

Product Bulletin

# Aureus™ TMS320DA708

## High-Performance Multichannel Audio DSP with Powerful and Flexible System Software Solution

**Key Benefits**

- Support for true dual-zone decoding for multi-zone audio video recorders (AVRs)
- Enables better sounding virtualizers or room simulators and higher-quality room correction for commercial and automotive markets
- The Performance Audio Software solution reduces development time by allowing focus on value-added differentiating algorithms

TI's Aureus™ DSPs are ideal for applications requiring multi-channel audio decoding and post-processing as well as high-speed encoding for both commercial and automotive markets. Applications benefitting from Aureus DSPs include AV and DVD receivers, HDTVs and automotive multi-media systems.

The TMS320DA708 floating-point DSP is a high-performance member of the second generation of the Aureus family of DSPs. The DA708 DSP supports differentiating features such as true dual-zone decoding for multi-zone AVRs and conversion to PCM and post-processing of SACD content. Standard decoding and post-

processing is automatically managed in a very small performance footprint leaving an abundance of headroom for customization, including implementing better sounding virtualizers or room simulators, higher-quality room correction, or simultaneous high-speed encode with multichannel decode.

**Enhanced TMS320C67x+™ CPU**

The CPU is based on TI's 32-/64-bit TMS320C6000™ DSP architecture and utilizes the Code Composer Studio™ development environment including the best-in-class C compiler. Key features include:

- Powerful 32-/64-bit floating-point DSP core

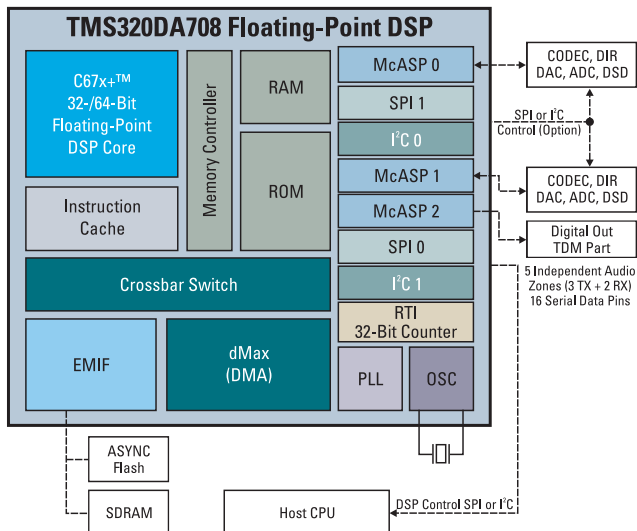
- Software compatible with DA6xx Aureus devices
- New audio-specific enhancements

Additional features of the DA708 DSP include large on-chip ROM and RAM as well as program cache and single-cycle access to on-chip data; 16-bit EMIF supporting SDRAM, Flash, SRAM; three multichannel Audio Serial Ports (McASPs) with five clock zones and 16 stereo IIS pins that support SPDIF transmit; DMAX dual data movement accelerator optimized for audio; two SPI ports with 3-, 4-, 5-pin options and two I<sup>2</sup>C ports.

The DA708 DSP is available in commercial or extended temperature range in a 144-pin TQFP package. Additional security features are available. Contact your local TI field sales representative for more information.

**Performance Audio Software**

TI provides a complete system software solution for multichannel audio decoding and post-processing for the Aureus DSPs. The Performance Audio (PA) software solution reduces development time by allowing users to focus on their value-added differentiating algorithms and not on the base solution and integration.



TMS320DA708 floating-point DSP block diagram

The PA software solution features:

- Certified implementations of industry-standard decoders and post-processing algorithms
- The TI Effects library which includes configurable modules for graphical EQ, matrix decoding and room simulators
- Performance Audio Framework (PAF), a powerful system framework that auto-detects incoming bitstreams and provides a simple I/O and control interface. The PAF was built upon TI's TMS320™ DSP Algorithm Standard, which allows developers to easily plug custom algorithms into the framework, resulting in modular solutions. The PAF features audio stream management; audio and control drivers; multiple I/O topologies: single zone, dual zone, stream split, stream merge; multiple bootload options:

Flash, SPI, I<sup>2</sup>C; as well as support for Flash upgrade

### Industry Standard Software

The PA software solution includes

- **Decoders**  
Dolby® Digital, Dolby Digital EX; DTS® Digital Surround, DTS-ES Discrete 6.1, DTS-ES Matrix 6.1, DTS 96/24; MPEG-2 AAC multichannel, MPEG-4 AAC stereo; Windows Media® Audio version 9, WMA9 Pro, MP3, HDCD, ATRAC3plus; DSD-to-PCM conversion
- **Encoders**  
Stereo: MP3, Windows Media Audio version 8, ATRAC3plus, MPEG-2 AAC; Multichannel: Dolby® Digital 5.1 creator
- **Audio Stream Processing**  
Dolby® Pro Logic® IIX, Dolby headphone, Dolby virtual speaker; DTS Neo:6; Double-precision (64-bit) bass

management; THX Select2, THX Ultra2; TI Effects library; FIL – optimized floating-point filter library

- Third-party IP available on Aureus™ DSPs
  - Audyssey MultEQ XT™, MultEQ™, PreVeq
  - SRS® Circle Surround II, WOW™, TruBass™
  - Waves MaxxBass®
  - Neural XM Surround

### Development Tools

Code Composer Studio™ IDE with the best-in-class C compiler simplifies the development of software while hardware development is supported by an EVM from Momentum Data Systems.

### For More Information

If you'd like additional information about TI's Aureus DSPs or the PA software solution, go to [www.ti.com/da708](http://www.ti.com/da708).

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