DATASHEET

NVIDIA SPECTRUM OPEN ETHERNET SWITCH FAMILY

Best-in-Class Ethernet Connectivity

NVIDIA® provides the highest performing Open Ethernet switch systems at port speeds ranging from 1GbE through 400GbE, enabling data centers, cloud computing, storage, Web 2.0 and high performance computing applications to operate with maximum functionality at scale.

The NVIDIA Spectrum™ Open Ethernet family includes a broad portfolio of fixed form factor switches, ranging from 16 through 128 ports and with speeds from 1Gb/s to 400Gb/s, allowing the construction of purpose-built data centers at any scale with any desired blocking ratio. This enables network and data center managers to design and implement a cost-effective switch fabric based on the "pay-as-you-grow" principle. Thus, a fabric consisting of a few servers can gradually expand to include hundreds of thousands of servers.

Incorporating SDN attributes, the NVIDIA Ethernet solution rewards the data center administrator with tools that provide a clean, simple and flexible view, and orchestration capabilities for the infrastructure. The result is an easily accessible framework that provides the data center applications with utmost elasticity.

NVIDIA specializes in designing advanced silicon and systems to accelerate software-defined data centers (SDDC). Spectrum switches support rich features while concurrently delivering the highest performance for the most demanding workloads.

The SN4000, SN3000 and SN2000 series offer three modes of operation:

Pre-installed with NVIDIA® Cumulus Linux™, a revolutionary operating system, taking the Linux user experience from servers to switches and providing a rich routing functionality for large scale applications.

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- Pre-installed with NVIDIA Onyx™, a home-grown operating system utilizing common networking user experiences and an industry standard CLI.
- Bare metal switches including ONIE image ready to be installed with the aforementioned or other ONIE-mounted operating systems

BENEFITS

Cloud Native Infrastructure

- Leaf/Spine architectures that easily scale up to 10K+ nodes in 2 tiers
- Best in class VXLAN
- Automation with best of breed tools including Ansible, Chef, Puppet, and SaltStack
- OpenStack Neutron Integration
- Hyperconverged Infrastructure Integration (Nutanix)
- Turnkey Data Center Interconnect solutions with VXLAN

Storage or Machine Learning Interconnect

- Fair, high bandwidth, low latency and bottleneck free data path
- Robust RDMA over converged Ethernet (RoCE) transport for NVMe-oF or GPUDIRECT®
- Built-in telemetry WHAT JUST HAPPENED?® (WJH)
- Onyx, Cumulus Linux, DENT, Microsoft SONiC, and more

A Cloud Without Compromise

Performance

- Fully shared packet buffer provides fair and high bandwidth datapath
- Intelligent congestion management that enables robust RoCE transport
- Adaptive flowlet routing to maximize link utilization

Visibility

- Hardware based sub-microsecond buffer tracking and data summarization
- Granular and contextual visibility with WJH
- Streaming and Inband telemetry

Features

- Single pass VXLAN routing and bridging
- 10X better VXLAN scale
- Hardware-based NAT
- MPLS/IPv6 Segment Routing

Scale

- Massive Layer-2/Layer-3 and ACL scale
- Large scale flow counters

SN2000 Series

Spectrum Based Switches	SN2010	SN2100	SN2700	SN2410
Connectors	18 SFP28 25GbE + 4 QSFP28 100GbE	16 QSFP28 100GbE	32 QSFP28 100GbE	48 SFP28 25GbE + 8 QSFP28 100GbE
100GbE Ports	4	16	32	8
50GbE Ports	8	32	64	16
40GbE Ports	4	16	32	8
25GbE Ports	34	64	64	64
10GbE Ports	34	64	64	64
Height	1RU	1RU	1RU	1RU
Switching Capacity [Tb/s]	0.85	1.6	3.2	2.0
FRUs	-	-	PS and fans	PS and fans
PSU Redundancy	✓	✓	✓	✓
Fan Redundancy	✓	✓	✓	✓
CPU	X86	X86	X86	X86
Power Consumption [W]	57	94.3	150	165
Wire Speed Switching [Bpps]	1.26	2.38	4.76	2.97

SN3000 series

Spectrum Based Switches	SN3700	SN3700C	SN3510**	SN3420
Connectors	32 QSFP56 200GbE	32 QSFP28 100GbE	48 SFP56 50GbE + 6 QSFP-DD 400GbE	48 SFP28 25GbE + 12 QSFP28 100GbE
400GbE Ports	-	-	6	-
200GbE Ports	32	-	12	-
100GbE Ports	64*	32	24*	12
50GbE Ports	128*	64	48+48*	24
40GbE Ports	32	32	12	12
10GbE/25GbE Ports	128	128	48+48	48+48
1GbE Ports	128	128	48+12	48+12
Height	1U	1U	1U	1U

* 50G PAM-4
** Available Q4 2021
\+ 2x50G PAM-4

Spectrum Based Switches	SN3700	SN3700C	SN3510**	SN3420
Switching Capacity [Tb/s]	6.4	3.2	4.8	2.4
FRUs	✓	✓	✓	✓
PSU Redundancy	✓	✓	✓	✓
Fan Redundancy	✓	✓	✓	✓
CPU	X86	X86	X86	X86
Wire Speed Switching [Bpps]	8.33	4.76	7.16	3.58

* 50G PAM-4
** Available Q4 2021
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SN4000 Series

Spectrum Based Switches	SN4800*	SN4700	SN4600*	SN4600C	SN4410*
Connectors	Modular, based on line cards	32 QSFP-DD 400GbE	64 QSFP56 200GbE	64 QSFP28 100GbE	24 QSFP28-DD + 8 QSFP56-DD
400GbE Ports	Up to 32 in full chassis	32	–	–	8
200GbE Ports	Up to 64 in full chassis	64	64	–	24 QSFP28-DD + 16 QSFP56
100GbE Ports	Up to 128 in full chassis	128	128	64	48 QSFP28 + 32 SFP56-DD
50GbE Ports	Up to 128 in full chassis	128	128	128	48 QSFP28 + 64 SFP-56
40GbE Ports	Up to 128 in full chassis	64	64	64	64
10GbE/25GbE Ports	Up to 128 in full chassis	128	128	128	128
1GbE Ports	Up to 128 in full chassis	128	128	128	128
Height	4U	1U	2U	2U	1U
Switching Capacity [Tb/s]	12.8	12.8	12.8	6.4	8.0
FRUs	✓	✓	✓	✓	✓
PSU Redundancy	✓	✓	✓	✓	✓
Fan Redundancy	✓	✓	✓	✓	✓
CPU	X86	X86	X86	X86	X86

* Available Q3 2021

This brochure describes hardware features and capabilities.
Please refer to the driver release notes on **NVIDIA.com** for feature availability.
Actual products may differ from the images.

Warranty Information

NVIDIA switches come with a one-year limited hardware return-and-repair warranty, with a 14 business day turnaround after the unit is received. For more information, please visit the **NVIDIA Technical Support User Guide**.

Additional Information

Support services including next business day and 4-hour technician dispatch are available. For more information, please visit the **NVIDIA Technical Support User Guide**. NVIDIA offers installation, configuration, troubleshooting and monitoring services, available on-site or remotely delivered. For more information, please visit the **NVIDIA Global Services website**.

Learn more

Learn more about **NVIDIA Ethernet Switches**