



# New Product Announcement

## PI2DPT1021 PI2DPT821

### 1.8V DP-Alt USB Type-C Bidirectional ReTimers Support Video Over Computer Interconnectivity

The DIODES™ PI2DPT1021 and PI2DPT821 are bit-level ReTimers with receiver adaptive equalization capable of compensating channel losses up to -23dB at 5GHz signals. The devices support DisplayPort™ (DP) 1.4 and USB 3.2 standards for laptop/desktop/AIO PCs, docking stations, peripherals, and active cables.

The PI2DPT1021 and PI2DPT821 have 4:4 channels, supporting CPUs with an integrated USB/DP crossbar switch. The PI2DPT1021's 10Gbps speed enables it to support USB 3.2 Gen2, whereas the PI2DPT821's 8Gbps supports USB 3.2 Gen1.

I2C is used to select:

- Four-lane DP
- Two-lane DP and one-lane USB 3.2 Gen1 and Gen2 (PI2DPT1021 only)
- One- or two-lane USB 3.2 Gen1 and Gen2 (PI2DPT1021 only)

Both devices comply with USB power management states for active mode (U0) and power-saving modes (U1, U2, U3).

The PI2DPT1021's bi-directional design provides flexibility if the DFP and UFP signal flows are swapped, which supports active cable applications and signal flow selection.

Packaged in the very small X1-QFN2845-32 (0.4 mm pitch) both operate across the -40°C to +85°C industrial temperature range.

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### The DIODES™ Advantage

**DIODES™ PI2DPT1021 and PI2DPT821 bit-level ReTimers provide fast USB 3.2 video interconnectivity.**

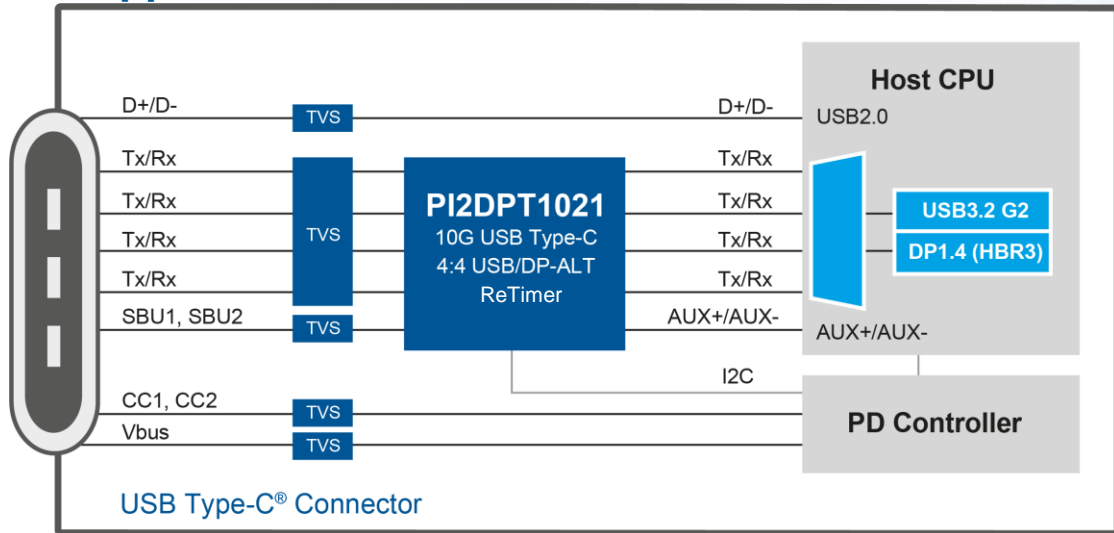
- **Flexible Four-Channel USB Type-C DP-Alt Mode Operation**  
USB 3.2 Gen2x2\*,  
USB 3.2 Gen2x1\* + Two-lane DP 1.4 (HBR3),  
Four-lane DP 1.4 (HBR3)
- **High-Speed Signal Integrity**  
Provides receiver adaptive equalization up to -23dB at 5GHz of channel loss compensation and jitter cleaning
- **Very Small X1-QFN2845-32 Package**  
Optimizes 2.85mm x 4.5mm PCB area for densely populated computing equipment
- **Auto Power-Saving Modes for Both USB and DP**  
Maintains USB U1/U2/U3 and DP D3 power-saving modes with built-in AUX listener
- **Bidirectional with Very-Low (<1ns) Latency For High-Speed Channel**  
Provides the flexibility for signal flow selection

\* PI2DPT1021 only; PI2DPT821 supports USB 3.2 Gen1

### Applications

- Laptops, desktops, and all-in-one (AIO) PCs
- Docking stations
- Active cables
- PC peripherals

### Typical Application



### Product Portfolio

Part Number	Operation Voltage	Data Rate	Lanes	Max Output Swing	Programming Interface	Operating Temperature Range	Package
		Gbps		mV			
<a href="#">PI2DPT1021</a>	1.8V	10	4	1,200	I2C	-40°C to +85°C	X1-QFN2845-32
<a href="#">PI2DPT821</a>	1.8V	8.1	4	1,200	I2C	-40°C to +85°C	X1-QFN2845-32

### Ordering Information

Orderable Part Number	Compliance (Only Automotive supports PPAP)	Package	Moisture Sensitivity	Packing	
				Quantity	Carrier
<a href="#">PI2DPT1021XEAEX</a>	<a href="#">Standard</a>	X1-QFN2845-32 (2.85mm x 4.5mm x 0.45mm, 0.4mm pitch)	MSL-1	3,500	13" Tape & Reel
<a href="#">PI2DPT821XEAEX</a>	<a href="#">Standard</a>	X1-QFN2845-32 (2.85mm x 4.5mm x 0.45mm, 0.4mm pitch)	MSL-1	3,500	13" Tape & Reel