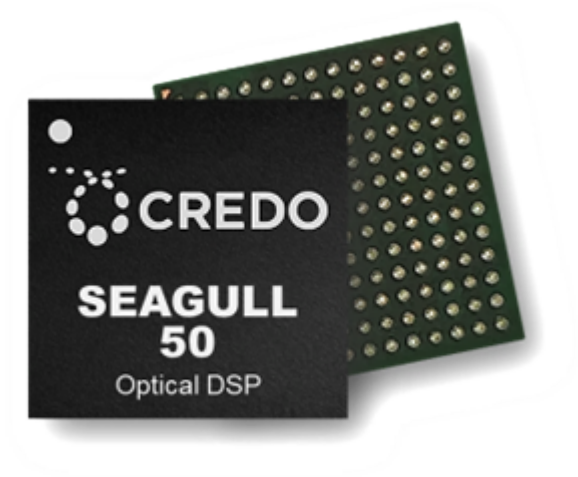
Credo Introduces Seagull 50 PAM4 DSP to Drive Front- and Mid-Haul 5G Wireless Networks

September 8, 2020

Seagull 50 is the first high-performance DSP dedicated to meet demanding wireless requirements



Credo, a global innovation leader in high performance, low power serial connectivity solutions, today announced Seagull 50, which enables optical modules for 5G front- and mid-haul wireless networks. Credo's Seagull 50 supports mobile networks' insatiable demand for bandwidth and the network requirements for high bandwidth, long transmission distances, and industrial temperature ranges. The device supports 2x25G ☐ 1x50G and 1x50G ☐ 1x50G modes. Seagull 50 is designed in Credo's unique architecture that enables minimal die size and mainstream silicon process technology which ensures the lowest cost-of-ownership.

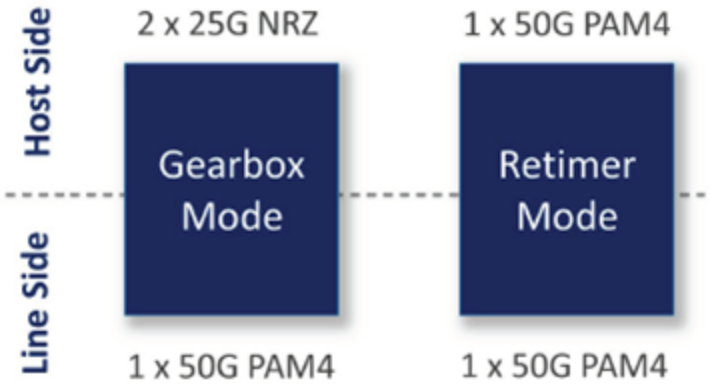
The company will be showcasing Seagull 50 in addition to its recently announced Dove 100, Dove 200, and Dove 400 DSPs at its booth #8A21 at CIOE, China International Optoelectronics Exposition, in Shenzhen China, September 9-11.

"Seagull 50 is the ideal high-performance DSP for 5G wireless networks," said Scott Feller, Vice President of Marketing at Credo. "Credo is dedicated to enabling the next generation of front- and mid-haul networks."

"Radio Access Network architectures are changing to support 5G networks, and new wireless networks are increasingly using high-bandwidth front-haul and mid-haul connections," said Chris DePuy, Founder and Technology Analyst at 650 Group. "To support such a large number of new links in the 5G era, a new generation of high capacity transport systems capable of 50G speeds and multi-kilometer distances are needed.", DePuy added.

The Credo Seagull 50, CFD10101, is a versatile full-duplex product that comes with industry leading power dissipation and can be used in next-generation QSFP28, DSFP, and SFP56 pluggable optical transceivers. It supports 50Gbps SR/DR/FR/LR and ER applications based on PAM4 modulation. Seagull 50 operates over the full industrial temperature range of -40oC to +85oC module case and is ideal for use in datacenters and 5G wireless/eCPRI front-, mid- and backhaul applications.

Seagull 50 is a dual-mode DSP and can be used as a gearbox or retimer. In gearbox mode, the IC is configured as two lanes of 24.33-25.78Gbps NRZ on the host side to one lane of 50.135-53.125Gbps PAM4 on the line side. In retimer mode, the DSP is configured as one lane of 50.135-53.125Gbps PAM4 to one lane of 50.135-53.125Gbps PAM4.



Proprietary DSP technology and equalization techniques designed into Credo's other leading-edge DSPs is employed in the Seagull 50. The DSP is a critical component in 5G wireless applications where cost-effective solutions are required, leading to wider use of DML lasers, and ultimately advancing the push for uncooled optics. This design trend needs to be supported over industrial temperature for front haul, and at longer fiber link lengths for mid and backhaul. The DSP helps to compensate for the optical impairments and nonlinearities resulting from optics, wider temperature range and fiber, and provides a high performance, robust solution.

Key Seagull 50 Attributes:

- 2x25G → 1x50G and 1x50 → 1x50G modes
- Interoperable with existing optical modules
- Multi-tap Tx pre-emphasis
- Continuous CTLE
- High performance DSP with multi-tap DFE / FFE Rx equalization
- Optimized and industry best compact firmware
- Industrial temperature support (-40^{o} to 85^{o}C)
- Deterministic latency
- Industry-leading power dissipation

About Credo

Credo is a leading provider of high-performance serial connectivity solutions for the hyperscale datacenter, 5G carrier, enterprise networking, artificial intelligence, and high-performance computing markets. Credo's solutions deliver the bandwidth, scalability, and end-to-end signal integrity for next-generation platforms requiring 25G, 50G, and 100G signal lane-rate connectivity for 100G, 200G, 400G, and 800G port enabled networks.

For more information, please visit: https://www.credosemi.com. Follow Credo on LinkedIn and Twitter.