



PinnaClear™ Port Processor

Featuring four HDMI 1.3 input ports with five EDID RAMs

Silicon Image's PinnaClear port processors are a new generation of highly innovative yet cost-effective HDMI solutions for price-sensitive, mid-range DTVs. PinnaClear port processors output directly to the integrated HDMI inputs in DTV SoCs, allowing manufacturers to differentiate their products by focusing their R&D efforts on video processing or other proprietary advantages.

The SiI9187 processor's five integrated Extended Display Identification Data (EDID) RAMs eliminate external EPROM components, lower BOM costs and simplify board design. Source devices can read EDID when DTVs are in standby mode or when the DTV is unplugged from the wall. EDID data is stored in NVRAM and downloaded into the RAM when a source device is connected to the DTV.

The SiI9187's integrated CEC eliminates the need for the external microprocessor to manage the low-level protocol. The CEC API simplifies the firmware development of CEC commands. Using power islands, CEC and EDID functions are supported in extremely low power.

All SiI9187 ports support the HDMI 1.3 specification and Deep Color -- the highest quality protected digital video over a single cable -- and 12 bits of video at 1080p/60Hz or 1080i/120Hz resolutions. The SiI9187 port processor also comes pre-programmed with HDCP keys to simplify manufacturing and provide the highest level of HDCP key security.

The SiI9187's built-in adaptive equalizer provides long cable support, even at Deep Color resolutions. This patented technology enables the SiI9187 to work reliably with noisy signals and multiple sources, making the sink devices highly interoperable.

SiI9187

Applications

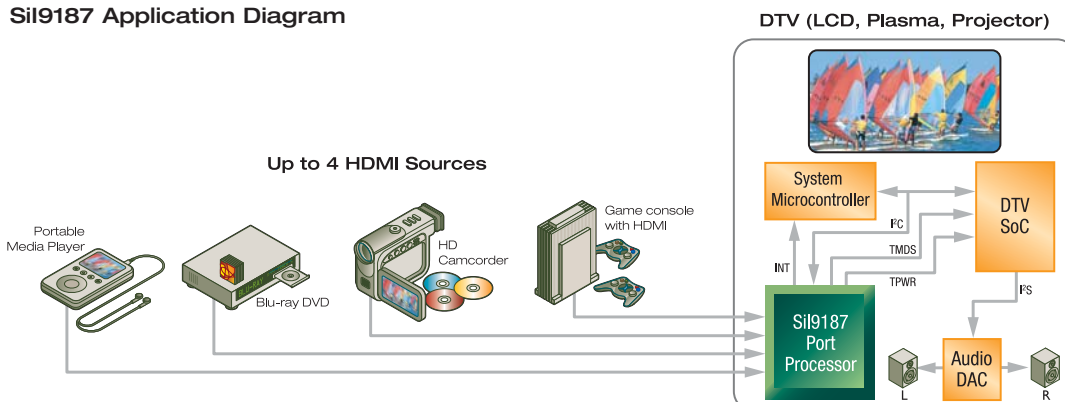
- LCD, plasma and projection DTVs

Key Features

- **Four HDMI 1.3 input ports**
- **Built-in HDCP decryption engines**
- **Five EDID RAMs for HDMI & VGA ports**
- **Integrated CEC**
- **Integrated NVRAM stores EDID data**
- **Single 3.3V power supply**
- **Built-in adaptive equalizer provides long cable support**



SiI9187 Application Diagram



Sil9187 Features

Sil9187 Starter Kit (CP9187HDMI)

Contents include:

Hardware

- Sil9187 port processor board
- HDMI to HDMI cable

Software

- Simon receiver software tool

Documentation

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

Industry-Standard Compliance

- HDMI 1.3
- DVI 1.0
- EIA/CEA-861D
- HDCP 1.1
- TMDS Transmitter @ 225MHz

HDMI Inputs

- Four HDMI inputs
- Supports DTV resolutions up to 1080p @ 60Hz or 720p/1080i @ 120Hz with 36-bit color depth
- Integrated EDID for each HDMI Port and VGA port
- Integrated CEC Consumer Electronics Control

System Operation

- Register-programmable via slave I²C interface

Content Protection

- Integrated HDCP cipher engine
- Built-in HDCP BIST
- Pre-programmed HDCP keys:
 - Simplify manufacturing process
 - Provide extremely secure solution
 - Lower system, manufacturing costs
- Built-in HDCP self-test

Power Management

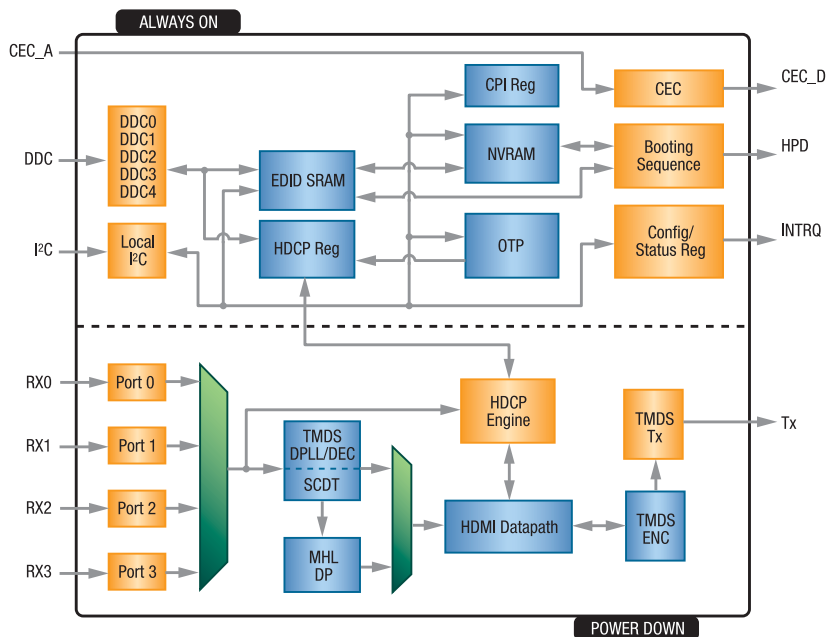
- Low stand by power mode with auxiliary power mode for CEC and EDID support

Package

- 72-pin 10x10mm QFN
- Pin compatible with Silicon Image's SiI9285 and SiI9287 port processors



Sil9187 Block Diagram



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