

BCM81181

16-nm 400GbE PAM-4 PHY (8:8)



Applications

- 400GbE (8×50G PAM-4), 2×200GbE (4×50G PAM-4), 4×100GbE (2×50G PAM-4), and 8×50GbE (1×50G PAM-4) transceivers
- 1×200GbE (8×25G NRZ), 2×100GbE (4×25G NRZ), 4×50GbE (2×25G NRZ), and 8×25GbE (1×25G NRZ) transceivers

Description

The Broadcom® BCM81181 is a single-chip, low-power, low-latency PAM-4 PHY that integrates retimer and equalizer functions to support 400GbE, 2×200GbE, 4×100GbE, and 8×50GbE applications. In these modes, the BCM81181 retimes, adds FEC (optional), and equalizes n×50G PAM-4 host-side signals into n×50G PAM-4 line-side signals, which drives the optical PAM-4 links inside the next-generation modules, including QSFPDD and OSFP modules.

The BCM81181 is compliant with the IEEE 802.3bs draft 3.3 and IEEE 802.3cd draft 2.1 standards with KP4 FEC and FEC bypass capabilities.

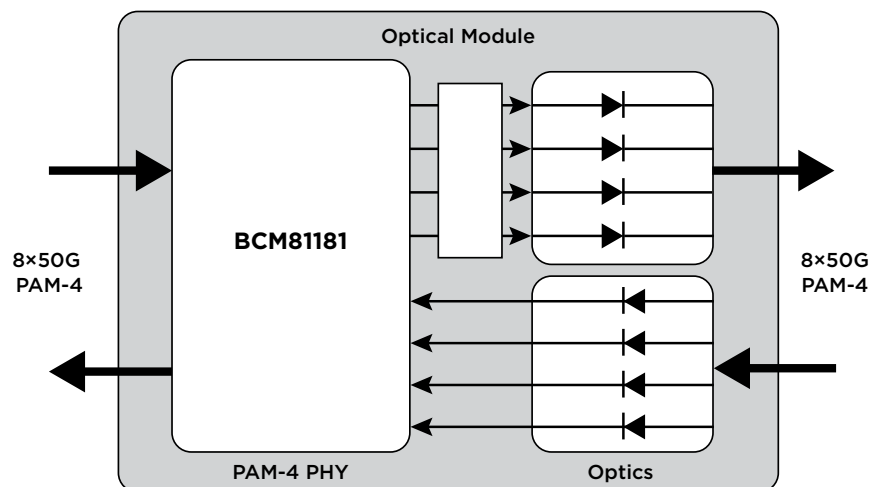
The BCM81181 also supports 1×200GbE, 2×100GbE, 4×50GbE, and 8×25GbE modes. In these modes, the device retimes and equalizes the incoming data from the both host and line sides at n×25G NRZ rate.

On-chip clock synthesis is performed by a low-cost 156.25-MHz reference clock using high-frequency, low-jitter phase-locked loops (PLLs).

The BCM81181 is fabricated in advanced low-power 16-nm CMOS technology.

The BCM81181 is available in a 11 mm × 14 mm, 0.5-mm pitch, 464-ball BGA, RoHS-compliant package.

Functional Block Diagram



Features

- Single-chip 8×50G PHY drives 1×400GbE, 2×200GbE, 4×100GbE, and 8×50GbE transceivers
 - Client side: 8×50G PAM-4
 - Line side: 8×50G PAM-4
- Single-chip 8×25G drives 1×200GbE, 2×100GbE, 4×50GbE, and 8×25GbE transceivers
 - Client side: 8×25G NRZ
 - Line side: 8×25G NRZ
- Client-side interface is compliant with the IEEE 400GAUI-8 PAM-4 C2M and 200GAUI-8 NRZ C2M specification supporting VSR channels
- Supports both QSFPDD and OSFP transceivers
- Low-power 16-nm CMOS design
- Integrated AC-coupling capacitors for the client RX side
- Line-side and client-side loopbacks

Ordering Information

Part Number	Package
BCM81181AOKRFBG	11 mm × 11 mm, 0.5-mm pitch, 464-ball BGA, RoHS-compliant