

Figure: AX-1600P

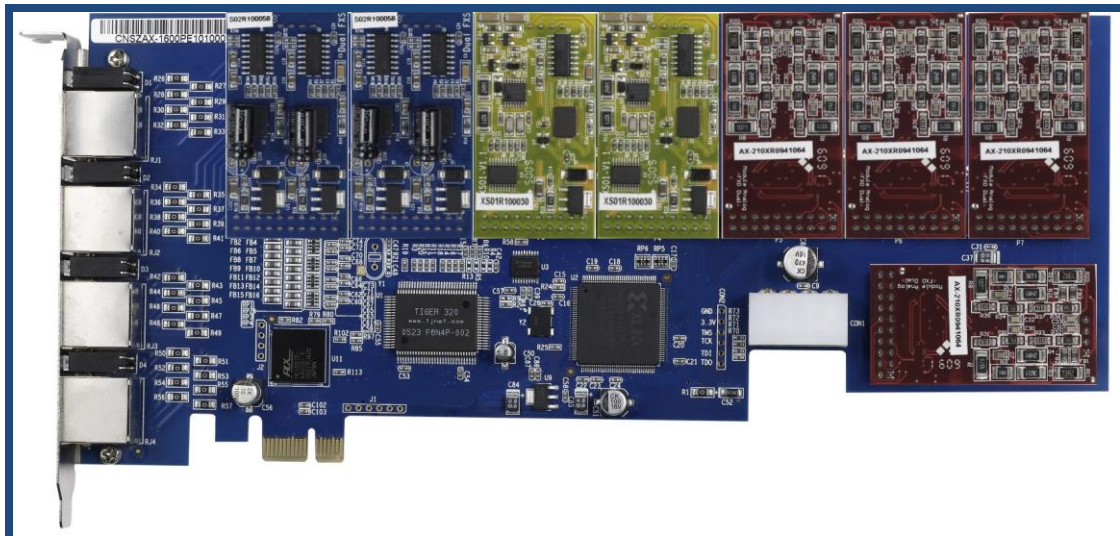


Figure: AX-1600E

ATCOM® Analog Card AX-1600P/E Product Guide

Version: 1.0

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The Installation of AX-1600P/E with Centos 5.4

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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.

Contact sales:

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Tel	+(86)755-23487618
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Website address: <http://www.atcom.cn/>

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

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

Chapter 1 the Introduction of AX-1600P/E

Overview of the AX-1600P/E

AX1600P /E Asterisk card is the telephony PCI/PCI-E card that supports up to sixteen FXO and FXS ports. Using AX1600P analog card, open source Asterisk PBX and stand alone PC, users can create their SOHO telephony solution which include all the sophisticated features of traditional PBX, and extend features such as voicemail in IP PBX. The FXO and FXS modules are interchangeable to suit various requirements.

Features

Analog card for Asterisk PBX
Support Asterisk PBX, zaptel and dahdi driver
Support up to 16 FXO/FXS analog port
Suitable for SOHO PBX / VoiceMail / IVR.
Caller ID and Call waiting Caller ID
Conference

Applications

IP PBX
IVR system
Traditional Calls/VoIP Calls Conference

Hardware requirement

500-Mhz Pentium III
64MB RAM
3.3V or 5V PCI 2.2 slot

PCI card dimension:

264mm (length) × 121mm (height)

Chapter 2 Hardware Introduction

Hardware Configuration

Motherboard: AX-1600P

Dual ports FXS module: AX-210S

Dual ports FXO module: AX-210X

One FXS port and one FXO port module: AX-210XS

Splitter: SP400

Customers can use the combination of AX-210S, AX-210X, AX-210XS modules according to their requirements. One AX-210S module supports two FXS ports, one AX-210X module supports two FXO ports, One AX-210XS module supports one FXS port and one FXO port.

Attention: If you want to use FXS port, you have to provide 12V power for the card.

Warning: Please do not plug and unplug the card and modules when the PC power is on.

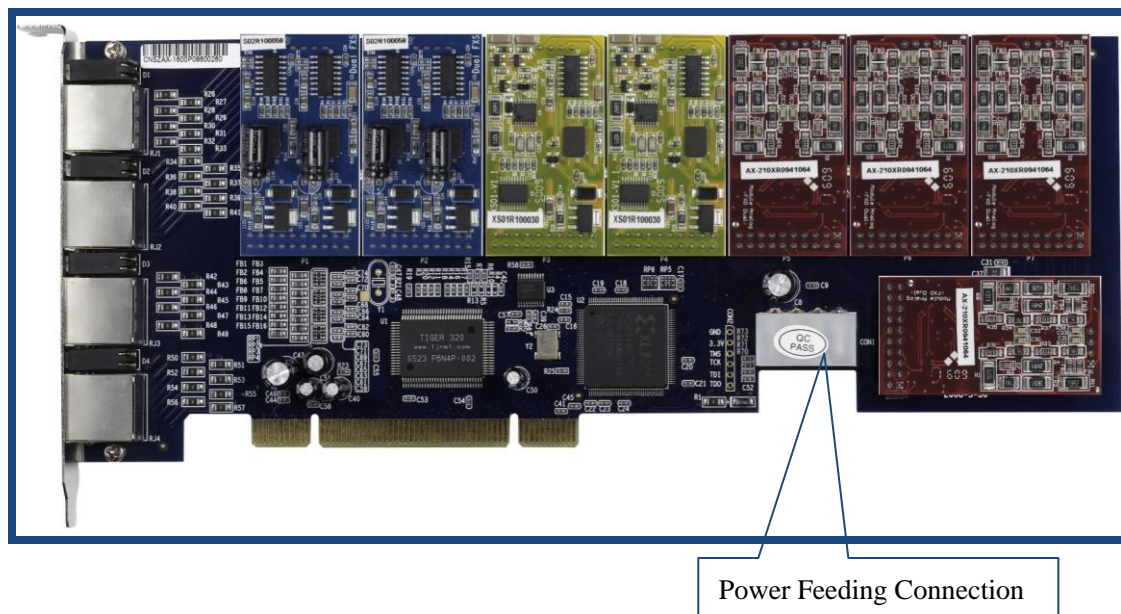


Figure 1: AX-1600P

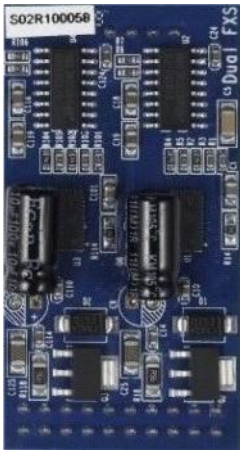


Figure 2: AX-210S



Figure 3: AX-210XS

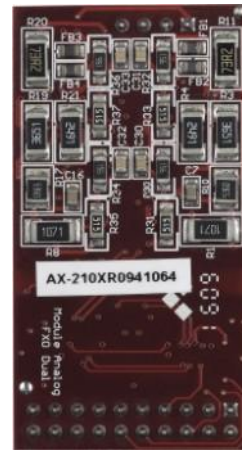


Figure 4: AX-210X



Figure 5: SP400

Chapter 3 Software Installation

Test Environment:

asterisk-1.6.1.12
dahdi-linux-2.2.0.2
dahdi-tools-2.2.0
Centos 5.4
AX-1600P+8AX-210X

After inserting the card into your PCI slot and boot your server, please use the “lspci -vv” command to check the PCI bus compatibility. The correct output will like the following:

```
-----  
05:04.0 Communication controller: Tiger Jet Network Inc. Tiger3XX Modem/ISDN interface  
-----
```

A Tiger Jet device will be found, if you can not see the Tiger Jet device, please poweroff your server and try 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 install the following prerequisite packages:
bison bison-devel zlib zlib-devel openssl openssl-devel gnutls-devel gcc gcc-c++
Please use the yum install command to install the above packages.
2. Download asterisk,dahdi-linux and dahdi-tools
[root@localhost src]#
wget <http://downloads.asterisk.org/pub/telephony/asterisk/releases/asterisk-xx>
[root@localhost src]#
wget <http://downloads.asterisk.org/pub/telephony/dahdi-linux/releases/dahdi-linux-xx>
[root@localhost src]#
wget <http://downloads.asterisk.org/pub/telephony/dahdi-tools/releases/dahdi-tools-xx>
3. Install asterisk,dahdi-linux and dahdi-tools
Install dahdi-linux and Rectify wctdm.c
 - 1) [root@localhost src]# tar -xvzf dahdi-linux-2.2.0.2.tar.gz
 - 2) [root@localhost src]# cd dahdi-linux-2.2.0.2/drivers/dahdi/
 - 3) rm -rf wctdm.c
 - 4) wget <http://www.atcom.cn/downloads/TelephonyCard/drivers/AX-1600P/wctdm.c.v1.6>
 - 5) mv wctdm.c.v1.6 wctdm.c
 - 6) [root@localhost src]# cd dahdi-linux-2.2.0.2
[root@localhost dahdi-linux-2.2.0.2]# make
 - 7) [root@localhost dahdi-linux-2.2.0.2]# make install

Install dahdi-tools

- 1) [root@localhost src]# tar -xvzf dahdi-tools-2.2.0.tar.gz
- 2) [root@localhost src]# cd dahdi-tools-2.2.0
- 3) [root@localhost dahdi-tools-2.2.0]# ./configure
- 4) [root@localhost dahdi-tools-2.2.0]# make
- 5) [root@localhost dahdi-tools-2.2.0]# make install

Install asterisk

- 1) [root@localhost src]# tar -xvzf asterisk-1.6.1.12.tar.gz
- 2) [root@localhost src]# cd asterisk-1.6.1.12
- 3) [root@localhost asterisk-1.6.1.12]# ./configure
- 4) [root@localhost asterisk-1.6.1.12]# make
- 5) [root@localhost asterisk-1.6.1.12]# make install
- 6) [root@localhost asterisk-1.6.1.12]# make samples

Chapter 4 Software Configuration

1. Please check if the AX-1600P driver has been loaded successfully, run `cat /proc/interrupts` command and you should see one line with `wctdm`.
If you can not see `wctdm`, you can try to poweroff your server and replug AX-1600P into another PCI slot.
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.

`system.conf`

`# Span 1: WCTDM/16 "Wildcard TDM400P REV E/F Board 17" (MASTER)`

`fxsks=1`

`echocanceller=mg2,1`

`fxsks=2`

`echocanceller=mg2,2`

`fxsks=3`

`echocanceller=mg2,3`

`fxsks=4`

`echocanceller=mg2,4`

`fxsks=5`

`echocanceller=mg2,5`

`fxsks=6`

`echocanceller=mg2,6`

`fxsks=7`

`echocanceller=mg2,7`

`fxsks=8`

`echocanceller=mg2,8`

`fxsks=9`

`echocanceller=mg2,9`

`fxsks=10`

`echocanceller=mg2,10`

`fxsks=11`

`echocanceller=mg2,11`

`fxsks=12`

`echocanceller=mg2,12`

`fxsks=13`

`echocanceller=mg2,13`

`fxsks=14`

```
echocanceller=mg2,14  
fxsks=15  
echocanceller=mg2,15  
fxsks=16  
echocanceller=mg2,16
```

```
# Global data
```

```
loadzone      = us (According to your country)  
defaultzone   = us (According to your country)
```

dahdi-channels.conf

; Span 1: WCTDM/16 "Wildcard TDM400P REV E/F Board 17" (MASTER)

;;; line="1 WCTDM/16/0 FXSKS"

signalling=fxs_ks

callerid=asreceived

group=0

context=from-pstn

channel => 1

callerid=

group=

context=default

;;; line="2 WCTDM/16/1 FXSKS"

signalling=fxs_ks

callerid=asreceived

group=0

context=from-pstn

channel => 2

callerid=

group=

context=default

;;; line="3 WCTDM/16/2 FXSKS"

signalling=fxs_ks

callerid=asreceived

group=0

context=from-pstn

channel => 3

callerid=

group=

context=default

;;; line="4 WCTDM/16/3 FXSKS"

signalling=fxs_ks

callerid=asreceived

group=0

context=from-pstn

channel => 4

callerid=

group=

context=default

;;; line="5 WCTDM/16/4 FXSKS"

```
signalling=fxs_ks
callerid=asreceived
group=0
context=from-pstn
channel => 5
callerid=
group=
context=default
```

```
;;; line="6 WCTDM/16/5 FXSKS (SWEC: MG2)"
signalling=fxs_ks
callerid=asreceived
group=0
context=from-pstn
channel => 6
callerid=
group=
context=default
```

```
;;; line="7 WCTDM/16/6 FXSKS"
signalling=fxs_ks
callerid=asreceived
group=0
context=from-pstn
channel => 7
callerid=
group=
context=default
```

```
;;; line="8 WCTDM/16/7 FXSKS (SWEC: MG2)"
signalling=fxs_ks
callerid=asreceived
group=0
context=from-pstn
channel => 8
callerid=
group=
context=default
```

```
;;; line="9 WCTDM/16/8 FXSKS"
signalling=fxs_ks
callerid=asreceived
group=0
```

context=from-pstn
channel => 9
callerid=
group=
context=default

;;; line="10 WCTDM/16/9 FXSKS"
signalling=fxs_ks
callerid=asreceived
group=0
context=from-pstn
channel => 10
callerid=
group=
context=default

;;; line="11 WCTDM/16/10 FXSKS (SWEC: MG2)"
signalling=fxs_ks
callerid=asreceived
group=0
context=from-pstn
channel => 11
callerid=
group=
context=default

;;; line="12 WCTDM/16/11 FXSKS (SWEC: MG2)"
signalling=fxs_ks
callerid=asreceived
group=0
context=from-pstn
channel => 12
callerid=
group=
context=default

;;; line="13 WCTDM/16/12 FXSKS (SWEC: MG2)"
signalling=fxs_ks
callerid=asreceived
group=0
context=from-pstn
channel => 13
callerid=

group=
context=default

;;; line="14 WCTDM/16/13 FXSKS (SWEC: MG2)"
signalling=fxs_ks
callerid=asreceived
group=0
context=from-pstn
channel => 14
callerid=
group=
context=default

;;; line="15 WCTDM/16/14 FXSKS (SWEC: MG2)"
signalling=fxs_ks
callerid=asreceived
group=0
context=from-pstn
channel => 15
callerid=
group=
context=default

;;; line="16 WCTDM/16/15 FXSKS (SWEC: MG2)"
signalling=fxs_ks
callerid=asreceived
group=0
context=from-pstn
channel => 16
callerid=
group=
context=default

```
[root@localhost ~]# dahdi_cfg -vv
```

The right output of running dahdi_cfg -vv will like the following:

DAHDI Tools Version - 2.2.0

DAHDI Version: 2.2.0.2

Echo Canceller(s): MG2

Configuration

=====

Channel map:

Channel 01: FXS Kewlstart (Default) (Echo Canceler: mg2) (Slaves: 01)
Channel 02: FXS Kewlstart (Default) (Echo Canceler: mg2) (Slaves: 02)
Channel 03: FXS Kewlstart (Default) (Echo Canceler: mg2) (Slaves: 03)
Channel 04: FXS Kewlstart (Default) (Echo Canceler: mg2) (Slaves: 04)
Channel 05: FXS Kewlstart (Default) (Echo Canceler: mg2) (Slaves: 05)
Channel 06: FXS Kewlstart (Default) (Echo Canceler: mg2) (Slaves: 06)
Channel 07: FXS Kewlstart (Default) (Echo Canceler: mg2) (Slaves: 07)
Channel 08: FXS Kewlstart (Default) (Echo Canceler: mg2) (Slaves: 08)
Channel 09: FXS Kewlstart (Default) (Echo Canceler: mg2) (Slaves: 09)
Channel 10: FXS Kewlstart (Default) (Echo Canceler: mg2) (Slaves: 10)
Channel 11: FXS Kewlstart (Default) (Echo Canceler: mg2) (Slaves: 11)
Channel 12: FXS Kewlstart (Default) (Echo Canceler: mg2) (Slaves: 12)
Channel 13: FXS Kewlstart (Default) (Echo Canceler: mg2) (Slaves: 13)
Channel 14: FXS Kewlstart (Default) (Echo Canceler: mg2) (Slaves: 14)
Channel 15: FXS Kewlstart (Default) (Echo Canceler: mg2) (Slaves: 15)
Channel 16: FXS Kewlstart (Default) (Echo Canceler: mg2) (Slaves: 16)

16 channels to configure.

Setting echocan for channel 1 to mg2

Setting echocan for channel 2 to mg2

Setting echocan for channel 3 to mg2

Setting echocan for channel 4 to mg2

Setting echocan for channel 5 to mg2

Setting echocan for channel 6 to mg2

Setting echocan for channel 7 to mg2

Setting echocan for channel 8 to mg2

Setting echocan for channel 9 to mg2

Setting echocan for channel 10 to mg2

Setting echocan for channel 11 to mg2

Setting echocan for channel 12 to mg2

Setting echocan for channel 13 to mg2

Setting echocan for channel 14 to mg2

Setting echocan for channel 15 to mg2

Setting echocan for channel 16 to mg2

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:
asterisk -vvgc
reload

5. Please run dahdi show channels command

The right output should like the following:

Chan Extension	Context	Language	MOH Interpret	Blocked	State
pseudo	default		default		In Service
1	from-pstn		default		In Service
2	from-pstn		default		In Service
3	from-pstn		default		In Service
4	from-pstn		default		In Service
5	from-pstn		default		In Service
6	from-pstn		default		In Service
7	from-pstn		default		In Service
8	from-pstn		default		In Service
9	from-pstn		default		In Service
10	from-pstn		default		In Service
11	from-pstn		default		In Service
12	from-pstn		default		In Service
13	from-pstn		default		In Service
14	from-pstn		default		In Service
15	from-pstn		default		In Service
16	from-pstn		default		In Service

Chapter 5 Reference

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

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

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

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