

HDMI® 1.4 Transmitter

Featuring 3D over HDMI, 48-bit Deep Color, High Bit-Rate Audio Support and CEC

The SiI9136 supports 3D over HDMI and provides Consumer Electronics Control (CEC) hardware and API to reduce BOM cost and development time.

The SiI9136 is an advanced HDMI 1.4 transmitter designed for next generation Blu-ray™ Disc players and recorders that require high-definition audio and Deep Color capabilities. The SiI9136 supports up to 1080p resolution at 60Hz and 36-bit color depth and 1080p resolution at 30Hz and 48-bit color depth. The SiI9136 also supports Dolby® True HD and DTS-HD high bit-rate audio formats to deliver a rich digital video and audio experience. In addition, the SiI9136 supports all mandatory 3D formats in the HDMI 1.4 specification.

The 9136 also integrated HDMI compliant Consumer Electronics Control (CEC) hardware and API help reduce BOM cost and development time. The CEC I/O eliminates the need for additional external components and the CEC API manages communication of all CEC commands and signaling, significantly lowering system-level control by the system microcontroller and simplifying firmware overhead.

The SiI9136 will fit directly into home theater products such as Blu-ray™ Disc players and recorders, DVD players and recorders, A/V receivers, digital set-top boxes and personal video recorders (PVRs). The SiI9136 is backward compatible with previous generation HDMI transmitters.

The built-in High-bandwidth Digital Content Protection (HDCP) encryption engine secures the digital link for transmission of valuable high-definition video and audio. Each SiI9136 is pre-programmed with unique HDCP keys, providing an extremely high level of security while reducing manufacturing complexity and cost.

SiI9136

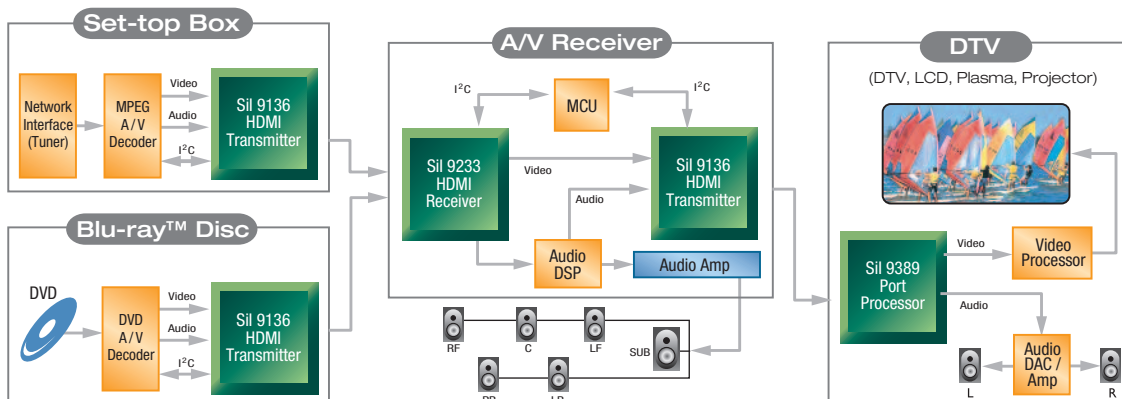
Applications

- Blu-ray™ Disc players and recorders
- Audio-Video Receivers
- Set-top Boxes
- Video Game Consoles
- PVRs and DVRs
- DVD players and recorders

Key Features

- 3D over HDMI
- 48-bit Deep Color
- High bit-rate lossless audio
- x.v.Color extended color gamut
- Integrated CEC API
- HDCP encryption
- 225MHz HDMI Transmitter

SiI9136 Typical Application Diagram



HIGH-DEFINITION MULTIMEDIA INTERFACE

Sil9136 Features

Sil9136 Starter Kit (CP9136HDMI)

Contents include:

Hardware

- CP9136 source board
- HDMI cable

Software

- Silicon transmitter software tool

Documentation

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

Industry-Standard Compliance

- HDMI 1.4
- DVI 1.0
- EIA/CEA-861D
- HDCP 1.2

Content Protection

- Integrated HDCP cipher engine
- Built-in HDCP BIST
- Pre-programmed HDCP keys

Digital Video

- 48-bit color depth at up to 1080p @ 30Hz
- 36-bit color depth at up to 1080p @ 60Hz
- 3D formats support:
 - Frame Packing up to 1080p @ 24Hz
 - Side-by-Side (Half) up to 1080p @ 60Hz
 - Top-and-Bottom up to 1080p @ 24Hz
- Flexible video interface supports DVD and HD MPEG decoders:
 - 12/15/18/24/30/36-bit RGB / YCbCr 4:4:4
 - 16/20/24/30/36-bit YCbCr 4:2:2
 - 8/10/12-bit YCbCr 4:2:2 (ITU-R BT.601 & BT.656)
- Integrated YCbCr to RGB conversion
- 4:2:2 to 4:4:4 up-converter
- Programmable Data Enable (DE) generator
- 18-bit internal video processing and 18-bit to 16/12/10/8-bit dither

Digital Audio

- Supports Dolby® True HD and DTS-HD up to 24Mb/s through 4xI2S inputs
- DVD-Audio support through four I2S inputs
- 8-pin interface to Direct Stream Digital (DSD) Super Audio CD (SACD)
- Supports 2-channel audio at 192kHz and 8-channel audio at 192kHz
- Supports IEC60958 2-channel PCM or IEC61937 compressed audio (Dolby® Digital, DTS, etc.)

System Operation

- Register-programmable via I²C interface

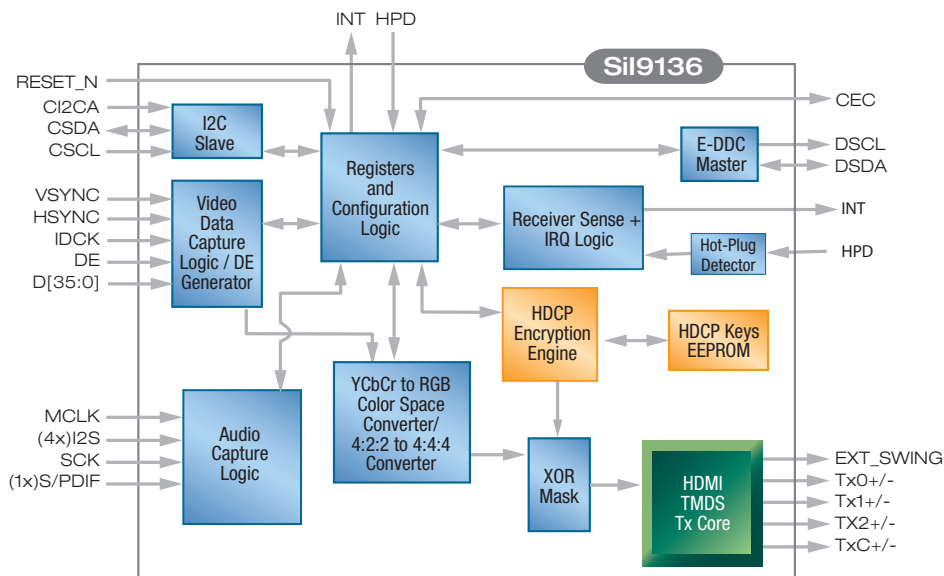
Power Management

- 161 mW power consumption

Package

- 100-pin TQFP

Sil9136 Circuit Diagram



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