

## VastLane™ HDMI Receiver

### HDMI 1.3 Compatible Receiver with HBR Audio & Deep Color Support

The VastLane SiI9135 is an advanced, dual-input HDMI 1.3 receiver designed for high-definition (HD) digital A/V receivers. The SiI9135 supports the latest HD audio formats, allowing customers to experience the ultimate surround sound experience. The support for HBR audio enables A/V receivers to decode compressed lossless audio formats such as Dolby® True HD and DTS-HD™ to deliver a rich digital audio experience. Dolby True HD and DTS-HD are the next generation lossless audio formats for the high definition disc media such as HD DVD and Blu-ray discs.

The SiI9135 also supports full HDCP repeater functionality. In addition to HDMI 1.3 HD Audio formats, SiI9135 also supports Super Audio CD, DVD Audio and 7.1-surround audio at 192kHz and stereo audio at 192kHz.

SiI9135 can pair with the advanced SiI9134 HDMI 1.3 transmitter to provide a complete HDMI 1.3 solution for AV receivers. SiI9135 supports up to 36 bits of video output at 1080p resolution and 60Hz. The latest advances in video performance enable HDTVs to display billions of colors with 36 bits of video depth and up to 1080p resolution at 60Hz or 720p/1080i resolution at 120Hz. Silicon Image's VastLane

HDMI receivers meet these demands with a high speed TMDS core capable of running up to 225MHz and are ideal 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 SiI9135 is pre-programmed with unique HDCP keys, providing an extremely high level of security while reducing manufacturing complexity and cost. The SiI9135 also supports full HDCP repeater functionality.

## SiI9135

### Applications

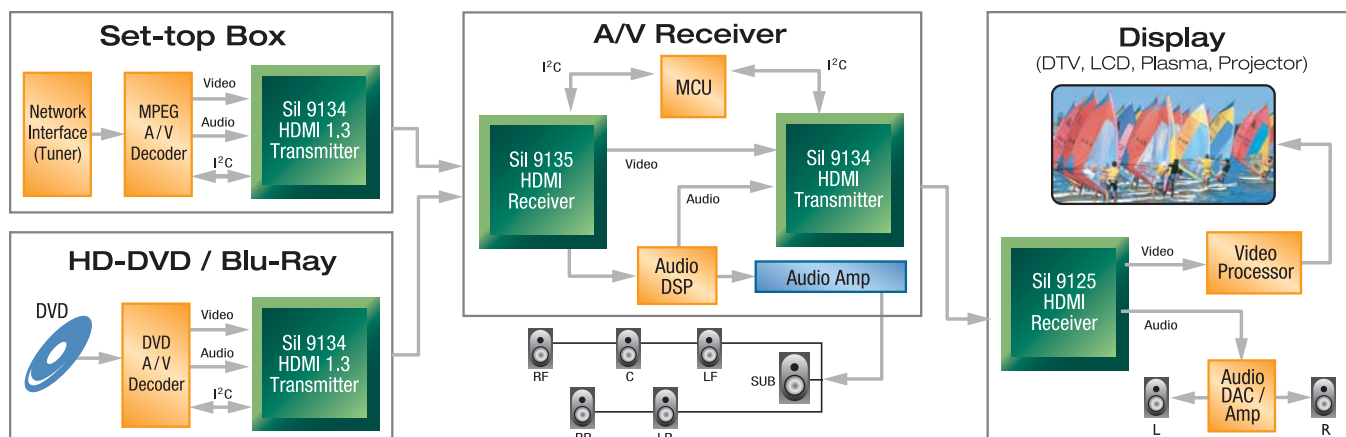
- AV Receivers

### Key Features

- **Compatible with HDMI 1.3**
- **Supports up to 36-bit color depth at 1080p/60Hz, 720p/120Hz & 1080i/120Hz**
- **Supports Dolby True HD & DTS HD High Bit Rate lossless audio formats**
- **Built-in HDCP decryption engine**



### SiI 9135 System Diagram



# Sil9135 Features

## Sil9135 Starter Kit (CP9135HDMI)

Contents include:

### Hardware

- Sil9135 receiver board
- HDMI to HDMI cable

### Software

- HDMIgear 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-bit digital media interface
- Integrated RGB to YCbCr color space conversion with 12-bit accuracy
- 4:2:2 ↔ 4:4:4 converter with 12-bit accuracy

### 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

- Supports Dolby True HD and DTS-HD up to 24Mb/s through 4xI<sup>2</sup>S inputs
- DVD-Audio support through 4xI<sup>2</sup>S inputs
- Direct Stream Digital (DSD) 6-channel Super Audio SACD
- Supports 2- to 8-channel audio at 192kHz
- Supports IEC60958 2-channel PCM or IEC61937 compressed audio (Dolby Digital, DTS, etc.)
- Industry-standard S/PDIF output

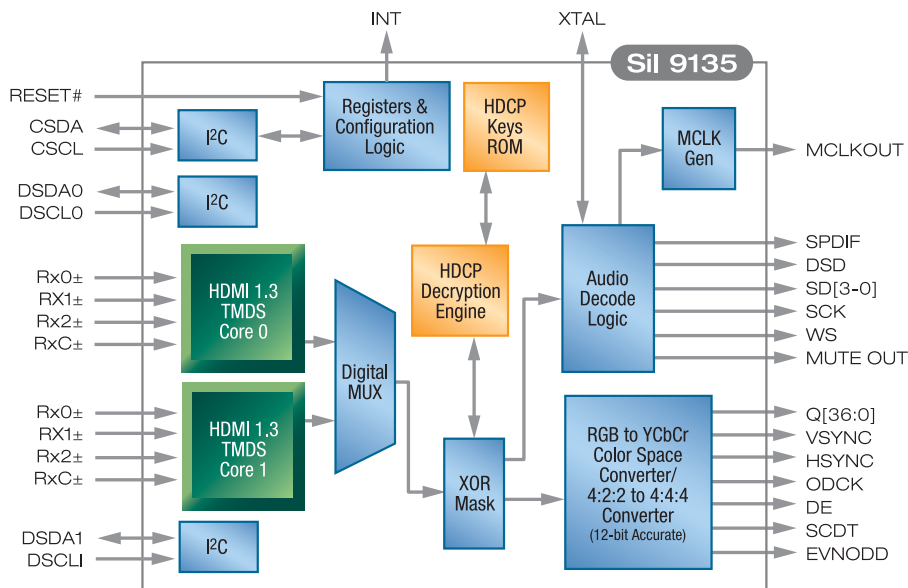
### Content Protection

- 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
- Supports HDCP repeater capability

### Power Management

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

Sil 9135 Circuit Diagram



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Part Number: Sil9135CTU

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