

*Integrating Mixed-Signal Solutions*

## PRODUCT BRIEF

# STAC9704/07

## Multimedia Audio Codec for AC'97

### OVERVIEW

Second generation of AC'97 codecs with improved noise performance and enhanced mixing capability.

### FEATURES

- High performance  $\Sigma\Delta$  technology
- 18-bit full duplex stereo A/D, D/A
- AC-Link protocol compliance
- Single power source STAC9704 (5V) and STAC9707 (3.3V)
- AC '97 compliant mixer
- SigmaTel Surround (SS3D) Stereo Enhancement
- Energy saving power down modes
- 48k sample/second rate
- Six analog line-level inputs
- 48-pin TQFP
- SNR > 95dB through Mixer and DAC

### KEY SPECIFICATIONS

- Analog LINE\_OUT SNR: 98 dB
- Digital DAC SNR: 96 dB
- Digital ADC SNR: 87 dB
- Total Harmonic Distortion: 0.02%
- Crosstalk between Input Channels: -70 dB
- Spurious Tone Rejection: 100 dB

### DESCRIPTION

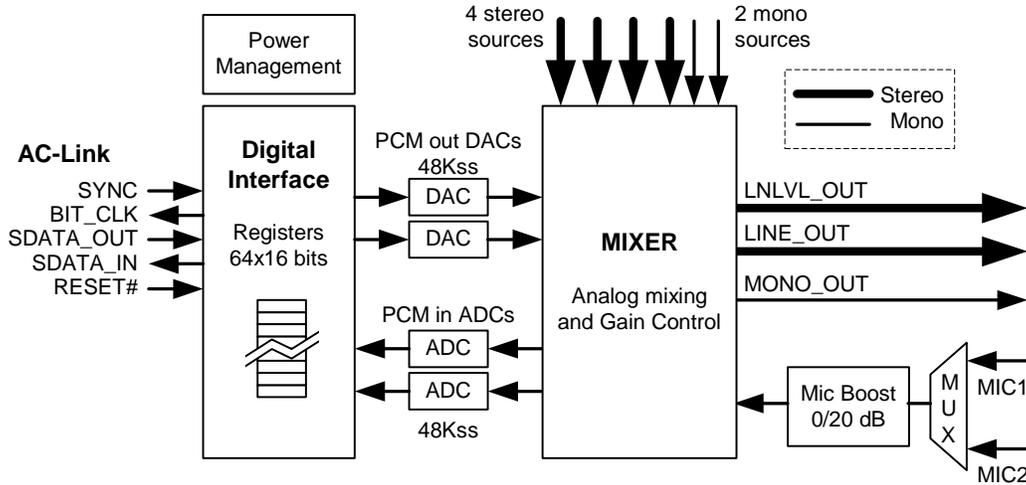
SigmaTel's STAC9704/07 is a general purpose 18-bit, full duplex, audio codec that conforms to the analog component specification of AC'97. The STAC9704/07 incorporates SigmaTel's proprietary Sigma-Delta technology to achieve signal quality in excess of 95 dB SNR. The DACs, ADCs, and mixers are integrated with analog I/Os which include four analog line-level stereo inputs, two analog line-level mono inputs, and three output channels. Also included are SigmaTel's 3D stereo enhancement (SS3D) and an extra true line-level out for headphones or speaker amplifiers. The STAC9704/07 communicates via the five wire AC-Link to any digital component of AC'97 providing flexibility in the audio system design. Packaged in a small AC'97 compliant 48-pin TQFP, the STAC9704/07 can be placed on the motherboard, daughter boards, add-on cards, PCMCIA cards, or outside the main chassis such as in a speaker. The STAC9707 is tested at AVdd = DVdd = +3.3V.

### ORDERING INFORMATION

Part Number	Package	Temp Range	Supply Range
STAC9704T	48-pin LQFP 7mm x 7mm x 1.4mm	0 °C to +70 °C	DVdd = 3.3V to 5.0V, AVdd = 5.0V
STAC9707T	48-pin LQFP 7mm x 7mm x 1.4mm	0 °C to +70 °C	DVdd = 3.3V, AVdd = 3.3V



**STAC9704/07**  
**BLOCK DIAGRAM**



**ADDITIONAL SUPPORT**

Additional product and company information can be obtained by going to the SigmaTel website at: [www.sigmatel.com](http://www.sigmatel.com)

Copyright © 2000 SigmaTel, Inc. All rights reserved.

All contents of this document are protected by copyright law and may not be reproduced without the express written consent of SigmaTel, Inc.

SigmaTel, the SigmaTel logo, and combinations thereof are trademarks of SigmaTel, Inc. Other product names used in this publication are for identification purposes only and may be trademarks or registered trademarks of their respective companies. The contents of this document are provided in connection with SigmaTel, Inc. products. SigmaTel, Inc. has made best efforts to ensure that the information contained herein is accurate and reliable. However, SigmaTel, Inc. makes no warranties, express or implied, as to the accuracy or completeness of the contents of this publication and is providing this publication "AS IS". SigmaTel, Inc. reserves the right to make changes to specifications and product descriptions at any time without notice, and to discontinue or make changes to its products at any time without notice. SigmaTel, Inc. does not assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential, or incidental damages.