Alcatel-Lucent OmniSwitch 7900-O32

AI Data Center Switches

The Alcatel-Lucent Enterprise OmniSwitch 7900-O32 (OS7900-O32) is a high-performance, low latency switch for high-performance Data Centers.

Application Scenarios

ToR Switch
Our next-generation, highest-capacity OmniSwitch for Data Center ToR use-cases. Breakout options include 2x 400G, 4x 200G and 8x 100G per port, with a maximum of 160 logical ports. This offers reduced cost and power per bit transferred. This type of spine switch helps to scale and enable the migration to 800G leaf connectivity in Data Centers.

AI/ML Clusters
Standards-based Ethernet networking for AI/ML training, fine-tuning & inference, leveraging low latency and high-throughput RoCEv2 (Remote Direct Memory Access (RDMA) over Converged Ethernet). This reduces the Job Completion Time (JCT) by using the cognitive routing and congestion management capabilities of the switch. Fully programmable telemetry enables sophisticated on-chip applications for highest network insight and efficient network management.

High-Performance Computing
The large number of high-capacity Ethernet ports enables server (and switch) interfaces to transition to higher speeds and denser networks. Enables the virtualisation of computer and storage with VxLAN switching and routing.

Cloud DCI
System is ready to support 800G OSFP ZR/ZR+/+6dBm for Cloud DCI scenarios.

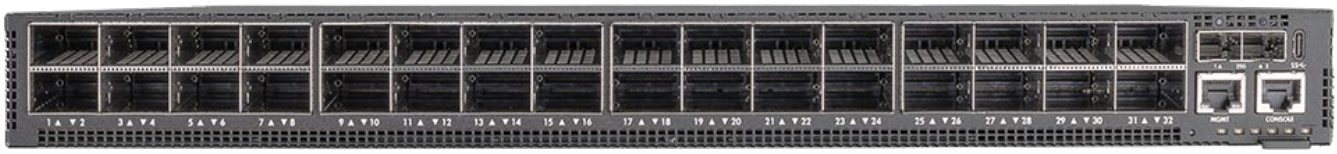
Key Features and Benefits

- OSFP800 switch ports, each supporting 1 x 800 GbE (100G PAM4), or via breakout cables 2 x 400G GbE, 4 x 200 GbE or 8 x 100 GbE
- OSFP800 switch ports also support 1 x 400 GbE (50G PAM4), 1 x 100 GbE (NRZ) and via breakout cables 2 x 200 GbE, 4 x 100 GbE or 8 x 50 GbE
- Up to 30 W power budget per OSFP800 port
- Incorporates Broadcom Tomahawk 5 switch series silicon:
  - Highest Radix: Up to 320 logical ports on a single chip, low latency
  - Cognitive/Adaptive routing and Dynamic Load Balancing (DLB) and Global Load Balancing (GLB)
  - Advanced shared buffering
  - Programmable in-band telemetry
  - Supports end-to-end congestion control
  - Power efficient due to a monolithic 5nm die
  - Hardware-based link failover for network resiliency and reduced job completion time
  - Support for VxLAN RIOT
- BMC module with serial-over-LAN support
- 1 RU form factor
- Contains e-fuses to protect transceivers and internal components

- Supports hot/cold aisles with front-to-back/AFO/port intake airflow SKU and back-to-front/AFI/port exhaust airflow SKU
- All ports on front; PSUs and fans accessible from rear
- Hot-swappable, load-sharing, redundant 2400 W AC/DC PSUs
- 7 Hot-swappable fan modules with 6+1 redundant fans
- Hardware switch pre-loaded with Open Network Install Environment (ONIE) for automated loading of compatible open source and Alcatel-Lucent Enterprise SONiC (ASON) or Alcatel-Lucent Enterprise Operating System (AOS-X) NOS offerings

Product Picture

OS7900-O32 front: preliminary picture of the OS7900-O32, final product may look slightly different.



Product specifications

Feature	Description

Ports	• Switch Ports: 32 x OSFP800 800GbE
	• Logical Ports: Max. 160
	• Port Modes:
	  • 1 x 800G (8 lanes 100G PAM4)
	  • 2 x 400G (4 lanes 100G PAM4) breakout
	  • 4 x 200G (2 lanes 100G PAM4) breakout
	  • 8 x 100G (1 lane 100G PAM4) breakout
	  • 1 x 400G (8 lanes 50G PAM4)
	  • 2 x 200G (4 lanes 50G PAM4) breakout
	  • 4 x 100G (2 lanes 50G PAM4) breakout
	  • 8 x 50G (1 lane 50G PAM4) breakout
	  • 1 x 100G (4 lanes 25G NRZ)
	• Management Ports on Port Side:
	  • 1 x RJ-45 serial console
	  • 1 x RJ-45 1000BASE-T management
	  • 2 x SFP28 25G In-band management
	  • 1 x USB 3.0 storage port
	• Supported Transceivers and Cables: To be detailed later

Key Components	• Switch Silicon: BCM78900 Tomahawk 5
	• CPU Module:
	  • Intel® Xeon® Processor IceLake D-1713NTE 4-Core 2.2 GHz
	  • SPI Flash: 64MB x 2
	  • Memory: 32GB DDR4 SO-DIMM with ECC
	  • Storage: 240G m.2 2280 NVMe SSD
	  • TPM: TPM2.0 SPI
	• BMC: AST2600 with OpenBMC secured by AST1060 Root of Trust

Feature	Description
Perormance	• Switching Capability: 25.6 (51.2) Tbps full duplex • Jumbo Frames: up to 9416 Bytes • eVPN-VxLAN (RIOT, Spine/Leaf) • GLB Support

Physical and Environmental	• Dimensions (WxDxH): 43.84 x 59.8 x 4.3 cm (17.26 x 23.54 x 1.69 in.)
	• Fans: 7 Hot-swappable fan modules with 6+1 redundant fans
	• Storage Temperature: -40°C – 70°C (-40°F – 158°F)
	• Operating Temperature (front-to-back): 0°C – 40°C (32°F – 104°F)
	  • Subject to used optics
	• Operating Temperature (back-to-front): 0°C – 35°C (32°F – 95°F),
	  • Subject to used optics
	• Operating Humidity: 5% – 95% non-condensing
	• Operating Altitude: 1800 m

Software	• Switch is loaded with Open Network Install Environment (ONIE) software installer • Compatible with the following NOS options: Open source options, Alcatel-Lucent Enterprise SONiC (ASON), Alcatel-Lucent Enterprise Operating System (AOS-X)
System and Port LEDs	• Port LEDs: Link Status, Activity, Rate • Management Port LEDs: Link Status, Activity • RJ-45 Port: Link Status, Activity • System LEDs: Locator, Diagnostic, PSU, Fan Status, Alarm • Reset Button

Power	• PSUs: 2 redundant, load-sharing, hot-swappable 2400 W AC/DC
	• AC PCU:
	  • AC input rating:
	  • 200-240 VAC at 50-60Hz (16 A/2400 W max.)
	  • AC PSU Inlet: IEC 60320 C20
	• DC PCU:
	  • Less than 2775W (100% traffic at 40°C ambient temperature with 100% fan speed and 64 x 18 W optics)
	• Power Budget:
	  • For all 32 ports all with per-port maximum 30 W capability and actual deployment population subject to total power distribution boundary and thermal considerations.

Regulatory	• Emissions:
	  • EN 55032 Class A
	  • AS/NZS CISPR32
	  • EN 61000-3-2
	  • EN 61000-3-3
	  • FCC Class A
	  • ICES-003
	• Immunity:
	  • EN 300 386
	  • EN 55035
	  • IEC 61000-4-2/3/4/5/6/8/11
	• Safety:
	  • UL (CSA 22.2 No 62368-1 & UL 62368-1)
	  • CB (IEC/EN 62368-1)
	• Environmental:
	  • GR63-CORE (Pre-test)
	• RoHS-2.0 Compliant
	• Electrical and Electronic Equipment (WEEE Directive 2002/96/EC)
	• Country of Origin: Taiwan (TAA Compliant)

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