

# 800G Gearbox



106G SerDes

## Sparrow 800

### Low-power Speed-shifting Gearbox

### Supporting 112G PAM4 to 56G/25G

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 1.6T with single-lane 25G, 56G, or 112G connectivity.

The **CMX85241** is a low power device which functions as a 800G Gearbox. It is suitable for both backplane and front panel applications including cloud-scale switches, high density routing platforms and advanced server NIC cards.



12.8Tbs, 25.6Tbps,  
or 51.2Tbps Switch

## Product Family

**CMX85241**

Bidirectional / full duplex 800G

8x112G PAM4 to 16x56G PAM4

23mm x 23mm with 0.8mm ball pitch

## Key Parameters

<b>Channels</b> (bi-directional)	8:16
<b>Data Rate</b> (programmable)	25-112 Gbps
<b>Insertion Loss</b>	up to 35dB LR for 56G up to 20dB VSR for 112G
<b>Output Voltage</b> (programmable)	100-1,000 mVp-p
<b>Power Supplies</b>	1.8V +/- 5% 1.3V +/-5% 0.8V +/- 5%
<b>Operating Temp</b>	0 to 105°C
<b>Register Interface</b>	MDIO / I <sup>2</sup> C
<b>Process</b>	TSMC 12nm

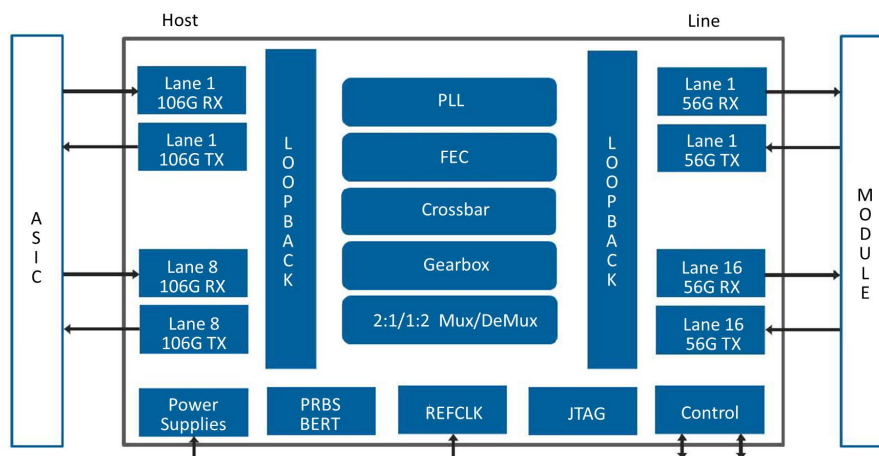
## Key Features

- Multi-channel bidirectional gearbox supporting 25, 56, 112G rates
- Superior random jitter performance
- up to 35dB LR for 56G; 20dB VSR for 106G
- CEI-112G-VSR PAM4 compliant
- 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
- Input/output polarity switch control
- Register control via I<sup>2</sup>C or standard MDIO interface
- Built in diagnostic features including PRBS generator and checker, PRBS FEC Analyzer, internal eye monitor and analog test point

## 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 PAM4
- CEI-28G-VSR/SR/MR
- CEI-25G-LR
- KR4 FEC RS(528, 514) for 50G and 100G Ethernet
- KP4 FEC RS(544,514) for 50G and 100G Ethernet

## Functional Block Diagram



For more information please visit [www.credosemi.com/products/line-card/sparrow-800](http://www.credosemi.com/products/line-card/sparrow-800) or email [sales@credosemi.com](mailto:sales@credosemi.com).