Cadence AI 16x16
Analog Audio DSP

DESCRIPTION

The Cadence AI 16x16 is a high-performance, AI-powered Digital Signal Processor (DSP) developed by Aniston to meet the rigorous demands of professional and large-scale AV installations. It integrates advanced AI-based audio processing to ensure superior speech clarity and seamless sound management, making it ideal for complex conference environments, auditoriums, and broadcast control rooms.

Featuring 16 analog mic/line inputs and 16 line-level outputs, along with a 4-in/4-out USB audio interface, the Cadence AI 16x16 provides exceptional flexibility for audio routing, processing, and digital connectivity. Its robust design includes integrated Acoustic Echo Cancellation (AEC), Active Noise Control (ANC), and Automatic Feedback Control (AFC) to ensure pristine audio output in live or hybrid scenarios.

With multiple control interface options—including USB, RS232, RS485, TCP/IP, and GPIO—and full compatibility with most camera control protocols, the Cadence AI 16x16 simplifies integration into any AV control ecosystem. It supports touch screen panel control, auto-mixing, matrix mixing, and is accessible via a user-friendly GUI for Windows and Android platforms, ensuring a complete and scalable solution for enterprise-grade deployments.

FEATURES
AI-Driven Audio Processing Engine
- Advanced AI-based DSP architecture with SHARC and ARM quad-core processing for superior real-time signal enhancement.
- Eliminates ambient noise and non-human signals with intelligent voice recognition algorithms.

USB Digital Audio Integration
- Equipped with 4-in/4-out USB interface for direct digital audio transfer between DSP and workstations.
- Supports plug-and-play operation via USB Type A-B with free driver compatibility.

Advanced Noise and Echo Management
- Integrated Acoustic Echo Cancellation (AEC) for enhanced clarity during virtual conferencing.
- Active Noise Control (ANC) filters out unwanted environmental sounds.
- Dual-level Automatic Feedback Control (AFC) eliminates audio feedback and loop interference.

Professional-Grade I/O and Power
- 16 analog inputs and 16 analog outputs, configurable for mic-level or line-level usage.
- Built-in +48V phantom power (6.5mA per mic input) for condenser microphone support.
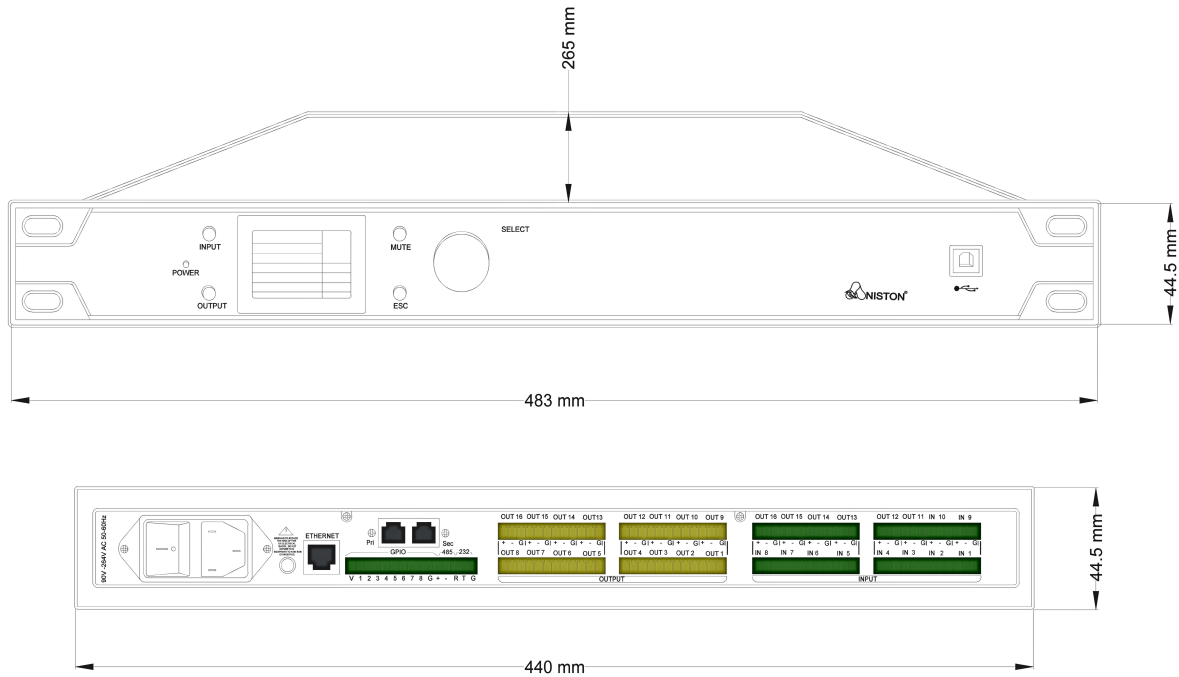
Flexible Audio Management
- Supports 15-band or 8-band input EQ and 10 or 8-band output EQ.
- Integrated high-pass and low-pass filters using Butterworth, Bessel, and Linkwitz-Riley design types.
- Matrix mixing and auto-mixing capabilities for flexible audio routing.

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TECHNICAL SPECIFICATIONS

Model	Cadence AI 16x16 Audio DSP
Processor	ADI SHARC 21489 + ARM Quad-Core
Audio Latency	< 3ms (Propagation Delay, 450MHz, 24-bit Processing)
Input Channels	16 Analog Mic/Line Inputs
Output Channels	16 Analog Line-Level Outputs
USB Digital Audio	4-in / 4-out
Phantom Power	+48VDC, 6.5mA per mic input
Dynamic Range	90dB @ 17dBu, 1kHz, A-weighted (Line)
THD+N	-90dB (0.003%) Line / -86dB (0.005%) Mic @ 1kHz, A-weighted
Sampling Rate	48kHz (A/D - D/A Conversion)
Acoustic Echo Cancellation (AEC)	Yes
Active Noise Control (ANC)	Yes
Automatic Feedback Control (AFC)	Yes, Two Selectable Levels
Equalization	Input: 15 or 8 Bands / Output: 10 or 8 Bands
Filters	HPF & LPF (Butterworth, Bessel, Linkwitz-Riley)
Mixing Functions	Auto Mixing, Matrix Mixing
Camera Tracking	Yes, Compatible with Most Control Protocols
Control Interfaces	USB, TCP/IP, RS232, RS485, GPIO
User Interface	Windows 7/8/10/11 GUI, Android App
Touch Screen Control	Optional (RS485 Wire Control)
Power Supply	AC 100V-240V, 50/60Hz
Power Consumption	Typical 40W, Maximum 75W
Operating Temperature	-20°C to 60°C
Weight	4.2 kg
Dimensions	483mm × 265mm × 44.5mm
Network Connectivity	USB Type A-B, Free Driver
Compliance	CE, FCC, RoHS, BIS Certified.
Limited Warranty	3 years (optional extension to 5 years)

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PRODUCT DIMENSION

265 mm

44.5 mm

483 mm

44.5 mm

440 mm

90V~264V AC 50-60Hz

ETHERNET

Pri

GPIO

Sec
485 . 232.

V 1 2 3 4 5 6 7 8 G + - R T G

OUT 16 OUT 15 OUT 14 OUT13

OUT 12 OUT 11 OUT 10 OUT 9

OUT 8 OUT 7 OUT 6 OUT 5

OUT 4 OUT 3 OUT 2 OUT 1

OUTPUT

OUT 16 OUT 15 OUT 14 OUT13

OUT 12 IN 11 IN 10 IN 9

IN 8 IN 7 IN 6 IN 5

IN 4 IN 3 IN 2 IN 1

INPUT

SELECT

INPUT

POWER

OUTPUT

MUTE

ESC

HQ Asia
asia@anistonav.com
anistonav.com

United States
unitedstates@anistonav.com
anistonav.com/us/

Europe
europe@anistonav.com
anistonav.com/europe

Middle East
uae@anistonav.com
anistonav.com/uae

ANISTON TECHNOLOGIES LLP
anistonav.com
E-mail: info@anistonav.com