



PRODUCT BRIEF > LINE CARDS

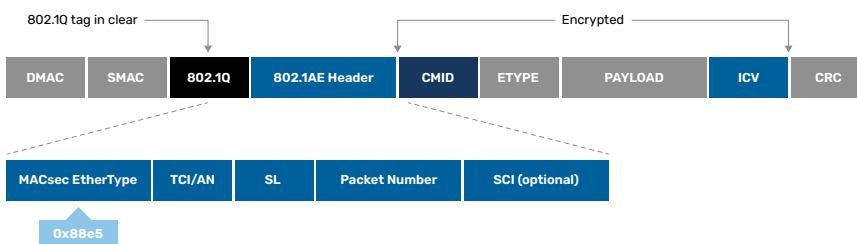
# MACsec Retimer Osprey 800

## 800G with single-lane 28G, 56G, or 112G

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.

Credo's purpose-built approach to SerDes design enables our products to be built on mature process technology, providing our customers with a competitive edge.

The CMR55321 MACsec is suitable for both backplane and front panel applications including cloud-scale switches, high density routing platforms and advanced server NIC cards.



## Product Family

- 800G Bi-directional LR Retimer with MACsec
- 16x56G PAM4 ⇌ 16x56G PAM4 Retimer
- Also supports all CMR52241 Osprey 400
- MACsec Retimer & Gearbox modes
- 23mm x 23mm with 0.8mm ball pitch

## Key Parameters

<b>Channels</b> (bidirectional)	16 / 16
<b>MAC Rates</b> (bidirectional)	10-56 Gbps
<b>Insertion Loss</b>	30dB
<b>Output Voltage</b> (programmable)	100-1,000 mVp-p
<b>Power Supplies</b>	0.8V, 1.25V, 1.8V
<b>Operating Temp</b>	0° to 105°C
<b>Communication Interface</b>	MDIO / I <sup>2</sup> C
<b>Process</b>	TSMC 12nm

## Key Features

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### Retimer with MACsec Mode

SERDES, FEC, PCS, MAC & MACsec

- 2x400G (8x56G to 8x56G)
- 4x200G (4x56G to 4x56G)
- 8x100G (2x56G to 2x56G)
- 16x50G (1x56G to 1x56G)
- 16x25G (1x28G to 1x28G)
- 16x10G (1x10G to 1x10G)

### Bit-MUX with MACsec Mode

PCS, MAC & MACsec

- Any one lane to 2 lanes bit mux mode

### Gearbox Only Mode

FEC, PCS & MAC

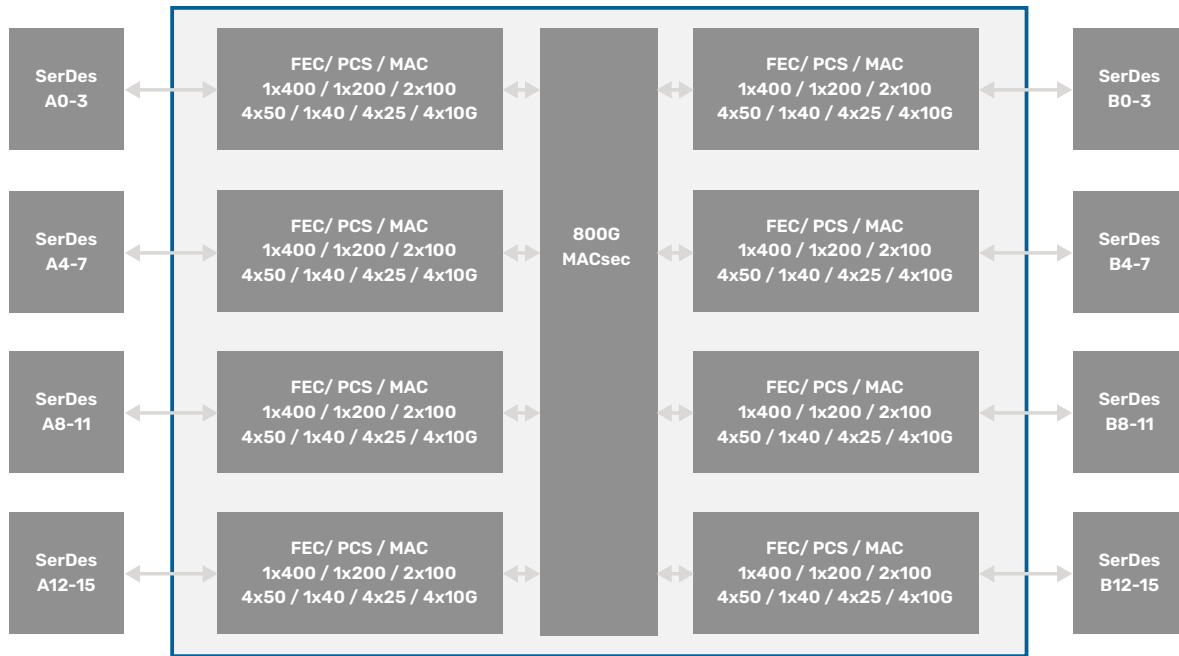
- 4x100G (2x56G to 4x28G)
- 8x50G (1x56G to 2x28G)
- FEC trans-coding
- See data sheet for complete mode list
  
- Any PAM4 (up to 56G) and NRZ (up to 28G) retimer modes (no FEC+PCS+MAC+MACsec)
- Auto-negotiation support for all IEEE defined modes and 50G/ 25G consortium modes
- Link training support for various lane modulation and speed (10G, 28G NRZ, 56G PAM4)
- All FEC types (KP FEC, KR FEC, BaseR FEC or no FEC)
- Proven and certified MACsec engine
- Standard MDC/MDIO supports all IEEE defined registers
- IEEE 802.1AE MACsec with GCM-AES-256b encryption
- Advanced low-power equalization architecture
- Robust programmable TX equalization
- Fully adaptive and programmable RX equalization with CTLE, FFE and DFE
- IEEE KP4 RS-FEC (Clause 91) and BaseR FEC (Clause 74)
- Supports FEC bypass mode for low latency / low power applications

## Supported Standards and Interfaces

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- 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
- CEI-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

# Functional Block Diagram



## 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](http://www.credosemi.com) or email [sales@credosemi.com](mailto:sales@credosemi.com)

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