Product Bulletin

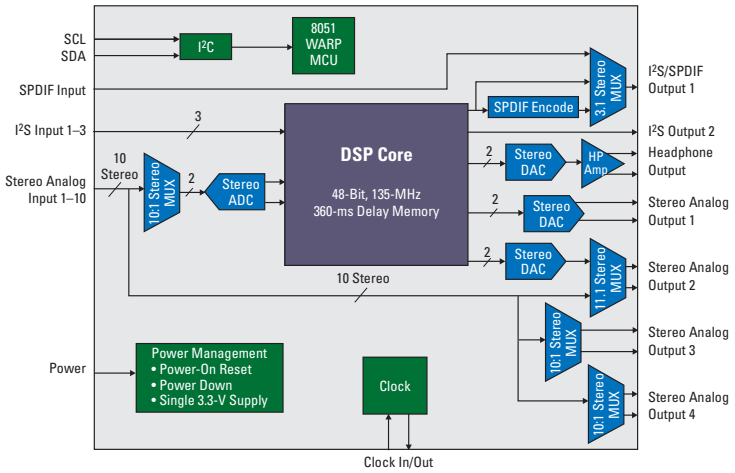
TAS3208: Audio System on Chip
Ideal Digital TV Audio Solution

Key Features

- High-performance dual-core DSP/MCU audio processor
- 135-MHz 48-bit fixed data path DSP core
- 10 MUXable stereo single-ended analog inputs
- One stereo 93 dB ADC
- Three I²S inputs
- One SPDIF input (for pass through)
- Four stereo single-ended analog outputs plus headphone output
- Three stereo 97 dB DACs
- One I²S output, one I²S/SPDIF output
- Graphical development environment enables fast time-to-market and easy customization with extensive selection of optimized audio algorithms
- Powerful processing capabilities for advanced audio features such as third-party algorithms (SRS, Qsound, BBE, etc.)
- Ideal for digital TV audio systems, mini/micro component systems

The TAS3208 audio processor is a dual-core device consisting of a powerful DSP and microcontroller (MCU) along with high performance audio analog-to-digital converters (ADCs) and digital-to-analog converters (DACs). The TAS3208 is a fully integrated solution offering analog input, digital processing and analog output functionality. Operating at 135 MHz, the DSP core is capable of five simultaneous operations per cycle. The MCU is an industry standard 8051 core. It optimizes the TAS3208's system performance by handling the I²C interface and controlling the audio algorithms.

The DSP's 48-bit data path enables superior audio processing and its unique single-cycle 76-bit (48 × 28) multiply-accumulate operation accelerates the processing of most audio algorithms. The TAS3208 is designed specifically to address the multiple digital and analog I/O requirements of flat panel digital TV systems. The inputs of the TAS3208 include ten single-ended stereo input channels MUXed to a stereo ADC and three digital I²S channels. The outputs of the TAS3208 consist of three single-ended stereo DACs, as well as one dedicated digital I²S channel, and one selectable I²S/SPDIF channel. A headphone amplifier is included as well. The TAS3208 also offers multiple pass-through configurations. Three stereo analog line outs can be MUXed to any of the 10 analog inputs in order to bypass the digital processing core. The TAS3208 also offers an SPDIF pass-through mode.



TAS3208 Audio Processor Block Diagram

Enhanced Audio Faster

High quality audio systems with lower bill-of-material costs can be implemented with the TAS3208 because of its integrated analog data converters and full suite of quality-enhancing features such as equalization, tone and volume control, loudness, and dynamic range compression eliminates the need for discrete devices to support these capabilities.

Developers have full control of audio processing and can implement a range of algorithms such as matrix decoding, sound enhancement and surround sound. Because the device is supported by leading third-party IP developers such as BBE, QSound, SRS and others, TAS3208 designs will always have timely access to the latest innovations in audio technology.

The powerful processing supported by the TAS3208's dual-core architecture gives developers the ability to easily add post-processing and proprietary audio algorithms for differentiated features.

Software and Development Tools

Fully supported by PurePath Studio™, an efficient drag-and-drop graphical development environment, the TAS3208 will accelerate a new product's time-to-market and ease the development of differentiated features. PurePath Studio includes a code editor with contextual help facilities, a simulator for debugging code and other tools. Pre-optimized software components as well as third-party algorithms can be quickly integrated by simply dragging and dropping the software module into PurePath Studio. In addition, the TAS3208 is supported by a traditional integrated development environment (IDE). The device's MCU core is fully supported by C compilers, macro assemblers, debuggers, and real-time kernels.

For More Information

For more information on the TAS3208 contact your local TI field sales office.

TI Worldwide Technical Support

Internet

TI Semiconductor Product Information Center Home Page
support.ti.com

TI Semiconductor KnowledgeBase Home Page
support.ti.com/sc/knowledgebase

Product Information Centers

Americas

Phone	+1(972) 644-5580
Fax	+1(972) 927-6377
Internet/Email	support.ti.com/sc/pic/americas.htm

Europe, Middle East, and Africa

Phone	
Belgium (English)	+32 (0) 27 45 54 32
Finland (English)	+358 (0) 9 25173948
France	+33 (0) 1 30 70 11 64
Germany	+49 (0) 8161 80 33 11
Israel (English)	180 949 0107
Italy	800 79 11 37
Netherlands (English)	+31 (0) 546 87 95 45
Russia	+7 (4) 95 98 10 701
Spain	+34 902 35 40 28
Sweden (English)	+46 (0) 8587 555 22
United Kingdom	+44 (0) 1604 66 33 99
Fax	+(49) (0) 8161 80 2045
Internet	support.ti.com/sc/pic/euro.htm

Japan

Fax	International	+81-3-3344-5317
	Domestic	0120-81-0036
Internet/Email	International	support.ti.com/sc/pic/japan.htm
	Domestic	www.tij.co.jp/pic

Asia

Phone	
International	+886-2-23786800
Domestic	Toll-Free Number
Australia	1-800-999-084
China	800-820-8682
Hong Kong	800-96-5941
India	+91-80-41381665 (Toll)
Indonesia	001-803-8861-1006
Korea	080-551-2804
Malaysia	1-800-80-3973
New Zealand	0800-446-934
Philippines	1-800-765-7404
Singapore	800-886-1028
Taiwan	0800-006800
Thailand	001-800-886-0010
Fax	+886-2-2378-6808
Email	tiasia@ti.com
	ti-china@ti.com
Internet	support.ti.com/sc/pic/asia.htm

B062706