Broadcom Ships Tomahawk 6: World's First 102.4 Tbps Switch

June 3, 2025

Unmatched Performance for Scale-Up and Scale-Out AI Networks with Support for Co-Packaged Optics

PALO ALTO, Calif., June 03, 2025 (GLOBE NEWSWIRE) -- Broadcom Inc. (NASDAQ:AVGO) announced today that it is now shipping the Tomahawk® 6 switch series, delivering the world's first 102.4 Terabits/sec of switching capacity in a single chip – double the bandwidth of any Ethernet switch currently available on the market. With unprecedented scale, energy efficiency, and AI-optimized features, Tomahawk 6 is built to power the next generation of scale-up and scale-out AI networks, delivering unmatched flexibility with support for 100G/200G SerDes and co-packaged optics (CPO). It offers the industry's most comprehensive set of AI routing features and interconnect options, designed to meet the demands of AI clusters with more than one million XPUs.

"Tomahawk 6 is not just an upgrade – it's a breakthrough," said Ram Velaga, senior vice president and general manager, Core Switching Group, Broadcom. "It marks a turning point in AI infrastructure design, combining the highest bandwidth, power efficiency, and adaptive routing features for scale-up and scale-out networks into one platform. Demand from customers and partners has been unprecedented. Tomahawk 6 is poised to make a rapid and dramatic impact on the deployment of large AI clusters."

"AI clusters are scaling from tens to thousands of accelerators, turning the network into a critical bottleneck while expected to deliver unprecedented bandwidth and latency," said Kunjan Sobhani, lead semiconductor analyst, Bloomberg Intelligence. "By breaking the 100Tbps barrier and unifying scale-up and scale-out Ethernet, Broadcom's Tomahawk 6 gives hyperscalers an open, standards-based fabric—free of proprietary lock-in—and a clear, flexible path to the next wave of AI infrastructure."

Join us here for the Tomahawk 6 digital launch event on Tuesday, June 3, 2025, at 9:00 AM PDT / 12:00 PM EDT, featuring insights from Broadcom and leading industry experts.

Flexible Connectivity Options with Co-Packaged Optics Support

The innovations of Tomahawk 6 extend far beyond the chip, delivering full system-level power efficiency and cost savings, enabled by Broadcom's best-in-class SerDes and optics ecosystem. With industry-leading 200G SerDes, it provides the longest reach for passive copper interconnect, enabling high-efficiency, low-latency system design with the highest reliability and lowest total cost of ownership (TCO). The Tomahawk 6 family includes a groundbreaking option for 1,024 100G SerDes on a single chip, enabling customers to deploy AI clusters with extended copper reach and efficient use of XPUs and optics with native 100G interfaces.

For systems requiring optical connectivity, Tomahawk 6 will also be available with co-packaged optics, providing the lowest power and latency while reducing link flaps and improving long-term reliability – essential advantages for hyperscale AI network operators. The Tomahawk 6 CPO solution builds upon the technology Broadcom delivered with CPO versions of Tomahawk 4 and 5.

AI-Optimized Routing for Scale-Up and 1M+ XPU Scale-Out Networks

Tomahawk 6's architecture enables unified networks for AI training and inference at unprecedented scale. Cognitive Routing 2.0 in Tomahawk 6 features advanced telemetry, dynamic congestion control, rapid failure detection, and packet trimming, enabling global load balancing and adaptive flow control. These capabilities are tailored for modern AI workloads, including mixture-of-experts, fine-tuning, reinforcement learning, and reasoning models.

With scale-out and scale-up networking support, Tomahawk 6 meets all networking demands for emerging 100,000 to one million XPU clusters. Leveraging Ethernet for both scale-out and scale-up interfaces offers significant advantages for network operators, enabling them to use a unified technology stack and consistent operational tools across the entire AI fabric. It also enables fungible interfaces where cloud operators can dynamically partition their XPU assets into the optimal configuration for different customer workloads.

The momentum behind Tomahawk 6 and Ethernet for all backend networking needs is unmistakable. Multiple deployments are planned with more than 100,000 XPUs using Tomahawk 6 for both the scale-out and scale-up interconnect.

Open Scale-Up Innovation with the Scale Up Ethernet (SUE) Framework

Tomahawk 6 is designed to be part of a vibrant, open scale-up Ethernet ecosystem. To this end, Broadcom is enabling the industry with open specifications for efficient scale-up interfaces for XPUs and NICs. The SUE Framework was announced by Broadcom at Open Compute Project (OCP) Dublin in April 2025 and is freely available at this link. This technology will be shared with open standards development organizations, including OCP.

Open, End-to-End Platform for AI Infrastructure

Broadcom's end-to-end Ethernet AI platform includes the Tomahawk and Jericho switch families, Thor NICs, Agera retimers, Sian optical DSPs, co-packaged optics, and software development kits – delivering a complete solution for next-generation AI infrastructure.

Tomahawk 6 is a key proof point for Broadcom's commitment to enabling Ethernet for both scale-up and scale-out. Tomahawk 6 is Ultra Ethernet Consortium compliant and supports modern AI transports, congestion signaling, and telemetry for large, distributed training environments. It also supports arbitrary network topologies, including scale-up, Clos, rail-only, rail-optimized, and torus.

Tomahawk 6 Series Key Benefits:

- 102.4 Tbps of Ethernet switching in a single chip
- Scale-up cluster size of 512 XPUs
- 100,000+ XPUs in a two-tier scale-out network at 200 Gbps/link
- 200G or 100G PAM4 SerDes with support for long-reach passive copper
- Option for co-packaged optics
- Cognitive Routing 2.0
- Unmatched power and system efficiency for AI training and inference
- Works with any NIC or XPU Ethernet endpoint
- Support for arbitrary topologies, including scale-up, Clos, rail-only, rail-optimized, and torus
- Compliant with Ultra Ethernet Consortium specifications

To learn more about the Broadcom Tomahawk 6 family, click here. Explore the comprehensive Scale-Up/Scale-Out media kit here for resources and insights on Broadcom's scalable solutions. For in-depth details on Broadcom's CPO technology, click here.

About Broadcom

Broadcom Inc. (NASDAQ: AVGO) is a global technology leader that designs, develops, and supplies a broad range of semiconductor, enterprise software and security solutions. Broadcom's category-leading product portfolio serves critical markets including cloud, data center, networking, broadband, wireless, storage, industrial, and enterprise software. Our solutions include service provider and enterprise networking and storage, mobile device and broadband connectivity, mainframe, cybersecurity, and private and hybrid cloud infrastructure. Broadcom is a Delaware corporation headquartered in Palo Alto, CA. For more information, go to www.broadcom.com.

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Industry Quotes

Michael KT Lee, Senior Vice President of Research & Development Center, Accton

"To keep pace with the rapid growth of AI workloads, Broadcom continues to innovate and lead the industry in speed and power of Ethernet Networking. With the 512-XPU scale-up at 200G/link for SUE, 1M+ XPUs cluster scale-out, and the leading-edge SerDes capability to support long-reach passive-copper of Tomahawk 6, Accton is excited to embrace the launch and collaborate closely with Broadcom to bring the Tomahawk 6 solutions to the market and enable open networking products with SONiC."

ML Chien, General Manager of Business Office, Alpha Networks

"It has been a privilege to collaborate with Broadcom on the Tomahawk 6 platform. Not only does it scale-up and scale-out the Ethernet ecosystem, but it also enables us to offer higher reliability and lower TCO to our customers."

Forrest Norrod, Executive Vice President and General Manager, Data Center Solutions Group, AMD

"As AI networking demands continue to grow, AMD is committed to advancing AI infrastructure through strategic collaborations with Broadcom and other industry leaders. Combining the AMD Infinity Fabric ™ and Broadcom's Tomahawk 6 enables the creation of massive-scale, low-latency GPU clusters that deliver the performance, scalability, and efficiency required for AI training and inference — empowering organizations to build next-generation AI infrastructure within an open ecosystem."

Hardev Singh, General Manager, Cloud Titans and AI, Arista Networks

"Arista is proud of its 15 year partnership with Broadcom and collaboration on the latest Tomahawk 6 silicon combined with feature-rich Arista EOS. We are excited to leverage its low power, high radix, 1.6Tbps port speeds, and advanced packet processing capabilities for AI-aware routing, based on open Ethernet standards."

Shekar Ayyar, Chairman and CEO, Arrcus

"The launch of Broadcom's Tomahawk 6 is a major leap forward. Its impressive scale and efficiency align perfectly with Arrcus' ArcOS-driven, high-performance ACE networking platform to meet the evolving routing and switching demands of hyperscale AI deployments. Together with Broadcom, we are enabling cloud, telecom, and enterprise customers to build flexible, distributed networks for AI data centers and edge environments."

Steven Dorwart, Segment Vice President, Global Accounts, Celestica

"Celestica continues its close collaboration with Broadcom, developing industry-leading solutions for our end customers. Tomahawk 6 changes the industry with its high radix architecture, support for scale-up and scale-out use cases, and enablement of efficient, large-scale AI network deployments. We are excited to introduce Tomahawk 6-based platforms to our customers."

Wangson Wang, General Manager of Data Networks Infrastructure BU, Delta Electronics

“With our proven experience as the first Taiwanese company to showcase and deliver a high-performance 800G switch featuring Broadcom’s Tomahawk 5, Delta is thrilled to continue its broad collaboration with Broadcom and seamlessly transition to the next-generation Tomahawk 6 switch. With a total switching capacity of 102.4T and 224G SerDes lanes, Broadcom’s Tomahawk 6 series significantly doubles the performance of the current generation, enabling us to deliver high-density, high-performance switching platforms to meet the demanding requirements of GPU scale-up and scale-out architectures at the core of next-generation AI and cloud computing. Delta’s in-house expertise in signal integrity, power supply, and fan and cooling solutions allows us to provide fully integrated, energy-efficient switching solutions at scale.”

Ido Susan, CEO & Founder, DriveNets

“Networking is critical to the efficient operations of AI data centers. We therefore expect the introduction of Tomahawk 6 today to impact the entire AI industry. The partnership between Broadcom and DriveNets has already enabled some of the most innovative networks in the AI and telecom industries, and we are committed to continuing to work together on Open, high-performance, and cost-efficient Ethernet innovations that will scale up AI infrastructures.”

Atsushi Ogata, President & CEO, IPI

“Tomahawk 6 is the next generation in Broadcom’s series of high-performance, high-density switches. Fully realizing the benefits of this technical innovation requires performance-oriented software and an unprecedented combination of power, speed, and scale — paired with open and compatible software. This combination is tailor-made for the unique networking requirements of today’s resource-intensive applications, such as artificial intelligence and other advanced platforms, and represents a logical upgrade for networking customers.”

Praveen Jain, SVP/GM AI Clusters and Cloud Ready Data Center, Juniper Networks

“Broadcom’s innovative Tomahawk 6, with its open, UEC-compliant architecture and advanced SUE technology, sets a new benchmark for scale-out and scale-up networks for AI — doubling bandwidth, improving power efficiency, and enabling advanced capabilities AI clusters demand. Juniper builds on this foundation with AI-optimized Junos® software (e.g. AI load balancing), multivendor fabric management, and leading AIOps from our Mist ™ AI-native networking platform — delivering a secure, high-performance solution that simplifies operations, accelerates time to value, and reduces total cost of ownership.”

Bob Wheeler, Analyst at Large, LightCounting

“The explosive growth in AI workloads and rapid evolution of AI models in the data center are driving million-GPU clusters and higher system complexity. Networks must be designed to support both generative AI inference and training to meet the insatiable need for bandwidth. With the launch of the Tomahawk 6 switch and its full stack of Ethernet AI innovations, Broadcom is enabling its customers and the larger ecosystem to develop the next generation of scale-out and scale-up AI networks.”

Andrew Qu, CTO, Micas

“Broadcom’s Tomahawk 6 sets a new bar for AI networking, and we’re thrilled to be building next-generation switches around it. Its groundbreaking 102.4 Tbps capacity, native CPO support, and advanced network features like Cognitive Routing 2.0, congestion-aware flow control, and high-resolution telemetry are game changers for hyperscale data centers. Tomahawk 6 enables us to deliver AI and cloud networking systems that are both massively scalable and intelligently adaptive. It sets a new standard for performance, efficiency, and operational visibility at scale.”

Anshul Sadana, Founder & CEO, Nexthop AI

“At Nexthop, we co-develop industry-leading AI networking hardware and software to empower the world’s largest hyperscalers. The breakthrough innovation of Broadcom’s Tomahawk 6 enables us to deliver a compelling portfolio of Ethernet solutions for scale-up and scale-out networks, featuring robust support for power-efficient interconnects with our hardened SONiC offering. These advancements help our customers build the most efficient infrastructure at scale.”

Jeff Jakab, Vice President of Hardware, Nokia

“With an impressive switching capacity of 102.4Tb/s and extensive range of AI networking topologies and features, Broadcom's Tomahawk 6 series provide a valuable tool set in support of Nokia's expanding portfolio of modern data center switches for AI networks.”

Vik Malyala, President & Managing Director, EMEA Senior Vice President, Technology and AI, Supermicro

“Supermicro is excited to bring Tomahawk 6 into our product lines, where it will enable customers to scale up and out the cluster and storage fabrics. Building larger scale units in more dense environments matches the Tomahawk 6 capabilities well, and continued enhancements in methods supporting automation in operations and fabric management helps to shorten our customers time to value.”

Vincent Ho, Chairman & CEO, Ufispace

“Broadcom is once again setting a new standard in high performance networking with the Tomahawk 6. UfiSpace is proud to be among the first to integrate this advanced technology into our S9331-64HO 1.6T open networking platform. Our close collaboration reflects a shared vision to deliver the scale, efficiency, and innovation that today’s data center and carrier networks demand.”

Johnson Hsu, Senior Vice President & General Manager, Connected Home BG and Networking BG, WNC

“We’re excited to work with Broadcom on the groundbreaking Tomahawk 6. This next-generation solution delivers unmatched performance, efficiency, and scalability empowering our customers to build faster, more flexible, and more cost-effective data center networks.”

Source: Broadcom Inc.