

Router

14.4 Tbps

DriveNets 5301R (NCP-38E)

FSE Packet Forwarding Node

DriveNets 5301R is a Network Cloud-AI Packet Forwarder (NCP) featuring 18 × OSFP 800G network interface (NIF) ports and 20 × OSFP 800G fabric interface (FIF) ports. It is powered by Broadcom's Jericho3 superset ASIC with integrated High Bandwidth Memory (HBM), delivering enhanced throughput and reduced latency for AI/ML workloads. It operates as a standalone system or as part of a clustered environment when coupled with the DriveNets 9300F Network Cloud Fabric (NCF), forming a scalable Fabric-Scheduled Ethernet (FSE) cluster for high-performance computing.

The 5301R delivers 14.4 Tbps of full-duplex routing and switching capacity, supporting up to 800 GbE per interface and configurable operation in 2 × 400 GbE mode. The OSFP fabric interfaces provide high-speed connectivity to the 9300F NCFs within the cluster.

The FSE architecture offers optimal performance for AI back-end networks, creating a single-hop, non-blocking Ethernet fabric that is flexible, scalable, and capable of interconnecting up to 32K GPUs. This creates a congestion-free, predictable, low-tail-latency environment that maximizes workload efficiency and minimizes Job Completion Time (JCT).



Key Features

Interfaces

- 18x800G NIF and 20x800G FIF
- Up to 800GE line-rate
- OSPF pluggable optics

General

- Optimized for AI/ML applications.
- Disaggregated architecture
- Hardware-based link failover
- Deep buffers
- 1588v2 PTP Class C

- Jericho3 ASIC with integrated HBM

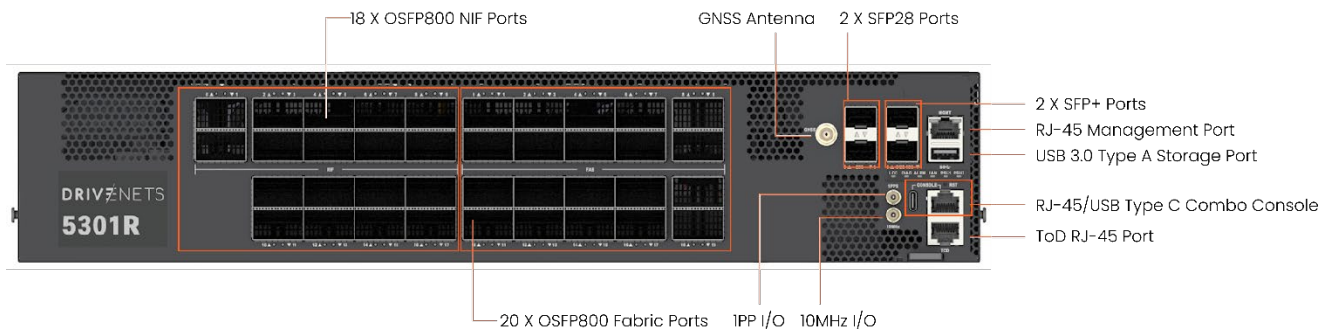
Security

- MacSec
- Platform Firmware Resilience (PFR)

Power and Cooling

- 1 + 1 redundant hot-pluggable PSUs
- 3 + 1 redundant hot-swappable fans

Overview



Hardware Specification

Ports

- Fixed Service Ports:
 - 18 x OSFP800 network interfaces
 - 20 x OSFP800 fabric interfaces
- Management Ports on Port Side:
 - 1 x RJ-45/USB Type C Combo serial console
 - 1 x RJ-45 100/1000BASE-T management
 - 1 x USB 3.0 Type A storage
 - 2 x SFP+ SDN management
 - 2 x SFP28 in-band management
 - 1 x reset button
- Clocking and Timing Ports:
 - 1 x 1PPS I/O DIN
 - 1 x 10MHz I/O DIN
 - 1 x TOD port
 - 1 x GNSS antenna

Key Components

- Switch Silicon: Broadcom Jericho3 superset BCM88860
- BMC ASIC: AST2600
- PFR ASIC: AST1060
- CPU Modules:
 - Intel COMe module Ice Lake-D D-1734NT 8C
- Memory: 64GB DDR4 (2 x 32GB) with ECC
- Storage: NVMe 240G M.2 SSD or 480G (optional)

Performance

- Full-Duplex Switching Capability: 14.4 Tbps
- Packet Throughput: 5400 Mpps processing rate

Physical and Environmental

- Dimensions (HxWxD): 87 mm (H) × 440 mm (W) × 648.2 mm (D)
- Weight: 21 kg
- Fans: Hot-swappable 3 + 1 redundant fans
- Operating Temperature: 0°C to 40°C (32°F to 104°F)
- Storage Temperature: -40°C to 70°C (-40°F to 158°F)
- Operating Humidity: 5% to 85% (RH), noncondensing

LEDs

- OSFP NIF/OSFP Fabric, SFP28, SFP+ Port LEDs: Link Status, Activity, Rate
- Ethernet Management Port LED: Link Status, Activity
- System LEDs: Diagnostic, Locator, Alarm, PSU, and Fan Status

Power

- PSUs: 1 + 1 redundant, load-sharing, hot-swappable VAC/VDC
- Input Voltage: 200-240 VAC; -48 to -60 VDC
- Power Consumption:
Typical 782 W (w/o optics)
Maximum 1615 W (with 800G 14 W optics)

Regulatory Compliance

- EMI:
CE Mark

EN55032 Class A EN55024/35

EN 301 489-1

EN 301 489-19

EN 303413

- FCC Part 15 Subpart B Class A EN 300 386
Safety:
UL 62368-1 Ed.3
IEC/EN 60950-1
IEC/EN 62368-1 Ed.3
UL 60960
- Environmental Compliance:
Storage: ETSI 300 019-2-1 Class T1.2
Transportation: ETSI 300 019-2-2 Class T2.3
Vibration: ETS EN 300 019-2-3 Class 3.2/ IEC 60068-2-64
Operating Bump Test: ETS EN 300 019-2-3 Class 3.2/IEC60068-2-27
Acoustic Noise: ETS 300753
RoHS-6 Compliance