

Figure: AX-1600P

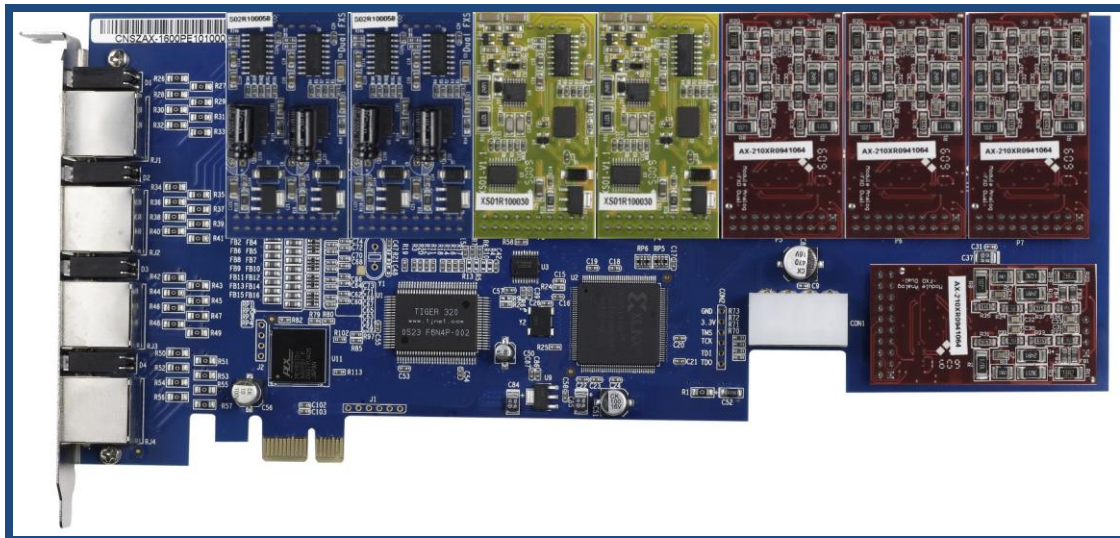


Figure: AX-1600E

## ATCOM<sup>®</sup> Analog Card AX-1600P/E

### Product Guide

Version: 1.0

2010-03-25

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# The Installation of AX-1600P/E with Debian 5.0.3

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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:

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	<a href="mailto:sales@atcomemail.com">sales@atcomemail.com</a>

### Contact Technical Support:

Tel	+(86)755-23481119
E-mail	<a href="mailto:Support@atcomemail.com">Support@atcomemail.com</a>

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

ATCOM Wiki Website: [http://www.openippbx.org/index.php?title=Main\\_Page](http://www.openippbx.org/index.php?title=Main_Page)

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

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# 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.

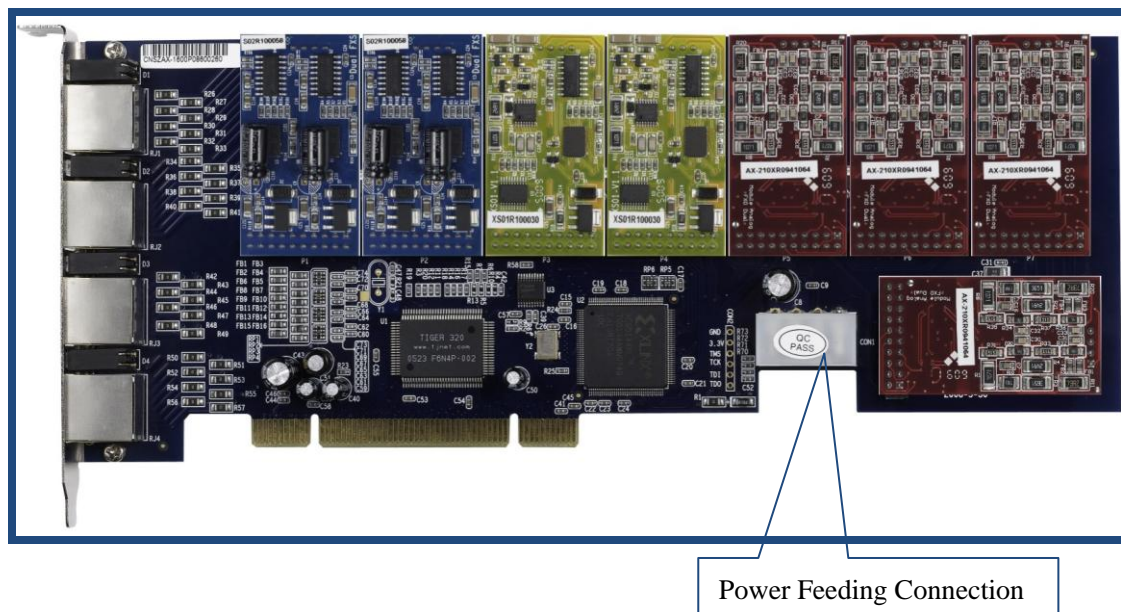


Figure 1: AX-1600P



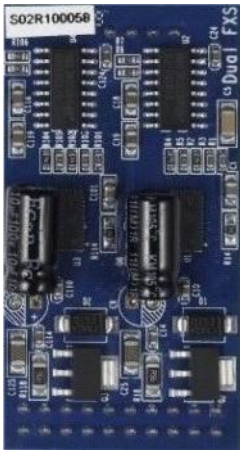


Figure 2: AX-210S



Figure 3: AX-210XS

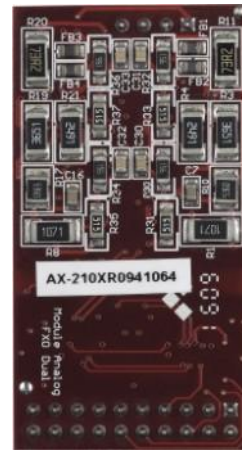


Figure 4: AX-210X



Figure 5: SP400

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## Chapter 3 Software Installation

### Test Environment:

asterisk-1.6.1.12  
dahdi-linux-2.2.0.2  
dahdi-tools-2.2.0  
Debian 5.0.3  
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:

```
ssh libncurses-dev flex xsltproc libxml2-dev  
linux-headers-`uname -r`  
bison openssl libssl-dev libeditline0 libeditline-dev libedit-dev  
gcc make g++ php5-cli mysql-common libmysqlclient15-dev libnewt-dev  
Please use the apt-get install command to install the above packages.
```

2. Download asterisk,dahdi-linux and dahdi-tools

```
debian:/usr/src#wget  
http://downloads.asterisk.org/pub/telephony/asterisk/releases/asterisk-xx  
debian:/usr/src#wget  
http://downloads.asterisk.org/pub/telephony/dahdi-linux/releases/dahdi-linux-xx  
debian:/usr/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) `debian:/usr/src# tar -xvzf dahdi-linux-2.2.0.2.tar.gz`
- 2) `debian:/usr/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) `debian:/usr/src# cd dahdi-linux-2.2.0.2`
- 7) `debian:/usr/src/dahdi-linux-2.2.0.2# make`
- 8) `debian:/usr/src/dahdi-linux-2.2.0.2# make install`

Install dahdi-tools

- 1) `debian:/usr/src# tar -xvzf dahdi-tools-2.2.0.tar.gz`
- 2) `debian:/usr/src# cd dahdi-tools-2.2.0`
- 3) `debian:/usr/src/dahdi-tools-2.2.0# ./configure`
- 4) `debian:/usr/src/dahdi-tools-2.2.0# make`
- 5) `debian:/usr/src/dahdi-tools-2.2.0# make install`

Install asterisk

- 1) `debian:/usr/src# tar -xvzf asterisk-1.6.1.12.tar.gz`
- 2) `debian:/usr/src# cd asterisk-1.6.1.12`
- 3) `debian:/usr/src/asterisk-1.6.1.12# ./configure`
- 4) `debian:/usr/src/asterisk-1.6.1.12# make`
- 5) `debian:/usr/src/asterisk-1.6.1.12# make install`
- 6) `debian:/usr/src/asterisk-1.6.1.12# make samples`



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## Chapter 4 Software Configuration

1. Please use the following command to load drivers:  
modprobe dahdi  
modprobe wctdm
2. Please use the “dahdi\_genconf” command to configure the /etc/dahdi/system.conf file and generate /etc/asterisk/dahdi-channels.conf file.  
debian:~# 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



---

debian:~# 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.openippbx.org/index.php?title=Main_Page)

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