

VastLane™ HDMI Transmitter

HDMI 1.2 Transmitter with Super Audio CD Support

Silicon Image introduces their third generation HDMI transmitter in their VastLane product family. The SiI9034 supports HDMI 1.2 and provides advances in performance and functionality 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 SiI9034 is a HDMI 1.2 transmitter designed for the home theater market. This fully-compliant device supports up to 1080p resolution at 60Hz and 24-bit color depth and provides a simple, low cost method of sending protected digital audio and video for a rich all-digital experience.

SiI9034 will fit directly into home theater products such as DVD players and recorders, A/V receivers, digital set-top boxes and personal video recorders (PVRs). The SiI9034 is backward compatible with first and second generation HDMI transmitters. To reduce system cost, the SiI9034 includes an additional I²C master port to control the DDC bus.

In addition to supporting the video features, the SiI9034 supports DVD audio with 7.1-surround at 192 kHz, SACD audio standards, and stereo audio at 192 kHz.

The built-in High-bandwidth Digital Content Protection (HDCP) encryption engine secures the digital link for transmission of valuable high-definition video and audio. Each SiI9034 is pre-programmed with unique HDCP keys, providing an extremely high level of security while reducing manufacturing complexity and cost.

The SiI9034 is pin and software compatible with Silicon Image SiI9134 HDMI 1.3 Transmitter allowing end-users an easy upgrade path to Deep Color and High Bit-Rate HD Audio.

SiI9034

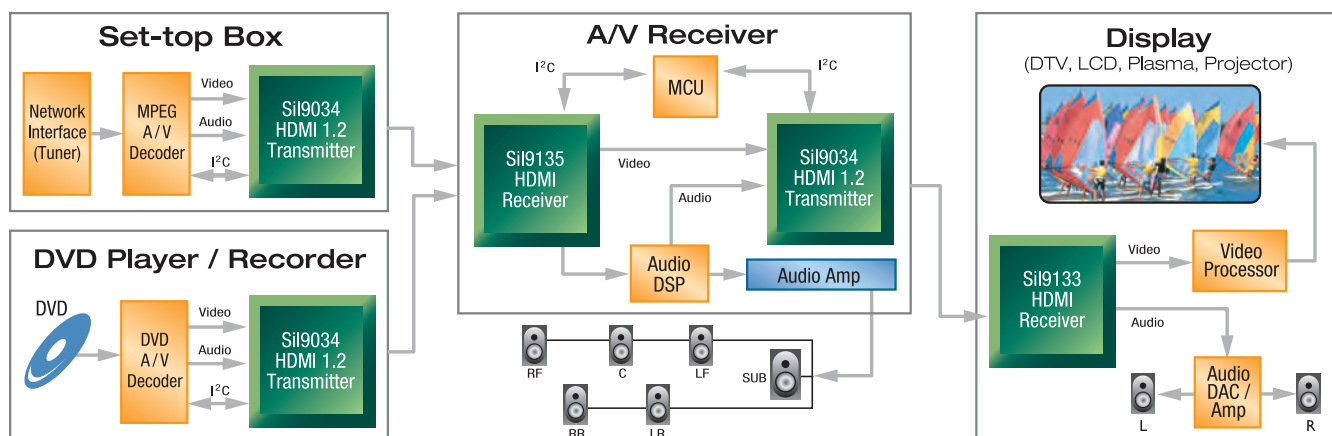
Applications

- Blu-ray & HD-DVD Players
- DVD Players/Recorders
- A/V Receivers
- Digital Set-top Boxes
- PVRs

Key Features

- Compliant with HDMI 1.2 specification
- Supports 1080p resolution at 60Hz and 24-bit color depth
- Built-in HDCP encryption engine

SiI9034 System Diagram



HDMI™
HIGH-DEFINITION MULTIMEDIA INTERFACE

Sil9034 Features

Sil9034 Starter Kit (CP9034HDMI)

Contents include:

Hardware

- CP9034 transmitter standalone board
- HDMI to HDMI cable

Software

- HDMIgear software tool

Documentation

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

Industry-Standard Compliance

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

Power Management

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

Digital Video Output

- Integrated HDMI 1.2 TMDS core running at 165MHz
- Supports 24-bit color depth and resolutions up to 1080p @ 60Hz or 720p/1080i @ 120Hz
- Flexible video interface supports DVD and HD MPEG decoders:
 - 12/24-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.601 & BT.656)
- Integrated YCbCr to RGB conversion
- 4:2:2 to 4:4:4 up-converter
- Programmable Data Enable (DE) generator
- 14-bit internal video processing and 14-bit to 8-bit dither

Digital Audio Output

- Dedicated 4-pin Direct Stream Digital (DSD) input to support Super Audio CD (SACD) applications
- DVD-Audio support through 4 x I²S inputs
- Supports 2-channel and 8-channel audio at 192 kHz
- Supports 1EC60958 2-channel PCM or 1EC61937 compressed audio (Dolby® Digital, DTS, etc.)
- Industry-standard S/PDIF output

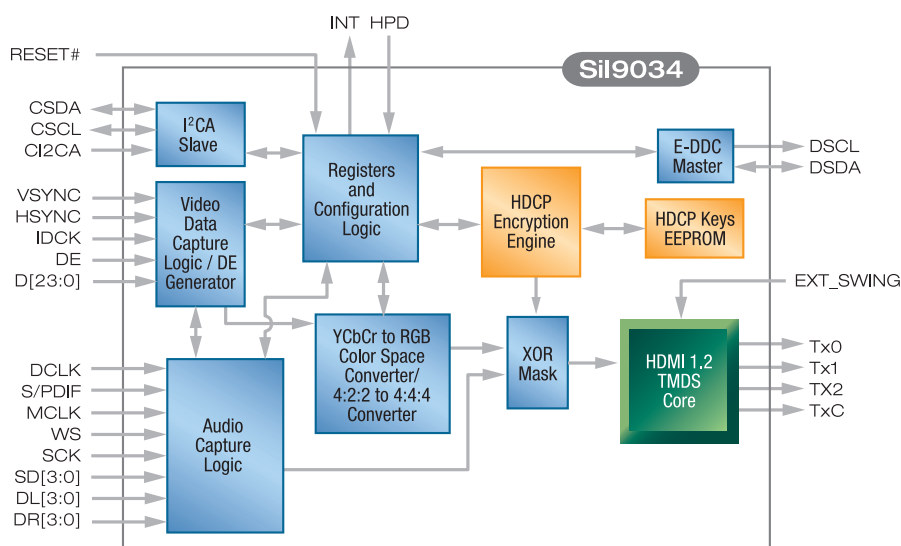
Content Protection

- Integrated HDCP cipher engine
- Pre-programmed HDCP keys:
 - Simplify manufacturing process
 - Provide extremely secure solution
 - Lower system, manufacturing costs
- Encrypts both video and audio

System Operation

- Register-programmable via slave I²C interface
- Master I²C simplifies system design
- Flexible interrupt registers with interrupt pin
- Monitor detection supported through hot plug and receiver detection
- Device address can be altered with CI2CA pin

Sil9034 Circuit Diagram



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