AGNIGATE

# AGNIGATE S6048-6X DATA SHEET

Next-Generation High Performance 48 Ports Access Switch, with 48*1G POE++ Base-T， 6*10G SFP+




## FEATURE HIGHLIGHTS

- 216 Gbps Switching Capacity
- 178 Mpps Wire-Speed Forwarding
- 48 × 1GE PoE++, 6x10G SFP+ Ports
- Dual Hot-Swappable 990W CRPS
- VXLAN & MLAG Ready

Built for high-performance access network deployments.

# AGNIGATE S6048-6X Access Switch

**Next-Generation High Performance 48 Ports Access Switch, with 48*1G POE++ Base-T, 6*10G SFP+,**

**Dual power supply modules, hot-swap fan modules.**




| 216 Gbps | 178 Mpps | 48*1GE PoE ++ | 2 x PSU |
|---|---|---|---|
| SWITCHING CAPACITY | WIRE-SPEED FORWARDING | QSFP28 UP/DOWN LINKS | 900W CRPS |

## Product Overview & System Architecture

The **AgniGate S6048-6X** is an enterprise-grade Layer 3 access switch engineered to deliver high-density connectivity, deterministic low latency, and wire-speed routing performance. Featuring 48 × 1GE downlink ports (supporting PoE/PoE++ and non-PoE options) paired with 6 × 10G SFP+ high-speed uplinks, it provides scalable, non-blocking bandwidth designed for modern enterprise campus, distribution, and ISP aggregation environments. Built on robust hardware optimized for minimal jitter, the S6048-6X seamlessly handles high-throughput voice, video, and mission-critical cloud traffic.

Powered by the carrier-grade **AGNIOS** unified operating system, the switch delivers comprehensive network resilience and advanced protocol capabilities. High-availability features—including Multi-Chassis Link Aggregation (MLAG) for active-active link redundancy, Dying Gasp alerting, and redundant power inputs with a 12V DC battery backup interface—ensure uninterrupted service continuity. Coupled with Precision Time Protocol (PTP/IEEE 1588) and advanced Layer 2/Layer 3 networking including IPv6, OSPF, BGP, VXLAN, and PIM, the AgniGate S6048-6X establishes a reliable, future-ready foundation for next-generation network architectures.

## Interface Density & Physical Port Specifications

| | |
|---|---|
| **Downlink Ethernet Ports** | 48 x 1GE (PoE/PoE ++/Non-PoE), 6 x 10G SFP+ transceiver ports access switch. Total PoE Power Budget 700W and Port support up to 90W. |
| **Management Console** | 1 × RJ45-to-RS232 connection for local out-of-band serial administrative access. |
| **Out-of-Band Management** | 1 × Dedicated 1G RJ45 Ethernet port isolated for secure out-of-band network management. |
| **Auxiliary Interface** | 1 × USB Type-A storage port for firmware upgrades and configuration backup. |

## Environmental, Power & Physical Characteristics

| System Parameter / Subsystem | Technical Specification |
|---|---|
| **Switching Capacity** | 216 Gbps |
| **Layer 2/3 Packet Throughput** | 178 MPPS |
| **RAM** | 2 GB |
| **eMMc** | 8 GB |
| **Packet Buffer Allocation** | 36 MB integrated on-chip system packet buffer |
| **Power Supply Architecture** | Hot-swappable 990W redundant power supplies. |
| **Cooling Subsystem** | 3 × Hot-swappable Fan Modules (Active Front-to-Back Airflow / AFO) |
| **Maximum Total Airflow Cooling** | 34.8 CFM |
| **Typical Power Consumption** | 60 Watts |
| **Physical Dimensions (W x H x D)** | Unpackaged: 44.0 × 4.4 × 38.5 cm |
| **Physical Dimensions (W x H x D)** | Packaged: 66.5 × 15.0 × 56.5 cm |
| **Switch Weight** | Net Weight: 7 kg \| Gross Weight (With Packaged Elements): 11 kg |
| **Environmental Operating Ranges** | Temperature: 0°C to 50°C \| Humidity: 10% to 95% RH (Non-condensing) |
| **Environmental Storage Ranges** | Temperature: -40°C to 70°C \| Humidity: 5% to 95% RH (Non-condensing) |
| **Maximum Operating Altitude** | 5,000 Meters (0 ~ 5 km) |
| **Mean Time Between Failures (MTBF)** | ≥ 1,00,000 Hours (~11.4 Years) with Swappable CRPS & Fans |
| **Thermal Monitoring** | Hardware Temperature Warning Sensor Alarm Threshold at 55°C |

## Key Series Architectural Highlights

### Carrier-Grade Power Redundancy & 12V Battery Input

Features dual redundant power supply options alongside a direct 12V DC battery backup interface, guaranteeing uninterrupted service uptime and resilient operation in volatile grid environments.

### High-Availability Multi-Chassis Link Aggregation (MLAG)

Establishes active-active redundant uplinks across dual control planes, eliminating single points of failure and delivering sub-second failover with device-grade resilience without spanning-tree bottlenecks.

### Intuitive Visual Stacking & Topology Telemetry

Provides real-time graphical visualization of stack topologies, member health, and physical rack locations to simplify fleet monitoring and accelerate hardware troubleshooting.

### Proactive Dying Gasp Telemetry

Instantly dispatches out-of-band alerts and SNMP traps via residual capacitor power upon sudden input power loss, allowing network administrators to distinguish instantly between line failures and local power outages.

### Precision Timing Protocol.

Implements PTP used to synchronize clock times across devices on a local or packet-based network with sub-microsecond or nanosecond-level accuracy.

### Comprehensive Enterprise L2/L3 & Overlay Routing

Combines full IPv4/IPv6 dual-stack routing protocols (OSPF, BGP, PIM) with hardware-accelerated VXLAN encapsulation to support scalable network virtualization, multi-tenant segmentation, and high-performance campus distribution.

## AGNIOS Comprehensive Software Feature Matrix

| Feature Type | Sub-Type | Protocol / Function | Operational Capability Description |
|---|---|---|---|
| **Ethernet basic features** | Ethernet | **Interface** | Ethernet interface operating modes (full duplex, half duplex, and auto-negotiation) |
| | | | Ethernet interface operating rates |
| | | | Jumbo Frame |
| | | | port-xconnect |
| | | **Flow-control** | Flow-control tx/rx |
| | | **storm-control** | Port based storm-control |
| | | | VLAN based storm-control |
| | | **Port-block** | Port-block(know/unknown unicast; know/unknown multicast/broadcast) |
| | | **Port-isolate** | L2/L3/All Port-isolate |
| | | | Uni-direction isolate |
| | | **L2 Protocol Tunnel** | L2 Protocol Tunnel(support CFM/DOT1X/SLOW-PROTO/STP |
| | | **Forward mode** | Store-and-forward |
| | VLAN | **VLAN Access mode** | Access/Trunk |
| | | | Default VLAN |
| | | **VLAN Classification** | VLAN Classification(port based/mac based/IP based/protocol based) |
| | | **QinQ** | Basic QinQ |
| | | | Selective QinQ |
| | | | VLAN Mapping(1:1 VLAN Translation) |
| | | **VLAN Statistics** | VLAN Statistics |
| | | **Private VLAN** | Private VLAN |
| | | **Voice VLAN** | Voice VLAN |
| | | **Guest VLAN** | Guest VLAN |
| | | **GVRP** | GVRP |
| | MAC | **MAC Address Table** | Automatic learning and aging of MAC addresses |
| | | | Hardware Learning |
| | | | Static and dynamic MAC address entries |
| | | | Blackhole MAC |
| | | **MAC Flapping detect** | MAC Flapping detect |
| | | **Port Bridge** | Port Bridge |
| | LAG | **Link aggregation** | Static-LAG & LACP |
| | | | LAG load balance(SLB) |
| | | | LAG load balance(RR) |
| | | | LAG Self-healing |
| | | | Link aggregation weighting |
| **Ethernet Ring protection features** | xSTP | **STP** | Spanning-Tree Protocol |
| | | **RSTP** | Rapid Spanning-Tree Protocol |
| | | **MSTP** | Multi-instance Spanning-Tree Protocol |
| | | **Spanning-Tree Protocol Protection** | BPDU Filter/Guard |
| | | | Root Guard |
| | xSTP | **Spanning-Tree Protocol Protection** | Loop Guard |
| | | | Anti TC-BPDU attack |
| | | | Single ERPS ring |
| | | | tangent ERPS rings |

| Feature Type | Sub-Type | Protocol / Function | Operational Capability Description |
|---|---|---|---|
| **Ethernet Ring protection features** | ERPS | **ERPS** | intersecting ERPS rings |
| | | | compatible with RRPP |
| | Loop back Detect | **Loop back Detect** | Loop back detection |
| **Layer2 Multicast** | Layer2 Multicast | **IGMP Snooping** | IGMPv1/v2/v3 Snooping |
| | | | Fast leave |
| | | | Static IGMP snooping group |
| | | **MVR** | MVR(Multicast VLAN Registration) |
| **IPv4 Forwarding** | ARP | **ARP** | Static and dynamic ARP entries |
| | | | Aging of ARP entries |
| | | | Gratuitous ARP |
| | | **ARP proxy** | basic ARP-Proxy |
| | | | local ARP-Proxy |
| | IPv4 Unicast Routing | **IPv4 Static Routes** | IPv4 Static Routes |
| | | | Black hole Routes |
| | | | co-work with IP SLA |
| | | | VRF(Virtual Routing and Forwarding) |
| | | | uRPF check |
| | | **RIP** | RIPv1/v2 |
| | | **OSPFv2** | OSPFv2 |
| | | **IS-IS** | IS-IS |
| | | **BGP** | IBGP |
| | | | EBGP |
| | | **Route policy** | Route-map |
| | | | IPv4 prefix-list |
| | | **PBR** | PBR(Policy-based Routing) |
| | | **ICMP** | ICMP redirect |
| | | | ICMP unreachable |
| | | **ECMP** | ECMP(SLB) |
| | | | ECMP(RR) |
| | | | ECMP Self-healing |
| | IPv4 Multicast Routing | **IGMP** | IGMPv1/v2/v3 |
| | | | IGMP-Proxy |
| | | | IGMP SSM Mapping |
| | | **PIM** | PIM-SM |
| | | | PIM-SSM |
| | | | PIM-DM |
| **IPv6 Forwarding** | IPv6 Basic Protocol | **ICMPv6** | ICMPv6 |
| | | **NDP** | NDP |
| | IPv6 Unicast Routing | **IPv6 Static Routes** | IPv6 Static Routes |
| | | **RIPng** | RIPng |
| | | **OSPFv3** | OSPFv3 |
| | | **IS-IS** | IS-IS |
| | | **BGP4+** | BGP4+ |
| | IPv6 Multicast Routing<br><br>IPv6 Multicast Routing | **MLD v1/v2** | MLD v1/v2 |
| | | **MLD v1/v2 Snooping** | MLD v1/v2 Snooping |
| | | **MVR6** | MVR6 |
| | | **PIM-SM v6** | PIM-SM v6 |
| **IPv6 Forwarding** | IP Tunnel | **IPv6 over IPv4 Tunnel** | IPv6 over IPv4 Tunnel |
| | | **6to4 Tunnel** | 6to4 Tunnel |
| | | **ISATAP Tunnel** | ISATAP Tunnel |

| Feature Type | Sub-Type | Protocol / Function | Operational Capability Description |
|---|---|---|---|
| | IPv6 Service | **DHCPv6** | DHCPv6 Server |
| | | | DHCPv6 Relay |
| | | | DHCPv6 Snooping |
| | | **IPv6 Prefix List** | IPv6 Prefix-list |
| **Device reliability features** | BFD | **BFD** | BFD for Static route |
| | | | BFD for OSPFv2 |
| | | | BFD for VRRP/Track |
| | | | BFD for PBR |
| | VRRP | **VRRP** | VRRP |
| | | | Track for VRRP |
| | Smart Link | **Smart Link** | multi-instance |
| | | | load balance |
| | | | Multi-Link |
| | | | Monitor-link |
| | MLAG | **MLAG** | MLAG basic |
| | | | MLAG orphan Port |
| | Stacking | **Stacking** | Maximum number of stacked devices: 8 Stack port: Any port or AGG |
| **ethernet OAM** | EFM | **EFM (802.3ah)** | Auto detection |
| | | | Network fault detection |
| | | | Network fault handle |
| | | | remote loop back |
| | CFM | **CFM (802.1ag)** | Hardware CCM detect |
| | | | MAC Ping |
| | | | MAC Trace |
| | Y.1731 | **Y.1731** | Loss measure(LM) |
| | | | Latency and Jitter measure(DM) |
| **PoE features** | PoE | **System Power management** | Power supply on-spot detection |
| | | | Power supply capability detection |
| | | | Power capability auto configuration (PSE) |
| | | **Power Supply Management** | Legacy PD detection |
| | | | PD max power management |
| | | | PD priority management |
| | | | Power Supply Task Plan management(Not ready) |
| | | | PD Mandatory power supply |
| | | **operations management** | PSE log |
| | | | PSE Chipset temperature inquire |
| | | | PSE firmware update |
| **QoS features** | QoS | **Traffic classification** | Traffic classification based on COS/DSCP (simple classification) |
| | | | Traffic classification based on ACL ( complex classification) |
| | | | Traffic classification based on inner header of the tunnel packets |
| | | **Traffic behaviors** | Queue scheduling |
| **QoS features** | QoS | **Traffic behaviors** | Remark the priority fields(COS/DSCP) of the packet based on ACL |
| | | | Remark the priority fields(COS/DSCP) of the packet based on Table Map |
| | | | Flow redirection |
| | | | Flow mirror |
| | | **Traffic policing** | Traffic policing based on direction(in/out) of Port |
| | | | Traffic policing based on direction(in/out) of VLAN |
| | | | Traffic policing based on direction(in/out) of flow |

| Feature Type | Sub-Type | Protocol / Function | Operational Capability Description |
|---|---|---|---|
| | | | Traffic policing based on direction(in/out) of aggregated flow |
| | | **Traffic shaping** | Queue based traffic shaping |
| | | | Port based traffic shaping |
| | | **Congestion management** | SP(Strict Priority)scheduling |
| | | | WDRR(Weighted Deficit Round Robin)scheduling |
| | | | SP + WDRR mixed scheduling |
| | | **Congestion avoidance** | TD(Tail Drop) |
| | | | WRED(Weighted Random Early Detection) |
| | | **Traffic statistics** | Packet counts and bytes statistics based on traffic classification |
| | | | Packet counts and bytes statistics based on the color after traffic policing |
| | | **Traffic statistics** | Forwarded and discarded packet counts and bytes statistics |
| | | **ECN (Explicit congestion** | ECN tags based on Tail Drop |
| | | | ECN tags based on WRED |
| **Data Center** | VARP | **Virtual gateway** | VARP(Virtual-ARP) |
| | | | VARP subnet |
| | Tunnel | **VxLAN** | Manual configure VxLAN tunnel |
| | | | VxLAN distributed gateway |
| | | | VxLAN active-active access |
| | | | Interconnect across Data Centers based on VxLAN |
| | | | Edit DSCP in VxLan outer header |
| | | | BGP EVPN |
| | | | Support to enable/disable overlay split horizon per-VNI |
| | | **GRE Tunnel** | GRE Tunnel |
| | | **NVGRE Tunnel** | NVGRE Tunnel |
| | | **GENEVE Tunnel** | GENEVE Tunnel |
| | DCB | **DCBX** | LLDP support DCBX TLV |
| | | **PFC** | PFC |
| **Metro Feature** | MPLS | **LDP** | LDP |
| | | **MPLS Forwarding** | MPLS Forwarding |
| | | **VPWS** | VPWS (L2VPN) |
| | | **VPLS** | VPLS (L2VPN) |
| | | **L3VPN** | L3VPN |
| | | **MPLS OAM** | MPLS OAM |
| | | **MPLS Stats** | MPLS Stats |
| | | **ACL** | ACL |
| | | **Qos** | Qos |
| **Security and management** | System Security | **SSH** | SSHv1/v2 |
| | | | RSA Key generation |
| | | **RADIUS** | RADIUS |
| | | **TACAS+** | TACAS+ |
| | | **AAA** | Authentication |
| | | | Authorization |
| | | | Accounting |
| | | **Dot1x** | Port based dot1x |
| | | | MAC based dot1x |
| | | | Guest VLAN |
| **Security and management** | | **ACL** | MAC/IP ACL |
| | | | Basic Mode ACL |
| | | | Port-group ACL |
| | | | VLAN-group ACL |

| Feature Type | Sub-Type | Protocol / Function | Operational Capability Description |
|---|---|---|---|
| | System Security | | IPv6 ACL |
| | | | ACL UDF |
| | | | Time Range |
| | | **ARP Inspection** | ARP Inspection |
| | | **IP Source Guard** | IP Source Guard |
| | | **Port Security** | Limitation on MAC address learning on interface |
| | | **VLAN Security** | Limitation on MAC address learning on VLAN |
| | | **Control Plane Policy (COPP)** | Black list/wihte list |
| | | | Rate limit |
| | | **CPU Traffic Limit** | CPU Traffic Limit |
| | | **Prevent DDOS attack** | Prevent DDOS attack (ICMP Flood/Smurf/Fraggle/LAND/SYN Flood) |
| | | **Login filter** | Telnet/SSH ACL filtering |
| | | | Telnet/SSH IPv6 ACL filtering |
| | | **MAC Security** | MacSec(802.1AE) |
| | | **Link-Flapping detection** | Link-Flapping detection |
| | Network Management | **DHCP** | DHCP Server |
| | | | DHCP Relay |
| | | | DHCP Snooping |
| | | | DHCP Client |
| | | | DHCP Option82 |
| | | | DHCP Option252 |
| | | **RMON** | RMON |
| | | **sFlow** | sFlow v4/v5 |
| | | **IP SLA** | IP SLA |
| | | **IPFIX** | IPFIX |
| | | **EFD** | Elephant Flow Detection |
| | | **NTP** | NTP(Network Time Protocol) |
| | | **PTP（IEEE 1588）** | TC（Support P2P/E2E、Ethernet/Udp Transport） |
| | | | BC/OC(Support OneStep/TwoStep、Request-response/Peer-delay Ethernet/Udp Transport) |
| | | **Err-disable** | Err-disable detection and recovery |
| | | **DNS** | Static DNS Client |
| | | **LLDP** | LLDP |
| | | **Dying-Gasp** | Support syslog/snmp-trap/eth-oam warning |
| | Terminal Services | **Command Line Interface** | Configurations through CLI (Command Line Interface) |
| | | **Help information** | Banner configuration |
| | | | Help information in English |
| | | **Terminal service** | Vty Terminal service |
| | | | Console Terminal service |
| | Terminal Services | **Management interface** | In-band management interface and configuration |
| | | | Out-band management interface and configuration |
| **Configuration and maintenance** | Configuration Management | **SNMP** | Network management based on SNMPv1/v2c/v3 |
| | | | Public and private MIB |
| | | | Public and private Trap |
| | | **WEB** | Configuration and management based on WEB UI |
| | | **AgniGate Centralized Network Management System Support** | Automatic device connection management |
| | | | Zero-configuration deployment |
| | | | Automatic network topology |
| | | | Network monitoring and alarm notification |
| | | | Configuration and one-click rollback |

| Feature Type | Sub-Type | Protocol / Function | Operational Capability Description |
|---|---|---|---|
| Configuration and maintenance | | | Cross-network tunneling connection to network device(web/ssh/telnet) |
| | | | Scheduled tasks deployment |
| | | **NETCONF** | Configuration and management based on NETCONF |
| | | **API** | Configuration and management based on-API |
| | | **Smart Config** | Smart Config(Automatically configuration when system start) |
| | | **system profile configuration** | change the system specifications by choose different STM Profiles |
| | | **Restore factory default configuration** | Restore factory default configuration |
| | File System | **File system** | File system(support directory and file management) |
| | | **Upload and download** | Upload and download files through FTP or TFTP |
| | | | Upload and download files through Xmodem |
| | Debugging And Maintenance | **Debug** | per-module Debug features |
| | | | ICMP Debug |
| | | **BHM** | Software process monitor: BHM(Beat Heart Monitor) |
| | | | Hardware Watch Dog |
| | | **Log & alarm** | CPU usage display and alarm |
| | | | Memory usage display and alarm |
| | | | Device temperature, PSU, FAN, status display and alarm |
| | | | User operation logs |
| | | | Management of logs, alarms, and debugging information |
| | | **VCT** | VCT(Virtual Cable Test) |
| | | **system diagnostics** | Detailed Diagnostic-information collection |
| | | **Reboot** | Manual reboot |
| | | | Schedule Reboot |
| | | | Reboot Information logging |
| | | **Network diagnostics** | Ping |
| | | | IPv6 Ping |
| | | | Trace route |
| | | **Mirror** | Port mirror |
| | | | Flow mirror |
| | | | Remote mirror |
| | | | Multi-destination mirror(m:n) |
| | | | Use CPU as mirror source |
| | | | Use CPU as mirror destination and analyze packet |
| | | | ERSPAN |
| | | **CPU statistics** | To CPU/From CPU packets statistics |
| | | **L2 Ping** | layer2 network connectivity detection - L2Ping (MAC Ping/Trace) |
| | | **UDLD** | UDLD(Unidirectional Link Detection) |
| | | **unidirectional** | unidirectional forwarding of the fiber |
| | | **Loop back** | port loop back |
| | | | hardware loop back(internal/external) |
| | | **System time** | Time configuration |
| | | | Timezone |
| | Software | **System software upgrate** | Update via TFTP |
| | upgrate | **Uboot upgrate** | Uboot upgrate |

## System Traffic Management (STM) Profile Matrix

The AGNIOS software architecture supports dynamic system profiling. Users can shift overall hardware resource limits by choosing different pre-compiled System Traffic Management (STM) Profiles to match specific network deployment scenarios.

| Category | Feature Block | Specific Metric | Default | Extended | IPv6 | Layer 3 | IPRAN |
|---|---|---|---|---|---|---|---|
| **Ethernet Basic** | **Jumbo Frame** | Max Jumbo Frame Size (Bytes) | 9,600 | 9,600 | 9,600 | 9,600 | 9,600 |
| | **MAC Address** | MAC Address Table Capacity | 73,728 | 16,000 | 61,440 | 32,000 | 73,728 |
| | | MAC Learning Rate (SW) | >4000pps | — | — | — | — |
| | | MAC Learning Rate (HW) | >10Gbps | — | — | — | — |
| | **VLAN** | VLAN IDs Range Limits | 4,094 | — | — | — | — |
| | | Active VLAN Instances | 4,094 | — | — | — | — |
| | | VLANs to Enable Statistics | 256 | — | — | — | — |
| | **VLAN Mapping** | Max Mapping Table Capacity | 64 | — | — | — | — |
| | | Max Rules Number | 1,024 | — | — | — | — |
| | **EVC Fabric** | Maximum EVC Number | 4,094 | — | — | — | — |
| | **Link Aggregation** | Ports per Aggregation Group | No Limit | — | — | — | — |
| | | Maximum Group Number (LAG) | 64 | — | — | — | — |
| | | Convergence Time Metric | < 50ms | — | — | — | — |
| | **VLAN Sorting** | Maximum Sorting Rule Space | 4,096 | — | — | — | — |
| | | Maximum Group Number Limit | 1 | — | — | — | — |
| | | Base MAC Template Capacity | 512 | — | — | — | — |
| | | Base IPv4 Template Capacity | 448 | — | — | — | — |
| | | Base IPv6 Template Capacity | 32 | — | — | — | — |
| | | Base Protocol Layer Capacity | 7 | — | — | — | — |
| **Ring Protection** | **Spanning Tree** | STP Convergence Recovery | < 30s | — | — | — | — |
| | | RSTP Convergence Recovery | < 1s | — | — | — | — |
| | | MSTP Active Instance Limits | 64 | — | — | — | — |
| | | MSTP Convergence Recovery | < 1s | — | — | — | — |
| | **Carrier Rings** | ERPS Ring Domain Number | 16 | — | — | — | — |
| | | Protection Instances per Ring | 64 | — | — | — | — |
| | | ERPS Switchover Delay Time | < 50ms | — | — | — | — |
| | **G.8031 Protocol** | Linear Protection Group Scale | 256 | — | — | — | — |
| | | Linear Switchover Delay Time | < 50ms | — | — | — | — |
| | **G.8032 Protocol** | Global Logical Ring Instances | 256 | — | — | — | — |
| | | Maximum Member Ports/Ring | 256 | — | — | — | — |
| | | Multi-Ring Switchover Time | < 50ms | — | — | — | — |
| **Ethernet OAM** | **CFM (802.1ag)** | Maximum Active Session Scale | 1024 | — | — | — | — |
| | | Maintenance Domain Tiers | 8 | — | — | — | — |
| **Ethernet OAM** | **CFM (802.1ag)** | Pulse CCM Minimum Interval | 3.3ms | — | — | — | — |
| | | Maximum Down MEP Capacity | 1,024 | — | — | — | — |
| | | Maximum Up MEP Capacity | 1,024 | — | — | — | — |
| | | Maximum LMEP Capacity Table | 1,024 | — | — | — | — |
| **IPv4 Unicast** | **ARP Table** | Address Resolution Table Size | 10,240 | 6,144 | 10,240 | 12,280 | 10,240 |

| Category | Feature Block | Specific Metric | Default | Extended | IPv6 | Layer 3 | IPRAN |
|---|---|---|---|---|---|---|---|
| IPv4 Unicast | FIB Routing | Hardware Forwarding Routes | 16,384 | 6,144 | 12,288 | 32,768 | 16,384 |
| | Multi-Path | ECMP Group Scale Boundaries | 240 Shared | — | — | — | — |
| | PBR Logic | Policy Route Map Definitions | 64 | — | — | — | — |
| | | Policy Based Routing ACEs | 256 | — | — | — | — |
| | OSPFv2 | Max Static Peers / Neighbors | 256 | — | — | — | — |
| | | Area Summary Routes Max | 2,000 | — | — | — | — |
| IPv4 Multicast | IPv4 Routing | Routes Max | 196,000 | — | — | — | — |
| | Interfaces | Downstream Routed Interfaces | 8,192 | 4,096 | 4,096 | 5,120 | 4,096 |
| | IGMP Snooping | L2 Tracking Groups Capacity | 4,096 | — | — | — | — |
| | MVR Framework | MVR Logic Groups Capacity | 2,048 | 2,048 | Shared V6 | 1024 | 2,048 |
| | MVR Framework | MVR Subscriber Link Tracking | 4,096 | — | — | — | — |
| IPv6 Unicast | Host Routing | NDP Neighbor Capacity Scale | 4,096 | 2,048 | 4,096 | 0 | 2,048 |
| | FIBv6 Routing | Hardware Forwarding Routes | 4,096 | 1,024 | 6,144 | 0 | 1,024 |
| | Multi-Path | ECMP Group Scale Boundaries | 240 Shared | — | — | — | — |
| IPv6 Multicast | IPv6 Routing | Routes Max | 128,000 | — | — | — | — |
| | Interfaces | Active Routed Interfaces Max | 4,096 | 2,048 | 2,048 | 5,120 | 2,048 |
| | MVRv6 Fabric | MVRv6 Index Entry Limit | 256 | 2,048 | Shared V4 | 512 | 0 |
| | MVRv6 Fabric | Egress Subscriber Allocation | 512 | 4,096 | 1,024 | 0 | 0 |
| IP Tunnelling | Encapsulation | Tunnel Peer Termination Max | 8 | — | — | — | — |
| QoS Traffic Guard | Queuing | Hardware Queues per Interface | Unicast:10 | — | — | — | — |
| | Burst Buffers | Chassis Burst Buffer Size | 4.5MB | 9.0MB | 4.5MB | 4.5MB | 4.5MB |
| | Hardware Flows | Ingress IPv4 QoS Flow Lines | 1,532 | — | — | — | — |
| | Hardware Flows | Ingress Flow Telemetry Logs | 511 | — | — | — | — |
| Access Control | IPv4 Security | Ingress Port IPv4 ACL Space | 1,488 | — | — | — | — |
| | | Egress Port IPv4 ACL Space | 464 | — | — | — | — |
| | IPv6 Security | Ingress Port IPv6 ACL Space | 744 | — | — | — | — |
| | | Egress Port IPv6 ACL Space | 232 | — | — | — | — |
| | Flow Telemetry | Ingress ACL Stats Counters | 1,022 | — | — | — | — |
| | | Egress ACL Stats Counters | 511 | — | — | — | — |
| Supervisor Guard | CoPP Security | CoPP Filtering Hardware Rules | 249 | — | — | — | — |
| | | CoPP Execution Tracking Logs | 249 | — | — | — | — |
| | Custom Fields | UDF Parsing Rule Boundaries | 256 | — | — | — | — |
| | | UDF Metric Counter Logs | 128 | — | — | — | — |
| | Source Guard | IPSG IPv4 Validation Mappings | 768 | — | — | — | — |
| Supervisor Guard | Source Guard | IPSG IPv6 Validation Mappings | 128 | — | — | — | — |
| | Auth Engine | NAC Physical Entry Inventory | 512 | 256 | 256 | 256 | 256 |
| | DHCP Snooping | Trusted Address State Entries | 8,192 | — | — | — | — |
| System Reliability | Traffic Flows | IPFIX Stream Cache Size | 8,192 | — | — | — | — |
| | Fault Engine | BFD/S-BFD Active Sessions | Shared 128 | — | — | — | — |
| | Redundancy | VRRP Cluster Group Limit Max | 63 | — | — | — | — |
| | Smart Link | Smart Link Protection Groups | 16 | — | — | — | — |
| | | Logical Track Maps per Block | 64 | — | — | — | — |
| | | Path Switchover Velocity | < 50ms | — | — | — | — |
| | Monitor Link | Monitor Link Tracking Modules | 16 | — | — | — | — |
| | | Tracked Uplinks per Module Max | 16 | — | — | — | — |

## Package Accessories & Ordering Codes

### Included Standard Hardware Accessories

| Accessory Component | Quantity | Functional Description |
|---|---|---|
| **Console Cable** | **1 PCS** | RJ-45 to DB-9/RS-232 serial management connection cable |
| **Power Cords** | **2 PCS** | Regional AC power cords for dual redundant hot-swappable power supplies |
| **Rack Mount Brackets (Front)** | **2 PCS** | 19-inch standard EIA front equipment rack mounting brackets |
| **Rack Mount Brackets (Rear)** | **2 PCS** | Rear chassis stabilization and slider support brackets |
| **Bracket Screws** | **10 PCS** | Phillips head machine mounting screws for chassis bracket installation |
| **Grounding Cable** | **1 PCS** | Frame grounding wire with terminal lug for electrical safety |

### System Ordering Codes & Licenses

| Order Code / Model | Configuration & Software License Details |
|---|---|
| **S6048_6X** | 48 Ports Optical L3 Managed Access Switch: 48 × 1GE (supporting PoE/PoE++ and non-PoE options) and 6 x 10 SFP+, 2 × 990W CRPS Hot-Swappable PSUs, 3 × Fan Modules Hot-Swappable. |
| **AGNIOS-L3-BASE** | Software Pre-installed: AGNIGATE Operating System - Full Layer 3 software license (OSPF, BGP, VRF, MLAG, Stacking, EVPN-VxLAN). |
| **AGNIOS-MPLS-LIC** | Software License (Add-on License): AGNIOS - MPLS features software license key (LDP, VPWS, VPLS, L3VPN, Carrier OAM). |

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