



## SiI 9993-35-IP PanelLink Receiver



### Applications

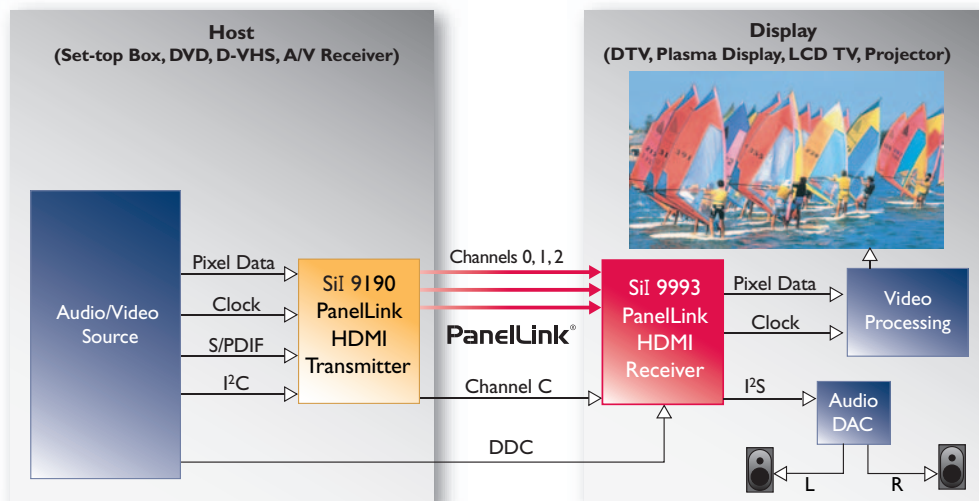
- DTVs
- Plasma Displays
- LCD TVs
- Projectors

Silicon Image introduces PanelLink<sup>®</sup>, its new flagship consumer electronics product family featuring the first silicon fully compliant with the industry's broadly supported HDMI 1.0 specification. PanelLink products offer a simple, low-cost method of providing consumers with the highest-quality, all-digital home theater experience. Consumer electronics devices incorporating PanelLink technology are able to transmit and/or receive uncompressed, premium-quality, digital HD content over a single, low-cost HDMI cable. Built-in backward compatibility with the DVI 1.0 specification allows HDMI devices to connect to any DVI device, protecting consumer's home theater investments.

The PanelLink SiI 9993-35-IP receiver IP enables digital display devices such as DTVs, plasma displays, LCD TVs and projectors to receive and display secure digital audio and video transmitted from home source devices such as digital set-top boxes, DVD and D-VHS players, and A/V receivers. The SiI 9993-35-IP incorporates an extremely flexible audio and video interface. An integrated color space converter provides full backward compatibility with DVI devices. With both digital and analog video (RGB/YPbPr) output, the SiI 9993-35-IP easily fits into existing DTV architectures. A S/PDIF port outputs either 2-channel PCM audio or encoded data such as Dolby Digital and DTS. An I2S port outputs PCM data to low-cost audio DACs.

Each SiI 9993-35-IP comes complete with all views necessary to integrate it into new designs.

The SiI 9993-35-IP easily receives HD video from cables in excess of 15 meters for greater system flexibility.



# PanelLink®

## SiI 9993 Features

### PanelLink Receiver

#### Industry-Standard Compliance

- HDMI 1.0
- DVI 1.0
- EIA/CEA-861B
- HDCP 1.1

#### IP Features

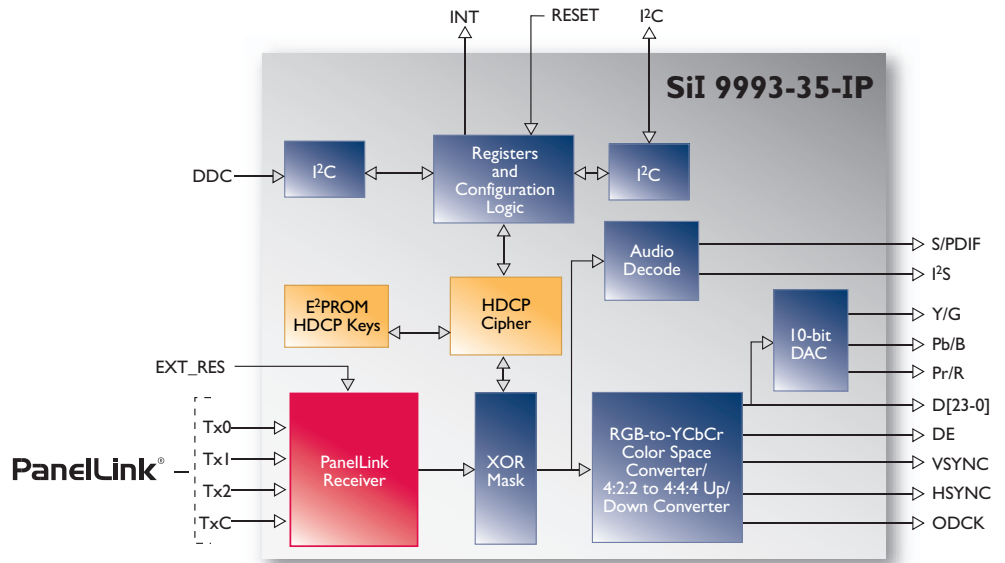
- TSMC 0.35µ technology
- RTL with full-chip verification environment and regression suite
- Synthesis, STA scripts
- DFT scripts for 98% scan coverage
- All design view for TMDS-RX, APLL and OSC blocks
- Full chip GDSII
- Load boards and test programs

#### Digital Video Output

- Integrated PanelLink® core supports all DTV resolutions (480i/576i/480p/576p/720p/1080i)
- Flexible digital video interface
  - 24-bit RGB 4:4:4
  - 24-bit YCbCr 4:4:4
  - 16/20/24-bit YCbCr 4:2:2
  - 8/10/12-bit YCbCr 4:2:2 (ITU.656)
- Analog RGB and YPbPr output
  - Integrated 10-bit DAC
  - Separate or composite syncs (sync on Y/G)
- Integrated RGB ↔ CbCr color space conversion
- 4:2:2 ↔ 4:4:4 converter

**Part Number - SiI9993CT100 - Production HDCP keys**

**SiI9993CT100 - PUB - Public HDCP keys, for development only**



#### Digital Audio Output

- Industry-standard S/PDIF and I²S output
- Programmable I²S output supports numerous low-cost audio DACs
- Supports IEC60958 2-channel PCM (48kHz)
- Capable of carrying IEC61937 compressed audio (Dolby Digital, DTS, etc.)

#### Content Protection

- Integrated High-bandwidth Digital Content Protection (HDCP) cipher engine
- Pre-programmed HDCP keys
  - Simplify manufacturing process
  - Most secure solution available
  - Lower system, manufacturing costs
- Decrypts both video and audio

#### System Operation

- Register-programmable via slave I²C interface
- Flexible interrupt registers with interrupt pin

#### Power Management

- 3.3V core provides low-power operation
- Flexible power-down modes
- Standby mode consumes less than 10mW

## Silicon Image's SiI 9993-35-IP Starter Kit (CP9031HDMI)

#### Contents include:

##### Hardware

- HDMI Mother Board
- SiI 9190 Transmitter Daughter Board
- SiI 9993 Receiver Daughter Board
- HDMI to HDMI cable

##### Software

- DemoCP Transmitter Software Tool
- HDMIgear Receiver Software Tool

##### Documentation

- User's Guide
- Data Sheets
- Application Notes

**Silicon Image**

Silicon Image, Inc.  
1060 E. Arques, Sunnyvale, CA 94085  
T 408.616.4000 F 408.830.9530  
www.siliconimage.com