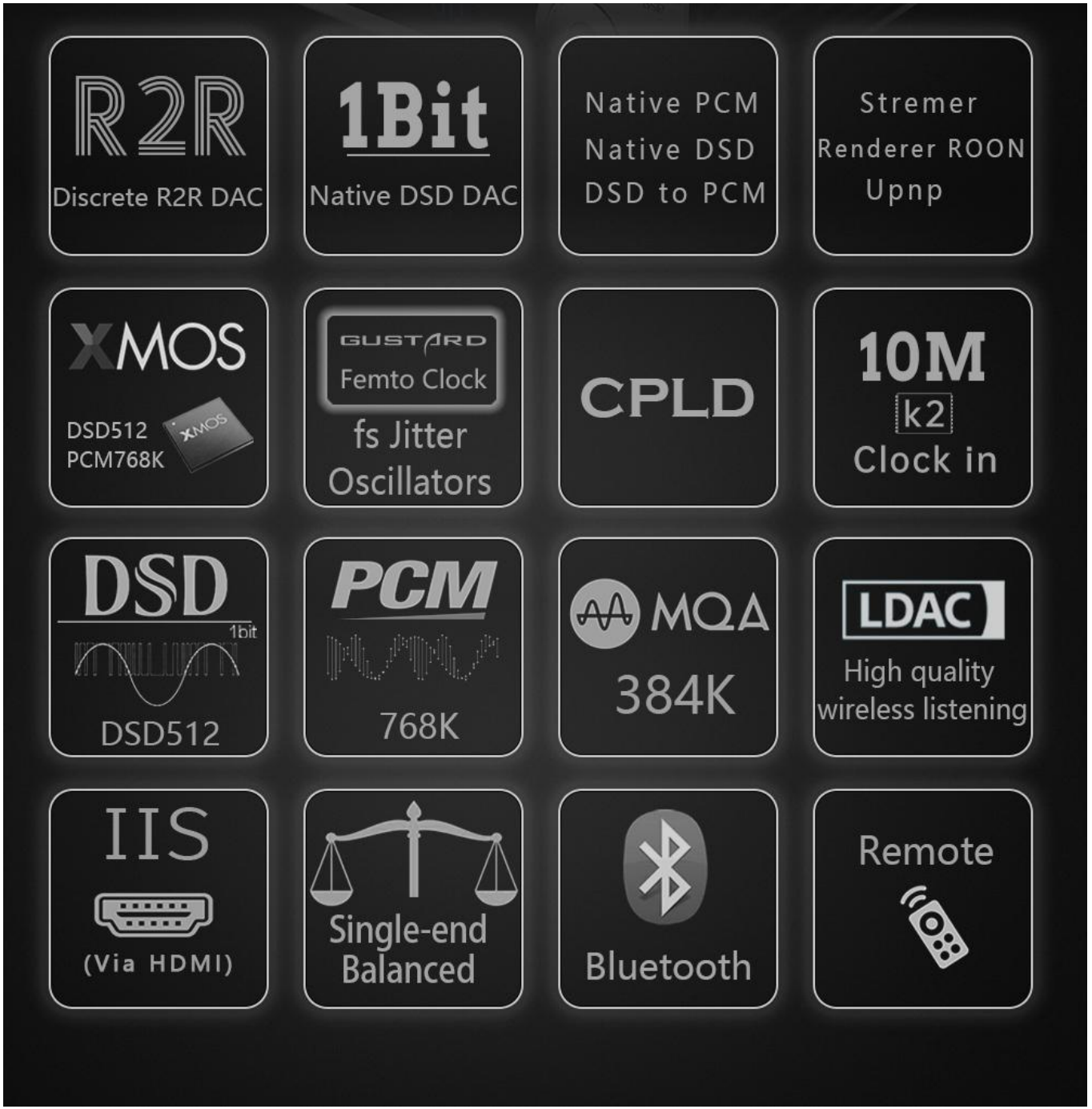
GUSTARD

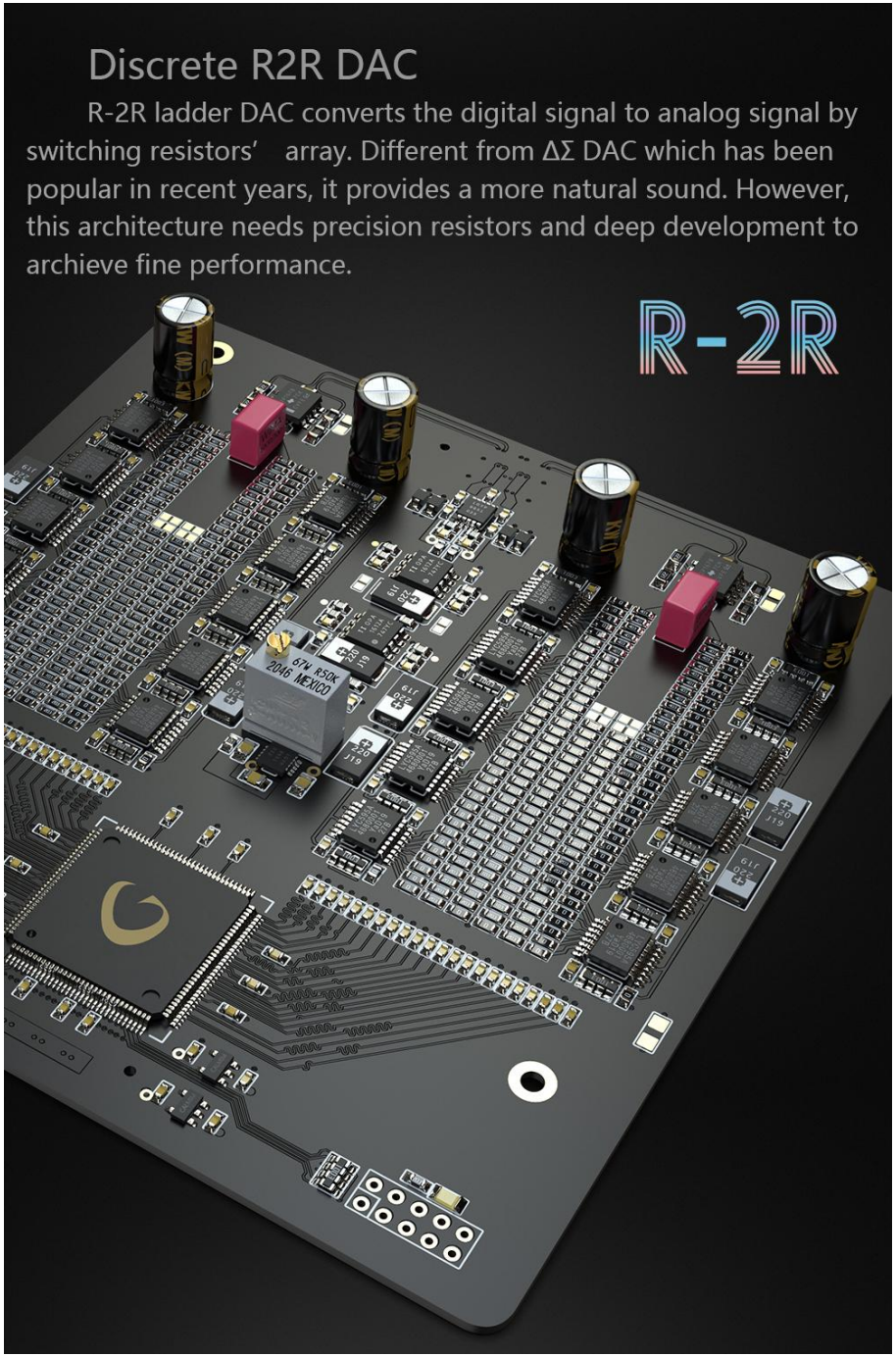
DAC-R26

Discrete R2R DAC with Streamer/Renderer


R2R
Discrete R2R DAC
1Bit
Native DSD DAC
Native PCM
Native DSD
DSD to PCM
Stremer
Renderer ROON
Upnp
XMOS
DSD512
PCM768K
GUSTARD
Femto Clock
fs Jitter
Oscillators
CPLD
10M
k2
Clock in
DSD
1bit
DSD512
PCM
768K
MQA
384K
LDAC
High quality
wireless listening
IIS
(Via HDMI)
Single-end
Balanced
Bluetooth
Remote

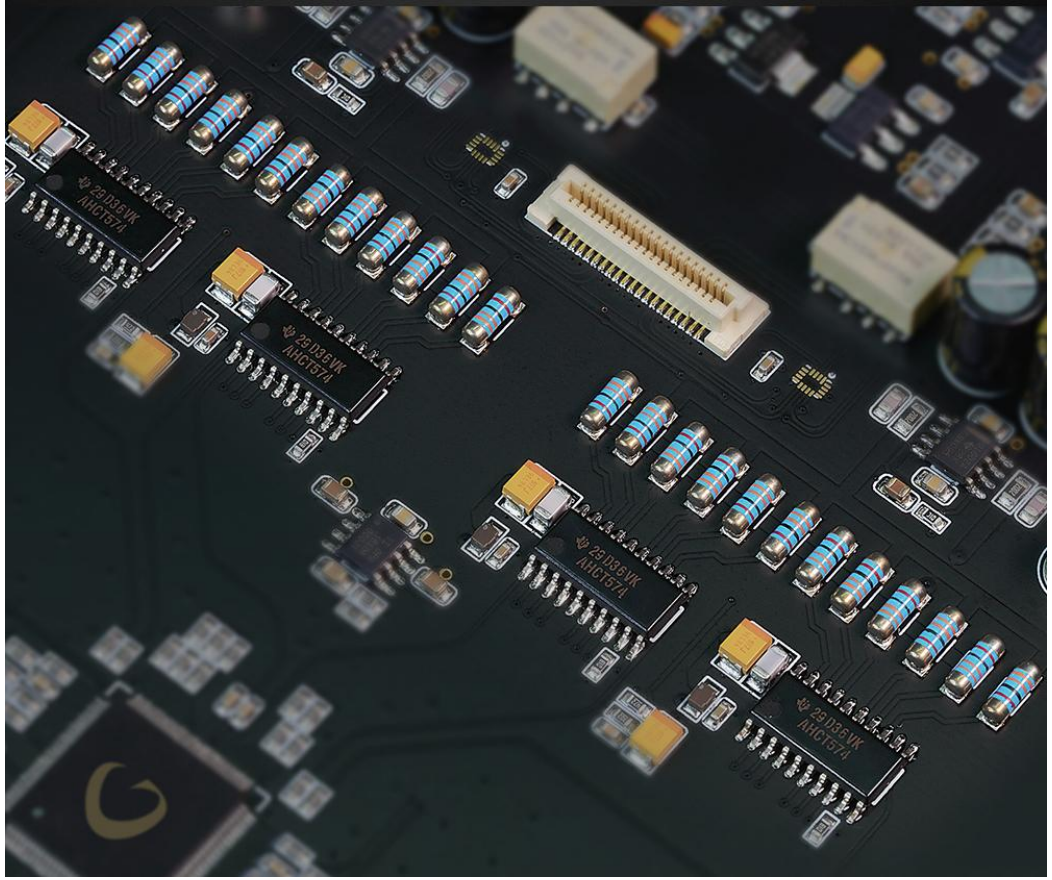
Discrete R2R DAC

R-2R ladder DAC converts the digital signal to analog signal by switching resistors' array. Different from ΔΣ DAC which has been popular in recent years, it provides a more natural sound. However, this architecture needs precision resistors and deep development to archieve fine performance.



1Bit DAC

Native 1Bit DAC, supports DSD 512 (via USB) and DSD 1024 (via IIS). The DSD stream is decoded by the independent 1 bit DAC without DSD to PCM converting.



A BREAKTHROUGH BORNE FROM SCIENCE

Our hearing is incredibly adept at determining where a sound is coming from. As sounds reach us, microseconds apart, our brains build a 3D sonic ‘picture’ It’s this same capability that allows us to position the individual instruments by their sound at a live performance. It’s also why live music feels so powerful and emotive, and why recorded music often feels flat in comparison. MQA is the first technology to capture this crucial timing information – to transport you to the original performance.

HOW MQA WORKS

1.Cleaning the recording

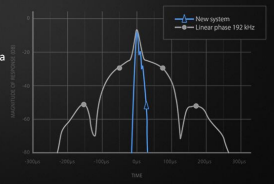
When an analogue sound is converted into a digital signal, temporal ‘blurring’ occurs, smearing transients through time. As a result, our ears can’t tell where individual sounds are coming from, and recorded music sounds flat compared to ‘live’. MQA is able to clean up this distortion to create a truly accurate 3D soundstage unlike anything you’ve ever heard.

Before MQA

Common digital audio filters impair time resolution, causing ‘ringing’ both before and after a transient.

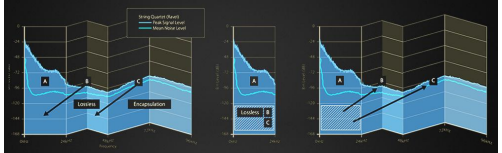
With MQA

MQA reduces this pre- and post-ringing by over 10 times compared to a 24/192 recording.



2 Packaging the sound

Once the recording has been de-blurred, MQA uses a process we call ‘Music Origami’ that cleverly makes this large, high-resolution file manageable and compatible with any service or playback device. On an ordinary player, MQA will play at better than CD quality. With an MQA decoder the full, rich studio sound is unfolded.



Music Origami

1. Very high frequency content (C) is ‘encapsulated’ and hidden away below the noise floor of B.
2. The high frequency information (B) is losslessly compressed and hidden beneath the noise floor of A.
3. Section A behaves like a normal CD-quality file and will play on any device. The stored additional detail (B and C) is ignored.
4. On an MQA-enabled device, the full recording is unfolded to deliver the original performance.

Clock synthesization

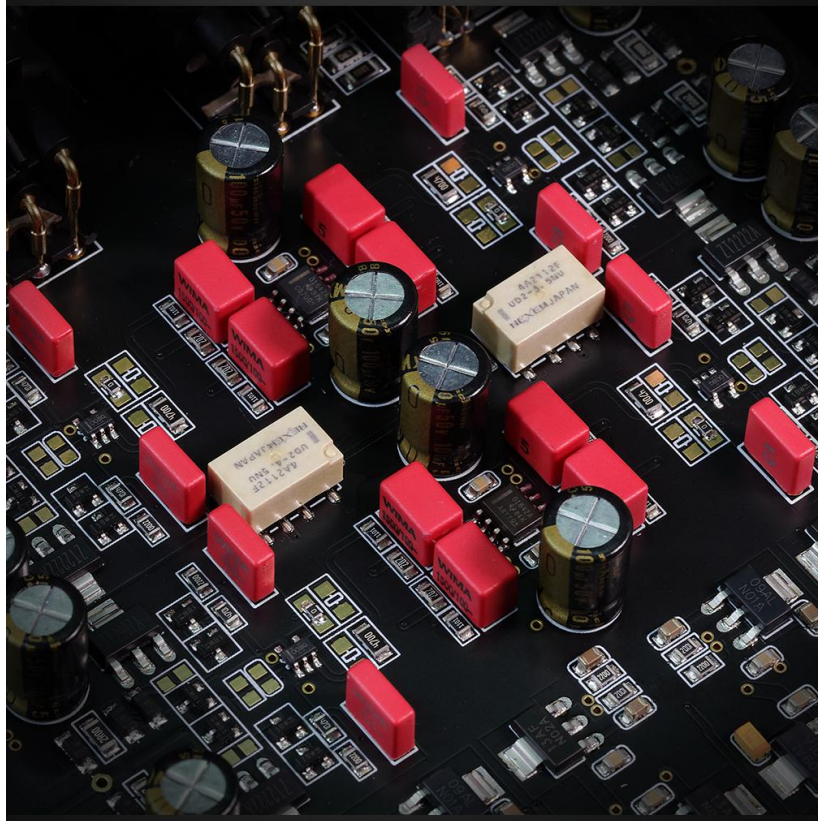
Replace the input signal’s clock with precision oscillators (local or external). Interference from the input source’s clock is avoided.

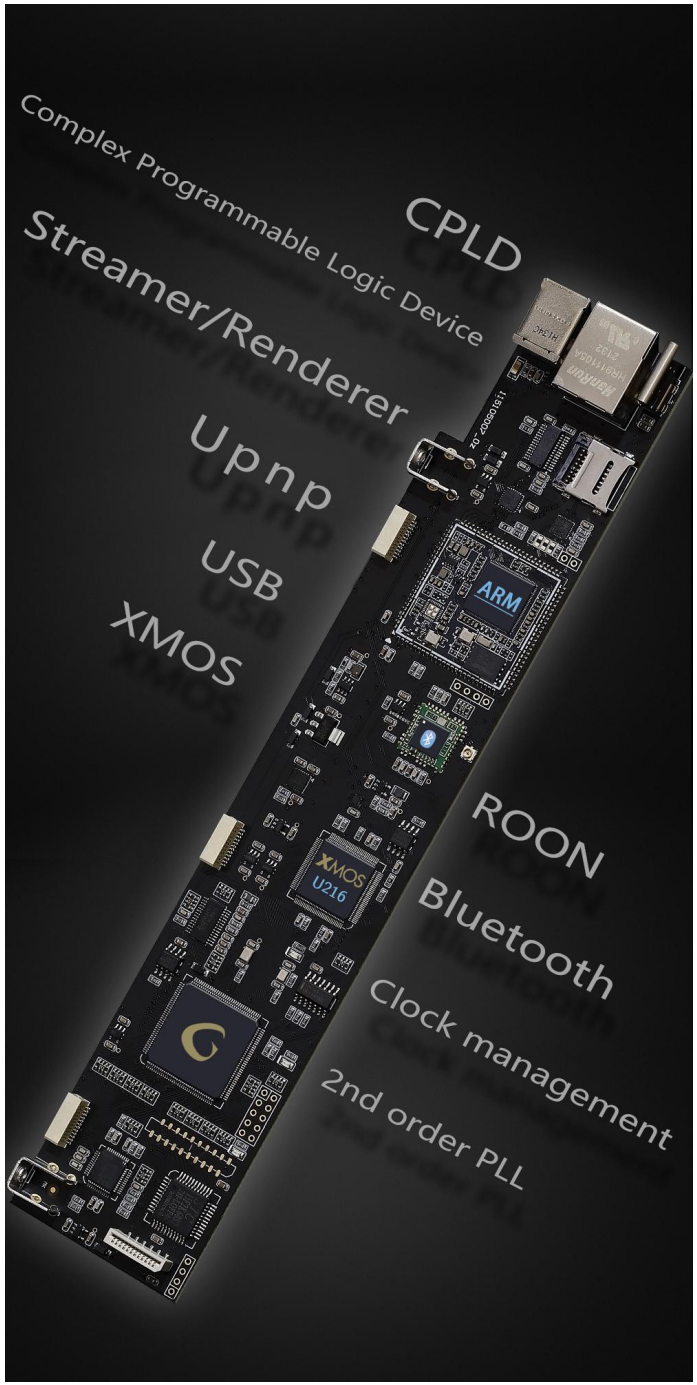
Function off: IIS, AES, COAX, OPT, BT; PCM NOS, 1BitFunction on: USB & LAN

K2, ultra-low noise clock synthesizer: provides precision clock from local oscillators or external clock in.

LPF

LPF is specifically designed for the D/A converter using discrete devices. Final parameters of the circuit are adjusted with subjective listening. Different from ICs, discrete circuits provide the possibilities to control every detail in sound and performance. But the parasitic effects introduced huge challenges to development experience and device’ s quality.

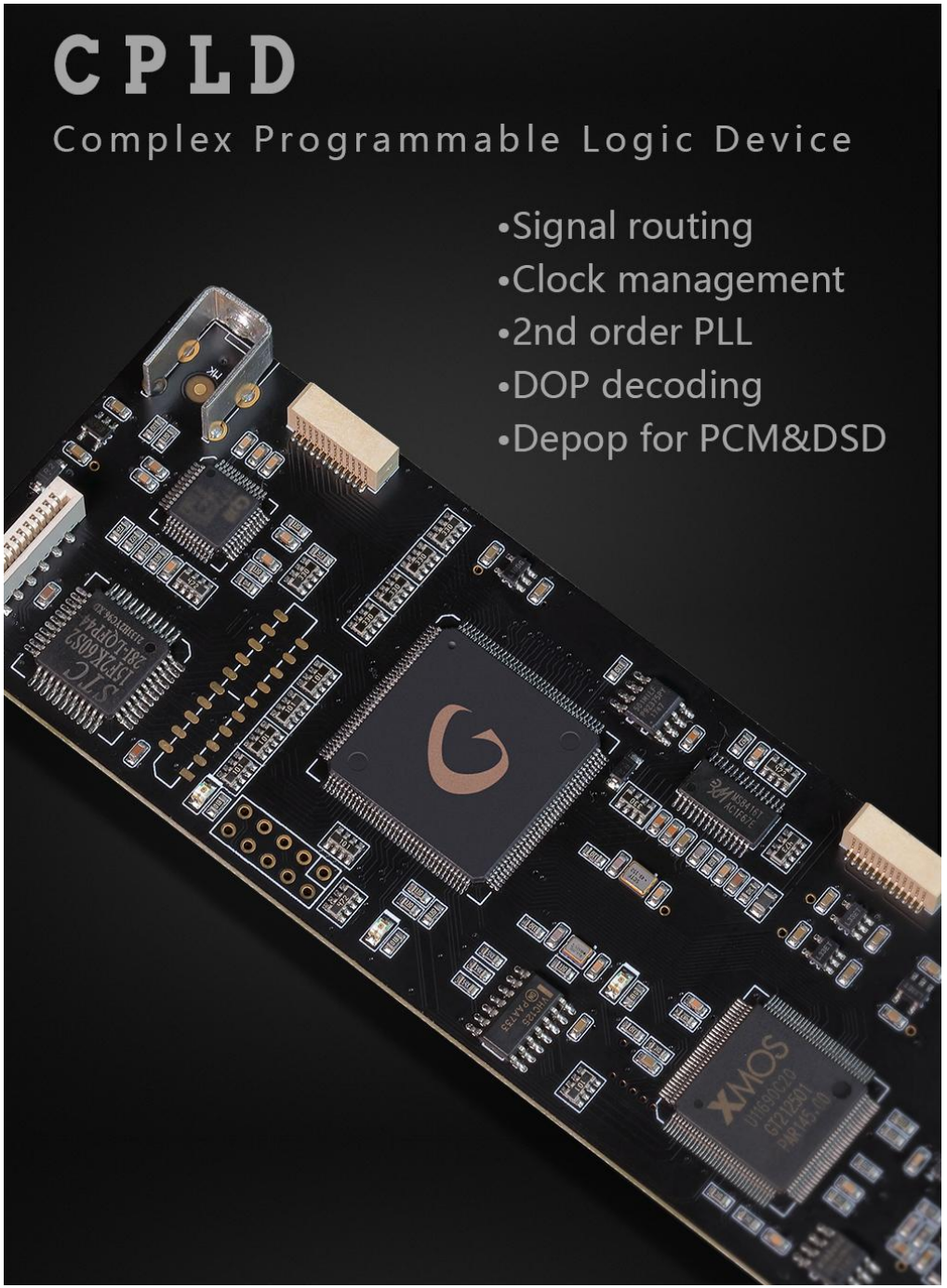


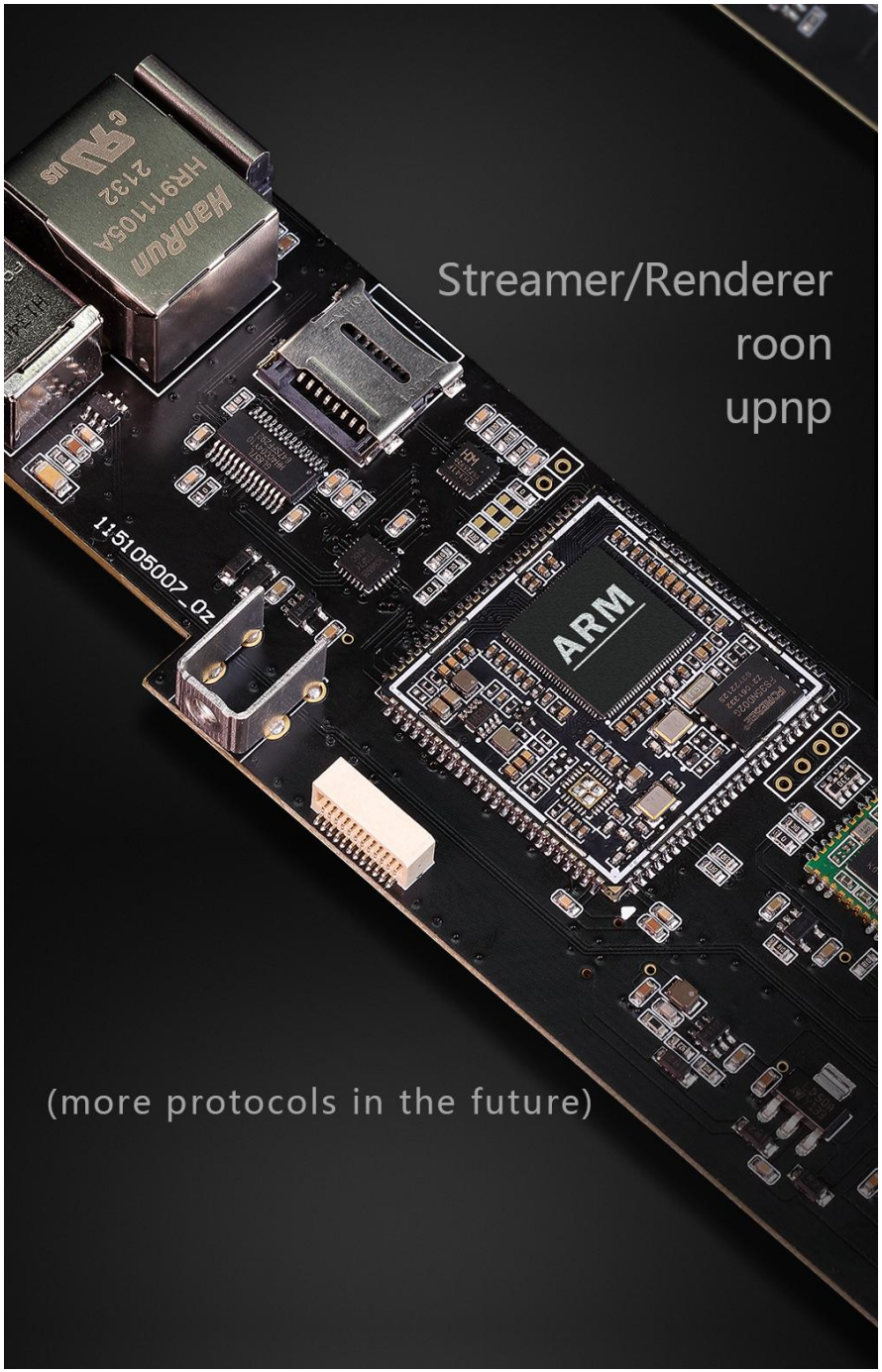

Complex Programmable Logic Device
CPLD
Streamer/Renderer
Upnp
USB
XMOS
ROON
Bluetooth
Clock management
2nd order PLL
ARM
XMOS
U216

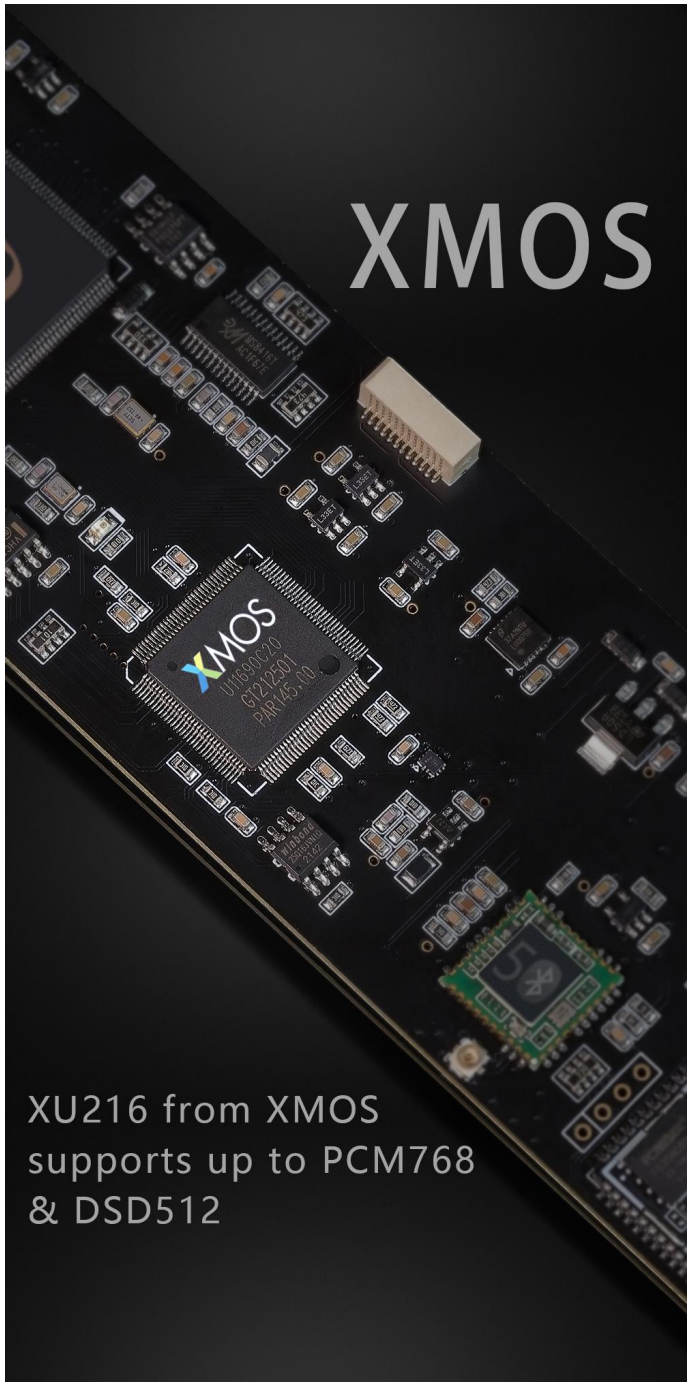
CPLD

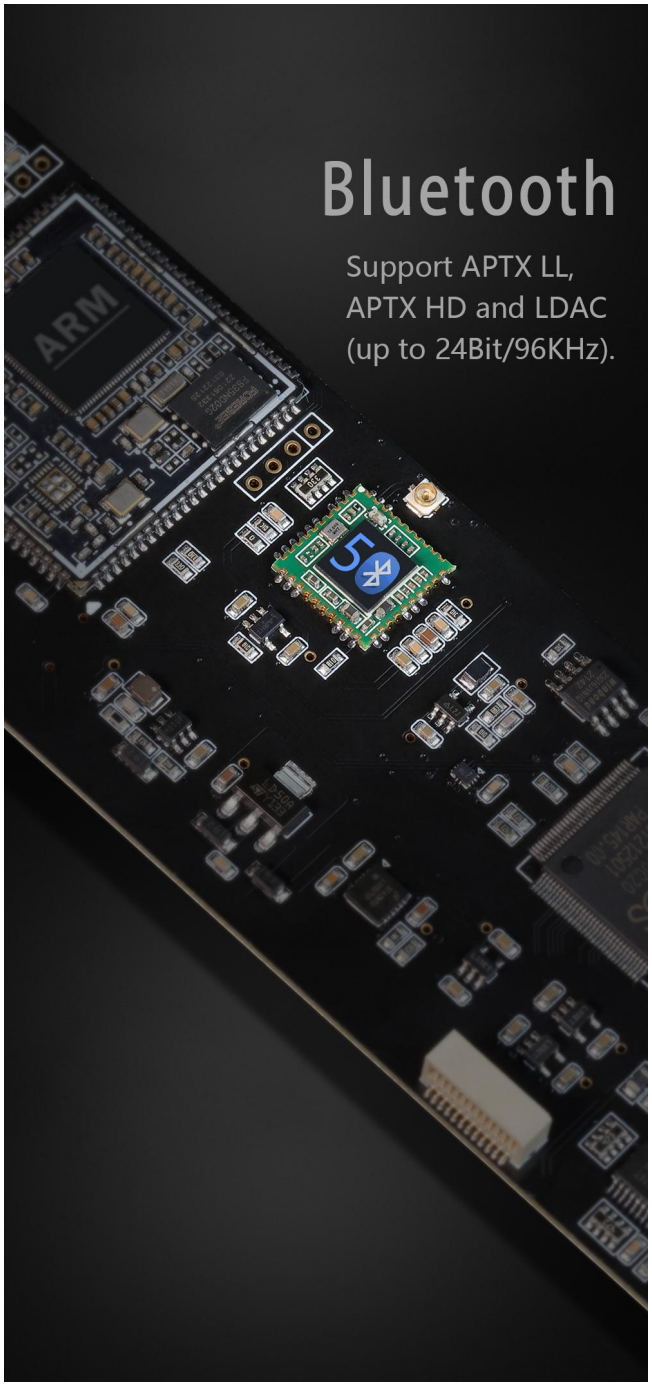
Complex Programmable Logic Device

- Signal routing
- Clock management
- 2nd order PLL
- DOP decoding
- Depop for PCM&DSD

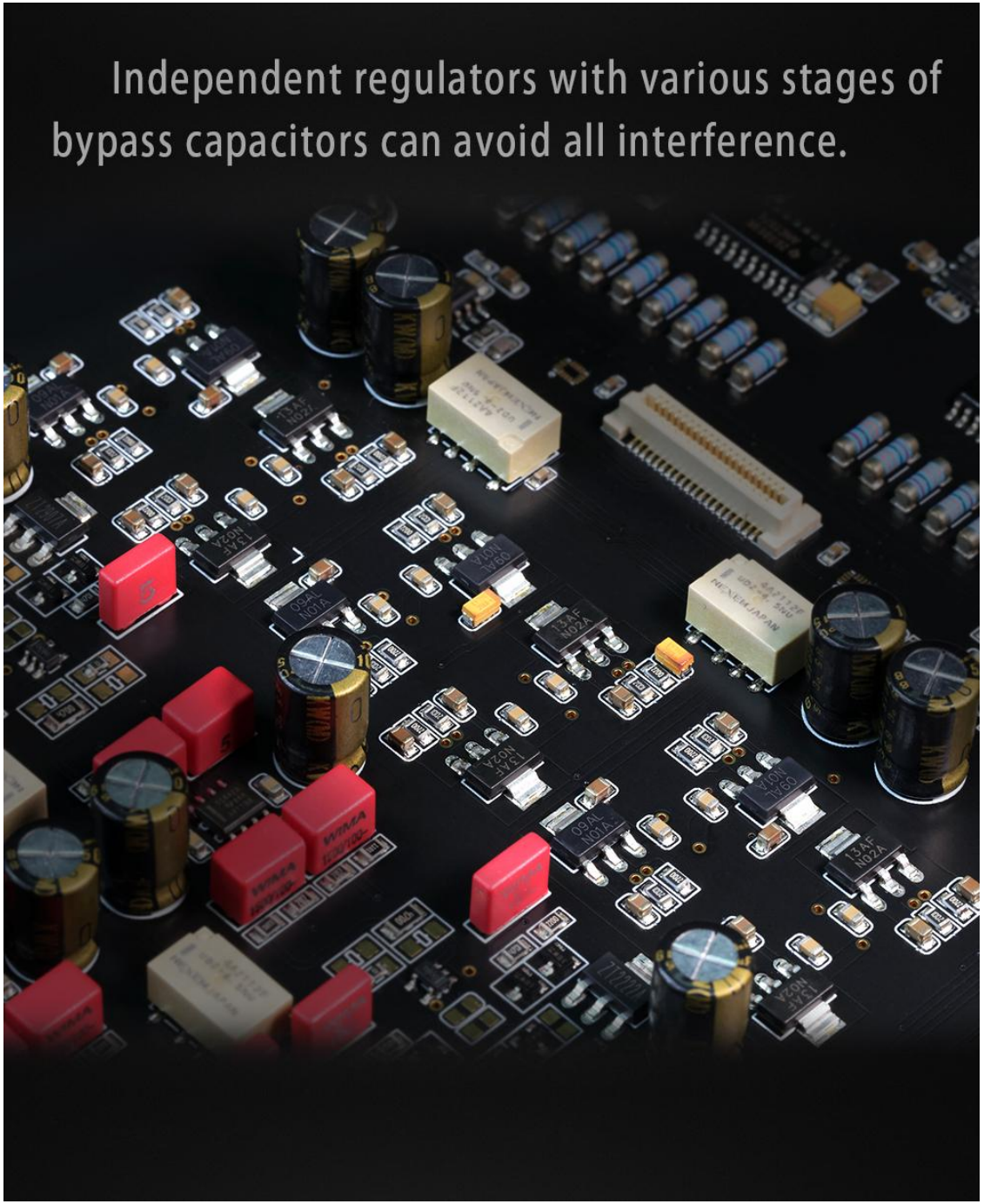



Streamer/Renderer
roon
upnp
(more protocols in the future)
ARM
115105007_0z
HANRUN
HR911105A
2132

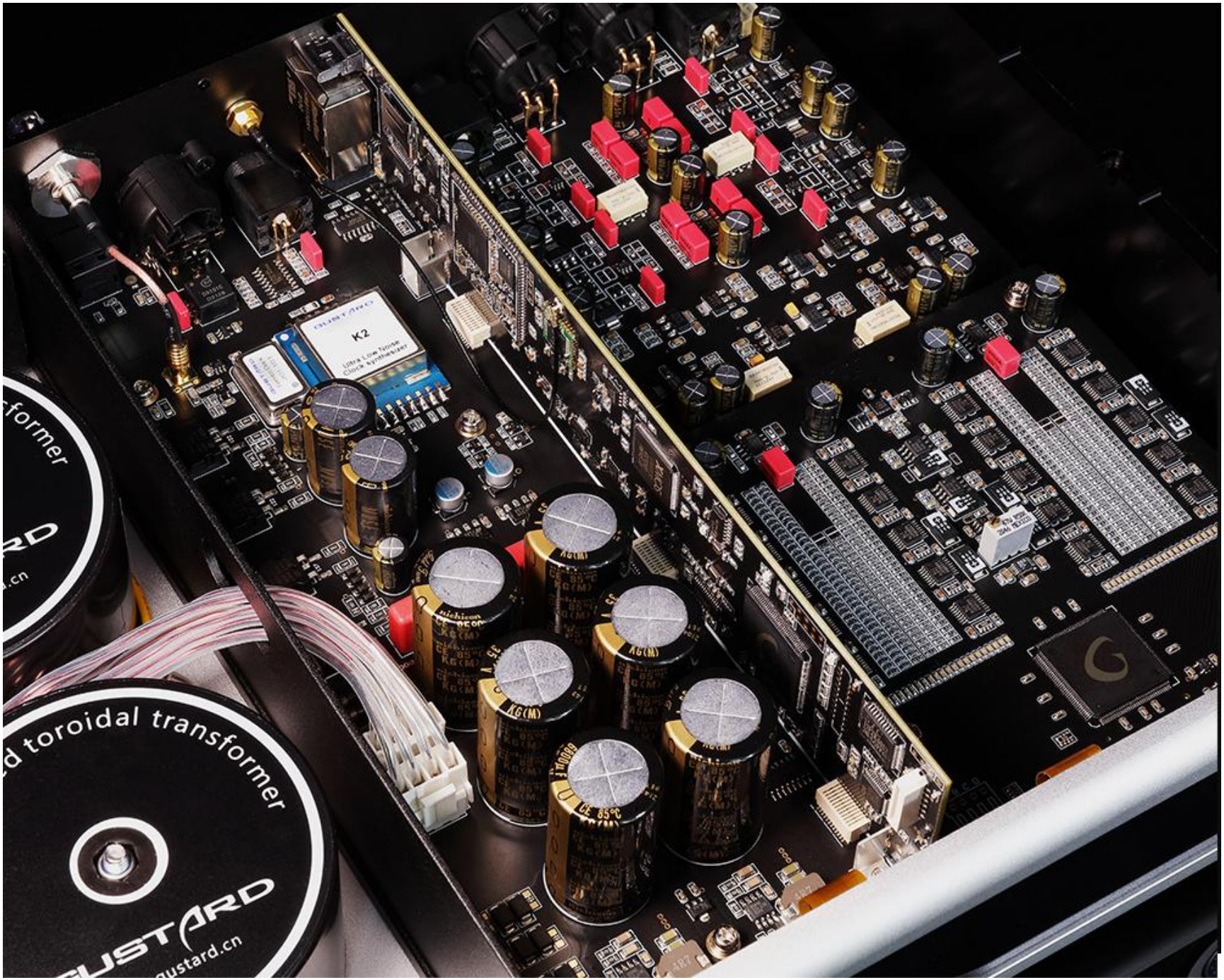

XMOS
XMOS
XU216 from XMOS
supports up to PCM768
& DSD512

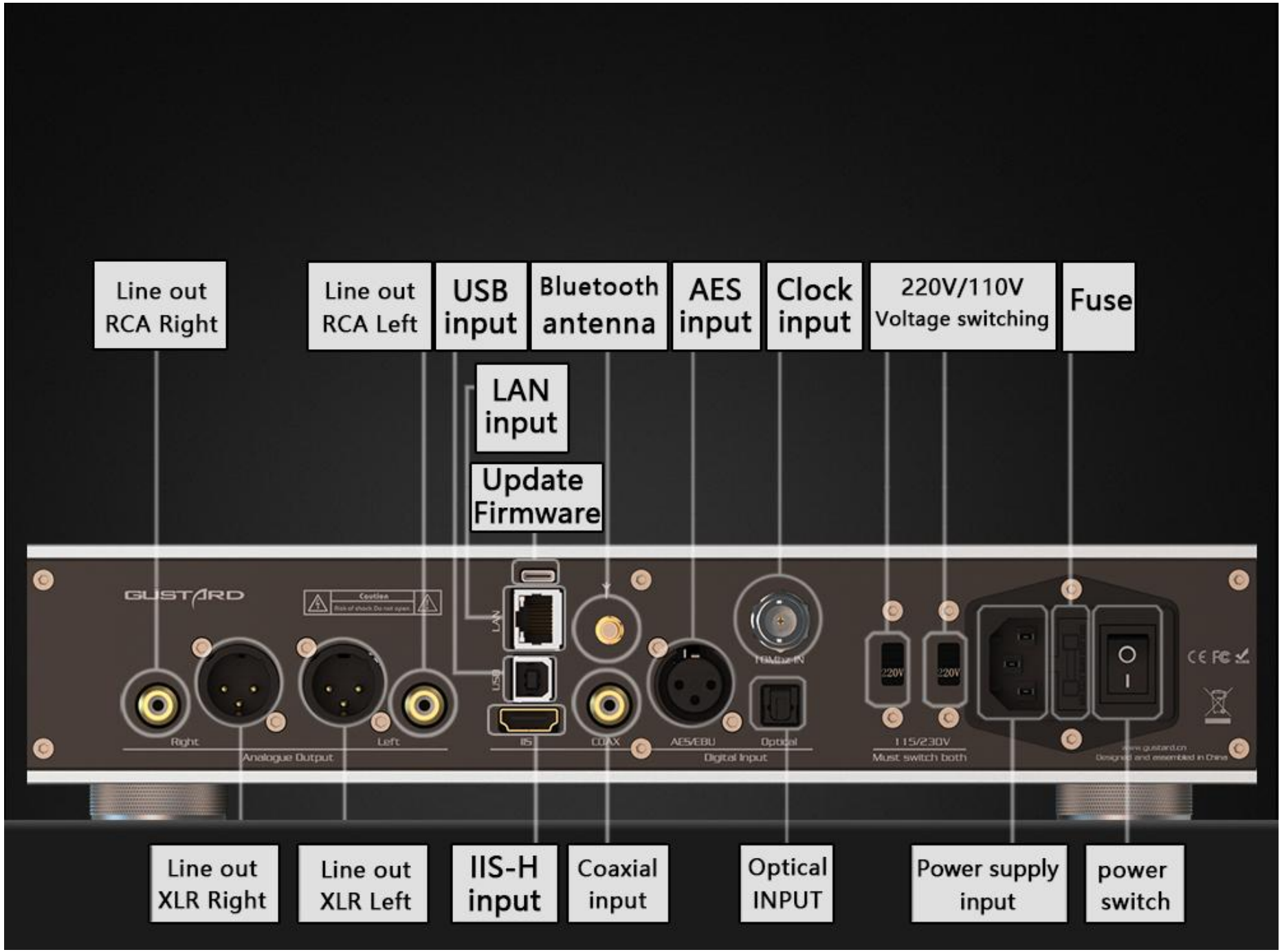

Bluetooth
Support APTX LL,
APTX HD and LDAC
(up to 24Bit/96KHz).
ARM

Independent regulators with various stages of bypass capacitors can avoid all interference.

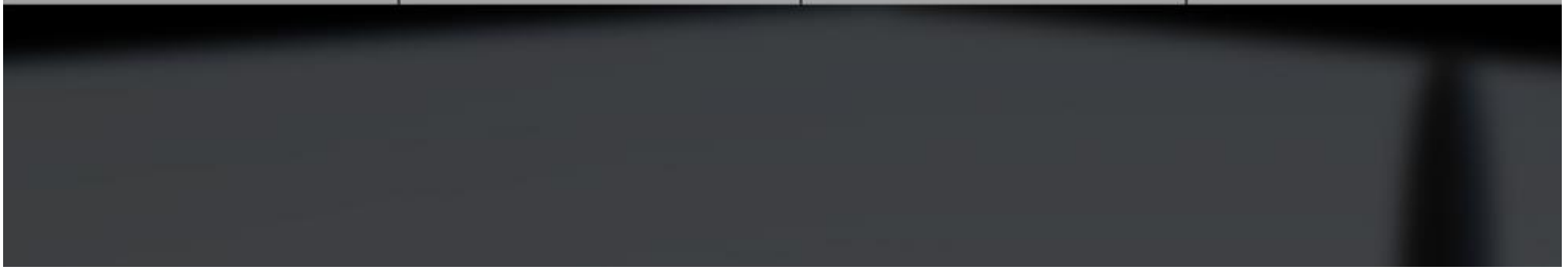

Independent regulators with various stages of
bypass capacitors can avoid all interference.


Two specific toroidal transformers for audio application, isolated the digital & analog power supply.
Audio dedicated toroidal transformer
GUSTARD
www.gustard.cn
P/N: SY2008-9556A1 20/08 (80VA)
PRI:0-115Vx2/50Hz
SCR:YELLOW-GREEN
SEC:0-15V@1.67A
0-15V@1.67A
BLK/RED

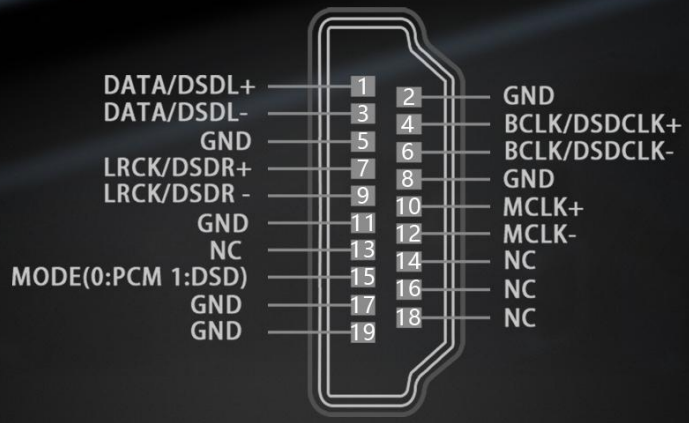

K2
toroidal transformer


Line out
RCA Right
Line out
RCA Left
USB
input
Bluetooth
antenna
AES
input
Clock
input
220V/110V
Voltage switching
Fuse
LAN
input
Update
Firmware
GUSTARD
Caution
Right
Left
Analogue Output
LAN
USB
IIS
COAX
AES/EBU
Optical
Digital Input
220V
220V
115/230V
Must switch both
Line out
XLR Right
Line out
XLR Left
IIS-H
input
Coaxial
input
Optical
INPUT
Power supply
input
power
switch

type / Interface	PCM	DSD (Native)	DSD (DoP)
USB.IIS.LAN	44.1kHz-768kHz 16bit-32bit	DSD64-DSD512	DSD64-DSD256
COAX/AES/OPT	44.1kHz-192kHz 16bit-24bit	Not support it	DSD64
Bluetooth	LDAC、AAC、SBC、 APTX、APTX LL、 APTX HD	Not support it	Not support it



IIS-H



GUSTARD

IIS OVER HDMI (Socket view on DAC INPUT)

Please do not connect to the usual HDMI,this is not really HDMI


Equipment size
330mm
260mm
65mm
USB
PCM 768K
00
Gustard DAC-R26 Features

- Dual architecture: Independent R2R & 1Bit, support native PCM native DSD and DSD to PCM.
- PCM NOS: Without any digital signal processing, bypassing the volume adjustment, raw PCM stream was decoded by the R2R array directly.
- Native 1Bit DAC, support DSD 512 (via USB) and DSD 1024 (via IIS). The DSD stream decoded by the independent 1 bit convertor without DSD to PCM converting.
  *Volume is fixed under this mode.
- Streamer/Renderer: Support roon, upnp and more protocols in the future.
- Replace the input signal’ s clock with precision oscillators (local or external). Interference from the input source’ s clock is avoided.
  Function off: IIS, AES, COAX, OPT, BT; PCM NOS, 1BitFunction on: USB & LAN
- CPLD - Complex Programmable Logic Device Exclusive technology over CPLD
  - Signal routing
  - Clock management
  - 2nd order PLL
  - DOP decoding
  - Depop for PCM&DSD
- Two specific toroidal transformers for audio application, isolated the digital & analog power supply.
- Discrete LPF with specific parameters provide best performance
- PCM filters: fast, mid(default), slow.
- XU216 from XMOS, supports up to PCM768 & DSD512
- Adjustable Brightness with 10s autosave, friendly UX.

Input

- COAX/AES/OPT :PCM 16-24bit/44.1-192kHz；DSD DOP64
- USB：

  PCM 16-32bit/44.1-768kHz；

  DSD DOP64-DOP256；

  NATIVE DSD：DSD64-DSD512

  OS support: Windows 7~11 32/64bit；macOS；Linux
- IIS：PCM 16-32bit/44.1-768kHz；DSD DOP64-DOP256；

  NATIVE DSD：DSD64-DSD1024
- LAN: more in the future
- 10M Clock in： 50 Ohm BNC，0dBm-20dBm，

  square wave 0.2V-3.3V，sinewave 0.5-3.3V。

Output

Frequency Response: 20-20kHz /+-0.2dB (Oversampling)
Dynamic range： >115dB
Signal-to-noise ratio：>122dB
Crosstalk：-134dB @ 1kHz
THD+N：<=0.003% @1kHz
IMD： ≈0.008% @ 0dbfs
RCA：2.5Vrms (VOLUME FIXED) 100Ω
XLR：5.0Vrms (VOLUME FIXED) 100Ω
XLR pinout: 1-Ground 2-Hot 3-Cold

Other

Power Supply: AC 115V/230V 50/60Hz
Power Consumption<30W
Size：330mm (Width) * 260mm (Length) * 65mm (Height) (protrusion not included)
Packing size: 420mm (Width) * 360mm (Length) * 175mm (Height)；
Weight：7Kg (with package)
Sandblasted aluminum alloy case: Silver or Black version

Photo


GUSTARD
R26

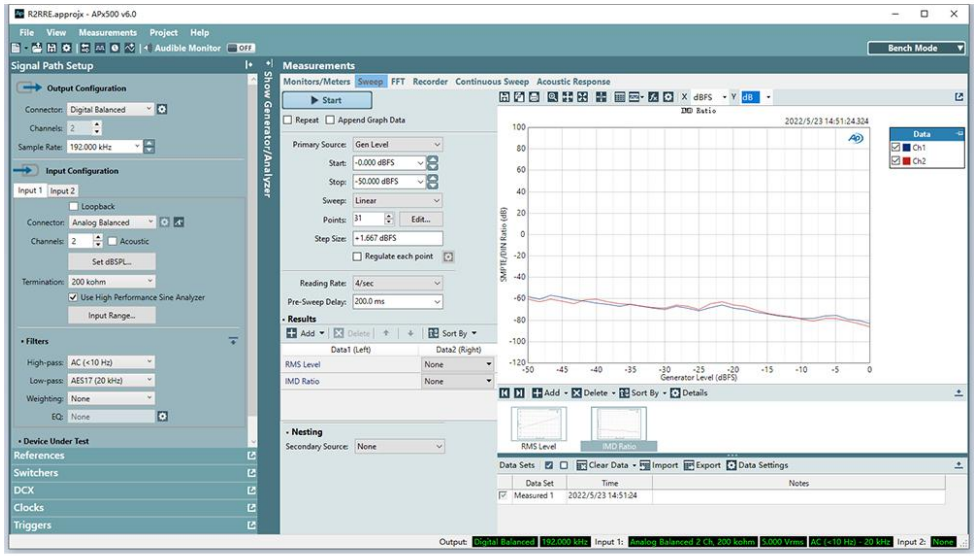

GUSTARD
R26


GUSTARD
Caution
Risk of shock. Do not open
LAN
USB
IIS
COAX
10MHz IN
AES/EBU
Optical
Right
Left
Analogue Output
Digital Input
110V
220V
115/230V
Must switch both
www.gustard.cn
Designed and assembled in China

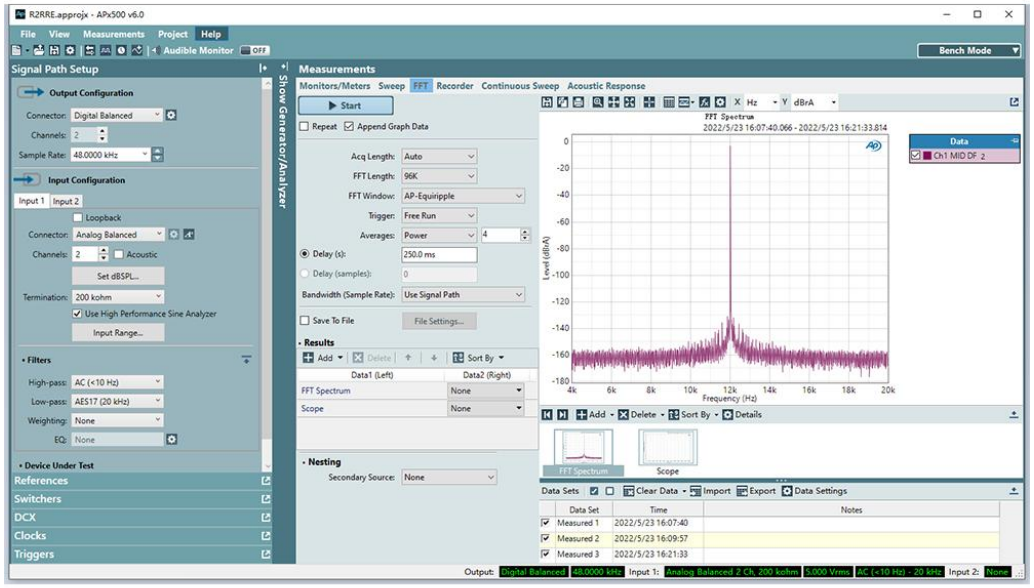
test data

1kHz SINAD

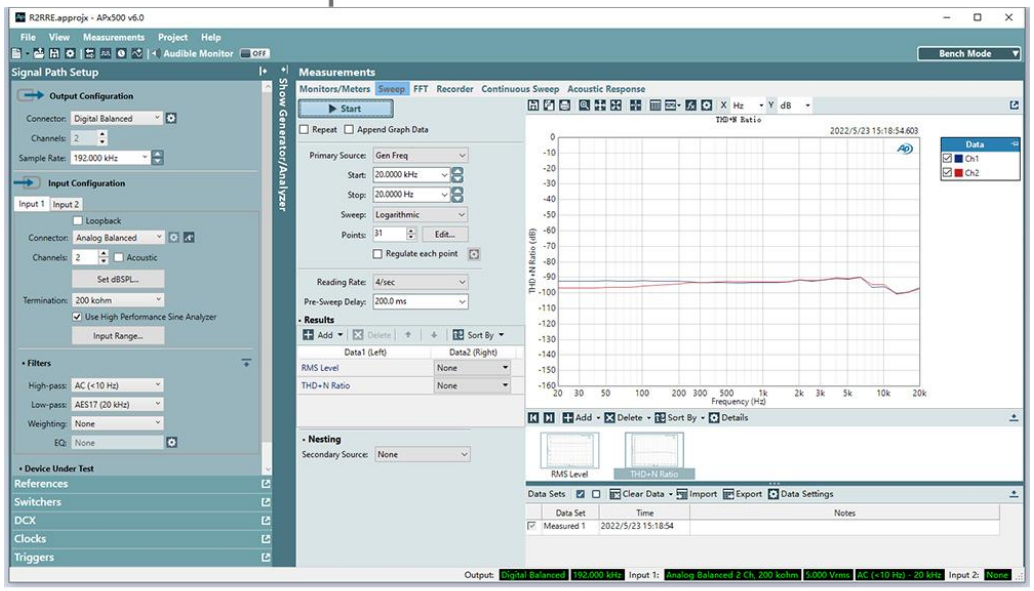
IMD vs AMPL



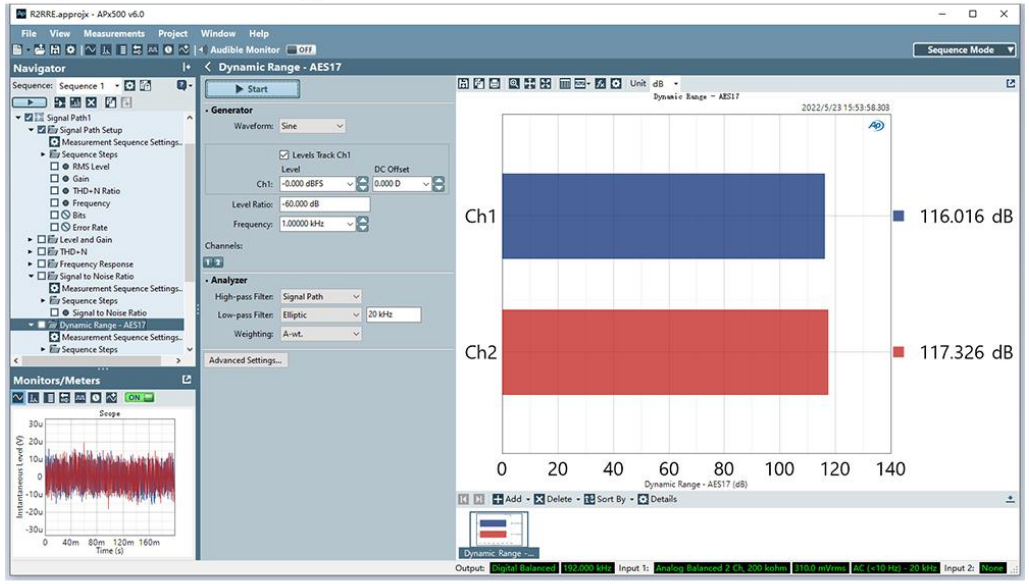
Jtest@48k



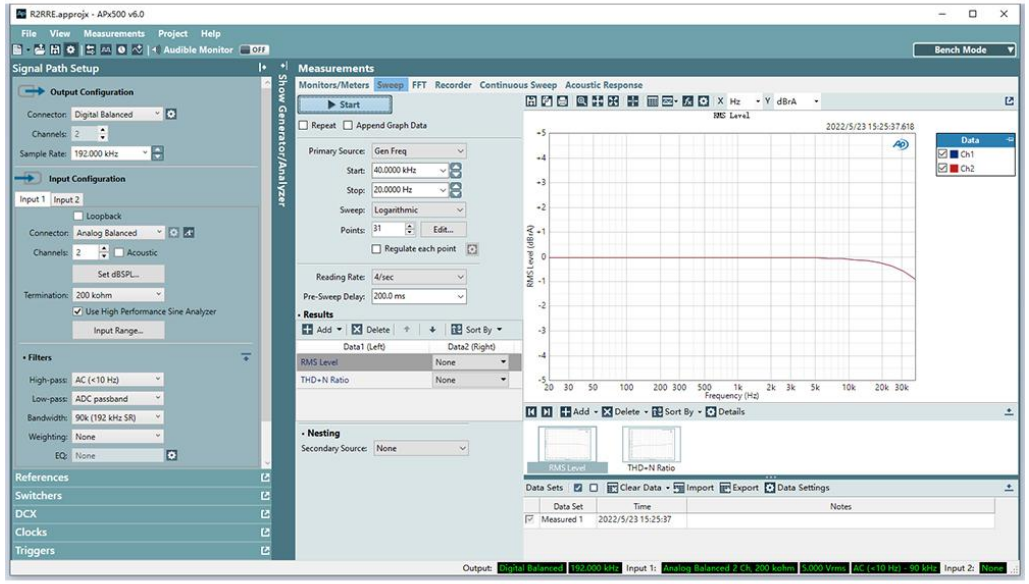
THD+n vs Freq



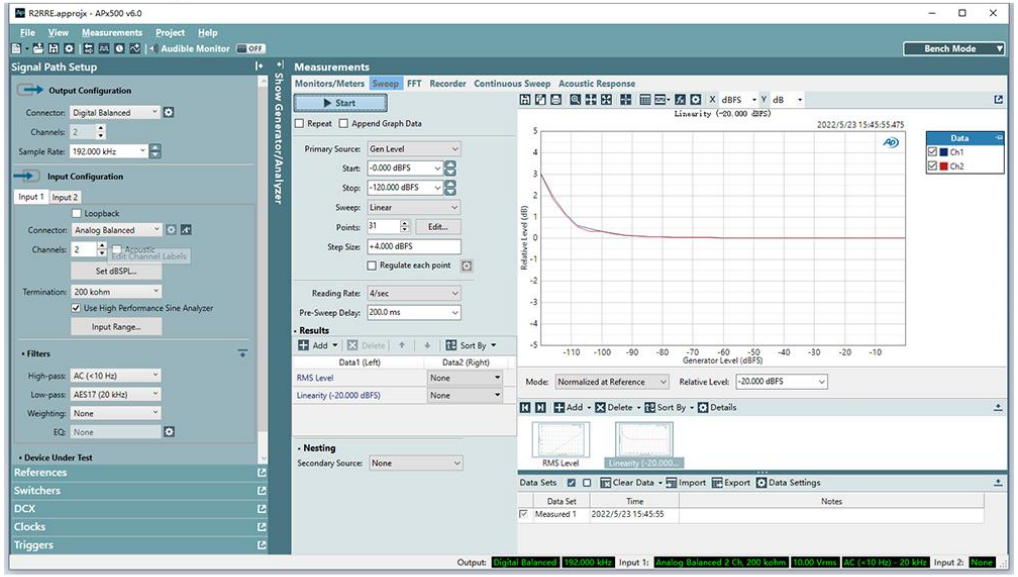
Dynamic Range AES17



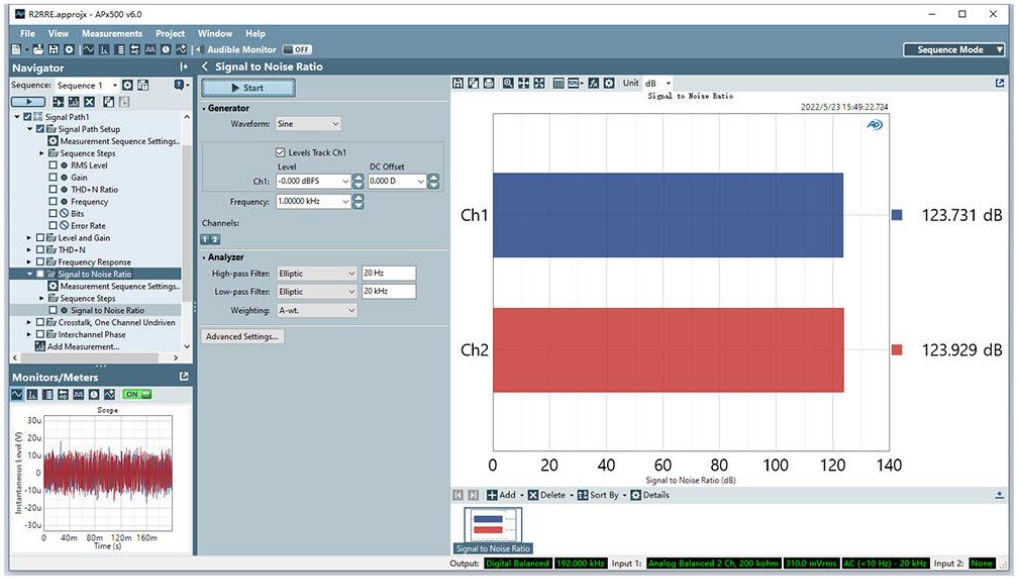
Frequency response



Linearity



Signal to noise ratio



Crosstalk@1kHz