



PRODUCT BRIEF

800G Retimer / 400G Gearbox Black Hawk

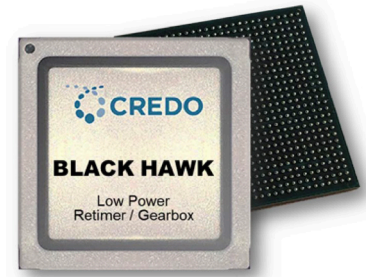
Low-power Retimer/Gearbox Supporting 56G PAM4 and 28G NRZ

Credo is a leading provider of high performance/low power semiconductor solutions for the data center, enterprise networking and high performance computing markets. Our innovative Serializer-Deserializer (SerDes) technology delivers the bandwidth, scalability and end-to-end signal integrity needed to meet the demands of advanced networks up to 800G with single-lane 28G, 56G, or 112G connectivity.

The CRT55321 is a low power version of the Credo Bald Eagle and functions as an 800G Retimer or 400G Gearbox. It is suitable for both backplane and front panel applications including cloud-scale switches, highdensity routing platforms and advanced server NIC cards.

Device	Power / 400G RT
Bald Eagle (CRT50216)	7W
Black Hawk (CRT55321)	3.25W

12.8, 25.6 Tbps Switch



Product Family

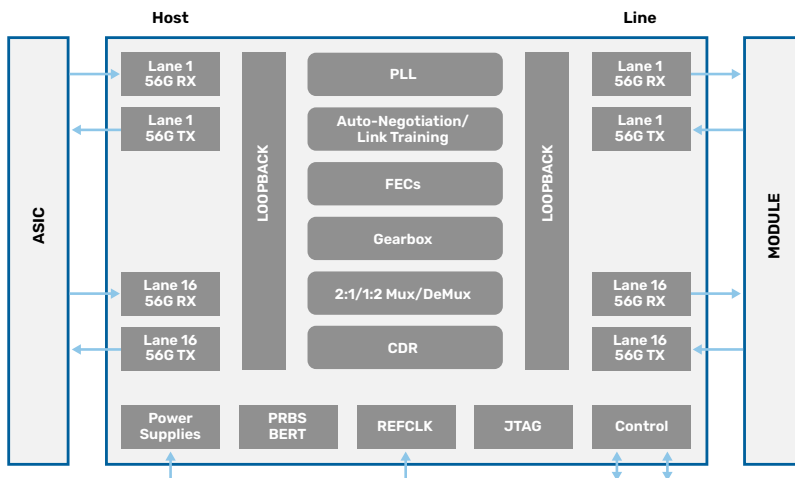
- CRT55321
- Bidirectional / full duplex 800G
- 16x56G PAM4 (28G NRZ also supported)
- 23mm x 23mm with 0.8mm ball pitch

Key Parameters

Channels (bi-directional)	16
Data Rate (programmable)	10-56 Gbps
Insertion Loss	Up to 35dB LR
Output Voltage (programmable)	100-1,000 mVp-p
Power Supplies	1.8V ± 5% 1.5V ± 5% 0.8V ± 5%
Operating Temp	0 to 105°C
Register Interface	MDIO / I ² C
Process	TSMC

Key Features

- Multi-channel bidirectional retimers for 10 - 56Gbps
- Superior random jitter performance
- Up to 35dB insertion loss
- CEI-56G-VSR/MR/LR-PAM4 compliant
- CEI-28G-LR and CEI-28G-VSR/SR/MR compliant
- TX equalization with programmable main, pre, and post-cursor
- Fully adaptive and programmable RX equalization with CTLE, FFE, and DFE
- Auto negotiation between the link partners on both sides of the retimer (IEEE 802.3 clause 73)
- KR back-channel training (IEEE 802.3 clause 72,92,93,136)
- Input/output polarity switch control
- Register control via I²C or standard MDIO interface
- Built in diagnostic features including PRBS generator and checker, PRBS FEC Analyzer, internal eye monitor and analog test point



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

Supported Standards and Interfaces

- 400G / 200G / 100G / 50G / 40G / 25G / 10G Ethernet
- 400GBASE-SR16/FR8/LR8
- 200GBASE-KR4/CR4/SR4/DR4/FR4/LR4
- 100GBASE-KR2/CR2/SR2
- 100GBASE-CR4/KR4/SR4/LR4/ER4/KP4
- 100GBASE-CR10/SR10
- 50GBASE-CR/KR/SR/FR/LR
- 40GBASE-CR4/KR4/SR4/LR4/ER4
- 25GBASE-CR/CR-S/KR/KR-S/SR
- 10GBASE-KR/CR/SR/LR/ER
- XLAUI
- 25GAUI
- 50GAUI-2/50GAUI-1/LAUI-2
- CAUI-4/CAUI-10/100GAUI-4/100GAUI-2
- 200GAUI-4/200GAUI-8
- 400GAUI-8/400GAUI-16
- CEI-56G-VSR/MR/LR-PAM4
- vCEI-28G-VSR/SR/MR
- CEI-25G-LR
- CEI-11G-SR/MR/LR
- KR4 FEC RS(528, 514) for 50G and 100G Ethernet
- KP4 FEC RS(544,514) for 50G and 100G Ethernet