

Product Brief



Key Features

- Integrated Fiber WAN interfaces support ITU XGS-PON, XG-PON, NG-PON2, 50G HSP PON, 25G EPON, 10G EPON, and Active Ethernet up to 50G
- Advanced multicore Arm CPU
- DI-XRDP network processor
 - Flexible classification and filtering
- Glueless interface to standard SFF transceivers, BOSA onboard, SFP/ SFP+/XFP
- Multiple PCIe ports
- Multiline VoIP
- Integrated USB controllers
- LPDDR4/LPDDR5/LPDDR5x controller and PHY
- Flexible flash memory support
- Dedicated security processor (SMC) enforcing secure boot and other security features
- Centralized power management

Applications

- Residential fiber to the home (FTTH)
- Multi-gigabit fiber CPE
- 50G PON Wi-Fi Ethernet gateway

BCM68850

50G ITU-PON Gateway SoC

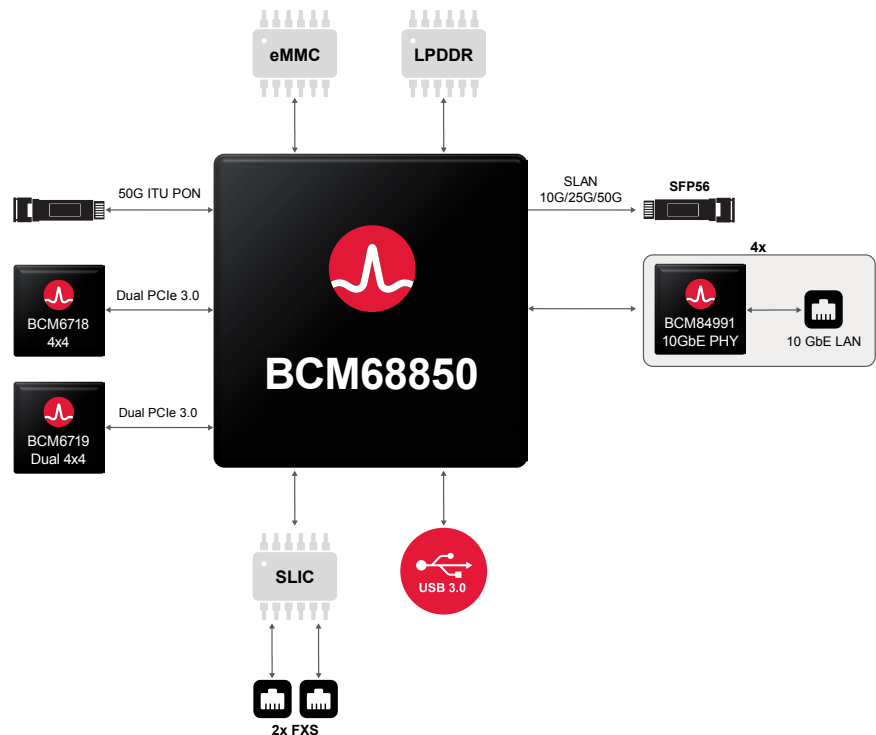
Overview

The Broadcom® BCM68850 is a single-chip gateway system on a chip (SoC), supporting small packet WAN-to-LAN routing concurrent with multiport Ethernet switching, L3/L4 packet processing, triband concurrent Wi-Fi 8 wireless networking, and multiline Voice over IP (VoIP).

The BCM68850 includes an integrated multicore high-performance Arm CPU, USB, LPDDR4/LPDDR5/LPDDR5x controller, and PHY. Additional supported interfaces include NAND flash, eMMC, Serial Port Interface (SPI), I²C, and Pulse Code Modulation (PCM) highway.

The embedded Broadcom Neural Engine (BNE), a machine-learning (ML)/AI inference engine with support for convolutional neural networks, supports a variety of artificial intelligence applications, such as anomaly, intrusion, or impairment detection, fault localization, performance optimization, voice recognition, cybersecurity analysis, and much more.

System Block Diagram



For more information, visit our website at: www.broadcom.com

Copyright © 2026 Broadcom. All Rights Reserved. The term "Broadcom" refers to Broadcom Inc. and/or its subsidiaries. All trademarks, trade names, service marks, and logos referenced herein belong to their respective companies.

68850-PB100 May 18, 2026