Broadcom
BCM88650 Series
World Most Dense 100GbE Switching Solution

200G INTEGRATED PACKET PROCESSOR, TRAFFIC MANAGER, AND FABRIC INTERFACE SINGLE-CHIP DEVICE

Overview

The Broadcom® BCM88650 series of devices is the industry’s most dense 100G Ethernet switching solution, enabling the scaling of switching platforms to comprise up to 4,000 100G Ethernet ports.

The BCM88650 device processes a single stream of 200 Gbps traffic, supporting two 100G full-duplex ports at Layer 2 through Layer 4, with integrated deep-buffer traffic management capabilities and a fabric interface. The integration of 1GbE, 10GbE, 40GbE, and 100GbE network interfaces eliminates the need for additional components and enables dense systems using several BCM88650 on a line card.

The BCM88650 series is the fifth generation of the Dune product line devices. Together with the BCM88750 fabric element (FE) device, it is used to build a variety of network switch solutions:

- A 200G carrier access switching solution designed with a single BCM88650 device.
- 25 Tbps core/edge switches with single-stage fabric for data center, packet transport, or carrier network applications.
- Multiple, interconnected chassis of different capacities that use BCM88650 and BCM88750 two-stage fabric to create a scalable core platform, delivering up to 4,000 wire-speed ports of 100GbE or their 40GbE/10GbE equivalents.

The unified infrastructure enables system vendors to build a single, scalable product line, sharing the same switching infrastructure, to address a variety of densities and applications.

The BCM88650 packet classification engine is flexible and micro-code programmable, with built-in support for Data Center, Carrier, and Metro Ethernet and transport applications. The large on-chip classification databases can be further extended off-chip using a companion dedicated device from NetLogic®.

The BCM88650 traffic manager integrates deep packet buffers with a distributed scheduling scheme that allows state-of-the-art hierarchical QoS, transmission scheduling, and flow control. These advanced scheduling and queuing schemes natively support all the latest innovations in data center networking, such as PFC, ETS, QCN, and overlay networks, and allow per-customer/per-service scheduling in carrier access and aggregation switches.

Features

- Fifth-generation Dune FAP product line
- High performance
  - 200 Gbps full-duplex wirespeed, with 240 Gbps oversubscribed switching
- Fabric interface
  - SerDes interface To Dune’s Fabric Element (BCM88750)
  - Fabric-less (without the fabric element) configurations of up to eight devices
- Flexible network interface
  - 1GbE/10GbE/40GbE/100GbE integrated MACs, as well as HiGig and ILKN interfaces
- Traffic manager
  - Deep buffering, DDR3 DRAM-based
  - Hierarchical memory management with WRED, tail-drop policies, ECN, and congestion notification support
  - Programmable, hierarchical scheduling
  - Compliant with scheduling and shaping standards, including MEF and DSL-FORUM
  - Per-flow, per-aggregate rate and burst shaping
- Flexible and microcode-programmable packet processor:
  - Full-featured: bridging, routing, MPLS, VPLS, L2VPN/4s, L3VPN/4s, OAM
  - Built-in support for data center, carrier and metro Ethernet, and transport applications
  - Large on-chip tables with off-chip expandability
- OTN and TDM support
  - Dedicated low delay pipe for TDM/OTN traffic
  - Fixed & predictable latency data path for TDM Systems
  - Unified fabric for OTN and packet
- In-band management
- PCIe™ host interface with DMA
- Option for Broadcom Serial Control (BSC)
**About Broadcom**

Broadcom Corporation is a major technology innovator and global leader in semiconductors for wired and wireless communications. Broadcom® products enable the delivery of voice, video, data and multimedia to and throughout the home, the office and the mobile environment. We provide the industry's broadest portfolio of state-of-the-art system-on-a-chip and software solutions to manufacturers of computing and networking equipment, digital entertainment and broadband access products, and mobile devices.

A FORTUNE 500® company, Broadcom is headquartered in Irvine, Calif., and has offices and research facilities in North America, Asia and Europe. Broadcom may be contacted at +1.949.926.5000 or at www.broadcom.com.

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