HOLO AUDIO RED

AUDIO NETWORK BRIDGE / DIGITAL TO DIGITAL CONVERTER

Disclaimer

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INTRODUCTION

This document describes the installation and configuration of the RED Digital to Digital Converter (DDC) / Audio Network Bridge.

PRECAUTIONS

Please turn off the power before plugging and unplugging the TF card. Hot plugging with power on may cause damage to the TF card and the chip!

QUICK START

1. Unpack the Red
2. Unpack the MicroSD card (Prepared with RedOS software)
3. Before connecting the power cable Insert the SD Card into the Red (Card reader see picture)
4. Connect the IEC power cable

Use Red as a **Digital Converter** (USB to I2S or S/PDIF) follow "Set up the Red in DDC mode"
Use Red as **Streaming Endpoint** follow: "Set up the Red as a streaming bridge"

Set up the Red in DDC mode:

1. Power off the Red
2. Unplug LAN cable from the RED
3. Plug the USB cable into the Red and Roon Core
4. Plug the HDMI cable into the Red and your (Holo) DAC.
5. Power On the Red

Following steps are for Roon setup only

6. The Red should be available in Roon Core in Audio Setup
7. Enable the Red on your Roon Core Audio Setup
8. Play music from Roon to the Red

Set up the Red as a streaming bridge

Note: Please make sure you do not change settings in RedOS if you don't know what you're doing. USB redirector is configured correctly and no need to make changes to its config normally.

When LAN cable is connected (and USB-IN not connected), the RED will act as a network bridge.

1. Power off the Red
2. Unplug the USB cable from the RED
3. Connect the LAN cable into the Red (and make sure the SD Card is properly inserted)
4. Plug the HDMI cable into the Red and your Holo DAC.
5. Power On the Red

Following steps are for Roon setup only

6. The Red should be detected in Roon Core in Audio Setup
7. Enable the Red on your Roon Core Audio Setup
8. Play music from Roon to the Red

Note: If you can't find the Red it might not be available on your LAN. Check the IP address of the Red on on your network, open a web browser on your computer connected to the same (local) network and enter the IP address. It should open the RedOS page.

Find the IP address of your Red

Network scanner tools loop through every possible IP address on your network and try to detect any available hosts, like your Red.
Remember, these tools will only work if your computer or phone is on the same network (i.e., connected to the same router) as your Red

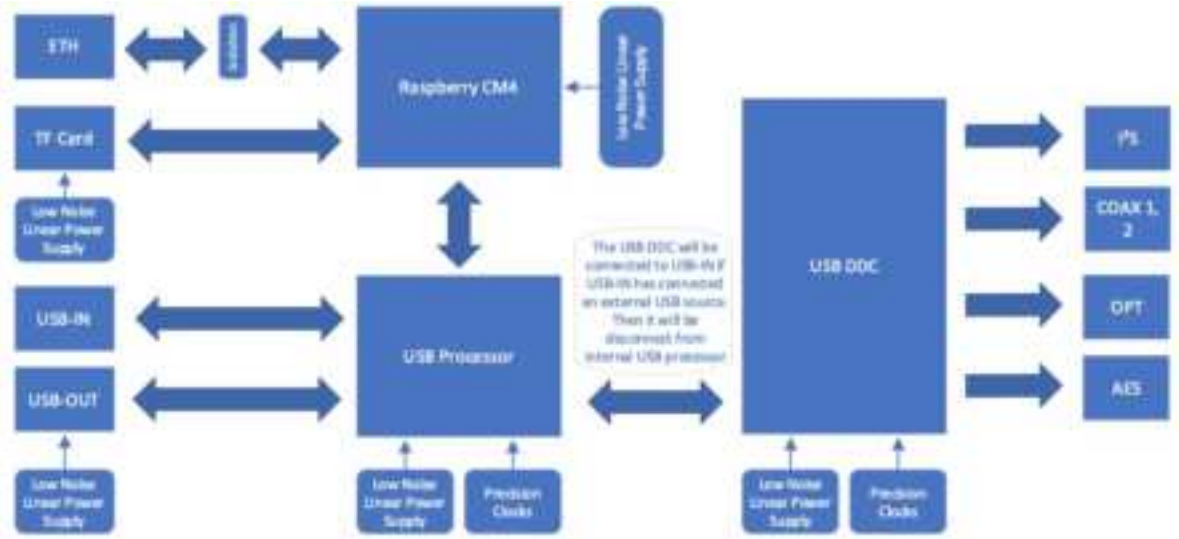
Install one of the tools below. Run the tool from a computer on the same network as your Red.
This method has the advantage of finding every device on your network. Look for the result with a hostname that includes “Red”.

Download from the internet "IP Scanner" or "AngryIP" Both are free and open source programs.
The tool is available for windows, Mac OS, and Linux.

HARDWARE DESCRIPTION

RED is composed of multiple sets of ultra-low noise linear regulated power supplies, high-quality clocks, USB signal processors, USB DDC, Raspberry Pi CM4, etc.

The internal block diagram is as shown below



DDC / NETWORK BRIDGE

DDC MODE

When USB-IN is connected, the USB DDC will be connected to the USB-IN and disconnected from the USB processor; I2S, COAX-1, COAX-2, OPT, AES will simultaneously output the audio signal from the USB-IN.

NETWORK BRDIGE MODE

When LAN cable is connected (and USB-IN not connected), the RED will act as a network bridge.

Supported audio services are: NAA HQPlayer, Roon Bridge, UPnP, AirPlay, Squeezelite, Scream*, Spotify Connect and Tidal Connect

All services can be activated simultaneously*

Audio services can be enabled/disabled in the web-browser interface. The web-browser interface can be accessed via RED's IP address.

** Scream (Virtual network sound card for Microsoft Windows) can only be activated in standalone mode*

SPECIFICATIONS

DIGITAL OUTPUTS

COAX-1, COAX-2, OPT, AES-EBU	PCM 44.1-192KHz (24 bit)
	DSD 64X (DoP)
I2S (HDMI)	PCM 44.1-768KHz (24 bit)
	DSD 64-512X (Native), 641256 (DoP)

CHASSIS SPECIFICATIONS

Size	212x143x42mm(WxLxH)
net weight	2.4kg

POWER SPECIFICATIONS

Power input*	220~230V 50/60Hz - T1A (5x20mm)
*Configurable, see the bottom label of the machine for details	100~115V 50/60Hz -T2A (5x20mm)
Power consumption	15W

ACCESSORY

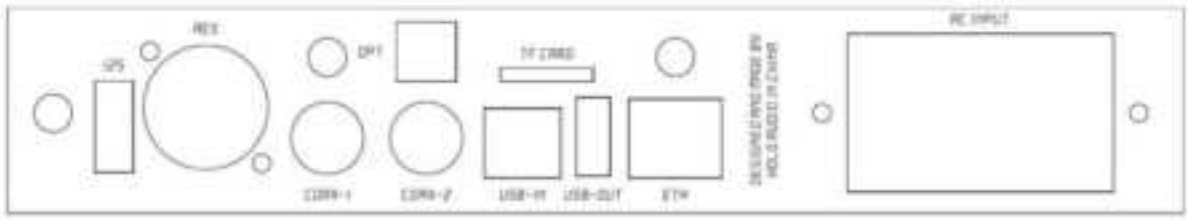
TF Card	Micro SD Card x1* *Pre-installed with custom bridge system

FUNCTIONS & CONFIGURATION

FRONT PANEL

LED status indicator: the power indicator is green and steady, and the load indicator is red and flashing (it is normal to flash or turn off according to the load used)

REAR PANEL



From left to right (top to bottom) interfaces are: optical fiber, system TF card holder*, I2S*, AES, coaxial 1*, coaxial 2*, USB input, USB output, network port, AC power input

*1 Do not hot swap the TF card with power on! Please turn off the power before plugging and unplugging the TF card

*2 I2S adopts LVDS differential transmission mode, the line sequence can be configured, please refer to I2S output configuration for details. The form of the physical interface is the same as that of HDMI, HDMI cable can be used, but note that the electrical signal it transmits is I2S, which is not a conventional HDMI audio and video signal

*3 Coaxial 1 and coaxial 2 cannot be short-circuited

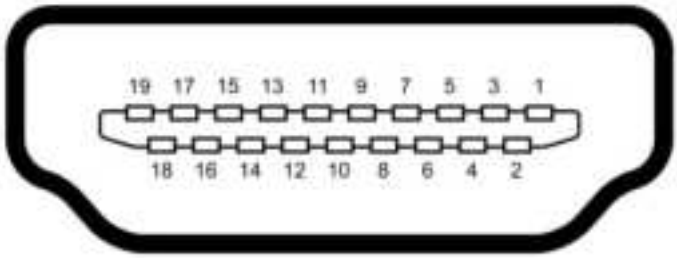
I2S OUTPUT CONFIGURATION

Configure the I2S output line sequence through the DIP switch [1,2] at the bottom of the chassis.

Switch (1,2)	I2S Configuration
00	Holo Audio
01	Alt 2
10	Alt 1
11	Alt 3

DIP switch [3] to set I2S_DSD_ON enable;
DIP switch [4] sets the I2S_MCLK frequency, ON is 45.1584M/49.152M, OFF is 22.5792M/24.576M.

I2S LAYOUT



Pin	HOLO		ALT1		ALT2		ALT3	
	PCM	DSD	PCM	DSD	PCM	DSD	PCM	DSD
1	I2S_DATA-	DSD_L-	I2S_DATA+	DSD_L+	I2S_DATA-	DSD_R-	I2S_DATA+	DSD_R+
2	GND	GND	GND	GND	GND	GND	GND	GND
3	I2S_DATA+	DSD_L+	I2S_DATA-	DSD_L-	I2S_DATA+	DSD_R+	I2S_DATA-	DSD_R-
4	I2S_BCLK+	DSD_BCLK+	I2S_BCLK+	DSD_BCLK+	I2S_BCLK+	DSD_BCLK+	I2S_BCLK+	DSD_BCLK+
5	GND	GND	GND	GND	GND	GND	GND	GND
6	I2S_BCLK-	DSD_BCLK-	I2S_BCLK-	DSD_BCLK-	I2S_BCLK-	DSD_BCLK-	I2S_BCLK-	DSD_BCLK-
7	I2S_LRCK-	DSD_R-	I2S_LRCK+	DSD_R+	I2S_LRCK-	DSD_L-	I2S_LRCK+	DSD_L+
8	GND	GND	GND	GND	GND	GND	GND	GND
9	I2S_LRCK+	DSD_R+	I2S_LRCK-	DSD_R-	I2S_LRCK+	DSD_L+	I2S_LRCK-	DSD_L-
10	I2S_MCLK+	DSD_MCLK+	I2S_MCLK+	DSD_MCLK+	I2S_MCLK+	DSD_MCLK+	I2S_MCLK+	DSD_MCLK+
11	GND	GND	GND	GND	GND	GND	GND	GND
12	I2S_MCLK-	DSD_MCLK-	I2S_MCLK-	DSD_MCLK-	I2S_MCLK-	DSD_MCLK-	I2S_MCLK-	DSD_MCLK-
13	NC	NC	NC	NC	NC	NC	NC	NC
14	NC	NC	NC	NC	NC	NC	NC	NC
15	NC	NC	NC	NC	NC	NC	NC	NC
16	RSV	RSV	NC	NC	NC	NC	NC	NC
17	GND	GND	GND	GND	GND	GND	GND	GND
18	NC	NC	NC	NC	NC	NC	NC	NC
19	GND	GND	GND	GND	GND	GND	GND	GND