

TOPPING Centaurus

TOPPING Centaurus User Manual

Fully Balanced R2R DAC with 10-Band PEQ

Model: Centaurus

1. INTRODUCTION

Thank you for choosing the TOPPING Centaurus Fully Balanced R2R DAC. This manual provides detailed instructions for the proper setup, operation, and maintenance of your device. Please read this manual thoroughly before use to ensure optimal performance and longevity of your product.

The Centaurus is engineered to deliver exceptional audio fidelity, featuring an 8-channel resistor array network for independent PCM and DSD decoding, advanced PEQ capabilities, and versatile connectivity options including Bluetooth LDAC support.

2. SAFETY INFORMATION

- **Power Supply:** Use only the specified power adapter. Ensure the voltage matches the requirements of your region.
- **Ventilation:** Do not block ventilation openings. Ensure adequate airflow around the device to prevent overheating.
- **Moisture:** Keep the device away from water, moisture, and high humidity environments. Do not operate with wet hands.
- **Cleaning:** Disconnect power before cleaning. Use a soft, dry cloth. Do not use liquid or aerosol cleaners.
- **Servicing:** Do not attempt to service this product yourself. Refer all servicing to qualified service personnel.
- **Placement:** Place the device on a stable, level surface. Avoid placing it near heat sources or in direct sunlight.

3. PACKAGE CONTENTS

Please check the package for the following items:

- TOPPING Centaurus DAC Unit
- Quick Start Guide
- Power Cable
- USB Cable
- Bluetooth Antenna

4. PRODUCT FEATURES

- **Fully Balanced R2R DAC:** Features an 8-channel resistor array network for superior audio fidelity with independent PCM and DSD decoding.
- **Customizable Listening Modes:** Switch between NOS (Non-Oversampling), OS (Oversampling), and Best Modes to tailor the sound to your preference.
- **10-Band PEQ Adjustment:** Fine-tune frequencies with an advanced PEQ algorithm, allowing you to adjust sound profiles and save multiple settings.
- **Wireless LDAC Bluetooth Connectivity:** Stream high-quality audio wirelessly, supporting LDAC, aptX-Adaptive, and other codecs, delivering performance up to 96kHz/24bit.
- **Aurora UI with Touch Interface:** Enjoy effortless control with a 2.0-inch color screen and touch buttons, offering 9 customizable background colors and intuitive navigation.
- **Ultra-Low Jitter Performance:** Advanced CPLD clock processing achieves jitter rejection as low as -150dB, ensuring distortion-free sound.
- **Plug-and-Play USB Compatibility:** Seamlessly works with PC and other platforms, supporting up to PCM768kHz/32bit and DSD512.
- **Flexible Output Options:** Equipped with RCA and XLR outputs for versatile integration into any audio system.

5. PRODUCT OVERVIEW

5.1 Front Panel

The front panel features the power/selection button, a 2.0-inch color display, and navigation buttons for menu control.



Figure 1: Front view of the TOPPING Centaurus DAC, showing the power/selection button, display, and navigation controls.



Figure 2: Detailed view of the Centaurus front panel, highlighting the display and control buttons.

5.2 Rear Panel

The rear panel provides all input and output connections, including balanced XLR, unbalanced RCA, IIS-LVDS, Coaxial, Optical, USB, AES, Bluetooth antenna port, and power input.

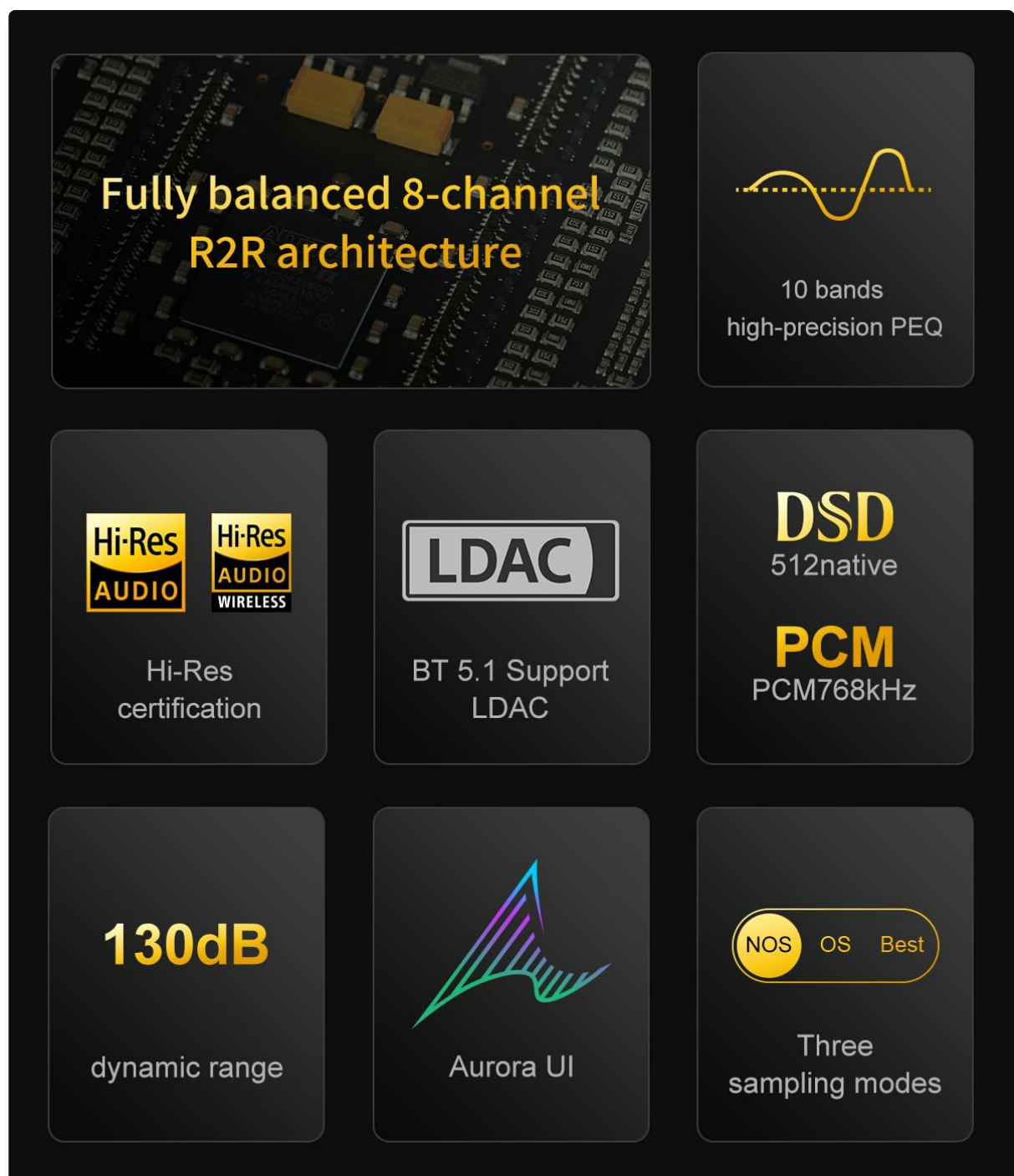


Figure 3: Rear panel connections of the TOPPING Centaurus DAC, showing XLR, RCA, IIS-LVDS, Coaxial, Optical, USB, AES, and power inputs.

5.3 Internal Architecture

The Centaurus features a fully balanced 8-channel R2R architecture, utilizing a complex programmable logic device (CPLD) for precise clock processing and ultra-low jitter performance.

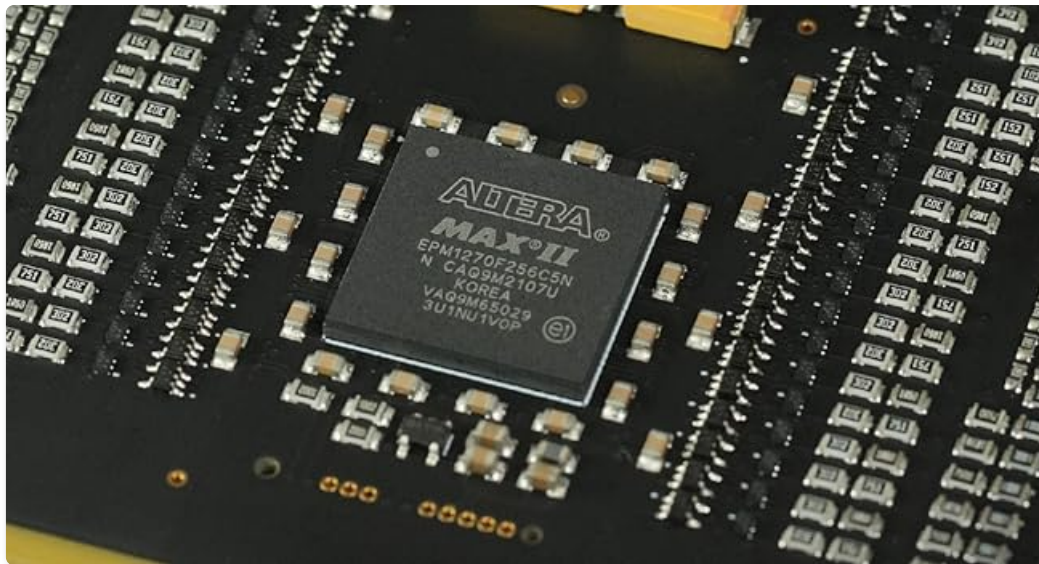


Figure 4: Close-up of the Altera MAX II CPLD chip, central to the Centaurus's low-jitter performance.

6. SETUP

6.1 Initial Connections

1. **Power:** Connect the provided power cable to the AC input on the rear panel and then to a suitable power outlet.
2. **Audio Output:** Connect the Centaurus to your amplifier or active speakers using either the balanced XLR outputs or the unbalanced RCA outputs. Ensure correct left and right channel connections.
3. **Digital Input:** Choose your preferred digital input source (USB, Optical, Coaxial, IIS-LVDS, or AES) and connect the corresponding cable from your source device to the Centaurus.
4. **Bluetooth Antenna:** If using Bluetooth, screw the provided Bluetooth antenna onto the BT connector on the rear panel.

6.2 Power On

Press the power/selection button on the front panel to turn on the device. The display will illuminate, indicating the current input and settings.

7. OPERATING INSTRUCTIONS

7.1 Input Selection

Use the power/selection button to cycle through available input sources (USB, Optical, Coaxial, IIS-LVDS, AES, Bluetooth). The selected input will be displayed on the screen.

7.2 Volume Control

Use the Up and Down navigation buttons on the front panel to adjust the output volume. The volume level

will be shown on the display.

7.3 Listening Modes (NOS/OS/Best)

The Centaurus offers three distinct listening modes: NOS (Non-Oversampling), OS (Oversampling), and Best Mode. These modes can be selected via the menu to customize the sound signature to your preference.

7.4 10-Band PEQ Adjustment

The Centaurus features a 10-band Parametric Equalizer (PEQ) for precise sound customization. Access the PEQ settings through the menu to adjust frequency bands, gain, and Q-factor. Multiple PEQ profiles can be saved and recalled.

Ten bands high-precision PEQ adjustment

We develop a brand new PEQ adjustment* that supports ten customizable frequency bands. TOPPING's brand new PEQ algorithm and desktop software allow you to fine-tune the frequency, gain, and bandwidth of each PEQ band. The software supports the import of target curves and raw curves, and enables curve compensation using the target curve. It can also save multiple profiles for easy switching.



*The PEQ function supports up to PCM 192kHz/32bit. And all digital input interfaces except IIS support this function.

Figure 5: The 10-band PEQ adjustment interface, allowing detailed sound customization.



Figure 6: Software interface for precise PEQ adjustments, including target and filtered response curves.

7.5 Bluetooth Connectivity

To connect via Bluetooth, select the Bluetooth input. The device will enter pairing mode. Search for 'TOPPING Centaurus' on your source device and connect. The Centaurus supports high-resolution codecs like LDAC and aptX-Adaptive.



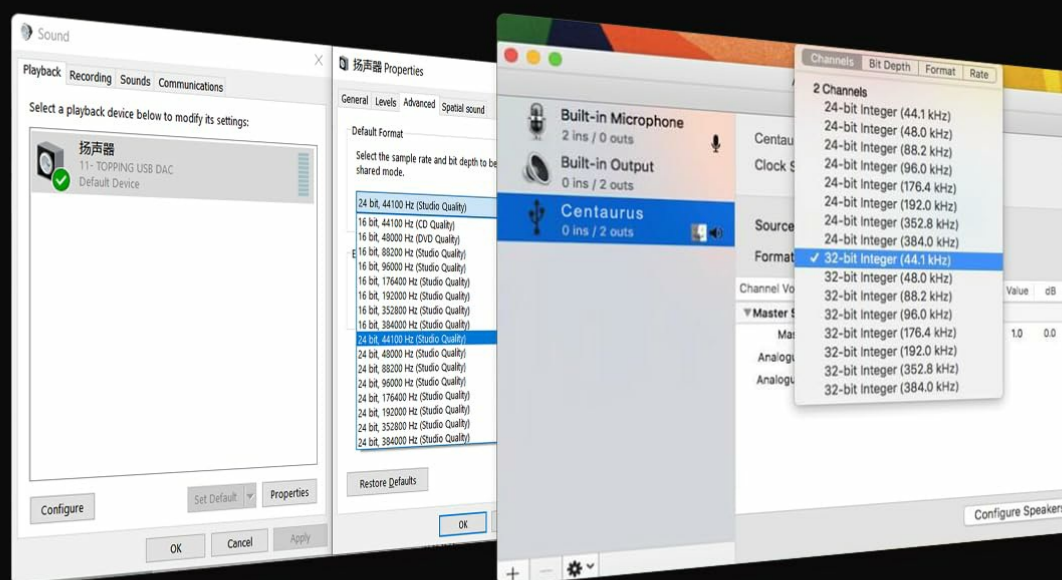
Figure 7: Demonstrating Bluetooth connectivity with a smartphone and the Centaurus DAC.

7.6 USB Audio Playback

Connect your PC or other compatible device to the USB input. The Centaurus is plug-and-play for most operating systems. For Windows ASIO applications, a dedicated driver may be required (refer to the TOPPING website for downloads).

Plug and play

TOPPING Centaurus has a wide range of compatibility and apply to various operating systems such as Windows 10, Windows 11, MAC, Linux and iOS/Android. The USB hardware is based on third generation XMOX XU316 and Thesycon driver*. It's stable and reliable. In addition, the USB input supports up to PCM768kHz/32bit and DSD512, which makes every detail vivid.



*Note: Only for Windows ASIO applications, you need to install the Thesycon driver and set it up. Driver is not required under other systems.

Figure 8: USB compatibility with various operating systems, showing the Centaurus recognized as an audio device.

7.7 IIS Input

The IIS-LVDS input is a customized digital audio transmission interface, supporting ultra-high specifications up to PCM768kHz/32bit and DSD512 native. Ensure your source device's IIS interface matches the Centaurus's definition.

IIS - Ultra-high specification signal input interface

IIS interface is not HDMI, but a customized digital audio transmission interface, which supports up to PCM768kHz/32bit&DSD512native.DAC IIS needs to match the IIS interface definition of the digital interface.

TOPPING Centaurus supports many IIS interfaces*. It is also compatible with most digital interfaces.



*TOPPING Centaurus supports the following IIS modes: DSD FLAG 15, DSD FLAG 14, IIS DSDR LRCLK, IIS DSDR DATA, IIS PHASE STD, IIS PHASE REV. See bottom label for pin definitions.

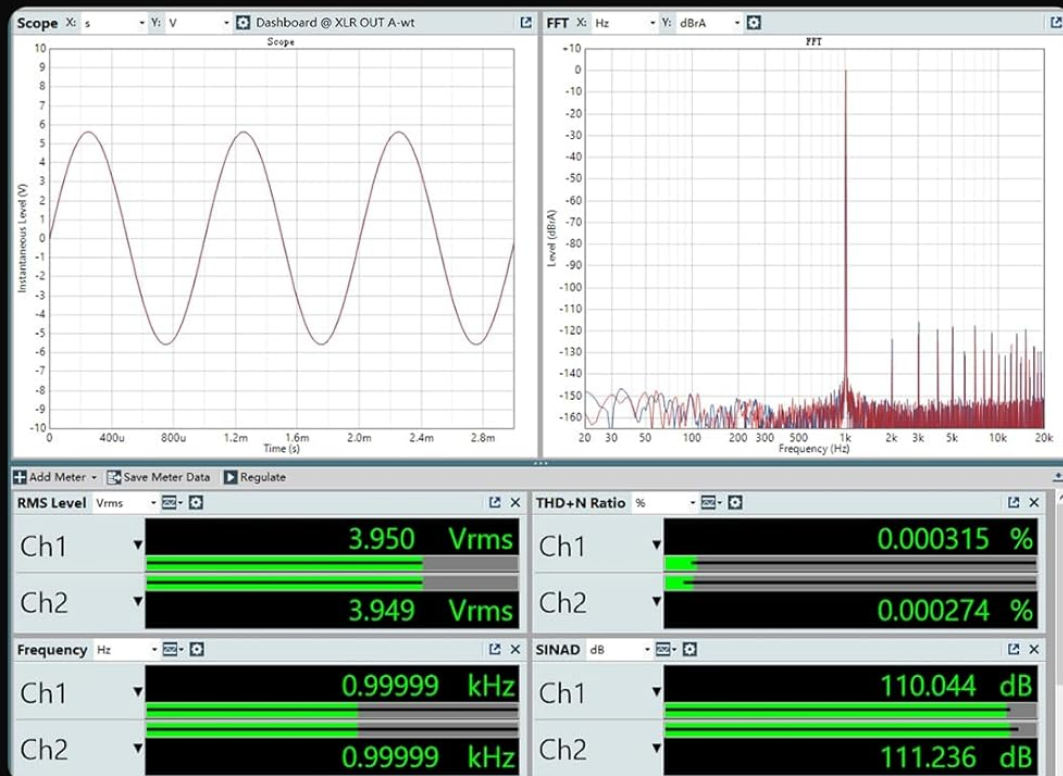
Figure 9: Detailed view of the IIS-LVDS input, designed for high-specification digital audio transmission.

7.8 Realistic Reproduction

The Centaurus DAC is designed for exceptional music reproduction, faithfully rendering every note and nuance with extremely low distortion (THD+N < 0.0005%).

Realistic reproduction

TOPPING Centaurus has exceptional music reproduction capabilities among R2R devices, with THD+N < 0.0005%. It faithfully reproduces every note captured in the original recording, rendering even the finest details of the music. Even if you are not at the live, you can experience the vivid sensation of being right there, with every nuance presented delicately and naturally.



SNR
130dB @1kHz

DNR
130dB @1kHz

Note: Above spec was measured under A-weighted.

Figure 10: Performance graphs illustrating the high Signal-to-Noise Ratio (SNR) and Dynamic Noise Ratio (DNR) of the Centaurus.

Video 1: Official product video showcasing the TOPPING Centaurus Fully Balanced 8-Channel R2R DAC, highlighting its design and features.

8. MAINTENANCE

- **Cleaning:** Use a soft, dry, lint-free cloth to wipe the exterior of the device. Avoid abrasive materials or chemical cleaners.
- **Dust:** Regularly remove dust from ventilation openings using a soft brush or compressed air.
- **Storage:** If storing the device for an extended period, disconnect it from power and store it in a cool, dry place.

9. TROUBLESHOOTING

Problem	Possible Cause	Solution
No power	Power cable not connected; Power outlet faulty	Ensure power cable is securely connected; Try a different power outlet.
No sound output	Incorrect input selected; Volume too low; Output cables loose/incorrectly connected; Amplifier/speakers off or faulty	Select correct input; Increase volume; Check all audio cable connections; Ensure amplifier/speakers are powered on and functioning.
Bluetooth connection issues	Device not in pairing mode; Out of range; Interference	Ensure Centaurus is in Bluetooth input and pairing mode; Move source device closer; Reduce interference from other wireless devices.
Distorted audio	Input signal too high; Faulty cables; PEQ settings misconfigured	Reduce source volume; Replace audio cables; Reset PEQ settings or adjust them carefully.

10. SPECIFICATIONS

Feature	Detail
Product Dimensions	8.7 x 6.3 x 1.8 inches
Weight	5.2 Pounds
Manufacturer	TOPPING
Digital Inputs	USB, Optical, Coaxial, IIS-LVDS, AES, Bluetooth
Analog Outputs	Balanced XLR, Unbalanced RCA
PCM Support	Up to 768kHz/32bit

Feature	Detail
DSD Support	DSD512 Native
Jitter Rejection	As low as -150dB (CPLD processing)
PEQ	10-Band Parametric Equalizer
Bluetooth Codecs	LDAC, aptX-Adaptive, etc.

11. WARRANTY AND SUPPORT

For warranty information, technical support, and driver downloads, please visit the official TOPPING website or contact your authorized dealer. Keep your purchase receipt as proof of purchase for warranty claims.

Online Resources: www.topping.audio