



Product Brief

DisplayPort™/HDMI Dual-Mode Transmitter IP Core

DisplayPort™/HDMI Dual-Mode Transmitter IP Core Support Both DisplayPort and HDMI

DisplayPort™ is the next-generation high-speed display interconnect for monitors, notebooks, and consumer electronics. As provider of the world's first VESA certified discrete DisplayPort transmitter/receiver, Analogix offers its silicon-proven dual-mode digital video transmitter IP core (digital plus analog PHY) which supports both DisplayPort and HDMI digital interface specifications. It is ideal for integration into customers' system-on-chip products including PC or PC graphics cards, notebook PCs in PC applications to drive the internal flat panel display interface, or optical disc players and digital set top boxes in consumer electronics applications.

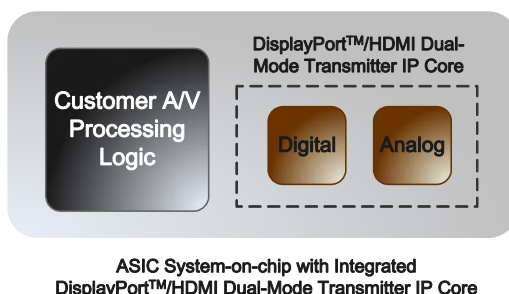
In DisplayPort mode, the dual-mode transmitter IP core is fully compliant with the DisplayPort 1.1a specifications. The IP core provides all the signal requirements for the DisplayPort source device receptacle. In HDMI mode, the dual-mode transmitter IP core is fully compliant to the HDMI 1.3 standard and 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.

Analogix DisplayPort Transmitter IP core supports HDCP encryption compliant to HDCP1.3 in DisplayPort mode and HDCP1.2 in HDMI mode. It also provides the Hot Plug/Unplug Detect and Built-In Self Test (BIST) function.

Applications

- PC Motherboards
- Notebooks
- PC Graphics Cards
- Blu-Ray Disc Players

Typical Application Diagram



Related IP Cores

- DisplayPort™ Transmitter
- HDMI 1.3/1.2 Transmitter/Receiver
- CoolHD™ - Low Power Transmitter
- SERDES (6.25Gbps or less)
- Ethernet PHY

Features

General

- DisplayPort 1.1a with HDCP 1.3
- HDMI 1.3 with HDCP 1.2
- HDMI 1.2 & DVI 1.0 backward compatible
- Supports use of standard external cable adapter for HDMI or DVI output
- Fully supports EIA/CEA-861 video timing and InfoFrame structure
 - 24/30/36-bit pixel video modes
 - YCbCr to RGB conversion
 - 4:4:4 and 4:2:2 data input formats
- Silicon proven in TSMC 0.18um process
- Flexible 18-bit video interface
 - LVTTTL and DVO logic levels
 - DDR data modes with up to 36bpp
 - 24-bit interface available (contact factory)
- Advanced digital audio interface
 - Industry standard S/PDIF audio modes
 - Sampling rates from 32 to 192kHz
- Hot Plug/Unplug detection mechanism
- Built-In Self Test (BIST)

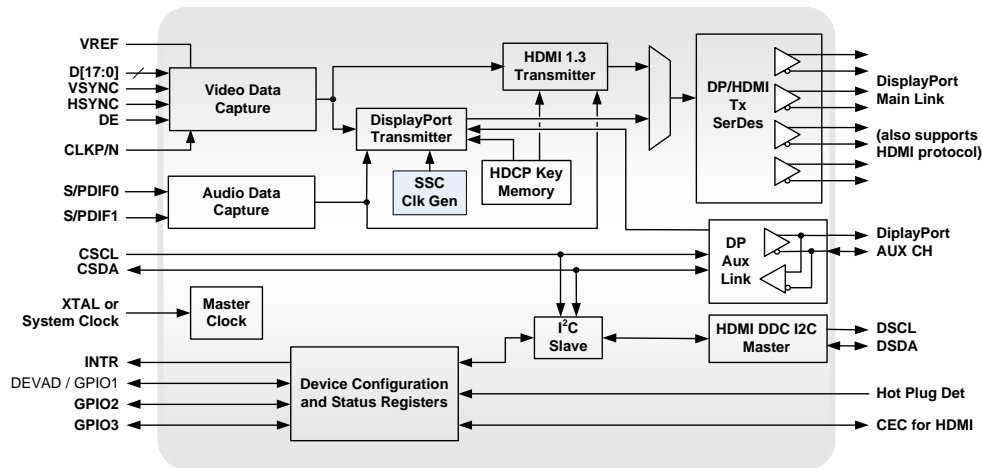
DisplayPort Mode

- 1/2/4 lane operation at up to 2.7Gbps/lane
- Spread-spectrum clock (SSC) generator
- Half-duplex, bi-directional AUX CH with up to 1Mbps bandwidth
- CTS certified

HDMI Mode

- HDMI 1.3 compliant with Deep Color support
 - Supports pixel rates up to 165Mpixel/sec
 - TMDS output clock up to 250MHz
- Automatic arbitration between host and DDC access through I²C port

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.