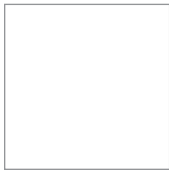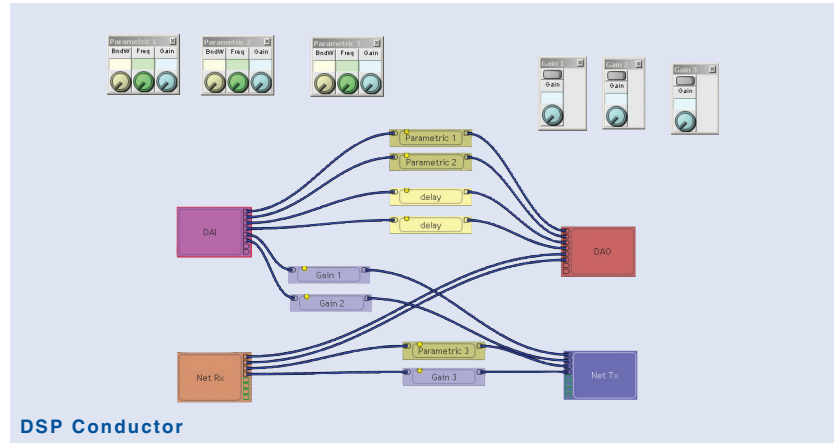# CIRRUS LOGIC®

DSP Conductor™ Development Software

144-pin LQFP

22 mm

22 mm
IC dimensions
(pin-to-pin nominal)

DSP Conductor

Audio processing is accomplished using DSP function blocks known as elements (algorithms) which can have inputs, outputs, controls, and indicators. As part of a comprehensive library, each of these elements can be dragged from a menu, dropped into a design and connected together to easily complete a system design. Elements can be combined in a variety of ways to create unique audio processing designs and can also be adjusted in real-time to produce high-quality solutions to a wide variety of audio processing needs.

DSP Conductor Software – Graphical Audio Programming Tool for Cirrus Logic CobraNet™ ICs
Enables Innovative Distributed Audio Processing Applications for Networked Audio Systems

Overview

With the advent of digital audio networking, new and exciting audio systems are being implemented that place the audio processing closer to the actual users of the audio system. These advanced audio products add new features and capabilities to audio systems, while improving system flexibility. With the introduction of the DSP Conductor development software, audio product designers can easily combine the industry-leading digital audio networking capabilities of CobraNet with the power of Cirrus Logic DSP processing on a single IC.

The DSP Conductor software is a comprehensive development kit expressly developed to support the CS4961xx family of CobraNet + DSP devices. Its easy-to-use

graphical interface speeds time to market and lowers system costs by greatly simplifying all aspects of the development process, from design to test. Just drag and drop to create sophisticated, full-featured, CobraNet-enabled DSP systems with greater efficiency and much lower development cost. The DSP Conductor tool targets CobraNet's new CS4961xx IC, which provides a unique combination of CobraNet digital audio networking over Ethernet and a high-performance, 32-bit, fixed-point audio DSP from Cirrus Logic. Running on any Windows XP-based PC, DSP Conductor software communicates with the CS4961xx via the standard CobraNet Ethernet interface. Audio processing within the

DSP Conductor tool is accomplished using DSP function blocks known as elements (algorithms) which can have inputs, outputs, controls, and indicators. A comprehensive library of these elements comes included with DSP Conductor software to enable complete system designs. The included audio elements are graphically "wired" together on the software tool's palette screen to create audio signal processing paths. The elements can be combined in a variety of ways to create unique audio processing solutions and can also be adjusted in real time to produce high-quality audio system solutions.

DSP Conductor Software Features & Benefits

- Distributed audio processing solutions become a reality using DSP Conductor software
- Reduces time-to-market for complex audio processing solutions
- Enables complete audio system design for the CobraNet™ CS4961xx

- Easy-to-use graphically oriented interface to speed implementation
- Fast "drag-and-drop" creation of audio processing and signal paths
- Comprehensive library of DSP functions allow complex audio system design
- Graphic-based controls enable real-time adjustments to audio processing system

- Signal path integrity automatically verified with the click of a button
- DSP resource usage automatically calculated with the click of a button
- Final DSP code is loaded directly to the CS4961xx (upon registering the development platform and receiving a security 'key')

The Solution

Today, digital signal processing requirements within audio systems are becoming increasingly sophisticated. By combining CobraNet technology with an on-board, 32-bit programmable DSP, Cirrus Logic is opening up an exciting new world of decentralized digital signal processing applications. The potential for innovative applications taking advantage of digital signal processing spread throughout the network (such as network-connected ceiling speakers in a commercial building, performing ambient noise-level detecting and sound-masking processing) is revolutionary. DSP Conductor software enables audio system product engineers to meet their entire signal processing needs without having to write a single line of DSP code and allows them to quickly and easily implement complex signal processing features. This tool liberates the DSP experts to focus their efforts on the truly differentiating aspects of their audio products.

Audio Element Library

- Multitap delay line – Audio delays up to 100ms in increments of one sample period.
- Parametric equalizer –Bi-quad with gain, frequency and bandwidth control. Multiband parametric equalizers can be built by cascading multiple instances of this element.
- Sine generator – High-precision test tone generator.
- Gain control – Attenuate or boost signals up to 12 dB.
- Combination peak and RMS meter – Accurate signal level metering with peak-hold capability.
- NxM mixer – Configurable full featured, fully interconnected audio mixer block.

- NxM router – Configurable unity gain router with one-to-many capability.
- Shelving equalizers – Tone controls with frequency and gain controls.
- White noise generator – Broad spectrum noise source.
- Signal presence detector – Lights an indicator when audio level exceeds user-set threshold.
- Multiple input RMS meter – Efficient multichannel metering.
- Elements aiding in software and hardware test: LMS adaptive filter, N-bit white noise generator, white noise verifier and delay detector

- Pink noise generator – Equal power-per-octave noise source useful for acoustical testing.
- Compressor/limiter – Dynamics control with adjustable response characteristics and time constants. Side-chain inputs and separate detector blocks enable creation of multichannel and multiband dynamics processors.
- Low- and high-pass filters – Building block for digital crossover networks. A variety of response curves and filter slopes supported.

Where to get DSP Conductor Software

DSP Conductor software, a tool that accompanies Cirrus Logic's CS4961xx family of CobraNet Interface Processors, can be downloaded (upon board registration and license agreement acceptance) at www.cirrus.com/cobranetsoftware. The tool is free of charge and does not carry any royalties associated with products created using DSP Conductor software. The hardware platform for using the DSP Conductor tool in a development environment is the CDB496122-EV2 CobraNet evaluation kit which can easily be obtained by contacting your local Cirrus Logic sales representative. The CDB496122-EV2 kit comes with two CobraNet evaluation boards, two CPB496122-CM2-FB modules, one CAT5 crossover cable, two Phoenix-style audio connectors, and the "EV2 User's Manual" document.

To locate your nearest Cirrus Logic sales representative, please go to
http://www.cirrus.com/en/contacts/sales/index.html

www.cirrus.com

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