



Sapphire-RPM HEVC Record and Playback Module

Sapphire-RPM is a HEVC encoder specifically designed for motorsport and mobile applications. The Sapphire-RPM offers ultra low latency HEVC encoding up to 4K resolution, or can synchronise and encode images from four separate HD cameras simultaneously.

As well as live encoding the Sapphire-RPM records to solid state medium and offers real time over air playback. All these features packed into a compact rugged chassis, make the Sapphire-RPM the ideal choice for operators not wishing to miss a moment of the action.

Containing a 4K HEVC encoder the Sapphire-RPM offers exceptional compression ratios on video resolutions up to 4K UHD. The Sapphire Codec system compresses a single 4K UHD input or up to 4 HD inputs in one unit. This allows multiple camera angles such as Front, Rear, Driver and Instruments to be transmitted simultaneously or individually with a seamless switching mechanism built in.

Recording employs a USB mass storage device and recording times of 12 hours are typical. Users can initiate over air playback of pre-recorded material enabling exiting scenes that may have been missed live to be recalled instantly. HEVC compression offers significant bitrate savings over traditional H.264 solutions, this saves broadcasters money on storage and contribution bandwidth. HEVC also supports the new 4K UHD formats required for contribution. The additional efficiency of HEVC makes wireless transmission of 4K possible. Broadcasters need a simple and reliable HEVC codec to move their contribution systems forward, the Sapphire Codec from BWS is the ideal solution. Latency is critical in many broadcast applications and the Sapphire Codec is built to minimise latency without compromising quality. The 60mS end to end latency (70ms in 4K) makes the Sapphire solution suitable for all live events,

The Sapphire Codec system compresses a single 4K UHD input or up to 4 HD inputs in one unit. Each input can support 2 stereo pairs of embedded audio. Compressed streams are available as IP or on DVB_ASI for connection to transmission equipment.

FEATURES

- High quality HEVC codec
- Record and Playback facility to mass storage USB device
- Low Latency (60ms 'glass to glass') for live applications
- Transmission of true 4K UHD signals with HDR
- Transmission of 4x simultaneous 1080p50/59 HD
- IP and DVB-ASI out
- Built in microphone to capture vehicle audio
- Rugged Chassis suitable for motorsport and mobile applications

APPLICATIONS

- Motorsport
- Mobile Applications

Connectors

HDSDI 3G 1-4	SMB 75 ohm
ASI Out	SMB 75 ohm
Data	Binder 3 pin Male
USB	Lemo OB 4 pin Female
Ethernet	Binder 4 pin Male
Audio	Lemo OB 6 pin Female
DC In	Lemo OB 2 pin Female

Video Encoder / Decoder

Profiles	4K UHD. 4:2:2/4:2:0, 8/10-bit 2160p / 23.98 / 24 / 25 / 29.97 / 30 / 50 / 59.94 / 60
	HD. 4:2:2/4:2:0, 8/10-bit 720p / 50 / 59.94 / 60 1080i / 50 / 59.94 / 60 1080p / 23.98 / 24 / 25 / 29.97 / 30 / 50 / 59.94 / 60
	SD 4.2.2/4.2.0 480i / 29.97 576i / 25
Legacy encoding modes	H.264

Latency

Encoder + Decoder	60ms (70ms in 4K mode)
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Audio Encoder / Decoder

Format	Embedded
Encoder	MPEG-1 Layer2, AAC-LC, Linear PCM
Quantity	4 pairs (8 pair if MPEG or Linear PCM)

Analogue Audio

Format	2 pairs line / mic level
Built in Microphone	Omni-Directional 6mm, 100 → 16000 Hz-40dB

Stream Inputs / Outputs

DVB_ASI	Transport stream to 100Mb/s
IP Interface	10/100/1000 base-T
IP Stream Format	Unicast / Multicast / RTSP (to 30Mb/s)

Indicators

Power	LED Green
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HDR/WGC

We support	Rec. ITU-R BT.2100-2 (PQ and HLG) Rec. ITU-R BT.2020
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Record / Playback

Recording Media	Generic Mass-Storage USB device
Interface	USB 2.0
Max Recording	Time Depends on bitrate and device size, typical 12 hours
Playback	granularity 1 minute

Control

Remote	IP web-browser Control RS232 to initiate Recording and Playback
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Dimensions

Size (WxDxH)	160 x 120 x 30mm
Weight	700g
Mounting	Strap down recess, locating lugs

Power

DC In:	9 – 18V 18W typical @ 4K encoding
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Product Code

Sapphire-RPM

