Synway Voice Board

CTILinux Driver Installation Manual

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Chapter 1 Driver Installation

1.1 Brief Introduction

This document describes how to use CTILinux 5.3.15 and above versions for those people who need to install the driver for any voice board from Synway in a Linux operating system.

1.2 Driver Installation Package

To help users get basic information about the CTILinux driver installation package for Synway boards, the package is named by certain rules. The name of a driver installation package consists of several fields. Take the name of the CTILinux 5.3.15 driver installation package CtiLinux5.3.15-2.6.29.4-167.fc11.i686.PAE-SMP-i686.tar.bz2 for example. The first field 'CtiLinux5.3.15' indicates the package version is 5.3.15; the second and third fields '2.6.29.4-167.fc11.i686.PAE' are kernel version which indicates this package can only be used in this Linux kernel version; the fourth field 'SMP' indicates this driver can only run on a PC with multi-core CPU (by default a single-core system is supported); the fifth field 'i686' indicates the required PC architecture is i686.

1.3 Driver Installation Procedure

Step 1:

Login to the system (users with root access only).

Step 2:

Copy the driver installation package 'CtiLinux5.3.15-2.6.29.4-167.fc11.i686.PAE-SMP-i686.tar.bz2' from the CD to your current directory.

Step 3:

Execute the command 'tar -xjvf CtiLinux5.3.15-2.6.29.4-167.fc11.i686.PAE-SMP-i686.tar.bz2' to decompress the

compressed file and create the directory

'CtiLinux5.3.15-2.6.29.4-167.fc11.i686.PAE-SMP-i686'.

Step 4:

If you have already installed a driver of the same version and have configured it properly, go '/usr/local/lib/shcti/ver5.3.15/tools' first to backup the configuration file ShConfig.ini; otherwise this file will be overlaid. Run install.linux under the directory 'CtiLinux5.3.15-2.6.29.4-167.fc11.i686.PAE-SMP-i686' to start the auto installation, including auto loading of the driver itself (at the first time of driver installation, the installation script will automatically check the models of all boards on the machine and load corresponding driver module; after that, the machine will automatically load the driver module every time upon it starts) and the auto configuration of the file ShConfig.ini (it can reach the same purpose as you manually click the 'Default' button on the GUI configuration program).

The following information will appear in and after the course of installation.

The version is stable version ver5.3.15!

The version is fixing version ver5.3.15!

Drivers ShCti ver5.3.15 installing...

Found SYNWAY PCI or CPCI device:

Device ID=10b50057

insmod shdpci.ko success

ShConfig.ini has been configured

Drivers ShCti ver5.3.15 install success!

If the installation succeeds, skip Step 5 and Step 6; if it fails, you shall refer to Step 5 and Step 6 to install the driver manually. After the driver installation, a folder 'shcti' will be created under the directory '/usr/local/lib/' to store driver-related files (For the detailed file structure, refer to 1.4 Directory Structure).

Note: The driver will automatically load and configure the board. So the initial configuration file you get is always with the default settings. However, the file ShConfig.ini varies for different boards and therefore needs to be modified in a real practice according to the board model and the serial number. If you are not familiar with

the driver provided by Synway, we suggest you to run the configuration tool ShCtiConfig under '/usr/local/lib/shcti/ver5.3.15/tools'. The configuration tool ShCtiConfig in Linux operating system has almost the same interface and functions as ShCtiConfig.exe in Windows operating system. Below is the main interface appearing after the launch of ShCtiConfig. Click on the button 'Default' and then the button 'Apply' on the interface to complete the default setting. Then copy the configuration file ShConfig.ini which has been well configured to your application directory.

In a Linux operating system which has GUI, you can also run PreShCtiConfig_gtk under the directory '/usr/local/lib/shcti/ver5.3.15/tools' to configure in the same way as you run ShCtiConfig.exe. If you have already installed the SynCTI driver in Windows operating system and configured it properly, you can directly copy the configuration file ShConfig.ini to your application directory in Linux operating system.

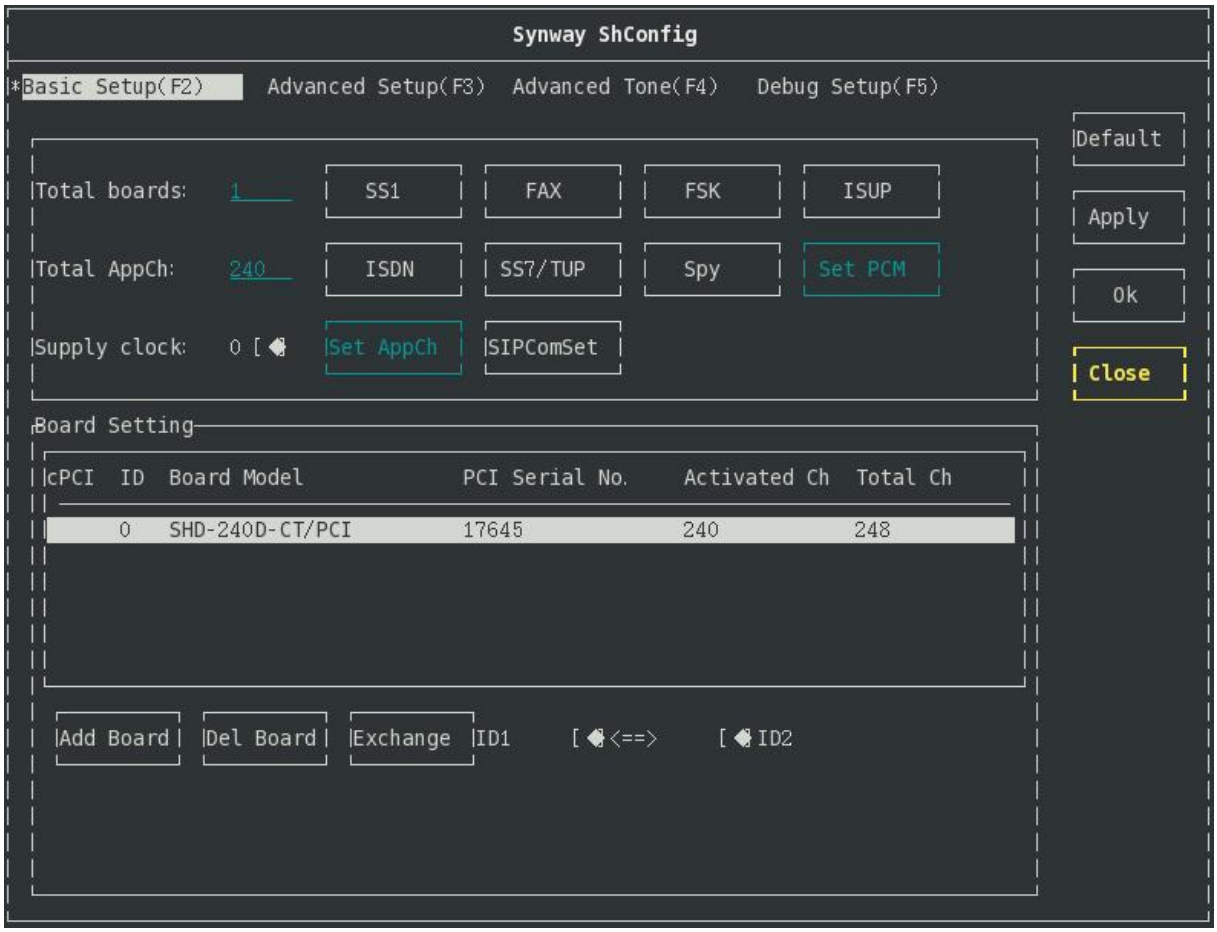

Figure 1-1 Interface of ShCtiConfig

Step 5:

If the auto installation fails, please first check if the machine has boards installed or if the

boards have been recognized properly. Use the command 'lspci' to check and you may see such information as follows.

04:00.0 Computer telephony device: PLX Technology, Inc. Device 0068 (rev 0b)

Then under the directory 'CtiLinux5.3.15-2.6.29.4-167.fc11.i686.PAE-SMP-i686/k26/lkm/k2.6.29.4-167.fc11.i686.PAE' (k2.6.29.4-167.fc11.i686.PAE is the Linux kernel version), execute the command 'rmmod shdpci.ko' to unload the driver for boards with PCI bus, and 'insmod shdpci.ko' to load the driver again for boards with PCI bus; execute the command 'rmmod shdcpci.ko' to unload the driver for boards with cPCI bus, and 'insmod shdcpci.ko' to load the driver again for boards with cPCI bus; execute the command 'rmmod shdusb.ko' to unload the driver for boards with USB bus, and 'insmod shdusb.ko' to load the driver again for boards with USB bus. Note that you'd better remove the USB device before uninstalling the USB module as well as after installing the USB module,

Step 6:

Use the command 'lsmod' to check if there is information displayed in the Module list to tell the driver has been installed successfully, such as

Module	Size	Used by
shdpci	613911	0

Step 7:

Upon a successful installation of the driver, the device file pci9000-XXXXX in which XXXXX indicates the board serial number will be created under the directory '/dev/shd/'.

Step 8:

To run the CUI test program, directly execute the command './test' under the directory '/usr/local/lib/shcti/ver5.3.15/tools/'; to run the GTK GUI test program, directly execute the command './ Test_gtk' under the directory '/usr/local/lib/shcti/ver5.3.15/tools/'.

Step 9:

When you are running your own applications, don't forget to load the path of the configuration files (ShConfig.ini, ShIndex.ini).

Key Tips:

(1) For the detailed description of configuration files and items in the driver program,

refer to Chapter 3 ‘SynCTI Driver Configuration’ in *SynCTI Programmer's Manual*.

(2) Make sure to load kernel module files every time before running the Synway board application program. Go to the directory of a specified kernel version under ‘lkm’ and execute the command ‘insmod shdpci.ko/shdcpci.ko’. What’s more, you may modify the setting of ‘/etc/rc.local’ (add to the end the command of loading corresponding ko file, such as ‘insmod /usr/local/lib/shcti/ver5.3.15/lkm/k2.6.29.4-167.fc11.i686.PAE/shdpci.ko’) to enable the automatic loading of kernel modules upon each start of your Linux system. If the kernel module files already exist and don’t need modifying, they will be loaded automatically.

1.4 Directory Structure

After the driver installation, the directory structure is as follows.

Structure of the directory ‘/usr/local/lib/shcti’:

demovoc	*Symbol linkage to voice files used in the demo program (you can find it in the demo software package)*
firmware	*Symbol linkage to bin files*
ver5.3.15	*Driver files*

Structure of the directory ‘ver5.3.15’:

out/	*Directory of configuration files, storing shared library files*
lkm/	*Subdirectory of loadable kernel module*
firmware/	*bin files*
cpld_lib/	*Tool for writing correct models to DST A series boards*
demo/	*Demo program codes*
ss7/	*Directory of SS7 Server*
tools/	*Tool for testing and configuration*
svninfo.log/	*Logging that the driver package is supported by which driven code*
setup.log/	*Detailed information about every file for driver installation*

File list under the directory ‘/usr/local/lib/shcti/ver5.3.15/tools’:

- ShConfig.ini *Board configuration file*
- ShIndex.ini *Configuration file for a form where voice files are listed by index*
- CasTool_gtk *Tool gtk for recording the code and bit streams from the digital station tap board, Version 2.4 (having the same interface and functions as CasTool in Windows)*
- ShCtiConfig *New configuration tool*
- PreShCtiConfig_gtk *Old configuration tool, Config gtk, Version 2.4*
- Test *CUI testing tool*
- Test_gtk *Testing tool, Test gtk, Version 2.4*
- uninstall.linux *Linux driver uninstallation*

Shared library files under the subdirectory 'out':

- libBmpUtil.so.5.3.15 *Graphic processing component for faxing*
- libIsdnUser.so.5.3.15 *ISDN user side processing component*
- libMtp3.so.5.3.15 *SS7 MTP3 component*
- libshdpci.so.5.3.15 *Hardware driver program for the voice board with PCI interface*
- libShInitPci.so.5.3.15 *Board model and licensed number querying component*
- libm537.so.5.3.15 *Compiling BIN file for IP board*
- libshdusb.so.5.3.15 *Hardware driver program for the voice board with USB interface*
- libshpa3.so.5.3.15 *API component*
- libSs7Server.so.5.3.15 *SS7 sever scheduling component*
- libTcpClnt.so.5.3.15 *SS7 client-to-server communication component (TCP/IP)*
- libTcpServer.so.5.3.15 *SS7 server-to- client communication component (TCP/IP)*
- libDSTDecode.so.5.3.15 *Digital station tap board component*
- libSccp.so.5.3.15 *Signaling connection control part*
- libTcap.so.5.3.15 *Transaction control application part*
- libshpcmhandle.so.5.3.15 *Transcoding component for PCM files*
- libH323.so.5.3.15 *H.323 message processing component*
- libSynSip.so.5.3.15 *SIP signaling processing component*
- libuserno7.so.5.3.15 *SS7 client without using Synway boards*

Directory of SS7 Server:

- ss7d *SS7 server under the console (Execute the command './ss7d -g' to run the GUI SS7 server under the console)*
- Ss7Cfg *Configuration tool for GUI SS7 server*
- Ss7Server.ini *Configuration file for SS7 server*

Directory of DEMO (The demo software package is provided on demand):

- PBX_Analog *Using analog boards to simulate PBX test program*
- PBX_Digital *Using digital boards to simulate PBX test program*
- Fax *Basic faxing test program*
- Recorder *Basic recording and playback test program*
- Recorder_ATP *Monitoring and recording test program for analog trunk phone lines*
- Recorder_DST *Digital station tap board test program*

- Recorder_DTP *Monitoring and recording test program for digital E1 lines*
- RecPlayUseMemBlock *Via-memory double-buffer recording and playback test program*
- Call_demo *Call-in test program*

1.5 Writing PBX Model to DST A Board

Go to the directory '/usr/ local/ lib/ shcti/ ver5.3.15/ cpld_lib/' and execute the following commands.

./cpld_demo --settype=PBXtype --SN =serialNum

./cpld_demo -s PBXtype -S serialNum

For example, if you want to write the Alcatel PBX to the board numbered 99999, run one of the following commands.

./cpld_demo --settype=alcatel --SN=99999

./cpld_demo -s alcatel -S 99999

Chapter 2 Driver Uninstallation

To uninstall the driver automatically, execute the script ‘uninstall.linux’ under the directory ‘/usr/local/lib/shcti/ver5.3.15/’. To uninstall the driver manually, follow the steps below.

Step 1:

Close both the board and user application programs as well as the ss7d program when necessary.

Step 2:

Run the command ‘rmmod shdpci’ or ‘rmmod shdcpci’ or ‘rmmod shdusb’ (according to your board model).

Step 3:

Execute the command ‘lsmod’ to check if the driver has been uninstalled successfully. In case of success, the item ‘shdpci’ will not appear in the displayed command execution results.

Step 4:

Execute the command ‘rm –rf shcti’ to delete the ‘shcti’ folder under the directory ‘/usr/local/lib’.

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.

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