

Integrating Mixed-Signal Solutions

PRODUCT BRIEF

STAC9756/57

Two Channel AC'97 Codecs with I²S Digital I/O and SPDIF Output

OVERVIEW

Stereo AC'97 codecs with I²S inputs as well as I²S and SPDIF outputs.

FEATURES

- High performance $\Sigma\Delta$ technology
- 18-bit full duplex stereo ADC, DACs
- Independent sample rates for ADC & DACs
- 5-Wire AC-Link protocol compliance
- ZV-Port I²S digital input
- I²S digital I/O and SPDIF output
- Digital-ready status
- 20 dB microphone boost capability
- +3.3V (STAC9757) and +5V (STAC9756) analog power supply options
- Pin compatible with the STAC9700/21/44
- SigmaTel Surround (SS3D) Stereo Enhancement
- Energy saving dynamic power modes
- Multi-Codec option (Intel AC'97 rev 2.1)
- Six analog line-level inputs
- 98 dB SNR LINE-LINE
- SNR > 95 dB through Mixer and DAC

DESCRIPTION

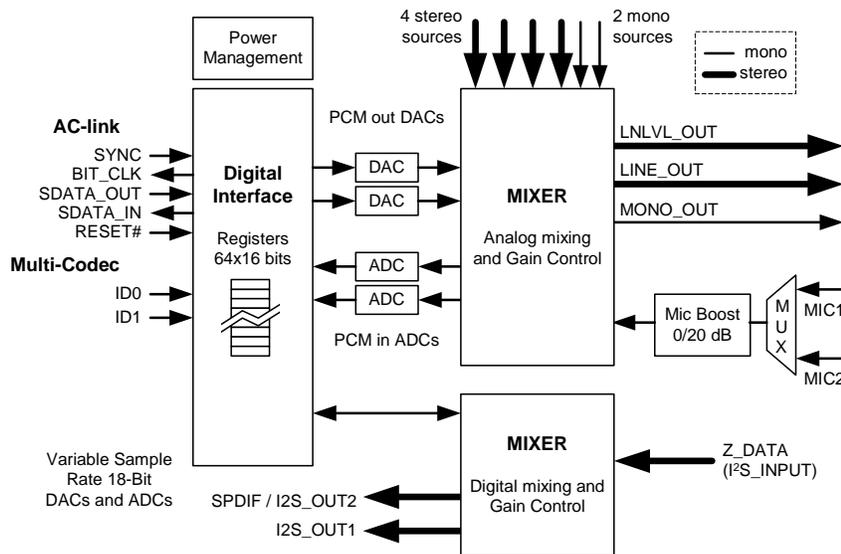
SigmaTel's STAC9756/57 are general purpose 18-bit, full duplex, audio codecs conforming to the analog component specification of AC'97. The STAC9756/57 incorporate SigmaTel's proprietary $\Sigma\Delta$ technology to achieve a DAC SNR in excess of 95 dB. The DACs, ADCs, and mixer are integrated with analog I/Os, which include four analog line-level stereo inputs, two analog line-level mono inputs, two stereo outputs, and one mono output channel. The STAC9756/57 include digital input output capability for support of modern PC systems. There is an I²S input for ZV-Port audio, a dedicated I²S output and an output that supports either I²S or the SPDIF format. The STAC9756/57 is a standard 2-channel stereo codec. With SigmaTel's 3D stereo enhancement (SS3D) on LINE OUT, the user gains a richer and livelier listening experience. The STAC9756/57 may be used as a secondary codec, with the STAC9700/21/44/56/08 as the primary, in a multiple codec configuration conforming to the AC'97 Rev. 2.1 specification. This configuration can provide true six-channel playback with support for DVD applications. The STAC9756/57 communicates via the five-wire AC-Link to any digital component of AC'97 providing flexibility in the audio system design. The microphone input and mono mixer output can be recorded simultaneously, thus allowing for an all-digital output in support of the digital-ready initiative. Packaged in an AC'97 compliant 48-pin TQFP, the STAC9756/57 can be placed on the motherboard, daughter boards, PCI, AMR, CNR, or ACR cards.

ORDERING INFORMATION

Part Number	Package	Temp Range	Supply Range
STAC9756T	48-pin TQFP 7mm x 7mm x 1.4mm	0° C to +70° C	DVdd = 3.3V, AVdd = 5.0V
STAC9757T	48-pin TQFP 7mm x 7mm x 1.4mm	0° C to +70° C	DVdd = 3.3V, AVdd = 3.3V



STAC9756/57 BLOCK DIAGRAM



KEY SPECIFICATIONS

- Analog LINE_OUT SNR: 103 dB
- Digital DAC SNR: 98 dB
- Digital ADC SNR: 87 dB
- Full-scale Total Harmonic Distortion: 0.02%
- Crosstalk between Input Channels: -70 dB
- Spurious Tone Rejection: 100 dB

RELATED MATERIALS

- Data Sheet
- Reference Designs for MB, CNR, ACR and PCI applications
- Audio Precision Performance Plots

ADDITIONAL SUPPORT

Additional product and company information can be obtained by going to the SigmaTel website at:

www.sigmatel.com

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