Alcatel-Lucent Enterprise OmniSwitch 6570M GOLDEN RFP

Version 8.9R3

Alcatel·Lucent Enterprise

Contents

1. Introduction

The Alcatel-Lucent OmniSwitch® 6570M Gigabit Ethernet LAN switch family is an industry-leading edge and aggregation solution for both enterprise and service provider networks. The family offers versatile 12- and 28-port fixed configuration gigabit switches with 10G uplinks, 10G uplink license upgrades, fan-less designs and AC/DC primary/redundant power supply options. The OmniSwitch 6570M (OS6570M) uses the Alcatel-Lucent Operating System (AOS) offering a rich set of advanced enterprise and metro ethernet features for both next-generation enterprise networks and service provider solutions.

OmniSwitch 6560-48X4/-P48X4

OmniSwitch 6560-24X4/-P24X4

OmniSwitch 6560-P24Z8

OmniSwitch 6560-P24Z24

OmniSwitch 6560-P48Z16

OmniSwitch 6560-X10

Offering a design optimised for flexibility, scalability and low power consumption, the OmniSwitch 6570M is an outstanding edge solution. It uses the field-proven Alcatel-Lucent Operating System (AOS) to deliver highly available, secure, self-protective, easily managed and eco-friendly networks.

The Alcatel-Lucent OmniSwitch 6570M family is embedded with the latest technology innovations and offers maximum investment protection. Deployments benefiting from the OmniSwitch 6570M family include:

- Edge of small-to-mid-sized networks
- Branch office enterprise and campus workgroups
- Service provider managed services application
    - Customer Premises Equipment (CPE)
    - Fibre aggregations

Features

- 8-port RJ45 non-PoE with fixed small form factor pluggable SFP and SFP+
- 20-ports small form factor pluggable (SFP) with 4-ports SFP/RJ45 (combo), 4-ports SFP+ and 2-ports SFP+ uplink/VFL ports
- Metro Ethernet Service features included for service provider deployments
- Support for IEEE 802.1AE MACsec encryption

Management

- AOS field-proven software with management through web interface (WebView), command line interface (CLI) and Simple Network Management Protocol (SNMP)
- Ethernet operations, administration and management (OA&M) support for service configuration and monitoring
- Cloud-enabled with Alcatel-Lucent OmniVista® Cirrus Network Management as a Service for a secure, resilient and scalable cloud-based network managementSupport by Alcatel-Lucent OmniVista™ 2500 Network Management System (NMS)
- Support by Alcatel-Lucent OmniVista® 2500 Network Management System (NMS)

Security

- 256bit MACsec encryption to secure the network edge**
- Secure boot and secure storage capable**
- Advanced Quality of Service (QoS) and Access Control Lists (ACLs) for traffic control, including an embedded denial of service (DoS) engine to filter out unwanted traffic attacks
- Extensive support of user-oriented features such as Learned Port Security (LPS), port mapping, Dynamic Host Configuration Protocol (DHCP) binding tables and User Network Profile (UNP)

Performance and redundancy

- Advanced Layer 2+ features with basic Layer 3 routing for both IPv4 and IPv6
- Triple speed (10/100/1G) user interfaces and fibre interfaces (SFPs) supporting 100FX/1000Base-X or 1G/10GBase-X optical transceivers10 G uplinks
- Up to 6 x 10G uplinks total (OS6570M-U28)
- IEEE 1588v2 Precision Time Protocol (PTP)**
- Wire-rate switching and routing performance
- High availability with virtual chassis concept, redundant stacking links, primary/secondary unit failover, hot-swappable power options and configuration rollback

Benefits

- Meets any customer configuration need and offers excellent investment protection and flexibility, as well as ease of deployment, operation and maintenance
- Provides outstanding performance when supporting real-time voice, data and video applications for converged scalable networks
- Ensures efficient power management, reduces operating expenses (OPEX) and lowers total cost of ownership (TCO) through low power consumption and dynamic PoE allocation, which delivers only the power needed by the attached device
- A field-upgradeable solution that makes the network highly available and reduces OPEX
- Fully secures the network at the edge at no additional cost
- Enterprise-wide cost reduction through hardware consolidation to achieve network segmentation and security without additional hardware installation
- Supports cost-effective installation and deployment with automated switch setup and configuration and end-to-end virtual LAN (VLAN) provisioning

- OmniVista Cirrus (OVC) powers secure, resilient and scalable cloud-based network management. OVC offers hassle-free network deployment and easy service rollout with advanced analytics for smarter decision making. IT friendly Unified Access with secure authentication and policy enforcement for users and devices.

OmniSwitch 6570M Link:
https://www.al-enterprise.com/-/media/assets/internet/documents/omniswitch-6570m-datasheet-en.pdf

2. OmniSwitch 6560 models and chassis components

1.1. OS6570M-12/12D

The switch must support the following characteristics:

2.1.1.	Non-blocking architecture	C/PC/NC
2.1.2.	Total RU with BPS: 1 RU maximum	C/PC/NC
2.1.3.	Primary internal AC/DC power supply with optional external AC/DC backup power supply	C/PC/NC
2.1.4.	Fan-less	C/PC/NC
2.1.5.	SFP`s HotSwap	C/PC/NC
2.1.6.	Minimum of 8 ports 10/100/1000 Base-T RJ45	C/PC/NC
2.1.7.	Minimum of 2 SFP ports (100M/1Gbps)	C/PC/NC
2.1.8.	Minimum of 2 1G SFP Uplink/10G SFP+VFL	C/PC/NC
2.1.9.	The above minimum ports quantity cannot be combo. All must be available in the switch, and at the same time	C/PC/NC
2.1.10.	Stack up to 4 elements (Single Management IP)	C/PC/NC
2.1.11.	Minimum stacking aggregated of 40Gbps	C/PC/NC
2.1.12.	Minimum switching capacity (Gbps): 60 Gbps	C/PC/NC
2.1.13.	Minimum Processing Capacity (Mpps): 44.6 Mpps	C/PC/NC
2.1.14.	Operating Temperature: 0 ° C to 50 ° C	C/PC/NC
2.1.15.	Humidity (operation): 5% to 95% non-condensing	C/PC/NC
2.1.16.	Minimum MTBF 372k	C/PC/NC
2.1.17.	Support of E-Line (EPL and EVPL) and E-LAN (EP-LAN and EVP-LAN)	C/PC/NC

1.2. OS6570M-U28/U28D

The switch must support the following characteristics:

2.1.18.	Non-blocking architecture	C/PC/NC
2.1.19.	Total RU with BPS: 1 RU maximum	C/PC/NC
2.1.20.	Modular primary AC/DC power supply with optional modular AC/DC backup power supply	C/PC/NC
2.1.21.	SFP`s HotSwap	C/PC/NC
2.1.22.	Minimum of 20 100M/1G SFP ports	C/PC/NC
2.1.23.	Minimum of 4 1G SFP/RJ45 combo ports	
2.1.24.	Minimum of 4 1G/10G SFP+ ports	C/PC/NC
2.1.25.	Minimum of 2 1G SFP Uplink/10G SFP+VFL	C/PC/NC
2.1.26.	Stack up to 4 elements (Single Management IP)	C/PC/NC
2.1.27.	Minimum stacking aggregated of 40Gbps	C/PC/NC
2.1.28.	Minimum switching capacity (Gbps): 168 Gbps	C/PC/NC
2.1.29.	Minimum Processing Capacity (Mpps): 125Mpps	C/PC/NC
2.1.30.	Operating Temperature: 0 ° C to 50 ° C	C/PC/NC
2.1.31.	Humidity (operation): 5% to 95% non-condensing	C/PC/NC
2.1.32.	Minimum MTBF 372k	C/PC/NC
2.1.33.	Support of E-Line (EPL and EVPL) and E-LAN (EP-LAN and EVP-LAN)	C/PC/NC

2. Resiliency and high availability functionalities

The switch must support the following

2.1.	Unified management & control	C/PC/NC
2.2.	Virtual chassis technology	C/PC/NC
2.3.	Virtual Chassis 1+N redundant supervisor manager	C/PC/NC
2.4.	Virtual Chassis In-Service Software Upgrade (ISSU)	C/PC/NC
2.5.	Split Virtual Chassis protection	C/PC/NC
2.6.	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)	C/PC/NC
2.7.	Per-VLAN spanning tree (PVST+)	C/PC/NC
2.8.	1x1 STP mode	C/PC/NC
2.9.	IEEE 802.3ad/802.1AX Link Aggregation Control Protocol (LACP) and static LAG groups across modules	C/PC/NC
2.10.	Virtual Router Redundancy Protocol (VRRP) with tracking capabilities	C/PC/NC
2.11.	IEEE protocol auto-discovery	C/PC/NC
2.12.	Bidirectional Forwarding Detection (BFD) for fast failure detection and reduced re-convergence times in a routed environment	C/PC/NC
2.13.	Redundant and hot-swappable power supplies	C/PC/NC
2.14.	Built-in CPU protection against malicious attacks	C/PC/NC

3. Layer-2 switching

The switch must support the following:

3.1.	Up to 32k MAC Addresses	C/PC/NC
3.2.	Up to 4000 VLANs	C/PC/NC
3.3.	Up to 1.5k total system policies	C/PC/NC
3.4.	Switch Latency: < 4 µs	C/PC/NC
3.5.	Max Frame: 9216 bytes (jumbo)	C/PC/NC
3.6.	Ethernet services support using IEEE 802.1ad Provider Bridges (also known as Q-in-Q or VLAN stacking	C/PC/NC
3.7.	Ethernet in First mile: Link OAM (802.3ah)	C/PC/NC
3.8.	TR-101 Point-to-Point Protocol over Ethernet (PPPoE) Intermediate Agent allowing for the PPPoE network access method	C/PC/NC
3.9.	Service Assurance Agent (SAA) for proactively measuring network, health, reliability, and performance.	C/PC/NC

4. Layer-3 routing protocols and features:

The switch must support the following

4.1.	Static routing for IPv4 and IPv6	C/PC/NC
4.2.	RIP v1 and v2 for IPv4; RIPng for IPv6	C/PC/NC
4.3.	Up to 256 IPv4 and 128 IPv6 static and RIP routes	C/PC/NC
4.4.	Up to 128 IPv4 and 16 IPv6 interfaces	C/PC/NC

5. Multicast protocols and features:

The switch must support the following:

5.1.	IGMPv1/v2/v3 snooping to optimize multicast traffic	C/PC/NC
5.2.	Multicast Listener Discovery (MLD) v1/v2 snooping+	C/PC/NC
5.3.	Up to 1000 multicast groups	C/PC/NC
5.4.	IP Multicast VLAN (IPMVLAN) for optimized multicast replication at the edge, saving network core resources	C/PC/NC
5.5.	IP Multicast VLAN (IPMV): Support the creation of separate dedicated VLANs built specifically for multicast traffic distribution.	C/PC/NC

6. Security features

The switch must support the following:

6.1.	Autosensing IEEE 802.1X multiclient, multi-VLAN support	C/PC/NC
6.2.	MAC-based authentication for non-IEEE 802.1X hosts	C/PC/NC
6.3.	Web based authentication (captive portal): a customizable web portal residing on the switch	C/PC/NC
6.4.	Dynamically provide pre-defined policy configuration to authenticated clients — VLAN, ACL, BW	C/PC/NC
6.5.	Secure Shell (SSH) with public key infrastructure (PKI) support	C/PC/NC
6.6.	Terminal Access Controller Access- Control System Plus (TACACS+) client	C/PC/NC
6.7.	Centralized Remote Access Dial- In User Service (RADIUS) and Lightweight Directory Access Protocol (LDAP) administrator authentication	C/PC/NC
6.8.	Centralized RADIUS for device authentication and network access control authorization	C/PC/NC
6.9.	Learned Port Security (LPS) or MAC address lockdown	C/PC/NC
6.10.	Access Control Lists (ACLs); flow based filtering in hardware (Layer 1 to Layer 4)	C/PC/NC
6.11.	DHCP Snooping, DHCP IP and Address Resolution Protocol (ARP) spoof protection	C/PC/NC
6.12.	Dynamic ARP Inspection is implemented by combining both DHCP snooping and IP source filtering capabilities	C/PC/NC

6.13.	ARP poisoning detection	C/PC/NC
6.14.	IP Source Filtering as a protective and effective mechanism against ARP attacks	C/PC/NC
6.15.	Role-based authentication for routed domains	C/PC/NC
6.16.	The minimum password size range is 1-30 characters.	C/PC/NC
6.17.	Allows the switch to be authenticated as a supplicant device using X.509 certificates.	C/PC/NC

7. Quality of Service (QoS) features

The switch must support the following:

7.1.	Eight hardware based queues per port for flexible QoS management	C/PC/NC
7.2.	Flow-based QoS with internal and external (a.k.a., remarking) prioritization	C/PC/NC
7.3.	Flow-based traffic policing and bandwidth management, ingress rate limiting; egress rate shaping per port	C/PC/NC
7.4.	Queue management: Configurable scheduling algorithms — Strict Priority Queuing (SPQ)	C/PC/NC
7.5.	Queue management: Configurable scheduling algorithms — Weighted Round Robin (WRR)	C/PC/NC
7.6.	Congestion avoidance: Support for End- to-End Head-Of-Line (E2EHOL) Blocking Protection	C/PC/NC
7.7.	Auto QoS for switch management traffic	C/PC/NC
7.8.	Three-color marker: Single/ Dual Rate — policing with commit BW, excess BW, burst size	C/PC/NC

8. Software Defined Networking (SDN) features

The switch must support the following:

8.1.	Programmable RESTful API	C/PC/NC
8.2.	Fully programmable OpenFlow 1.3.1 and 1.0 agent for control of native OpenFlow and hybrid ports	C/PC/NC

8.3.	OpenStack networking plug-in	C/PC/NC

9. ITU-T recommendation

The switch must support the following ::

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

10. Management features:

The switch must support the following

10.1.	Intuitive CLI in a scriptable BASH environment via console, Telnet, or Secure Shell (SSH) v2 over IPv4/IPv6	C/PC/NC
10.2.	WebView Graphical Web Interface via HTTP and HTTPS over IPv4/IPv6	C/PC/NC
10.3.	This feature allows for a USB-to-Ethernet interface for switches that lack an OOB management port. This interface is treated just like an OOB interface. All functions and CLIs related to an OOB management port are applicable to the USB-to-Ethernet dongle.	C/PC/NC
10.4.	This feature allows for applying an ACL on the EMP port of the switch. It enables policy-based routing on the EMP ports. The configuration is enabled using the empacl policy-list type.	C/PC/NC
10.5.	Working in a“thin client” mode. In this mode no configuration can be saved in the “Running” directory of the switch. A basic configuration with minimal network reachability configuration is stored on the switch running directory. The final configuration of a thin client is pushed by a Network Management System (NMS)	C/PC/NC
10.6.	Hitless upgrade of IP services	C/PC/NC

11. Certifications

The switch must support the following:

11.1.	The switch proposed must possess a Common Criteria certification, ensuring compliance with internationally recognized security standards.	C/PC/NC
11.2.	The switch proposed must hold a valid Federal Information Processing Standards (FIPS) certification, meeting the designated FIPS publication 140-2.	C/PC/NC

12. Video surveillance

The switch must support the following:

12.1.	The switch support plugins that enable remote troubleshooting for common camera issues directly from the video surveillance management system.	C/PC/NC