Product Brief

BCM81188
16-nm 400GbE PAM-4 PHY (16:8) or (8:8)

Description

The Broadcom® BCM81188 is a single-chip, low-power, low-latency PAM-4 PHY that integrates retimer and equalizer functions to support 400GbE applications. In 400GbE mode, the BCM81188 converts 16× 25G NRZ or 8× 50G PAM-4 host side into 8× 50G PAM-4 line side to drive optical PAM-4 links inside next-generation modules, including CFP8. An 8× 50G PAM-4 host side into 8× 50 PAM-4 line side operational mode is also available. The BCM81188 is compliant to 400G data in accordance with IEEE 802.3bs standards. The device also supports Broadcom's proprietary high gain S-FEC for extended reach applications. The BCM81188 supports both 400G and quad 100G modes. On-chip clock synthesis is performed by a low-cost 156.25 MHz reference clock via high-frequency, low-jitter phase-locked loops (PLLs). The BCM81188 is fabricated in advanced low-power, 16-nm CMOS technology and is available in a RoHS-compliant package.

Applications

- 400GbE optical 8× 50G PAM-4 links for Multimode Fiber (MMF)/Single Mode Fiber (SMF)
- 400GbE CFP8 module form factor

Figure 1: BCM81188 Block Diagram
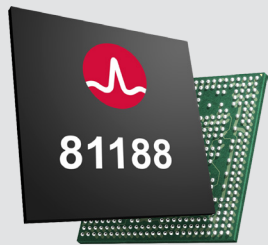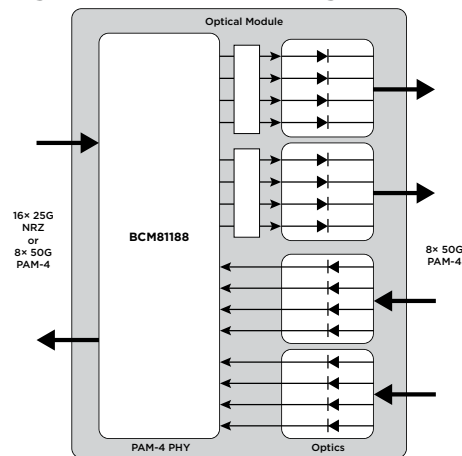

Key Features

- Single-chip 8× 50G PHY drives 400GbE over optics:
  - Client side: 16× 25G NRZ or 8× 50G PAM-4
  - Line side: 8× 50G PAM-4
- 400G PCS data from the client side
- Client-side interface is compliant to the CEI-28G/56G MR specification supporting medium reach (MR) channels
- Supports various reach/media types:
  - MMF
  - SMF
- Low-power 16-nm CMOS design
- Integrated AC-coupling capacitors on the host side
- Pin-to-pin compatible with the BCM82254
- Line-side and client-side loopbacks
- IEEE 802.3bs standard-compliant KP4 and end-to-end FEC bypass operation
- Broadcom proprietary S-FEC for extended reach and performance

Ordering Information	
16-nm 400GbE PAM-4 PHY (16:8) or (8:8)	BCM81188A0KRFBG