Audio Processor for Advanced TV with Sound IF Demodulator and Stereo Decoder

ADAV4622

FEATURES

- **Sound IF (SIF) processor**
  - **SIF demodulator and broadcast stereo decoder**
  - **NICAM (BG, DK, I, L), A2 (BG, DK, M), BTSC (M, N), EIAJ (M)**
  - **Automatic sound IF standard detection**
- **Fully programmable 28-bit audio processor for enhanced ATV sound—default TV audio flow loaded on reset**
- **Implements Analog Devices and third-party branded audio algorithms**
- **Adjustable digital delay line for audio/video**
  - **Synchronization for up to 200 ms stereo delay**
- **High performance 24-bit ADC and DAC**
  - **94 dB DNR performance on DAC channels**
  - **95 dB DNR performance on ADC channels**
  - **Dual headphone outputs with integrated amplifiers**
- **High performance pulse-width modulation (PWM) digital outputs**
- **Multichannel digital baseband I/O**
  - **4 stereo synchronous digital I²S input channels**
  - **One 6-channel sample rate converter (SRC) and one stereo SRC supporting input sample rates from 5 kHz to 50 kHz**
  - **One stereo synchronous digital I²S output**
  - **S/PDIF output with S/PDIF input mux capability**
- **Fast I²C control**
- **Operates from 3.3 V (analog), 1.8 V (digital core), and 3.3 V (digital interface)**
- **Available in 80-lead LQFP**

APPLICATIONS

- **General-purpose consumer audio postprocessing**
  - **Home audio**
  - **DVD recorders**
  - **Home theater in a box (HTIB) systems and DVD receivers**
- **Audio processing subsystems for DTV-ready TVs**
- **Analog broadcast capability for iDTVs**

PRODUCT OVERVIEW

The ADAV4622 is an enhanced audio processor targeting advanced TV applications with full support for digital and analog baseband audio as well as multistandard broadcast SIF demodulation and decoding.

The audio processor, by default, loads a dedicated TV audio flow that incorporates full matrix switching (any input to any output), automatic volume control that compensates for volume changes during advertisements or when switching channels, dynamic bass, a multiband equalizer, and up to 200 ms of stereo delay memory for audio-video synchronization.

Alternatively, Analog Devices, Inc., offers an award-winning graphical programming tool (SigmaStudio™) that allows custom flows to be quickly developed and evaluated. This allows the creation of customer-specific audio flows, including use of the Analog Devices library of third-party algorithms.

The analog I/O integrates Analog Devices proprietary continuous-time, multibit Σ-Δ architecture to bring a higher level of performance to ATV systems, required by third-party algorithm providers to meet system branding certification. The analog input is provided by 95 dB dynamic range (DNR) ADCs, and analog output is provided by 94 dB DNR DACs.

The main speaker outputs can be supplied as a digitally modulated PWM stream to support digital amplifiers.

The ADAV4622 includes multichannel digital inputs and outputs. In addition, digital input channels can be routed through integrated sample rate converters (SRC), which are capable of supporting any arbitrary sample rate from 5 kHz to 50 kHz.

Comprehensive documentation, which provides detailed operation guidelines and register map information, is available upon request from AV.Products@analog.com.

For more information on the ADAV4622, contact Analog Devices via email at AV.Products@analog.com.

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