

ALC889 - HD Audio Codec

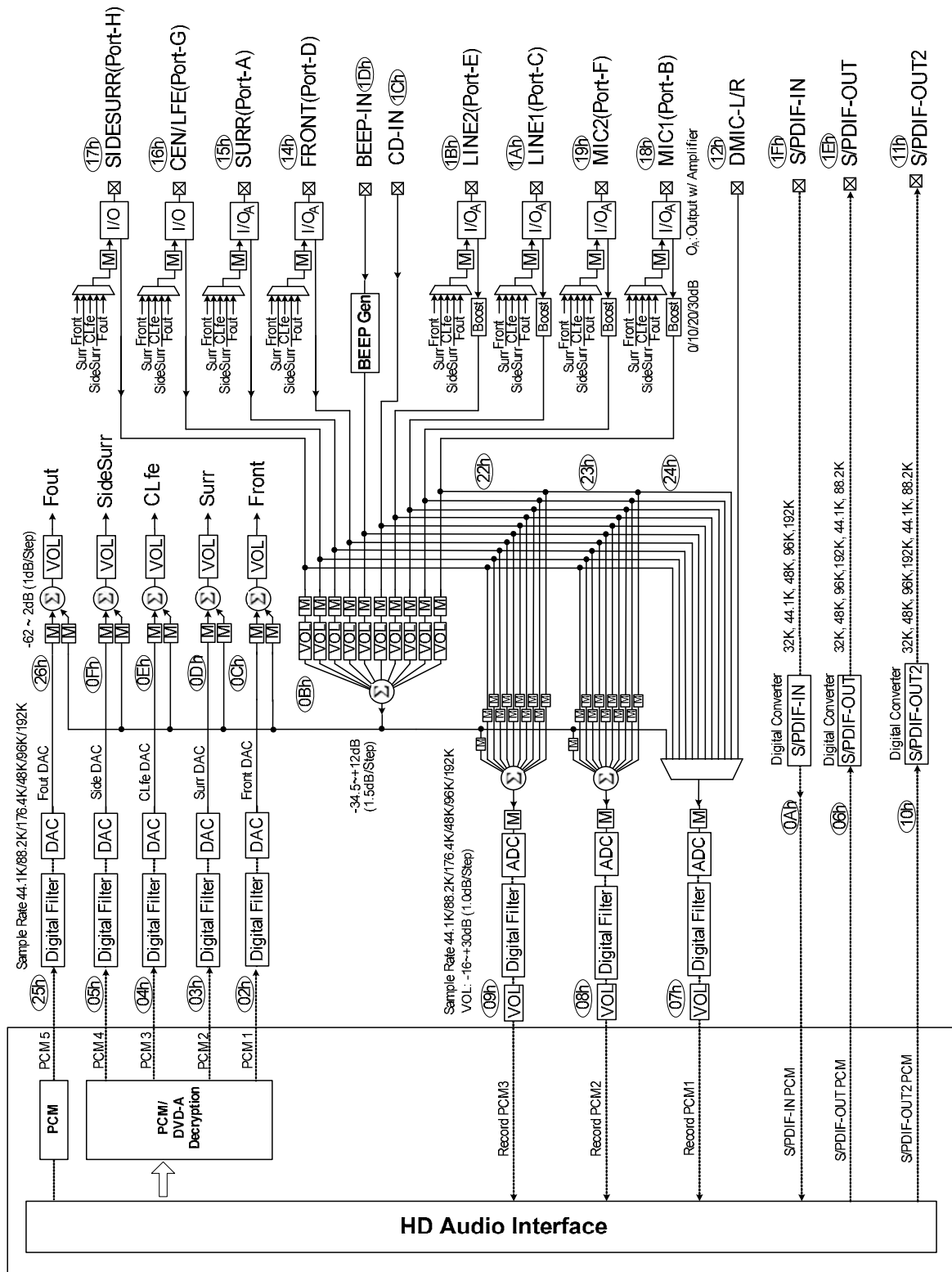


Figure 1. Block Diagram

4.1. Analog Input/Output Unit

Pin Complex widgets NID=14h~1Bh are re-tasking IOs.

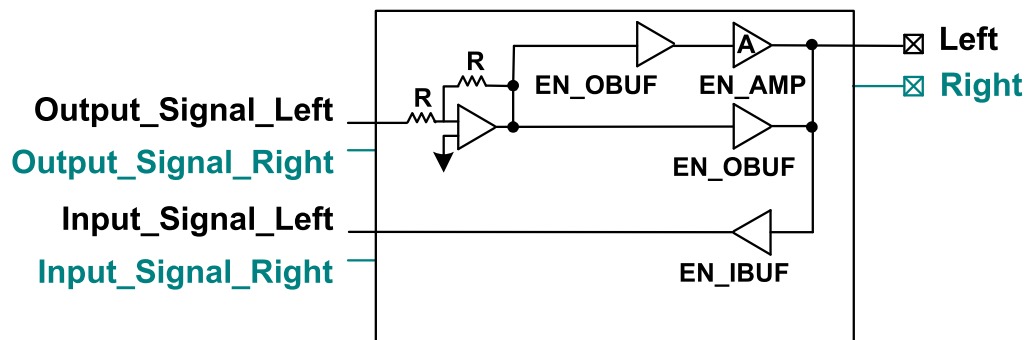


Figure 2. Analog Input/Output Unit

9.3. Analog Performance

Standard Test Conditions

- $T_{\text{ambient}}=25^{\circ}\text{C}$, DVDD=3.3V $\pm 5\%$, AVDD=5.0V $\pm 5\%$
- 1kHz input sine wave; Sampling frequency=48kHz; 0dB=1Vrms
- 10K Ω /50pF load; Test bench Characterization BW:10Hz~22kHz

Table 86. Analog Performance

Parameter	Min	Typical	Max	Units
Full-Scale Input Voltage All Inputs (Gain=0dB) to ADC	-	1.6	-	Vrms
Full-Scale Output Voltage (Gain=0dB)				
DAC	-	1.25	-	Vrms
Headphone Amplifier Output@32 Ω Load	-	1.1	-	Vrms
Dynamic Range with -60dB Signal (A-Weight)				
ADC	-	104	-	dB FSA
DAC	-	108	-	dB FSA
Headphone Amplifier Output@32 Ω Load	-	105	-	dB FSA
THD+N with -3dB Signal (No A-Weight)				
ADC from Port-C and Port-F	-	-85	-	dB FS
ADC from Other Port Except Port-C and Port-F	-	-90	-	dB FS
DAC to All Port	-	-90	-	dB FS
Headphone Amplifier Output@32 Ω Load	-	-90	-	dB FS
Magnitude Response (10K Ω load)				
All DAC @Fs=48KHz (FR= ± 0.05 dB)	0	-	21,792	Hz
All DAC @Fs=96KHz (FR= ± 0.05 dB)	0	-	43,584	Hz
All DAC @Fs=192KHz (FR= ± 0.05 dB)	0	-	87,168	Hz
All ADC @Fs=48KHz (FR= ± 0.04 dB)	0	-	19,200	Hz
All ADC @Fs=96KHz (FR= ± 0.04 dB)	0	-	38,400	Hz
All ADC @Fs=192KHz (FR= ± 0.04 dB)	0	-	76,800	Hz
Power Supply Rejection (Measured at 1kHz Point)	-	-70	-	dB
Amplifier Gain Step	-	1.0	-	dB
Channel Separation (Crosstalk)	-	-80	-	dB
Input Impedance (Gain=0dB)	12	-	16	K Ω
Output Impedance				
Amplified Output	-	2	-	Ω
Non-Amplified Output	-	200	-	Ω
Digital Power Supply Current (Normal/DVD-Audio) DVDD=3.3V	-	17/40	-	mA
Digital Power Supply Current (D2) DVDD=3.3V	-	-	2000	μA
Analog Power Supply Current (Normal Operation) AVDD=5.0V	-	75	-	mA
Analog Power Supply Current (D2) AVDD=5.0V	-	500	-	μA
VREFOUTx Output Voltage	-	0.5*AVDD	0.8*AVDD	V
VREFOUTx Output Current	-	5	-	mA