

## Product Bulletin

# TAS3108: Audio DSP for Home and Automotive Applications

The eight-channel TAS3108 audio processor is a dual-core device consisting of a powerful DSP and microcontroller (MCU). For home and automotive audio systems, the device supports a wide range of audio sources and formats. 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 TAS3108's system performance by handling the I<sup>2</sup>C 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 x 28) multiply-accumulate operation accelerates the processing of most audio algorithms. The TAS3108 incorporates all the functionality required to perform demanding

audio applications. Offering eight serial I<sup>2</sup>S inputs and outputs, a single TAS3108 can process high-end 7.1-channel audio streams. Two TAS3108 devices can be seamlessly connected to create a 16-channel system. With support for sample rates from 32 kHz to 192 kHz and many serial audio data formats, the TAS3108 can be implemented in a broad range of products based on a single design.

### Enhanced Audio Faster

High quality audio systems with lower bill-of-materials costs can be implemented with the TAS3108 because its 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.

### Key Features

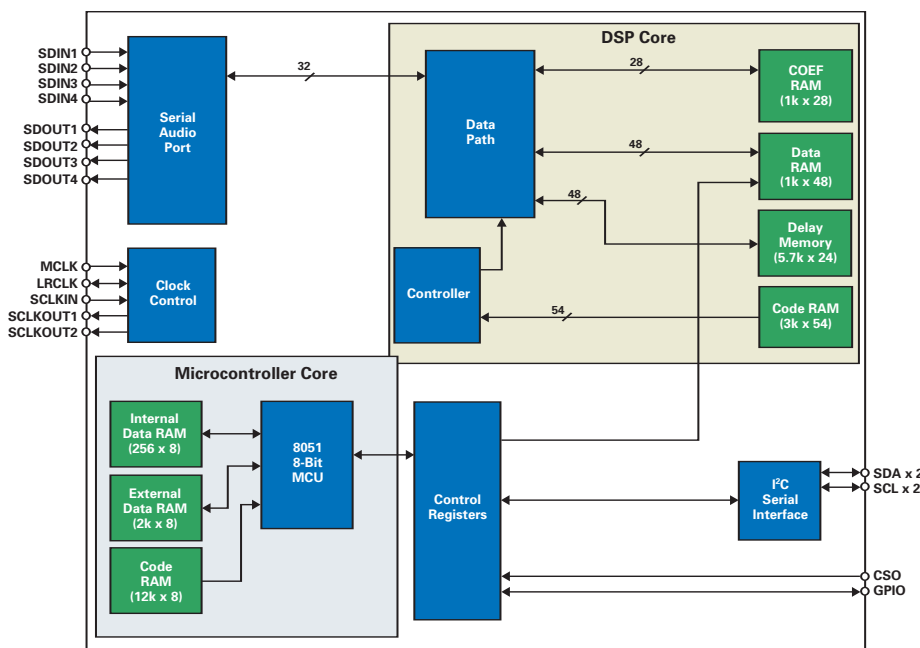
- High-performance eight-channel dual-core DSP/MCU audio processor
- 135 MHz 48-bit fixed data path DSP core
- Ideal for home and automotive applications including digital TVs, low- to mid-range auto radios, home theaters and others.
- Fast time-to-market and easy customization with extensive selection of already-optimized audio algorithms, as well as graphical and integrated development environments
- Powerful processing capabilities for advanced audio features
- Industrial temperature range for automotive applications (TAS3108IA)

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, TAS3108 designs will always have timely access to the latest innovations in audio technology.

The powerful processing supported by the TAS3108's dual-core architecture gives developers the ability to easily add postprocessing and proprietary audio algorithms for differentiated features.

### PurePath Digital™ Technology

The TAS3108 is part of TI's family of leading components that can be used to implement a PurePath Digital audio system. PurePath technology ensures digital components are present in the audio processing chain from end-to-end, creating a high-



fidelity, lifelike listening experience. PurePath Digital technology complements other TI products that support audio applications, such as DSPs, switch mode power management devices, headphone amplifiers, digital interface and audio data converters.

### Software and Development Tools

Fully supported by PurePath Studio™, an efficient drag-and-drop graphical development environment, the TAS3108 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 TAS3108 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.

### Automotive Applications

As a result of its innovative architecture and TI's comprehensive testing

procedures, the the TAS3108IA version of the TAS3108 is able to meet the most stringent quality standards, achieving the low defective parts per million (DPPM) requirements of the automotive industry. The device also supports an extended temperature range. In addition, the TAS3108IA is offered with the environmentally-friendly green mold compound and lead-free packaging to comply with Europe's RoHS restrictions.

### For more information

For more information on the TAS3108 or TAS3108IA, contact your local TI field sales office or visit [www.ti.com/TAS3108](http://www.ti.com/TAS3108).

## 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 (0) 95 363 4824  
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 +91-80-51381665 (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

**Important Notice:** The products and services of Texas Instruments Incorporated and its subsidiaries described herein are sold subject to TI's standard terms and conditions of sale. Customers are advised to obtain the most current and complete information about TI products and services before placing orders. TI assumes no liability for applications assistance, customer's applications or product designs, software performance, or infringement of patents. The publication of information regarding any other company's products or services does not constitute TI's approval, warranty or endorsement thereof.

Technology for Innovators, the black/red banner, PurePath Digital and PurePath Studio are trademarks of Texas Instruments.  
All other trademarks are the property of their respective owners.

B120905