

# OPTICAL DSP

## Dove 410/411/412

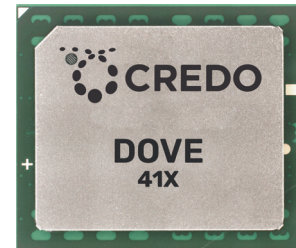
### 400Gbps DSP (4:4) with Integrated Driver

The Dove 41X family is used in the next-generation low-power, high-performance 4x106G to 4x106G PAM-4 QSFP112 optical transceivers for high density data centers. Dedicated PLLs are included for each transmit and receive data lane, enabling seamless operation in breakout applications.

The Dove 41X family integrates high-performance DSP technology and equalization techniques to compensate for optical and electrical impairments, while achieving good BER performance and maintaining low power dissipation. This unique architecture is optimized for die size and mainstream silicon process technology, enabling low cost of ownership and accelerating market adoption.

Dove 410 can be used with and external laser or modulator driver, whereas Dove 411 comes with integrated TFLN and EML driver, and Dove 412 includes a SiPho driver.

On-chip crossbar, loopbacks, and test features simplify module design, bring-up and production test.

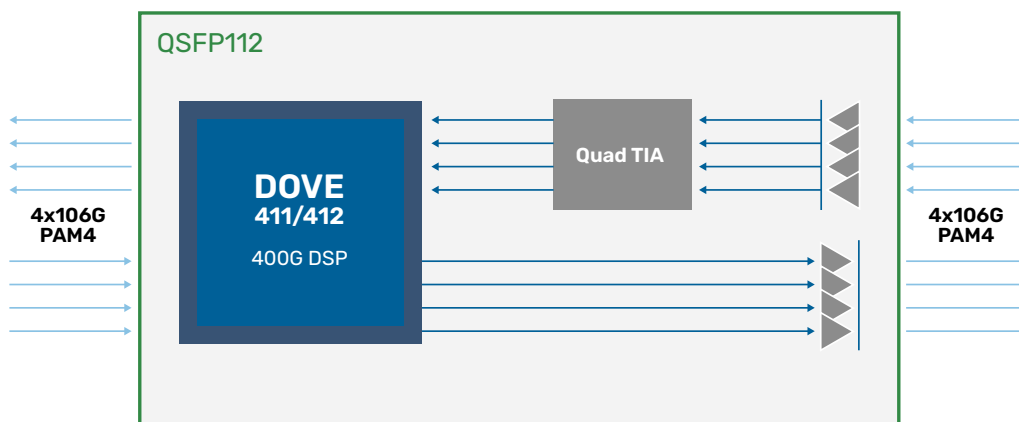


### Applications

- Hyperscale data centers
- Cloud networks
- Campus applications
- 400GbE optical transceivers
- Breakout applications

### Key Parameters

<b>Host Side</b>	4x106G PAM4
<b>Line Side</b>	4x106G PAM4
<b>Operating Temp</b>	0° to 85°C



## Key Features

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- Powerful DSPs on the optical line side and electrical host side deliver industry leading sensitivity and BER performance, allowing margin for optical alignment and crosstalk.
- Line side receivers include non-linear cancellation and reflection cancellation, which improves yields and reduces module cost.
- High-performance transmitters come with multi-tap FIR filters and non-linear cancellation, allowing precision optimization at both the module's electrical connector and at the optical interface
- The host side interface supports up to 30dB insertion loss channel, connecting seamlessly with different length switch interfaces without the need for customized per-channel settings.
- The family comes with EML, TFLN and Silicon Photonics drivers and bias-T, but allows use with external laser or modulator driver support to provide customers with maximum flexibility.
- Independent phase locked loops per channel support flexible breakout configurations including 2x200GbE and 4x100GbE.
- A full suite of test features and loopbacks simplifies lab bring-up and production test to reduce time-to-market.
- On-chip crossbar simplifies module layout design.
- Low-power dissipation enables higher rack utilization and lower thermal cooling requirements

## Supported Standards and Interfaces

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- 400G-SR4/DR4/FR4/LR4
- 2x200G-SR2/DR2/FR2/LR2
- 4x100G-SR/DR/FR/LR
- 100GAUI-1, 400GAUI-4
- QSFP112
- CMIS 4.0 and 5.0

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