

# VSC7112 Two-lane PCI Express 3.0 Redriver with Adaptive EQ

Microsemi's PCIe redriver delivers excellent performance with flexible lane configuration for Gen 1/2/3 applications in a very small footprint.

VSC7112 is a high-performance, two-lane (quad-channel) asynchronous buffer that simplifies high-speed signal path designs (up to 8.5 Gbps) by providing Microsemi's industry-proven adaptive input equalization and output pre-emphasis. The device optimizes energy efficiency with innovative Green modes that reduce power consumption at lower data rates. Additional power savings can be achieved by deactivating unused channels and configuring the best output level settings for an application.

The VSC7112 device offers programmable, static, and adaptive equalization settings to provide a comprehensive solution for countering signal degradation over a wide variety of transmission cabling and interconnect paths. The small package and two-lane configuration make the device an excellent fit for a wide variety of PCIe server applications challenged with long traces, cables and connectors, as well as NVMe solid-state drives (SSDs).

Loss of signal (LOS) detectors with programmable thresholds are included on every input port. Each channel includes PCIe Gen 1/2/3 receiver detection and state machines. The VSC7112 can be configured for pass-through 4-channel buffer, dual  $2 \times 2$  matrix, dual 1:2 duocast, or dual 2:1 selector configurations.

#### **Highlights**

- Up to 8.5 Gbps asynchronous operation
- Energy-efficient Green modes
- Adaptive equalization
- Ability to configure lanes as 4-channel buffer, 2x2 matrix, dual 1:2 duocast, or dual 2:1 selector

#### Applications

- PCle Gen 1/2/3
- NVMe SSDs
- 1.5G, 3G, and 6G SAS/SATA



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# VSC7112 Two-lane PCI Express 3.0 Redriver with Adaptive EQ

### **Flexible Architecture**

- Automatic (Adaptive) input equalization
- 0 Gbps to 8.5 Gbps asynchronous operation
- 4-channel buffer, dual 2 × 2 matrix, dual 1:2 duocast, or dual 2:1 selector configurations

### **Best-in-Class EQ**

- Input EQ up to 30 dB
- Transmit pre-emphasis up to 10 dB
- Output up to 1600 mV differential peak-to-peak
- Input sensitivity 100 mV differential peak-to-peak

#### **Power-Scaling Mode**

• Power savings when running below 6.5 Gbps

#### **Storage and Server Protocols**

- PCle Gen 1/2/3 receiver detection and state machines
- SAS/SATA-compatible loss of signal (LOS) detection and outof-band (OOB) forwarding

### **Key Specifications**

- 2.5 V power supply
- 160 mW typical power consumption per channel in full-power mode, 120 mW per channel in Green mode
- 32-pin, 5 mm × 5 mm QFN package

#### **Related Products**

Visit www.microsemi.com for information about these related products:

- Crosspoint Switches
- PCI Express Switches





Microsemi Corporate Headquarters One Enterprise, Aliso Viejo, CA 92656 USA Within the USA: +1 (800) 713-4113 Outside the USA: +1 (949) 380-6100 Fax: +1 (949) 215-4996 Email: sales.support@microsemi.com www.microsemi.com Microsemi Corporation (Nasdaq: MSCC) offers a comprehensive portfolio of semiconductor and system solutions for aerospace & defense, communications, data center and industrial markets. Products include high-performance and radiation-hardened analog mixed-signal integrated circuits, FPGAs, SoCs and ASICs; power management products; timing and synchronization devices and precise time solutions, setting the world's standard for time; voice processing devices; RF solutions; discrete components; enterprise storage and communication solutions, security technologies and scalable anti-tamper products; Ethernet solutions; Power-over-Ethernet ICs and midspans; as well as custom design capabilities and services. Microsemi is headquartered in Aliso Viejo, California and has approximately 4,800 employees globally. Learn more at www.microsemi.com.

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