

### Description

The [XR5P920](#) is a single chip solution that converts four channels of analog video to YCbCr digital component video. The power of the XR5P920 lies in its ability to accept a wide range of input formats including the new high-definition (HD) analog standard, HDCVI, as well as the standard-definition (SD) formats of NTSC, PAL and widescreen 960H. The four-output channels of the XR5P920 conform to the SMPTE and ITU-R digital HD standards up to 1080p30 or 720p60 in addition to the digital SD standards. Each video channel offers independent brightness, contrast, sharpness, gain, white-peak control, hue and saturation adjustment.

The XR5P920 effectively decodes video from over 500-m of coaxial cable with the aid of an internal equalizer which compensates for high-frequency signal attenuation. Following equalization, the video from each channel is processed through an analog front end (AFE) that provides clamping, programmable gain amplification and analog-to-digital conversion (ADC). Each video output supports time division multiplexing (TDM) two channels of HD video or up to four channels of SD video. The XR5P920 also has the flexibility to provide a mixed mode output that multiplexes both HD and SD video onto one or all four channels.

Additional features include an I<sup>2</sup>S interface that allows for audio record and playback, a simple communication protocol enabling two-way control and a 400 kHz I<sup>2</sup>C interface for CPU or MCU interconnect. Audio is processed with 16-bit pulse code modulation (PCM) that enables up to five channels of high quality audio input.

### FEATURES

- Four independent analog video inputs
  - High-definition HDCVI 1080p30/25
  - High-definition HDCVI 720p60/50/30/25
  - Standard-definition NTSC, PAL or 960H
- Four independent digital video 4:2:2 YCbCr outputs
  - HD (BT.1120): 1080p30/25 (SMPTE274)
  - HD (BT.1120): 720p60/50/30/25 (SMPTE296)
  - SD (BT.656): D1 or 960H
  - Each output offers 2X or 4X TDM
- Audio
  - Coaxial or line-in inputs
  - 16-bit precision
  - 16-bit DAC for talkback
  - I<sup>2</sup>S interface for audio record and playback
- I<sup>2</sup>C slave interface for external control
- 220-pin 11mm x 11mm LFBGA package

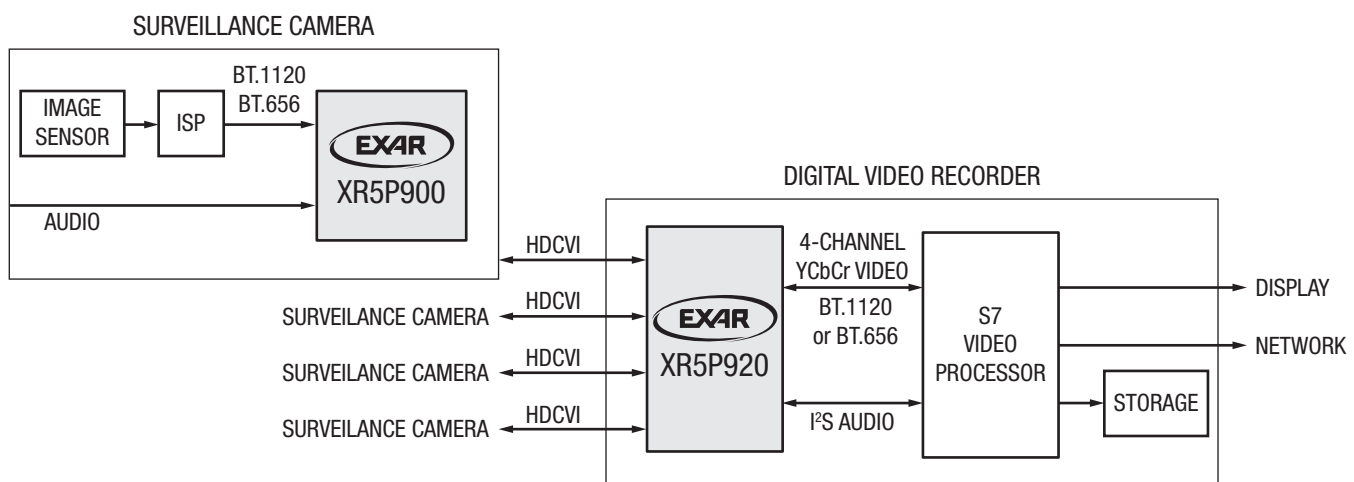
### BENEFITS

- HD video over 500m on coax
- Independent HD and SD channel control
- Seamless integration with existing equipment
- Video, audio and control signals over coax

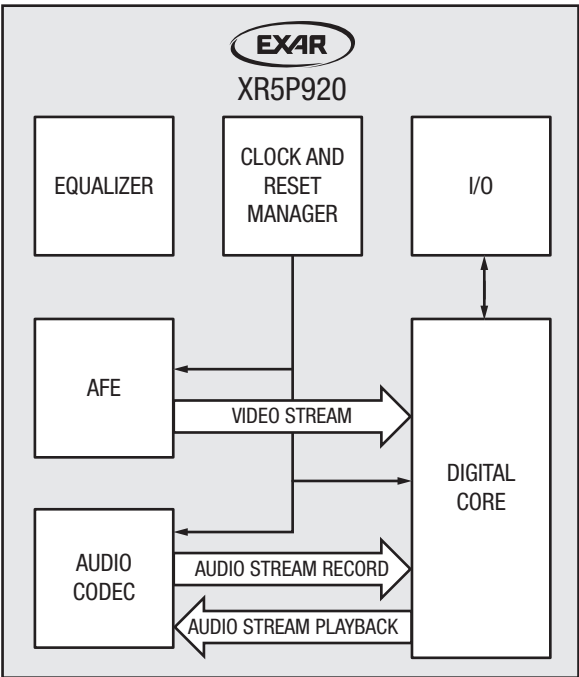
### APPLICATIONS

- Affordable HD video surveillance
- High-definition DVR upgrade

### Typical Application



Functional Block Diagram



Ordering Information

Part Number	Operating Temperature Range	Environmental Rating	Package
XR5P920-F	0°C to 70°C	RoHS compliant and Green <sup>(1)</sup>	220-pin 11mm x 11mm LFBGA
EVK-XR5R921	Evaluation Kit, HDCVI PCIe card with XR5P920		

NOTE:  
1. Visit [www.exar.com](http://www.exar.com) for more information.

Please contact [videotechsupport@exar.com](mailto:videotechsupport@exar.com) to request a complete datasheet.



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