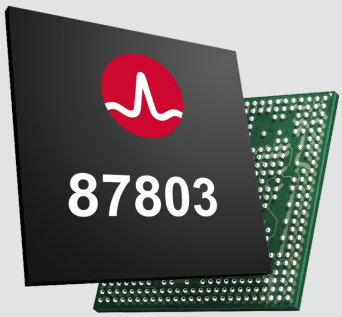
BROADCOM®

Product Brief

BCM87803

7-nm 800GbE PAM-4 PHY (8:8) with Integrated Low-Power Direct Drive



Applications

- Hyperscale data center deployments inside 800G QSFP-DD/OSFP optical modules
- 800G DR8
- 2 × 400G DR4/FR4
- Co-packaged optical solutions

Overview

The Broadcom® BCM8780X series of devices are the industry's highest performance and lowest power single-chip 800GbE PAM-4 PHY transceiver platform capable of driving eight lanes of 112-Gb/s PAM-4 at 56 Gbaud, while supporting DR8/2xFR4 optical links. In 800GbE mode, the BCM87803 drives eight lanes of 106 Gb/s (at 53-Gbaud PAM-4) from the system side to eight lanes of 106 Gb/s (at 53-Gbaud PAM-4) with direct-drive capability for EML and silicon photonics.

The BCM87803 leverages Broadcom's market-leading 7-nm PAM-4 PHY transceiver technology platform already proven with the BCM8740X PHY, and it provides a path to accelerating 800G QSFP-DD/OSFP optical module availability. The advanced Broadcom DSP technology and equalization techniques compensate for optical impairments while maintaining the world's lowest power pluggable optical modules and co-packaged optical solutions, and help enable the deployment of 51.2-Tb/s and higher-density switch ASICs.

The BCM87803 incorporates a highly differentiated feature set, including integrated voltage regulators, with a monolithically integrated 56-Gbaud PAM-4 laser driver, and 400G FEC capability to provide unmatched competitive advantage to the market.

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

Features

- Industry-leading DSP performance and power efficiency enabling DR8/2xFR4 optical modules to meet IEEE standards and MSA specifications
- Monolithic integrated 56-Gbaud laser driver with direct-drive PAM-4 output capability for EML and silicon photonics
- Proven PAM-4 architecture supporting multiple optics front-ends including EML, DML, and silicon photonics
- Optimized design and proven interoperability with Broadcom switch ASICs and ASSPs using 100G PAM-4 SerDes architecture
- DSP platform supporting DR/FR optical modules for legacy switch applications
- Ultra-low power consumption using 7-nm process technology and small footprint packages with features for flexible board routing

Figure 1: Block Diagram

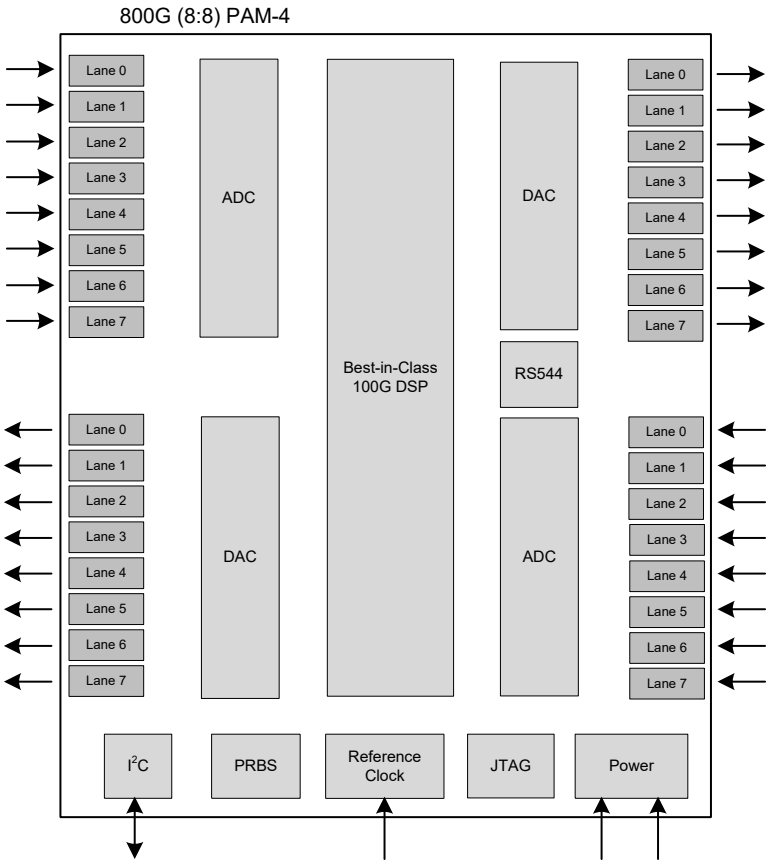
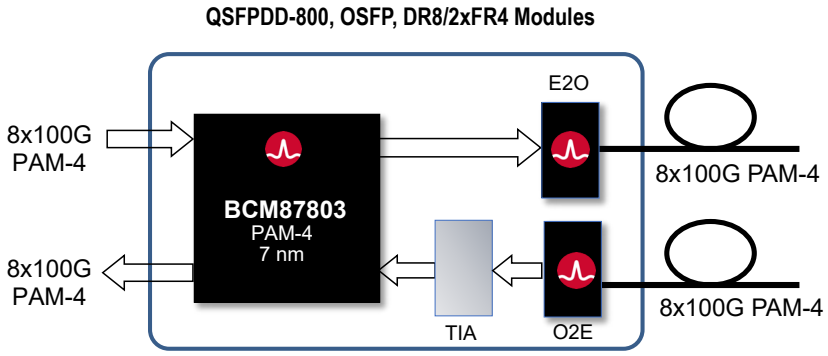


Figure 2: Application Diagram



For more product information: broadcom.com

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