CS485xx Family Audio DSP
Better Sound Made Simple

Overview:

The CS48520, CS48540 and CS48560 ICs give OEMs a cost effective and simple-to-design audio post-processing solution that provides an extensive selection of enhanced audio features to maximize the end user's listening experience.

CS485xx Family Features:

- Multichannel 32-bit audio post processing at 150 MHz with dual MACs (300 M MACs/Sec)
- CS48520 supports 4 channel 32-bit PCM I/O
- CS48540 supports 8 channel 32-bit PCM I/O
- CS48560 supports 12 channel 32-bit PCM I/O
- 192 kHz S/PDIF Tx
- SPI™/I²C® serial control port
- Low-power standby: 260µW
- Large on-chip RAM & ROM
- Programmable GUI software tool
- Licensed third party audio processing algorithms in ROM, plus extensive library of Cirrus proprietary downloadable and customizable firmware - see back for complete list of algorithms

CS485xx Family Key Benefits:

- Easy to design – most standard processing features & some 3rd party algorithms in ROM
- DSP Composer GUI simplifies programming
- High performance-to-cost ratio
- No external memory needed
- Complete PCM processor in a single IC:
  - Matrix decoders
  - **Automatic** volume leveling/modeling
  - Speaker and headphone virtualizers
  - Bass management
  - Speaker and cabinet tuning
  - Automatic speaker/room EQ
  - Lip-sync delay

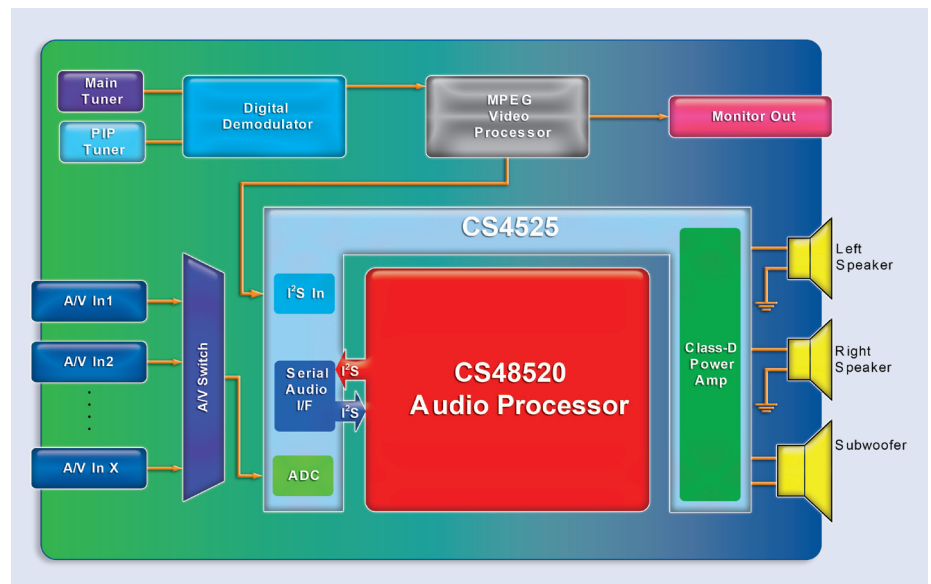## CS485xx Family Target Markets:

Digital Televisions/Soundbars

Accessory Products

Automotive

Blu-ray®/DVD™ Receivers & HTiB Systems

Cirrus Logic's CS48520 & CS4525 as used in a 2.1 channel DTV application

CS485xx Family

DSP GUI Programming Environment with CDB48500-USB Development Platform

CS485xx Family Audio Processors

Device(s)	CS48520/40/60-CQZ (Consumer)
	CS48520/40/60-DQZ (Automotive)
Package	48-Pin LQFP
Evaluation Board	CDB48500-USB
Application Note	AN298, AN298 Family
Tools	DSP Composer GUI Software Tool
Standard Processing	Bass management Compressor/Limiter Graphic/Parametric EQ Matrix mixer Tone control, etc.
Cirrus Proprietary Algorithm Support	Cirrus BandXpandeR™ Cirrus Extra Surround™ Cirrus Original Surround™ Cirrus Virtualizer Technology™ Cirrus Original Multichannel Surround™ / II (COMS/COMS2) Cirrus Dynamic Volume Leveler™ Cirrus Intelligent Room Correction™ / II (IRC/IRC2)
Extensive 3rd Party Algorithm Support	Audistry™ by Dolby® Audyssey™ Dynamic EQ Audyssey™ Dynamic Volume Dolby® Pro Logic® II/IIx Dolby® Virtual Speaker® Dolby® Headphone® DTS Neo:6™ DTS SurroundSensation™ Neural-THX® Surround SRS® Automotive™ SRS® CircleSurround® II SRS® TruSurround XT/HD/HD4™ SRS® Volume IQ™ SRS® WOW / WOW HD™

The CS48520/40/60 is programmed using the Cirrus Logic proprietary GUI software development tool called DSP Composer™. An audio processing chain is designed using a drag and drop interface. The tool then configures the CS48520/40/60 through the SPI™/I²C® serial port. The firmware may be loaded from the ROM within the CS48520/40/60 or it may be downloaded through the serial control port.