

VastLane™ HDMI Receiver

Dual Input HDMI Receiver with Integrated HDCP Support

Silicon Image's VastLane HDMI receiver products are designed with advances in performance and functionality well beyond other digital interface products on the market. Silicon Image has shipped more than 100 million HDMI/HDCP and DVI/HDCP semiconductor solutions and is the leading provider of semiconductor and intellectual property solutions for high-definition multimedia applications.

The SiI9025 is a dual-input HDMI receiver that fits directly into home theater products, such as digital televisions (DTVs), including HDTVs, plasma TVs, LCD TVs, and rear projection TVs. To improve manufacturers' time-to-market and reduce design time, the SiI9025 is a pin compatible, drop-in replacement for the SiI9023.

In addition to all the features in the original HDMI receivers, the SiI9025 has two HDMI input ports for connecting both a DVD player and a set-top box to a single television. The SiI9025 has increased video resolution to support not only 720p/1080i and 1080p resolutions, but also PC resolutions up to UXGA.

The SiI9025 increases audio format support, video resolution and HDMI port count, while reducing overall system cost. The SiI9025 is fully HDMI 1.2 compliant. As always, Silicon Image has designed its HDMI receiver for rapid integration into consumer electronics system architectures.

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 SiI9025 is pre-programmed with unique HDCP keys, providing the highest level of security while reducing manufacturing complexity and cost.

SiI9025

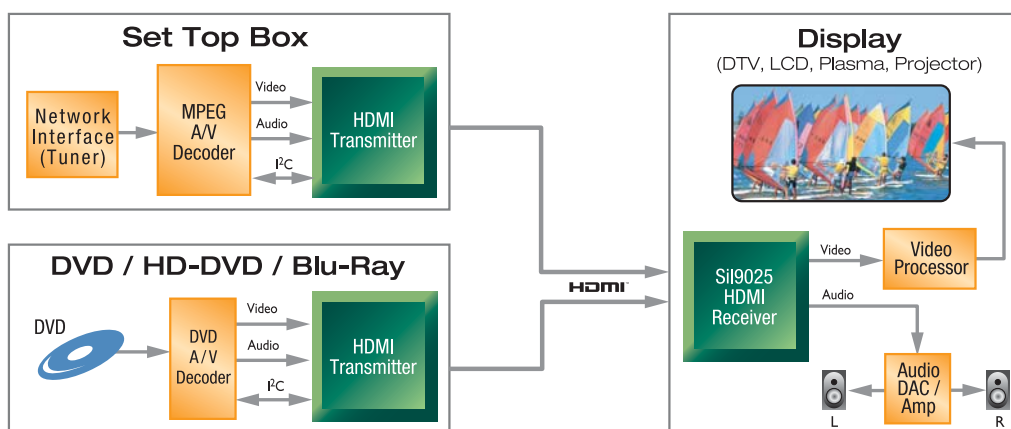
Applications

- LCD-TV
- Plasma display
- Rear projection DTV
- Front projector

Key Features

- Compatible with HDMI 1.2 specification
- Supports video resolutions up to 1080p and UXGA
- Built-in HDCP decryption engine with pre-programmed HDCP keys

SiI9025 System Diagram



HDMI™
HIGH-DEFINITION MULTIMEDIA INTERFACE

Sil9025 Features

Sil9025 Starter Kit (CP9025HDMI)

Contents include:

Hardware

- Sil9025 receiver daughter board
- HDMI to HDMI cable

Software

- HDMI Gear receiver software tool

Documentation

- User's guide
- Schematics
- Bill of materials (BOM)

Industry-Standard Compliance

- HDMI 1.2
- EIA/CEA-861C
- DVI 1.0
- HDCP 1.1

Digital Video Output

- Dual integrated cores
- Supports DTV (480i/576i/480p/576p/720p/1080i/1080p) and PC (VGA/XGA/SXGA/WSXGA/UXGA) 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
- Integrated RGB \leftrightarrow YCbCr conversion
- 4:2:2 \leftrightarrow 4:4:4 converter

Digital Audio Output

- Industry-standard S/PDIF and I²S output
- Supports IEC60958 2-channel PCM
 - 2-ch. 32-192kHz
- Capable of carrying IEC61937 compressed audio (Dolby Digital, DTS, etc.)
- Programmable I²S output supports numerous low-cost audio DACs

Content Protection

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

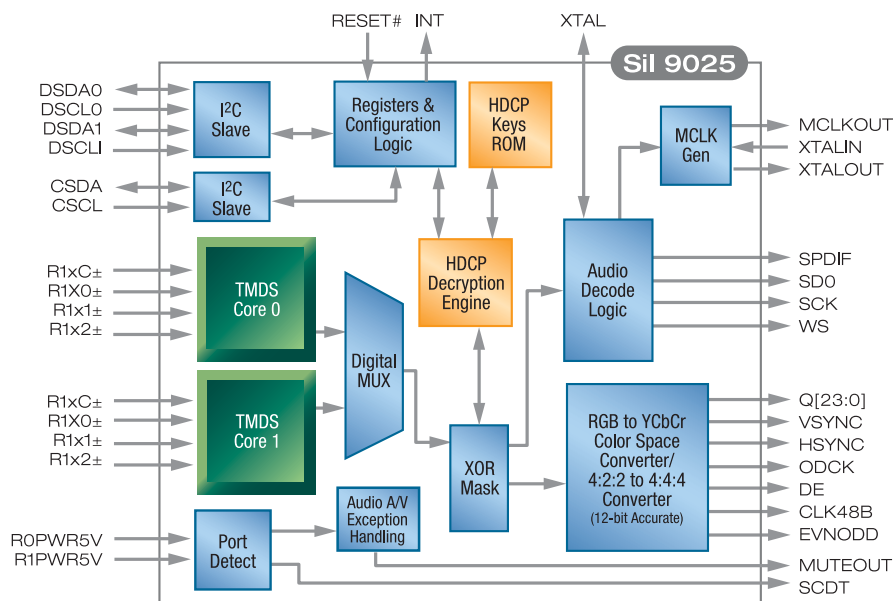
System Operation

- Software compatible with Sil9023
- Register-programmable via slave I²C 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

Sil9025 Circuit Diagram



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