4-Ch Multi-in-one Coaxial HD Decoding Chip

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XS9931B is a 4-channel analog composite video decoding chip that supports both HDcctv and CVBS protocols up to 4-ch 4K@15 fps. XS9931B converts the received high-definition analog composite video signal through analog-to-digital conversion, video decoding, and 2D image processing into YCbCr format, which is then transmitted to the main control and encoding chip via the BT1120 or BT656 interface, enabling real-time preview and recording. XS9931B also supports coaxial transmission of audio data (under the HDCVI protocol) and control data, allowing audio/video signals and control data to be transmitted through a single coaxial cable. This simplifies wiring requirements and offers greater convenience during installation and debugging.

XS9931B features an embedded audio codec with 5 integrated audio A/D modules and 1 D/A module. It supports sampling rates of 8KHz and 16KHz with 16-bit precision. Supports 5-ch analog signal input with 16-bit PCM conversion, and 1-ch selectable analog audio output, for efficient voice recording and intercom applications, thus simplifying product design.

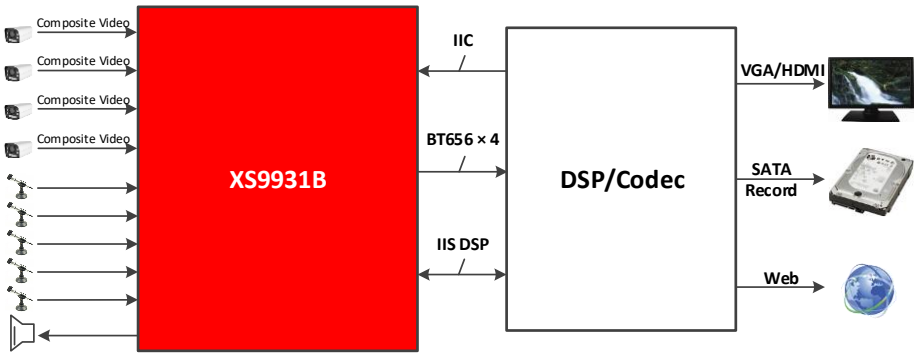
◎ Inventor of coaxial HD, with proprietary intellectual rights

◎ Tens of millions of units shipped

◎ Compatible with HDcctv standard

◎ Supports HDCVI coaxial audio and local audio

◎ Outputs via BT1120/BT656 interface



General Functions

Video Input	
4 independent analog video input channels	Each channel supports HDcctv high-definition composite video signals
Each channel is compatible with standard-definition formats	Each channel is compatible with NTSC-MJ/4.43 and PAL-BGHID/CN/M/60
Video Output	
Flexible mapping between input and output channels	Supports scalable video formats
Analog Front-End	
4 independent analog front-end channels with AFE, EQ, and ADC	AFE supports adjustable channel bandwidth and input signal gain
EQ provides equalization compensation for signal attenuation over long-distance transmission	Supports both CPC and STC clamping methods
Composite Video Signal Decoding	
4 independent digital composite video signal decoders	Enhanced automatic format recognition and signal sync locking mechanism ensure quick signal locking
Supports AGC, ACC, White Peak, Y/C separation	Supports LTI and CTI
Supports brightness, saturation, contrast, hue, and sharpness adjustment	Supports high-quality HDCVI coaxial audio data parsing
Coaxial audio output sampling rates supported are 8 KHz and 16 KHz with 16-bit precision	Supports bidirectional data communication between camera and DVR
Audio Interface	
Integrated audio codec	Integrated 5 audio A/D modules and 1 D/A module
Maximum sampling rate of 16K, with up to 16-bit precision	A set of cascade interfaces, supporting up to 4 chips for audio cascading
3 sets of standard IIS interfaces, configurable for master/slave mode	2 sets of IIS outputs for Recorder interfacing, and 1 for Playback input
Control Interface	
A set of standard IIC interfaces	Supports rate from 100 Kbit/s to 400 Kbit/s
Peripheral Features	
27 MHz crystal oscillator or crystal input	Integrated PLL to generate multiple working clocks for the chip

XS9922A/B Chips

Model	Supported Formats	Digital Output Interface	Operating Voltage	Packaging	Additional Information
XS9931B	4-ch scalable 960H@25/30 fps, 720p@25/30/50/60 fps, 1080p@25/30/50/60 fps, 3M/4M@25/30 fps, 5M@20/25 fps, 6M@20 fps, and 4k@12.5/50 fps	BT656 × 4/ BT1120 × 2	3.3V 1.8V 1.1V	BGA220 11 mm × 11 mm Pitch of 0.65 mm	