Synway

Synway CTI Series

SHD-120/240D-CT/PCI

SHD-120/240D-CT/PCI/EC

Digital Trunk Voice Board

Product Introduction

Synway Information Engineering Co., Ltd

www.synway.net

Functions

- A single board accommodates 4 or 8 E1/T1 trunks

- Supports China SS1, SS7 and ISDN connections in both E1 and T1 modes

- Supports phone-calling and voice-processing functions

- Activity/silence detection

- Automatic Gain Control (AGC) support in recording operation

- Enhanced capability in echo cancellation

- Allows DTMF transmission and detection during voice recording or playback

- Includes H.100 bus, compatible with MVIP, SC and ST buses, facilitating smooth connectivity to third-party boards with H.100 bus for the transfer of acquired voice signals to other devices

- The flexible distributed conferencing system sets no limit on the number of simultaneous conferences and participants in each conference, allows monitoring and recording of the whole conference and each individual speaker

- The on-board lightning-proof circuit reaches the telecom standard and surely eliminates the damage caused by lightning

- Equipped with the EMI circuit, effectively preventing the electromagnetic interference

- 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

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

- Compatible with other series of voice boards from Synway

Characteristic Features

- **PCI 2.1 Bus Support**

  Includes PCI 2.1 bus and uses the universal PCI design supporting 3.3V and 5V PCI slots as well as the PCI-X slot.

- **DMA Read and Write**

Uses the DMA technology based on PCI bus to read and write data, greatly reducing the CPU cost.

- **E1/T1 Support**

Provides an easy selection of the E1 or T1 trunk and its matching impedance via software reconfiguration, not requiring any change in the hardware.

- **Signaling Interface**

SS1 provides two levels of interfaces respectively for MFC transmission/receipt and SS1 connection; SS7 provides two levels of interfaces respectively for MTP and TUP/ISUP, meeting various customer requirements.

- **Signaling Processing**

Installed with loadable signaling processing module, each board supports SS1, SS7 and ISDN, eliminating the need for extra signaling boards. The signaling processing program can be upgraded via a simple software configuration, without having to change the hardware.

- **Signaling Links**

Each board supports up to 8 signaling links and the signaling hot-backup feature, i.e. the signaling can be processed by the standby server whenever something is wrong with the links being used, which increases the flexibility and reliability in a great extent. All the timeslots ranging from 1 to 31, not only TS16, can be used for SS7 and ISDN signalings.

- **Programmable Tone Detector**

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

- **Software-based Terminal Matching**

A same board supports 4 kinds of trunks which differ in impedance: 100Ω T1 twisted-pair cable, 110Ω J1 twisted-pair cable, 120Ω E1 twisted-pair cable and 75Ω E1 coaxial cable, each of which can be used based on a corresponding software configuration. What's more, both the transmit and receive terminals are specified via software configurations. As a result, the board is enabled to connect with a variety of digital trunks and optical transceivers without the need for extra hardware devices.

- **Specialized Driver Algorithm**

The driver uses SPECDial - a specialized driver algorithm - to perform a complete automatic dial process through digital lines and to accurately identify the called-party status.

- **Echo Cancellation**

The self-adaptive echo cancellation feature effectively eliminates echoes under various

conditions, which cancels out the effect of voice playback on DTMF and busy tone detection, avoids self-excited oscillation and howling, and minimizes the possibility of registering wrong DTMF and busy tones in a conference call. The SHD-120/240D-CT/PCI/EC board has an increased capability in echo cancellation and offers a much better effect in this aspect.

- **Barge in**

  Supports the Barge-in feature.

- **Various CODECs Support**

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

- **Supports WAV File**

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

- **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. The complex call procedures can be analyzed and controlled through simple function calls on the driver platform, without having to understand details.

► Operation Principle
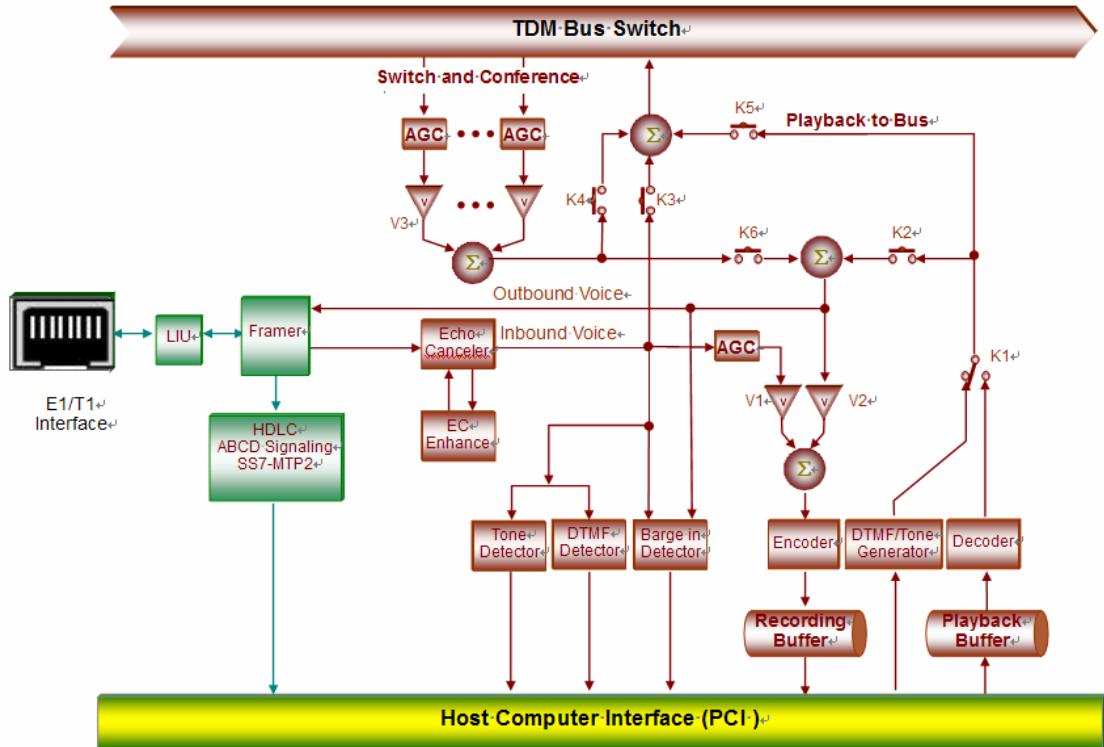
► Typical Application
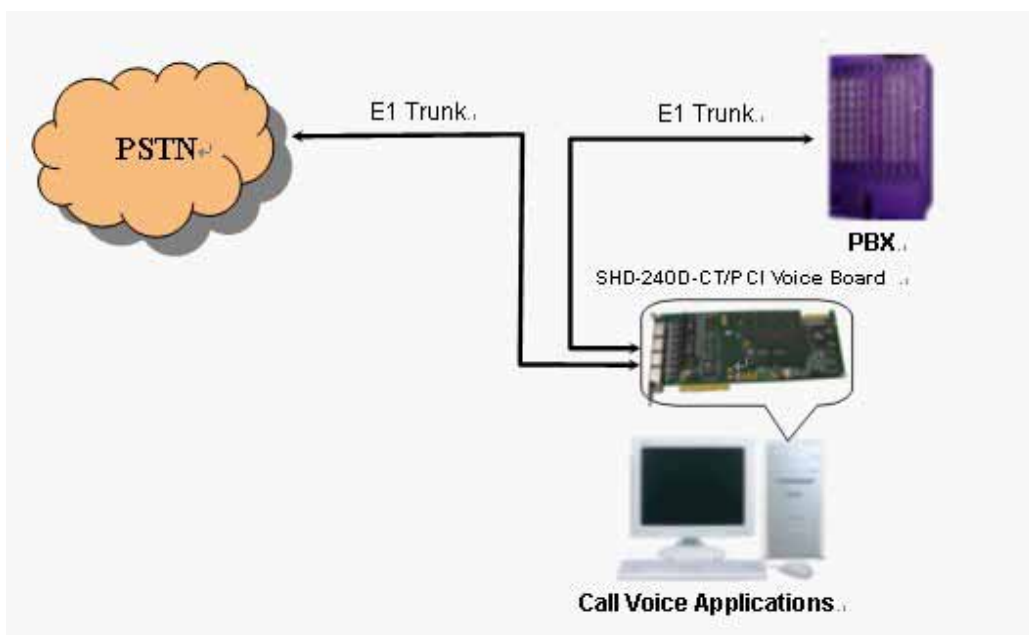
➤ Technical Specifications

Dimensions

310×115mm^2 (excluding L-bracket)

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

E1 interface: Compliant with G.703, including 75Ω unbalanced interface and 120Ω balanced interface

T1 interface: DSX-1 and CSU line build-outs available for different extents of signal losses, including 100Ω and 110Ω balanced interfaces

Audio Specifications

CODEC: CCITT A/µ-Law 64kbps,

Distortion: ≤3%

Frequency response: 300-3400Hz (±3dB)

Signal-to-noise ratio: ≥38dB

Echo suppression: ≥40dB

Maximum System Capacity

Up to 8 digital trunk boards concurrently per system; up to 120 or 240 channels per board

Enhanced Echo Canceller

SHD-120D-CT/PCI/EC　128ms

SHD-240D-CT/PCI/EC　128ms

Power Requirements

Maximum power consumption: ≤15W

Signaling

SS1: Compliant with DL and MFC standards stipulated in GF002-9002

SS7: Compliant with related provisions stated in Q771-Q795

DSS1: Compliant with Q.933

Audio Encoding & Decoding

16Bit PCM　　　128kbps

8Bit PCM　　　64kbps

A-Law　　　　64kbps

µ-Law　　　　64kbps

IMA ADPCM　　32kbps

GSM　　　　　13.6kbps

MP3　　　　　8kbps

Safety

Lightning Resistance: Level 4

Certification: FCC; CE; CCC

Purchasing Guide

The Synway CTI Series SHD-120/240D-CT/PCI, SHD-120/240D-CT/PCI/EC boards provide a complete range of features to meet all requirements.

➢ **Model Description**

Model	PC Bus	Voice Channels	Echo Cancellation	Conferencing	On-board TDM	Between-board TDM
SHD-120D-CT/PCI	PCI	120	16ms	√	√	√
SHD-120D-CT/PCI/EC	PCI	120	64ms(enhanced)	√	√	√
SHD-240D-CT/PCI	PCI	240	16ms	√	√	√
SHD-240D -CT/PCI/EC	PCI	240	128ms(enhanced)	√	√	√

Technical/sales Support

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TIPS

- All the content and data herein have been scrupulously checked. However, we do not guarantee the absence of errors.

- Product specifications and relevant data are subject to conditions on the purchase contract.

- Our company reserves the right to modify this document without prior notice and the right for final explanation.