]# ./configure
 - 3) [root@localhost asterisk-1.8.7.1]# make
 - 4) [root@localhost asterisk-1.8.7.1]# make install
 - 5) [root@localhost asterisk-1.8.7.1]# make samples

Chapter 5 Software Configuration

1. Please use `cat /proc/interrupts` command to check if the driver of AXE4BL is loaded or not, if the AXE4BL driver is loaded correctly, users can get one line with `wcb4xxp`

```
20: 2310670 2218516 IO-APIC-fasteoi wcb4xxp
```

If users can not get the line above, but users can get one line with `hfc4s8s_11`, then please use the following command to delete the `hfc4s8s_11.ko` module.

```
rm -rf /lib/modules/2.6.18-238.el5/kernel/drivers/isdn/hisax/hfc4s8s_11.ko
```

After deleting `hfc4s8s_11.ko`, please reboot the server.

2. Please use the “`dahdi_genconf`” command to configure the `/etc/dahdi/system.conf` file and generate `/etc/asterisk/dahdi-channels.conf` file.

```
[root@localhost ~]# dahdi_genconf
```

It does not show any output if `dahdi_genconf` run successfully.

After running `dahdi_genconf` successfully, the `/etc/dahdi/system.conf` and `/etc/asterisk/dahdi-channels.conf` file will get the following configuration:

`/etc/dahdi/system.conf`:

```
# Autogenerated by /usr/sbin/dahdi_genconf on Tue Oct 18 11:20:32 2011
# This file is parsed by the Dahdi Configurator, dahdi_cfg
# Span 1: B4/0/1 "B4XXP (PCI) Card 0 Span 1" (MASTER) RED
span=1,1,0,ccs,ami
# termtype: te
bchan=1-2
hardhdlc=3
echocanceller=mg2,1-2

# Span 2: B4/0/2 "B4XXP (PCI) Card 0 Span 2" RED
span=2,2,0,ccs,ami
# termtype: te
bchan=4-5
hardhdlc=6
echocanceller=mg2,4-5

# Span 3: B4/0/3 "B4XXP (PCI) Card 0 Span 3" RED
span=3,3,0,ccs,ami
# termtype: te
bchan=7-8
hardhdlc=9
echocanceller=mg2,7-8

# Span 4: B4/0/4 "B4XXP (PCI) Card 0 Span 4" RED
span=4,4,0,ccs,ami
# termtype: te
bchan=10-11
hardhdlc=12
echocanceller=mg2,10-11
```

After running dahdi_genconf successfully, the dahdi-channels.conf file will get the following configuration:

```

/etc/asterisk/dahdi-channels.conf file:
; Span 1: B4/0/1 "B4XXP (PCI) Card 0 Span 1" (MASTER) RED
group=0,11
context=from-pstn
switchtype = euroisdn
signalling = bri_cpe_ptmp
channel => 1-2
context = default
group = 63

; Span 2: B4/0/2 "B4XXP (PCI) Card 0 Span 2" RED
group=0,12
context=from-pstn
switchtype = euroisdn
signalling = bri_cpe_ptmp
channel => 4-5
context = default
group = 63

; Span 3: B4/0/3 "B4XXP (PCI) Card 0 Span 3" RED
group=0,13
context=from-pstn
switchtype = euroisdn
signalling = bri_cpe_ptmp
channel => 7-8
context = default
group = 63

; Span 2: B4/0/2 "B4XXP (PCI) Card 0 Span 2" RED
group=0,14
context=from-pstn
switchtype = euroisdn
signalling = bri_cpe_ptmp
channel => 10-11
context = default
group = 63

```

3. Please add the following line in the end of chan_dahdi.conf file
#include dahdi-channels.conf

4. Please run asterisk with the following command:
*CLI> asterisk
*CLI> asterisk -vvvgrc
*CLI> reload

5. Please run dahdi show channels command
users should get the following channels:
*CLI> dahdi show channels
users can get the following 8 channels: 1, 2, 4, 5,7,8,10,11

Chapter 6 Test

- 1 LED: If the driver of the card is loaded correctly and the `/etc/dahdi/system.conf` file is configured correctly, the LED of the four ports will be red clearly; If the BRI line is connected correctly, and it synchronizes to the other end successfully, then the LED will be green clearly.

- 2 Check the ports status

- 1) Start asterisk

```
[root@localhost asterisk]# asterisk -vvgc
```

```
*CLI> reload
```

- 2) Run `pri show spans` command

users can get the following port information, if users have plugged the ISDN line for the ports, the ports are in up status.

```
*CLI> pri show spans
```

```
PRI span 1/0: Up, Active
```

```
PRI span 2/0: Up, Active
```

```
PRI span 3/0: Up, Active
```

```
PRI span 4/0: Up, Active
```

- 3 Edit a dial-plan in `extensions.conf`

```
[from-internal]
```

```
exten=>_x.,1,Dial(dahdi/1/${EXTEN})
```

```
exten=>_x.,2,hangup()
```

This dial plan is used for outgoing calls, using this dial plan users can dial out directly without prefix by channel 1. Customers can test other channels by changing `dahdi/edit the channel number`.

```
[from-pstn]
```

```
exten=>s,1,Playback(demo-instruct)
```

```
exten=>s,2,Hangup()
```

This dial plan is used for incoming calls, any incoming calls dials in, then they can hear an recorded voice(`demo-instruct`) about the introduction of Asterisk.

- 4 Test the port in NT mode

- 1) Set the jumper to NT mode

- 2) Change the `dahdi-channels.conf` file,

```
; Span 4: B4/0/1 "B4XXP (PCI) Card 0 Span 1" RED
```

```
group=0,11
```

```
context=from-pstn
```

```
switchtype = euroisdn
```

```
signalling = bri_cpe_ptmp    change the cpe to net: signalling = bri_net_ptmp
```

```
channel => 1-2
```

Chapter 7 Reference

<http://www.asteriskguru.com/>

<http://www.asterisk.org/downloads>

<http://www.atcom.cn/>