



Synway AST Series

SynAST Application Platform-Asterisk Installation Manual

Version 1.0.0.0

Synway Information Engineering Co., Ltd

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Revision History

Version	Date	Comments
Version 1.0.0.0	2009-7	Initial publication.

Note: Only major revisions to this manual itself recorded herein.

Preface

When you use the Synway AST series boards to set up an Asterisk application system, this file provides the help for software installation, configuration and test. It aims at those people who use the Synway AST series boards in Asterisk for the first time, and takes the use of TEJ-4A/PCI and FXM-16A/PCle in Asterisk-1.4.18 for example.

Chapter 1 introduces how to install and automatically configure the driver of Synway AST series boards in Asterisk.

Chapter 2 tells how to manually configure the system.

Chapter 3 shows how to test the Synway AST series boards in Asterisk.

Appendix A gives the contact way of technical support and sales department in Synway.

Although Synway has scrupulously checked through this manual, but cannot guarantee the absence of errors and omissions. We sincerely apologize for any consequent inconvenience brought to you and will be very grateful if you kindly give your advice regarding amendments to this book.

Chapter 1 Installation & Automatic Configuration

1.1 Asterisk

For detailed information about Asterisk, visit the official website of Asterisk: <http://www.asterisk.org>

1.1.1 Preparation

- 1) Install the Linux OS. Note: Almost all issued Linux operating systems, such as RED HAT, FC4, DEBAIN, support Asterisk. For more exact information, refer to Asterisk official website.
- 2) Obtain the resource package you need for Asterisk installation. See Table 1-1 below for details.

Resource Package	Version Recommendation	Address	Description
asterisk-1.4.x.tar.gz	1.4.18 or above	http://downloads.digium.com/pub/asterisk/releases/	None
zaptel-1.4.x.tar.gz	1.4.8 or above	http://downloads.digium.com/pub/zaptel/releases/	None
libpri-1.4.x.tar.gz	1.4.7 or above	http://downloads.digium.com/pub/libpri/releases/	ISDN library for TEJ series
astunicall-1.4.18-0.2.tar.gz	1.4.8 or above	http://www.moythreads.com/astunicall/downloads/	SS1 library for TEJ series
Synast-x.x.x.x.tar.gz	1.0.0.0 or above	http://www.sanhuid.com	None

Table 1-1 Resource Packages for Asterisk Installation

1.1.2 Driver Installation

Step 1: Install the zaptel driver and the SynAST driver.

Refer to Chapter 3 Driver Installation & Configuration in the file *SynAST_UserManual.pdf*.

1.1.3 Asterisk Installation

Step 1: Install the library libpri.

Note: Skip to Step 2 if you do not use the TEJ series boards or ISDN.

```
#cd /opt                                # enter the directory to libpri
#tar -zxvf libpri-1.4.7.tar.gz           # decompress libpri
#cd libpri-1.4.7
#make
#make install
```

Step 2: Install the library astunicall.**Notes:**

- 1) *Skip to Step 3 if you do not use the TEJ series boards or SS1.*
- 2) *Skip to Step 3 if you use SS1 in T1 mode on a TEJ series board.*
- 3) *The following steps may slightly differ on versions. You can check the file README in the package astunicall for help.*

```
#cd /opt                                # enter the directory to astunicall
#tar -zxvf astunicall-1.4.18-0.2.tar.gz
#cd astunicall-1.4.18-0.2
#cd spandsp-0.0.4                        # install the library spandsp
#./configure --prefix=/usr
#make
#make install
#cd ../unicall-0.0.5pre1/libsupertone-0.0.2 # install the library libsupertone
#./configure --prefix=/usr
#make
#make install
#cd ../ libunicall-0.0.3                  # install libunicall
#./configure --prefix=/usr
#make
#make install
#cd ../ libmfcr2-0.0.3                    # install libmfcr2
#./configure --prefix=/usr
#make
#make install
```

Step 3: Install Asterisk.**Note:**

To use SS1 in E1 mode on a TEJ series board, please install the ‘asterisk’ in the package ‘astunicall’ mentioned in Step 2.

```
#cd /opt                                # enter the directory to Asterisk source codes by
                                         individual situation
```

```
#tar -zxvf asterisk-1.4.18.tar.gz
```

```
# decompress Asterisk source codes
```

```
#cd asterisk-1.4.18
```

```
# enter the directory to decompressed Asterisk  
source codes
```

```
#./configure
```

```
#make
```

```
#make install
```

```
#make samples
```

Note: Execute the following command if you install the astunicall package.

```
#cp ../unicall.conf.sample /etc/asterisk/unicall.conf # copy the configuration file  
unicall.conf
```

1.1.4 Configuration

Note: You must follow Chapter 2 [Manual Configuration](#) if using SS1; or you may choose either the method listed here or the manual configuration.

```
#astcfg_zaptel asterisk
```

1.1.5 Asterisk Startup

```
#ztcfg -vv
```

```
#asterisk -vvvc
```

Chapter 2 Manual Configuration

2.1 Zaptel/Dahdi Configuration

Refer to Section 3.2.2 Manual Configuration in the document *SynAST_UserManual.pdf*.

2.2 Asterisk Configuration

Modify the configuration file according to Table 2-1 below.

Board Config Model File	TEJ-4A/PCI				FXM-16A/PCle (top 4 slots: trunk; bottom 4 slots: station)
	E1 Mode		T1/J1 Mode		
	ISDN	SS1	ISDN	SS1	
	[trunkgroups] [channels] usecallerid=yes hidecallerid=no callwaiting=no threewaycalling=yes transfer=yes rxgain=0.0 txgain=0.0 echocancel=yes echocancelwhenbridged=yes busydetect=yes busycount=7 relaxdtmf=yes				
	Context=from-pstn signalling=pri_cpe switchtype=euroisdn channel=>1-15,17-31 channel=>32-46,48-62 channel=>63-77,79-93 channel=>94-108,110-124		context=from-pstn signalling=pri_cpe switchtype=national channel=>1-23 channel=>25-47 channel=>49-71 channel=>73-95	context=from-pstn signalling=em_w switchtype=national channel=>1-23 channel=>25-47 channel=>49-71 channel=>73-95	;fxo Module context=from-pstn signalling=fxs_ks channel=>1-8 ;fxs Module context=from-internal signalling=fxo_ks channel=>9-16
/etc/ asterisk/ unicall.conf		[channels] language=en usecallerid=yes echocancel=yes rxgain=0 txgain=0 group=1 callgroup=0 pickupgroup=0 amaflags=default accountcode=avantel musiconhold=default			

		context=pstn-incoming loglevel=255 protocolclass=mfc2 protocolvariant=[SeeTable 2-2] category= NATIONAL_SUBSCRIBER channel=>1-15,17-31 channel=>32-46,48-62 channel=>63-77,79-93 channel=>94-108,110-124			
--	--	--	--	--	--

Table 2-1 Asterisk/Trixbox Configuration

Notes:

- 1) **Change *pri_cpe* to *pri_net* if using the network side in ISDN.**
- 2) **In *E1+SS1*, the value of the field *protocolvariant* in the configuration file *unicall.conf* should be set according to the country or the communication operator. See Table 2-2 below for details.**

Country/Operator	protocolvariant
China	protocolvariant=cn,20,7
Argentina/Telecom E1	protocolvariant=ar,10,4
Brazil/ Embratel	protocolvariant=br,20,4,8
Brasil/ Telecom	protocolvariant=br,20,4
Brasil/ Telefonica	protocolvariant=br,20,20
GVT	protocolvariant=br,20,20
Telemar	protocolvariant=br,20,20
Colombia/ ETB	protocolvariant = ar,20,4
Telefónica /Telecom	protocolvariant = br,10,7,7
Mexico/ Telmex and Avantel	protocolvariant=mx,10,4
Phillippines/ Nextel	protocolvariant=ph,12,18,1

Table 2-2 Value of protocolvariant Field

- 3) **Do not configure a channel repeatedly in */etc/asterisk/unicall.conf* and */etc/asterisk/zapata.conf*; otherwise, errors occur.**
- 4) **Use the following command to correct if the system reports error in *chan_unicall.so* at the start of Asterisk.**

```
chcon -t texrel_shlib_t /usr/lib/asterisk/modules/chan_unicall.so
```
- 5) **According to dialing rules, zap channels are used for ISDN or for SS1 in T1 mode on a TEJ board, while unicall channels are used for SS1 in E1 mode on a TEJ board is unicall.**

Chapter 3 Test

3.1 Preparation

Use an FXM-16A/PCIe board and a TEJ-4A/PCI board for example. The former 4 modules on the FXM-16A/PCIe board are FXO and the latter 4 are FXS. Meanwhile, configure the TEJ-4A/PCI board with E1+ISDN mode.

Examine the configuration of zaptel:

```
#ztcfg -vv
```

3.2 Test Example

3.2.1 Asterisk Environment

Step 1: Examine the configuration of Asterisk.

```
#asterisk -vvvc                                # start Asterisk
*CLI>zap show channels                          # check the channel state
```

Step 2: Test Example 1 (FXM-16A/PCIe).

- a) Add dialing rules to '/etc/asterisk/extensions.conf':

```
[text]
exten => _300X,1,Dial(zap/ 13,50)
exten => _300X,n,playback(hello-world)
exten => _300X,n,Hangup()
```

- b) Use Station 15 to dial 3000. Then test the call with Channel 13.

Step 3: Test Example 2 (TEJ-4A/PCI).

- a) Register sip to Asterisk.
b) Add dialing rules to '/etc/asterisk/extensions.conf':

```
[text]
exten => _300X,1,Dial(zap/ 13,50)
exten => _300X,n,playback(hello-world)
exten => _300X,n,Hangup()
```

- c) Use sip to dial 3000 out. Then test the call with Channel 13.

Appendix A Technical/Sales Support

Thank you for choosing Synway. Please contact us should you have any inquiry regarding our products. We shall do our best to help you. However, our technicians and salesmen are mainly responsible for maintaining our boards and providing relative technical support. If there are problems about Asterisk, please keep touch with Digium Inc. for help.

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