Alcatel-Lucent OmniSwitch 7900-D32

AI Data Center Switches

The Alcatel-Lucent OmniSwitch 7900-D32 (OS7900-D32) is a high-performance, low latency switch for high-performance Data Centers. The switch provides L2 and L3 switching across the 32 x QSFP56-DD ports, each supporting 1 x 400 GbE or 1 x 100 GbE, or via breakout cables 2 x 200 GbE, 4 x 100 GbE, or 4 x 25 GbE. The OS7900-D32 can be deployed as a leaf or spine switch supporting 100/400 GbE interconnects, as well as 400 GbE ZR or OpenZR+ transceivers for data center interconnect applications. This open network switch is loaded with the Open Network Install Environment (ONIE), which supports the installation of compatible Network Operating System (NOS) software, including open source options, Alcatel-Lucent SONiC (ASON) or Alcatel-Lucent Operating System (AOS-X) NOS offerings.

Key Features and Benefits

- QSFP56-DD switch ports, each supporting 1 x 400 GbE, or via breakout cables 2 x 200 GbE or 4 x 100 GbE
  - Upper 16 ports support up to 24 W per transceiver
  - Lower 16 ports support up to 14 W per transceiver
- QSFP56-DD switch ports also support 100 GbE QSFP28 and 40 GbE QSFP+ and via breakout cables 4 x 25 GbE or 4 x 10 GbE
- Supports 400G ZR/Open ZR+ coherent transceivers in the upper 16 QSFP56-DD ports
- Incorporates Broadcom Tomahawk 4 switch series silicon
- BMC module with Serial-over-LAN support
- SyncE and PTP support with 1PPS connector on the front panel
- Contains e-fuses to protect individual transceivers
- Standby power mode
- Ability to selectively power off individual ports
- 1 RU form factor
- Supports hot/cold aisles with front-to-back and back-to-front airflow SKUs
- All ports on front; PSUs and fans accessible from rear
- Hot-swappable, load-sharing, redundant 1500 W AC or 48VDC PSUs
- 5+1 redundant, hot-swappable fan modules
- Hardware switch pre-loaded with Open Network Install Environment (ONIE) for automated loading of compatible open source and Alcatel-Lucent SONiC (ASON) or Alcatel-Lucent Operating System (AOS-X) NOS offerings

Product Picture

OS7900-D32 front: preliminary picture of the OS7900-O32, final product may look slightly different.

Product specifications

Feature	Description

Ports	• Switch Ports: 32 x QSFP56-DD 400 GbE
	• Logical Ports: Max. 128
	• Port Modes:
	  • 1 x 400G (8 lanes 50G PAM4)
	  • 2 x 200G (4 lanes 50G PAM4) QSFP56-DD breakout
	  • 4 x 100G (2 lanes 50G PAM4) QSFP56-DD breakout
	  • 1 x 100G (4 lanes 25G NRZ) QSFP28
	  • 1 x 40G (4 lanes 10G NRZ) QSFP+
	  • 4 x 25G (1 lane 25G NRZ) QSFP28 breakout
	  • 4 x 10G (1 lane 10G NRZ) QSFP+ breakout
	• Management Ports on Port Side:
	  • 1 x RJ-45 serial console
	  • 1 x Micro USB console port
	  ○ Note: When both console ports are connected, only one is active
	  ○ The Micro USB port has a higher priority
	  • 1 x RJ-45 1000BASE-T management
	  • 1 x SFP+ 10G ASIC management
	  • 1 x SFP 1G CPU management
	  • 1 x USB 3.0 storage port
	• Supported Transceivers and Cables:
	  • 40GBASE-SR4/LR4
	  • 40G-DAC Cable
	  • 100GBASE-SR4/CWDM4/LR4
	  • 100G-DAC/AOC Cable
	  • 400GBASE-FR4/ZR
	  • 400G-DAC/AOC Cable

Key Components	• Switch Silicon: BCM78900 Tomahawk 4
	• CPU Module:
	  • Processor: Intel® Xeon® Processor D-1713NTE 4-Core 2.2 GHz
	  • SPI Flash: 512MB x 2
	  • Memory: 32GB DDR4 SO-DIMM with ECC
	  • Storage: 128GB m.2 SATA SSD with PLP support
	  • TPM: TPM2.0 SPI
	• BMC: AST2600 with OpenBMC secured by AST1060 Root of Trust
	• Timing and Sync: 1PPS Port, SyncE, IEEE 1588v2 PTP

Performance	• Switching Capability: 12.8 Tbps full duplex (25.6 Tbps half-duplex)
	• Forwarding Rate: 5.079 Bpps
	• Latency: 649 ns
	• Jumbo Frames: up to 9416 Bytes
	• Packet Buffer Size: 56.83MB
	• Subject to NOS/Configuration:
	  • Shared TCAM space with the following maximum entries:
	  • MAC Addresses: 8K (exact)/128K (fuzzy)
	  • VRF: 8192
	  • L3 LPM: 4K IPv4/2K IPv6 64b/1K IPv6 (128b)
	  • ALPM: 850K IPv4/360K IPv6 64b/240K IPv6 128b
	  • VXLAN RIOT support

Feature	Description

Physical and Environmental	• Dimensions (WxDxH): 43.84 x 59 x 4.35 cm (17.26 x 23.23 x 1.71 in.)
	• Weight: 11.85 kg (26.12 lb), with 2 PSUs and 6 fans installed
	• Fans: Hot-swappable 5 + 1 redundant fans
	• Storage Temperature: -40°C to 70°C (-40°F to 158°F)
	• Operating Temperature:
	  • (FtoB): 0°C ~ 45°C (32°F ~ 113°F)
	  • (BtoF): 0°C ~ 30°C (32°F to 86°F)
	• Operating Humidity: 5% ~ 95% non-condensing

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 AC or 48VDC
	• AC PCU:
	  • AC input rating:
	  • 100-127VAC at 50-60Hz (12 A/1000 W max.)*
	  • 200-240VAC at 50-60Hz (8 A/1500 W max.)
	  • *200-240VAC may be required for power redundancy under full loading
	  • AC Inlet: IEC 60320 C14
	  • Power efficiency: >90%
	• DC PCU:
	  • 48VDC input ranges:
	  • -40 - -75VDC (1600 W/40 A max.)
	  • DC Inlet: Terminal screws
	  • Power efficiency: >88%
	• Power Draw: 1370 W (Maximum)
	• Power Budget: 24 W on upper 16 ports, 14 W on lower 16 ports

Regulatory	• Emissions:
	  • EN 55032 Class A
	  • EN 61000-3-2
	  • EN 61000-3-3
	  • FCC Class A
	  • VCCI
	  • ICES
	  • CSPR32 (AU/NZS)
	• Immunity:
	  • EN 55035
	  • EN 55024
	  • IEC 61000-4-2/3/4/5/6/8/11
	• Safety:
	  • UL (CSA 22.2 No 62368-1 & UL 62368-1)
	  • CB (IEC/EN60950-1 & 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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