OpenVox Communication Co.Ltd

OpenVox-Best Cost Effective Asterisk Cards

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Contents

Test Environments

CentOS-5.6

Kernel version: 2.6.18-238.12.1.el5

DAHDI: dahdi-linux-complete-2.3.0.1+2.3.0

Asterisk: 1.8.0

ss7: chan_ss7-2.1.0

Hardware: IX132(A400E+DE130E)

Chapter 1 Software Installation

IX132 series IP-PBX supports combinations analog, BRI, PRI and GSM telephony cards, now let's take the combination of A400E and DE130E for an example to illustrate software installation. And assume that DE130E need to run in SS7 signaling.

1.1 Download

Download chan_ss7 package from:

http://www.netfors.com/chan_ss7_free

Get DAHDI source package from openvox:

http://downloads.openvox.cn/pub/drivers/dahdi-linux-complete/openvox_dahdi-linux-complete-current.tar.gz

Get Asterisk software package from digium official website:

http://downloads.asterisk.org/pub/telephony/asterisk/releases/asterisk-1.8.0.tar.gz

Execute the following commands in the directory /usr/src/ in general to download and unzip the three source packages.

```
# wget http://www.netfors.com/media/download/chan_ss7-2.1.0.tar.gz
# wget http://downloads.openvox.cn/pub/drivers/dahdi-linux-complete/openvox_dahdi-linux-complete-c
```

```
urrent.tar.gz
# wget http://downloads.asterisk.org/pub/telephon
y/asterisk/releases/asterisk-1.8.0.tar.gz
# tar -xvzf chan_ss7-2.1.0.tar.gz
# tar -xvzf openvox_dahdi-linux-complete-xx.tar.g
z
# tar -xvzf asterisk-1.8.0.tar.gz
```

1.2 Installation

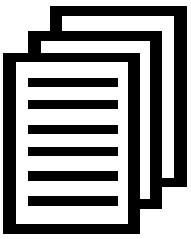
Make sure your **necessary dependencies** have all been installed, and then get start to install DAHDI, Asterisk and chan_ss7.

```
# cd /usr/src/dahdi-linux-complete-XX
# make
# make install
# make config
```

Caution: If there is something wrong after "make", please refer to **HERE**. In the url link, the moderator introduces you a method how to patch. After patching, save your changes and exit. Then run "make" again, if successfully, you are going to install Asterisk.

Please operate those commands to install Asterisk.

```
# cd asterisk-1.8.0
# ./configure
# make
# make install
# make samples
```



"make samples" will install the standard sample configuration file in the directory /etc/asterisk. As a freshman, you should perform make samples, that is to say, it is unnecessary to perform make samples every time. Because once performed, it will cover the old sample configuration files you have installed.

After installed dahdi and asterisk, now install chan_ss7 as below:

Go to the directory of chan_ss7 source codes and modify Makefile like this:

#INCLUDE+=-I../source/telephony/zaptel/kernel

#CFLAGS+=-DUSE_ZAPTEL

ASTERISK_PATH=../asterisk-1.8.0/include

INCLUDE+=-I../dahdi-linux-complete-2.3.0.1+2.3.0/include

Execute commands to compile and install chan_ss7

```
# make
# make install
# cp ss7.conf /etc/asterisk
```

; copy the ss7.conf file to /etc/asterisk

```
# cp chan_ss7.so /usr/lib/asterisk/modules
```

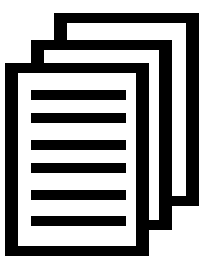
; copy the chan_ss7.so to /usr/lib/asterisk/modules

1.3 Configuration

1. Driver loading

After compiling and installing DAHDI and Asterisk, please load the driver by running:

```
# modprobe dahdi
# modprobe opvx115
# modprobe wctdm
# dahdi_genconf
```



After running, there is not any indication information

displayed if loaded normally and successfully. "opvx115" and "wctdm" are the driver module name of DE130E and A400E.

If there is any error, please trace the cause. Until all errors are clear up, you could execute "dahdi_genconf" again, and then go to the next step. By running "dahdi_genconf", it will generate /etc/dahdi/system.conf and etc/asterisk/dahdi-channels.conf automatically. Checking whether the generated files information agrees with your hardware setup, if not, you should modify to your specific requirements. Do not forget to confirm dahdi-channels.conf is included in chan_dahdi.conf, if not, run command:

```
# echo "#include dahdi-channels.conf" >>
/etc/asterisk/chan_dahdi.conf
```

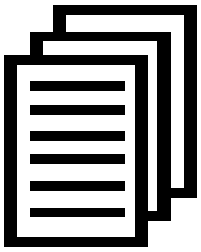
FXO ports use FXS signaling, while FXS ports adopt FXO signaling. A part of system.conf which is one of the basic channel configuration files is displayed.

```
# Span 2: WCTDM/4 "Wildcard TDM400P REV E/F Board 5" (MASTER)
fxoks=1
fxoks=2
fxsks=3
fxsks=4

# Global data

loadzone        = cn
defaultzone     = cn
;Modify these two parameters to peer your country or zone
```

Figure 6 A part of system.conf



Some zonedata is available in the file .. /dahdi-XX/tools/zonedata.c, you can refer to it to match your country mode. Meanwhile, you also need to modify another parameter which is in file /etc/asterisk/indications.conf.

```
country=cn
```

2. Edit files for ss7

a. Edit /etc/dahdi/system.conf like:

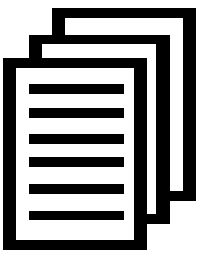
```
vim /etc/dahdi/system.conf
This file is parsed by the Dahdi Configurator, dahdi_cfg
#
# Span 1: TE4/0/1 "T4XXP (PCI) Card 0 Span 1" HDB3/CCS/CRC4 RED
Span=1,1,0,ccs,hdb3,crc4
# termtype: te
bchan=1-31
#dchan=16
```

b. edit /etc/asterisk/ss7.conf

```
[linkset-siuc]
enabled => yes
enable_st => no
use_connect => no
hunting_policy => even_mru
context => ss7
language => da
t35 => 15000,timeout
subservice => auto
;signallingtype=>ISUP(TUP)
variant => CHINA

[link-l1]
linkset => siuc
channels => 1-15,17-31
schannel => 16
firstcic => 0
;sls => 1
;sltm => no
enabled => yes
echocancel => no
;echocan_train => 350
;echocan_taps => 128

[host-zmdvoip]              zmdvoip is your asterisk server name
enabled => yes
opc => 0x10ff48
dpc => siuc:0x10fff6
links => l1:1
```



Some parameters in this file need to be changed according to your situation. Please replace "zmdvoip" by your asterisk server name. If "opc" is 0x10fff6 and "dpc" is 0x10ff48 carrier gives you, you must set "**opc => 0x10ff48 dpc => siuc:0x10fff6**" like the above figure.

c. Edit /etc/asterisk/dahdi-channels.conf

Please comment out the settings for DE130E, otherwise it will be contradictory with ss7

```
;Span 1: TE4/0/1 "T4XXP (PCI) Card 0 Span 1" HDB3/CCS/CRC4 RED
;group=0,11
;context=from-pstn
;switchtype = euroisdn
;signalling = pri_cpe
;channel => 1-15,17-31
;context = default
;group = 63
```

After these tasks finished, please execute the following command:

```
# service dahdi restart
```

```
# dahdi_cfg -vvvvvv
```

The command is used for reading and loading parameters in the configuration file system.conf and writing to the hardware. A part of outputs are showed in the following figure.

```
DAHDI Version: 2.3.0
Echo Canceller(s):
Configuration
======================


Channel map:

Channel 01: FXO Kewlstart (Default) (Echo Canceler: none) (Slaves: 01)
Channel 02: FXO Kewlstart (Default) (Echo Canceler: none) (Slaves: 02)
Channel 03: FXS Kewlstart (Default) (Echo Canceler: none) (Slaves: 03)
Channel 04: FXS Kewlstart (Default) (Echo Canceler: none) (Slaves: 04)

4 channels to configure.

Setting echocan for channel 1 to none
Setting echocan for channel 2 to none
Setting echocan for channel 3 to none
Setting echocan for channel 4 to none
```

Figure 7 Channel map

3. Asterisk initiation

```
# asterisk -vvvvvvvgc
```

If Asterisk is already activate, run "asterisk –r" instead. In the CLI, please run the following command:

```
localhost*CLI> ss7 link status
linkset siuc, link l1/16 INSERVICE, sls 0, total: 8684336, 8684368
localhost*CLI> ss7 linestat
```

Linkset: siuc

CIC 0 Idle
CIC 1 Idle
CIC 2 Idle
CIC 3 Idle
CIC 4 Idle
CIC 5 Idle
CIC 6 Idle
CIC 7 Idle
CIC 8 Idle
CIC 9 Idle
CIC 10 Idle
CIC 11 Idle
CIC 12 Idle
CIC 13 Idle
CIC 14 Idle
CIC 16 Idle
CIC 17 Idle
CIC 18 Idle
CIC 19 Idle
CIC 20 Idle
CIC 21 Idle
CIC 22 Idle
CIC 23 Idle
CIC 24 Idle
CIC 25 Idle

CIC 26 Idle
CIC 27 Idle
CIC 28 Idle
CIC 29 Idle
CIC 30 Idle

```
localhost*CLI> dahdi show channels

 Chan Extension  Context          Language   MOH Interpret
 Pseudo          default                      default
       1         from-internal                default
       2         from-internal                default
       3         from-pstn                    default
       4         from-pstn                    default
```

Figure 9 channels show

If DAHDI channels and ss7 are found and up, it means they have been loaded into Asterisk successfully. The last thing is to edit your extension (softphone or hard phone) and dialplan by your requirements. After right dialplan, I will say “congratulations to you!”

After saving your dialplan, please run "asterisk –r", then execute "reload" in the CLI. Next you are able to make calls.

Chapter 2 Reference

www.openvox.cn

www.digium.com

www.asterisk.org

www.voip-info.org

www.asteriskguru.com

Tips

Any questions during installation please consult in our forum or look up for answers from the following websites:

Forum

wiki

Appendix

```
# 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++

# yum install libxml2
```