



AX4B

ATCOM® Digital Card AX4B/AX2B

Product Guide

25/10/2011

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Contact ATCOM

The Introduction of ATCOM

Founded in 1998, ATCOM technology has been always endeavoring in the R&D and manufacturing of the internet communication terminals. The product line of ATCOM includes IP Phone, USB Phone, IP PBX, VoIP gateway and Asterisk Card.

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

Chapter 1 the Introduction of AX4B

Overview of the AX4B

AX4B Asterisk card is the telephony PCI card which supports four ISDN BRI ports. Using AX4B digital BRI card, open source Asterisk PBX and stand alone PC, users can create their IP PBX telephony solution include all the sophisticated features of traditional PBX, and extend features such as voicemail in IP PBX.

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
- 32-bit bus master DMA data exchanges across PCI interface at 132 Mbytes/sec for minimum host processor intervention

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
- 3.3V or 5V PCI 2.2 slot

PCI Card Dimension

150mm (Length)*94mm (height)

Operating System

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

Chapter 2 Hardware Introduction

LED Red: If the driver of the card is loaded correctly and the `/etc/dahdi/system.conf` file is configured correctly, the LED Red of the four ports will be red clearly.

LED Green: If the BRI line is connected correctly, and it synchronizes to the other end successfully, then the LED Green will be green clearly.

Chapter 3 Software Installation

Test Environment:

libpri-1.4.12
dahdi-linux-complete-2.5.0.1+2.5.0.1
asterisk-1.8.7.1
centos 5.6 (kernel version: 2.6.18-238.el5)

After inserting the card into your PCI slot and boot your server, please use the “lspci” command to check the PCI bus compatibility. From the correct output, you 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 you can not see one line like the line above, please poweroff your server and try to use another PCI slot, if it still does not help, you have to check the compatibility issue between the card and your PCI 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-2.5.0.1+2.5.0.1.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 4 Software Configuration

1. 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

```
# Autogenerated by /usr/sbin/dahdi_genconf on Tue Oct 18 11:20:32 2011
# If you edit this file and execute /usr/sbin/dahdi_genconf again,
# your manual changes will be LOST.
# 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" YELLOW
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

loadzone          = us
defaultzone       = us
```



```
/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" YELLOW
group=0,13
context=from-pstn
switchtype = euroisdn
signalling = bri_cpe_ptmp
channel => 7-8
context = default
group = 63

; Span 4: B4/0/4 "B4XXP (PCI) Card 0 Span 4" RED
group=0,14
context=from-pstn
switchtype = euroisdn
signalling = bri_cpe_ptmp
channel => 10-11
context = default
group = 63
```

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

3. Please run asterisk with the following command:
asterisk
asterisk -vvvgrc
reload

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

Chapter 5 Test

1 LEDs status

LED Red: If the driver of the card is loaded correctly and the /etc/dahdi/system.conf file is configured correctly, the LED Red of the four ports will be red clearly.

LED Green: If the PRI line is connected correctly, and it synchronizes to the other end successfully, then the LED Green 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

You can get the following port information, all of the four ports are in up status.

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

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

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

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

```
PRI span 4/0: Provisioned, 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 you 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 use 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: B4/0/4 "B4XXP (PCI) Card 0 Span 4" RED
```

```
group=0,14
```

```
context=from-pstn
```

```
switchtype = euroisdn
```

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

```
channel => 10-11
```

Chapter 6 Reference

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

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

http://www.openippbx.org/index.php?title=Main_Page

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