

## 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 I<sup>2</sup>S audio up to 192 kHz

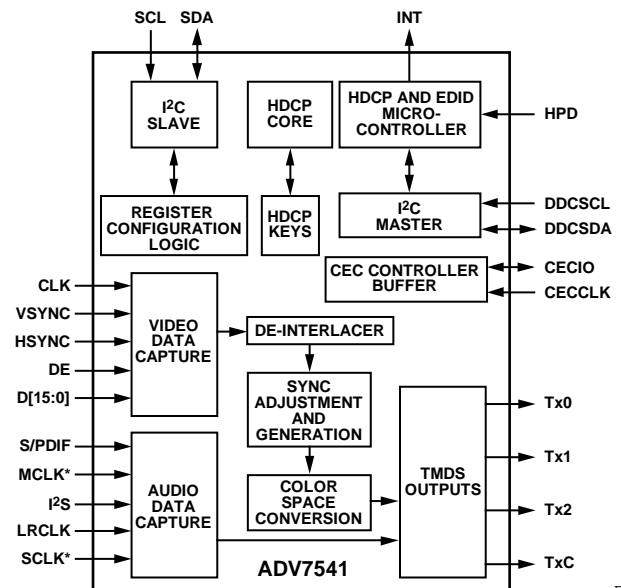
### Special features for easy system design

- On-chip MPU with I<sup>2</sup>C master to perform EDID reading and HDCP operations; reports HDMI events through interrupts and registers
- 5 V tolerant I<sup>2</sup>C and HPD I/Os, no extra device needed
- No audio master clock needed for supporting S/PDIF and I<sup>2</sup>S

## 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



\*THE SCLK SERVES AS MCLK WHEN CONFIGURED WITH S/PDIF.

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 I<sup>2</sup>S audio. Its high fidelity, 2-channel I<sup>2</sup>S 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 I<sup>2</sup>C master for EDID reading and 5 V tolerance on I<sup>2</sup>C 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.

# ADV7541\* Product Page Quick Links

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## Comparable Parts

View a parametric search of comparable parts

## Evaluation Kits

- ADV7541 Evaluation Board

## Documentation

### Application Notes

- AN-1050: A Method for Compressing I<sup>2</sup>C Scripts for the ADV74xx/ADV75xx/ADV76xx/ADV78xx

### Data Sheet

- ADV7541: Low Power HDMI/DVI Transmitter with De-Interlacer Data Sheet

## Reference Materials

### Informational

- Advantiv™ Advanced TV Solutions

## Design Resources

- ADV7541 Material Declaration
- PCN-PDN Information
- Quality And Reliability
- Symbols and Footprints

## Discussions

View all ADV7541 EngineerZone Discussions

## Sample and Buy

Visit the product page to see pricing options

## Technical Support

Submit a technical question or find your regional support number

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## NOTES

I<sup>2</sup>C refers to a communications protocol originally developed by Philips Semiconductors (now NXP Semiconductors).

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