Analog Reinvented

SABRE32 Reference ADC and SABRE32 Ultra ADC Series

32-bit High Performance Audio ADC

Product Brief

The ***SABRE32 ADC*** series is the world's highest performance 32-bit analog-to-digital (A/D) converter solution targeted for consumer applications such as audio pre-amplifier, audio processor, A/V receiver and professional audio applications such as recording systems, mixer consoles and digital audio workstations.

Part	Description	DNR (dB-A)	THD+N (dB)	32-bit Digital Filter	8-band Biquad Filter	I2S/SPDIF Output	Sample Rate	Package
ES9102	***SABRE32 Reference*** 32-bit Stereo/Mono ADC	127 (Mono) 124 (Stereo)	−120 (Mono) −118 (Stereo)	Programmable	Programmable	Yes	Up to 384kHz	48LQFP
ES9112	***SABRE32 Ultra*** 32-bit Stereo ADC	124	-112	Programmable	Programmable	Yes	Up to 384kHz	28SOP

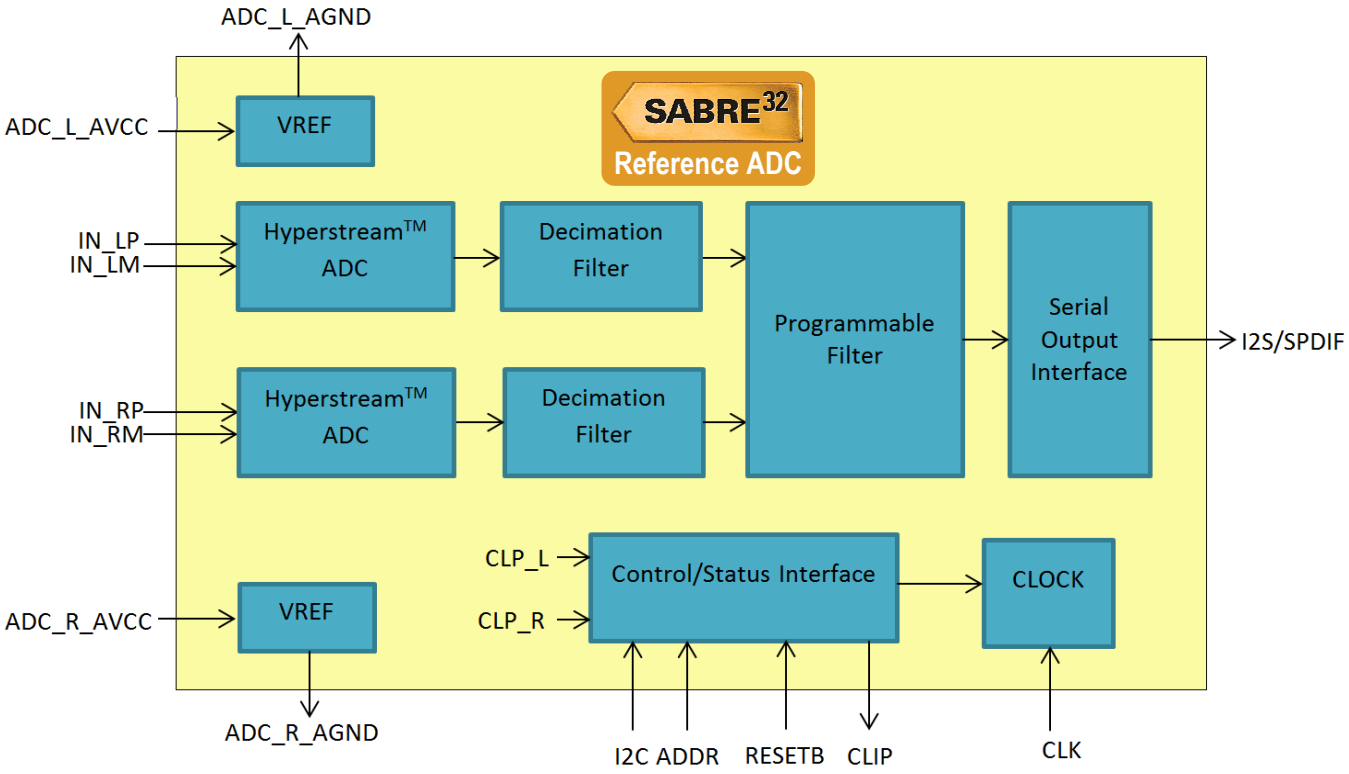
Using the ESS proprietary 32-bit Hyperstream™ ADC architecture, the ***SABRE32 Reference ADC*** delivers an unprecedented DNR of 127dB and THD+N of −120dB in mono mode (or DNR of 124dB and THD+N of −118dB in stereo mode), a performance level that will satisfy the most demanding audio enthusiasts.

For highest performance, the ***SABRE32 ADC*** series implements a 32-bit programmable decimation filter and outputs the full 32-bit resolution in I2S mode, or 24-bit resolution in SPDIF mode. A digital high-pass filter is available for DC removal. Additionally, a programmable 8-band biquad filter is implemented for RIAA or custom equalization. The ***SABRE32 ADC*** series supports synchronous SPDIF or I2S master/slave output, or asynchronous I2S slave output relative to the master clock for up to 384kHz sample rate and consumes less than 200mW.

FEATURE	BENEFIT
32-bit Hyperstream™ ADC architecture **Reference**: **DNR (dB-A)** Up to 127; **THD+N (-dB)** Up to 120 **Ultra**: **DNR (dB-A)** 124; **THD+N (-dB)** 112	Unprecedented dynamic range and ultra low distortion
Build-in mono mode (***Reference*** only)	Mono (with additional performance) or stereo configuration without external components
32-bit Programmable decimation (FIR) filter o Built–in sharp or low-group delay filters, or o User customizable characteristics	Customizable FIR decimation filters for any application
Programmable 8-band biquad filter o Built-in RIAA filter o User customizable characteristics	Customizable equalization for any application
Programmable Digital High-pass filter	Eliminates input DC offset
Up to 384kHz sampling rate	Compatible with DVD-audio and professional applications
I2C or hardware based control	Configured by microcontroller or used standalone
Flexible SPDIF/I2S digital output modes	Synchronous SPDIF or I2S master/slave output, or asynchronous I2S slave output relative to master clock
Low power in a small package o <200mW power consumption	Simplifies power supply design

SABRE[32] ADC Series Product Brief

FUNCTIONAL BLOCK DIAGRAM



APPLICATIONS

- Professional recording systems
- Studio mixing console
- Digital audio workstations
- Audio/Video receivers
- Audio preamplifiers
- Audio processor