Product Bulletin

TAS3204: Audio System on Chip
Ideal iPod/MP3 Dock Solution

The TAS3204 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 TAS3204 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 TAS3204's system performance by handling the I^{2}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 × 28) multiply-accumulate operation accelerates the processing of most audio algorithms. The TAS3204 incorporates all the functionality required to perform demanding audio applications. Three stereo differential input channels MUXed to two stereo ADCs provide the capability to process audio from up to three independent sources. Also included are two stereo differential DAC channels, making the TAS3204 ideal for bi-amped or 2.1 speaker solutions.

Enhanced Audio Faster

High quality audio systems with lower bill-of-material costs can be implemented with the TAS3204 because of its integrated analog data converters and full suite of

Key Features
- High-performance dual-core DSP/MCU audio processor
- 135-MHz 48-bit fixed data path DSP core
- Two stereo 102dB ADCs
- Two stereo 105dB DACs
- Four digital input channels
- Four digital output channels
- 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 iPod/MP3 player docks, mini/micro systems, multimedia speakers

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, TAS3204 designs will always have timely access to the latest innovations in audio technology.

The powerful processing supported by the TAS3204's dual-core architecture gives developers the ability to easily add post-processing and proprietary audio algorithms for differentiated features.
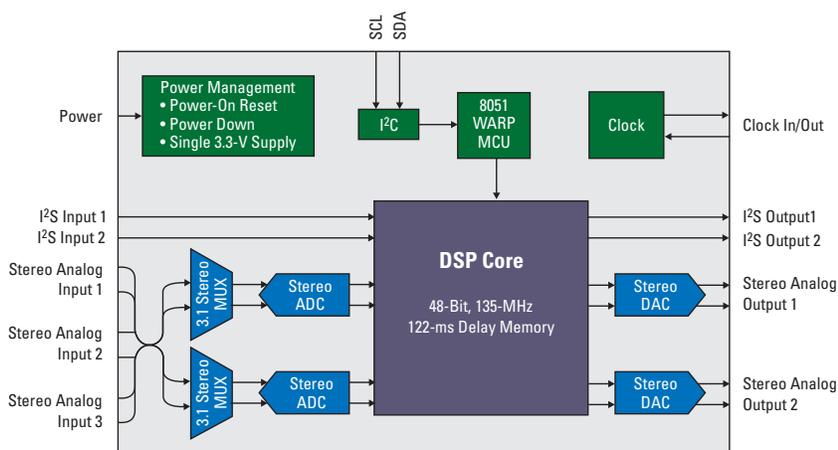
TAS3204 Audio Processor Block Diagram

Software and Development Tools

Fully supported by PurePath™ Studio, an efficient drag-and-drop graphical development environment, the TAS3204 will shorten a new product's time-to-market and ease the development of differentiated features. PurePath Studio includes a context-sensitive smart text editor, a DSP simulator and other traditional and graphical software development tools. Customers can quickly create process flow software by simply dragging and dropping and interconnecting pre-optimized modular audio software components from standard library (mixers, DRC, loudness control, …), third-party algorithms (from Dolby, SRS, BBE, QSound, Audyssey, ...) and royalty-free TI-algorithms (voice enhancement, bass enhancement, …). GUIs are provided to facilitate intuitive customization and tuning of complex audio components. Source code of audio components is provided to customer to accelerate software development process. Component Publisher SDK enables quick integration of software components from customers and third parties in to PurePath Studio. The device's MCU core is fully supported by C compiler, assembler, debugger and real-time kernel.

For More Information

For more information on the TAS3204, 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

TEXAS INSTRUMENTS