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

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XS9950 is a single-channel analog composite video decoding chip that supports both HDcctv and CVBS protocols up to 1-ch 1080p@30 fps. XS9950 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 BT656 or MIPI CSI interface, enabling real-time preview and recording. XS9950 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.

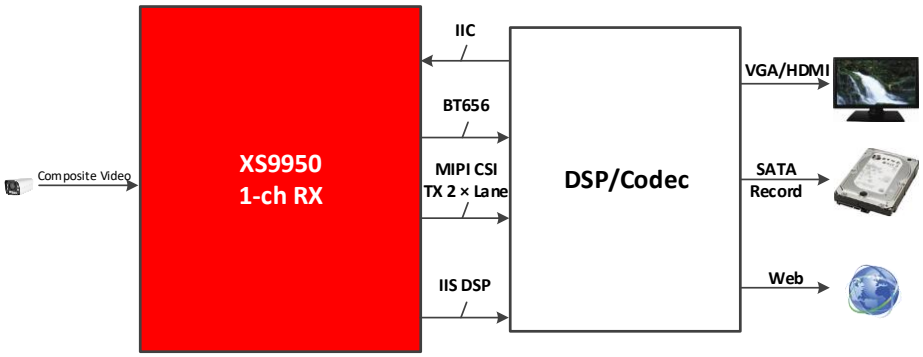
◎ Inventor of coaxial HD, with proprietary intellectual rights

◎ Tens of millions of units shipped

◎ Compatible with HDcctv standard

◎ Supports HDCVI/TVI coaxial audio

◎ Outputs via MIPI/BT656 interface



General Functions

Video Input	
Single-channel independent analog video input	Supports HDcctv composite video signals
Compatible with standard-definition formats	Each channel is compatible with NTSC-MJ/4.43 and PAL-BGHID/CN/M/60
Video Output	
Supports output via two types of interface	MIPI supports 1-Lane and 2-Lane mode supports up to 1.5Gbps/Lane
Supports BT656 and BT601 protocol with external synchronization configurable	Supports scalable video formats
Analog Front-End	
Analog front-end includes LPF, EQ, and ADC	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
Integrates an anti-aliasing filter to eliminate out-of-band noise introduced along the signal transmission path	Integrated short-circuit detection to detect shorts to power/ground at the signal input
Composite Video Signal Decoding	
Single-channel independent digital composite video signal decoder	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, and hue 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
Image Enhancement	
High-performance edge enhancement algorithm	15 levels of sharpness adjustment
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

Key Features

Model	Supported Formats	Digital Output Interface	Operating Voltage	Packaging
XS9950	Scalable 960H@25/30 fps, 720p@25/30/50/60 fps, 960p@25/30 fps, and 1080p@15/25/30 fps	BT656/MIPI	3.3V 1.8V 1.1V	QFN40 5 mm × 5 mm Pitch of 0.4 mm