Silicon Image

SiI 9033
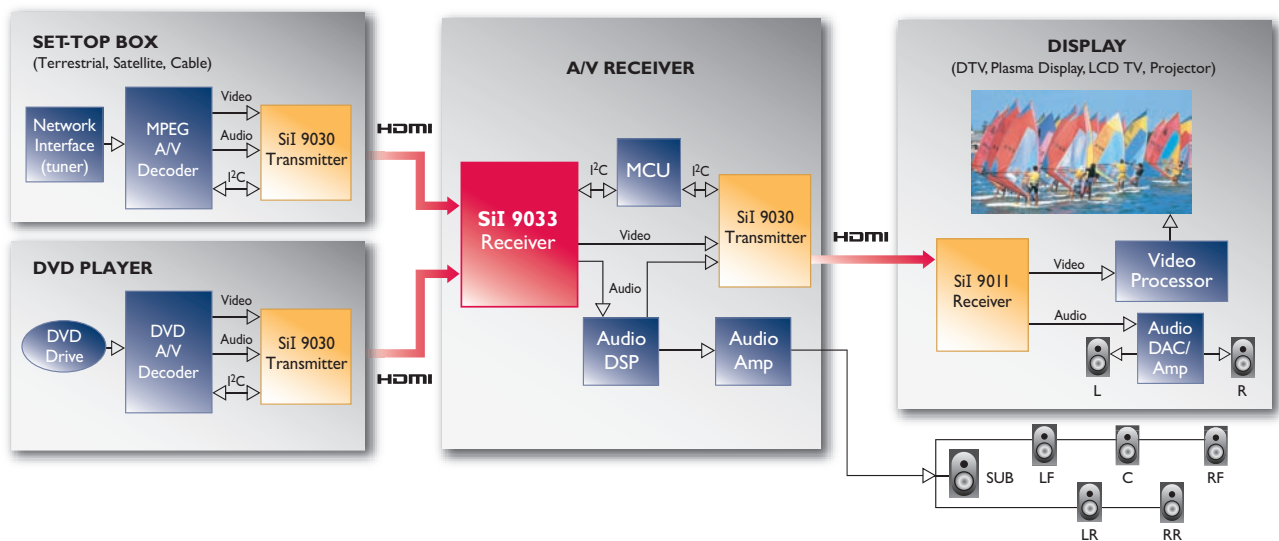# HDMI Receiver

Silicon Image introduces the third generation of its HDMI receiver product family with advances in performance and functionality well beyond other digital interface products on the market. With the first groundbreaking HDMI parts, Silicon Image 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. All HDMI receivers are fully HDMI 1.2 compliant. As always, Silicon Image has designed its HDMI receiver for rapid integration into consumer electronics system architectures.

The SiI 9033 is an advanced dual-input HDMI receiver that fits directly into home theater products, such as A/V receivers and media receiver set top boxes. To improve manufacturers' time-to-market and reduce design time, the SiI 9033 is backward compatible with SiI 9031. In addition to all the features in the original HDMI receivers, the SiI 9033 has two HDMI input ports for connecting both a DVD player and a set-top box to an A/V receiver. The SiI 9033 supports both SACD and DVD Audio including 7.1-surround audio at 192kHz and stereo audio at 192kHz. The SiI 9033 is also supports full HDCP Repeater functionality.

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 9033 is pre-programmed with unique HDCP keys, providing the highest level of security while reducing manufacturing complexity and cost.

Applications

• A/V Receivers

• Media Receiver

• Set-Top Boxes

SiI 9033 Features
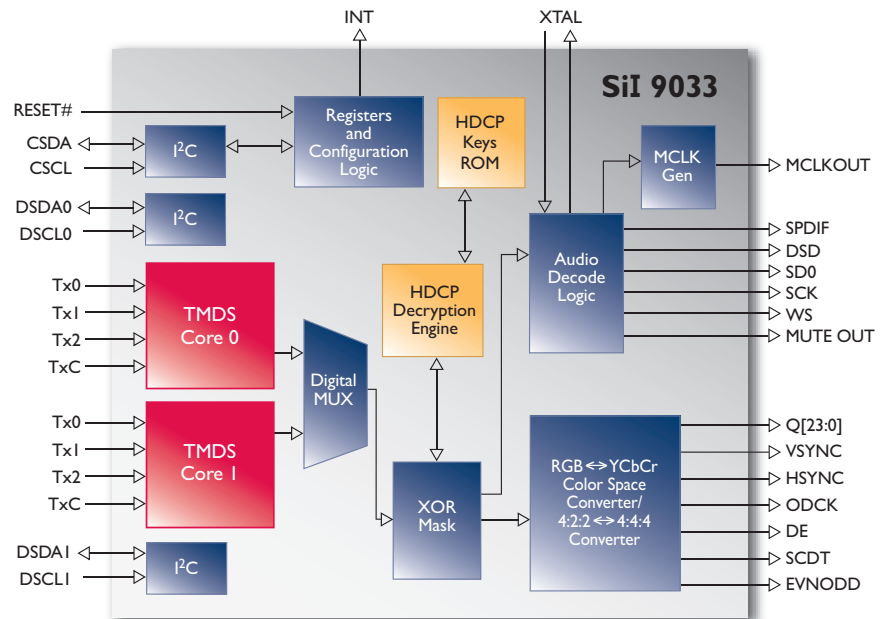
HDMI Receiver

Industry-Standard Compliance

- HDMI 1.2
- DVI 1.0
- EIA/CEA-861C
- 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 color space conversion
- 4:2:2$\leftrightarrow$4:4:4 converter

Digital Audio Output

- Industry-standard S/PDIF and I^{2}S output
- Supports high-end audio including SACD and DVD-Audio
  - 2-ch. 32-192kHz or
  - 8-ch. 32-192kHz
- Programmable I^{2}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
- Built-in HDCP BIST
- Pre-programmed HDCP keys
  - Simplify manufacturing process
  - Most secure solution available
  - Lower system, manufacturing costs
- New built-in HDCP self-test
- Supports HDCP repeater capability
- Decrypts both video and audio

System Operation

- Register-programmable via slave I^{2}C interface
- Auto video mode simplifies design
- Auto audio mode allows more robust system
- Flexible interrupt registers with interrupt pin

Power Management

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

Silicon Image's SiI 9033 Starter Kit (CP9033HDMI)

Contents include:

Hardware
- SiI 9033 Receiver Daughter Board
- HDMI to HDMI cable

Software
- HDMIGear Receiver Software Tool

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

Part Number - SiI9033CTU: 25-165MHz

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