# 225 MHz, High Performance HDMI Transmitter with ARC

# ADV7511

## FEATURES

**General**

Incorporates HDMI 1.4 features
 Audio return channel (ARC)
 3D video support
225 MHz supports 12-bit Deep Color operation in all video formats up to 1080p
Supports gamut metadata packet transmission
Integrated CEC buffer/controller—upgraded to HDMI 1.4
Compatible with DVI 1.0 and HDCP 1.4
Video/audio inputs accept logic levels from 1.8 V to 3.3 V

**Digital video**

3D video ready
Programmable two-way color space converter
Supports RGB, YCbCr, and DDR
Supports ITU656-based embedded syncs
Automatic input video format timing detection (CEA-861-E)

**Digital audio**

Audio return channel (ARC) for HDMI 1.4 support
Supports standard S/PDIF for stereo LPCM or compressed audio up to 192 kHz
8-channel uncompressed LPCM I$^2$S audio up to 192 kHz

**Special features for easy system design**

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

## APPLICATIONS

**Home entertainment products**

Gaming consoles
PCs
DVD players and recorders
Digital set top boxes
A/V receivers

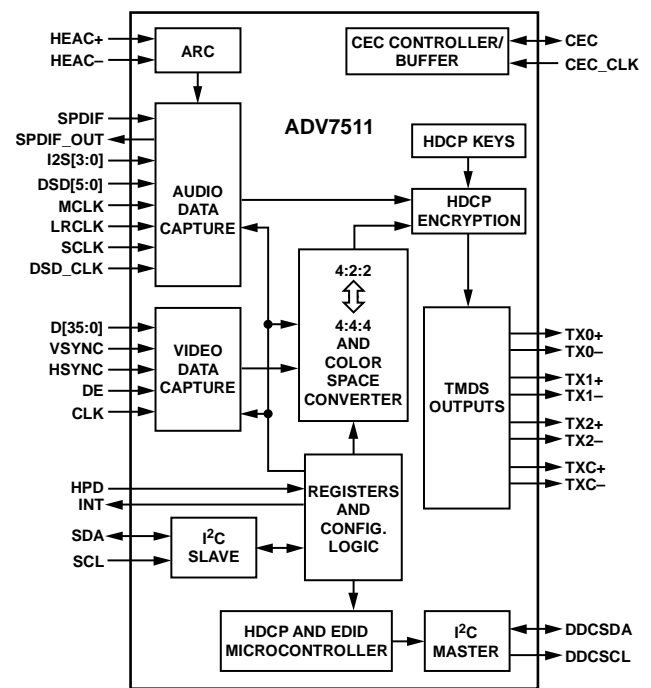## FUNCTIONAL BLOCK DIAGRAM



*Figure 1.*

## GENERAL DESCRIPTION

The ADV7511 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 1.4- and a DVI 1.0-compatible transmitter, and supports all HDTV formats (including 1080p with 12-bit Deep Color). The ADV7511 supports the HDMI 1.4-specific features, HEAC (ARC), and 3D video. In addition to these features, the ADV7511 supports x.v.Color™, high bit rate audio, and programmable AVI InfoFrames. With the inclusion of HDCP, the ADV7511 allows the secure transmission of protected content as specified by the HDCP 1.4 protocol.

The ADV7511 supports both S/PDIF and 8-channel I$^2$S audio. Its high fidelity 8-channel I$^2$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 ADV7511 is provided in a 100-lead LQFP surface-mount plastic package and is specified over the 0°C to +70°C temperature range.

**Rev. Sp0**

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# ADV7511* Product Page Quick Links

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## Comparable Parts ⬒

View a parametric search of comparable parts

## Evaluation Kits ⬒

- ADV7612 and ADV7511 Evaluation Board
- ADV7842 and ADV7511 Evaluation Board

## Documentation ⬒

**Application Notes**

- AN-1143: ADV7511 HDCP 1.1 Enable/Disable Option
- AN-1180: Optimizing Video Platforms for Automated Post-Production Self-Tests
- AN-1270: ADV7511/ADV7511W/ADV7513 Based Video Generators

**Data Sheet**

- ADV7511: 225 MHz, High Performance HDMI Transmitter with ARC Data Sheet

**User Guides**

- UG-235: User Guide for Advantiv ADV7842/ADV7511 Video Evaluation Board

## Software and Systems Requirements ⬒

- ADV7511 HDMI transmitter Linux Driver
- ADV7511 Xilinx KC705, VC707, ZC702 and ZED Reference Design
- FMC-IMAGEON Xilinx ML605 Reference Design

## Tools and Simulations ⬒

- CEC Clock Timing Register Calculator (ADV7511-Family)
- ADV7511 IBIS Model

## Reference Designs ⬒

- CN0224

## Reference Materials ⬒

**Technical Articles**

- Enabling HDMI in the Automotive Segment

## Design Resources ⬒

- ADV7511 Material Declaration
- PCN-PDN Information
- Quality And Reliability
- Symbols and Footprints

## Discussions ⬒

View all ADV7511 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

# NOTES

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

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