

## VastLane™ Input Processor

Input processor featuring full repeater support and Silicon Image's patent-pending InstaPort™ port switching technology

The VastLane SiI9261 input processor gives manufacturers the flexibility to add new features to their A/V receiver platforms quickly and cost-effectively. In addition to managing all the input interfaces, input processors offer innovations in legacy analog video inputs with high-quality 12-bit state-of-the-art ADCs and AVI interfaces, new MHL™ interfaces for HD mobile devices and InstaPort technology for faster port switching.

The highly integrated SiI9261 video input processor is the first multi-port input processor for the A/V receiver and wireless media box market. The SiI9261 features four HDMI 1.3 inputs that deliver Deep Color with 12 bits of video at 1080p resolution and 60Hz. The SiI9261 also includes four analog high-definition component video inputs that support YCbCr and RGB formats and a 5-input composite and 4-input S-Video switch capable of selecting three composite outputs or two Y/C outputs.

The four HDMI input ports on the SiI9261 support MHL, a low pin-count, low power interface designed for mobile CE devices. MHL technology enabled mobile devices can be connected directly to an SiI9261-equipped A/V receiver with auto discovery of HDMI or MHL source devices in the hardware.

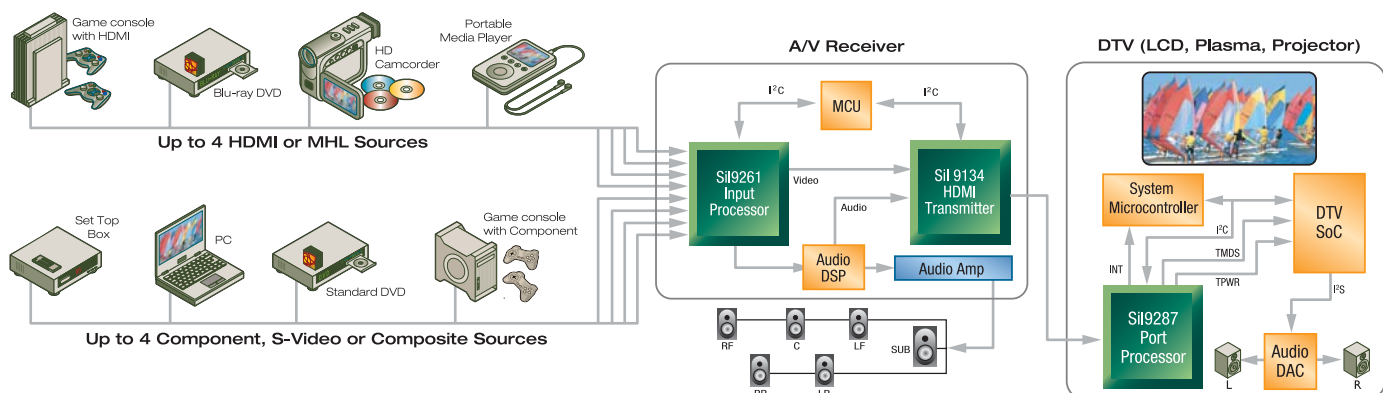
The SiI9261 analog video interface consists of triple-channel 12-bit analog-to-digital converters (ADCs) for capturing RGB and YPbPr inputs. With conversion rates ranging from 12.5 MSPS to 170 MSPS, the Analog Video Interface (AVI) inputs capture 480i/576i to 720p/1080i/1080p

TV formats and PC graphic formats up to 1600 x 1200 (UXGA). This fully integrated AVI includes an internal voltage reference and an anti-alias filter with selectable cutoff frequencies. The SiI9261 processor also integrates a data slicer/decoder to capture VBI data services.

The SiI9261 supports multi-channel audio up to 7.1 channels and supports multiple audio formats including high bit-rate (HBR) audio and all common audio sample rates up to 192kHz. Audio is available for output on an S/PDIF port or an I<sup>2</sup>S port.

The SiI9261 input processor supports full HDCP repeater functionality and comes pre-programmed with HDCP keys to simplify manufacturing and provide the highest level of HDCP key security. The chip includes four 256-byte Extended Display Identification Data (EDID) RAM blocks and 256-byte NVRAM to store EDID. The SiI9261 also supports Consumer Electronics Control (CEC) over a single wire bus. SiI9261 supports extremely low standby power with power islands enabling CEC and EDID operations when the device is in shut-down mode consuming less than 35mW.

### SiI9261 Application Diagram



## SiI9261

### Applications

- A/V receivers
- Wireless media boxes & adapters

### Key Features

- Patent-pending InstaPort technology
- Four HDMI 1.3 input ports support MHL
- Four component or RGB inputs
- 12-bit ADC for Deep Color analog video
- Four S-Video and five CVBS inputs
- Supports Dolby TrueHD & DTS-HD HBR audio
- Integrated CEC
- Four integrated EDIDs with NVRAM

**HDMI™**  
HIGH-DEFINITION MULTIMEDIA INTERFACE

instaport™

# Sil9261 Features

## Sil9261 Starter Kit (CP9261HDMI/ADC)

Contents include:

### Hardware

- Sil9261 input processor daughter board
- Sil9134 transmitter daughter board
- Motherboard
- 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
- HDCP 1.1
- ITU-656
- EIA/CEA-861D

### HDMI/MHL Inputs

- InstaPort fast port switching technology
- Four HDMI / MHL inputs
- Resolution support up to 1080p @ 60Hz or 720p/1080i @ 120Hz with 36-bit color via HDMI or 1080p @ 30Hz or 720/ 1080i @ 60Hz with 24-bit color via MHL
- Integrated RGB-to-YCbCr color space conversion with 12-bit accuracy
- x.v.Color support
- 4:2:2 to 4:4:4 converter with 14-bit accuracy
- Integrated CEC Consumer Electronics Control
- Integrated EDID for each HDMI Port

### Analog Video Inputs

- Video format detection in hardware
- 4x12-bit ADC @ 170 MSPS conversion rate
- 1.4 Vp-p analog input range
- Supports RGB and component (YPbPr) video signals up to 1080p
- D1/D2/D3/D4/D5 D-Connector support SCART FB inputs delay matched and multiplexed to one FB output
- Macrovision (Level 1) detection and handling

### System Operation

- Register-programmable via slave I<sup>2</sup>C interface
- Auto video mode simplifies design
- Auto audio mode allows more robust system
- Flexible interrupt registers with interrupt pin

### Digital Audio Output

- Industry-standard S/PDIF and I<sup>2</sup>C output
- Supports High Bit-Rate (HBR) Audio, Super Audio CD (SACD) and DVD-Audio:
  - 2-channel 32-192kHz or
  - 8-channel 32-192kHz
- Programmable I<sup>2</sup>S output supports numerous low-cost audio DACs
- Supports IEC60958 2-channel PCM
- Capable of receiving IEC61937 compressed audio (Dolby<sup>®</sup> Digital, DTS, etc.)

### Content Protection

- Integrated HDCP cipher engine
- Pre-programmed HDCP keys
- Built-in HDCP self-test

### Power Management

- Low standby power mode with auxiliary power mode for CEC and EDID support

### Package

- 208-pin LQFP

*instaport*<sup>™</sup>

InstaPort technology dramatically reduces the wait time when switching between HDMI sources by performing background HDCP authentication with all source devices connected to the DTV. Since the authentication process is done on all ports simultaneously, when a new input is selected by the viewer it can begin streaming content immediately without waiting for HDCP authentication. As consumers continue to connect an increasing number of devices to their A/V Receivers—from DVD players and game consoles to PCs and set top boxes—switching between them with limited delay becomes an increasingly desired feature.



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