# Silicon Image



#### Applications

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

# SiI 7171 iTMDS Receiver

Silicon Image introduces Sil 7171<sup>™</sup> iTMDS (internal TMDS) receiver product for high bandwidth needs of direct view LCD/plasma and rear projection (LCOS, DLP, and LCD projection) digital televisions (DTVs), LCD monitors, and projectors.

While DVI 1.0 compliant for external applications, the Sil 7171 is ideal for internal link of DTVs, monitors, and projectors. Innovative Sil 7171 architecture adds new encoding method for high color depth support including 8, 10, 12, or 16 bits per color. Silicon Image advance design technique allows single link Sil 7171 operation of 225MHz bandwidth. This allows Sil 7171 to support 720p/1080i/1080p resolution with 12-bit per color at 60 Hz refresh rate. The Sil 7171 enables billions of color for HDTVs, leading to exceptional digital visual quality.

Sil 7171 incorporates advanced automatic equalizer and PLL bandwidth for long cable support and increase interoperability. Planned high definition content protection (HDCP) capable device with integrated pre-programmed keys provide secure high definition video delivery at low cost. The Sil 7171 is available in a 128-LQFP Universal environmentally friendly Pb free package.

Single link Sil 7171 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 channel with up to 12 differential signal pairs. The Sil 7171 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.

Texas Instruments selects the Sil 7171 for 720p/1080p 10-bit Digital Light Projection (DLP) reference design because it brings revolutionary solution to address the fast growing band width of the digital TV internal interface while reducing overall bill of material (BOM) cost.



# SiI 7171 Features

### iTMDS Receiver

#### General

- iTMDS receiver supporting 25MHz 225MHz bandwidth
- Consistent, high quality digital visual experience
- Cost effective single link support 1080p and 12-bit color
- 8-bit, 10-bit, 12-bit, and 16-bit per color encoding
- Support HDTV resolutions (720p/1080i/1080p)
- DVI 1.0 compliant receiver interoperable with broad range of DVI transmitters
- Automatic equalizer adjust to cable impedance ensure long cable support and greater interoperability
- Long cable support up to 20M DVI cable
  128-pin LQFP Universal Pb-free package

#### Input

• iTMDS input up to 225MHz 25MHz-165MHz DVI 1.0 compliant input

#### Output

- Flexible digital output interface
- Single pixel per clock: 24-bit, 30-bit, 36-bit, or 48-bit
- Two pixels per clock: 48-bit, 60-bit, or 72-bit
- Support 720P/1080i/1080P EIA/CEA-861B output timing
- Support VGA~UXGA PC output timing
- 8-bit, 10-bit, 12-bit, and 16-bit color digital RGB output

#### **Power Management**

- Support DVI and VESA DPMS power management functionality
- Low standby power consumption to meet energy conservation requirements



## Silicon Image's Sil 7171 Starter Kit (CP7179)

 The CP7179 Starter kit includes hardware to evaluate both Sil 7171 and Sil 7179, the equivalent of Sil 7171 with HDCP. Included is documentation to quickly design and launch an iTMDS internal link for DTV, LCD monitor, or projector applications

### **Contents include:**

#### Hardware

• Sil 7179 evaluation board

#### Documentation

- Sil 7179 Starter Kit User's Guide
- Sil 7171/Sil 7179 Data Sheet
- Sil 7179 Evaluation Board Schematics
- Sil 7179 Bill of Material (BOM)

#### Part Number - Sil7171CLU

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