



PRODUCT BRIEF > LINE CARDS

MACsec Gearbox and Retimer Osprey 400

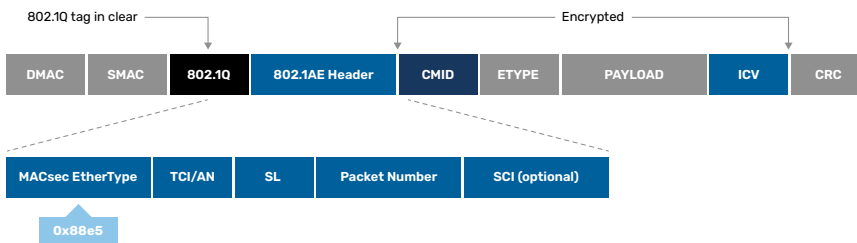


800G with single-lane 28G, 56G, or 112G

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 CMR52241 MACsec device is pin compatible with the CMS42550 Owl 400 MACsec device. It is suitable for both backplane and front panel applications including cloud-scale switches, high density routing platforms and advanced server NIC cards.



Product Family

- 400G Bi-directional LR Gearbox with MACsec
- 8x56G PAM4 ⇌ 16x28G NRZ Gearbox
- 8x56G PAM4 ⇌ 8x56G PAM4 Retimer
- 23mm x 23mm with 0.8mm ball pitch
- Pin compatible to CMS42550 Owl 400
- 400G MACsec Gearbox

Key Parameters

Channels (bidirectional)	8 / 16
MAC Rates (bidirectional)	10-56 Gbps
Insertion Loss	30dB
Output Voltage (programmable)	100-1,000 mVp-p
Power Supplies	0.8V, 1.25V, 1.8V
Operating Temp	0° to 105°C
Communication Interface	MDIO / I ² C
Process	TSMC 12nm

Key Features

Retimer with MACsec Mode

SERDES, FEC, PCS, MAC & MACsec

- 1x400G (8x56G to 8x56G)
- 4x100G (2x56G to 4x28G)
- 2x200G (4x56G to 4x56G)
- 8x50G (1x56G to 2x28G)
- 12x25G (1x28G to 1x28G)
- 12x10G (1x10G to 1x10G)

Bit-MUX with MACsec Mode

SERDES, PCS, MAC & MACsec

- Any one lane to 2 lanes bit mux mode
- Specifically 3x40G (2x20G to 4x10G)

Gearbox Only Mode

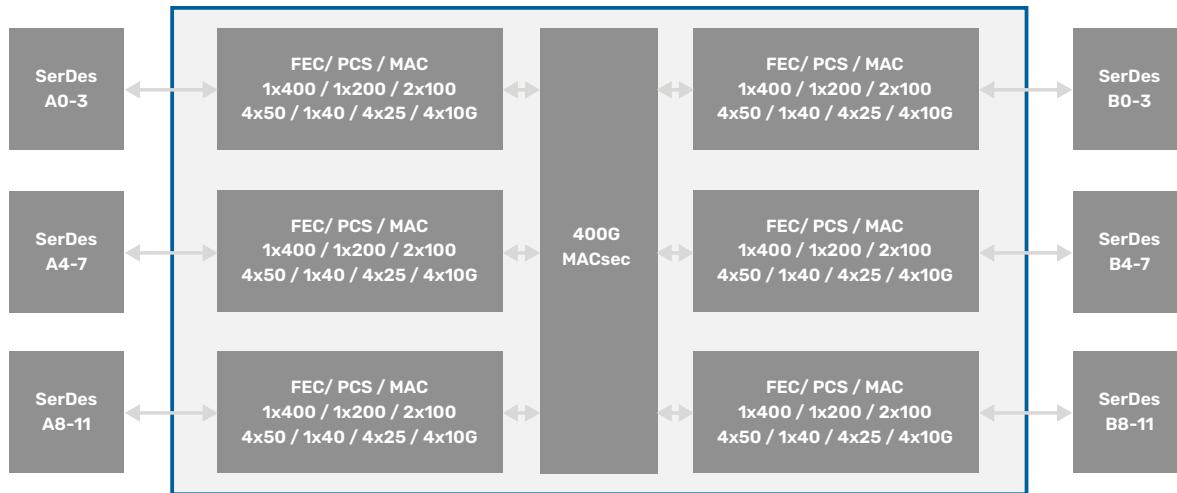
SERDES, FEC, PCS & MAC

- 4x100G (2x56G to 4x28G)
- 8x50G (1x56G to 2x28G)
- FEC trans-coding
- 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

- 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
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