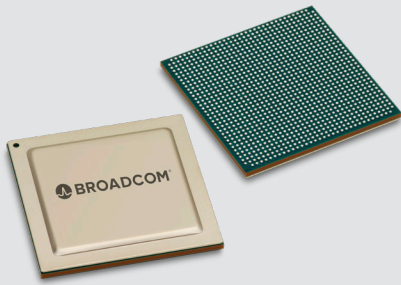


Software Brief



Key Features

- Media Interface
 - 8x50G PAM-4 SerDes
 - Up to 200 Gbps total bandwidth
 - Single-port 200/100/50/40/25/10 Gb/s
 - Dual-port 100/50/40/25/10 Gb/s
 - Quad-port 50/25/10 Gb/s
 - Independent speed for each port
- Host Interface
 - PCI Express 4.0 16.0 GT/s 16 lanes
 - Multi-host - Interface up to four PCIe hosts
 - Host isolation with dedicated buffers
 - Multi-RC support
- Security
 - Secure boot and silicon Root-of-trust
 - Attestation (SPDM 1.2)
 - Secure firmware update and recovery
- Form Factor
 - OCP NIC 2.0 and 3.0
 - OCP Mezzanine 2.0 compliant
 - PCI-SIG CEM

BCM5750x

200 Gb/s RoCE PCIe 4.0 Ethernet NIC with 50G PAM-4, Multi-Host, and Single/Dual/Quad-Port Configurations

Overview

The BCM5750x is a family of Ethernet controllers from Broadcom® optimized for cloud and enterprise data centers, providing high performance for big data and machine learning, web services, storage, and database applications. The Thor NIC family sets the bar higher once again by supporting single, dual, and quad-port configurations with 200/100 Gb/s aggregate throughput with the industry's lowest power solution.

Incorporating industry-leading PHY technology, the BCM5750x provides highly efficient network connectivity using eight lanes of built-in SerDes, each supporting 50G PAM-4 and 25G NRZ. When paired with Broadcom's market-leading Ethernet switches StrataXGS® or StrataDNX, the BCM5750x assures the highest level of performance, interoperability, and features.

Features

- RDMA over Converged Ethernet (RoCE)
 - RoCEv2
 - Libraries (iSER, NCCL, OpenMPI, NVMeoF, NFSoRDMA, vSAN/RDMA)
 - Congestion control (PFC, DCQCN-p/d, ECN)
 - Reliable connection (RC), unreliable datagram (UD), and Raw Ethernet
 - Fast memory registration
 - GPUDirect and DMA buf acceleration
 - Network Direct Kernel Provider Interface (NDKPI) 2.0
 - Network Direct Service Provider Interface (NDSPI) 2.0
- Stateless Offload Features
 - TCP, UDP, IP checksum offloads
 - Large send offload (LSO)
 - Receive segment coalescing (RSC)
 - TCP segmentation offload (TSO)
 - Generic receive offload (GRO)
 - Receive side scaling (RSS)
 - Transmit side scaling (TSS)
 - Accelerated Receive Flow Steering (aRFS)
 - Header-Payload Split

Features (cont.)

- Host Processors
 - X86, AMD, and ARM
- NIC Partitioning
 - 16 physical functions
 - Bandwidth allocation per partition
 - Partitioning control via sideband communication
 - MAC/VLAN filters per partition
 - Per partition statistics support
 - Stateless offloads configuration per partition
- Virtualization
 - NetQueue, NDIS VMQ, and MultiQueue
 - PCIe SIG SR-IOV compliant
 - Edge Virtual Bridging (EVB) – VEB/VEPA support
 - Support for Virtual Functions (VFs)
 - VxLAN-aware stateless offloads
 - NVGRE-aware stateless offloads
 - Geneve-aware stateless offloads
 - IP-in-IP-aware stateless offloads
 - GRE-aware stateless offloads
 - Per virtual function (VF) statistics
 - VF receive-side scaling (RSS)/Transmit-Side Scaling (TSS)
 - VF isolation, source pruning, and anti-spoofing
- Timing and Synchronization
 - IEEE 1588
 - Support for T-TSC, T-BC and T-GM
 - PPS in and PPS out
- Synchronous Ethernet (SyncE) Support
- Hardware-based Flow Processing (TruFlow™)
 - vSwitch offload (OvS)
 - Flexible flow template, w/o FW update
 - Exact/Wildcard Match Flow Lookup
 - Flexible Key Selection
 - Packet Recycling
 - VLAN insertion/deletion
 - NAT/NAPT
 - Tunnel Encapsulation/Decapsulation
 - Custom Tunnel Processing
 - Mirroring
 - Metering
 - Flow counters/statistics
- Data Center Bridging
 - Priority-based flow control (PFC IEEE 802.1Qbb)
 - Enhanced transmission selection (ETS IEEE 802.1Qaz)
 - Data center bridging capability eXchange (DCBX IEEE 802.1Qaz)
 - Up to eight traffic classes per port; fully DCB compliant per IEEE 802.1Qbb
- Manageability
 - Network Controller Sideband Interface (NC-SI) over RMI- Based Transport (RBT)
 - Host-to-BMC
 - Management Component Transport Protocol (MCTP)
 - MCTP over SMBus
 - MCTP over PCIe VDM
 - NC-SI over MCTP
- PLDM over MCTP (PLDM Base, PLDM for platform monitoring and control, and PLDM for firmware update)
- Power Saving
 - ACPI-compliant power management
 - PCI Express Active State Power Management (ASPM)
 - PCI Express CLKREQ support
 - PCI Express unused lane powered down
 - Low-power modes
- OS Support
 - CentOS, Debian, Oracle Linux, Oracle Solaris, Red Hat Enterprise Linux, SUSE® Linux Enterprise Server, Ubuntu
 - Microsoft Windows, Windows Hyper-V, Windows Server
 - VMware, VMware ESX, VMware vSphere
 - FreeBSD
 - OpenEuler, OpenAnolis, OpenCloudOS, BCLinux, CTYUNOS, KYLIN, FusionOS
- Tools
 - NICCLI for FW update and NIC settings
 - KDNet (Kernel debugging over Network)
- PreBoot
 - Signed UEFI driver
 - PCIe functions capable of PXE boot and iPXE