



PRODUCT BRIEF > OPTICAL DSP

Optical DSP

Seagull 452

400Gbps PAM-4 DSP with Integrated VCSEL, EML or SiPho Driver

Seagull 452 (CFD63802) is a versatile full-duplex device that can be used in next generation 8x50Gbps QSFP56 optical transceivers or active optical cables (AOCs) for hyperscale data centers. It supports 400Gbps SR8/DR8/FR8/LR8/ER8 applications using PAM-4 modulation.

Seagull 452 includes integrated VCSEL, EML and silicon photonics (SiPho) drivers and comes with a full suite of features and Credo's industry-leading energy efficiency. Together with Credo's new Teal 200 TIA (Transimpedance Amplifier), the new Seagull devices support complete an optical transceiver chipset for low power, cost-effective, high-performance hyperscale, AI, and 5G applications.

Seagull 452 includes Credo's fourth generation digital signal processing technology on the electrical host side and optical line side. This allows for extended host side reach supporting seamless operation over short and long PCB channels outside of the standard VSR specifications without having to modify the device settings. On the optical side, the latest performance enhancements allow customers to relax the optical component specifications, therefore increasing optics yields and lowering the cost.

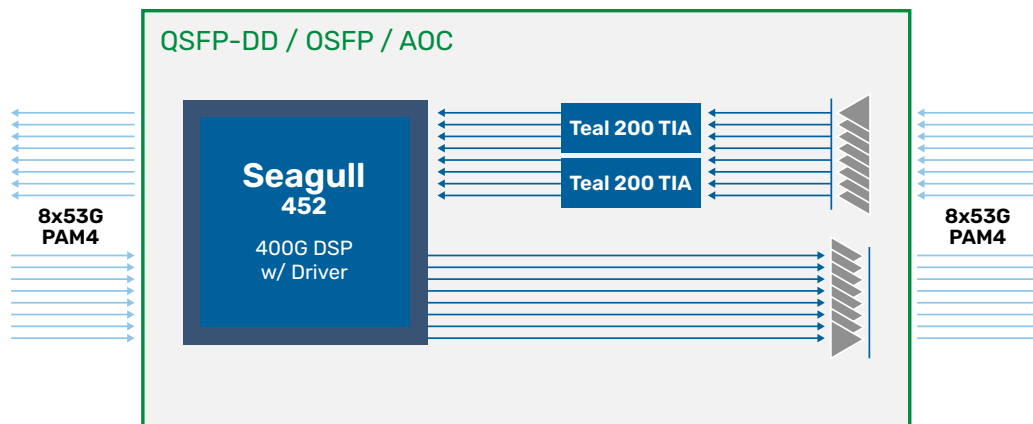


Applications

- AI
- Hyperscale data centers
- Cloud networks
- 400GbE optical transceivers and AOCs
- Breakout applications

Key Parameters

Host Side	8x53G PAM-4
Line Side	8x53G PAM-4
Operating Temp	0° to 85°C



Key Features

- Fourth generation DSPs on optical side and electrical side deliver industry leading sensitivity and BER performance, providing margin for component variation and high-volume manufacturing
- Line side Rx performance-enhancing features specific to optical link and component impairments
- Integrated VCSEL drivers with programmable laser currents
- Integrated EML and SIPho drivers with programmable output swing and equalization
- High-performance transmitters come with multi-tap FIR filters, allowing precision optimization at both the module electrical connector and optical interface
- Host side interface supports extended PCB reach without the need for customized per-channel settings
- Independent phase locked loops per channel support flexible breakout configurations including 8x50G, 4x100G, 2x200G and 1x400G
- Full suite of test features and loopbacks simplifies lab bring up and production testing to reduce time-to-market
- Low-power dissipation enables higher rack utilization and lower thermal cooling requirements
- Use with Credo's Teal 200 TIA for complete optical chipset solution

Supported Standards and Interfaces

- 400G-SR8/DR8/FR8/LR8/ER8
- 400GAUI-8 C2M
- CEI-56G-VSR-PAM4
- CEI-56G-MR-PAM4
- QSFP-DD, OSFP
- CMIS 4.x and 5.x

About Credo

Credo's mission is to advance high-speed connectivity solutions that deliver optimized performance, reliability, energy efficiency, and security for the next generation of AI driven applications, cloud computing, and hyperscale networks.

Optimized for both optical and electrical applications, our solutions support port speeds up to 1.6Tb. At the core of our technology is our proprietary Serializer/Deserializer (SerDes) IP. Our diverse solutions portfolio includes system-level products such as Active Electrical Cables (AECs), a range of Integrated Circuits, including Retimers, Optical DSPs, SerDes chipsets, and SerDes IP Licensing.

For more information please visit www.credosemi.com or email sales@credosemi.com

© 2025 Credo Semiconductor, Inc. All Rights Reserved. Credo Semiconductor Inc. and the Credo logo are trademarks of Credo Semiconductor Inc. All other marks are the property of their respective owners. This document is for information only. Specifications are subject to change without notice.

REV 031225

