CatCast

HP8224V — HEVC/H.265 HD Encoder

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AC 100V-240V 50/60Hz 2A

HDMI1 HDMI2 HDMI3 HDMI4

AC 100V-240V 50/60Hz 2A

SDI 1 SDI 2 SDI 3 SDI 4

◆ **Ultra Low Bit Rate:**
Save 75% Bandwidth

◆ **Enhance Picture Quality:**
Advanced Compressing Algorithm

◆ **Advanced Pretreatment**
De-interlacing, Noise Reduction, Sharpening

News Channel/Movies
1Mbps Full HD

Sports Channel
2Mbps Full HD

HEVC H.265 - HIGH EFFICIENCY VIDEO CODING — B frame(IBBP) GOP Structure

HDMI HIGH-DEFINITION MULTIMEDIA INTERFACE — HDMI 1.4

FullHD 1920×1080P — Full HD 1080P

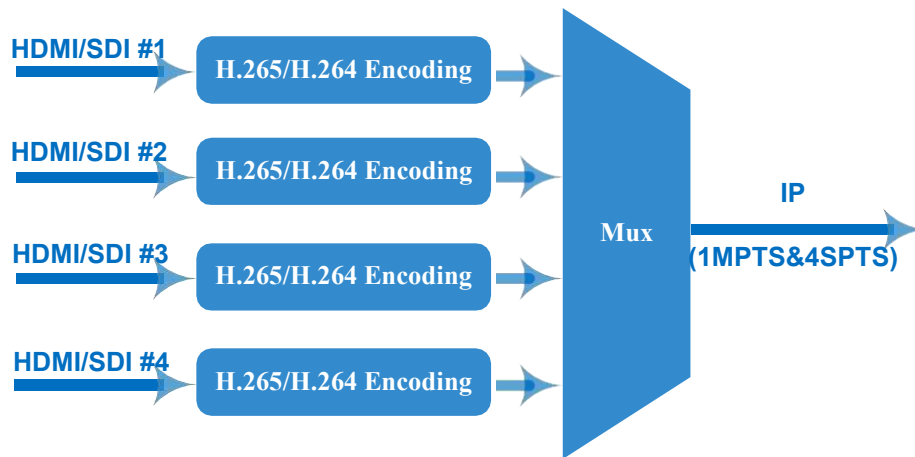**HDCP** HIGH-BANDWIDTH DIGITAL CONTENT PROTECTION — HDCP 1.4

Decoder/STB — STB Available with Ensurity CAS
Decoding Chipset: Montage CS8051/CS8021
NationalChip GX3201H

4K ULTRA HD — Up to 2160P 30Hz

Principle Chart of Per Module

Technical specification

Input	4/8/12×HDMI input (1.4), HDCP 1.4---OptionⅠ 4/8/12×SDI input---OptionⅡ		
Video Encoding	Encoding Format		HEVC/ H.265 , MPEG 4 AVC/H.264
	Resolution	HDMI	3840×2160_30P, 3840×2160_29.97P (Encoding 2 CHs per module for H.265, and encoding 1 CH for H.264) 1920×1080_60P,1920×1080_59.94P,1920×1080_50P, (Encoding 4 CHs per module for H.265, and encoding 2 CHs for H.264) 1280×720_60P, 1280×720_59.94P, 1280×720_50P (Encoding 4 CHs per module for H.264 and H.265)
		SDI	Input: 1920×1080_60i,1920×1080_59.94i,1920×1080_50i Output: 1920×1080_60P,1920×1080_59.94P,1920×1080_50P (Encoding 4 CHs per module for H.265, and encoding 2 CHs for H.264)
	Chroma		4:2:0
	Bitrate		0.5Mbps~20Mbps (each channel)
	Rate Control		CBR/VBR
	GOP Structure		IBBP, IPPP
	Advanced Pretreatment		De-interlacing, Noise Reduction, Sharpening
Audio Encoding	Encoding Format		MPEG-1 Layer 2, LC-AAC, HE-AAC, HE-AAC V2, AC3 Passthrough
	Sampling rate		48KHz
	Bit-rate (each channel)		48Kbps~384Kbps (MPEG-1 Layer 2 & LC-AAC) 24 Kbps~128 Kbps (HE-AAC) 18 Kbps~56 Kbps (HE-AAC V2)
	Audio Gain		0~255
Stream output	1 MPTS and maximum 4 SPTS output over UDP/RTP/RTSP per module, 1000M/100M Base-T Ethernet interface (unicast/ multicast) IP null packet filter		
System	Web based management		
	Chinese-English control interface		
	Ethernet software upgrade		
Miscellaneous	Dimension (W× L× H)		482mm×328mm×44mm
	Approx weight		5kg

Temperature	0~45℃(work), -20~80℃（Storage）
Power	AC 100V-220V±10%, 50/60Hz

Catcast HEVC/H.265 encoder's advantages

1. Providing smooth TS

Catcast HEVC/H.265 encoder adopts Fujitsu chip which offers stable bitrate with lower fluctuation compared with other encoding chips, so it provides smooth TS, It is widely used in variety of distribution systems such as CATV digital head-end, IPTV head-end, satellite and terrestrial digital TV, etc.

2. Encoding with highest compression format—B frame (IBBP)

What is B Frame?

There are 3 major picture types used in the different video algorithms, they are I, P and B.

They are different in the following characteristics:

I-frames are the least compressible but don't require other video frames to decode.

P-frames can use data from previous frames to decompress and are more compressible than I-frames.

B-frames can use both previous and forward frames for data reference to get the highest amount of data compression

Frame Type	Byte of data/KB	Compression Ratio
I	18	7:1
P	6	20:1
B	2.5	50:1

In one word, B frame is the highest compression format which makes it possible to process HD video at low bit rate. HEVC/H.265 encoder is not able to save bandwidth unless it is with B frame. In encoder parameters, B frame is often described in GOP (Group of Pictures) structure, like "IBBP".