Alcatel·Lucent
Enterprise

Alcatel-Lucent OmniSwitch 6900

Core and Data Centre LAN Switches

The Alcatel-Lucent OmniSwitch® 6900 fixed Core LAN and Data Center (DC) switches are compact, high-density 10, 25, 40 and 100 Gigabit Ethernet (GigE) platforms. They offer high performance aand extremely low latency Layer-2 and Layer-3 switching for campus and DC Fabric networks. They are designed for the most demanding software-defined operations in virtualized or physical networks.

OmniSwitch 6900s can be positioned as Top- of-Rack (ToR) or spine switches in DC environments, or as core and aggregation devices in campus networks. They support a wide range of protocols and programable interface (API) for building ALE's autonomous Service Defined Network or overlay networks based on Software Defined Network architectures.

The OmniSwitch 6900 product family offers a very high port density, with up to 128 x 10 GigE, 80 x 25 GigE and up to 32 x 40/100 GigE ports in a 1RU form factor. The Virtual Chassis feature extends the modularity and reliability of connectivity to address any size of virtualized, highly secured modern and autonomous networks. MACsec is also supported on specific OS6900 models for mission critical and encrypted communication networks. The OmniSwitch 6900 product family leverages an energy-efficient model with leading low power consumption, making them the most efficient and versatile switches in their class.

OS6900C32E

OS6900V48

OS6900X48

OS6900T48

OS6900T24

OS6900X24

Datasheet
Alcatel-Lucent OmniSwitch 6900

Features	Benefits
• Wire-rate non-blocking up to 6.4 Tb/s switching and routing capacity at 100 GigE, 40 GigE, 25 GigE, 10 GigE/1 GigE and 10BASE-T speeds. • Resilient hardware system architecture. • Internal, hot-swappable power supplies and fans. • Front-to-back and back-to-front cooling options provide lowest power consumption per port in its class. • Integral operating system advances functions: quality of service (QoS), access control lists (ACLs), Layer-2/ Layer-3 switching, Virtual LAN (VLAN) stacking and IPv6. • High-availability hardware Virtual Extensible LAN (VXLAN) Virtual Tunnel End Point (VTEP) gateway for network virtualization. • Integrated overlay (VXLAN) and underlay internetworking automated with OpenStack neutron plug-in and Open vSwitch Database (OVSDB) protocol for integration with SDN controllers such as VMware NSX and Nuage Networks. • Hardware virtual routing and forwarding (VRF) support for VRF-lite and IP Virtual Private Network (IP VPN). • Scalable network virtualization architecture with guaranteed SLA delivery over standard Ethernet fabric: auto-Fabric IP routing for routed backbone and access provisioning, SPB for bridging and routed services, Multiple VLAN Registration Protocol (MVRP) and dynamic Virtual Network Profiles (VNP). • Zero-touch provisioning and network automation with out-of-the- box plug-and-play Auto-Fabric for automatic protocol and topology discovery. Protocol auto-discovery and self-provisioning works with any Ethernet device that supports standard IEEE protocols, such as 802.1aq (Shortest Path Bridging- MAC, SPBM), 802.1ak (MVRP), or 802.3ad/802.1AX (Link Aggregation Control Protocol, LACP). Auto-fabric operation extends to IP routing protocol provisioning and IP on-boarding. • Virtualized management, control and programmability • Unified virtual chassis with support for up to 6 switches. • Flexible and programmable Layer 2, Layer 3, ACL, QoS network virtualization function abstracted into a single virtual routing and bridging instance • Network management virtualization • Comprehensive northbound RESTful API to the entire Alcatel- Lucent operating system (AOS) feature set. • API offers access to all AOS CLI commands and all MIB structures • AOS-embedded scripting capabilities supporting Python and Bash programming. • VMware-certified 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 • Interfaces with VMware vCenter® and Citrix™ XenServer® for discovery and inventory • VMware vCenter integration • Single pane-of-glass for end-to-end physical and virtual networks infrastructure operations VM to underlay network correlation and single pane visibility. • Real time tracking between VM and its network location • Dynamic VM performance for application performance analytics and visibility • Dynamic application profiling with in-line application recognition based on signatures and auto-adjustment of the network security and QoS treatment.	• Outstanding performance when supporting real-time voice, data, storage, and video applications for converged scalable networks, with high port density in 1RU form factor • Resiliency maximizes uptime for converged mission- critical networks. • Ensures efficient power management, thereby reducing operating expenses and lowering total cost of ownership. • The switch architecture simplifies the deployment of converged storage for Internet Small Computer System Interface (iSCSI) and Network-Attached Storage (NAS) systems. • The switch supports RoCEv2 (RDMA over Converged Ethernet) a standard protocol that allows Remote Direct Memory Access (RDMA) over an Ethernet network to ensure a zero-packet-loss, low-latency, and high-throughput network for RoCEv2 distributed applications. • Embedded Software-defined networking (SDN) integration to control virtual network profiles and policy management. • VXLAN VTEP allows overlay to underlay bridging and data center interconnecting. • Built-in dynamic and automated policy enforcement • Policy enforcement engine fully open for external control through RESTful northbound APIs for automation and integration of innovative applications • Native and overlay Cloud Multi-tenancy support. • Out-of-the-box flexible fabric architecture designed to automate and simplify the end-to-end deployment of campus, data center, and cloud-based services. • Prevent human mistakes by automating standardized and replicable configurations. • Prevents host address explosion and flooding with built-in SLA service support at low capital and operating costs and based on interoperable proven standards. • 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. • Automated Cloud Multi-Tenancy support through vNP. • The OmniSwitch 6900 virtual chassis increases system redundancy and resiliency, providing maximum uptime and high availability in the network. • Provides interoperability, investment protection, and flexibility • Supports Spine/Leaf and Pod/Mesh architectures for flexible deployment. • Virtual chassis topology is flexible to accommodate any architecture that is needed to meet the desired latency and oversubscription requirements. • The RESTful interface exposes the entire AOS feature set as a programmable data structure. The API allows external controllers and applications to control and manage the switch's data plane and monitor its counters, statistics and events for the automation of the network • Unifies physical and virtual infrastructures by providing network operators with a comprehensive end-to-end network view for VM inventory, VM performance, location tracking, event and log auditing • Monitors applications and malware activity, adjusting the network to meet the application SLAs according to the business operational requirements. and provisioning operations.

Detailed product features

Alcatel-Lucent OmniSwitch 6900 models

The Alcatel-Lucent OmniSwitch 6900 family offers high- performance and very low-latency Layer 2/Layer 3 10/40 GigE switches. All models are 1RU form factor with redundant power supplies and fan trays for front- to- back and back-to-front airflow. Available interfaces include 25 GigE, 40/100 GigE, 1/10 GigE, 1/10 GBASE-T.

- OmniSwitch 6900V48 has 48 1/10/25G SFP28 ports and eight QSFP28 ports. The QSFP28 ports operate at 100G or 4x25G or 40G or 4x10G. Maximum 25G port density is 80 ports.
- OmniSwitch 6900X48E has 40 1/10G SFP+ ports, 8 10/25G SFP28 ports and 4 QSFP28 ports. The QSFP28 ports operate at 100G or 4x25G or 40G or 4x10G. All ports support IEEE 802.1AE MAC Security standard with AES 128-bit and 256-bit encryption functionality.
- OmniSwitch 6900X24/T24 has 24 1/10 GigE SFP+ or 1/10 GBASE-T and 2 100 GigE QSFP28 ports that operate at 100 GigE or 4x25 GigE or 40 GigE or 4x10 GigE
- OmniSwitch 6900C32E has 32 x QSFP28 ports that can operate at 100 GigE or 4x25 GigE or 40 GigE or 4x10 GigE. Maximum 25G port density is 128 ports.
- OmniSwitch 6900X48/T48 has 48 1-10 GigE SFP+/1-10 GBASE-T and six 100 GigE QSFP28 ports that operate at 100 GigE or 40 GigE of which 2 ports can be splitted into 4x25 GigE or 4x10 GigE.

Simplified manageability

- Fully programmable RESTful web services interface with XML and JSON support. The API enables access to Command Line Interface (CLI) and individual management information BASE (MIB) objects.
- Intuitive Alcatel-Lucent Enterprise CLI in a scriptable Python and Bash environment through console, Telnet or Secure Shell (SSH) v2 over IPv4/IPv6
- Powerful Alcatel-Lucent Enterprise WebView Graphical Web Interface through HTTP and HTTPS over IPv4/IPv6
- Full configuration and reporting using Simple Network Management Protocol (SNMP) v1/2/3 to facilitate third-party network management over IPv4/ IPv6
- File upload using USB, Trivial File Transfer Protocol (TFTP), FTP, SFTP or secure copy (SCP) over IPv4/IPv6
- Multiple microcode image support with fallback recovery
- Local (on the flash) and remote server logging (Syslog) for events and commands
- Loopback IP address support for management-per-service
- Management VRF support
- Policy and port-based mirroring, Remote port mirroring sFlow v5 and Remote Network Monitoring (RMON)
- Digital Diagnostic Monitoring on all 6900 fiber optic interfaces.
- Dynamic Host Configuration Protocol (DHCP) relay
- IEEE 802.1AB LLDP with MED extensions
- Network Time Protocol (NTP)
- DHCPv4 and DHCPv6 server managed by Nokia VitalQIP® DNS/ DHCP IP Management Software

Resiliency and high availability

- Unified management, control and fabric-mesh virtual chassis technology
- Virtual chassis 1+N redundant supervisor manager
- Virtual chassis In-Service Software Upgrade (ISSU)
- Smart continuous switching technology
- ITU-T G.8032/Y1344 2010: Ethernet Ring Protection
- IEEE 802.1s Multiple Spanning Tree Protocol (MSTP), 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) with tracking capabilities
- IEEE protocol auto-discovery
- Bidirectional Forwarding Detection (BFD)
- Redundant and hot-swappable power supplies
- Redundant fans
- Hot-swappable fan tray
- Built-in CPU protection against malicious attacks

Data center networking

- Dynamic Virtual Network Profiles (vNP)
- IEEE 802.1aq Shortest Path Bridging (SPB-M)
- RFC 7348 Virtual extensible Local Area Network (VXLAN)

Software Defined Networking (SDN)

- Programmable AOS RESTful API
- OpenStack networking plug-in compatible with Grizzly or higher
- Software-controlled VXLAN hardware VTEP gateway

Advanced security Access control

- Autosensing IEEE 802.1X multi- client, multi-VLAN support for bridging and SPBM/VXLAN services
- MAC-based authentication for non-IEEE 802.1X hosts
- Secure Shell (SSH) with public key infrastructure (PKI) support for bridging and SPBM/VXLAN services
- 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)
- DHCP snooping, DHCP IP and Address Resolution Protocol (ARP) spoof protection
- ARP poisoning detection
- IP source filtering as a protective and effective mechanism against ARP attacks

Quality of Service (QoS)

- Priority queues: Eight hardware-based queues per port
- Traffic prioritization: Flow-based QoS
- Flow-based traffic policing and bandwidth management
- 32-bit IPv4/128-bit IPv6 non-contiguous mask classification
- Egress traffic shaping
- Lossless Virtual Output Queuing (VOQ) with configurable scheduling algorithms
- DiffServ architecture

IPv4 routing

- Multiple VRF
- Static routing with route labeling
- Routing Information Protocol (RIP) v1 and v2
- Open Shortest Path First (OSPF) v2 with graceful restart
- Intermediate System to Intermediate System (IS-IS) 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)

ARP

- Policy-based routing and server load balancing
- DHCPv4 server

IPv6 routing

- Multiple VRF
- Internet Control Message Protocol version 6 (ICMPv6)
- Static routing
- Routing Information Protocol Next Generation (RIPng)
- OSPF v3 with graceful restart
- Intermediate System to Intermediate System (IS-IS) with graceful restart
- Multi-Topology IS-IS
- BGP v4 multiprotocol extensions for IPv6 routing (MP-BGP)
- Graceful restart extensions for OSPF and BGP
- Virtual Router Redundancy Protocol (VRRPv3)
- Neighbors Discovery Protocol (NDP)
- Policy-based routing and server load balancing
- DHCPv6 server

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 (S,G) and (*,G) forwarding

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) and VXLAN
  - ¬ Ethernet network-to-network interface (NNI) and user network interface (UNI)
  - ¬ Service Access Point (SAP)
  - ¬ Service VLAN (SVLAN) and Customer VLAN (CVLAN) support
  - ¬ VLAN translation and mapping including CVLAN to SVLAN
- Port mapping
- DHCP Option 82: Configurable relay agent information
- MVRP
- High availability VLAN (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

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

- IEC 62368-1
- 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

Federal certifications

- FIPS 140-2
- Common Criteria EAL2
- Common Criteria NDcPP
- JITC
- Trade Agreements Act (TAA)

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 (MVRP)
- IEEE 802.1aq Shortest Path Bridging (SPB)
- IEEE 80.1ab LLDP
- IEEE 802.1ag OAM
- IEEE 802.1 CEE 1.01
- IEEE 802.1s MSTP
- IEEE 802.1w RSTP
- IEEE 802.1X Port-based Network Access Control (PNAC).
- IEEE 802.3x Flow Control
- IEEE 802.3u Fast Ethernet
- 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
- IEEE 802.3by 25 GigE
- IEEE 802.3bm 100 GigE
- IEEE 802.1x-2004
- IEEE 802.1AE MACsec
- ITU-T recommendations
- ITU-T G.8032/Y.1344 2010: Ethernet Ring Protection (ERPv2)

ANSI recommendations

- INCITS/Project 1647-D/Rev7.10 FC-PI-4
- INCITS/T11/Project 2159-D/Rev
- 1.23 T11-BB-6 compliance
- INCITS/T11/Project 1871-D/Rev
- 2.00 T11-BB-5 support

IETF RFCs

IPv4

- RFC 2003 IP/IP Tunneling
- RFC 2784 GRE Tunneling
- RFC 2131 DHCPv4
- RFC 4292 IP Forwarding Table MIB

OSPF

- RFC 1765 OSPF Database Overflow
- RFC 1850/2328/4750 OSPFv2 and MIB
- RFC 2154 OSPF MD5 Signature
- RFC 2370/5250 OSPF Opaque LSA
- RFC 3101 OSPF NSSA Option
- RFC 3623 OSPF Graceful Restart
- RFC 2740/5340 OSPFv3 for IPv6
- RFC 4552 Authentication/ Confidentiality for OSPFv3
- RFC 5187 OSPFv3 Graceful Restart
- RFC 5838 MIB for OSPFv3 RIP
- RFC 1058 RIPv1
- RFC 1722/1723/2453/1724 RIPv2 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- 1774/2842/2918/4271 BGP
- RFC 1965 BGP AS Confederations
- RFC 1966 BGP Route Reflection
- RFC 1997/1998/4360 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 2796 BGP-4 Route Reflection
- 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
- RFC 3392/5492 Capabilities Advertisement with BGP-4
- RFC 5396/5668/6793 BGP
- 4-Octet ASN and Textual Representation of ASN

IS-IS

- RFC 1142/1195/3719/3787/5308 IS-IS v4
- RFC 2763/2966/3567/3373
- Adjacencies and route management
- RFC 5120 M-ISIS: Multi-topology IS-IS
- 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
- RFC 5304 IS-IS Cryptographic Authentication
- RFC 5310 IS-IS Generic Cryptographic Authentication

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 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 PIM 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 3315 Dynamic Host Configuration Protocol for IPv6 (DHCPv6)
- 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 4293 Management Information BASE for the Internet Protocol (IP)
- RFC 4301/2401 Security Architecture
- RFC 4302/2402 IP Authentication Header
- RFC 4303/2406 IP Encapsulating Security Payload (ESP)
- RFC 4308 Cryptographic Suites for IP Security Architecture (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 4251/4418 Secure Shell Protocol Architecture with UMAC Message Authentication
- RFC 4252/4253 The Secure Shell (SSH) Authentication Protocol and Transport Layer Protocol
- RFC 4502 Remote Monitoring Management Information BASE Version 2
- RFC 4627 JavaScript Object Notation (JSON)
- RFC 5424 The Syslog protocol
- 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 3162 RADIUS and IPv6
- RFC 4301 Security Architecture for IP
- RFC 1826/1827/4303/4305 Encapsulating Payload (ESP) and crypto algorithms
- RFC 2560 X.509 Internet Public Key Infrastructure Online Certificate Status Protocol – OCSP
- RFC 2986 PKCS #10: Certification Request Syntax Specification Version 1.7
- RFC 3268 Advanced Encryption Standard (AES) Cipher suites for Transport Layer Security (TLS)
- RFC 4346 The Transport Layer Security (TLS) Protocol Version 1.1
- RFC 5246 The Transport Layer Security (TLS) Protocol Version 1.2
- RFC 5280 Internet X.509 Public Key Infrastructure Certificate and Certificate Revocation List (CRL) Profile
- RFC 6125 Representation and Verification of Domain-based Application Service Identity with PKI
- Draft-ietf-radext-radsec-12 TLS encryption for RADIUS

QoS

- RFC 896 Congestion Control
- RFC 1122 Internet Hosts
- RFC 2474/2475/2597/3168/3246 DiffServ
- RFC 3635 Pause Control
- RFC 2697 Single Rate Three Color Marker (srTCM)
- RFC 2698 Two Rate Three Color Marker (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 Bootstrap Protocol (BOOTP)
- RFC 1151 Remote Desktop Protocol (RDP)
- RFC 1191 Path MTU Discovery
- RFC 1256 ICMP Router Discovery
- RFC 1305/2030 Network Time Protocol (NTP) v3 and Simple NTP
- RFC 1493 Bridge MIB
- RFC 1518/1519 Classless Inter- Domain Routing (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 2581 TCP Congestion Control
- RFC 3021 Using 31-bit prefixes
- RFC 3060 Policy Core
- RFC 3176 sFlow
- IETF draft "IP/IPVPN services with IEEE 802.1aq SPB networks"

Software Defined Networking (SDN)

- RFC 7348 Virtual eXtensible Local Area Network (VXLAN)

Product matrix

Feature/Model	OS6900-V72	OS6900-C32
Port count	72 (48 SFP28 and 6 QSFP28)	32 (QSFP28)
Expansion slots	N/A	N/A
Out-of-band Ethernet port	1	1
USB port	1	1
Console port	1	1
Primary slide-in PSU slot	1	1
Backup slide-in PSU slot	1	1
Redundant fans	5+1	5+1
CPU Model	Intel Atom® C2538	Intel Atom® C2538
CPU Frequencies/Type	2.4GHz/quad-core	2.4GHz/quad-core
Flash Storage	16 GB	16 GB
RAM	16 GB	16 GB

Feature/Model	OS6900-V72	OS6900-C32
Data buffer	16 MB	16 MB
Max switching	3.6 Tb/s	6.4 Tb/s
Capacity	Non-blocking	Non-blocking
Forwarding rate*	2678 Mpps	4761 Mpps
Latency	<600 ns	<600 ns
Power consumption*	330 W	360 W
Heat Dissipation	1125 Btu/h	1228 Btu/h
Mean time Between failures (MTBF) with AC power Supply	377,998 h	517,875 h
MTBF with DC power supply	377,998 h	517,875 h
Width	43.8 cm (17.26 in)	43.8 cm (17.26 in)
Depth	51.5 cm (20.27 in)	51.5 cm (20.27 in)
Height	4.4 cm (1.73 in.)	4.4 cm (1.73 in.)
Weight (chassis & fan)	6.7 kg (14.77 lb)	6.6 kg (14.55 lb)
Shipping Weight (fully populated***)	10 kg (22.04 lb)	10.5 kg (23.06 lb)
Operating emperature Front-to-rear Airflow	0°C to 45°C (32°F to 113°F) 55°C Shutdown	0°C to 45°C (32°F to 113°F) 55°C Shutdown
Operating temperature Rear-to-Front Airflow	0°C to 45°C (32°F to 113°F) 55°C shutdown	0°C to 45°C (32°F to 113°F) 55°C shutdown
Storage Temperature	-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
Humidity (storage)	5% to 95% non-condensing	5% to 95% non-condensing

* Forwarding rate in table above are rounded values based on 64-byte packets.
** Maximum power consumption under full L2 traffic load includes a fan tray, two power supplies, transceivers; optional plug-in modules not included.
*** Shipping weight includes fully populated chassis with fan tray, two power supplies and all accessories; transceivers not included.

Product matrix (Continued)

Feature/Model	OS6900X24	OS6900T24	OS6900X48	OS6900T48	OS6900X48E	OS6900V48	OS6900C32E
Port count	26 SFP+ and 2 QSFP28	24 10GBASE-T, 2 SFP+ and 2 QSFP28	48 SFP+ and 6 QSFP28	48 10GBASE-T and 6 QSFP28	40 SFP+, 8 SFP28 and 4 QSFP28	48 SFP28 and 8 QSFP28	32 (QSFP28)
Out-of-band Ethernet port	1	1	1	1	1	1	1
USB port	1	1	1	1	1	1	1
Console port	1	1	1	1	1	1	1
Primary slide-in PSU	1	1	1	1	1	1	1
Backup slide-in PSU	1	1	1	1	1	1	1
Redundant fans	4+1	4+1	4+1	4+1	5+1	5+1	5+1
CPU Model	Intel Atom® C3558	Intel Atom® C3558	Intel Atom® C3558	Intel Atom® C3558	Intel Atom® C3558	Intel Xeon® D-1518	Intel Xeon® D-1518
CPU Frequencies/ Type	2.2GHz/ quad-core	2.2GHz/ quad-core	2.2GHz/ quad-core	2.2GHz/ quad-core	2.2GHz/ quad-core	2.2GHz/ quad-core	2.2GHz/ quad-core
Flash Storage	32GB	32GB	32GB	32GB	32GB	32GB	32GB
SDRAM	8 GB	8 GB	8 GB	8 GB	8 GB	16 GB	16 GB
Data buffer	32 MB	32 MB	32 MB	32 MB	32 MB	32 MB	32 MB

Feature/Model	OS6900X24	OS6900T24	OS6900X48	OS6900T48	OS6900X48E	OS6900V48	OS6900C32E
Max switching	1.12 Tb/s	1.12 Tb/s	2.16 Tb/s	2.16 Tb/s	2.0 Tb/s	4.0 Tb/s	6.4 Tb/s
Capacity	Non-blocking	Non-blocking	Non-blocking	Non-blocking	Non-blocking	Non-blocking	Non-blocking
Forwarding rates*	833 Mpps	833 Mpps	1607 Mpps	1607 Mpps	1488 Mpps	2976 Mpps	4761 Mpps
Latency	<650 ns	<650 ns	<650ns	<650 ns	<650 ns	<600 ns	<600 ns
Power consumption**	219 W	222 W	356 W	323 W	460 W	550 W	360 W
Heat Dissipation	747 Btu/h	757 Btu/h	1214 Btu/h	1101 Btu/h	1568 Btu/h	1876 Btu/h	1228 Btu/h
Mean time Between failures (MTBF) with AC power Supply	384,636 h	384,636 h	384,636 h	372,562 h	319,364 h	203,816 h	371,983 h
MTBF with DC power supply	385,000 h	385,000 h	385,000 h	385,000 h	317,286 h	208,537 h	382,763 h
Width	44.3 cm (17.42 in)	44.3 cm (17.42 in)	44.3 cm (17.42 in)	44.3 cm (17.42 in)	43.8 cm (17.26 in)	43.8 cm (17.26 in)	43.8 cm (17.26 in)
Depth	47.33 cm (18.63 in.)	47.33 cm (18.63 in.)	47.33 cm (18.63 in.)	47.33 cm (18.63 in.)	51.5 cm (20.27 in)	53.6 cm (21.1 in)	51.5 cm (20.27 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.)	4.4 cm (1.73 in.)	4.4 cm (1.73 in.)	4.4 cm (1.73 in.)
Weight (chassis & fan)	6.663 kg (14.68 lb)	6.663 kg (14.68 lb)	6.663 kg (14.68 lb)	7.438 kg (16.39 lb)	7.150 kg (15.76 lb)	7.375 kg (16.25 lb)	6.663 kg (14.55 lb)
Shipping weight***	10.48 kg (23.10 lb)	10.7 kg (23.58 lb)	10.48 kg (23.10 lb)	10.7 kg (23.58 lb)	10.5 kg (23.14 lb)	11.35 kg (25.02 lb)	10.48 (23.10 lb)
Operating Temperature	0°C to 45°C (32°F to113°F)	0°C to 45°C (32°F to113°F)	0°C to 45°C (32°F to113°F)	0°C to 45°C (32°F to113°F)	0°C to 45°C (32°F to113°F)	0°C to 45°C (32°F to113°F)	0°C to 45°C (32°F to113°F)
Front-to-rear Airflow	55°C shutdown	55°C shutdown	55°C shutdown	55°C shutdown	55°C shutdown	55°C shutdown	55°C shutdown
Operating Temperature	0°C to 45°C (32°F to113°F)	0°C to 45°C (32°F to113°F)	0°C to 45°C (32°F to113°F)	0°C to 45°C (32°F to113°F)	0°C to 45°C (32°F to113°F)	0°C to 45°C (32°F to113°F)	0°C to 45°C (32°F to113°F)
Rear-to-front Airflow	55°C shutdown	55°C shutdown	55°C shutdown	55°C shutdown	55°C shutdown	55°C shutdown	55°C shutdown
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)	-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	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	5% to 95% non-condensing	5% to 95% non-condensing	5% to 95% non-condensing

* Forwarding rate in table above are rounded values based on 64-byte packets.

** Maximum power consumption under full L2 traffic load includes a fan tray, two power supplies, transceivers; optional plug-in modules not included.

*** Shipping weight includes fully populated chassis with fan tray, two power supplies and all accessories; transceivers not included.

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 service interruption when a new power supply is installed or an old one replaced. All OS6900 models ship with two redundant power supply units.

Power Supply units OS6900C are used to power OS6900-V72, C32, C32E, X48E and V48.

PS models	OS6900C-BP-F	OS6900C-BP-R	OS6900C-BPD-F	OS6900C-BPD-R
Description	Modular 650W AC backup power supply with front-to-back cooling.	Modular 650W AC backup power supply with back-to-front cooling.	Modular 650W DC backup power supply with front-to-back cooling.	Modular 650W DC backup power supply with back-to-front cooling.
Dimensions	50.5 mm x 310.2 mm x 40 mm (1.99 in x 12.2 in x 1.58 in.)	50.5 mm x 310.2 mm x 40mm (1.99 in x 12.2 in x 1.58 in.)	50.5 mm x 310.2 mm x 40 mm (1.99 in x 12.2 in x 1.58 in.)	50.5 mm x 310.2 mm x 40 mm (1.99 in x 12.2 in x 1.58 in.)
Weight	0.983 kg (2.16 lb.)	0.983 kg (2.16 lb.)	0.983 kg (2.16 lb.)	0.983 kg (2.16 lb.)
Input current/ intensity	100–240VAC, 50-60Hz/10–5A or 8.2-3.5A or 7.8- 3.8A	100–240VAC, 50-60Hz/10–5A or 8.2-3.5A or 7.8- 3.8A	36-72VDC/25-11A	36-72VDC/25-11A
Power Rating	650W	650W	48VDC, 650 Watts	48VDC, 650 Watts
Fans	1	1	1	1

Power Supply units OS6900X are used to power OS6900X48,T48 and OS6900X24, T24.

PS models	OS6900X-BP-F	OS6900X-BP-R	OS6900X-BPD-F	OS6900X-BPD-R
Description	Modular 400W AC backup power supply with front-to-back cooling.	Modular 400W AC backup power supply with back-to-front cooling.	Modular 400W DC backup power supply with front-to-back cooling.	Modular 400W DC backup power supply with back-to-front cooling.
Dimensions	50.5 mm x 310.2 mm x 40 mm (1.99 in x 12.2 in x 1.58 in.)	50.5 mm x 310.2 mm x 40 mm (1.99 in x 12.2 in x 1.58 in.)	50.5 mm x 310.2 mm x 40 mm (1.99 in x 12.2 in x 1.58 in.)	50.5 mm x 310.2 mm x 40 mm (1.99 in x 12.2 in x 1.58 in.)
Weight	0.983 kg (2.16 lb.)	0.983 kg (2.16 lb.)	0.983 kg (2.16 lb.)	0.983 kg (2.16 lb.)
Input current/ intensity	100–240VAC, 50-60Hz/6–3A	100–240VAC, 50-60Hz/6–3A	20 to 75 VDC/14-4A (200W Output) 36 to 75 VDC/ 14-7A, (400W Output)	-20 to -75 VDC/14-4A (200W Output) 36 to 75 VDC/ 14-7A, (400W Output)
Power Rating	400 Watts	400 Watts	12V/16A, 5V/3A (200W) 12V/33.3A, 5V/3A (400W)	12V/16A, 5V/3A (200W) 12V/33.3A, 5V/3A (400W)
Fans	1	1	1	1

Ordering information

OS6900 Switch Family	
OS6900X24-F-xx	OS6900-X24C2: 10Gigabit/100Gigabit Ethernet L3 fixed,1RU chassis with 26 SFP+ ports and 2 QSFP28 ports. SFP+ ports operate as 1/10GE. QSFP28 ports operate as 100/40GE. Front to back cooling. The bundle ships with dual AC power supplies, country specific power cord, user manuals access card and rack mounts. (-xx to be replaced with the country-specific power cord code, e.g.: -EU for Europe)
OS6900X24-R-xx	OS6900-X24C2: 10Gigabit/100Gigabit Ethernet L3 fixed, 1RU chassis with 26 SFP+ ports and 2 QSFP28 ports. SFP+ ports operate as 1/10GE. QSFP28 ports operate as 100/40GE. Back to front cooling. The bundle ships with dual AC power supplies, country specific power cord, user manuals access card and rack mounts. (-xx to be replaced with the country-specific power cord code, e.g.: -EU for Europe)
OS6900X24D-F	OS6900-X24C2: 10Gigabit/100Gigabit Ethernet L3 fixed, 1RU chassis with 26 SFP+ ports and 2 QSFP28 ports. SFP+ ports operate as 1/10GE. QSFP28 ports operate as 100/40GE. Front to back cooling. The bundle ships with dual DC power supplies, user manuals access card and rack mounts. (-xx to be replaced with the country-specific power cord code, e.g.: -EU for Europe)

OS6900 Switch Family	
OS6900X24D-R	OS6900-X24C2: 10Gigabit/100Gigabit Ethernet L3 fixed, 1RU chassis with 26 SFP+ ports and 2 QSFP28 ports. SFP+ ports operate as 1/10GE. QSFP28 ports operate as 100/40GE. Back to front cooling. The bundle ships with dual DC power supplies, user manuals access card and rack mounts. (-xx to be replaced with the country-specific power cord code, e.g.: -EU for Europe)
OS6900T24-F-xx	OS6900-T24C2: 10Gigabit/100Gigabit Ethernet L3 fixed, 1RU chassis with 24 10GBaseT, 2 SFP+ ports and 2 QSFP28 ports. SFP+ and 10GBaseT ports operate as 1/10GE. QSFP28 ports operate as 100/40GE. Front to back cooling. The bundle ships with dual AC power supplies, country specific power cord, user manuals access card and rack mounts. (-xx to be replaced with the country-specific power cord code, e.g.: -EU for Europe)
OS6900T24-R-xx	OS6900-T24C2: 10Gigabit/100Gigabit Ethernet L3 fixed, 1RU chassis with 24 10GBaseT, 2 SFP+ ports and 2 QSFP28 ports. SFP+ and 10GBaseT ports operate as 1/10GE. QSFP28 ports operate as 100/40GE. Back to front cooling. The bundle ships with dual AC power supplies, country specific power cord, user manuals access card and rack mounts. (-xx to be replaced with the country-specific power cord code, e.g.: -EU for Europe)
OS6900T24D-F	OS6900-T24C2: 10Gigabit/100Gigabit Ethernet L3 fixed, 1RU chassis with 24 10GBaseT, 2 SFP+ ports and 2 QSFP28 ports. SFP+ and 10GBaseT ports operate as 1/10GE. QSFP28 ports operate as 100/40GE. Front to back cooling. The bundle ships with dual DC power supplies, user manuals access card and rack mounts.
OS6900T24D-R	OS6900-T24C2: 10Gigabit/100Gigabit Ethernet L3 fixed, 1RU chassis with 24 10GBaseT, 2 SFP+ ports and 2 QSFP28 ports. SFP+ and 10GBaseT ports operate as 1/10GE. QSFP28 ports operate as 100/40GE. Back to front cooling. The bundle ships with dual DC power supplies, user manuals access card and rack mounts.
OS6900X48-F-xx	0S6900-X48C6: 10Gigabit/100Gigabit Ethernet L3 fixed configuration chassis in a 1RU form factor with 48 1/10G SFP+ ports and 6 40/100G QSFP28 ports. All QSFP28 ports operate as single 40/100GE port and 2 ports support splitter mode to 4x10GE or 4x25GE. Console and Ethernet management ports are RJ45. Front to Rear cooling. The chassis includes two 400W AC power supplies. The bundle ships with user manuals access card and rack mounts. (-xx to be replaced with the country-specific power cord code, e.g.: -EU for Europe)
OS6900X48-R-xx	0S6900-X48C6: 10Gigabit/100Gigabit Ethernet L3 fixed configuration chassis in a 1RU form factor with 48 1/10G SFP+ ports and 6 40/100G QSFP28 ports. All QSFP28 ports operate as single 40/100GE port and 2 ports support splitter mode to 4x10GE or 4x25GE. Console and Ethernet management ports are RJ45. Rear to Front cooling. The chassis includes two 400W AC power supplies. The bundle ships with user manuals access card and rack mounts. (-xx to be replaced with the country-specific power cord code, e.g.: -EU for Europe)
OS6900X48D-F	0S6900-X48C6: 10Gigabit/100Gigabit Ethernet L3 fixed configuration chassis in a 1RU form factor with 48 1/10G SFP+ ports and 6 40/100G QSFP28 ports. All QSFP28 ports operate as single 40/100GE port and 2 ports support splitter mode to 4x10GE or 4x25GE. Console and Ethernet management ports are RJ45. Front to Rear cooling. The chassis includes two modular DC power supplies. The bundle ships with user manuals access card and rack mounts.
OS6900X48D-R	0S6900-X48C6: 10Gigabit/100Gigabit Ethernet L3 fixed configuration chassis in a 1RU form factor with 48 1/10G SFP+ ports and 6 40/100G QSFP28 ports. All QSFP28 ports operate as single 40/100GE port and 2 ports support splitter mode to 4x10GE or 4x25GE. Console and Ethernet management ports are RJ45. Rear to Front cooling. The chassis includes two modular DC power supplies. The bundle ships with user manuals access card and rack mounts.
OS6900T48-F-xx	0S6900-T48C6: 10Gigabit/100Gigabit Ethernet L3 fixed configuration chassis in a 1RU form factor with 48 1/10G 10GBASET ports and 6 40/100G QSFP28 ports. All QSFP28 ports operate as single 40/100GE port and 2 ports support splitter mode to 4x10GE or 4x25GE. Console and Ethernet management ports are RJ45. Front to Rear cooling. The chassis includes two 400W AC power supplies. The bundle ships with user manuals access card and rack mounts. (-xx to be replaced with the country-specific power cord code, e.g.: -EU for Europe)
OS6900T48-R-xx	0S6900-T48C6: 10Gigabit/100Gigabit Ethernet L3 fixed configuration chassis in a 1RU form factor with 48 1/10G 10GBASET ports and 6 40/100G QSFP28 ports. All QSFP28 ports operate as single 40/100GE port and 2 ports support splitter mode to 4x10GE or 4x25GE. Console and Ethernet management ports are RJ45. Rear to Front cooling. The chassis includes two 400W AC power supplies. The bundle ships with user manuals access card and rack mounts. (-xx to be replaced with the country-specific power cord code, e.g.: -EU for Europe)
OS6900T48D-F	0S6900-T48C6: 10Gigabit/100Gigabit Ethernet L3 fixed configuration chassis in a 1RU form factor with 48 1/10G 10GBASET ports and 6 40/100G QSFP28 ports. All QSFP28 ports operate as single 40/100GE port and 2 ports support splitter mode to 4x10GE or 4x25GE. Console and Ethernet management ports are RJ45. Front to Rear cooling. The chassis includes two modular DC power supplies. The bundle ships with user manuals access card and rack mounts.
OS6900T48D-R	0S6900-T48C6: 10Gigabit/100Gigabit Ethernet L3 fixed configuration chassis in a 1RU form factor with 48 1/10G 10GBASET ports and 6 40/100G QSFP28 ports. All QSFP28 ports operate as single 40/100GE port and 2 ports support splitter mode to 4x10GE or 4x25GE. Console and Ethernet management ports are RJ45. Rear to Front cooling. The chassis includes two modular DC power supplies. The bundle ships with user manuals access card and rack mounts.

OS6900 Switch Family	
OS6900V48-F-xx	OS6900-V48C8: 25Gigabit/100Gigabit Ethernet L3 fixed configuration chassis in a 1RU form factor with 48 1/10/25G SFP28 ports and 8 40/100G QSFP28 ports. QSFP28 ports operate as single 40/100GE port or Quad-10/25GE. Console and Ethernet management ports are RJ45. Front to Rear cooling. The chassis includes two 650W AC power supplies. The bundle ships with user manuals access card and rack mounts. (-xx to be replaced with the country-specific power cord code, e.g.: -EU for Europe)
OS6900V48-R-xx	OS6900-V48C8: 25Gigabit/100Gigabit Ethernet L3 fixed configuration chassis in a 1RU form factor with 48 1/10/25G SFP28 ports and 8 40/100G QSFP28 ports. QSFP28 ports operate as single 40/100GE port or Quad-10/25GE. Console and Ethernet management ports are RJ45. Rear to Front cooling. The chassis includes two 650W AC power supplies. The bundle ships with user manuals access card and rack mounts. (-xx to be replaced with the country-specific power cord code, e.g.: -EU for Europe)
OS6900V48D-F	OS6900-V48C8: 25Gigabit/100Gigabit Ethernet L3 fixed configuration chassis in a 1RU form factor with 48 1/10/25G SFP28 ports and 8 40/100G QSFP28 ports. QSFP28 ports operate as single 40/100GE port or Quad-10/25GE. Console and Ethernet management ports are RJ45. Front to Rear cooling. The chassis includes two modular DC power supplies. The bundle ships with user manuals access card and rack mounts.
OS6900V48D-R	OS6900-V48C8: 25Gigabit/100Gigabit Ethernet L3 fixed configuration chassis in a 1RU form factor with 48 1/10/25G SFP28 ports and 8 40/100G QSFP28 ports. QSFP28 ports operate as single 40/100GE port or Quad-10/25GE. Console and Ethernet management ports are RJ45. Rear to Front cooling. The chassis includes two modular DC power supplies. The bundle ships with user manuals access card and rack mounts.
OS6900X48E-F-xx	OS6900-X48C4E: 10Gigabit/100Gigabit Ethernet L3 fixed configuration chassis in a 1RU form factor with 40 1/10G SFP+ ports, 8 10/25G SFP28 ports and 4 40/100G QSFP28 ports. QSFP28 ports operate as single 40/100GE port or Quad- 10/25GE. Provides MACsec on all ports. Front-to-back cooling. The chassis includes two 650W AC power supplies. The bundle ships with a country-specific power cord, user manuals access card, and rack mounts. (-xx to be replaced with the country- specific power cord code, e.g.: -EU for Europe)
OS6900X48E-R-xx	OS6900-X48C4E: 10Gigabit/100Gigabit Ethernet L3 fixed configuration chassis in a 1RU form factor with 40 1/10G SFP+ ports, 8 10/25G SFP28 ports and 4 40/100G QSFP28 ports. QSFP28 ports operate as single 40/100GE port or Quad- 10/25GE. Provides MACsec on all ports. Back-to-front cooling. The chassis includes two 650W AC power supplies. The bundle ships with a country-specific power cord, user manuals access card, and rack mounts. (-xx to be replaced with the country-specific power cord code, e.g.: -EU for Europe)
OS6900X48E-D-F	OS6900-X48C4E: 10Gigabit/100Gigabit Ethernet L3 fixed configuration chassis in a 1RU form factor with 40 1/10G SFP+ ports, 8 10/25G SFP28 ports and 4 40/100G QSFP28 ports. QSFP28 ports operate as single 40/100GE port or Quad- 10/25GE. Provides MACsec on all ports. Front-to-back cooling. The chassis includes two modular DC power supplies. The bundle ships with a user manuals access card, and rack mounts.
OS6900X48E-D-R	OS6900-X48C4E: 10Gigabit/100Gigabit Ethernet L3 fixed configuration chassis in a 1RU form factor with 40 1/10G SFP+ ports, 8 10/25G SFP28 ports and 4 40/100G QSFP28 ports. QSFP28 ports operate as single 40/100GE port or Quad- 10/25GE. Provides MACsec on all ports. Back-to-front cooling. The chassis includes two modular DC power supplies. The bundle ships with a user manuals access card, and rack mounts.
OS600C32E-F-xx	OS6900C32E: 100 Gb Ethernet L3 fixed configuration chassis in a 1RU form factor with 32 QSFP28 ports. Ports operate as single 40/100GigE port or Quad-10/25GigE. Front-to-back cooling. The chassis includes two 650W AC power supplies. The bundle ships with a country-specific power cord, user manuals access card, and rack mounts. (-xx to be replaced with the country-specific power cord code, e.g.: -EU for Europe)
OS6900C32E-R-xx	OS6900C32E: 100 Gb Ethernet L3 fixed configuration chassis in a 1RU form factor with 32 QSFP28 ports. Ports operate as single 40/100GigE port or Quad-10/25GigE. Back-to-front cooling. The chassis includes two 650W AC power supplies. The bundle ships with a country-specific power cord, user manuals access card, and rack mounts. (-xx to be replaced with the country-specific power cord code, e.g.: -EU for Europe)
OS6900C32E-D-F	OS6900C32E: 100 Gb Ethernet L3 fixed configuration chassis in a 1RU form factor with 32 QSFP28 ports. Ports operate as single 40/100GigE port or Quad-10/25GigE. Front-to-back cooling. The chassis includes two modular DC power supplies. The bundle ships with a user manuals access card, and rack mounts.
OS6900C32E-D-R	OS6900C32E: 100 Gb Ethernet L3 fixed configuration chassis in a 1RU form factor with 32 QSFP28 ports. Ports operate as single 40/100GigE port or Quad-10/25GigE. Back-to-front cooling. The chassis includes two modular DC power supplies. The bundle ships with a user manuals access card, and rack mounts.
OS6900-V72-F-xx	OS6900-V72: 25Gigabit/100Gigabit Ethernet L3 fixed configuration chassis in a 1RU form factor with 48 10/25G SFP28 ports and 6 40/100G QSFP28 ports. QSFP28 ports operate as single 40/100GE port or Quad-10/25GE. Console and Ethernet management ports are RJ45. Front to Rear cooling. The chassis includes two 650W AC power supplies. The bundle ships with user manuals access card and rack mounts. (-xx to be replaced with the country-specific power cord code, e.g.: -EU for Europe)

OS6900 Switch Family	
OS6900-V72-R-xx	OS6900-V72: 25Gigabit/100Gigabit Ethernet L3 fixed configuration chassis in a 1RU form factor with 48 10/25G SFP28 ports and 6 40/100G QSFP28 ports. QSFP28 ports operate as single 40/100GE port or Quad-10/25GE. Console and Ethernet management ports are RJ45. Rear to Front cooling. The chassis includes two 650W AC power supplies. The bundle ships with user manuals access card and rack mounts. (-xx to be replaced with the country-specific power cord code, e.g.: -EU for Europe)
OS6900-V72D-F	OS6900-V72: 25Gigabit/100Gigabit Ethernet L3 fixed configuration chassis in a 1RU form factor with 48 10/25G SFP28 ports and 6 40/100G QSFP28 ports. QSFP28 ports operate as single 40/100GE port or Quad-10/25GE. Console and Ethernet management ports are RJ45. Front to Rear cooling. The chassis includes two modular DC power supplies. The bundle ships with user manuals access card and rack mounts.
OS6900-V72D-R	OS6900-V72: 25Gigabit/100Gigabit Ethernet L3 fixed configuration chassis in a 1RU form factor with 48 10/25G SFP28 ports and 6 40/100G QSFP28 ports. QSFP28 ports operate as single 40/100GE port or Quad-10/25GE. Console and Ethernet management ports are RJ45. Rear to Front cooling. The chassis includes two modular DC power supplies. The bundle ships with user manuals access card and rack mounts.
OS600-C32-F-xx	OS6900-C32: 100 Gb Ethernet L3 fixed configuration chassis in a 1RU form factor with 32 QSFP28 ports. Ports operate as single 40/100GigE port or Quad-10/25GigE. Front-to-back cooling. The chassis includes two 650W AC power supplies. The bundle ships with a country-specific power cord, user manuals access card, and rack mounts. (-xx to be replaced with the country-specific power cord code, e.g.: -EU for Europe)
OS6900-C32-R-xx	OS6900-C32: 100 Gb Ethernet L3 fixed configuration chassis in a 1RU form factor with 32 QSFP28 ports. Ports operate as single 40/100GigE port or Quad-10/25GigE. Back-to-front cooling. The chassis includes two 650W AC power supplies. The bundle ships with a country-specific power cord, user manuals access card, and rack mounts. (-xx to be replaced with the country-specific power cord code, e.g.: -EU for Europe)
OS6900-C32D-F	OS6900-C32: 100 Gb Ethernet L3 fixed configuration chassis in a 1RU form factor with 32 QSFP28 ports. Ports operate as single 40/100GigE port or Quad-10/25GigE. Front-to-back cooling. The chassis includes two modular DC power supplies. The bundle ships with a user manuals access card, and rack mounts.
OS6900-C32D-R	OS6900-C32: 100 Gb Ethernet L3 fixed configuration chassis in a 1RU form factor with 32 QSFP28 ports. Ports operate as single 40/100GigE port or Quad-10/25GigE. Back-to-front cooling. The chassis includes two modular DC power supplies. The bundle ships with a user manuals access card, and rack mounts.
OS6900 Backup power supplies	
OS6900C-BP-F-xx	Modular 650W AC backup power supply. Front-to-back cooling. Provides system power to one OS6900-V72, C32, X48C4E or V48C8 switch; (-xx to be replaced with the country-specific power cord code, e.g.: -EU for Europe)
OS6900C-BP-R-xx	Modular 650W AC backup power supply. Back-to-front cooling. Provides system power to one OS6900-V72, C32, X48C4E or V48C8 switch; (-xx to be replaced with the country-specific power cord code, e.g.: -EU for Europe)
OS6900C-BPD-F	Modular 650W DC backup power supply. Front-to-back cooling. Provides backup system power to one OS6900-V72, C32, X48C4E or V48C8 switch.
OS6900C-BPD-R	Modular 650W DC backup power supply. Back-to-front cooling. Provides backup system power to one OS6900-V72, C32, X48C4E or V48C8 switch.
OS6900X-BP-F-xx	Modular 650W AC backup power supply. Front-to-back cooling. Provides system power to one OS6900-V72, C32, X48C4E or V48C8 switch; (-xx to be replaced with the country-specific power cord code, e.g.: -EU for Europe)
OS6900X-BP-R-xx	Modular 400W AC backup power supply. Back-to-front cooling. Provides system power to one OS6900-X48C6 or T48C6 switch. (-xx to be replaced with the country-specific power cord code, e.g.: -EU for Europe)
OS6900X-BPD-F	Modular 400W DC backup power supply. Front-to-back cooling. Provides system power to one OS6900-X48C6 or T48C6 switch.
OS6900X-BPD-R	Modular 400W DC backup power supply. Back-to-front cooling. Provides system power to one OS6900-X48C6 or T48C6 switch.
OS6900 Fan trays	
OS6900C-FTKIT-F	Replacement fan tray kit for OS6900-V72, OS6900-C32 and OS6900-X48E. Front-to-back cooling, the kit contains 6 fan tray units.
OS6900C-FTKIT-R	Replacement fan tray kit for OS6900-V72, OS6900-C32 and OS6900-X48E. Back-to-front cooling, the kit contains 6 fan tray units.
OS6900X-FTKIT-F	Replacement fan tray kit for OS6900X48/T48 and OS6900X24/T24. Front-to-back cooling, the kit contains 5 fan tray units.
OS6900X-FTKIT-R	Replacement fan tray kit for OS6900X48/T48 and OS6900X24/T24. Back-to-front cooling, the kit contains 5 fan tray units.

OS6900 Switch Family	
OS6900V-FTKIT-F	Replacement fan tray kit for OS6900V48. Front-to-back cooling, the kit contains 5 fan tray units.
OS6900V-FTKIT-R	Replacement fan tray kit for OS6900V48. Back-to-front cooling, the kit contains 5 fan tray units.
Transceivers	
GigE	**SFP MSA (Multiple Source Agreement) Transceivers**
SFP-GIG-SX	1000BASE-SX Gb Ethernet optical transceiver. Typical reach of 300m on 62.5/125µm to 500m on 50/125µm MMF, LC connector.
SFP-GIG-LX	1000BASE-LX Gb Ethernet optical transceiver. Typical reach of 10 km on 9/125µm SMF, LC connector.
SFP-GIG-LH40	1000BASE-LH Gb Ethernet optical transceiver. Typical reach of 40 km on 9/125µm SMF, LC connector.
SFP-GIG-LH70	1000BASE-LH Gb Ethernet optical transceiver. Typical reach of 70 km on 9/125µm SMF, LC connector.
SFP-GIG-EXTND	1000BASE-EXTND Gb Ethernet optical transceiver. Typical reach of 2 km on 50/125µm MMF, LC connector.
GigE	**Bi-Directional SFP MSA (Multiple Source Agreement) Transceivers**
SFP-GIG-BX-U	1000BASE-BX 10 Gb Ethernet optical transceiver. Bi-Directional typical reach of 10 km SMF, LC connector, designed to be used with SFP-GIG-BX-D
SFP-GIG-BX-U20	1000BASE-BX 10 Gb Ethernet optical transceiver. Bi-Directional typical reach of 20 km SMF, LC connector, designed to be used with SFP-GIG-BX-D20
SFP-GIG-BX-U40	1000BASE-BX 10 Gb Ethernet optical transceiver. Bi-Directional typical reach of 40 km SMF, LC connector, designed to be used with SFP-GIG-BX-D40
SFP-GIG-BX-D	1000BASE-BX 10 Gb Ethernet optical transceiver. Bi-Directional typical reach of 10 km SMF, LC connector, designed to be used with SFP-GIG-BX-U
SFP-GIG-BX-D20	1000BASE-BX 10 Gb Ethernet optical transceiver. Bi-Directional typical reach of 10 km SMF, LC connector, designed to be used with SFP-GIG-BX-U20
SFP-GIG-BX-D40	1000BASE-BX 10 Gb Ethernet optical transceiver. Bi-Directional typical reach of 10 km SMF, LC connector, designed to be used with SFP-GIG-BX-U40
10 GigE	**SFP+ Transceivers**
SFP-10G-T	10GBASE-T Ethernet transceiver, RJ45 connector.
SFP-10G-C60CM	10 Gb direct attached copper cable, 60 cm, SFP+.
SFP-10G-C1M	10 Gb direct attached copper cable, 1 m, SFP+.
SFP-10G-C3M	10 Gb direct attached copper cable, 3 m, SFP+.
SFP-10G-C7M	10 Gb direct attached copper cable, 7 m, SFP+.
SFP-10G-SR	10GBASE-SR optical transceiver (SFP+). Typical reach of 300 m on 850 nm wavelength (nominal) MMF, LC connector.
SFP-10G-LR	10BASE-LR optical transceiver. Typical reach of 10 km on SMF 1310 nm, LC connector.
SFP-10G-ER	10BASE-ER optical transceiver. Typical reach of 40 km on SMF 1550 nm, LC connector.
SFP-10G-ZR	10BASE-ZR optical transceiver. Typical reach of 80 km on SMF 1550 nm, LC connector.
SFP-10G-LRM	10BASE-LRM optical transceiver. Typical reach of ~220 m on MMF 1310 nm, LC connector.
SFP-10G-GIG-SR	Dual speed 10BASE-SR/SW, 1000BASE-SX optical transceiver. Typical reach @ 1G on OM3 ~300 m; @ 10G on OM3 ~550 m on 850 nm MMF, LC connector.
SFP-10G-GIG-LR	Dual speed 10BASE-LR/LW, 1000BASE-LX optical transceiver. Typical reach @ 1G/10G of 10 km on 1310 nm SMF, LC connector.
10 GigE	**Bi-Directional SFP MSA (Multiple Source Agreement) Transceivers**
SFP-10G-BX-D	10GBASE-LR optical transceiver. Bi-Directional typical reach of 10 km SMF, LC connector, designed to be used with SFP-10G-BX-U
SFP-10G-BX-U	10GBASE-LR optical transceiver. Bi-Directional typical reach of 10 km SMF, LC connector, designed to be used with SFP-GIG-BX-D
10 GigE	**CWDM - DWDM SFP+ Transceivers**
SFP-10G-CWDM	10GBASE-ER/EW optical CWDM transceiver SFP MSA, SFF-8472/8431/8432. Typical reach of 40 km on SMF 1551 nm, LC connector.
SFP-10G-24DWD80	10GBASE-ZR optical DWDM transceiver 802.3ae. Typical reach of 80 km on SMF 1558.17 nm, LC connector.

OS6900 Switch Family	
25 GigE	**SFP28 Transceivers**
SFP-25G-SR	25GBASE-SR, CPRI 25G, OTU4 optical transceiver. Typical reach of 70 m on OM3 and 100 m on OM4, MMF 850 nm, LC connector.
SFP-25G-CLR	25GBASE-LR, CPRI 25G, OTU4 optical transceiver. Typical reach of 2 km on SMF 1310 nm, LC connector.
SFP-25G-LR	25GBASE-LR, optical transceiver. Typical reach of 10 km on SMF 1310 nm, LC connector.
SFP-25G-A20M	25 GigE Direct Attached, Active Optical Cable length of 20 m.
SFP-25G-C1M	25 GigE Direct Attached, Copper Cable length of 1 m.
SFP-25G-C3M	25 GigE Direct Attached, Copper Cable length of 3 m.
SFP-25G-C5M	25 GigE Direct Attached, Copper Cable length of 5 m.
40 GigE	**QSFP+ Transceivers**
QSFP-40G-SR	40GBASE-SR4, Four Channel optical transceiver. Typical reach of 100 m on OM3 and 150 m on OM4, MMF 850 nm, MPO connector.
QSPF-40G-SR-BD	40GBASE-SR4, Dual Channel optical transceiver. Typical reach of 100 m on OM3 and 150 m on OM4, MMF 850/900 nm, LC connector. Does not support VFL connections.
QSFP-40G-LR	40GBASE-LR4, Four Channel optical transceiver. Typical reach of 10 km on SMF 1264.5-1277.5, 1284.5-1297.5, 1304.5-1317.5 and 1324.5-1337.5 nm, LC connector.
QSFP-40G-ER	40GBASE-LR4, Four Channel optical transceiver. Typical reach of 40 km on SMF 1264.5-1277.5, 1284.5-1297.5, 1304.5-1317.5 and 1324.5-1337.5 nm, LC connector.
QSFP-40G-LM4	40GBASE-LR4, Four Channel optical transceiver. Typical reach of 140 m on OM3 MMF and 160 m on OM4 MMF, 1264.5-1277.5, 1284.5-1297.5, 1304.5-1317.5 and 1324.5-1337.5 nm, LC connector.
QSFP-40G-CLR	40GBASE-LR4, Four Channel optical transceiver. Typical reach of 2 km on SMF 1264.5-1277.5, 1284.5-1297.5, 1304.5-1317.5 and 1324.5-1337.5 nm, LC connector.
QSF-4x10G-SR	40GBASE-SR4, Four Channel Splitter optical transceiver, connects a single 40G QSFP+ port to four 10G SFP+ ports. Typical reach of 300 m on OM3 and 400 m on OM4, MMF 850 nm, MPO connector.
40 GigE	**QSFP+ Direct Attached Cables**
QSFP-40G-C40CM	40GigE 802.3ab, QSFP+ MSA, direct attached cable length of 40 cm.
QSFP-40G-C1M	40GigE 802.3ab, QSFP+ MSA, direct attached cable length of 1 m.
QSFP-40G-C3M	40GigE 802.3ab, QSFP+ MSA, direct attached cable length of 3 m.
QSFP-40G-C5M	40GigE 802.3ab, QSFP+ MSA, direct attached cable length of 5 m.
QSFP-4x10G-C1M	40GigE Four Channel Direct Attached Splitter Cable, connects a single QSFP+ port to four 10G SFP+ port, cable length 1 m.
QSFP-4x10G-C3M	40GigE Four Channel Direct Attached Splitter Cable, connects a single QSFP+ port to four 10G SFP+ port, cable length 3 m.
QSFP-4x10G-C5M	40GigE Four Channel Direct Attached Splitter Cable, connects a single QSFP+ port to four 10G SFP+ port, cable length 5 m.
QSFP-40G-PSM4	40GigE Four independent channels optical transceiver, connects a single QSFP+ port to four 10G SFP+ port. Typical reach of 2 km on SMF, MPO/MTP connector.
100 GigE	**QSFP28 Transceivers**
QSFP-100G-SR4	100GBASE-SR4, Four Channel optical transceiver. Typical reach of 70 m on OM3 and 100 m on OM4, MMF 850 nm, MPO12 connector.
QSFP-100G-CLR4	100GBASE-LR4 Lite, Four Channel optical transceiver. Typical reach of 2 Km on SMF 1294.53-1296.59, 1299.02-1301.09, 1303.54-1305.63, 1308.09-1310.19 nm, LC connector.
QSFP-100G-LR4	100GBASE-LR4, Four Channel optical transceiver. Typical reach of 10 Km on SMF 1294.53-1296.59, 1299.02-1301.09, 1303.54-1305.63, 1308.09-1310.19 nm, LC connector.
QSFP-100G-ER4	100GBASE-ER4, 4WDM-40, Four Channel optical transceiver. Typical reach of 40 Km on SMF 1294.53-1296.59, 1299.02-1301.09, 1303.54-1305.63, 1308.09-1310.19 nm, LC connector.
QSFP-100G-CWDM4	100GigE 802.3bm, QSFP28 MSA, Four Channel optical transceiver. Typical reach of 2 km on SMF 1264.5-1277.5, 1284.5-1297.5, 1304.5-1317.5, 1324.5-1337.5 nm, MPO12 connector.

OS6900 Switch Family	
QSFP-100G-PSM4	100GigE Four independent channels optical transceiver, connects a single QSFP+ port to four 25G SFP28 ports. Typical reach of 2 km on SMF, MPO/MTP connector.
100 GigE	**QSFP28 Direct Attached Cables**
QSFP-100G-C1M	100 GigE Four Channel Direct Attached Cable length of 1 m.
QSFP-100G-C3M	100 GigE Four Channel Direct Attached Cable length of 3 m.
QSFP-100G-C5M	100 GigE Four Channel Direct Attached Cable length of 5 m.
QSFP-100G-A20M	100 GigE Direct Attached, Active Optical Cable MMF 20 m.
QSFP-4x25G-C1M	100 GigE Four Channel Direct Attached Splitter Cable, connects a single QSFP28 port to four 25G SFP28 ports, length 1 m.
QSFP-4x25G-C3M	100 GigE Four Channel Direct Attached Splitter Cable, connects a single QSFP28 port to four 25G SFP28 ports, length 3 m.
QSFP-4x25G-C5M	100 GigE Four Channel Direct Attached Splitter Cable, connects a single QSFP28 port to four 25G SFP28 ports, length 5 m.

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