OpenVox

深圳开源通信有限公司

OpenVox-Best Cost Effective Asterisk Cards

OpenVox D210P D410P User Manual

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OpenVox-Best Cost Effective Asterisk Cards

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Chapter 1 Overview

1. What is D410P/D210

The D410P/D210P series supports E1, T1 and J1 environments and is selectable on a per-card or per-port basis. This feature enables signaling translation between E1 and T1 equipment and allows inexpensive T1 channel banks to connect with E1 circuits.

With the improved I/O speed, the card reduces CPU usage and increased card density per server. D410P/D210P series is fully compatible with Asterisk application. The open source driver supports an API interface for custom application development.

D410P/D210P series supports industry standard telephony and data protocols including Primary Rate ISDN (both N. American and Standard Euro) protocol families for voice, PPP, Cisco, HDLC, and Frame Relay data modes. Both line-side and trunk-side interfaces are supported.

Other Features Include:
Supporting 3.3V and 5V PCI slots
High Performance PCI BusMaster with up to 2Kbytes FIFO
Be easy to install: Support wct4xxp driver included in original zaptel without any patch

RoHS compliant
Certificates: CE and 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.
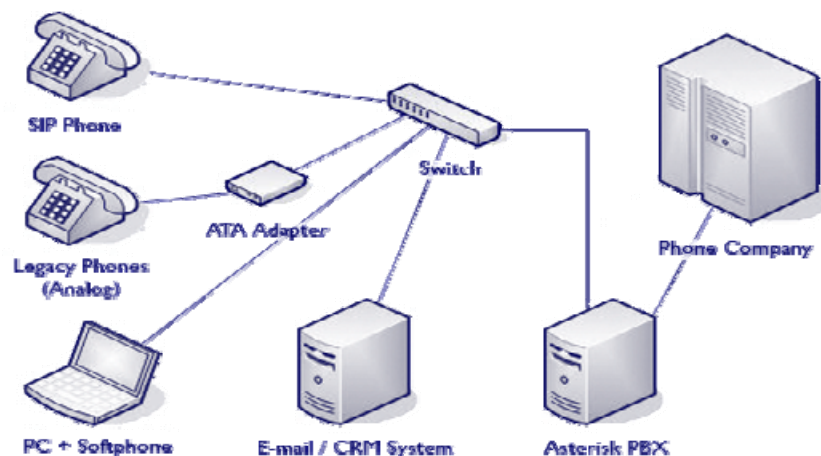
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Figure 1: Asterisk Setup

Source (http://www.siriusit.co.uk/uploads/images/consulting/asteriskSetup.gif)

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**

    Before inserting the D410P/D210P card in to PC, customer should set the jumpers correctly. There are four points that customers should check:
    1) SPAN Type Setup

        DIP Switch S5 controls the function of each span at E1 or T1 mode, for more detail, please refer figure 2.
    2) SPAN Impedance Setup: DIP Switch S1 to S4 control SPAN1 to SPAN4 impedance. For detail checking figure 2.
    3) PCI Power Supply Selection: J7 controls the power supply of card. Default setup (shorten 2 and 3) is 5v, but some non-standard motherboards do not have 5v. In such cases, customers should shorten 1 and 2 to use 3.3v power supply. If the board powered correctly, the LED D1 will be turned on green color.
    4) CardID: if customers only have one D410P/D210P card in pc PCI, customers should set SW1 to 0, otherwise set to SW1 of each card to different values, and it must start from 0 to card number -1.

2. **Software Installation and Setup**

    D410P/D210P supports original zaptel wct4xxp driver. Customers can download zaptel driver from asterisk.org. There are few steps to install wct4xxp drivers.

    1) Checking the D410P/D210P 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)
            Flags: bus master, 66Mhz, medium devsel, latency 64, IRQ 209
            Memory at feafc000 (32-bit, non-prefetchable) [size=16K]
            I/O ports at d800 [size=256]
            Expansion ROM at feac0000 [disabled] [size=128K]
            Capabilities: [48] Power Management version 2
            Capabilities: [50] Vital Product Data

    02:0d.0 Communication controller: Digium, Inc. Wildcard TE410P Quad-Span togglable E1/T1/J1 card 3.3v (rev 02)
            Flags: bus master, medium devsel, latency 32, IRQ 217
            Memory at feafbc00 (32-bit, non-prefetchable) [size=128]
    ```

    2) Downloading and compiling

    To make the asterisk and zaptel running, users have to download libpri, zaptel and asterisk. For more details about source of these packages, please visit the asterisk.org.

    Before installing libpri, zaptel and asterisk, make sure that all supporting packages have been installed in system. Running following steps to check those packages:

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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 the kernel is **smp kernel**, please run this command: *yum install kernel-smp-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++
```

Here，assuming the three packages are stored in /usr/src directory. Customers compile those packages as following in order:

1. Installing libpri:
   ```
   cd /usr/src/libpri
   make clean
   make
   make install
   ```

2. Installing zaptel

    cd /usr/src/zaptel

    make clean

    make

    make install

3. Installing asterisk

    cd /usr/src/asterisk

    make clean

    make

    make install

3) Loading wct4xxp driver for D410P/D210P:

    modprobe zaptel

    modprobe wct4xxp

    ztcfg -vvvvvvvv and dmesg

```
TE4XXP: Span 4 configured for CCS/HDB3
wct4xxp: Setting yellow alarm on span 4
SPAN 4: Quaternary Sync Source
timing source auto card 0!
VPM400: Not Present
VPM450: Not Present
Completed startup!
[root@new-host-3 utils]# ztcfg -vvvv

Zaptel Version: 1.4.5.1
Echo Canceller: MG2
Configuration
======================

SPAN 1: CCS/HDB3 Build-out: 133-266 feet (DSX-1)
SPAN 2: CCS/HDB3 Build-out: 133-266 feet (DSX-1)
SPAN 3: CCS/HDB3 Build-out: 133-266 feet (DSX-1)
SPAN 4: CCS/HDB3 Build-out: 133-266 feet (DSX-1)

Channel map:

Channel 01: Clear channel (Default) (Slaves: 01)
Channel 02: Clear channel (Default) (Slaves: 02)
Channel 03: Clear channel (Default) (Slaves: 03)
Channel 04: Clear channel (Default) (Slaves: 04)
Channel 05: Clear channel (Default) (Slaves: 05)
Channel 06: Clear channel (Default) (Slaves: 06)
Channel 07: Clear channel (Default) (Slaves: 07)
Channel 08: Clear channel (Default) (Slaves: 08)
Channel 09: Clear channel (Default) (Slaves: 09)
Channel 10: Clear channel (Default) (Slaves: 10)
Channel 11: Clear channel (Default) (Slaves: 11)
Channel 12: Clear channel (Default) (Slaves: 12)
```

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3) Configuration for zaptel.conf and zapata.conf

   1) Modify the zaptel.conf by vi /etc/zaptel.conf

```
# Span 1: TE4/0/1 "T4XXP (PCI) Card 0 Span 1"
span=1,1,1,ccs,hdb3
# termtype: te
bchan=1-15,17-31
dchan=16
# Span 2: TE4/0/2 "T4XXP (PCI) Card 0 Span 2"
span=2,2,1,ccs,hdb3
# termtype: te
bchan=32-46,48-62
dchan=47
# Span 3: TE4/0/3 "T4XXP (PCI) Card 0 Span 3"
span=3,3,1,ccs,hdb3
# termtype: te
bchan=63-77,79-93
dchan=78
# Span 4: TE4/0/4 "T4XXP (PCI) Card 0 Span 4"
span=4,4,1,ccs,hdb3
# termtype: te
bchan=94-108,110-124
dchan=109
# Global data
loadzone = us
defaultzone = us
```

4) Edit the zapata.conf by vi /etc/asterisk/zapata.conf:

```
[channels]
context=zap-in
switchtype=euroisdn
pridialplan=national
signalling=pri_cpe
usecallerid=yes
hidecallerid=no
callwaiting=yes
callwaitingcallerid=yes
threewaycalling=yes
transfer=yes
cancallforward=yes
echocancel=yes
rxgain=0.0
txgain=0.0
```

```
group=1
callgroup=1
pickupgroup=1
immediate=no
callprogress=no
callerid=asreceived
group=1
signalling=pri_cpe
channel => 1-15,17-31
group=2
signalling=pri_cpe
channel => 32-46,48-62
group=3
signalling=pri_cpe
channel => 63-77,79-93
group=4
signalling=pri_cpe
channel => 94-108,110-124
```

5) Starting asterisk by **asterisk -vvvvvvvgc**

Chapter 3 Hardware Setting
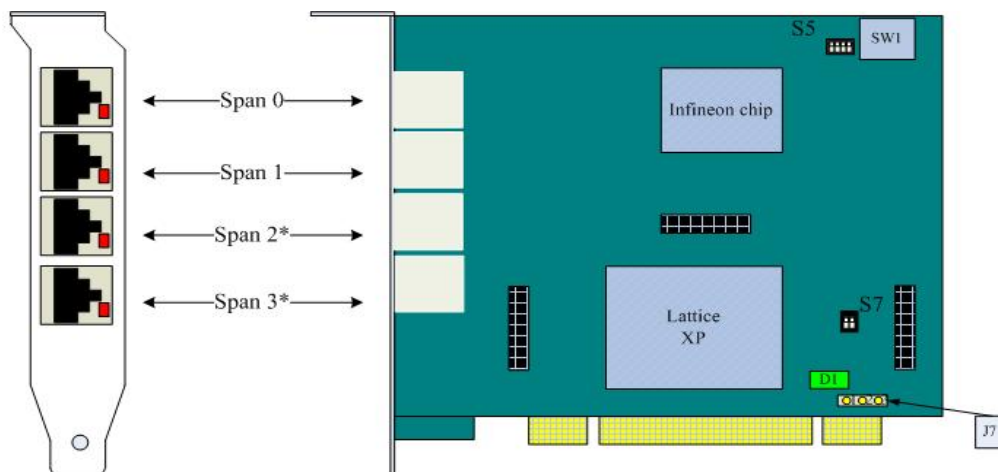
Notice:

S5 : Span Type Setting

    Each dip switch controls one span configuration for E1 or T1.
Setting DIP1 to ON means SPAN1 will be E1.
Setting DIP1 to OFF means SPAN1 will be T1.
The example sets all 4 SPANs to E1.

SW1: Card Serial Number Selection
    If there is only one card in PCI slot, SW1 must be set to 0.
    If there are more than one cards in PCI slot, please refer the installation guideline.

S7 : Mode Switch

    DIP1:
ON Digium Compatible Model - use wct4xxp directly
OFF: OpenVox dedicate model - use openvox driver

    DIP2:
ON: Force PCI Burst On, this model will omit noburst parameter in wct4xxp, always   keep use PCI Burst model.
OFF: PCI Burst controlled by driver. Burst controlled by noburst parameter in wct4xxp(default is off).

    Default: Set DIP1 and DIP2 ON.

    The example is a default configuration.
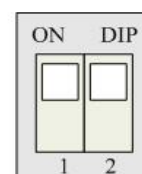
J7 : PCI Power Supply

    Shorten the Jumper between 2 and 3 will use 5v power supply of PCI

    Shorten the Jumper between 1 and 2 will use 3.3v power supply of PCI

* Only for D410P

Figure 2: D410P/D210P Hardware Configuration

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Chapter 4 References

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www.digium.com
www.asterisk.org
www.voip-info.org
www.asteriskguru.com