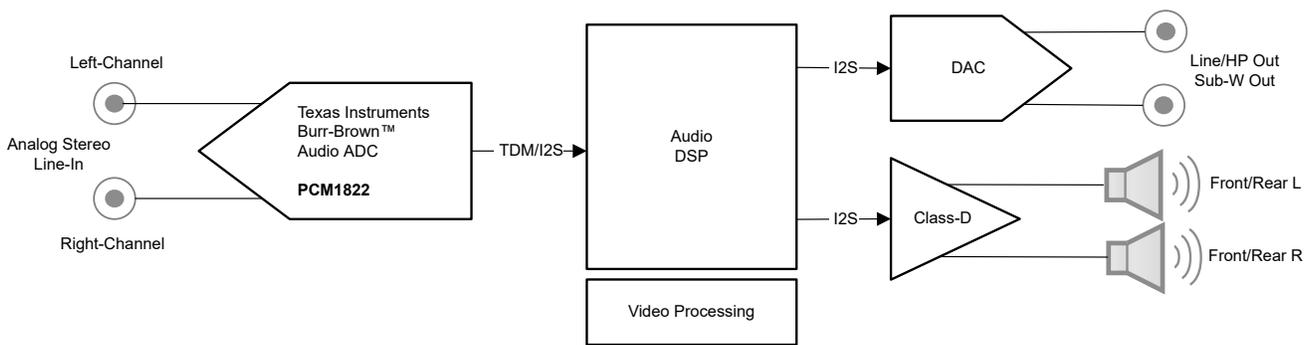


Designing With PCM1822 for Home Theater and Entertainment



In [Home Theater and Entertainment](#) designs such as AV receivers, soundbars, and smart speakers, an audio ADC is used to digitize audio from analog microphones or line inputs. The analog audio signal is converted to digital, where the signal can be processed by various immersive sound algorithms like surround sound, room correction, compression, reverberation, dynamic gain, and equalization. The processed audio can then be played back through speakers or headphones.

The [PCM1822](#) is a Texas Instruments Burr-Brown™ high-performance, low-power, stereo-channel, simultaneous sampling, audio analog-to-digital converter (ADC) with flexible audio interface selectable with a hardware pin. The PCM1822 is designed for premium-quality audio applications.



Simplified Block Diagram

Performance Optimized for Various Home Theater Systems

- **Soundbars** often have built-in microphones for voice control. The PCM1822 features digital filters to suppress background noise to prevent false activations. The integrated high-pass filter (HPF) in PCM1822 removes the DC bias of the signal from microphone.
- **Smart Speakers** feature the ability to perform various functions based on voice commands. The PCM1822 features a dynamic range enhancer (DRE) for recording voice commands, both in quiet and loud environments with 117-dB dynamic range and -95-dB THD+N.
- **AV receivers** have a line input port for analog audio stream. The PCM1822 allows for differential or single-ended connection to the line input sources. The PCM1822 provides for an easy hardware pin-level mode selection and can be powered from a single supply of 3.3 V, making the PCM1822 an excellent choice for cost-sensitive, space-constrained audio subsystems.

Burr-Brown™ Audio ADCs for Home Theater and Entertainment

ADC Part Number	Dynamic Range	Input Type	Input Full-Scale Range	Resolution	Sampling Rate Supported	Package
PCM1822	117 dB	Differential and Single-ended	1 V _{RMS}	32-bit	192 kHz	9 mm ² WQFN package
PCM1821	106 dB	Differential	2 V _{RMS}	32-bit	192 kHz	9 mm ² WQFN package
PCM1820	123 dB	Differential	2 V _{RMS}	32-bit	192 kHz	9 mm ² WQFN package

For additional assistance, ask questions to TI audio engineers on the [TI E2E™ Audio Support Forum](#).

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