



## VastLane™ HDMI Receiver

### HDMI 1.3 Compatible Receiver with Deep Color Support

Silicon Image introduces the latest high-performance HDMI receiver in their VastLane product family. The VastLane SiI9125 HDMI receiver supports HDMI 1.3 features and provides performance well beyond other digital interface products on the market. As a founding developer of the HDMI specification, Silicon Image continues to develop leading-edge products that deliver digital quality to mass-market home theater systems.

The latest advances in video performance require support of displays capable of 36-bit color depth and up to 1080p resolution at 60Hz or 720p/1080i resolution at 120Hz. Silicon Image's VastLane HDMI receivers meet these demands and are ideal for rapid integration into consumer electronics system architectures.

The SiI9125 is an advanced, dual-input HDMI 1.3 receiver that fits directly into digital televisions such as LCD-TVs, plasma displays and rear projection microdisplays (DLP, LCOS, SXRD, D-ILA). The SiI9125 has two HDMI input ports for connecting two HDMI 1.3 source devices such as HD-DVD or Blu-ray players or game consoles to an HDMI 1.3 enabled HDTV.

The SiI9125 can receive 2-channel digital audio up to 192 kHz. Compressed streams are also supported through the S/PDIF port. An industry-standard I<sup>2</sup>S port allows direct connection to low-cost audio DACs at up to 192 kHz. An S/PDIF port supports up to 192 kHz audio.

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 SiI9125 is pre-programmed with unique HDCP keys, providing an extremely high level of security while reducing manufacturing complexity and cost.

## SiI9125

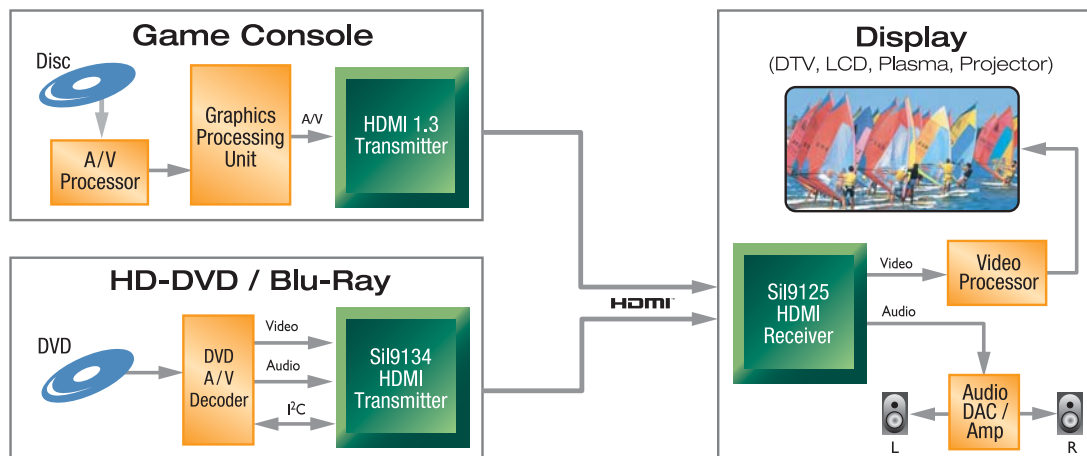
### Applications

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

### Key Features

- Compatible with HDMI 1.3 specification
- Supports up to 36-bit color depth at 1080p/60Hz, 720p/120Hz & 1080i/120Hz resolutions
- Built-in HDCP decryption engine

### SiI9125 System Diagram



**HDMI™**  
HIGH-DEFINITION MULTIMEDIA INTERFACE

# Sil9125 Features

## Sil9125 Starter Kit (CP9125HDMI)

Contents include:

### Hardware

- Sil9125 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 1.3
- DVI 1.0
- EIA/CEA-861D
- HDCP 1.1

### Digital Video Input / Output

- Dual integrated HDMI 1.3 cores
- Supports DTV resolutions up to 1080p @ 60Hz or 720p/1080i @ 120Hz with 36-bit color depth
- Flexible digital video interface:
  - 24/30/36-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)
  - 12/15/18-bit digital media output interface
- Integrated RGB Color Space Converter for both RGB-to-YCbCr and YCbCr-to-RGB (both 601 and 709) with true 12-bit accurate data using 14-bit processing
- 4:2:2 ↔ 4:4:4 converter with 12-bit accurate data using 14-bit processing

### Power Management

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

### 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

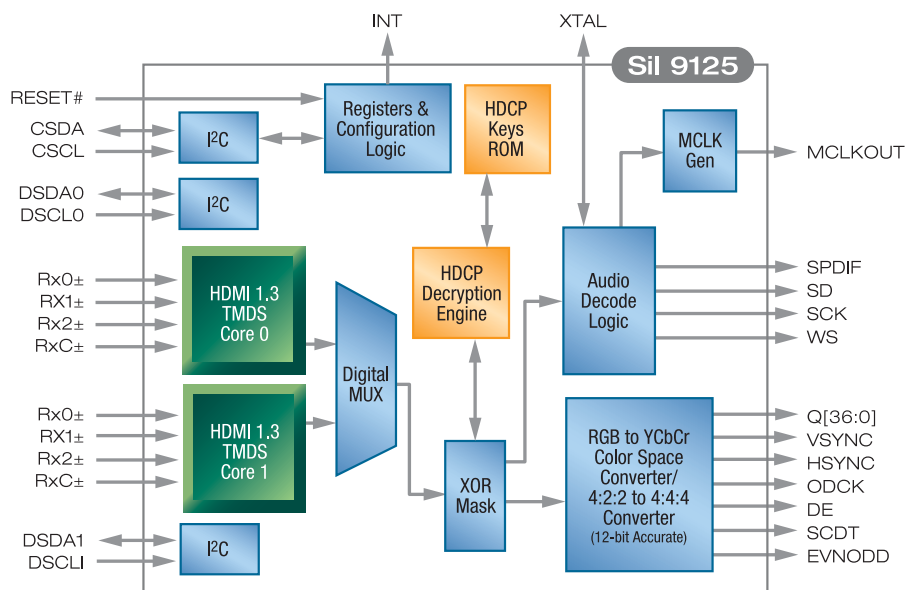
### Digital Audio Output

- Industry-standard S/PDIF and I<sup>2</sup>C output
- Supports 2-channel 32-192kHz stereo audio
- Programmable I<sup>2</sup>S output supports numerous low-cost audio DACs
- Supports IEC60958 2-channel PCM
- Capable of receiving IEC61937 compressed audio (Dolby<sup>®</sup> Digital, DTS, etc.)

### Content Protection

- Integrated HDCP cipher engine
- Built-in HDCP BIST
- Pre-programmed HDCP keys:
  - Simplify manufacturing process
  - Provide extremely secure solution
  - Lower system, manufacturing costs
- Built-in HDCP self-test

Sil9125 Circuit Diagram



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