



**Synway Voice Board**

# **CTILinux Driver Installation Manual**

**Synway Information Engineering Co., Ltd**

**[www.synway.net](http://www.synway.net)**

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# Chapter 1 Driver Installation

## 1.1 Brief Introduction

This document describes how to use CTILinux 5.3.0.2 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 Procedure

### Step 1:

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

### Step 2:

Copy the driver installation package CtiLinux5.3.02-2.6.18-4-686-i686.tar.bz2 from the CD to your current directory.

### Step 3:

Execute the command 'tar -xjvf CtiLinux5.3.02-2.6.18-4-686-i686.tar.bz2' to decompress the compressed file and create the directory 'CtiLinux5.3.02-2.6.18-4-686-i686'.

### Step 4:

If you have already installed a driver of the same version and have configured it properly, go '/usr/local/lib/shcti/ver5.3.02/tools' first to backup the configuration file ShConfig.ini; otherwise this driver will be overlaid again. Run install.linux under the directory 'CtiLinux5.3.02-2.6.18-4-686-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' and then the 'Apply' buttons on the GUI configuration program).

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

The version is stable version ver5.3.02!

Drivers ShCti ver5.3.02 installing...

Found SYNWAY PCI or CPCI device:

Device ID=10b50068

insmod shdpci.ko success

execute AutoConfig

there is(are) 1 board(s)

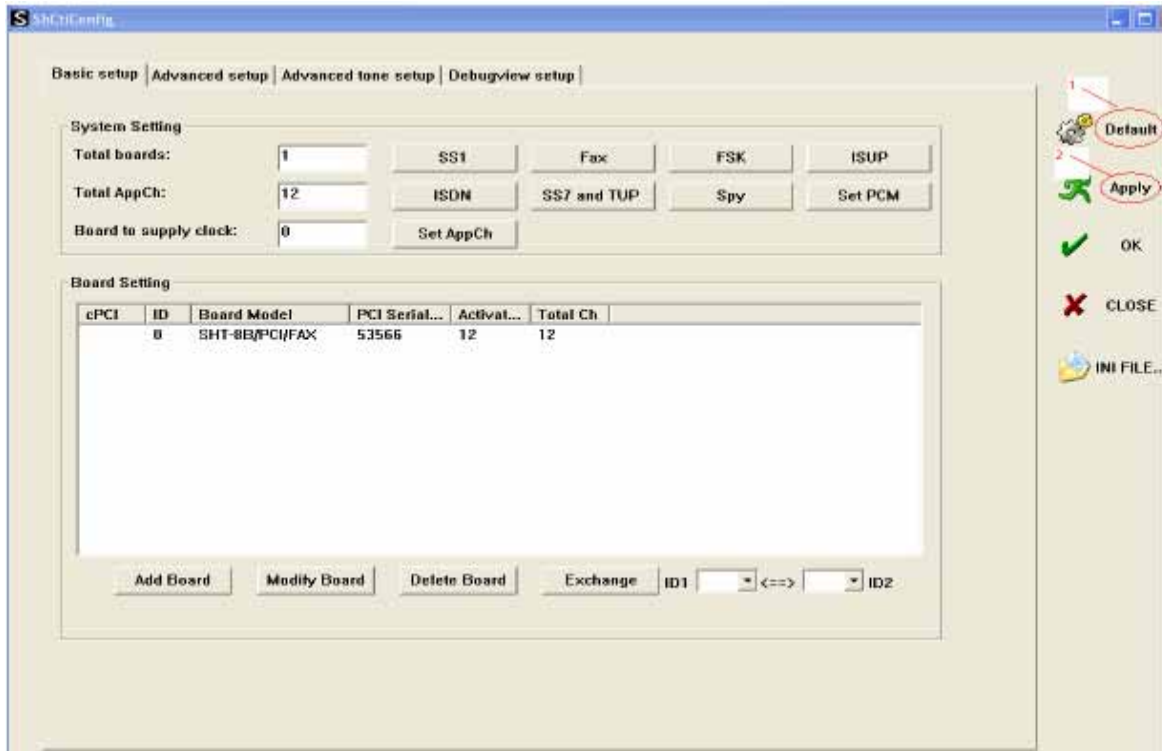
write OK

ShConfig.ini has been configured

Drivers ShCti ver5.3.02 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 [1.3 Directory Structure](#)).

**Note:** The driver will automatically load and configure the board via the auto configuration tool 'config'. 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 install the SynCTI driver in a Windows operating system first and run ShCtiConfig.exe under the system directory 'C:\shcti\' upon installation. Or in a Linux operating system provided it has GUI, you can run Config\_gtk under the directory '/usr/local/lib/shcti/ver5.3.02/tools'; the configuration tool Config\_gtk in Linux has almost the same interface and functions as ShCtiConfig.exe in Windows. Below is the main interface appearing after the launch of ShCtiConfig.exe. Click on the button 'Default' and then the button 'Apply' on the interface to complete the default setting. Now copy the configuration file ShConfig.ini which has been well configured to your application directory.



**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 'CtiLinux5.3.02-2.6.18-4-686-i686/k26/lkm/k2.6.18-4-686/' (k2.6.18-4-686 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.

**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/ver5.3.02/tools/'; to run the GTK GUI test program, directly execute the command './ Test\_gtk' under the directory '/usr/local/lib/shcti/ver5.3.02/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/ver5.3.02/lkm/k2.6.18-128.el5xen/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.

## 1.3 Directory Structure

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

**Structure of the directory '/usr/local/lib/shcti':**

demosoc	<i>Symbol linkage to voice files used in the demo program (you can find it in the demo software package)</i>
firmware	<i>Symbol linkage to bin files</i>
ver5.3.02	<i>Driver files</i>

**Structure of the directory 'ver5.3.02':**

— 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

**File list under the directory '/usr/local/lib/shcti/ver5.3.02/tools':**

- ShConfig.ini Board configuration file
- ShIndex.ini Configuration file for a form where voice files are listed by index
- CasTool\_gtk Tool for recording the code and bit streams from the digital station tap board, Version gtk 2.4 (having the same interface and functions as CasTool in Windows )
- Config Auto CUI configuration tool
- Config\_gtk Configuration tool, Version Config gtk2.4
- Test CUI testing tool
- Test\_gtk Testing tool, Version Test gtk2.4

**Shared library files under the subdirectory 'out':**

- libBmpUtil.so.5.3.02 Graphic processing component for faxing
- libIsdnUser.so.5.3.02 ISDN user side processing component
- libMtp3.so.5.3.02 SS7 MTP3 component
- libshdpci.so.5.3.02 Hardware driver program for SHD-60A-CT voice board
- libShInitPci.so.5.3.02 Board model and licensed number querying component
- libshpa3.so.5.3.02 API component
- libSs7Server.so.5.3.02 SS7 sever scheduling component
- libTcpCInt.so.5.3.02 SS7 client-to-server communication component (TCP/IP)
- libTcpServer.so.5.3.02 SS7 server-to- client communication component (TCP/IP)
- libDSTDecode.so.5.3.02 Digital station tap board component
- libSccp.so.5.3.02 Signaling connection control part
- libTcap.so.5.3.02 Transaction control application part
- libshpcmhandle.so.5.3.02 Transcoding component for PCM files
- libH323.so.5.3.02 H.323 message processing component
- libSynSip.so.5.3.02 SIP signaling processing component
- libuserno7.so.5.3.02 SS7 client without using Synway boards

**Directory of SS7 Server:**

- ss7d SS7 server under the console
- Ss7Server.ini Configuration file for SS7 server

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

- atrk4 DTMF receive/transmit test
- atrkfax Basic faxing test
- call Call in test



- dial *Call out test*
- record *Recording test*
- test *Testing of bus, recording, call and so on*

## 1.4 Writing PBX Model to DST A Board

Go to the directory `‘/usr/ local/ lib/ shcti/ ver5.3.02/ 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

Follow the steps below to uninstall the driver.

### 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.

### **Headquarters**

Synway Information Engineering Co., Ltd  
<http://www.synway.net/>  
9F, Synway D&R Center, No.3756, Nanhuan Road, Binjiang District,  
Hangzhou, P.R.China, 310053  
Tel: +86-571-88860561  
Fax: +86-571-88850923

### **Technical Support**

Tel: +86-571-88864579  
Mobile: +86-13735549651  
Email: [techsupport@sanhuid.com](mailto:techsupport@sanhuid.com)  
Email: [techsupport@synway.net](mailto:techsupport@synway.net)  
MSN: [scycindy\\_sh@hotmail.com](mailto:scycindy_sh@hotmail.com)

### **Sales Department**

Tel: +86-571-88860561  
Tel: +86-571-88864579  
Fax: +86-571-88850923  
Email: [sales@synway.net](mailto:sales@synway.net)