



Broadcom Samples Thor, World's First 200G Ethernet Controller with 50G PAM-4 and PCIe 4.0

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Third Generation NetXtreme E-Series Controller Doubles Server Connection Bandwidth per Lane for Hyper-Scale and Enterprise Data Centers

SAN JOSE, Calif., Sept. 12, 2018 (GLOBE NEWSWIRE) -- Broadcom Inc. (NASDAQ: AVGO) today announced Thor, a new 200G Ethernet controller with 50G PAM-4 and PCIe 4.0, designed for high performance computing, networking and storage applications including machine learning, storage disaggregation, and data analytics. Building upon the success of the widely-deployed NetXtreme® E-Series architecture, Broadcom's Thor combines a high-bandwidth Ethernet controller with a unique set of highly optimized hardware acceleration engines to enhance network performance and improve server efficiency.

Driven by the growing need for higher server bandwidth and storage capacity to support new and emerging applications, enterprises, telcos and cloud providers are modernizing their data centers by adopting latest networking technologies, such as server virtualization and NVMe-oF. The resulting expansion in data volumes increases server-to-server traffic and CPU loads for networking tasks. With its market-leading hardware acceleration technologies, 400G network connectivity for high-availability features, and the industry's best performing 50G PAM-4 SerDes, Broadcom's Thor is raising the bar by boosting performance and server efficiency, enabling data centers to scale in a cost-effective way and adapt to constantly changing requirements.

Key Features & Benefits

- 200G Ethernet includes 400GbE network connectivity for high availability features and flexible port configurations including 4x100GbE and 2x200GbE, eliminating throughput bottlenecks for data-intensive applications
- Industry's best performing and longest-reach 50G PAM-4 SerDes dramatically lowering TCO by reducing cable costs by 50% and doubling port density
- PCIe 4.0 x16 support maximizing the full potential of servers compliant with the PCI Express® 4.0 specification, providing seamless interoperability and doubling server throughput while saving PCIe lanes
- Third generation TruFlow™ technology pushing the envelope of flow processing by accelerating applications, such as Open vSwitch (OVS), and reducing the server CPU usage
- In-band Network Telemetry (INT) with Broadcom's Broadview™ software suite providing end-to-end real-time monitoring capability, enabling data center operators to fine tune their networks for maximum performance
- Industry's best performing multi-host solution specifically enhanced for the OCP 3.0 specification, to which Broadcom has been a lead contributor
- Industry's most secure Ethernet controller solutions for servers leveraging Broadcom's BroadSAFE® technology, providing unparalleled platform security via Silicon Root of Trust
- 200G controller with smart congestion control engine for RoCEv2, enabling scalable deep learning clusters up to hundreds of nodes using NVIDIA GPUDirect technology

"I am excited we are bringing Thor to market just as customers pivot to 100G and higher throughputs," said Ed Redmond, senior vice president and general manager of the Compute and Connectivity Division at Broadcom. "Being first to deliver a fully-featured, fully-accelerated, high-performance 200Gb/s Ethernet controller that features market-leading accelerators such as TruFlow, Broadcom's Thor is key to the industry's adoption of 100G and unleashing the power of our customer's cloud and enterprise data centers."

"Broadcom's early market sampling of its Thor™ 200Gbps Ethernet controller will help customers meet the much higher server and storage bandwidth demands required by the next phase of data center applications and architectures," said Seamus Crehan, president of Crehan Research. "Driven by these higher bandwidth demands, combined 100GbE and 200GbE controller shipments are forecast to approach one million ports as early as 2019 and grow rapidly to exceed ten million ports by 2022."

Availability

Broadcom is now sampling Thor dual-port 100G PCIe NICs and single-port 100G OCP 2.0 Mezzanine cards to qualified customers. Please contact your local Broadcom sales representative for samples and pricing.

Further information on Broadcom's Thor Ethernet controller and network adapters can be found online at:

<https://www.broadcom.com/products/ethernet-connectivity/controllers/bcm57500>

<https://www.broadcom.com/products/ethernet-connectivity/network-adapters/bcm957508-p2100g>

<https://www.broadcom.com/products/ethernet-connectivity/network-adapters/bcm957504-m1100g>

Quotes

"Broadcom and Lenovo have partnered together to bring new OCP 3.0 Ethernet adapters across ThinkSystem server platforms. Lenovo Data Center customers will benefit combining ThinkSystem and Broadcom's Thor adapters, delivering the latest TruFlow technology, which addresses networking congestion while reducing the CPU impact for virtualized workloads," said Kamran Amini, VP & GM of the Data Center Infrastructure at Lenovo Data

Center Group. "Lenovo and Broadcom have been leading contributors together through enabling advanced management features for OCP 3.0, including MCTP and PLDM management, addressing end-user manageability needs. Lenovo will integrate new OCP 3.0 solutions in future ThinkSystem servers."

"Broadcom's 200Gb Ethernet controllers continue to improve bandwidth on NVIDIA GPU-accelerated clusters, providing higher performance, and better scalability for HPC and deep learning applications," said Paresh Kharya, group product marketing manager for Accelerated Computing at NVIDIA. "With Broadcom's controllers supporting NVIDIA GPUDirect RDMA technology, data transfers between NVIDIA's data center GPUs can achieve higher bandwidth to address ever more complex and challenging scientific and industrial problems."

"VMware vSphere, an efficient and more secure platform for hybrid clouds architected to run virtual machines, incorporates many powerful security features that are designed to address the security concerns of the most demanding data center environments for a variety of organizations," said Sudhanshu Jain, senior product manager of VMware vSphere at VMware, Inc. "BroadSAFE support in Thor with vSphere enables a strong foundation for data center security."

"AMD intends to be an early adopter of PCIe 4.0 to meet the ever-increasing need for efficient, high-performance computing resources," said Raghu Nambiar, vice president of datacenter design engineering at AMD. "Broadcom is a valuable contributor to the technology ecosystem and AMD looks forward to the support for our CPU and GPU processor architectures from the Thor PCIe 4.0 product."

"Our data center continues to grow quickly. Adopting new technologies such as 50G Ethernet and PCIe Gen 4 are important to our future growth plans," said Xun Feng Cao, director of the Server Platform Architecture of TEG at Tencent.

"Applications such as machine learning and search will continue to benefit from higher performance data centers. High-performance and low-latency connectivity are all part of what we will need in our future servers," said Zhenyu Hou, executive director at Baidu.

About Broadcom

Broadcom Inc. (NASDAQ:AVGO) is a leading designer, developer and global supplier of a broad range of digital and analog semiconductor connectivity solutions. Broadcom Inc.'s extensive product portfolio serves four primary end markets: wired infrastructure, wireless communications, enterprise storage and industrial & other. Applications for our products in these end markets include: data center networking, home connectivity, set-top box, broadband access, telecommunications equipment, smartphones and base stations, data center servers and storage, factory automation, power generation and alternative energy systems, and electronic displays. For more information, go to www.broadcom.com.

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Press Contact:
Khanh Lam
Corporate Communications
press.relations@broadcom.com
Telephone: +1 408 433 8649



Broadcom Inc.