CS47024/28/48 Audio SoC

HIGH PERFORMANCE MULTICHANNEL CODEC + 32-BIT DSP

CS470xx TARGET MARKETS

AUTOMOTIVE HEAD-END UNITS

AUTOMOTIVE OUTBOARD AMPLIFIERS

HOME THEATER IN A BOX

CIRRUS LOGIC, INC.

2901 Via Fortuna
Austin, Texas 78746
United States
T +1-512-851-4000
F +1-512-851-4977
Toll-Free +1-800-888-5016

SALES SUPPORT
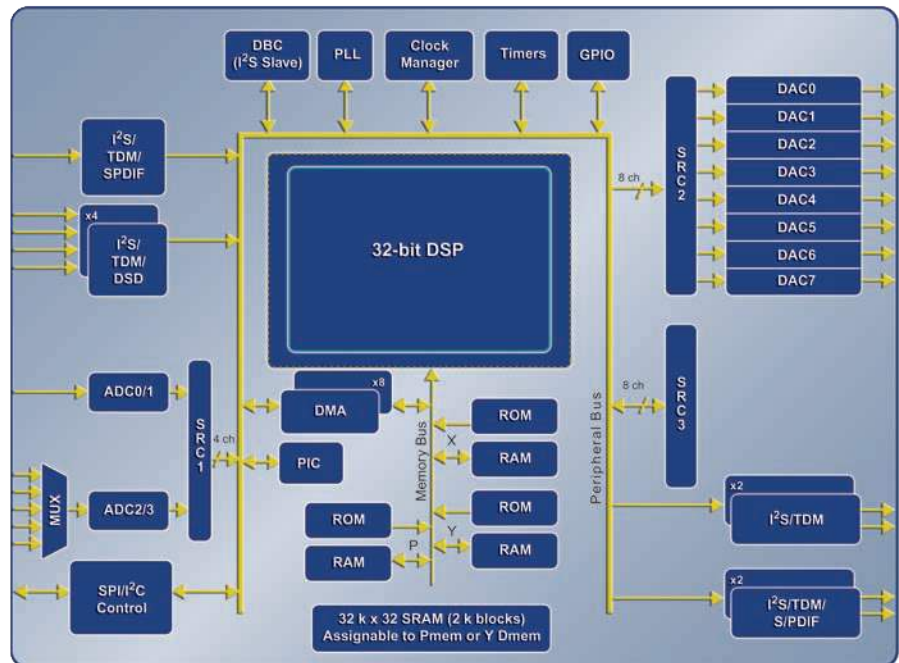
North America +1 800-625-4084
Asia Pacific +852 2376-0801
Japan +81 (3) 5226-7757
Europe/UK +44 (90) 1628-891-300
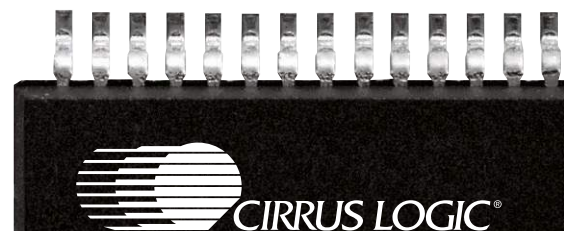
LEARN MORE AT
www.cirrus.com

CS470xx FAMILY FEATURES

- Multichannel 32-bit audio processing at 150 MHz with dual MACs & 72-bit accumulator
- Advanced Delta-Sigma converter architecture
- Single-ended or differential analog I/O
- Up to 4-channel 24-bit, 105 dB ADC
- Stereo 5:1 analog input MUX
- Up to 8-channel 24-bit, 105 dB DAC
- Integrated 192 kHz S/PDIF Rx and Tx
- Integrated multichannel, reassignable SRCs
- Supports both TDM (Time-division Multiplexed) and standard serial audio formats
- SPI™/I²C® serial control port
- Low-power standby: 350 µW
- 32 K x 32 RAM which is reassignable
- DSP Composer GUI simplifies programming and generation of custom signal processing using extensive library of primitives
- Licensed third party audio processing algorithms in ROM, plus extensive library of Cirrus proprietary downloadable and customizable firmware — see back for partial list of algorithms

The CS470xx Family audio SoC gives OEMs a cost-effective and simple-to-design audio processing solution with integrated high-performance mixed-signal that provides an extensive selection of enhanced audio features to maximize the end user's listening experience within the automotive entertainment space.

CS470xx FAMILY KEY BENEFITS

- Excellent development tools to simply system design and provide faster time to market
- Easy to design – most standard processing features and some third party algorithms in ROM
- Best in class analog performance and sound quality
- High level of integration enables small PCB footprint and lower system cost
- No external memory needed

DSP GUI PROGRAMMING ENVIRONMENT WITH CS470xx DEVELOPMENT PLATFORM

CS470xx ORDERING INFORMATION

Device(s)

CS47048-DQZ (Automotive)

CS47048-CQZ (Commercial)

CS47028-DQZ (Automotive)

CS47028-CQZ (Commercial)

CS47024-DQZ (Automotive)

CS47024-CQZ (Commercial)

Package

100-Pin LQFP

Evaluation Board

CDB470XS-DC48/-DC28/-DC24 (Single-ended)

CDB470XD-DC48/-DC28/-DC24 (Differential)

Documentation

CS470xx Data Sheet

CS470xx System Designer's Guide

Tools

DSP Composer™

GUI Software Tool

MicroCondenser™
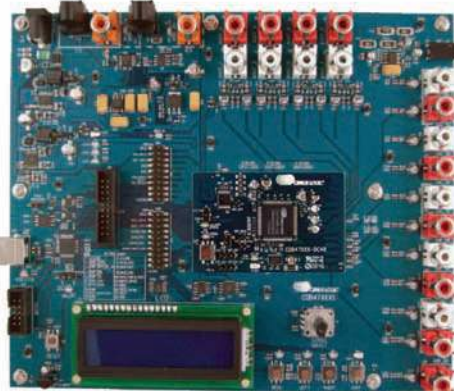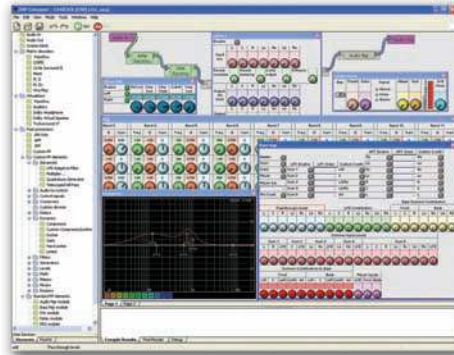
Standard Processing

Advanced Bass Management

Compressor/Limiter

Crossbar Mixer

Independent Channel Delay

Matrix Mixer

Multiband Parametric/Graphic EQ

Multichannel Tone Control

And many more…

Cirrus Proprietary Algorithm Support

Cirrus BandXpandeR™

Cirrus Bass Enhancement (CBE)

Cirrus Original Multichannel Surround™/II (COMS2) for Hall, Theater, etc. DSP effects

Cirrus Dynamic Volume Leveler™

Cirrus Intelligent Room Correction™/ II (IRC/IRC2)

Cirrus® Virtualizer Technology (CVT)—Headphone and Speaker modes

Extensive Third Party Algorithm Support/Capability

Audistry® by Dolby®

Audyssey Dynamic EQ®

Audyssey Dynamic Volume®

Cirrus® Virtualizer Technology (CVT)—Headphone and Speaker modes

Dolby® Pro Logic® II, IIx, IIz

Dolby Headphone®

EmbracingSound® Technologies

Neural-THX® Surround

SRS® Automotive™

SRS® CircleSurround® II

SRS® TruSurround® XT™/ HD™/HD4™

SRS® TruVolume

SRS® WOW/WOW HD™

Waves™ MaxxBass®

The CS470xx Family is programmed using Cirrus Logic's 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 CS470xx device through the SPI™/I²C® serial port. The firmware may be loaded from the ROM within the CS470xx device or it may be downloaded through the serial control port.

CS470xx FAMILY DEVICES & FEATURES

Part	Processor	Speed (MIPS)	Car Audio DSPs	General Audio DSPs	Resolution (bits)	Dynamic Range (dB)	A/D Channels	D/A Channels	Comments	Package
CS470xx	Tiny, cost effective, mega-performance PCM processors with integrated CODEC targeted for mini-systems, DVD receivers, speakerbars, car audio, DTVs									
NEW **CS47024**	Single 32-bit	150	CS47024C-DQZ	CS47024C-CQZ	24	108 DAC 105 ADC	2	4	2 Ch ADC w/ 5:1 MUX, 4 Ch DAC, S/PDIF Tx, SRC (2 Ch)	100 LQFP
NEW **CS47028**	Single 32-bit	150	CS47028C-DQZ	CS47028C-CQZ	24	108 DAC 105 ADC	2	8	2 Ch ADC w/ 5:1 MUX, 8 Ch DAC, S/PDIF Rx/Tx, SRC (8 Ch)	100 LQFP
NEW **CS47048**	Single 32-bit	150	CS47048C-DQZ	CS47048C-CQZ	24	108 DAC 105 ADC	4	8	4 Ch ADC w/ 5:1 MUX on one 2 Ch ADC, 8 Ch DAC, S/PDIF Rx/Tx, SRC (8 Ch)	100 LQFP

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