

## Dual-Mode DP/HDMI Transmitter IP Core

DisplayPort and HDMI Transmit technologies are highly complex mixed signal designs which require both high performance analog design (equalizer, PLL, DLL, CDR, etc.) and complicated logic design (HDCP engine, TMDS decoder, video and audio data processing, etc.).

The Dual Mode DisplayPort Transmitter IP core is fully compliant with DisplayPort 1.1a and HDMI 1.3 with HDCP content protection specifications. The IP core provides all the signal requirements for the DisplayPort source device receptacle. In HDMI mode, the dual-mode transmitter IP core is fully compliant to the HDMI 1.3 standard. The device supports Deep Color up to 36 bits per pixel. HDMI mode also supports the use of an external DisplayPort-to-HDMI level shifting plug adapter.

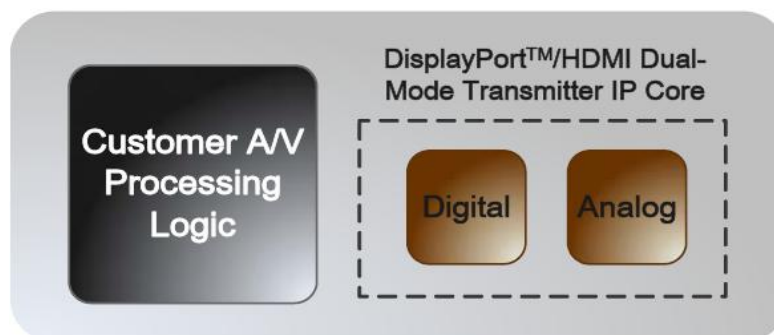
### Applications

- PC Motherboards
- PC Graphic Cards
- Notebook PCs
- Blu-Ray Disc Players

### Related IP Cores

- HDMI 1.2/1.3/1.4 Transmitter/Receiver
- DisplayPort<sup>TM</sup> Receiver
- SERDES (6.25Gbps or less)
- Ethernet PHY

### Typical Application Diagram



ASIC System-on-chip with Integrated  
DisplayPort™/HDMI Dual-Mode Transmitter IP Core

### Features

#### Highlights

- Compliant with DisplayPort 1.1a Specification
- Main link containing 4 physical lanes of 2.7/1.62 Gbps/lane
- Compliant with HDMI 1.2/1.3 Specifications
- TMDS clock rate up to 270MHz
- Supports use of standard external cable adapter for HDMI or DVI output

- YCbCr-to-RGB Color space conversion
- Backward compatible with DVI 1.0
- Built-in Self Test (BIST)

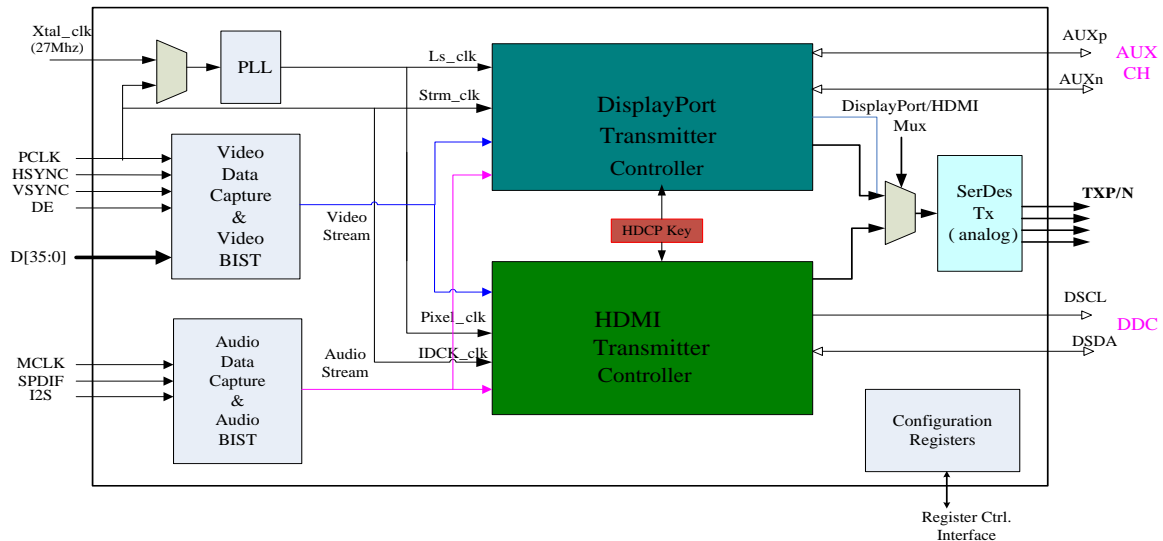
#### Video Interface

- Deep color support up to 36bpp
- EIA/CEA-861D video timing and info-frame structure
- 24/30/36/48-bit pixel video modes support at SDR (Single clock edge) and DDR (Dual Clock Edge)

#### Digital Audio Interface

- S/PDIF and I2S input supports PCM, Dolby Digital, DTS digital audio transmission
- Audio sampling rates from 32kHz to 192kHz
- Programmable I2S channel mapping
- IEC60958 or IEC61937 compatible

### Block Diagram



### Worldwide Locations

Analogix is positioned to support customers worldwide with headquarters in Santa Clara, CA and design engineering and product support in Beijing, China. Analogix also has sales support offices in Taiwan and Japan. For more information: [www.analogix.com](http://www.analogix.com).