



# SiI 9031 PanelLink Receiver



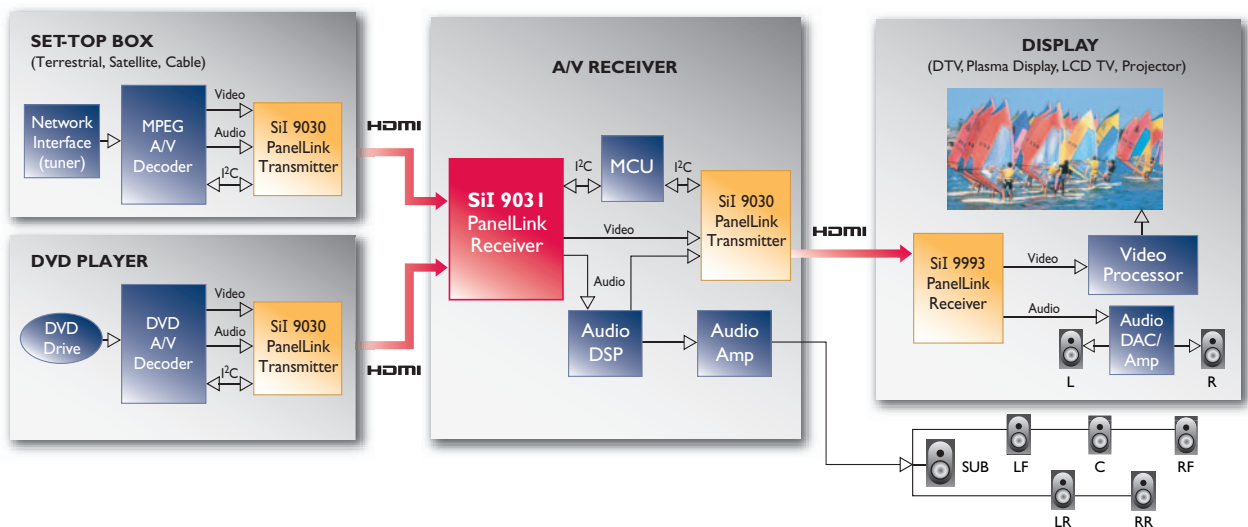
## Applications

- A/V Receivers
- HDTVs
- Plasma TVs
- LCD TVs

Silicon Image introduces the second generation of its PanelLink® product family with advances in performance and functionality well beyond other digital interface products on the market. With the first groundbreaking HDMI parts, PanelLink brought a new level of digital quality to mass-market home theater systems. The latest advances increase audio format support, video resolution and HDMI port count, while reducing overall system cost. PanelLink products are fully HDMI 1.0 compliant. As always, Silicon Image has built PanelLink silicon for rapid integration into consumer electronics system architectures.

The SiI 9031 is an advanced dual-input HDMI receiver that fits directly into home theater products, such as A/V receivers and digital televisions (DTVs), including HDTVs, plasma TVs and LCD TVs. To improve manufacturers' time-to-market and reduce design time, the SiI 9031 is backward compatible with first generation PanelLink receivers. In addition to all the features in the original PanelLink receivers, the SiI 9031 has two HDMI input ports for connecting both a DVD player and a set-top box to a single television or A/V receiver. The SiI 9031 supports the DVD Audio standard including 7.1-surround audio at 96kHz and stereo audio at 192kHz. The SiI 9031 is also the first HDMI receiver to support HDCP Repeater functionality for applications such as A/V Receivers.

The built-in High-bandwidth Digital Content Protection (HDCP) decryption engine secures the digital link for transmission of valuable high-definition video and audio. Each SiI 9031 is pre-programmed with unique HDCP keys, providing the highest level of security while reducing manufacturing complexity and cost.



# PanelLink®

## SiI 9031 Features

### PanelLink Receiver

#### Industry-Standard Compliance

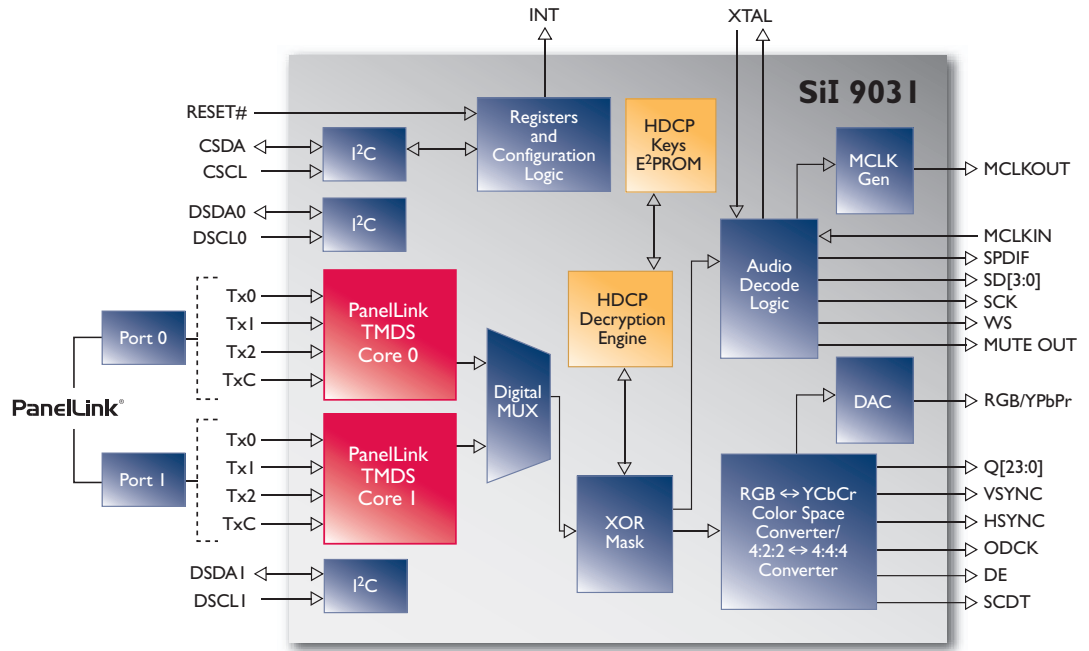
- HDMI 1.0
- DVI 1.0
- EIA/CEA-861B
- HDCP 1.1

#### Digital Video Output

- Dual integrated PanelLink® cores
- Supports DTV (480i/576i/480p/576p/720p/1080i/1080p) and PC (VGA/XGA/SXGA/WSXGA) resolutions
- Flexible digital video interface
  - 24-bit RGB/YCbCr 4:4:4
  - 16/20/24-bit YCbCr 4:2:2
  - 8/10/12-bit YCbCr 4:2:2 (ITU-R BT.656)
  - 12-bit digital media interface
- Analog RGB and YPbPr output
  - Integrated 10-bit DAC
  - Separate or composite syncs (sync on Y/G)
- Integrated RGB↔CbCr color space conversion
- 4:2:2↔4:4:4 converter

#### Digital Audio Output

- Industry-standard S/PDIF and I<sup>2</sup>S output
- Supports high-end audio including DVD-Audio
  - 2-ch. 32-192kHz or
  - 8-ch. 32-96kHz
- Programmable I<sup>2</sup>S output supports numerous low-cost audio DACs
- Supports IEC60958 2-channel PCM
- Capable of carrying IEC61937 compressed audio (Dolby Digital, DTS, etc.)



#### Content Protection

- Integrated HDCP cipher engine
- Pre-programmed HDCP keys
  - Simplify manufacturing process
  - Most secure solution available
  - Lower system, manufacturing costs
- Supports HDCP repeater capability
- Decrypts both video and audio

#### System Operation

- Register-programmable via slave I<sup>2</sup>C interface
- Auto video mode simplifies design
- Auto audio mode allows more robust system
- Flexible interrupt registers with interrupt pin

#### Power Management

- 1.8V core provides low-power operation
- Flexible power-down modes

## Silicon Image's SiI 9031 Starter Kit (CP9031HDMI)

#### Contents include:

##### Hardware

- SiI 9031 Receiver Daughter Board
- HDMI to HDMI cable

##### Software

- HDMIGear Receiver Software Tool

##### Documentation

- User's Guide
- Schematics
- Bill of Materials (BOM)

**Part Number - SiI9031CTU: 25-112MHz (use for 720p/1080i applications)**  
**SiI9031CTU-7: 25-150MHz (use for WSXGA/1080p applications)**



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