

VastLane™ iTMDS Receiver

High-definition video solution for PC Monitors and DTVs

Silicon Image introduces the VastLane SiI7181 iTMDS receiver which uses advanced digital technology to support high-resolution digital displays for PC and HDTV applications. The iTMDS interface is ideal for internal display interconnect applications and operates with high levels of spread spectrum clocking, significantly reducing system EMI even at high operating frequencies.

The SiI7181 receiver provides two independent TMDS receiver cores that work in tandem as a dual-link receiver, or separately as simultaneous inputs. It supports regular color depth at 24 bits per pixel (bpp), or high color depths at 30, 36, or 48 bpp. VastLane digital technology resolves system level issues associated with high-speed digital design, providing the lowest cost all-digital solution.

The SiI7181 incorporates advanced automatic equalizer and PLL bandwidth for long cable support and increased interoperability. The

SiI7181 is available in a 208-QFP Universal environmentally friendly Pb free package.

The SiI 7181 provides bandwidth to support today's 720p and tomorrow's 1080p digital TVs at 8, 10, 12, or 16 bits per color using only four differential signal pairs (three data pairs and one clock pair). Using today's LVDS technology will require two channels with up to 12 differential signal pairs. The SiI 7181 provides significant cost savings for the digital TV internal interface by reducing the chip count from two to one and dramatically reducing the cost of cable assembly by cutting the number of wires needed.

SiI7181

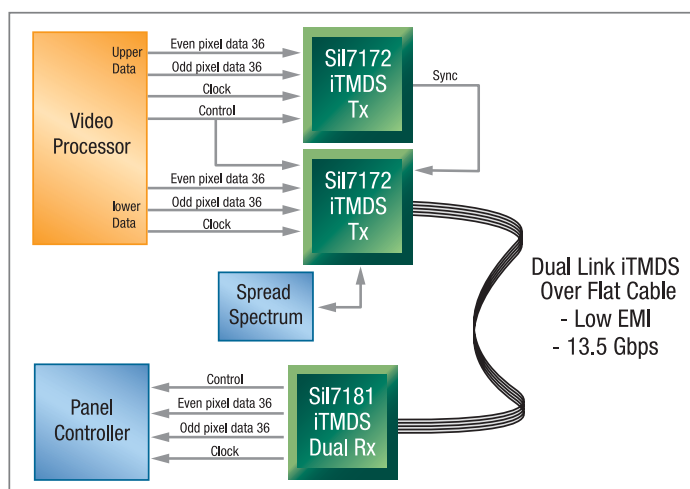
Applications

- **Direct view HDTV (LCD and PDP) internal link**
- **Rear projection HDTV (DLP, LCOS, & LCD) internal link**
- **Projectors**
- **Multi-functional monitors**

Key Features

- **Dual receivers operate in:**
 - **Dual Link mode (6 data channels)**
 - **Dual Head mode (two sets of 3 data channels)**

SiI7181 System Diagram



Sil7181 Features

Sil7181 Starter Kit (CP7181_7172)

The Sil7181 Starter kit includes hardware to evaluate the Sil7181. Included is documentation to help quickly design and launch an iTMDS internal link for DTV, LCD monitor, or projector applications.

Contents include:

Hardware

- Sil7181 evaluation board
- Sil7189 evaluation board

Documentation

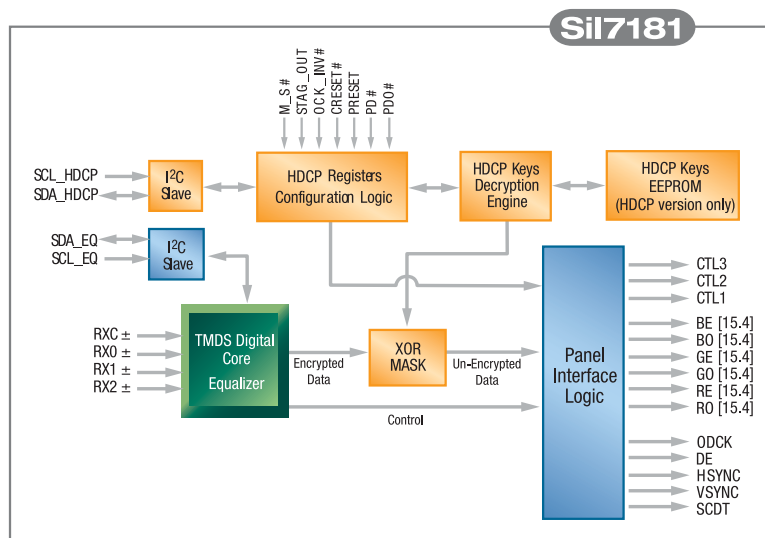
- Sil7181 starter kit user's guide
- Sil7181 datasheet
- Sil7181 evaluation board schematics
- Sil7181 bill of materials

General

- Dual receivers operate in:
 - Dual Link mode (six data channels)
 - Dual Head mode (two sets of three data channels)
- Integrated 165MHz x 2 (330MHz - QXGA) standard pixel rate output
- High color depth input support to 22.5MHz x 2
- Supports HDTV resolutions (720p/1080i/1080p)
- 24-bit, 30-bit, 36-bit, and 48-bit color depth support with flexible interface: can drive out two pixels per clock for 24-, 30-, and 36-bit pixels
- Integrated HDCP decryption engine with pre-programmed HDCP keys for security and ease of manufacture
- Automatic equalizer and PLL bandwidth selection for long cable support and increased interoperability

- Flexible low power modes with automatic power down when input clock is inactive
- Cost-reducing 5V-tolerant DDC I²C interface
- Fully iTMDS-compliant, yet still interoperable in DVI 1.0 environments
- Universal Pb-free package

Sil7181 Circuit Diagram



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Part Number: Sil7181CMHU

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