82C931
Plug-and-Play
Integrated Audio
Controller

OPTi's 82C931 is a highly-integrated audio controller for PC sound applications. The 82C931 is a second generation, backward pin compatible to the OPTi 82C930 audio controller, that combines all of the features of the 82C930 along with support for the Microsoft/Intel Plug-and-Play specification and built-in FM synthesizer.

The 82C931 also provides front panel push-button volume control, external modem chip interface, serial EEPROM for further customization, support for 16-bit Type "F" fast DMA Playback and a serial port interface to an external DSP, wavetable controller.

The 82C931 includes the following functions: AT Bus interface, Sound Blaster™ Pro-compatible Digital Audio Processor, MIDI interface, Windows Sound System™ interface, FM synthesizer interface, 16-bit Codec/Mixer, Game Port timer, and IDE CD-ROM interface. The device also includes dual DMA channels that support full duplex operation for simultaneous record and playback, a silence mode, power down modes, and software programmable interrupts.

The 82C931 16-bit Sound Controller provides all of the functions and interfaces for the Sound Blaster Pro-compatible and Microsoft Windows Sound System-compatible card. The 82C931 is intended to provide an integrated audio solution for business audio, educational/entertainment sound and multimedia applications.
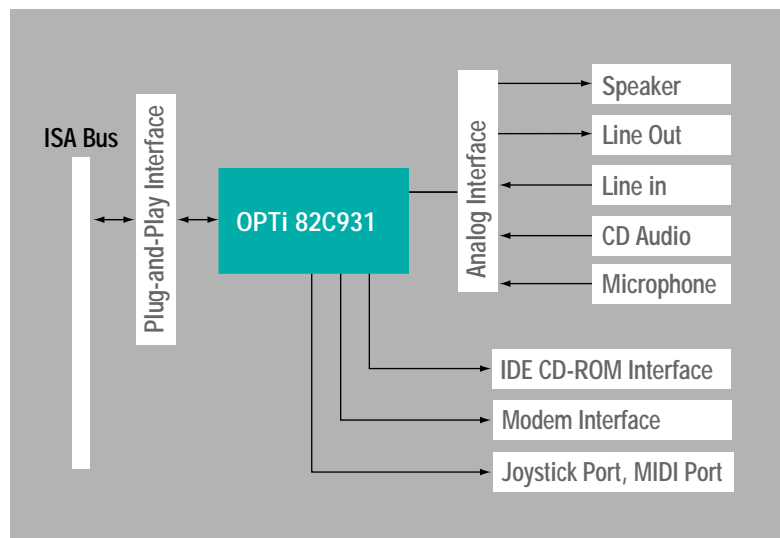
Features

- Integrated sound controller compatible with:
  - Sound Blaster Pro
  - Ad Lib
  - Windows Sound System
- Microsoft Plug-and-Play compatible, supports six logical devices:
  - Sound Blaster Pro, Windows Sound Synthesis, FM Synthesis
  - MPU-401 MIDI interface
  - CD-ROM interface
  - Joystick/Game Port
  - Modem
  - 82C931 control
- Supports external serial EEPROM
- External Modem chip interface
- Built-in high-quality 22-voice, 52-operator, OPFM music synthesizer with Enhanced Base feature
- Built-in 7-channel mixer: 5 stereo, 2 mono
- Built-in 16-bit Sigma Delta Stereo Codec
- Supports 235 sample rates from 4KHz to 48KHz
- Full duplex operation: record and playback simultaneously using two 8-bit or 16-bit DMA channels
- Supports IMA ADPCM, m-Law, A-Law decompression
- 8- or 16-bit sound data up to 48KHz stereo

OPTi

INNOVATIVE

CHIPSET

SOLUTIONS

System Block Diagram

- Supports 16-bit Type "F" Fast DMA Playback
- Integrated MIDI UART with 8-byte FIFO for both in and out with MPU-401 interface
- Dual game port
- Built-in game port timer
- IDE CD-ROM interface
- Serial port interface to external DSP, wavetable controller
- All interfaces are software programmable, including:
  - I/O address
  - IRQ
  - DRQ
- Direct AT bus driving capabilities without additional buffer
- Power down modes

- Silence mode to turn off all audio functions
- Volume control push-button interface
- Pin compatible to the 82C930
- 100 pin PQFP package

Applications

The 82C931 is an optimized single chip solution with built-in Plug-and-Play functions, built-in FM synthesizer and 16-bit Sigma-Delta Stereo Codec to provide all of the features needed to create the following sound characteristics and applications:

- 16-bit sound quality Sound Blaster Pro and Windows Sound System compatible card
- 22 voice FM synthesis
- 16-bit CD-quality WAVE audio up to 44.1KHz stereo
- Game port
- MPU-401 MIDI interface
- Wavetable synthesis upgrade

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