

OpenVox

深圳开源通信有限公司

OpenVox-Best Cost Effective Asterisk Cards

OpenVox A800P A1200P User Manual



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Chapter 1 Overview

1. What is A800P/A1200P

A800P/A1200P series is a modular analog telephony interface product. It is designed to be the small to middle business PBX usage. For example, each A1200P can have up to 12 ports per card, and user can install 4 pcs of A1200P in one PC to get 48 ports.

A800P/A1200P series must be used with FX0-100 or FXS-100 together to build a workable system. The FX0-100 and FXS-100 modules are also pin to pin compatible with X100M and S100M.

Key Benefits:

Low CPU Payload : below 25% with 8 PCs of A1200P(96 ports) after driver installed, on a Celereon D 2.53Ghz

Scalable: just add additional cards to extend system

Be easy to use: module Pin to Pin compatible with Digium' s X100M and S100M. User can use diguim' s X100M/S100M module on this card, or use our FX0-100/ FXS-100 Module on TDM1200P

Excellent choice of upgrade Digium' s TDM400P based Asterisk system to A1200P, achieving 96 ports density or more in one PC, and protecting user investment by directly making use of user investment on modules of TDM400P

RoHS compliant

Certificates: CE, 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.

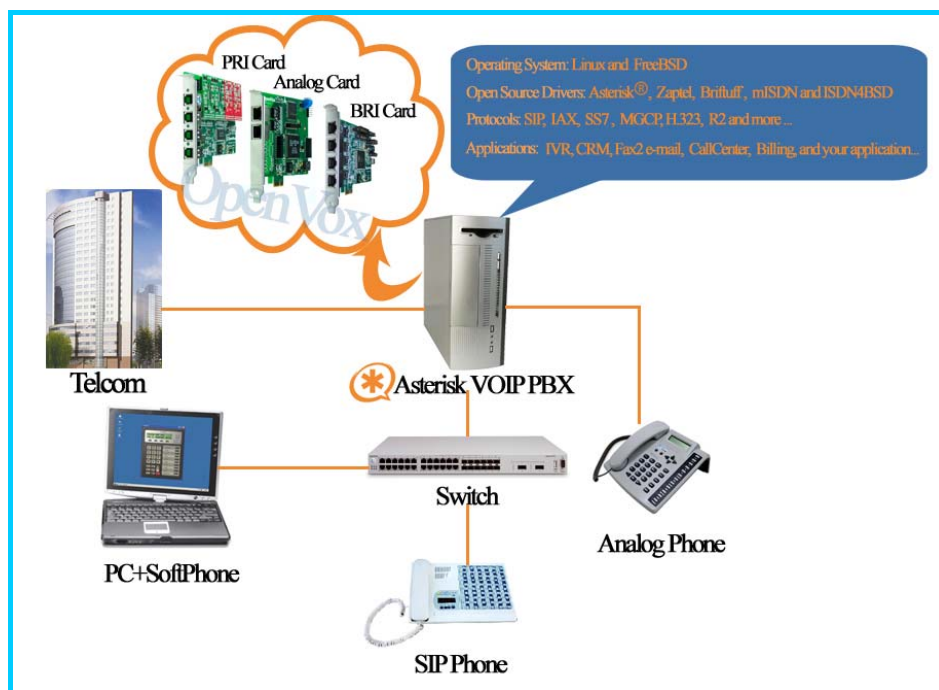


Figure 1: Asterisk_OpenVox Setup

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

A800P/A1200P series has 2 RJ45 sockets for A800P and 3 RJ45 sockets for A1200P on the bracket. Each jack has 4 corresponding module install positions on the motherboard.

Each RJ45 socket has 8 pins. A800P/A1200P series uses the 2 pins of it as a pair, to connect to you 2-wire telephone line, so each RJ45 socket can connect 4 telephone lines. Please see figure 2 and figure 3 for the setting of A800P/A1200P. Users have to use a splitter (refer figure 4) to connect RJ11 normal telephone line.

2. Software Installation and Setup

A800P/A1200P series supports zaptel software device driver on Linux. To use A800P/A1200P series, user should have zaptel pre-installed.

A800P/A1200P series device driver is a signal file named `opvxa1200.c`. A800P and A1200P share the same driver (`opvxa1200.c`). It can be downloaded from openvox.com.cn.

Before installing `libpri`, `zaptel` and `asterisk`, please make sure some supporting are installed.

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 uses 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++
```

User can build and install it via the following steps (assuming you have the source code of zaptel device driver installed in /usr/src/zaptel-1.4.10 directory):

- 1) Checking the A800P/A1200P hardware by command: `lspci -v`

```
02:05.0 Ethernet controller: Marvell Technology Group Ltd. 88E8001 Gigabit Ethernet Controller (rev 13)
Subsystem: ASUSTek Computer Inc. Marvell 88E8001 Gigabit Ethernet Controller (Asus)
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: 64 (5750ns min, 7750ns max), Cache Line Size 04
Interrupt: pin A routed to IRQ 209
Region 0: Memory at feafc000 (32-bit, non-prefetchable) [size=16K]
Region 1: I/O ports at d800 [size=256]
Expansion ROM at feac0000 [disabled] [size=128K]
Capabilities: [48] Power Management version 2
        Flags: PMEClk- DSI- D1+ D2+ AuxCurrent=0mA PME (DO+,D1+,D2+,D3hot+,D3cold+)
        Status: DO PME-Enable- DSel=0 DScale=1 PME-
Capabilities: [50] Vital Product Data

02:0d.0 Communication controller: Tiger Jet Network Inc. Tiger3XX Modem/ISDN interface
Subsystem: Unknown device 9519:0003
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: 64 (250ns min, 32000ns max)
Interrupt: pin A routed to IRQ 217
Region 0: I/O ports at d400 [size=256]
Region 1: Memory at feafb000 (32-bit, non-prefetchable) [size=4K]
Capabilities: [40] Power Management version 2
        Flags: PMEClk- DSI+ D1- D2+ AuxCurrent=55mA PME (DO+,D1-,D2+,D3hot+,D3cold+)
        Status: DO PME-Enable- DSel=0 DScale=0 PME-
```

- 2) Downloading and compiling
 1. Copy `opvxa1200.c` to `/usr/src/zaptel-1.4.10/kernel`.
 2. Modify `/usr/src/zaptel-1.4.10/makefile`:
 - ✓ Find the line start with `TOPDIR_MODULES=`

- ✓ Add opvxa1200. Before editing, the Makefile should be like this:
`TOPDIR_MODULES:=zaptel tor2 torisa wusb wfxo wctdm wctdm24xxp \
ztdynamic ztd-eth wctlxxp wct4xxp wctellxp pciradio \
ztd-loc # ztdummy`

After modified, it looks like

```
TOPDIR_MODULES=zaptel tor2 torisa wusb wfxo wctdm wctdm24xxp \  
ztdynamic ztd-eth wctlxxp wct4xxp wctellxp pciradio \  
opvxa1200 \  
# opvxa1200
```

- ✓ Find the line: `ztmonitor.o: kernel/zaptel.h`
- ✓ After that line, add another a new line:
`opvxa1200.o : kernel/zaptel.h kernel/wctdm.h`
- ✓ Modify `zaptel.sysconfig` in `/usr/src/zaptel-1.4.10` directory.
- ✓ Add the following line
`MODULES="$MODULES opvxa1200" # OPENVOX A1200P`
- ✓ Save the Makefile and exit your editor

3. Under `/usr/src/zaptel-1.4.10`, execute the commands:

```
make clean  
./configure  
make  
make install  
make config
```

4. Installing asterisk

```
cd /usr/src/asterisk-1.4.8  
make clean  
./configure  
make  
make install  
make config
```

5. Detect and load modules for opvxa1200:

```
./genzaptelconf -sdvM under /usr/src/zaptel-1.4.10/kernel/xpp/utils
```

The command will automatically generate the `zaptel.conf` under `/etc` and `zapata-channels.conf` under `/etc/asterisk` for you. But be sure, sometimes, due to some reasons, it can not work perfectly. User has to check it later. Before load `opvxa1200` module, make sure the `zaptel.conf` in right format.

```
modprobe zaptel  
modprobe opvxa1200  
ztcfg -vvvv  
dmesg // it will shows the card information.
```

```
# Autogenerated by ./genzaptelconf -- do not hand edit
# Zaptel Configuration File
#
# This file is parsed by the Zaptel Configurator, ztcfg
#
# It must be in the module loading order

# Span 1: OPVXA1200/O "OpenVox A1200P/A800P Board 1" (MASTER)
fxsks=1
fxsks=2
fxoks=3
fxoks=4

# Global data

loadzone      = us
defaultzone   = us
```

```
; Autogenerated by ./genzaptelconf -- do not hand edit
; Zaptel Channels Configurations (zapata.conf)
;
; This is not intended to be a complete zapata.conf. Rather, it is intended
; to be #include-d by /etc/zapata.conf that will include the global settings
;
;
; Span 1: OPVXA1200/0 "OpenVox A1200P/A800P Board 1" (MASTER)
;;; line="1 OPVXA1200/0/0"
signalling=fxs_ks
callerid=asreceived
group=0
context=from-pstn
channel => 1
context=default

;;; line="2 OPVXA1200/0/1"
signalling=fxs_ks
callerid=asreceived
group=0
context=from-pstn
channel => 2
context=default

;;; line="3 OPVXA1200/0/2"
signalling=fxo_ks
callerid="Channel 3" <6003>
mailbox=6003
group=5
context=from-internal
channel => 3
callerid=
mailbox=
group=
context=default

;;; line="4 OPVXA1200/0/3"
signalling=fxo_ks
callerid="Channel 4" <6004>
mailbox=6004
group=5
context=from-internal
channel => 4
callerid=
mailbox=
group=
context=default
```

```
Zapata Telephony Interface Registered on major 196
Zaptel Version: 1.4.10
Zaptel Echo Canceller: MG2
intel_rng: FWH not detected
gameport: NS558 PnP Gameport is pnp00:0d/gameport0, io 0x201, speed 828kHz
ACPI: PCI Interrupt 0000:02:09.0[A] -> GSI 20 (level, low) -> IRQ 201
skge 1.6 addr 0xf7000000 irq 201 chip Yukon-Lite rev 9
skge eth0: addr 00:16:e6:11:3c:17
ACPI: PCI Interrupt 0000:00:1f.3[B] -> GSI 17 (level, low) -> IRQ 209
input: PC Speaker as /class/input/input2
ACPI: PCI Interrupt 0000:00:1f.5[B] -> GSI 17 (level, low) -> IRQ 209
PCI: Setting latency timer of device 0000:00:1f.5 to 64
intel8x0_measure_ac97_clock: measured 50393 usecs
intel8x0: clocking to 48000
ACPI: PCI Interrupt 0000:02:04.0[A] -> GSI 18 (level, low) -> IRQ 169
OpenVox A1200P version: 1.2
OpenVox A1200P passed register test
Module 0: Installed -- AUTO FXO (FCC mode)
Module 1: Installed -- AUTO FXO (FCC mode)
Module 2: Installed -- AUTO FXS/DPO
Module 3: Installed -- AUTO FXS/DPO
Module 4: Not installed
Module 5: Not installed
Module 6: Not installed
Module 7: Not installed
Module 8: Not installed
Module 9: Not installed
Module 10: Not installed
Module 11: Not installed
Found a OpenVox A1200P: Version 0.0 (4 modules)
```

6. Starting asterisk and test calls

Checking the zap channel loading from asterisk console:

```
Connected to Asterisk 1.4.8 currently running on new-host-3 (pid = 2716)
Verbosity is at least 16
-- Remote UNIX connection
new-host-3*CLI> zap show channels
  Chan Extension Context Language MOH Interpret
pseudo default default
1 demo default
2 demo default
3 from-internal default
4 from-internal default
```

asterisk -vvvvvvgc and make calls

```
-- Starting simple switch on 'Zap/1-1'
[May 9 13:55:08] NOTICE[32339]: chan_zap.c:6379 ss_thread: Got event 18 (Ring Begin)...
[May 9 13:55:09] NOTICE[32339]: chan_zap.c:6379 ss_thread: Got event 2 (Ring/Answered)...
-- Executing [s@demo:1] Wait("Zap/1-1", "1") in new stack
-- Executing [s@demo:2] Answer("Zap/1-1", "") in new stack
-- Executing [s@demo:3] Set("Zap/1-1", "TIMEOUT(digit)=5") in new stack
-- Digit timeout set to 5
-- Executing [s@demo:4] Set("Zap/1-1", "TIMEOUT(response)=10") in new stack
-- Response timeout set to 10
-- Executing [s@demo:5] Background("Zap/1-1", "demo-congrats") in new stack
-- <Zap/1-1> Playing 'demo-congrats' (language 'en')
```

Chapter 3 Hardware Setting

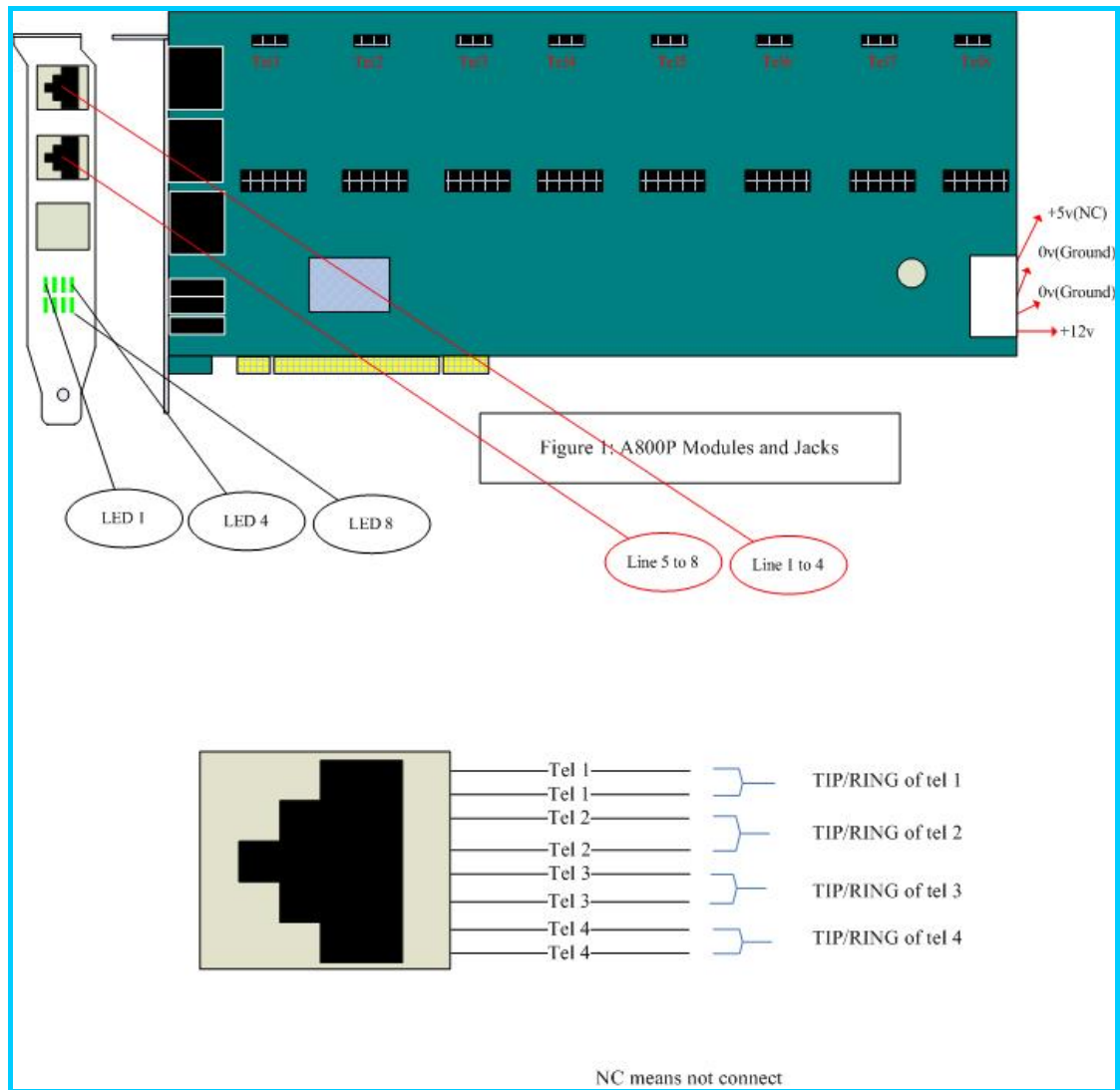
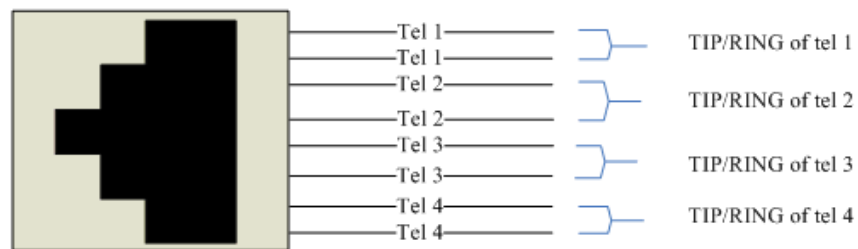
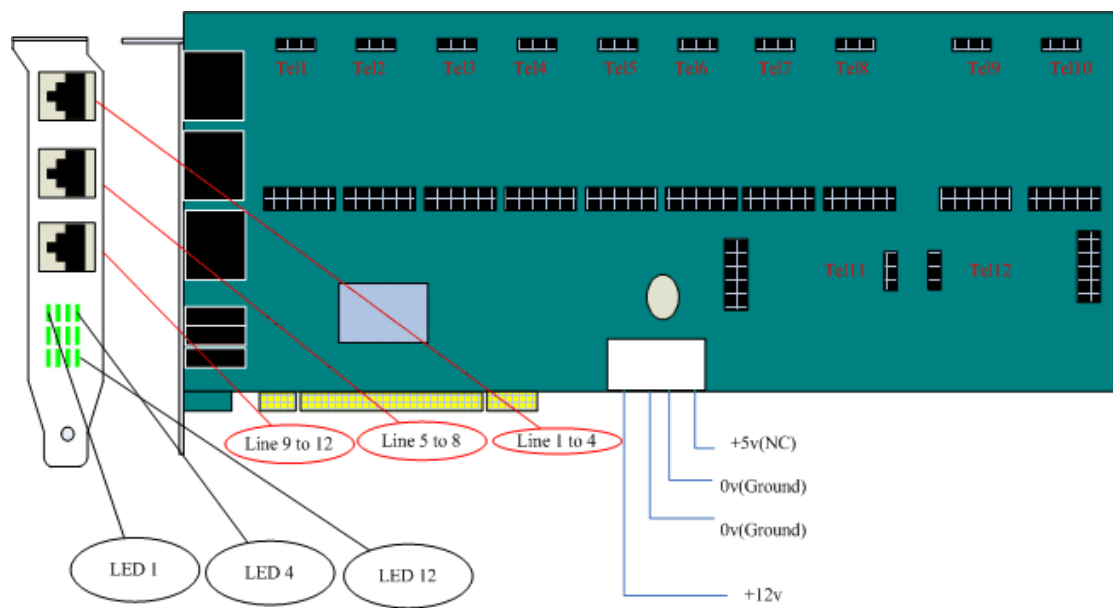


Figure 2: A800P Hardware Configuration



NC means not connect

Figure 3: A1200P Hardware Configuration



Figure 4 A800P/A1200P Splitter

Notes:

Test environments are:

Centos-5.1

Kernel version: 2.6.18-8.el5

Zaptel: 1.4.10

Asterisk: 1.4.8

Hardware: OpenVox A1200P

If user has any problem in installing A800P/A1200P, please report to us.

Chapter 4 References

www.openvox.com.cn

www.digium.com

www.asterisk.org

www.voip-info.org

www.asteriskguru.com