

## Delta-Sigma ADC IP portfolio

### CSEM's proven Delta Sigma ADC IPs for demanding applications

With over forty years of expertise in System-on-Chip (SoC) and ASIC design, CSEM is a leader in high performance Analog-to-Digital Converter (ADC) solutions. Our Delta-Sigma ADCs, spanning 22 nm to 180 nm node nodes with proven TSMC and GlobalFoundries designs, deliver unmatched accuracy and efficiency for a wide range of applications. Trusted by leading foundries and industry innovators, our IP solutions are designed for performance, reliability and scalability. Need a custom solution? We offer tailored IP adaptations to meet your exact specifications.

### Portfolio overview

Feature	Description
CMOS Processes	Available from 22 nm to 180 nm (TSMC and GF)
Effective Number of Bits (ENOB)	Available from 12b to 20b
Sampling rate	Up to 768 kS/s
Operating temperature range	-40°C to 125°C
Designs	Silicon-proven designs
Architecture	Highly digital, enabling power vs sample rate scaling
Integrated solutions	Built-in references and biasing
Signal bandwidth	Up to 384 kHz

### Use-cases and applications



Hearing aids and consumer audio



Electrochemical sensors



Industrial instrumentation



Medical devices

### Looking for a specific Delta-Sigma ADC specification?

If you do not see the exact specifications you need in the table below, simply reach out to us. Our team is specialized in adapting and optimizing IP solutions to fit your unique design requirements.

### ADC specifications

Process node	Signal Bandwidth	SNR	ENOB	Power Supply	Power Consumption
22	1.5 kHz	110 dB	17.6	1.8 V/0.8 V	500 µW
22	6 kHz	104 dB	16.6	1.8 V/0.8 V	490 µW
22	24 kHz	98 dB	15.6	1.8 V/0.8 V	525 µW
22	96 kHz	87 dB	13.8	1.8 V/0.8 V	540 µW
180	2 kHz	91.8 dB	14.6	1.8 V	480 µW
180	8 kHz	68 dB	10.7	1.8 V	200 µW
180	4 kHz	80 dB	12.7	1.8 V	180 µW
180	16 kHz	71 dB	11.1	1.8 V	225 µW
180	16 kHz	71 dB	11.1	1.8 V	225 µW

### Why choose CSEM's Sigma-Delta ADC IP?

- **High accuracy:** Advanced noise and error minimalization techniques ensure precise analog-to-digital conversion, ideal for medical, scientific, and high-end audio applications.
- **Ultra-low-power consumption:** Designed for energy efficiency, maximizing battery life in IoT, portable, and power-sensitive systems.
- **Fast conversion rates:** Optimized for high-speed signals without compromising accuracy, ensuring reliable performance in automotive, industrial, and communication systems.
- **Customizable solutions:** Our adaptable IPs can be tailored to your exact requirements, whether for consumer electronics, automotive, or industrial applications.

Partner with CSEM to bring your next-generation designs to life with our industry-leading Delta Sigma ADC IP solutions.

Contact us today to learn more!

