

## HDMI® 1.4 Port Processor

Featuring HDMI Ethernet Channel and Audio Return Channel, plus InstaPort™ and Mobile High-Definition Link (MHL™) Technologies

The SiI9387 is a second generation five-input port processor with integrated HDMI Ethernet Channel enabling IP-based content via 100Mb/sec Ethernet and Audio Return Channel for transmitting digital audio from DTV to A/V receiver. The SiI9387 eliminates the need for separate Ethernet or S/PDIF cables and connectors. It features InstaPort™ fast switching plus Silicon Image's Mobile High-Definition Link (MHL™) technology.

HDTVs are evolving to accept new IP-based content and services. Consumers expect to enjoy their content in high-definition - delivered anywhere. HDMI Ethernet Channel simplifies the creation of home entertainment networks and enables new applications to run over TCP/IP, UPnP, and LiquidHD™ protocols to create a new personal entertainment experience.

The Silicon Image family of port processors enable OEMs to differentiate with innovative features offering consumers real value. The SiI9387 port processor outputs to the HDMI interface, requiring no change to the system architecture while providing the flexibility to introduce features as the market demands.

The SiI9387 switches between five HDMI 1.4 input ports. All ports support HDMI 1.3 signals, including audio, video, EDID, HDCP and CEC. Content Type bits, which specify the video type in the HDMI data stream, are also

supported on all ports. HDMI Ethernet Channel - a high-speed, 100 Mb/sec full-duplex networking data channel, and S/PDIF Audio Return Channel are supported on any one port.

The SiI9387 features Silicon Image InstaPort technology to dramatically reduce switching time between different sources to less than one second. It also supports the Silicon Image Mobile High-definition Link (MHL™) technology, a low-power, low-pin-count, HDMI-compatible solution that enables mobile phones, digital cameras, portable media players and other mobile devices to connect directly to HDTVs. MHL formats are auto-detected on up to two ports.

The SiI9387 feature set is matched by the SiI9334 HDMI transmitter for source devices.

## SiI9387

### Applications

- LCD, plasma, OLED and front and rear projection DTV

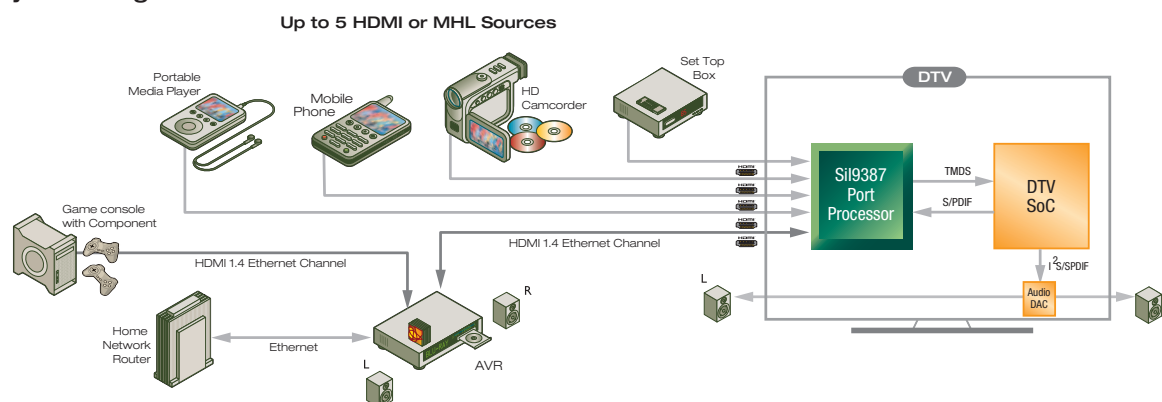
### Key Features

- Five HDMI ports
- HDMI Ethernet Channel
- Audio Return Channel with S/PDIF input
- Content Type Bits
- InstaPort™ switching technology
- MHL™ technology
- Built-in HDCP decryption engines
- Integrated EDID NVRAMs

**HDMI®**  
HIGH-DEFINITION MULTIMEDIA INTERFACE

*instaport™*

### SiI9387 System Diagram



# Sil9387 Features

## Sil9387 Starter Kit (CP9387HDMI)

Contents include:

### Hardware

- Sil9334 source board
- Sil9387 sink board
- HDMI ethernet cable

### Software

- Simon receiver software tool

### Documentation

- User's guide
- Schematics
- Bill of materials (BOM)

### Industry-Standard Compliance

- HDMI 1.4
- DVI 1.0
- EIA/CEA-861E
- HDCP 1.1
- TMDS Transmitter @ 225MHz

### HDMI/MHL Inputs

- Five HDMI 1.4 ports with
  - Content Type Bits on all ports
  - HDMI Ethernet Channel/Audio Return Channel on any one port
  - Up to two MHL auto-sensing ports
- One unencrypted HDMI output
- InstaPort™ fast HDMI port switching
- 36 bit color depth resolutions up to 1080p @ 60Hz or 720p/1080i @ 120Hz
- 24 bit color depth with MHL input resolutions up to 1080p @ 30Hz or 720/1080i @ 60Hz
- Shared EDID NVRAM for HDMI andVGA ports
- DDC/EDID for VGA
- Integrated CEC Consumer Electronics Control

### System Operation

- Register-programmable via slave I2C interface

### Content Protection

- Integrated HDCP cipher engine
- Built-in HDCP BIST (self-test)
- Pre-programmed HDCP keys:

### Power Management

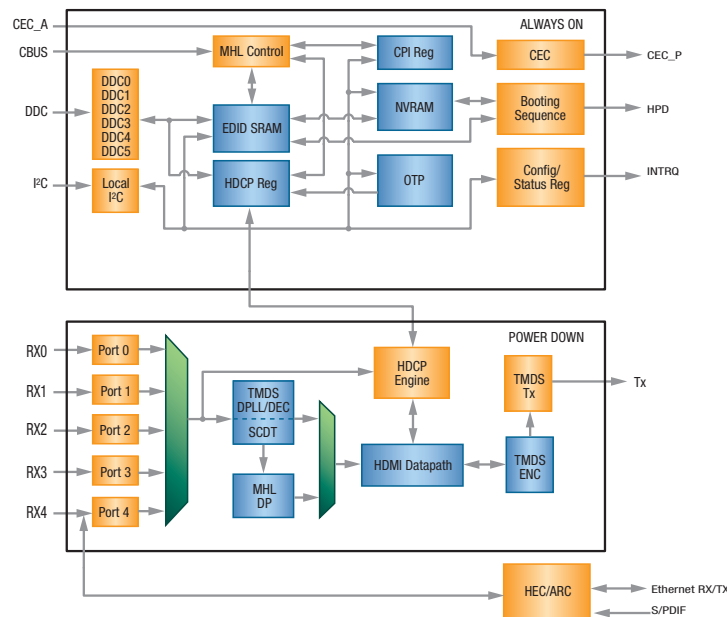
- Low standby power mode with auxiliary power mode for CEC and EDID support
- Network “On”, TV “Standby” power mode enables networking functionality while the TV display is not powered
- < 2.0W power consumption

### Package

- 100-pin, 14mm X 14mm, 0.5mm pitch QFP



### Sil9387 Block Diagram



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