

NVIDIA Extends Data Center Infrastructure Processing Roadmap with BlueField-3

First 400Gb/s DPU with Line-Rate Processing of Software-Defined Networking, Storage and Cybersecurity

GTC — NVIDIA today announced the [NVIDIA® BlueField®-3 DPU](#), its next-generation data processing unit, to deliver the most powerful software-defined networking, storage and cybersecurity acceleration capabilities available for data centers.

The first DPU built for AI and accelerated computing, BlueField-3 lets every enterprise deliver applications at any scale with industry-leading performance and data center security. It is optimized for multi-tenant, cloud-native environments, offering software-defined, hardware-accelerated networking, storage, security and management services at data-center scale.

One BlueField-3 DPU delivers the equivalent data center services of up to 300 CPU cores, freeing up valuable CPU cycles to run business-critical applications.

“Modern hyperscale clouds are driving a fundamental new architecture for data centers,” said Jensen Huang, founder and CEO of NVIDIA. “A new type of processor, designed to process data center infrastructure software, is needed to offload and accelerate the tremendous compute load of virtualization, networking, storage, security and other cloud-native AI services. The time for BlueField DPU has come.”

BlueField-3 and Morpheus Put Security Everywhere

BlueField-3 DPUs transform traditional infrastructure into “zero-trust” environments — in which every data center user is authenticated — by offloading and isolating data center infrastructure from business applications. This secures enterprises from cloud to core to edge while increasing efficiency and performance.

The industry’s first 400GbE/NDR DPU, BlueField-3 delivers unmatched networking performance. It features 10x the accelerated compute power of the previous generation, with 16x Arm A78 cores and 4x the acceleration for cryptography. BlueField-3 is also the first DPU to support fifth-generation PCIe and offer time-synchronized data center acceleration.

BlueField-3 provides real-time network visibility, detection and response for cyber threats and acts as the monitoring, or telemetry, agent for [NVIDIA Morpheus](#), a state-of-the-art, AI-enabled, cloud-native cybersecurity platform, also announced today.

NVIDIA DOCA SDK 1.0

BlueField-3 takes advantage of [NVIDIA DOCA™](#), the data-center-on-a-chip architecture that gives developers a complete, open software platform for building software-defined, hardware-accelerated networking, storage, security and management applications running on BlueField DPUs.

Released today and available for download, DOCA includes a runtime environment to create, compile and optimize applications for the BlueField DPU; orchestration tools to provision, update and monitor thousands of DPUs across the data center; as well as libraries, APIs and a growing number of applications, such as deep packet inspection and load balancing.

Ecosystem Adoption of NVIDIA DPUs

Leading server manufacturers Dell Technologies, [Inspur](#), [Lenovo](#) and [Supermicro](#) are integrating BlueField DPUs into their systems. Cloud service providers across the world are using BlueField DPUs to accelerate workloads, including Baidu, JD.com and UCloud. The BlueField ecosystem is also expanding with BlueField-3 support from leading hybrid cloud platform partners Canonical, Red Hat and VMware; cybersecurity leaders Fortinet, Guardicore and storage providers DDN®, NetApp and WekaIO; and edge platform providers Cloudflare, F5 and Juniper Networks.

“Red Hat continues to collaborate with NVIDIA as part of an open ecosystem that accelerates innovation while providing access to the latest hardware innovations for composable infrastructure,” said Chris Wright, chief technology officer of [Red Hat](#). “We recognize the need to develop advanced solutions for network security and automation and are excited to support BlueField DPUs and the NVIDIA Morpheus AI framework via Red Hat Enterprise Linux, Red Hat OpenShift, industry-leading containers and Kubernetes-powered hybrid cloud platform.”

“Our mutual customers are racing to harness the power of AI for enterprise applications,” said Lee Caswell, vice president of marketing for the Cloud Platform Business Unit at VMware. “The vision of enterprise infrastructure powered by the VMware Cloud Foundation and to be certified with the newly announced NVIDIA BlueField-3 DPU shows customers a path to improved application performance, a consistent operating model across virtualized and bare-metal environments, along with a new model for delivering zero-trust security without compromising performance.”

BlueField-2 Now Available

BlueField-3 is fully backward-compatible with BlueField-2, which provides unparalleled performance for offloading, accelerating and isolating data center workloads. [BlueField-2](#) is generally available with dual 100Gb/s Ethernet or InfiniBand network ports and up to eight Arm cores. The BlueField-2 DPU includes accelerators for software-defined storage, networking, security, streaming, line rate TLS/IPSEC cryptography, precision timing for 5G telco and time-synchronized data centers and other cloud infrastructure services.

Availability

BlueField-3 is expected to sample in the first quarter of 2022.

Tune in to watch Huang's [GTC21 keynote](#) address streaming live on April 12 starting at 8:30 a.m. PT.

About NVIDIA

[NVIDIA](#)'s (NASDAQ: NVDA) invention of the GPU in 1999 sparked the growth of the PC gaming market and has redefined modern computer graphics, high performance computing and AI. The company's pioneering work in accelerated computing and artificial intelligence is reshaping trillion-dollar industries, such as transportation, healthcare and manufacturing, and fueling the growth of many others. More information at <https://nvidianews.nvidia.com/>.

Certain statements in this press release including, but not limited to, statements as to: the benefits, performance, features and availability of BlueField DPUs, NVIDIA Morpheus and NVIDIA DOCA; BlueField-3 enabling enterprises to deliver applications at scale; hyperscale clouds driving new architecture for data centers; new processors needed to accelerate the compute load of services; the time for BlueField DPU having come; the server manufacturers and cloud service providers using BlueField DPUs; how the BlueField ecosystem is expanding; the benefits and impact of Red Hat's collaboration with NVIDIA; Red Hat supporting NVIDIA's products and platform; customers racing to harness the power of AI; and NVIDIA's and VMware's products showing customers a path to improved performance and its impacts are forward-looking statements that are subject to risks and uncertainties that could cause results to be materially different than expectations. Important factors that could cause actual results to differ materially include: global economic conditions; our reliance on third parties to manufacture, assemble, package and test our products; the impact of technological development and competition; development of new products and technologies or enhancements to our existing product and technologies; market acceptance of our products or our partners' products; design, manufacturing or software defects; changes in consumer preferences or demands; changes in industry standards and interfaces; unexpected loss of performance of our products or technologies when integrated into systems; as well as other factors detailed from time to time in the most recent reports NVIDIA files with the Securities and Exchange Commission, or SEC, including, but not limited to, its annual report on Form 10-K and quarterly reports on Form 10-Q. Copies of reports filed with the SEC are posted on the company's website and are available from NVIDIA without charge. These forward-looking statements are not guarantees of future performance and speak only as of the date hereof, and, except as required by law, NVIDIA disclaims any obligation to update these forward-looking statements to reflect future events or circumstances.

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