

FEATURES

General

- HDMI 1.4a features supported
- 3D video support
- Extended colorimetry
- De-interlacer operates from 480i to 1080i with no external memory required
- CEC controller and buffer reduces system overhead
- Compatible with DVI v.1.0
- Optional embedded HDCP keys to support HDCP 1.3
- Single 1.8 V supply
- Video/audio inputs accept logic levels from 1.8 V to 3.3 V

Digital video

- 150 MHz operation supports all video and graphics resolutions from 480i to 1080p
- De-interlacer requires no external memory
- Programmable 2-way color space converter
- Supports RGB, YCbCr, and DDR
- Supports ITU656-based embedded syncs
- Auto input video format timing detection (CEA-861E)

Digital audio

- Supports standard S/PDIF for stereo LPCM or compressed audio up to 192 kHz
- 2-channel uncompressed LPCM I²S audio up to 192 kHz

Special features for easy system design

- On-chip MPU with I²C master to perform EDID reading and HDCP operations; reports HDMI events through interrupts and registers
- 5 V tolerant I²C and HPD I/Os, no extra device needed
- No audio master clock needed for supporting S/PDIF and I²S

APPLICATIONS

- Cellular handsets
- Digital video cameras
- Digital still cameras
- Personal media players
- Gaming
- DVD players and recorders
- Digital set-top boxes
- HDMI repeaters

FUNCTIONAL BLOCK DIAGRAM

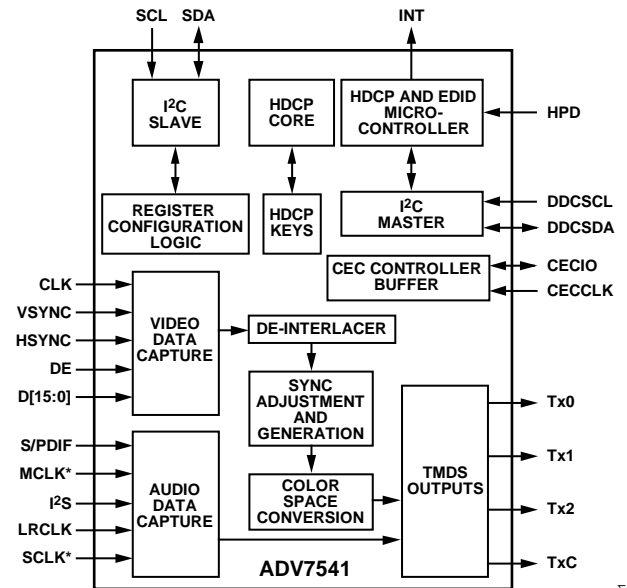


Figure 1.

GENERAL DESCRIPTION

The ADV7541 is a 150 MHz, high definition multimedia interface (HDMI™) transmitter. It supports HDTV formats up to 1080p and computer graphic resolutions up to SXGA at 75 Hz.

With the optional inclusion of embedded HDCP keys, the ADV7541 allows the secure transmission of protected content, as specified by the HDCP 1.3 protocol.

The ADV7541 supports both S/PDIF and 2-channel I²S audio. Its high fidelity, 2-channel I²S can transmit stereo at up to a 192 kHz sampling rate. The S/PDIF can carry stereo LPCM audio or compressed audio including Dolby® Digital and DTS®.

The ADV7541 helps to reduce system design complexity and cost by incorporating such features as an I²C® master for EDID reading and 5 V tolerance on I²C and Hot Plug™ detect pins.

Fabricated in an advanced CMOS process, the ADV7541 is available in a space-saving, 49-ball WLCSP surface-mount package. This package is RoHS compliant and specified to operate from -25°C to +85°C.

Rev. SpC

Information furnished by Analog Devices is believed to be accurate and reliable. However, no responsibility is assumed by Analog Devices for its use, nor for any infringements of patents or other rights of third parties that may result from its use. Specifications subject to change without notice. No license is granted by implication or otherwise under any patent or patent rights of Analog Devices. Trademarks and registered trademarks are the property of their respective owners.

ADV7541

NOTES

I²C refers to a communications protocol originally developed by Philips Semiconductors (now NXP Semiconductors).

HDMI, the HDMI Logo, and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC in the United States and other countries.