Synway AST Series
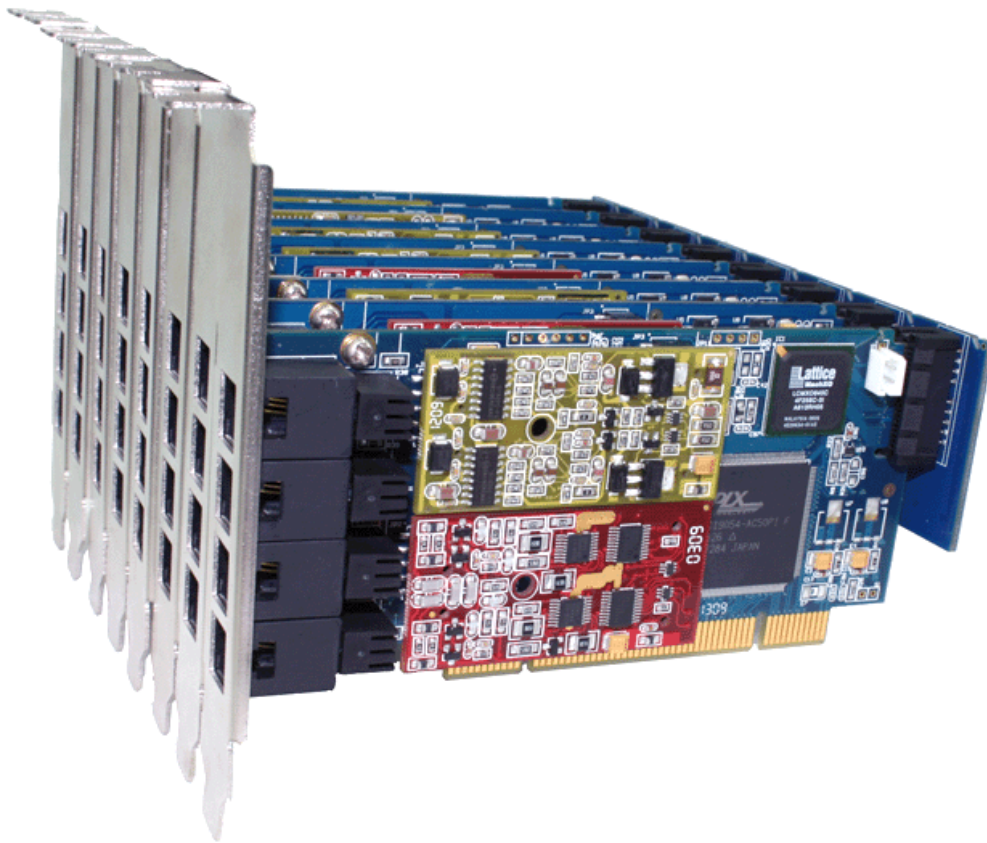
FXM32

Analog Voice Board

Product Introduction

Synway Information Engineering Co., Ltd

www.synway.net

Brief Introduction

FXM32 is designed with a smart appearance and a flexible structure. The voice quality it provides is rather splendid. The echo canceller which we developed out independently to cancel echoes in hardware supports 128ms for time delay estimation. With the extendable daughterboards and the selectable modules, you can customize systems to what you want. The 2U height and the half-length design it has minimize the space to install in a chassis so that most common main frames you find in daily life are big enough to hold it. In a word, this product is really cost effective.

Note: When installing FXM32 motherboards and daughterboards, there will be no difference to put whichever one in front. They can be inserted into any slot on the backboard. See Figure 1.
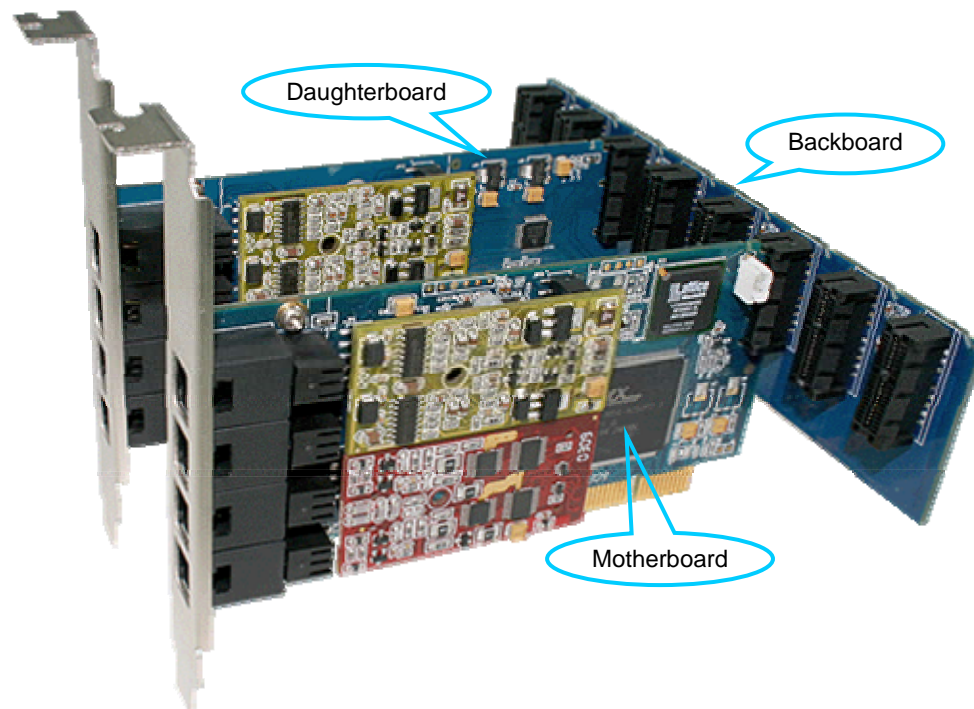

Figure 1 Mother/Daughter Board Structure

Characteristic Features

- **Echo Cancellation**

  1) Compliant with G.168-2002.

  2) The basic motherboard supports 256 point (32ms) for time delay estimation on each channel while the enhanced motherboard supports 1024 point (128ms).

  3) Uses the DSPs on the motherboard to process echoes, not wasting any host resources.

  4) Not only cancels out the effect of voice playback on DTMF and busy tones detection, but also avoids self-excited oscillation and howling, minimizes the possibility of registering wrong DTMF and busy tones in a conference call, especially suitable for VoIP application environments.

- **DMA**

Uses the DMA technique for data reading and writing, greatly minimizing the cost of host CPU.

- **Structure**

  1) Assembles piecemeal just like piling up building blocks. A motherboard offers 4 channels and you may use the backboard to extend with up to 7 daughterboards. Then 32 channels are available in total. Although these daughterboards take some space, they can work without the need of PCI/PCIe slots.

  2) Several kinds of modules are optional for you to install with the mother/daughter boards to achieve different purposes. Actually, we provide FXS, FXO and FXC (a compound body of FXS and FXO). FXC has the capability to ensure safe communication even when the PC is powered off, which eliminates the damage caused by sudden power cuts.

  3) The 2U height and the half-length design (Height: 55mm, Length: 120mm) minimize the space it needs for installation, allowing a great many choices of mainboards and main frames.

  4) You are allowed to fix the module by bolt and the backboard by ouch onto the mother/daughter board to prevent them from loosening or disengaging during transportation or in removal.

- **Compatibility in Software and Hardware**

  1) Compatible with all commercial and home mainboards.

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

     Includes PCI Express 1.0a bus with the single-way transmission rate up to 2.5Gb; supports PCI Express X1, X2, X4, X8, X16 slots.

  3) Supports Unix, Linux and Solaris.

  4) This board driver is compatible with Zaptel. So it supports a lot of open source PBX systems, like Asterisk, Trixbox, Yate, CallWeaver, FreeSwitch, etc.

- **Interface**

  The on-board RJ11 jack can connect directly to telephone lines, making connection easy and malfunctions rare.

- **Power**

  The power for motherboard is supplied by PCI/PCIe slot, while that for backboard and daughterboard is supplied by host-computer power.

- **Indicator**

  Rear projection indicators. We make use of the gaps between RJ11 jacks and the light-admitting quality of the jack to hide the indicators behind the RJ11 jacks. Such design not only ensures the neatness of the board, but also allows you to get the module type and errors in running without opening the main frame.
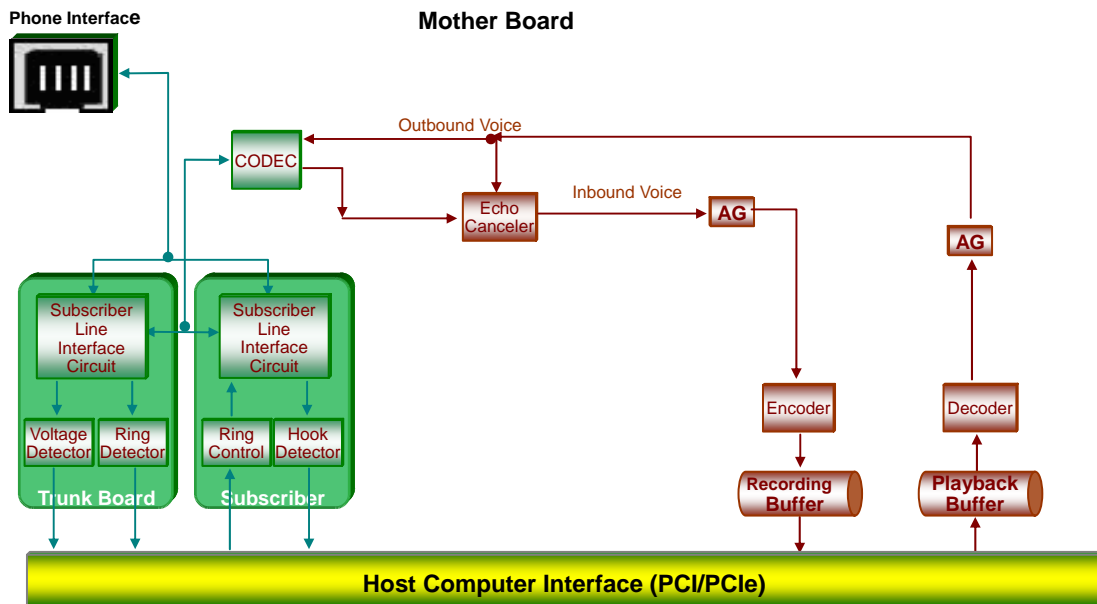
► Operation Principle

Figure 2 FXM32 Operation Principle
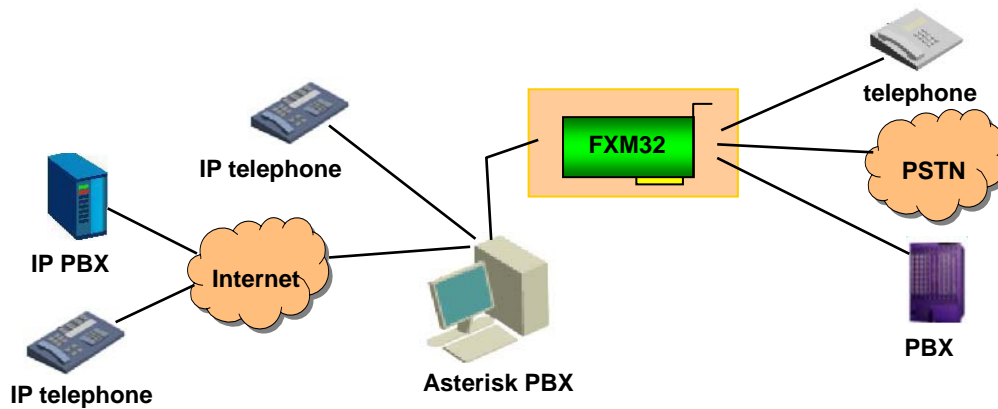
► Typical Application

Figure 3 FXM32 Application Model

Technical Specifications

Dimensions

132.5x64 mm^2 (excluding L-bracket)

Weight

Motheboard：about 70 g

（excluding modules）

Daughtboard：about 55 g

（excluding modules）

Module：about 10g

Backboard：≤45g

Environment

Operating temperature: 0℃—55℃

Storage temperature: -20℃—85℃

Humidity: 8%—90% non-condensing

Storage humidity: 8%—90%
non-condensing

Input/output Interface

Telephone line jack: 2~32 4-pin RJ11

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 boards concurrently per system;
up to 4 channels per board

Power Requirements

Total Power Consumption includes the electricity use of all motherboards and daughterboards.

Only motherboards
(with modules fully inserted)

+3.3V DC: 1500mA
(power consumption: 4.95W)

+12V DC: 500mA
(power consumption: 6W)

Only daughterboards
(with modules fully inserted)

+5V DC: 600mA
(power consumption: 3W)

+12V DC: 500mA
(power consumption: 6W)

Impedance

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

Telephone line impedance:

Compliant with the national standard impedance for three-component network

Audio Encoding & Decoding

A-Law   64kbps

μ-Law   64kbps

Sampling Rate

8kHz

Safety

Lightning resistance: Level 4

➤ Purchasing Guide

The Synway FXM32 analog voice board provides a complete range of features to meet all requirements.

➢ **Model List of FXM32 Motherboard, Daughterboard, Module & Backboard**

Component	Model	PCI Bus	Echo Cancellation
Motherboard	FXM3200P	PCI	Basic
	FXM3201P	PCIe	Enhanced
	FXM3200E	PCI	Basic
	FXM3201E	PCIe	Enhanced
Daughterboard	FXD400	—	—
Module	FXO200	—	—
	FXS200	—	—
	FXC200	—	—
Backboard	BP200	—	—
	BP300	—	—
	BP400	—	—
	BP600	—	—
	BP800	—	—

➤ Technical/sales Support

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