

PI2DPX1264

13.5Gbps DP2.1 and eDP1.5 Linear ReDriver with AUX Listener

Description

The PI2DPX1264 is a non-blocking DisplayPort 2.1/eDP1.5 linear ReDriver™ with four channels operated by 1.8V power supply. The device supports UHBR13.5 (13.5Gbps), UHBR10 (10Gbps), HBR3 (8.1Gbps), HBR2 (5.4Gbps), and RBR under various DisplayPort speeds. With the on-chip AUX channel listener, the device can automatically monitor the system operation status to enter power saving mode via the DPCD register traffic check and activate the negotiated lane count for operation. and the AUX Listener also monitors the link speed rate to auto select Pre-defined EQ and FG for SI optimization.

The non-blocking linear ReDriver design ensures the differential signals conveying pre-shoot and de-emphasis equalization waveform messages from transmitter side to receiver side, which helps optimize the overall channel link adjustment conducted by the system transmitter and receiver with DFE. The CTLE equalizers are implemented at the inputs of the ReDriver to compensate the channel loss and reduce the ISI jitters. The programmable flat gain adjustments support the eye diagram opening.

The CTLE EQ gains and flat gains are individually programmable on each channel for flexible tuning via I2C register settings.

Application(s)

- Laptop PCs
- Desktop PCs
- Gaming Consoles
- VR/AR Goggles
- Active Cables
- Embedded Display Panels

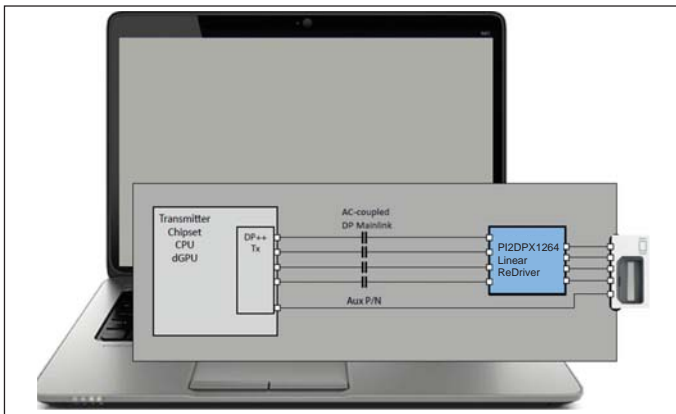


Figure 1. System with DisplayPort Connector Application

Features

- 4-Channel Configuration with 13.5Gbps Linear ReDriver
- Supports eDP1.5/DP2.1 and the Channel Speed Up to 13.5Gbps DP2.1 (UHBR13.5)
- Ultra-Low Latency (<300ps) for Better Interoperability and Data Throughput
- Individual Controls on CTLE Gain and Flat Gain
- Integrated AUX Listener for Power Management and Speed Detect
- Auto Selects Per-Defined EQ/FG Setting per Data Rate for SI Optimization
- I2C Slave Supports with Speed Up to 1MHz
- Supports DisplayPort AUX-Less Advance Link Power Management (ALPM)
- Low Active Current Consumption
 - 4-lane DP : 160mA (typical)
 - 2-lane DP : 80mA (typical)
 - 1-lane DP : 40mA (typical)
- Supports DisplayPort Dual Mode
- Interchangeable Input Channel Polarity
- Single Power Supply: 1.8V ±5%
- Industrial Temperature Support: -40°C to +85°C
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. “Green” Device (Note 3)
- For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](https://www.diodes.com/quality/product-definitions/) or your local Diodes representative.
- Packaging (Pb-free & Green):
 - Tiny 32-pin X2QFN 2.85mm x 4.5mm (0.4 mm pitch)

Ordering Information

Orderable Part Number	Package Code	Package Description
PI2DPX1264XUAEX	XUA	32-Pin, 2.85mm x 4.5mm (X2QFN)

Notes:

- E = Pb-free and Green
- X suffix = Tape/Reel

Notes:

1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated’s definitions of Halogen- and Antimony-free, “Green” and Lead-free.
3. Halogen- and Antimony-free “Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.