



# ANALOG DEVICES

## Deep Color HDMI 1.3 Transmitter with CEC

### ADV7510

#### FEATURES

##### General

- Incorporates HDMI (v.1.3 with Deep Color, x.v.Color)
- 225 MHz supports 12-bit Deep Color operation in all video formats up to 1080p
- Supports Gamut Metadata Packet transmission
- Integrated CEC buffer/controller
- Compatible with DVI v.1.0, and HDCP v.1.3
- Video/audio inputs accept logic levels from 1.8 V to 3.3 V

##### Digital video

- Programmable two-way color space converter
- Supports RGB, YCbCr, and DDR
- Supports ITU656-based embedded syncs
- Auto input video format timing detection (CEA-861-D)

##### Digital audio

- Supports standard S/PDIF for stereo LPCM or compressed audio up to 192 kHz
- 8-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 HDCP operations and EDID reading operations
- 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
- On-chip MPU reports HDMI events through interrupts and registers

#### GENERAL DESCRIPTION

The ADV7510 is a 225 MHz High Definition Multimedia Interface (HDMI™) transmitter, which is ideal for home entertainment products including DVD players/recorders, digital set top boxes, A/V receivers, gaming consoles, and PCs.

The digital video interface contains an HDMI and a DVI v.1.0-compatible transmitter, and supports all HDTV formats (including 1080p with 12-bit Deep Color). The ADV7510 also supports x.v.Color™, high bit rate audio, digital theater sound (DTS), and programmable AVI InfoFrames features.

#### FUNCTIONAL BLOCK DIAGRAM

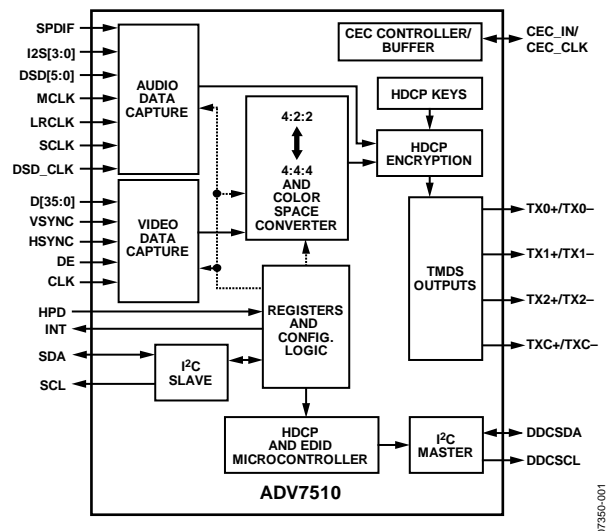


Figure 1.

With the inclusion of HDCP, the ADV7510 allows the secure transmission of protected content as specified by the HDCP v.1.3 protocol.

The ADV7510 supports both S/PDIF and 8-channel I<sup>2</sup>S audio. Its high fidelity 8-channel I<sup>2</sup>S can transmit either stereo or 7.1 surround audio up to 768 kHz. The S/PDIF can carry compressed audio including Dolby® Digital, DTS®, and THX®.

Fabricated in an advanced CMOS process, the ADV7510 is provided in a 100-lead LQFP surface-mount plastic package and is specified over the 0°C to +85°C temperature range.

For more information about the ADV7510, email: [flatpanel\\_apps@analog.com](mailto:flatpanel_apps@analog.com).

#### Rev. SpA

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# ADV7510\* PRODUCT PAGE QUICK LINKS

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## COMPARABLE PARTS

View a parametric search of comparable parts.

## EVALUATION KITS

- ADV7510 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

- ADV7510: Deep Color HDMI 1.3 Transmitter with CEC Data Sheet

## REFERENCE MATERIALS

### Informational

- Advantiv™ Advanced TV Solutions

### Technical Articles

- Analysis of Common Failures of HDMI CT
- Designing HDTVs with CEC to Energy Star 3.0

## DESIGN RESOURCES

- ADV7510 Material Declaration
- PCN-PDN Information
- Quality And Reliability
- Symbols and Footprints

## DISCUSSIONS

View all ADV7510 EngineerZone Discussions.

## SAMPLE AND BUY

Visit the product page to see pricing options.

## TECHNICAL SUPPORT

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## NOTES

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