"SII9023"

Silicon Image
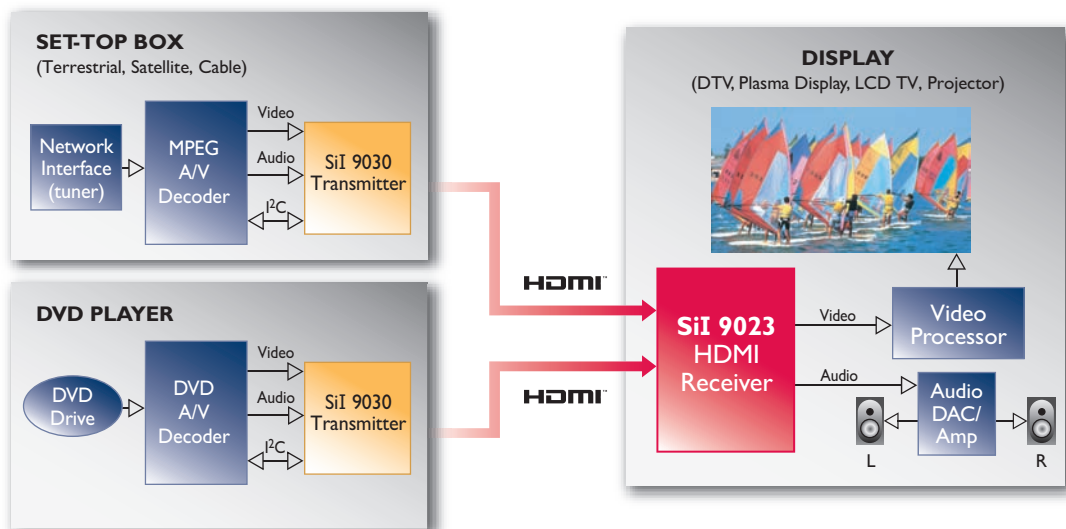
SiI 9023
HDMI Receiver

Applications

- HDTVs

- Plasma TVs

- LCD TVs
  Rear Projection
  Microdisplays

- Plasma TVs

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 9023 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 SiI 9023 is a pin compatible, drop-in replacement for the SiI 9021. In addition to all the features in the original HDMI receivers, the SiI 9023 has two HDMI input ports for connecting both a DVD player and a set-top box to a single television. The SiI 9023 has increased video resolution to support not only 720p/1080i and 1080p resolutions, but also PC resolutions up to UXGA.

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 9023 is pre-programmed with unique HDCP keys, providing the highest level of security while reducing manufacturing complexity and cost.

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SiI 9023

SiI 9023 Features
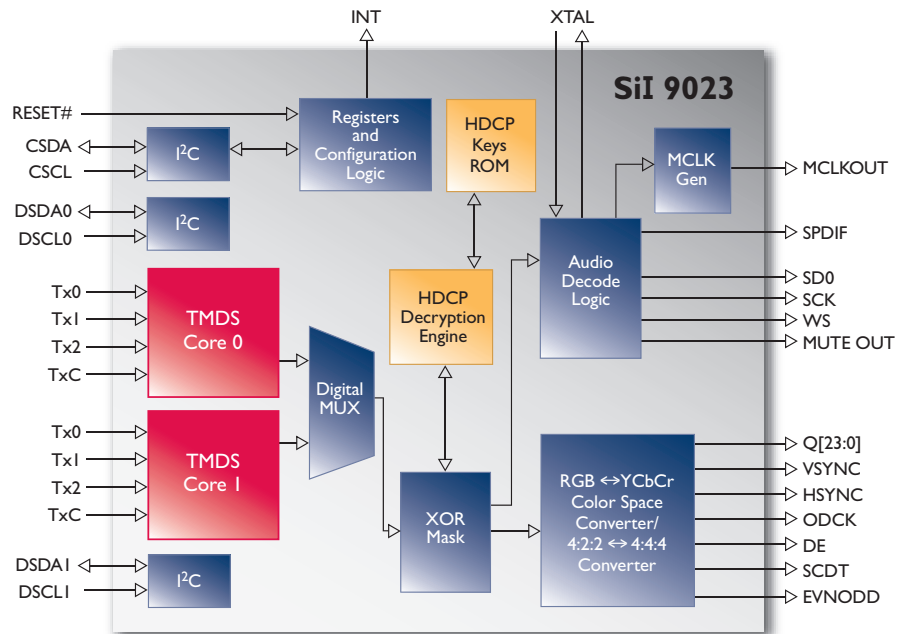
HDMI Receiver

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 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 SiI 9021
- 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

Silicon Image's SiI 9023 Starter Kit (CP9023HDMI)

Contents include:
Hardware
- SiI 9023 Receiver Daughter Board
- HDMI to HDMI cable

Software
- HDMIGear Receiver Software Tool

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

Part Number -   SiI9023CTU: 25-165MHz

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