Synway ATP Series

SHT-4A/PCI 2.0

SHT-8A/PCI 2.0

Analog Tap Passive Board

Hardware Manual

Version 3.0

Synway Information Engineering Co., Ltd

www.synway.net

Contents

Copyright Declaration

Revision History

Version	Date	Comments
Version 1.0	1997-5	Initial publication
Version 2.0	2006-7	Changes: Made major hardware improvement, equipped the board with call-recording modules.
Version 3.0	2007-9	Changes: Added description on the SHT-4A/PCI 2.0 board.

Note: Please visit our website http://www.synway.net to obtain the latest version of this document.

Chapter 1 Overview

The ATP Series SHT-4A/PCI 2.0 and SHT-8A/PCI 2.0 are analog tap passive boards including PCI bus. The integration of recording modules on the board greatly enhances the system reliability.

1.1 Functions

- A single board supports simultaneous recording on 4 or 8 channels
- High-impedance passive monitoring
- A variety of ways to start/stop recording
- Support of simultaneous recording on different channels, each with a different format
- Calling party info (Caller ID) detection, DTMF and FSK support
- DTMF digits detection
- Programmable tone analyzer detects all kinds of tones
- Activity/silence detection
- Automatic Gain Control (AGC) support in recording/playback operation
- Call progress monitoring
- Automatic line voltage detection

1.2 Features

- **PCI 2.1 Bus Support**

  Includes PCI 2.1 bus with burst data transmission rate up to 133 MB/s; PNP (plug and play) feature eliminates the need for jumper leads.

- **Integration of Modules**

  The 4/8 recording modules are integrated on the board, which improves the system reliability and stability.

- **Analog Phone Line Interface**

  The on-board RJ11 jack can directly connect to phone lines without extra adaptors, making connection easy and malfunctions rare.

- **Hi-Z Monitoring of Analog Lines**

Flexible positioning of the tapping point is allowed on the communication line between Central Office Terminal (COT) and PBX, COT and telephones, PBX and telephones, etc. This function is widely used in small-to-large capacity call recording systems, call centers and so on.

- **Programmable Tone Detector**

  Detects single or dual tones at any frequency, offering facility for use with a variety of PBXes and key telephone systems.

- **High-impedance Recording**

  The recording impedance is up to 10kΩ AC/2MΩ DC, ruling out interruption on transmission of monitored signals.

- **Various CODECs Support**

  Offers a large selection of voice CODECs, including hardware-based A-Law (G.711), μ-law, IMA-ADPCM, software-based 16-bit linear PCM, MP3 and VOX.

- **Supports WAV File**

  The recorded voice files can be edited and played by audio tools such as Cooledit.

- **Audio Output Interface**

  Equipped with an analog tone amplifier circuit and an output interface, the first channel on the board can directly connect to the headset or sound box, and monitor a specified channel in real time via a simple function call.

- **Unique Hardware Serial Number**

  Each board has a unique hardware serial number written in the firmware to distinguish itself from other boards and prevent piracy. The number is available via an easy function call with applications.

- **Authorization Code Identification Circuit**

  The on-board authorization code identification circuit is designed for software safety. Users can apply to our company for an exclusive one.

- **Synway's Unified SynCTI Driver Development Platform**

  Synway owns the intellectual property rights for the unified high-intelligence SynCTI driver development platform. Each system supports up to 2048 channels. Functions such as the detection and analysis of rings, tones and Caller IDs, are available via simple function calls on the driver platform, without having to understand complex call procedures.

1.3 Operation Principle

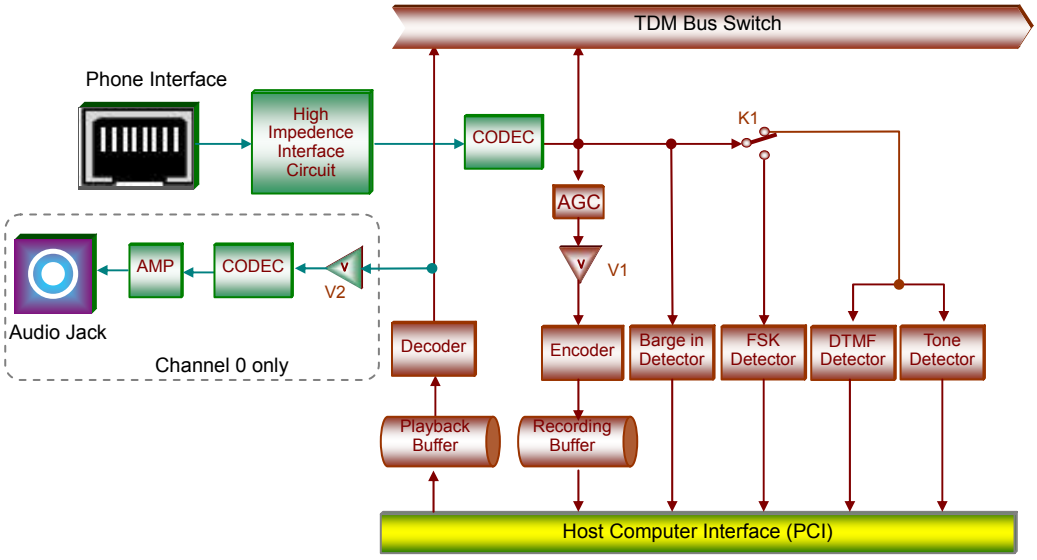

Figure 1-1 Operation Principle

Note: Channel 0 mentioned in this figure corresponds to Channel 1 marked on the board.

Chapter 2 Installation

2.1 Hardware Structure

- **SHT-4A/PCI 2.0 Board**

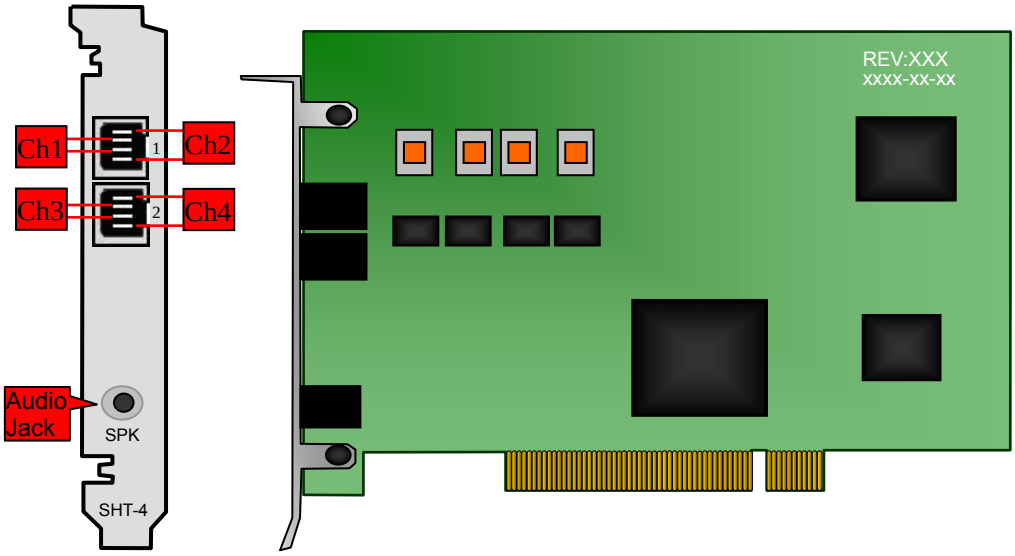

Figure 2-1 Left and Front Views

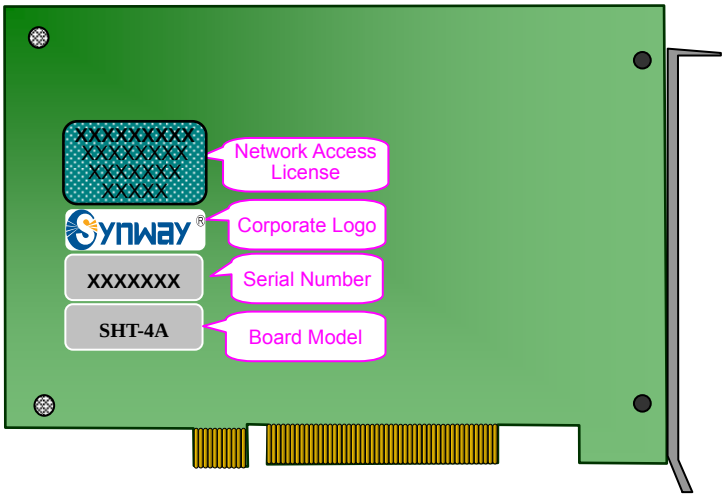

Figure 2-2 Rear View

- **SHT-8A/PCI 2.0 Board**

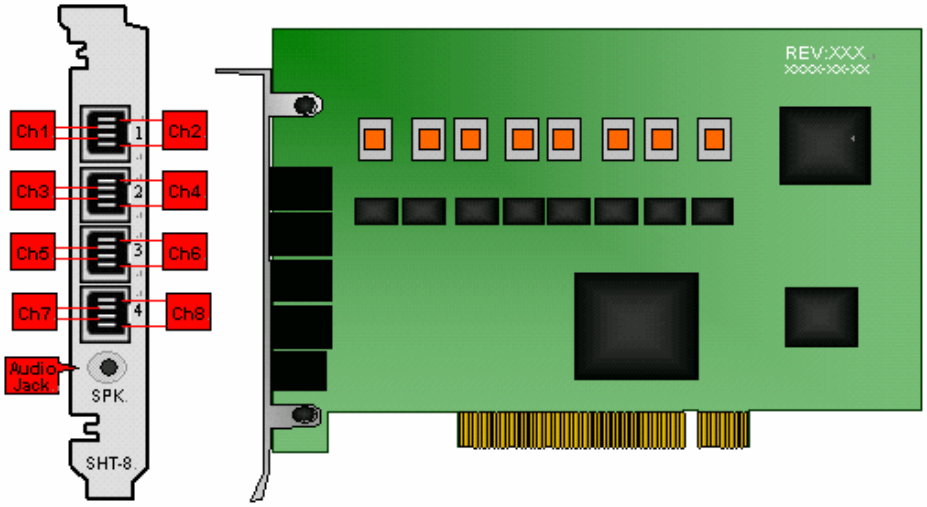

Figure 2-3 Left and Front Views

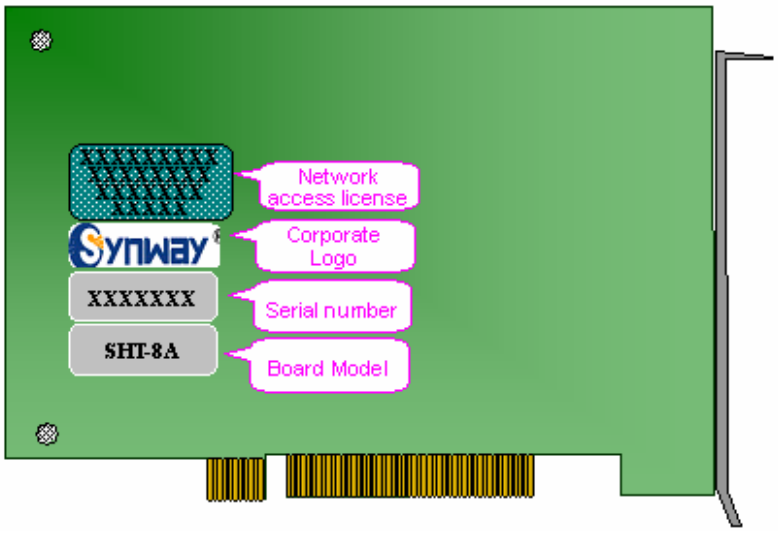

Figure 2-4 Rear View

2.2 System Requirements

Host System Requirements

CPU: 300MHz Intel® Pentium®Ⅱ or above

Memory: 256M or more

HD: Depends on individual requirements

Supported Operating Systems

Refer to *SynCTI Programmer's Manual.pdf*.

2.3 Installation Procedure

Note: Always turn off the power before installation!

Step 1: Fit the board into the chassis

Step 2: Connect to analog phone lines or other input signals

Each RJ11 jack can house a 4-lead line which corresponds to 2 channels. For pin layout, refer to Figure 2-1 and Figure 2-3.

Step 3: Connect the sound box or other appropriate sound devices

Skip this step if there is no need to 'monitor in real time' or 'play'.

Regarding how to choose proper sound devices, refer to 'Input/output Interface' and 'Audio Specifications' in *Appendix A Technical Specifications*.

Step 4: Boot your computer and install the driver

Regarding driver installation, refer to the file *SynCti_InstManual_cn.pdf*.

Key Tips:

- As the system is expected to run for long hours unmanned, 'energy-saving' mode should be turned off for both the CPU and the HD in CMOS or WINDOWS operating system. This is to ensure full-speed operation of the computer, or it may lead to a drop in performance or unexpected errors after running for some time.
- A chassis installed with analog tap passive boards must be grounded for safety reasons, according to standard industry requirements. A simple way is earthing with the third pin on the plug. No or improper grounding may cause instability in operation as well as decrease in lightning resistance.

Appendix A Technical Specifications

Dimensions

160×100mm^2 (excluding fixed slider)

Weight

≈ 250g

Environment

Operating temperature: 0℃—55℃

Storage temperature: -20℃—85℃

Humidity: 8%—90% non-condensing

Storage humidity: 8%—90% non-condensing

Input/output Interface

Headset jack: One φ3.5 stereo jack

Telephone line jack: Four 4-pin RJ11 jacks

Audio Specifications

CODEC: CCITT A/μ-Law 64kbps,

IMA ADPCM 32kbps

Output power: ≥50mW

Distortion: ≤2%

Frequency response: 300-3400Hz(±3dB)

Signal-to-noise ratio: ≥38dB

Echo suppression: ≥40dB

Maximum System Capacity

Up to 10 boards concurrently per system; up to 4 or 8 channels per board

Power Requirements

+3.3V DC: 100mA

+5V DC: 180mA

-12V DC: 80mA

+12V DC: 200mA

Maximum power consumption: ≤5W

Impedance

Input impedance: ≥1MΩ/500V DC;
≥10kΩ/1000V AC

Insulation resistance for PC isolation from telephone line: ≥2MΩ/500V DC

Audio Encoding & Decoding

16Bit PCM	*128kbps*
8Bit PCM	*64kbps*
A-Law	*64kbps*
μ-Law	*64kbps*
VOX	*32kbps*
ADPCM	*32kbps*
GSM	*13.6kbps*
MP3	*8kbps*

Sampling Rate

8kHz

Safety

Lightning resistance: Level 4

Monitoring Distance

The maximum distance between the ATP board and the access point is 50m.

Appendix B 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

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