

## INTRODUCING THE SABRE ES9038PRO

# The World's Highest Performance 32-Bit DAC Featuring 140 dB DNR

Widely recognized as the gold standard in Audio Digital-to-Analog Converter (DAC) technology, ESS Technology introduces its professional series flagship – the ES9038PRO SABRE DAC. This first member of the ESS PRO series of SABRE DACs offers industry-leading performance in a 32-bit, 8-channel DAC and features the industry's highest dynamic range (DNR) of 140dB.

The ES9038PRO SABRE DAC sets a new standard for a truly immersive, high-resolution audio (HRA) experience. As high resolution content proliferates through new, high-end music download services, users are looking for equipment that fulfills the promise of a sound experience matching the artist's original performance. The ES9038PRO SABRE DAC delivers on that promise enabling the highest quality sound possible, regardless of file format or device.



### Recognizing and Realizing the Artistic Vision in the Studio and at Home

The ES9038PRO SABRE DAC was designed for premium home theater equipment including Blu-ray players, preamplifiers, all-in-one A/V receivers, and more. For serious audiophiles it provides the most immersive listening experience – bringing music to life.

Studio environments can leverage the ES9038PRO SABRE DAC's industry-leading performance for professional audio workstations and other equipment. The PRO series also enables studio professionals to recreate popular signature sound styles, using third party DSP and specialized software packages, while remaining true to the artists' musical vision.

### Revolutionary Performance Levels to Satisfy the Most Discerning Audiophile

The ES9038PRO SABRE DAC features ESS' patented 32-bit HyperStream™ DAC technology with up to 140 dB – industry leading – DNR in mono mode and –122 dB (0.00008%) total harmonic distortion plus noise (THD+N). The HyperStream architecture is responsible for both the outstanding sound quality of ESS SABRE DACs and the extremely low THD+N. A typical competitive, 32-Bit 8-Channel DAC using a delta-sigma architecture features –107 dB THD+N (0.0004%), which when subjected to listening tests does not equal the clarity and sound stage of the ES9038PRO.

#### New hardware features include:

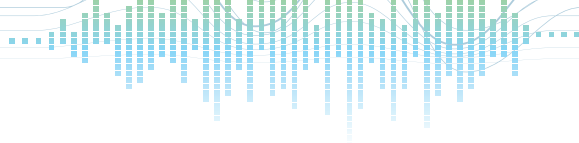
- Full-scale manual/auto-gain calibration reduces device-to-device gain error
- Programmable volume control ramp-rate with +18 dB option
- DoP to DSD decoder minimizes external processing
- Total of eight preset filters for maximum design flexibility

#### Programmable functions:

- Customizable output configuration: Mono, stereo, 8-channel output in current-mode or voltage-mode based on performance criterion
- Customizable filter characteristics: User-programmable filter allowing custom roll-off response
- Programmable THD compensation to minimize THD caused by external components

### ES9038PRO SABRE DAC Design Advantages

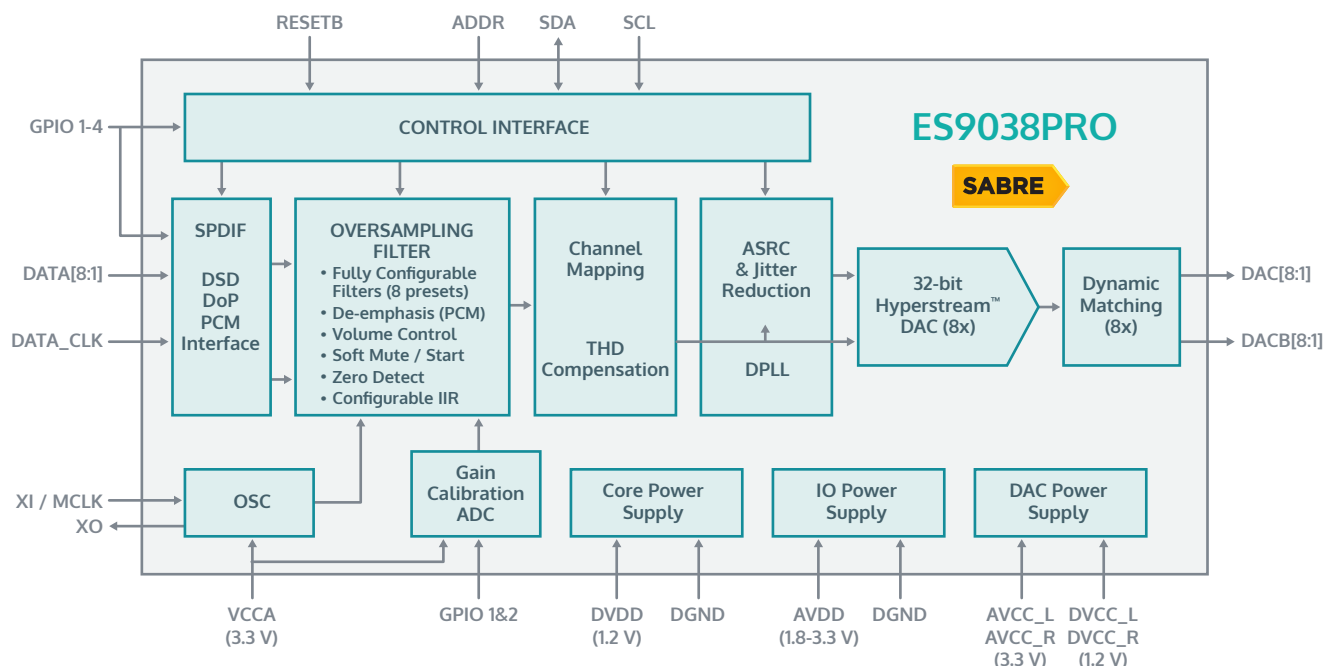
This new flagship SABRE DAC was created to integrate seamlessly with the existing, and future, portfolio of ESS headphone amplifiers as well as other audio building block technology.



Significant advancements over previous generations have been made to simplify the implementation of applications software, and debugging time has been significantly reduced to speed time to market and lower overall system costs.

The volume level of all internal DACs can be updated with a single software instruction. A first in the industry, the ES9038PRO also enables audio gain- calibration across multiple DACs for high channel count systems. It also has 500 mW power consumption at 192 kHz sampling and 100 MHz MCLK. Advanced power management features enable a low-power idle mode the audio signal is absent.

## ES9038PRO Block Diagram



## Additional Features and Benefits

Feature	Benefit
Full-scale manual/auto gain-calibration	Reduces device-to-device gain error
Eight preset and programmable filter types	Maximizes design flexibility
Clock gearing	Reduces MCLK frequency and saves power
Added DSD over PCM (DoP) decoding	Required for high-end audiophile equipment
Software reset	Speeds-up software and hardware debugging to improve time to market
Programmable volume control ramp-rate with +18 dB option and single volume adjustment for all 8 channels	Simplifies system software
Programmable THD compensation	Minimizes distortion caused by non-ideal PCB layout and external components
Soft-start with programmable start time	Enables the elimination of start-up pops and clicks
Full 8-to-8 channel-mapping	Simplifies PCB layout and allows rearranging of channels

### About ESS Technology

For more than three decades ESS Technology has been on the cutting edge of audio technology. A privately held fabless semiconductor company, ESS Technology designs and markets high-performance analog and HiFi audio devices for mobile, consumer, automotive, and professional audiophile systems. The company was founded in 1984 and today ESS Technology is best known for its SABRE series of high-performance audio products. For more information visit <http://www.esstech.com>.