RD9000

MULTI-FORMAT PROFESSIONAL DECODER

The Harmonic RD9000 multi-format professional decoder enables rapid, reliable deployment of eye-catching UHD content for contribution and primary distribution applications.

With a significant increase in UHD TV sets hitting the market, content providers and broadcasters are looking for a solution to address the needs of early adopters. Compact and reliable, the RD9000 real-time professional decoder is the answer. Designed to ensure high performance, the RD9000 delivers pristine UHD for an immersive, high-resolution experience.

Innovative Technology

RD9000 is software-based multi-format (H.265) professional decoder that is perfect for contribution and primary distribution applications. The platform's software architecture provides content providers and broadcasters with maximum flexibility, which is paramount in today's market.

Contribution encoding is the critical step to achieve a superior end-user experience. With its wide range of encoding tools, HEVC offers incredible compression efficiency, making live UHD delivery achievable for satellite, cable, terrestrial and fiber networks.

Single-slice UHD HEVC technology is a cornerstone of the RD9000, eliminating border compression artifacts and maximizing compression efficiency. This technology is essential to achieving superior video quality in premium contribution applications. In addition, the RD9000 is ready for HDR (High Dynamic Range) along with WCG (Wide Color Gamut) to ensure drastic contrast and color rendering for "wow" video experience.

Combined with Harmonic's CP9000 UHD HEVC encoder, the RD9000 UHD HEVC decoder offers users a pristine UHD contribution solution.

Versatile and Future-Proof

RD9000 software-based decoder featuring any-format and any-codec is the reference decoder for any contribution and primary distribution use case.

Supporting HDR and WCG via a flexible, software-based design, the RD9000 is future-proof .

Additionally, the RD9000 decoder supports DVB/SMPTE standards and is interoperable with professional encoders.

World-Class Service and Support

Harmonic stands behind the RD9000 professional decoder with comprehensive service and support programs, including system design, service deployment, technical support and network maintenance. World-class service plans and a global network of flexible and responsive support professionals help ensure our customers can deliver outstanding "anytime, anywhere, any-device" video experiences.

HIGHLIGHTS

- Superior real-time SD, HD and Ultra HD decoding
- Single/multi slice UHD decoder
- HEVC Main 10 and Main 422 10-bit decoding at 50/59.94 fps
- MPEG-2, AVC (H.264) 4:2:0 & 4:2:2

- Two versions up to 60Mbps or up to 160Mbps
- Compact and low-power appliance
- SDR, HDR and WCG BT.2020
- HDMI or quad 3G-SDI outputs

- Decode and down-mix of up to 8 audio services
- Down-conversion for monitoring
- Dual AC PSU

RD9000 MULTI-FORMAT PROFESSIONAL DECODER

RD9000 rear panel – HDMI & 12G SDI output

RD9000 rear panel – 4 x 3G or 12G-SDI output

SPECIFICATIONS

INPUT/OUTPUT

MPEG over IP input	RJ-45 10/100/1000 UDP or RTP CBR or Null-stripped TS RTP & SMPTE-2022/Cop3 FEC Unicast / Multicast IGMP V1/V2/V3
Outputs	HDMI 2.0 + 1x12G-SDI Optional 4x3G-SDI or 1x12G-SDI output (Replace HMDI + 1x12G-SDI)

VIDEO PROCESSING

Performances	Two models: RD9050: UHD up to 60Mbps RD9080: UHD up to 160Mbps
CODEC	HEVC / H.265 MPEG-4 / AVC / H.264 MPEG-2
Decoding Profiles	HEVC: Main10 422 Level 5.1 AVC/H.264: Up to Hi422@L4.2 MPEG-2: up to 422@HL
Chroma sampling	4:2:0, 4:2:2
Bit Depth	8, 10-bit
Resolution	3840x2160p (UHD) 1920x1080p 1920x1080i 1280x720p
Frame Rates	60, 59.94, 50, 30, 29.97, 25, 24, 23.97
Down-up conversion	Any format / frame rate above
HDR	HDR10, PQ10, HLG
Wide Color Gamut	BT.709, BT.2020

PHYSICAL

Dimensions (H x W x D)	1.7 x 17.2 x 16.9 in (1 RU) 4.3 x 43.7 x 42.9 cm (1 RU)
Weight	26.7 lbs / 12kg
Power Consumption	190 W
Input Voltage	100-240 VAC
Cooling	Front to rear airflow
Features	Dual AC PSU

ENVIRONMENTAL

Operating Temperature	41° to 104° F 5° to 40° C
Storage Temperature	23° to 113° F -10° to 70° C
Maximum Humidity	90%
Electromagnetic Compliance	CE marked in accordance with the 93/68/EEC (22/07/93) directive EN 55022 EN 55024 EN 61000-3-2
Safety	IEC 60950 and EN 60950 UL 60950

AUDIO PROCESSING

Performances	Up to 8 audio services
Audio codecs	MPEG[1] Layer2 AAC-LC, HE-AAC V1, HE-AAC V2 Dolby® Digital (AC-3, E-AC-3)

Decoding Formats and bitrates	
MPEG-1 Layer II 2.0	64-256 kbps
AC-3 2.0	128-448 kbps
AC-3 5.1	384-640 kbps
DD+ (E-AC-3) 5.1	192-448 kbps
AAC-LC/HE-AAC 2.0	32-160 kbps
AAC-LC/HE-AAC 5.1	96-448 kbps
Output format	Linear PCM Pass-through[1]
Embedded audio	Up to 8 audio

CONTROL AND MONITORING

WEB-browser User interface
SNMP alarms for NMS integration[1]
Firmware update via WEB User Interface
RJ-45 Ethernet 10/100/1000

Note 1: check for availability
Note 2: Front panel not available

ORDERING INFORMATION

HARDWARE ELEMENTS

Part Number	Description
RD9050-1U-2AC	Decoder UHD HEVC 4:2:0/4:2:2,up to 40Mbps, 1 x 12G SDI,1 x HDMI 2.0
RD9080-1U-2AC	Decoder UHD HEVC 4:2:0/4:2:2,up to 160Mbps, 1 x 12G SDI,1 x HDMI 2.0
RD9X00-HW-3GSDI	Optional: Quad 3G-SDI Output (Replace 1x12G SDI + HDMI)

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