



New Product Announcement

PI2EQX22024

USB 3.2 Gen 2x2, 20Gbps, 1.8V ReTimer Boosts Signal Quality of Super-Speed USB Type-C Interfaces

The PI2EQX22024 is bit-level, two-channel ReTimer with receiver adaptive equalization capable of compensating channel losses up to -23dB at 5GHz signals.

The device supports USB 3.2 standards for laptop/desktop/AIO PCs, docking stations, peripherals, and active cables.

The PI2EQX22024's 10Gbps per channel speed enables it to support all aspects of USB 3.2 Gen2, and it uses I2C to select between:

- USB 3.2 Gen 2x2
- One- or two-lane USB 3.2 Gen1 and Gen2

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

The PI2EQX22024's bi-directional design provides flexibility if the DFP (downstream-facing port) and UFP (upstream-facing port) signal flows are swapped, which supports active cable applications and signal flow selection.

The device is packaged in the X1-QFN2845-32 (0.4 mm pitch) and operates across the -40°C to +85°C industrial temperature range.

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The DIODES Advantage

The PI2EQX22024 bit-level ReTimer provides fast USB 3.2 interconnectivity.

- **Flexible Four-Channel USB Type-C Operation**
Includes USB 3.2 Gen2x2 (one USB Type-C port) and USB 3.2 Gen2x1 (two USB Type-A ports)
- **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 DisplayPort™**
Maintains USB U1/U2/U3 power-saving modes
- **Bi-Directional with Very-Low (<1ns) Latency For High-Speed Channels**
Provides the flexibility for signal flow selection

Applications

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



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Typical Application



USB 3.2 Gen2x2, USB Type-C, 20Gbps ReTimer/ReDriver Portfolio

Part Number	Protocols	Repeater Type	Channel Data Rate	Lanes/ Ports	Programming Interface	Voltage	Package
PI2EQX22024	USB 3.2 Gen2x2	ReTimer	10Gbps	One 2x2 Port	I2C Mode	1.8V	X1-QFN2845-32
PI3EQX2024	USB 3.2 Gen2x2	ReDriver	10Gbps	One 2x2 Port	Pin Mode	3.3V	UQFN2545-34

Ordering Information

Orderable Part Number	Compliance (Only Automotive Supports PPAP)	Packaging Code	Package	Moisture Sensitivity	Packing	
					Quantity	Carrier
PI2EQX2024XEAEX	Standard	XEAX	X1-QFN2845-32	MSL-1	3,500	13" Tape & Reel