Silicon Image

SiI 9030
PanelLink Cinema Transmitter

Applications

- DVD Players
- DVD Recorders
- A/V Receivers
- Digital Set-top Boxes
- PVRs
- D-VHS Players

Silicon Image introduces the second generation of its PanelLink Cinema™ product family with advances in performance and functionality well beyond other digital interface products on the market. With the first groundbreaking HDMI parts, PanelLink Cinema 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. PanelLink Cinema products are fully HDMI 1.0 compliant. As always, Silicon Image has built PanelLink Cinema silicon for rapid integration into consumer electronics system architectures.
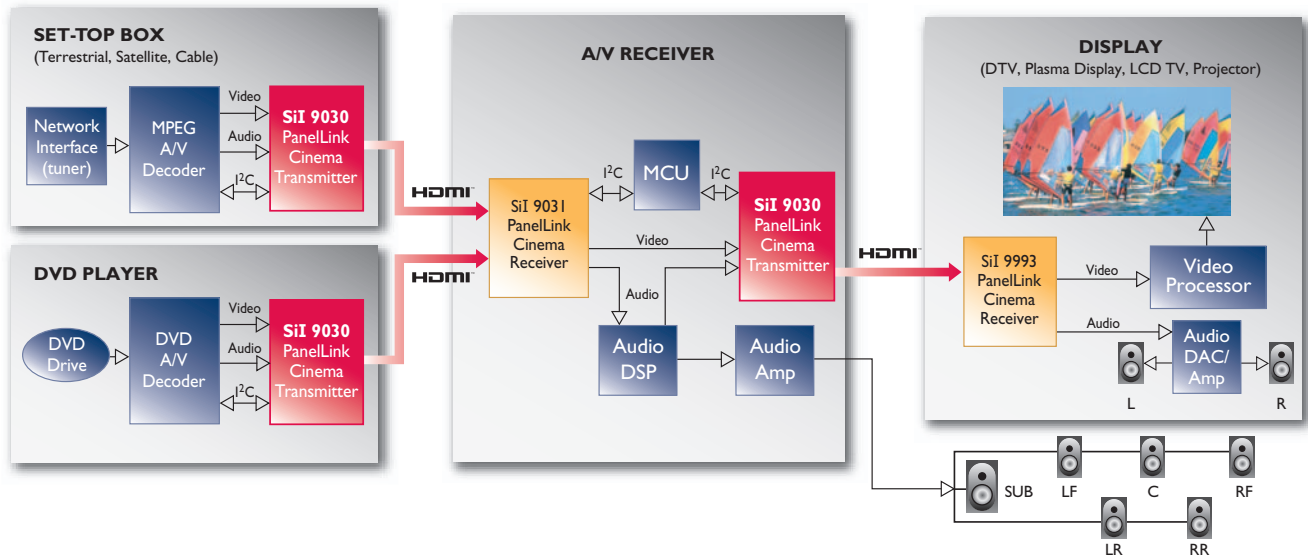
The SiI 9030 is an advanced HDMI transmitter that fits directly into home theater products, such as DVD players/recorders, A/V receivers, digital set-top boxes, personal video recorders (PVRs) and D-VHS players. To improve manufacturers' time-to-market and reduce design time, the SiI 9030 is backward compatible with first-generation PanelLink Cinema transmitters. In addition to all the features in the original PanelLink Cinema transmitter, the SiI 9030 supports the DVD Audio standard including 7.1-surround audio at 96kHz and stereo audio at 192kHz. The SiI 9030 supports PC resolutions up to SXGA (1280H x 1024V). To reduce system cost, the SiI 9030 has an additional I^{2}C Master port to control the DDC bus.

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 SiI 9030 is pre-programmed with unique HDCP keys, providing the highest level of security while reducing manufacturing complexity and cost.

SET-TOP BOX
(Terrestrial, Satellite, Cable)

Network Interface (tuner) → MPEG A/V Decoder → SiI 9030 PanelLink Cinema Transmitter (Video, Audio, I²C)

DVD PLAYER

DVD Drive → DVD A/V Decoder → SiI 9030 PanelLink Cinema Transmitter (Video, Audio, I²C)

A/V RECEIVER

SiI 9031 PanelLink Cinema Receiver — I²C — MCU — I²C — SiI 9030 PanelLink Cinema Transmitter; Video; Audio; Audio DSP → Audio Amp

DISPLAY
(DTV, Plasma Display, LCD TV, Projector)

SiI 9993 PanelLink Cinema Receiver — Video → Video Processor; Audio → Audio DAC/Amp — L, R

SUB   LF   C   RF
LR   RR

SiI 9030 Features
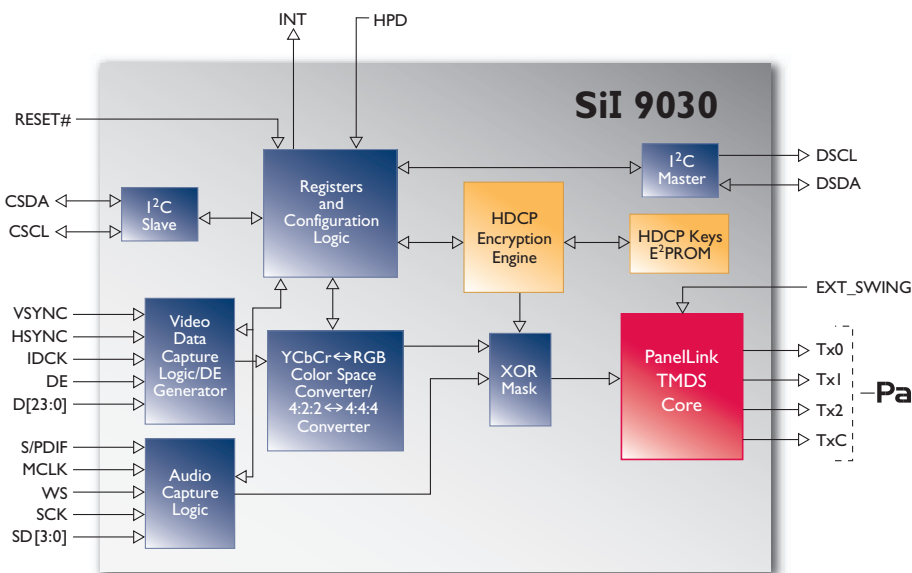## PanelLink Cinema Transmitter

Industry-Standard Compliance
- HDMI 1.0
- DVI 1.0
- EIA/CEA-861B
- HDCP 1.1

Digital Video Output
- Integrated PanelLink® core
- Supports DTV (480i/576i/480p/576p/720p/1080i) and PC (VGA/XGA/SXGA) resolutions
- 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 ↔ RGB color space conversion
- 4:2:2↔4:4:4 up-converter
- Programmable Data Enable (DE) generator

Digital Audio Output
- DVD Audio support thru 4×I^{2}S inputs
- Supports 2-channel 192kHz or 8-channel 96kHz
- Supports IEC60958 2-channel PCM or IEC61937 compressed audio (Dolby Digital, DTS, etc.)
- Industry-standard S/PDIF input

Content Protection
- Integrated HDCP cipher engine
- Pre-programmed HDCP keys
  - Simplify manufacturing process
  - Most secure solution available
  - Lower system, manufacturing costs
- Encrypts both video and audio

System Operation
- Register-programmable via slave I^{2}C interface
- Master I^{2}C simplifies system design
- Flexible interrupt registers with interrupt pin
- Monitor detection supported through hot plug and receiver detection

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

Silicon Image's SiI 9030 Starter Kit (CP9030HDMI)

Contents include:
Hardware
- SiI 9030 Transmitter Standalone Board
- HDMI to HDMI cable

Software
- HDMIGear Software Tool

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

Part Number -   SiI9030CTU - Production HDCP keys

SiI9030CTU - PUB - Public HDCP keys, for development only