## RAA279974

4-Channel Automotive High Definition Link Decoder

The RAA279974 is a 4-channel high-definition analog video decoder designed for automotive applications. It supports single-ended, differential, and pseudo-differential analog composite high-definition AHL video inputs. Four high-quality 10-bit video ADCs convert the analog signals to digital, and a proprietary AHL adaptive comb filter separates the Luma and Chroma data to output a YUV422 digital video signal over a MIPI-CSI2 interface. The RAA279974 also supports a single traditional NTSC standard definition input, and it has a BT.656 secondary output port that can output the video from any of the four inputs.  In addition, the RAA279974 has integrated short-to-battery and short-to-ground detection, image enhancement capabilities, making it an ideal solution for demanding high resolution automotive camera applications.  This device works in conjunction with the RAA279971 AHL analog video encoder, which sits in the camera module.

## Applications

- Automotive multi-camera systems such as Surround View

## Features

### Four AHL Video Decoders

- Software-selectable analog input control allows for combinations of single-ended and differential AHL/CVBS
- Built-in programmable analog anti-alias filter
- 10-bit ADCs and analog clamping circuit with up to 150MHz sampling frequency
- Fully programmable static gain or automatic gain control
- Programmable white peak control for the Y channel
- 4-H adaptive comb filter Y/C separation
- Digital sub-carrier PLL for accurate color decoding
- Digital horizontal PLL for synchronization processing and pixel sampling
- Automatic color control and color killer
- Programmable output cropping

### Video Processing

- Programmable hue, brightness, saturation, contrast, and sharpness.
- Image enhancement with peaking and CTI
- Black/White stretch

### MIPI Output

- MIPI 1.1 compliant unidirectional output format
- YUV 422 output format
- Up to 1.2Gbps
- 1-lane to 4-lane

### Pseudo BT.656 Output

- 8-bit parallel output with embedded sync
- Separate HREF and VREF
- Simultaneous output with MIPI

**Miscellaneous**

▪ Related devices include the RAA279971 and RAA279972

▪ Power-save and power-down mode

▪ Two-wire host serial bus interface

▪ Single 27MHz crystal for all operations

▪ 1.8 ~ 3.3V I/O operation

▪ 1.2V/3.3V power supply

▪ 68 Ld SCQFN

▪ AEC-Q100 qualified
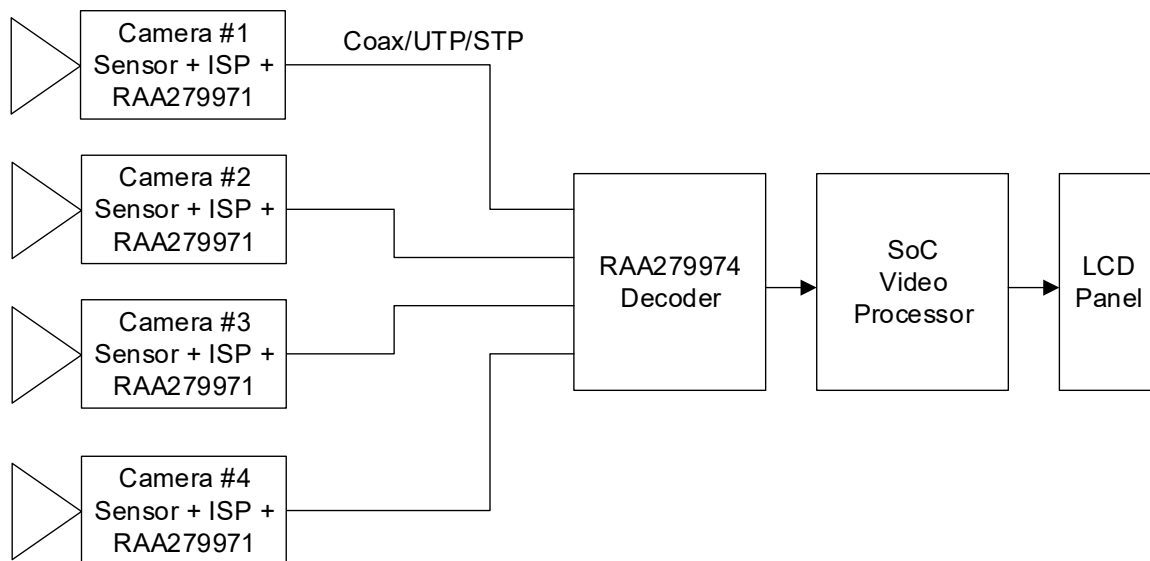


**Figure 1. Typical Application Diagram**

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