

Broadcom BCM88650 Series World Most Dense 100GbE Switching Solution

Connecting
everything®



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



Highlights

- Highly scalable, field-proven DUNE architecture Traffic Manager, with deep packet buffers
- Advanced and programmable packet processor, with built-in support for Data Center, Carrier and Metro Ethernet, and packet transport applications
- Large on-chip tables with off-chip expandability
- Integrated MACs for 1GbE/10GbE/40GbE/100GbE, as well as HiGig™ and Interlaken interfaces
- Together with BCM88750, provides total switching capacity ranging from 100 Gbps to hundreds of Tbps
- Serves as a single-chip solution/building block for an entire product line, reducing the development cycle and cost.
- Fully supported by Broadcom's common Application Programming Interface (API).

	BCM88650
CESR	●
Data Center	●
Enterprise	●
OTN/PTN	●
Access	●

○ Supported ● Best Choice

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

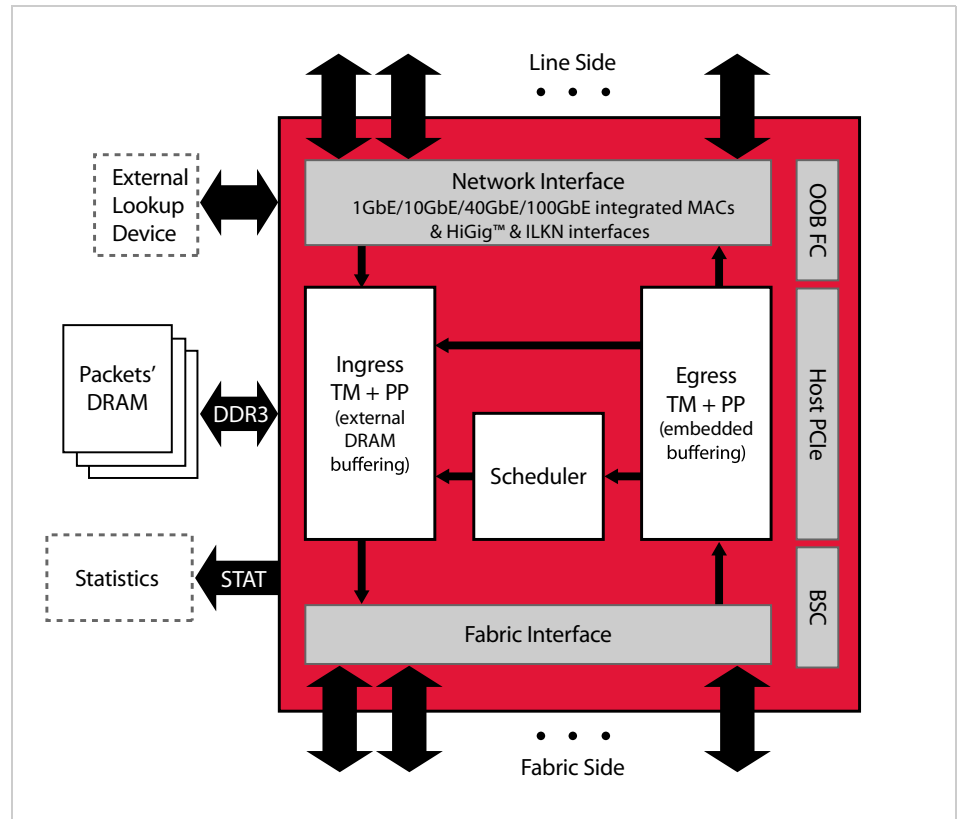
- Fifth-generation Dune FAP product line
- High performance
 - 200 Gbps full-duplex wirespeed, with 240 Gbps oversubscribed switching
- Fabric interface
 - SerDes interface To Dune's Fabric Element (BCM88750)
 - Fabric-less (without the fabric element) configurations of up to eight devices
- Flexible 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, L2VPNs, L3VPNs, 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)

Supported Applications

- Carrier Ethernet core/metro/edge switches and routers
- Data center switch/router
- Packet transport switches
- Mobile backhaul switch/router
- Carrier access PON OLT
- Carrier/enterprise value stackable

The BCM88650 can be used together with complimentary Broadcom devices to meet customers' specific requirements:

- BCM8835x together with Broadcom's next-generation PON OLT silicon family for a feature-rich, cost-optimized solution targeting 10G PON OLT
- The BCM88030 NPUs for core routers and mobile backhaul
- The BCM56840 and BCM56640 devices for interface expansion, scaling, and adding traffic management capabilities to existing systems for investment protection



BCM88650 Block Diagram

Part Number	Features	Fabric Interface
88350	200G TM+PP for PON access	Fabric/ Stand-Alone /Mesh
88351	100G TM+PP for PON access	Fabric/ Stand-Alone /Mesh
88450	200G TM & PP	Stand-Alone/Mesh
88451	100G TM & PP	Stand-Alone /Mesh
88550	200G TM with ILKN interface	Fabric/ Stand-Alone /Mesh
88551	100G TM with ILKN interface	Fabric/ Stand-Alone /Mesh
88552	200G TDM/OTN cross-connect (No TM, No PP)	Fabric/ Stand-Alone /Mesh
88650	200G Integrated TM & PP	Fabric/ Stand-Alone /Mesh
88653	96x1G Integrated TM & PP	Fabric/ Stand-Alone /Mesh
88654	48x1G Integrated TM & PP	Fabric/ Stand-Alone /Mesh

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.

These solutions support our core mission: Connecting everything®.

Broadcom, one of the world's largest fabless communications semiconductor companies, with 2010 revenue of \$6.82 billion, holds more than 4,800 U.S. and 2,000 foreign patents, and has more than 7,800 additional pending patent applications, and one of the broadest intellectual property portfolios addressing both wired and wireless transmission of voice, video, data and multimedia.

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