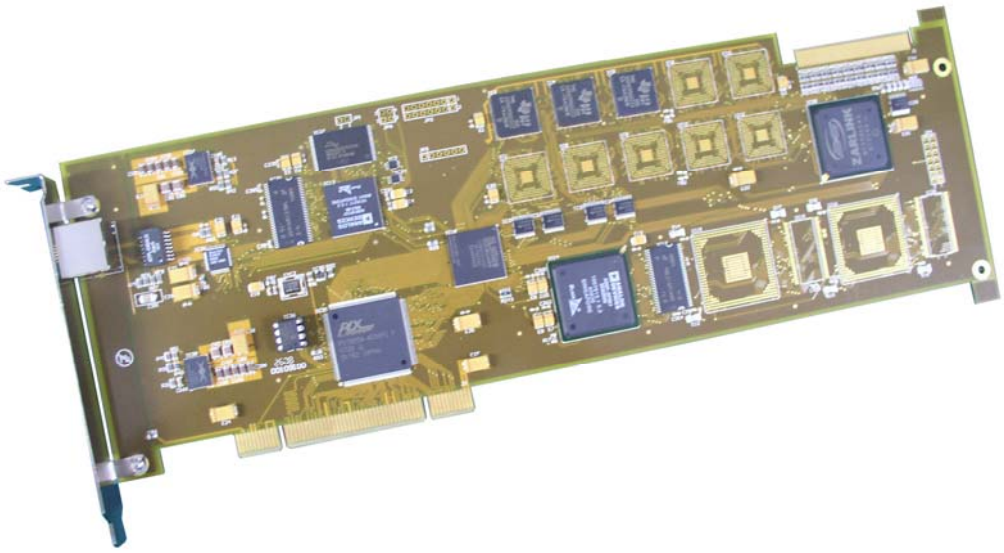
Synway CTI Series

SHN-8B-CT/PCI+
SHN-16B-CT/PCI+
SHN-32B-CT/PCI+
SHN-60B-CT/PCI+
SHN-60B-CT/PCIe+
SHN-120B-CT/PCI+
SHN-120B-CT/PCIe+

VoIP Media Processing & Signaling

Product Introduction



Synway Information Engineering Co., Ltd

www.synway.net

Functions

- A single board provides up to 8/16/32/60/120 channels for IP processing.
- Supports the following functions during the call: voice recording and playing, volume adjustment, dynamic CODEC change, etc.
- All channels are allowed to play and record voices simultaneously. Automatic Gain Control (AGC) support in recording operation.
- Supports call transfer and call hold during IP calls.
- Allows DTMF signal transmission and detection by any of the three methods: in-band, out-of-band (RFC2833), Signaling (SIP-INFO).
- Integrated with an independent 10M/100M compatible Ethernet interface, the board can work without costing or relying on the network card resource of the computer.
- Includes H.100 bus, compatible with MVIP, SC and ST bus, facilitating smooth connectivity to third-party boards with H.100 bus for the transfer of voice data from/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.
- Each board has a unique hardware serial number written in the firmware to distinguish itself from other boards and prevent piracy.
- The on-board authorization code identification circuit is designed for software safety. Users can apply to our company for the authorization code.

Characteristic Features

- **PCIe Bus Support (SHN-60B/120B-CT/PCIe+)**

  Developed with the design of PCIe X1, this board supports PCIe X1, X2, X4, X8 and X16 slots.

- **PCI 2.2 Bus Support (SHN-8B/16B/32B/60B/120B-CT/PCI+)**

  Includes PCI 2.2 bus with 3.3V/5V slot voltage and up to 132 MB/s burst data transmission rate; PNP (plug and play) feature eliminates the need for jumper leads.

- **DMA Read and Write**

  The use of PCI-based DMA technique for data reading and writing helps minimize the

cost of the host CPU.

- **Integrated LAN**

  The board is integrated with an independent 10M/100M compatible Ethernet interface.

- **Network Protocol Processing in Hardware**

  Thanks to the powerful embedded processor on the board, such network protocols as TCP/IP, RTP/RTCP, etc. can be processed without costing any host CPU.

- **Easy Firmware Upgrade**

  Users may upgrade the on-board firmware simply using a software tool to the latest version published by Synway.

- **Multiple Programming Modes Support**

  Our driver supports three programming modes: polling mode, event callback mode and Windows message mode.

- **Various VoIP CODECs Support**

  The supported VoIP CODECs include G.711 A-Law, G.711 μ-Law, G.729A and GSM.

- **Voice CODECs Support in Recording/Playing**

  Offers a large selection of voice CODECs, including hardware-based G.711 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.

- **Barge in**

  Supports the Barge-in feature.

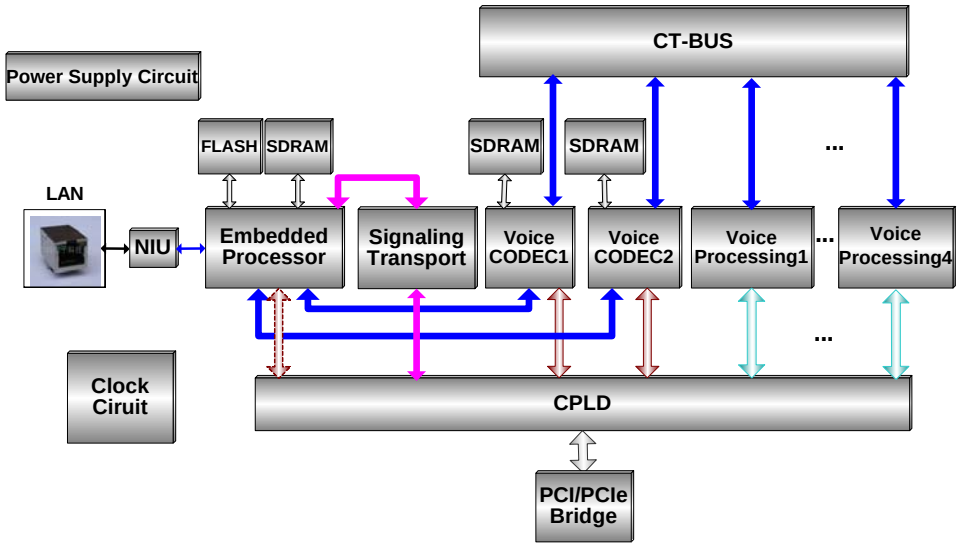
- **Highly Efficient and Real-time Call Control and Voice Processing**

  This board enables highly efficient call control, call management and voice processing; the multiple on-board DSPs used for voice processing give a nearly real-time voice effect.

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

  Synway owns the intellectual property rights for the unified high-intelligence SynCTI driver development platform. By simple API function calls on this platform, users can customize such features as call connection and call control, and perform various applications based on IP+IP or IP+TDM. Our API interfaces are highly encapsulated and exported in ANSI C style, which eliminates the need for users to consider the bottom layer IP communication details.

Operation Principle



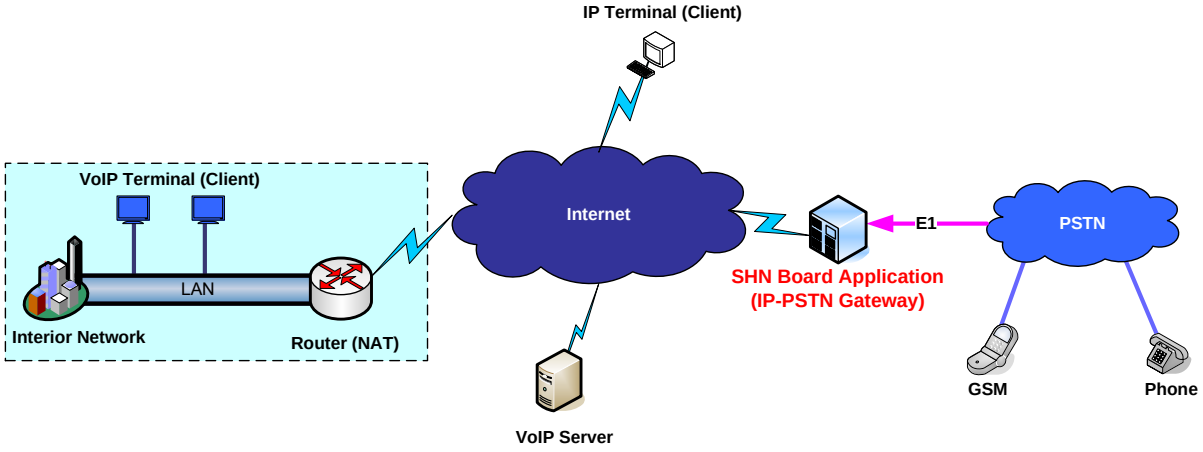
Note:

1) This is the operation principle of SHN-120B-CT/PCI+, SHN-120B-CT/PCIe+.

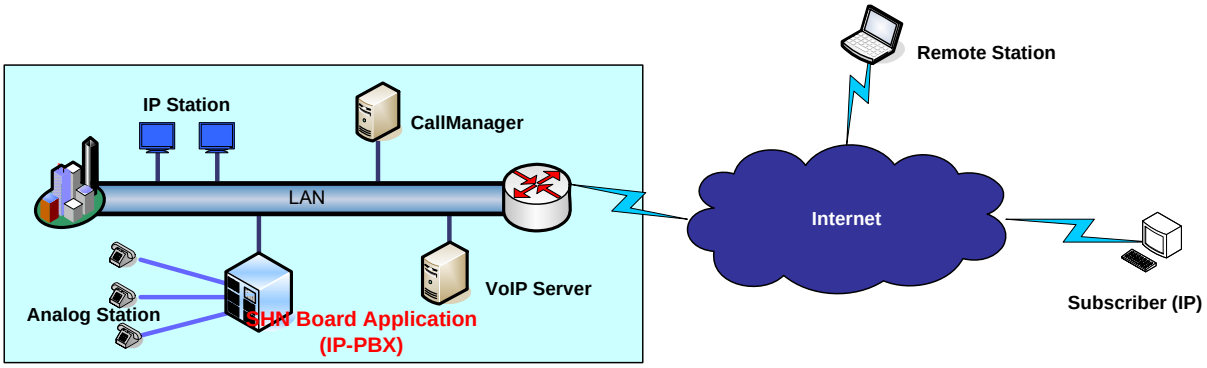
2) Other board models mentioned in this file have similar operation principles.

Typical Application

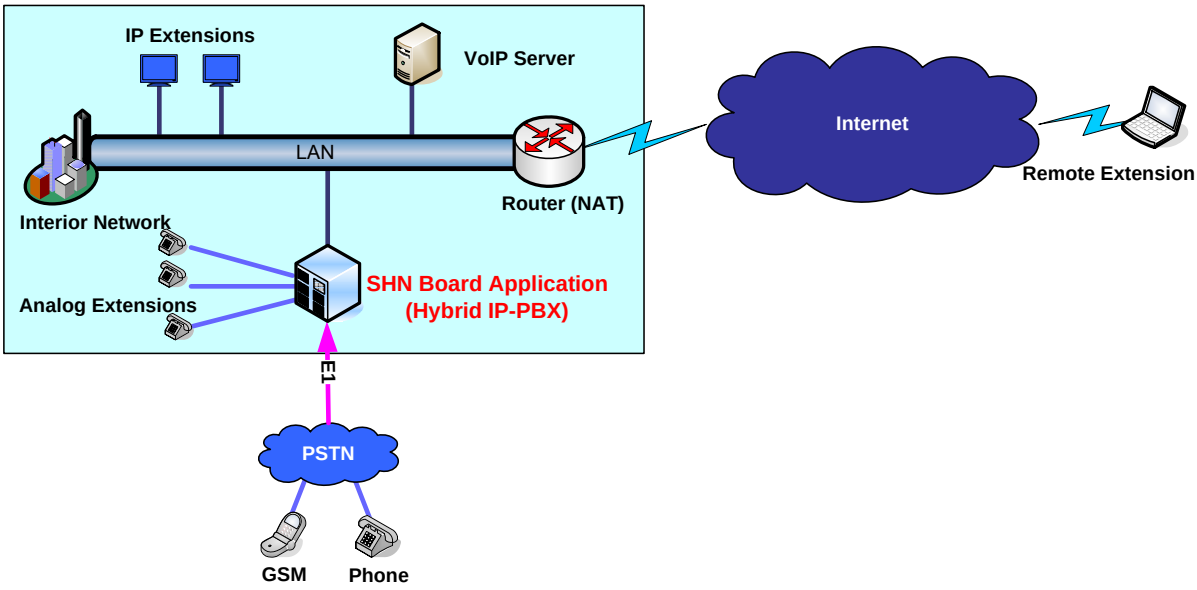
◆ IP Gateway



◆ A Pure IVR System Based on VoIP Access



◆ A Hybrid IVR System Based on VoIP & TDM Access



Supported SIP Standards and Application

(1) **Supported SIP Standards**

- IETF RFC 3261 (SIP: Session Initiation Protocol)
- IETF RFC 2327 (SDP–Session Description Protocol)
- IETF RFC 3550 and 3551 (RTP/RTCP)
- IETF RFC 2833 (DTMF)

(2) **Characteristics of SIP Protocol Stack**

- Allows signaling to be transmitted over UDP
- Supports Digest Authentication
- Supports the call progress of INVITE and reINVITE
- Supports the REFER message
- Supports the REGISTER message and the authentification process
- Supports the communication with SIP server
- Supports the INFO message
- Supports call hold
- Intelligent analytical mechanism for URL Scheme
- Supports the rPort setting in the VIA field (for NAT/FW traversal)
- DTMF Supports DTMF transmission and reception by the method of in-band, SIP-INFO or out-of-band (RFC2833)
- Internal multi-threading mechanism
- Supports the heartbeat mechanism based on UDP packets

Technical Specifications

Dimensions

310×115mm^2 (excluding L-bracket)

Weight

≈ 170g

Environment

Operating temperature: 0℃—55℃

Storage temperature: -20℃—85℃

Humidity: 8%— 90% non-condensing

Storage temperature: 8%— 90% non-condensing

On-board LAN

Speed: 10/100M Compatible

Interface: RJ45

Recording/Playing Format

A-Law, μ-Law, ADPCM

Maximum System Capacity

Theoretically up to 8 VoIP boards concurrently per system

Audio CODEC

MS-GSM, G.729A, A-Law, μ-Law

Power Requirements

Maximum power consumption: ≤13W

Audio Encoding & Decoding

16Bit PCM	*128kbps*
8Bit PCM	*64kbps*
A-Law	*64kbps*
μ-Law	*64kbps*
VOX	*32kbps*
ADPCM	*32kbps*
GSM	*13.6kbps*
MP3	*8kbps*
G.729A	*8kbps*

Purchasing Guide

The Synway CTI Series SHN-8B/16B/32B/60B/120B-CT/PCI+ and SHN-60B/120B-CT/PCIe+ boards provide a complete range of features to meet all requirements.

Model Description

Model	PC Bus	Voice Channels	Voice Capability	Multi-party Conference	Between-board TDM	Signaling Protocol	G.729A GSM
SHN-8B-CT/PCI+	PCI	8	√	√	H.100	SIP	√
SHN-16B-CT/PCI+	PCI	16	√	√	H.100	SIP	√
SHN-32B-CT/PCI+	PCI	32	√	√	H.100	SIP	√
SHN-60B-CT/PCI+	PCI	60	√	√	H.100	SIP	√
SHN-60B-CT/PCIe+	PCIe	60	√	√	H.100	SIP	√
SHN-120B-CT/PCI+	PCI	120	√	√	H.100	SIP	√
SHN-120B-CT/PCIe+	PCIe	120	√	√	H.100	SIP	√

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.**