



PS181 DisplayPort™ to Dual-Mode DisplayPort™ Converter

HDMI 1.4b Compatible with 300MHz TMDs Clock Support

Product Brief

PS181

FEATURES

- Converts a native DisplayPort Source into a Dual-mode DisplayPort output
- Integrates a compliant DisplayPort™ receiver with a compliant HDMI™/DVI transmitter for video format conversion
- Full DisplayPort repeater function when in bypass mode
- Full HDCP 1.3 content protection support
- RGB at 6/8/10/12 bpc (bits-per-component) supported
- YCbCr 4:4:4 and YCbCr 4:2:2, 8/10/12 bpc supported
- Audio formats: 8-ch LPCM, compressed audio (AC-3, DTS) and HBR audio format up to 24-bit audio sample size and 192 kHz sample rate
- Includes on-chip microprocessor with SPI ROM interface
- 1.2V Core Power Supply & 3.3V I/O Power Supply
- ESD: HBM 8kV at connector pins and 5kV for all other pins
- 56-pin QFN package

DisplayPort Receiver Capability

- Fully compliant to DisplayPort 1.1a
- Supports 1, 2, and 4 lanes, at 1.62Gbps and 2.7Gbps
- Supports full link training and no link training operation
- Supports DisplayPort Spread Spectrum Clocking

DVI and HDMI Transmitter Capability

- HDMI 1.4b transmitter, up to 3.0Gbps data rate (300MHz TMDs clock) supporting 3D 1080p and 4K x 2K

GENERAL DESCRIPTION

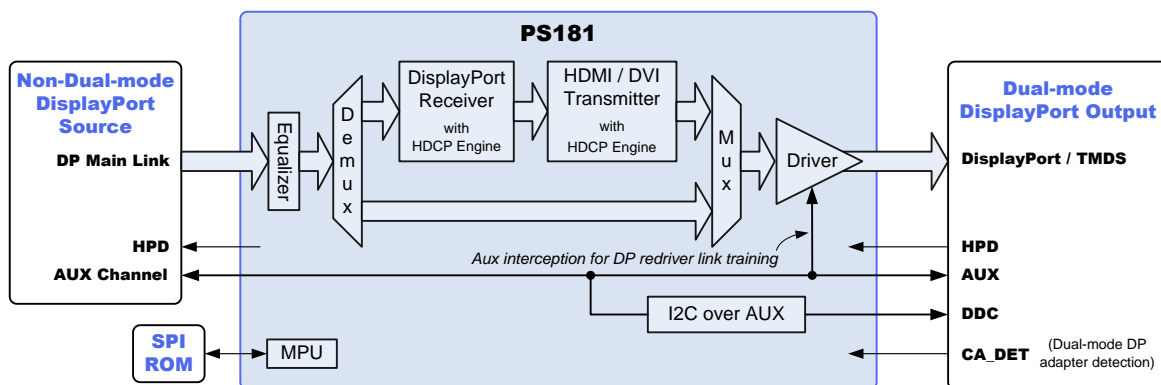
The PS181 accepts a native-only DisplayPort input from an upstream Source and provides a Dual-mode DisplayPort output. This provides support for a Dual-mode DisplayPort video adapter (simple level-shifting type cable adapter) that outputs DVI or HDMI when plugged into the Dual-mode DisplayPort output. When a DisplayPort cable is plugged into the output, the PS181 serves as a DisplayPort repeater/redriver to ensure a compliant DisplayPort signal at the output receptacle.

The HDMI transmitter is compliant to the HDMI 1.4b specification and supports video formats using TMDs clock rates up to 300MHz (3.0Gbps TMDs data rate). The PS181 integrates both HDCP Rx & Tx keys for repeater applications. An integrated AUX Channel to I2C bridge provides access to the HDMI/DVI display's DDC port to read EDID or access the HDCP directly.

Chip control is available through a dedicated I2C slave input, and an I2C master interface is available for external EDID and expansion functions. The device includes an on-chip micro-processor unit (MPU) that supports update of the external SPI ROM through I2C or AUX channel commands.

APPLICATIONS

- Dual-mode DisplayPort Source enablement for a native DisplayPort-only GPUs
- PC, Notebook and Docking Station output driver



Rev. 1

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Parade Technologies, Inc.
 2890 Zanker Road, Suite 102, San Jose, CA 95134, U.S.A.
 TEL: 408-329-5540 FAX: 408-329-5541
<http://www.paradetech.com>
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