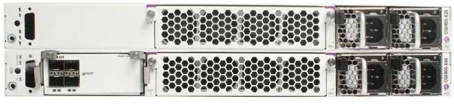
ALCATEL-LUCENT OMNISWITCH 6900
STACKABLE LAN SWITCHES

The Alcatel-Lucent OmniSwitch™ 6900 Stackable LAN Switches are compact, high-density 10 Gigabit Ethernet (GigE) and 40 GigE platforms designed for the most demanding networks. These versatile platforms deliver on the promise of the next-generation virtualized and converged data center. With their modular approach, the OmniSwitch 6900 platforms manage converged lossless configurations for high-speed converged storage. In addition to high performance and extremely low latency, they offer data center bridging (DCB) capabilities, QoS, Layer 2 and Layer 3 switching, as well as system- and network-level resiliency. They can be positioned as top-of-rack switches in a data center, as well as core/aggregation switches in a converged campus network.

OS6900-X20 with OS-HNI-U12 and OS6900-X40 with OS-QNI-U4 front view



OS6900-X20 and OS6900-X20 with OS-XNI-U4 back view

Through the use of optional modules, the OmniSwitch 6900 can offer the highest 10 GigE port density in its class, with up to 64 10 GigE ports in a 1U form factor. This modularity also allows for up to 6 40 GigE uplink ports or up to 16 10GBase-T ports. The OmniSwitch 6900 product family contains an energy-efficient model with leading low power consumption, making it the most efficient and versatile switch in its class.

FEATURES	BENEFITS
Wire-rate performance for switching and routing at 40 GigE, 10 GigE and 1 GigE speeds. Advanced services are incorporated in the operating system: QoS, access control lists (ACLs), Layer2/Layer3 switching, VLAN stacking and IPv6.	• Up to 1.28 Tb/s of wire-rate capacity, sub-microsecond latency for high-performance server and core connectivity over SFP+ or DAC or CAT 5/6. Outstanding performance when supporting real-time voice, data, and video applications for converged scalable networks
Resilient hardware system architecture. Internal, hot-swappable power supplies and fans. Front-to-back and back-to-front cooling models provide lowest power consumption per 10 GigE port in its class.	• Resiliency maximizes uptime for converged mission-critical networks. • Ensures efficient power management, thereby reducing operating expenses and lowering total cost of ownership.
High 10 GigE port density in 1RU. • Up to 28 10GBase-T ports for the OmniSwitch 6900-T20 • Up to 32 SFP+ ports for the OmniSwitch 6900-X20 • Up to 56 10GBase-T ports for the OmniSwitch 6900-T40 • Up to 64 SFP+ ports for the OmniSwitch 6900-X40	• Increases density in a single rack and supports next-generation service densities with a very high port density in a 1U form factor. Modular slots offer versatility in terms of 40 GigE uplinks.
Scalable network virtualization architecture for guaranteed SLA delivery over standard Ethernet fabric: Shortest Path Bridging (SPB) for bridging and routed services, Edge Virtual Bridging (EVB) and dynamic Virtual Network Profiles (vNP)	• Comprehensive and flexible fabric architecture designed to automate and simplify the end-to-end deployment of campus, data center, and cloud-based services. Prevents host address explosion and flooding with built-in SLA service support at low capital and operating costs and based on interoperable proven standards.

FEATURES (CONT'D)	BENEFITS (CONT'D)
Virtualized management, control and programmability • Unified virtual chassis • Simplified programmatic management with RESTful web services • Multi-Chassis Link Aggregation (MC-LAG) • Hardware-based virtual routing and forwarding (VRF) support with VRF-lite and IPVPN capabilities • Plug-and-play fabric with automatic protocol discovery	• The OmniSwitch 6900 virtual chassis increases system redundancy and resiliency, providing maximum uptime and high availability in the network. Optimizes/simplifies Layer 2 and Layer 3 network designs and reduces administration overhead while increasing network capacity with resilient multipath active-active dual homing multi-chassis support. • The RESTful interfaces expose a rich set of programming capabilities, allowing applications and external controllers to control the data plane of the OmniSwitch 6900. Protocol auto-discovery and self-provisioning works with any Ethernet device that supports standard IEEE protocols such as 802.1aq (SPBM), 802.1ak (MVRP), 802.3ad/802.1AX (LACP). Provides interoperability, investment protection, and flexibility
Scalable network virtualization architecture for guaranteed SLA delivery over standard Ethernet fabric: Edge Virtual Bridging (EVB), Shortest Path Bridging (SPB) and dynamic Virtual Network Profiles (vNP)	• Comprehensive and flexible fabric architecture designed to automate and simplify the end to end deployment of campus, data center, cloud-based services while preventing host address explosion and flooding with built-in SLA service support at low capital and operating costs and based on interoperable proven standards
Multi-hop Fibre Channel over Ethernet (FCoE) transit switching based on T11-BB-5 with FCoE Initialization Protocol (FIP) snooping and flexible multi-queue IEEE DCB support: extends the lossless capability beyond FCoE to any traffic class in any CoS queue and for many queues simultaneously in the same port.	• Allows the administrator to have a hands-off operation using application-based dynamic Lossless configuration via Enhanced Transmission Selection (ETS) or manually engineered lossless tuned to the application needs. Reduces data center operating costs by simplifying the convergence of high performance storage I/O and mission-critical data into a single multipath infrastructure.
Alcatel-Lucent OmniVista™ 2500 Virtual Machine Manager (VMM), Virtual Network Profiles (vNP) integration, VM SLA monitoring and application fingerprinting for unmanned network operation and self-adjusting SLA for application delivery	• Unifies physical and virtual infrastructures providing network operators with a comprehensive end-to-end network view for VM inventory, VM performance, location tracking, event and log auditing and provisioning operations. Monitors applications and malware activity, adjusting the network to meet the application SLAs according to the business operational requirements. This enables error-free network administration operations and simplifies the deployment of new value-added services. • Dynamic application profiling with in-line application recognition based on signatures and auto-adjustment of the network security and quality of service treatment. Maintains the VM performance measurement of latency, throughput and jitter in the data center

Alcatel-Lucent OmniSwitch 6900 models

The OmniSwitch 6900 family offers customers high-performance, very low latency Layer 2/Layer 3 10 GigE switches. All models are in 1RU form factor with redundant power supplies and fan trays, and front-to-back and back-to-front airflow. A wide range of 40 GigE and 10 GigE optional modules are supported, allowing for maximum flexibility and investment protection as customers migrate to 10 GigE server connectivity supported by 40 GigE uplinks.

The OmniSwitch 6900-T40 has 40 fixed 10 GBASE-T ports and two expansion slots, one on the front panel and one on the back of the device.

The OmniSwitch 6900-T20 has 20 fixed 20 GBASE-T ports and one expansion slot on the front panel.

The OmniSwitch 6900-X40 has 40 fixed SFP+ ports and two expansion slots, one on the front panel and one on the back of the device.

The OmniSwitch 6900-X20 has 20 fixed SFP+ ports and one expansion slot on the front panel.

DETAILED PRODUCT FEATURES

Simplified manageability

- Fully programmable RESTful web services interface with XML and JSON support. API enables access to Command Line Interface (CLI) and individual mib objects
- Intuitive Alcatel-Lucent CLI in a scriptable BASH environment via console, Telnet or Secure Shell (SSH) v2
- Powerful Alcatel-Lucent WebView Graphical Web Interface via HTTP and HTTPS
- Full configuration and reporting using SNMPv1/2/3 across all OmniSwitch families to facilitate third-party network management
- File upload using USB, TFTP, FTP, SFTP or SCP
- Multiple microcode image support with fallback recovery
- Local (on the flash) and remote server logging (Syslog): event and command logging
- Loopback IP address support for management per service
- Management VRF support
- Policy- and port-based mirroring
- Remote port mirroring
- sFlow v5 and RMON
- Unidirectional Link Detection (UDLD) and Digital Diagnostic Monitoring (DDM)
- Dynamic Host Configuration Protocol (DHCP) relay
- IEEE 802.1AB LLDP with MED extensions
- Network Time Protocol (NTP)

Resiliency and high availability

- Smart continuous switching technology
- In-Service Software Upgrade (ISSU)
- Unified management, control and fabric virtual chassis technology
- Multi-Chassis Link Aggregation (MC-LAG)
- ITU-T G.8032/Y1344 2010: Ethernet Ring Protection
- IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) encompasses IEEE 802.1D Spanning Tree Protocol (STP) and IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)
- Per-VLAN spanning tree (PVST+) and Alcatel-Lucent 1x1 STP mode
- IEEE 802.3ad/802.1AX Link Aggregation Control Protocol (LACP) and static LAG groups across modules
- Virtual Router Redundancy Protocol (VRRP)
- IEEE protocol auto-discovery
- Bidirectional Forwarding Detection (BFD)
- Redundant and hot-swappable power supplies
- Redundant fans
- Hot-swappable fan tray
- Hot-swappable supervisor and modules
- Built-in CPU protection against malicious attacks

Data center networking

- Dynamic Virtual Network Profiles (vNP)
- IEEE 802.1Qbg Edge Virtual Bridging (EVB)
- IEEE 802.1Qbb Priority Flow Control (PFC)
- IEEE 802.1Qaz Enhanced Transmission Selection (ETS)
- IEEE 802.1Qaz Data Center Bridging Capabilities Exchange Protocol (DCBX)
- Multi-hop FCoE transit switching based on T11-BB-5 with FIP snooping
- IEEE 802.1aq Shortest Path Bridging (SPB-M)

Advanced security

Access control

- Secure Shell (SSH) with public key infrastructure (PKI) support
- Terminal Access Controller Access-Control System Plus (TACACS+) client
- Centralized Remote Access Dial-In User Service (RADIUS) and Lightweight Directory Access Protocol (LDAP) administrator authentication
- Centralized RADIUS for device authentication and network access control authorization
- Learned Port Security (LPS) or MAC address lockdown
- Access Control Lists (ACLs); flow-based filtering in hardware (Layer 1 to Layer 4)

Quality of Service (QoS)

- Priority queues: Eight hardware-based queues per port
- Traffic prioritization: Flow-based QoS
- Flow-based traffic policing and bandwidth management
- Egress traffic shaping
- Lossless Virtual Output Queuing (VOQ) with configurable scheduling algorithms
- Deep packet buffers for simultaneous high-burst absorption in all ports
- DiffServ architecture
- Congestion avoidance: Support for end-to-end head-of-line (E2E-HOL) blocking prevention, IEEE 802.1Qbb Priority-based Flow Control (PFC) and IEEE 802.3x Flow Control (FC)

IPv4 routing

- Multiple Virtual Routing and Forwarding (VRF)
- Static routing, Routing Information Protocol (RIP) v1 and v2
- Open Shortest Path First (OSPF) v2 with Graceful Restart
- Border Gateway Protocol (BGP) v4 with Graceful Restart
- Generic Routing Encapsulation (GRE) and IP/IP tunneling
- Virtual Router Redundancy Protocol (VRRPv2)
- DHCP relay (including generic UDP relay)
- Address Resolution Protocol (ARP)
- Policy-based routing

IPv6 routing

- Multiple Virtual Routing and Forwarding (VRF)
- Internet Control Message Protocol version 6 (ICMPv6)
- Static routing
- Routing Information Protocol Next Generation (RIPng)
- OSPF v3
- BGP v4 multiprotocol extensions for IPv6 routing (MP-BGP)
- Graceful Restart extensions for OSPF and BGP
- Virtual Router Redundancy Protocol (VRRPv3)
- Neighbor Discovery Protocol (NDP)
- Policy-based routing

IPv4/IPv6 multicast

- Internet Group Management Protocol (IGMP) v1/v2/v3 snooping
- Protocol Independent Multicast – Sparse-Mode (PIM-SM), Source Specific Multicast (PIM-SSM),
- Protocol Independent Multicast – Dense-Mode (PIM-DM), Bidirectional Protocol Independent Multicast (PIM-BiDir)
- Distance Vector Multicast Routing Protocol (DVMRP)
- Multicast Listener Discovery (MLD) v1/v2 snooping
- PIM to DVMRP gateway support

Advanced Layer 2 services

- Ethernet services support using IEEE 802.1ad Provider Bridges (also known as Q-in-Q or VLAN stacking)
- Fabric virtualization services IEEE802.1aq Shortest Path Bridging (SPB-M)
  - ¬ Ethernet Virtual Connection (EVC) support for transparent LAN services such as E-LAN, E-Line and E-Tree
  - ¬ Multipoint Ethernet VPN (EVPN) over I-SID service virtualization or Q-in-Q tunnels
  - ¬ Ethernet network-to-network interface (NNI) and user network interface (UNI)
  - ¬ Service Access Point (SAP) profile identification
  - ¬ Service VLAN (SVLAN) and Customer VLAN (CVLAN) support
  - ¬ VLAN translation and mapping including CVLAN to SVLAN
  - ¬ C-tag to S-tag priority mapping
- Port mapping
- DHCP Option 82: Configurable relay agent information
- Multicast VLAN Registration Protocol (MVRP)
- HA-VLAN for L2 clusters such as MS-NLB and active-active Firewall clusters
- Jumbo frame support
- Bridge Protocol Data Unit (BPDU) blocking
- STP Root Guard
- Active-active Multi-Chassis Link Aggregation (MCLAG)

TECHNICAL SPECIFICATIONS

Product specifications and measurements

Per-port LEDs

- Ethernet/FC: link/activity
- EMP: link/activity

System LEDs

- OK: green/yellow
- PS1: green/yellow
- PS2: green/yellow
- PWR Save: green

COMPLIANCE AND CERTIFICATIONS

EMI/EMC - Commercial

- FCC 47 CFR Part 15 Class A
- ICES-003 Class A
- CE marking for European countries (Class A)
- EMC Directive 89/336/EEC
- EN55022:1998:2006 Class A
- EN55024 :1998:A1: 2001+A2:2003
- EN61000-3-2
- EN61000-3-3
- EN61000-4-2
- EN61000-4-3
- EN61000-4-4
- EN61000-4-5
- EN61000-4-6
- EN61000-4-8
- EN61000-4-11
- CISPR22:1997 Class A
- VCCI (Class A)
- AS/NZS 3548 (Class A)
- IEEE 802.3 Hipot requirement and 1.5 kV surge on data port for copper interfaces

Safety agency certifications

- US UL 60950
- IEC 60950-1:2001; all national deviations
- EN 60950-1: 2001; all deviations
- CAN/CSA-C22.2 No. 60950-1-03
- AS/NZ TS-001 and 60950:2000, Australia
- UL-AR, Argentina
- UL-GS Mark, Germany
- GOST, Russian Federation
- EN 60825-1 Laser
- EN 60825-2 Laser
- CDRH Laser

SUPPORTED STANDARDS

IEEE standards

- IEEE 802.1D STP
- IEEE 802.1p CoS
- IEEE 802.1Q VLANs
- IEEE 802.1ad Provider Bridges Q-in-Q/ VLAN stacking
- IEEE 802.1ak (Multiple VLAN Registration Protocol (MVRP)
- IEEE 802.1aq Shortest Path Bridging (SPB)
- IEEE 802.1Qaz ETS/DCBX
- IEEE 802.1Qbb PFC
- IEEE 802.1s MSTP
- IEEE 802.1w RSTP
- IEEE 802.3x Flow Control
- IEEE 802.3z 1 GigE
- IEEE 802.3ab 1 GBase-T
- IEEE 802.3ac VLAN Tagging
- IEEE 802.3ad/802.1AX Link Aggregation
- IEEE 802.3ae 10 GigE
- IEEE 802.3an 10 GBase-T
- IEEE 802.3az Energy Efficient Ethernet (EEE)
- IEEE 802.3ba 40 GigE)

ITU-T recommendations

- ITU-T G.8032/Y.1344 2010: Ethernet Ring Protection (ERPv2)

IETF RFCs

IPv4

- RFC 2003 IP/IP Tunneling
- RFC 2784 GRE Tunneling

OSPF

- RFC 1765 OSPF Database Overflow
- RFC 1850/2328 OSPF v2 and MIB
- RFC 2154 OSPF MD5 Signature
- RFC 2370/3630 OSPF Opaque LSA
- RFC 3101 OSPF NSSA Option
- RFC 3623 OSPF Graceful Restart
- RFC 2470 OSPFv3 for IPv6

RIP

- RFC 1058 RIP v1
- RFC 1722/1723/2453/1724 RIP v2 and MIB
- RFC 1812/2644 IPv4 Router Requirements
- RFC 2080 RIPng for IPv6

BGP

- RFC 1269/1657/4273 BGP v3 and v4 MIB
- RFC 1403/1745 BGP/OSPF Interaction
- RFC 1771-1774/2842/2918/3392/4271 BGP v4
- RFC 1965 BGP AS Confederations
- RFC 1966 BGP Route Reflection
- RFC 1997/1998 BGP Communities Attribute
- RFC 2042 BGP New Attribute
- RFC 2385 BGP MD5 Signature
- RFC 2439 BGP Route Flap Damping
- RFC 2545 BGP-4 Multiprotocol Extensions for IPv6 Routing
- RFC 2858/4760 Multiprotocol Extensions for BGP-4
- RFC 3065 BGP AS Confederations
- RFC 4456 BGP Route Reflection
- RFC 4486 Subcodes for BGP Cease Notification
- RFC 4724 - Graceful Restart for BGP

IS-IS

- RFC 1142/1195/3719/3787 IS-IS v4
- RFC 2763/2966/3567 Adjacencies and route management
- RFC 5306 Graceful Restart
- RFC 5309/draft-ietf-isis-igp-p2p-over-lan Point to point over LAN
- RFC 6329 IS-IS Extensions Supporting IEEE 802.1aq SPB

IP Multicast

- RFC 1075/draft-ietf-idmr-dvmrp-v3-11.txt DVMRP
- RFC 2365 Multicast
- RFC 2710/3019/3810/MLD v2 for IPv6
- RFC 2715 PIM and DVMRP interoperability
- RFC 2933 IGMP MIB
- RFC 3376 IGMPv3 (includes IGMP v2/v1)
- RFC 3569 Source-Specific Multicast (SSM)
- RFC 3973 Protocol Independent Multicast-Dense Mode (PIM-DM)
- RFC 4087 IP Tunnel MIB
- RFC 4541 Considerations for IGMP and MLD Snooping Switches
- RFC 4601/5059 PIM-SM
- RFC 5015 BiDIR PIM
- RFC 5060 Protocol Independent Multicast MIB
- RFC 5240 PIM Bootstrap Router MIB
- RFC 5132 Multicast Routing MIB

IPv6

- RFC 1981 Path MTU Discovery
- RFC 2460 IPv6 Specification
- RFC 2464 IPv6 over Ethernet
- RFC 2465 MIB for IPv6: Textual Conventions (TC) and General Group
- RFC 2466 MIB for IPv6: ICMPv6 Group
- RFC 2711 Router Alert Option
- RFC 3056 6to4 Tunnels
- RFC 3484 Default Address Selection
- RFC 3493/2553 Basic Socket API
- RFC 3542/2292 Advanced Sockets API
- RFC 3587/2374 Global Unicast Address Format
- RFC 3595 TC for IPv6 Flow Label
- RFC 3596/1886 DNS for IPv6
- RFC 4007 Scoped Address
- RFC 4022/2452 MIB for IPv6 TCP
- RFC 4113/2454 MIB for IPv6 UDP
- RFC 4193 Unique Local Addresses
- RFC 4213/2893 Transition Mechanisms
- RFC 4291/3513/2373 Addressing Architecture (uni/any/multicast)
- RFC 4301/2401 Security Architecture
- RFC 4302/2402 IP Authentication Header
- RFC 4303/2406 IP Encapsulating Security Payload (ESP)
- RFC 4308 Cryptographic Suites for IPsec
- RFC 4443/2463 ICMPv6
- RFC 4861/2461 Neighbor Discovery
- RFC 4862/2462 Stateless Address Autoconfiguration
- RFC 5095 Deprecation of Type 0 Routing Headers in IPv6

Manageability

- RFC 854/855 Telnet and Telnet options
- RFC 959/2640 FTP
- RFC 1350 TFTP Protocol
- RFC 1155/2578-2580 SMI v1 and SMI v2
- RFC 1157/2271 SNMP
- RFC 1212/2737 MIB and MIB-II
- RFC 1213/2011-2013 SNMP v2 MIB
- RFC 1215 Convention for SNMP Traps
- RFC 1573/2233/2863 Private Interface MIB
- RFC 1643/2665 Ethernet MIB
- RFC 1867 Form-based File Upload in HTML
- RFC 1901-1908/3416-3418 SNMP v2c
- RFC 2096 IP MIB
- RFC 2131 DHCP Server/Client
- RFC 2388 Returning Values from Forms: multipart/form-data
- RFC 2396 Uniform Resource Identifiers (URI): Generic Syntax
- RFC 2570-2576/3411-3415 SNMP v3
- RFC 2616 /2854 HTTP and HTML
- RFC 2667 IP Tunneling MIB
- RFC 2668/3636 IEEE 802.3 MAU MIB
- RFC 2674 VLAN MIB
- RFC 3023 XML Media Types
- RFC 3414 User-based Security Model
- RFC 4122 A Universally Unique IDentifier (UUID) URN Namespace
- RFC 4234 Augmented BNF for Syntax Specifications: ABNF
- RFC 4251 Secure Shell Protocol Architecture
- RFC 4252 The Secure Shell (SSH) Authentication Protocol
- RFC 4627 JavaScript Object Notation (JSON)
- RFC 6585 Additional HTTP Status Codes

Security

- RFC 1321 MD5
- RFC 2104 HMAC Message Authentication
- RFC 2138/2865/2868/3575 /2618 RADIUS Authentication and Client MIB
- RFC 2139/2866/2867/2620 RADIUS Accounting and Client MIB
- RFC 2228 FTP Security Extensions
- RFC 2284 PPP EAP
- RFC 2869/2869bis RADIUS Extension
- RFC 4301 Security Architecture for IP
- RFC 1826/1827/4303/4305 Encapsulating Payload (ESP) and crypto algorithms

QoS

- RFC 896 Congestion Control
- RFC 1122 Internet Hosts
- RFC 2474/2475/2597/3168/3246 DiffServ
- RFC 3635 Pause Control
- RFC 2697 srTCM
- RFC 2698 trTCM

Others

- RFC 791/894/1024/1349 IP and IP/Ethernet
- RFC 792 ICMP
- RFC 768 UDP
- RFC 793/1156 TCP/IP and MIB
- RFC 826 ARP
- RFC 919/922 Broadcasting Internet Datagram
- RFC 925/1027 Multi-LAN ARP/Proxy ARP
- RFC 950 Subnetting
- RFC 951 BOOTP
- RFC 1151 RDP
- RFC 1191 Path MTU Discovery
- RFC 1256 ICMP Router Discovery
- RFC 1305/2030 NTP v3 and Simple NTP
- RFC 1493 Bridge MIB
- RFC 1518/1519 CIDR
- RFC 1541/1542/2131/3396/3442 DHCP
- RFC 1757/2819 RMON and MIB
- RFC 2131/3046 DHCP/BootP Relay
- RFC 2132 DHCP Options
- RFC 2251 LDAP v3
- RFC 2338/3768/2787 VRRP and MIB
- RFC 3021 Using 31-bit Prefixes
- RFC 3060 Policy Core
- RFC 3176 sFlow
- IETF draft “IP/IPVPN services with IEEE 802.1aq SPB networks”

Table 1. Product matrix

PRODUCT MATRIX	OS6900-X20	OS6900-T20	OS6900-X40	OS6900-T40
Port count	20 (SFP+)	20 (10GBase-T)	40 (SFP+)	40 (10GBase-T)
Expansion slots	1	1	2	2
Out-of-band Ethernet port	1	1	1	1
USB port	1	1	1	1
Console port	1	1	1	1
Primary slide-in PSU slot	1	1	1	1
Backup slide-in PSU slot	1	1	1	1
Redundant fans	3+1	3+1	3+1	3+1
Flash	2 GB	2 GB	2 GB	2 GB
RAM	2 GB	4 GB	2 GB	4 GB
Max switching capacity	640 Gb/s	640 Gb/s	1280 Gb/s	1280 Gb/s
Throughput	480 Mp/s	480 Mp/s	960 Mp/s	960 Mp/s
Latency	Sub microsecond	<3.3 microsecond	Sub microsecond	<3.3 microsecond
Power consumption**	181 W	206 W	242 W	329 W
Heat dissipation	618 BTU/h	203 BTU/h	825 BTU/h	1123 BTU/h
MTBF with AC power supply	146 520 hours	145 569 hours	141 490 hours	139 840 hours
MTBF with DC power supply	153 407 hours	152 364 hours	147 901 hours	146 099 hours
Width	48.2 cm (19.00 in)	48.2 cm (19.00 in)	48.2 cm (19.00 in)	48.2 cm (19.00 in)
Depth	55.9 cm (22.00 in)	55.9 cm (22.00 in)	55.9 cm (22.00 in)	55.9 cm (22.00 in)
Height	4.4 cm (1.73 in)	4.4 cm (1.73 in)	4.4 cm (1.73 in)	4.4 cm (1.73 in)
Weight (chassis & fan)	7.61 kg (16.8 lb)	7.61 kg (16.8 lb)	7.78 kg (17.15 lb)	7.78 kg (17.15 lb)
Weight (fully populated***)	10.21 kg (22.5 lb)	10.21 kg (22.5 lb)	10.86 kg (23.95 lb)	10.86 kg (23.95 lb)
Operating temperature	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)	0°C to 40°C (32°F to 104°F)
Storage temperature	-10°C to 70°C (14°F to 158°F)	-10°C to 70°C (14°F to 158°F)	-10°C to 70°C (14°F to 158°F)	-10°C to 70°C (14°F to 158°F)
Humidity (operating)	5% to 95% non-condensing	5% to 95% non-condensing	5% to 95% non-condensing	5% to 95% non-condensing
Humidity (storage)	5% to 95% non-condensing	5% to 95% non-condensing	5% to 95% non-condensing	5% to 95% non-condensing

** Maximum power consumption under full L2 traffic load includes fan tray, two power supplies and transceivers; no expansion plug-in modules
*** Fully populated chassis includes fan tray, two power supplies, all expansion plug-in modules and no transceivers

Table 2. Expansion Module Matrix

EXPANSION MODULES	OS-XNI-U12	OS-XNI-U4	OS-HNI-U6	OS-QNI-U3	OS-XNI-T8
40 Gb port count (QSFP+)	0	0	2	3	0
10 Gb port count	12 (SFP+)	4 (SFP+)	4 (SFP+)	0	8 (10GBase-T)
Switching capacity	240 Gb/s	80 Gb/s	240 Gb/s	240 Gb/s	160 Gb/s
Hot-swappable/interchangeable	Yes	Yes	Yes	Yes	Yes
Power consumption	44 W	19 W	37 W	34 W	56 W
Heat dissipation	150.13 BTU/h	64.83 BTU/h	126.25 BTU/h	116 BTU/h	191 BTU/h

Power supplies

All OmniSwitch 6900 models support 1+1 redundant, hot-swappable AC and DC power supplies. The primary and backup power supply units are internal, but removable to allow for easier maintenance and replacement.

There is no interruption of service when a new power supply is installed or an old one replaced.

Table 3. Power supplies

PS MODELS	DESCRIPTION	DIMENSIONS (W X D X H)	WEIGHT
OS6900-BP-F	Modular AC backup power supply. Front-to-back cooling. Provides 450 W AC system power to one OS6900 device.	50.5 cm x 30 cm x 40.2 cm (19.9 in x 11.8 in x 15.8 in)	1.2 kg (2.6 lb)
OS6900-BP-R	Modular AC backup power supply. Back-to-front cooling. Provides 450 W AC system power to one OS6900 device.	50.5 cm x 30 cm x 40.2 cm (19.9 in x 11.8 in x 15.8 in)	1.2 kg (2.6 lb)
OS6900-BPD-F	Modular DC backup power supply. Front-to-back cooling. Provides 450 W DC system power to one OS6900 device.	50.5 cm x 30 cm x 40.2 cm (19.9 in x 11.8 in x 15.8 in)	1.2 kg (2.6 lb)
OS6900-BPD-R	Modular DC backup power supply. Back-to-front cooling. Provides 450 W DC system power to one OS6900 device.	50.5 cm x 30 cm x 40.2 cm (19.9 in x 11.8 in x 15.8 in)	1.2 kg (2.6 lb)

ORDERING INFORMATION

OS6900 SWITCH FAMILY	
OS6900-T20-F-xx	OS6900-T20: 10 Gigabit Ethernet L3 fixed configuration chassis in a 1U form factor with 20 10GBase-T ports, two optional module slots. Front-to-back cooling. The chassis includes a 450W AC power supply. A second power supply slot is supported for redundancy. Redundant power supply shall be ordered separately. The OS6900-20 ships with country-specific power cord, user manuals access card, rack mounts, and USB to RJ-45 adapter. -xx to be replaced with the country-specific power cord code (e.g. -EU for Europe).
OS6900-T20D-F	OS6900-T20: 10 Gigabit Ethernet L3 fixed configuration chassis in a 1U form factor with 20 10GBase-T ports, two optional module slots. Front-to-back cooling. The chassis includes a modular DC power supply. A second power supply slot is supported for redundancy. Redundant power supply shall be ordered separately. The bundle ships with user manuals access card, rack mounts, and USB to RJ-45 adapter.
OS6900-T20-R-xx	OS6900-T20: 10 Gigabit Ethernet L3 fixed configuration chassis in a 1U form factor with 20 10GBase-T ports, two optional module slots. Back-to-front cooling. The chassis includes a 450W AC power supply. A second power supply slot is supported for redundancy. Redundant power supply shall be ordered separately. The OS6900-20 ships with country-specific power cord, user manuals access card, rack mounts, and USB to RJ-45 adapter. -xx to be replaced with the country-specific power cord code (e.g. -EU for Europe).
OS6900-T20D-R	OS6900-T20: 10 Gigabit Ethernet L3 fixed configuration chassis in a 1U form factor with 20 10GBase-T ports, two optional module slots. Back-to-front cooling. The chassis includes a modular DC power supply. A second power supply slot is supported for redundancy. Redundant power supply shall be ordered separately. The bundle ships with user manuals access card, rack mounts, and USB to RJ-45 adapter.
OS6900-T40-F-xx	OS6900-T40: 10 Gigabit Ethernet L3 fixed configuration chassis in a 1U form factor with 40 10GBase-T ports, two optional module slots. Front-to-back cooling. The chassis includes a 450W AC power supply. A second power supply slot is supported for redundancy. Redundant power supply shall be ordered separately. The OS6900-40 ships with country-specific power cord, user manuals access card, rack mounts, and USB to RJ-45 adapter. -xx to be replaced with the country-specific power cord code (e.g. -EU for Europe).
OS6900-T40D-F	OS6900-T40: 10 Gigabit Ethernet L3 fixed configuration chassis in a 1U form factor with 40 10GBase-T ports, two optional module slots. Front-to-back cooling. The chassis includes a modular DC power supply. A second power supply slot is supported for redundancy. Redundant power supply shall be ordered separately. The bundle ships with user manuals access card, rack mounts, and USB to RJ-45 adapter.
OS6900-T40-R-xx	OS6900-T40: 10 Gigabit Ethernet L3 fixed configuration chassis in a 1U form factor with 40 10GBase-T ports, two optional module slots. Back-to-front cooling. The chassis includes a 450W AC power supply. A second power supply slot is supported for redundancy. Redundant power supply shall be ordered separately. The OS6900-40 ships with country-specific power cord, user manuals access card, rack mounts, and USB to RJ-45 adapter. -xx to be replaced with the country-specific power cord code (e.g. -EU for Europe).
OS6900-T40D-R	OS6900-T40: 10 Gigabit Ethernet L3 fixed configuration chassis in a 1U form factor with 40 10GBase-T ports, two optional module slots. Back-to-front cooling. The chassis includes a modular DC power supply. A second power supply slot is supported for redundancy. Redundant power supply shall be ordered separately. The bundle ships with user manuals access card, rack mounts, and USB to RJ-45 adapter.
OS6900-X20-F-xx	OS6900-X20: 10 Gigabit Ethernet L2/L3 fixed configuration chassis in a 1U form factor with 20 SFP+ ports, one optional module slot. The chassis includes a 450 W front-to-back cooling AC power supply. -xx to be replaced with the country-specific power cord code (e.g. -EU for Europe).
OS6900-X20D-F	OS6900-X20: 10 Gigabit Ethernet L2/L3 fixed configuration chassis in a 1U form factor with 20 SFP+ ports, one optional module slot. The chassis includes a 450 W front-to-back cooling DC power supply.
OS6900-X40-F-xx	OS6900-X40: 10 Gigabit Ethernet L2/L3 fixed configuration chassis in a 1U form factor with 40 SFP+ ports, two optional module slots. The chassis includes a 450 W front-to-back cooling AC power supply.-xx to be replaced with the country-specific power cord code (e.g. -EU for Europe).

OS6900 SWITCH FAMILY	
OS6900-X40D-F	OS6900-X40: 10 Gigabit Ethernet L2/L3 fixed configuration chassis in a 1U form factor with 40 SFP+ ports, two optional module slots. The chassis includes a 450 W front-to-back cooling DC power supply.
OS6900-X20-R-xx	OS6900-X20: 10 Gigabit Ethernet L2/L3 fixed configuration chassis in a 1U form factor with 20 SFP+ ports, one optional module slot. The chassis includes a 450 W back-to-front cooling AC power supply. –xx to be replaced with the country-specific power cord code (e.g. –EU for Europe).
OS6900-X20D-R	OS6900-X20: 10 Gigabit Ethernet L2/L3 fixed configuration chassis in a 1U form factor with 20 SFP+ ports, one optional module slot. The chassis includes a 450 W back-to-front cooling DC power supply.
OS6900-X40-R-xx	OS6900-X40: 10 Gigabit Ethernet L2/L3 fixed-configuration chassis in a 1U form factor with 40 SFP+ ports, two optional module slots. The chassis includes a 450 W back-to-front cooling AC power supply. –xx to be replaced with the country-specific power cord code (e.g. –EU for Europe).
OS6900-X40D-R	OS6900-X40: 10 Gigabit Ethernet L2/L3 fixed configuration chassis in a 1U form factor with 40 SFP+ ports, two optional module slots. The chassis includes a 450 W back-to-front cooling DC power supply.
PLUG-IN MODULES	
OS-XNI-U12	10 Gigabit Ethernet Optional Module for the OS6900 series of switches. Supports 12 SFP+ ports.
OS-XNI-U4	10 Gigabit Ethernet Optional Module for the OS6900 series of switches. Supports 4 SFP+ ports.
OS-HNI-U6	Optional Module for the OS6900 series of switches. Supports 2 QSFP+ ports and 4 SFP+ ports.
OS-QNI-U3	40 Gigabit Ethernet Optional Module for the OS6900 series of switches. Supports 3 QSFP+ ports.
OS-XNI-T8	10 Gigabit Ethernet Optional Module for the OS6900 series of switches with 8 10GBase-T ports that support 1 G and 10 G speeds.
BACKUP POWER SUPPLIES	
OS6900-BP-F-xx	Modular 450W AC backup power supply. Front-to-back cooling. Provides backup system power to one 6900 switch; –xx to be replaced with the country-specific power cord code (e.g. –EU for Europe).
OS6900-BPD-F	Modular 450W DC backup power supply. Front-to-back cooling. Provides backup system power to one 6900 switch.
OS6900-FT-F	OS6900 replacement fan tray; front-to-back cooling.
OS6900-BP-R-xx	Modular 450W AC backup power supply. Back-to-front cooling. Provides backup system power to one 6900 switch; –xx to be replaced with the country-specific power cord code (e.g. –EU for Europe).
OS6900-BPD-R	Modular 450W DC backup power supply. Back-to-front cooling. Provides backup system power to one 6900 switch.
OS6900-FT-R	OS6900 replacement fan tray; back-to-front cooling.
SOFTWARE	
OS6900-SW-AR	Advanced routing software license. Includes support for Policy Based Routing, VRF, BGP, OSPFv2, VRRPv2, PIM-SM/DM, DVMRP, IPv6 Routing, OSPFv3, RIPng, VRRPv3, SPB and Virtual Chassis (VC).
OS6900-SW-DC	Data Center Software for support of DCBX, FCoE and EVB on OS6900. One license required per chassis.
GiGE TRANSCEIVERS	
SFP-GIG-T	1000Base-T Gigabit Ethernet Transceiver (SFP MSA). SFP works at 1000 Mb/s speed and full-duplex mode.
SFP-GIG-SX	1000Base-SX Gigabit Ethernet optical transceiver (SFP MSA).
SFP-GIG-LX	1000Base-LX Gigabit Ethernet optical transceiver (SFP MSA).
SFP-GIG-LH40	1000Base-LH Gigabit Ethernet optical transceiver (SFP MSA). Typical reach of 40 km on 9/125 µm SMF.
SFP-GIG-LH70	1000Base-LH Gigabit Ethernet optical transceiver (SFP MSA). Typical reach of 70 km on 9/125 µm SMF.
10 GiGE TRANSCEIVERS	
SFP-10G-SR	10 Gigabit optical transceiver (SFP+). Supports multimode fiber over 850 nm wavelength (nominal) with an LC connector. Typical reach of 300 m.
SFP-10G-LR	10 Gigabit optical transceiver (SFP+). Supports monomode fiber over 1310 nm wavelength (nominal) with an LC connector. Typical reach of 10 km.
SFP-10G-ER	10 Gigabit optical transceiver (SFP+). Supports monomode fiber over 1550 nm wavelength (nominal) with an LC connector. Typical reach of 40 km.
SFP-10G-LRM	10 Gigabit optical transceiver (SFP+). Supports multimode fiber over 1310 nm wavelength (nominal) with an LC connector. Typical reach of 220 m on FDDI-grade (62.5 µm).
SFP-10G-GIG-SR	Dual-speed SFP+ optical transceiver. Supports multimode fiber over 850 nm wavelength (nominal) with an LC connector. Supports 1000Base-SX and 10GBase-SR.
SFP-10G-24DWD80	10 Gigabit DWDM optical transceiver (SFP+ MSA), 1558.17 nm/Channel 24 (100GHz ITU Grid), 80 km, LC Connector.

OS6900 SWITCH FAMILY	
SFP+ DIRECT ATTACHED CABLES	
SFP-10G-C1M	10 Gigabit direct attached copper cable (1 m, SFP+).
SFP-10G-C3M	10 Gigabit direct attached copper cable (3 m, SFP+).
SFP-10G-C7M	10 Gigabit direct attached copper cable (7 m, SFP+).
40 GIGE TRANSCEIVERS	
QSFP-40G-SR	Four-channel 40 Gigabit optical transceiver (QSFP+). Supports link lengths of 100 m and 150 m, respectively, on OM3 and OM4 multimode fiber cables.
QSFP-40G-LR	Four-channel 40 Gigabit optical transceiver (QSFP+). Supports single mode fiber over 1310 nm wavelength. Typical reach 10 km.
QFP+ DIRECT ATTACHED CABLES	
QSFP-40G-C1M	40 Gigabit direct attached copper cable (1 m, QSFP+).
QSFP-40G-C3M	40 Gigabit direct attached copper cable (3 m, QSFP+).
QSFP-40G-C7M	40 Gigabit direct attached copper cable (7 m, QSFP+).

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