VITESSE®
Making Next-Generation Networks a Reality.

VSC8248

PRODUCT BRIEF

Quad Port 8.5 Gbps to 11.3 Gbps CDR with EDC and KR Output

Vitesse's new high-performance clock and data recovery (CDR) IC provides superior signal integrity, speed flexibility, programmable output, and integrated diagnostics for a wide range of applications

Highlights

- Broad application support
- High-performance analog EDC
- Flexible KR output driver

Applications

- Low cost, high port density 10G SFP+ platforms
- 40G/100G CFP module designs: 4×10G, 10×10G, and 10×12G
- 10G KR and legacy backplane upgrades

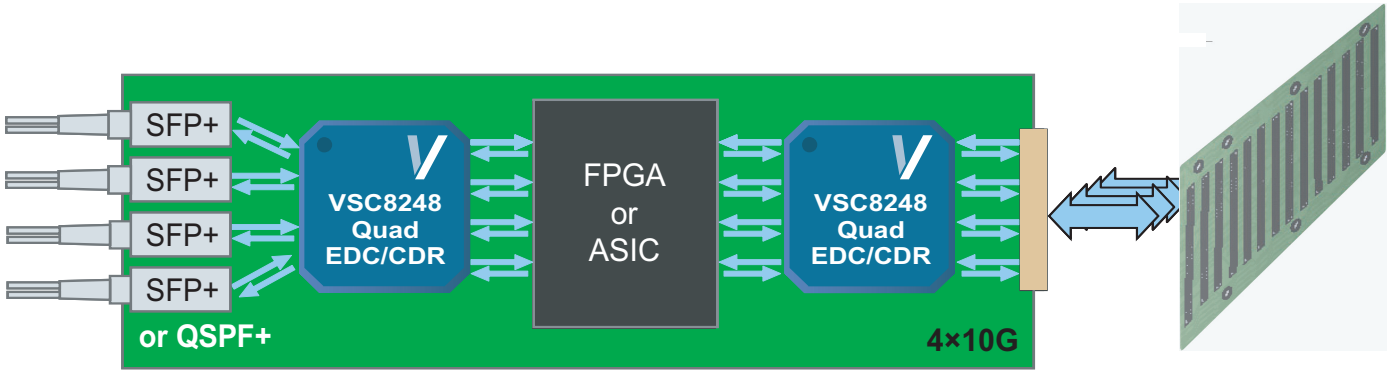
The VSC8248 is a quad channel clock and data recovery (CDR) device with on-chip adaptive electronic dispersion compensation (EDC), programmable input equalization, and KR-compliant output.

A versatile CDR and retimer for all 10G Ethernet applications, the VSC8248 device is compliant with IEEE 802.3ae and IEEE 802.3aq physical layer specifications, operating at 8.5 Gbps to 11.3 Gbps and 1.25 Gbps for legacy 1G Ethernet. Also supported are 8G Fibre Channel and 10G QDR Infiniband protocols and rates and related legacy subrates. The VSC8248's flexibility makes it an excellent candidate for upcoming 4×10G and 10×10G CFP module designs.

Integrated EDC compensates for signal degradations in both the optical and electrical domains. For optical systems, this includes chromatic dispersion in long-haul single mode fiber systems, and modal dispersion in multi-mode fiber systems. High-performance FFE-DFE EDC technology compensates for fiber signal impairment and PCB-related signal propagation impact. In copper applications, the VSC8248 EDC compensates for intersymbol interference (ISI) caused by signal propagation through interconnections, vias, and stubs in line cards, backplanes, and copper cables.

For optimized performance in the optical and electrical domains, the VSC8248 includes an integrated, fully KR-compliant multi-tap output driver, which enables the device to drive VCSEL lasers in low-cost applications, optimize jitter on the optical link, or drive signals across high-loss, low-bandwidth backplanes.

All four channels can support the same rate and protocol, or operate independently on a per-channel basis. Integrated BIST functions include pattern generators and error detectors at all supported data rates and client-side and line-side loopbacks.



Flexibility

- MDIO, two-wire serial master, and two-wire serial slave interfaces
- Embedded microcontroller with on-board RAM for reduced system chip count
- Rx EDC programmable to user-defined values or adaptive mode operation
- Output pre-emphasis and signal programming for optimized signal integrity
- VScope™ input signal quality monitor integrated circuit for optimal eye opening and lower BER
- Power-on reset initializes default mode independently of the serial interface
- Independent per-channel operation and power-down
- Host-side and line-side loopbacks and BIST

Key Specifications

- 1.8 V and 1.2 V typical core power supplies (1.2 V to 3.3 V TTL supply)
- 16 mm × 16 mm, 121-pin FCBGA package

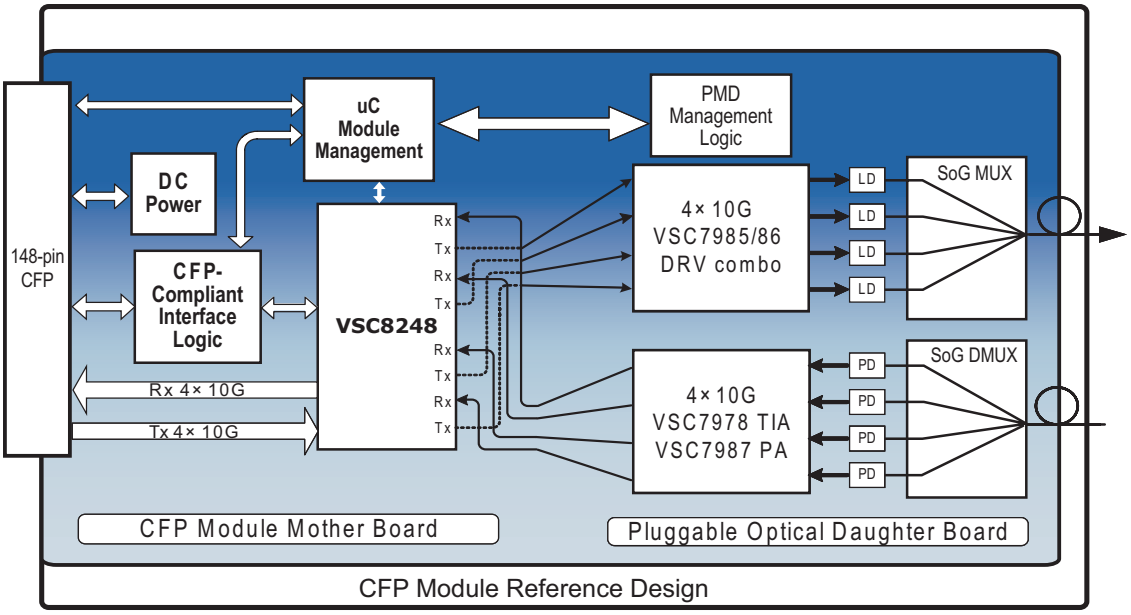
Wide Range of Support

- 8.5G to 11.3G Ethernet
- Legacy 1.25G Ethernet, 2G and 4G Fibre Channel, and 2.5G and 5G Infiniband
- Compliant with IEEE 802.3aq, IEEE 802.3ae, and SFF-8431 (SFI) electrical specifications
- Supports all SFP+ application codes and copper links

Related Vitesse Products

Visit www.vitesse.com for information about these related Vitesse products:

- VSC3144 6.5 Gbps or 11.5 Gbps 144 × 144 Asynchronous Crosspoint Switch
- VSC3316 11.5 Gbps 16 × 16 Crosspoint Switch and Signal Conditioner
- VSC8484 and VSC8488 10 Gbps LAN/WAN PHY
- VSC7985 and VSC7986 10 Gbps VCSEL/DML Drivers
- VSC7987 10 Gbps Multirate Limiting Post Amplifier



CFP Module Reference Design

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