

PRODUCT DATASHEET

ATHENA SERIES

3624C | 3648C Layer 3 Managed 10G Aggregation Switch

24 / 48 × 10G SFP+ downlinks • 6 × 100G QSFP28 uplinks

2.16 Tbps

Switching capacity

600 Mpps

Forwarding rate

< 50 ms

G.8032 ERPS ring recovery

PRODUCT OVERVIEW

The SignalIX ATHENA 3624C and 3648C are high-performance Layer 3 10 Gigabit Ethernet aggregation switches engineered for carrier and enterprise networks, regional data centres, and high-density edge deployments. With 24 or 48 line-rate 10G SFP+ ports and six 100G QSFP28 uplinks, the ATHENA series delivers non-oversubscribed switching for traditional three-tier aggregation, top-of-rack, and folded-Clos fabrics.

The platform pairs robust hardware — dual hot-swappable CRPS power modules, redundant fans, and an extended -5 °C to 50 °C operating range — with a feature-rich software stack: ITU-T G.8032 ERPS sub-50 ms ring protection, full IPv4/IPv6 dual-stack, advanced multicast control, MPLS-class OAM (Y.1731, 802.1ag, 802.3ah), and comprehensive security including 802.1X, RADIUS/TACACS+ AAA, DHCP snooping, dynamic ARP inspection, and IP source guard.

Operators can unlock the full advanced routing suite — OSPFv2/v3, BGP4+, VRRP, PIM-SM/SSM, IGMPv2/v3, PBR, UDP Helper, loopback and null interfaces — via the optional LIC-ATHENA-L3 software license, scaling the same hardware from a pure aggregation role into a full distribution / edge-routing device.

PRODUCT HIGHLIGHTS

- ◆ Operating range -5 °C to 50 °C
- ◆ Dual hot-swap CRPS PSUs (AC / DC)
- ◆ 32 K MAC address table
- ◆ 6 MB shared packet buffer
- ◆ 24 / 48 × 10G SFP+ + 6 × 100G QSFP28
- ◆ Up to 2.16 Tbps switching capacity
- ◆ 600 Mpps forwarding rate
- ◆ Multi-management: CLI / Web / SNMP
- ◆ 3-year hardware warranty

KEY BENEFITS

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|---|--|
| <ul style="list-style-type: none"> ✓ Best price-per-port 10 GbE aggregation with native 100 G uplinks ✓ Downlink SFP+ ports interoperate with 1G, 2.5G and 10G optics ✓ ITU-T G.8032 ERPS — ring protection in under 50 ms ✓ Field-proven feature set for ISP, MSO and IPTV deployments | <ul style="list-style-type: none"> ✓ Hardened IPv6 stack with comprehensive multicast support ✓ Unified management: CLI, SNMPv3, Web UI, OpenLAN ✓ Complete private MIB for integration with customer EMS / NMS ✓ Zero-touch provisioning for large-scale rollouts |
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ADVANCED L3 ROUTING (LICENSED) part number LIC-ATHENA-L3

OSPFv2 / OSPFv3 • BGP4+ • VRRP • IGMPv2 / IGMPv3 • PIM-SM / PIM-SSM • PBR • UDP Helper • RIPv2 • Loopback & Null Interfaces

INTERFACES & PHYSICAL DESCRIPTION

FRONT PANEL

The ATHENA front panel groups all data-plane ports on the right and management interfaces on the left for fast, error-free cabling in dense rack environments. Status LEDs for system, master, stack, fans and power are positioned along the base of the panel for at-a-glance health monitoring.

REF	DESCRIPTION	REF	DESCRIPTION
1	RJ-45 console port	5	RJ-45 out-of-band management port
2	24 × 10G SFP+ ports (ATHENA 3624C-30X) / 48 × 10G SFP+ ports (ATHENA 3648C-54X)	6	3+1 redundant cooling fans (rear-side)
3	6 × 100G QSFP28 uplink ports (40G compatible)	7	Power supply unit 1 (AC or DC, hot-swap)
4	USB Type-A management port	8	Power supply unit 2 (AC or DC, hot-swap)

FORM FACTOR	POWER	COOLING
1 RU Rack-Mount	Dual CRPS	3 + 1 Smart Fans
44.2 × 42 × 4.36 cm	AC 100–240 V / DC -36 to -72 V	Front-to-back airflow

SUPPORTED INTERFACE TYPES

100G QSFP28 / 40G QSFP+ Uplink

- ◆ 100GBASE-SR4 / LR4 / CWDM4
- ◆ 100G AOC (1–100 m active optical cable)
- ◆ 100G to 4 × 25G AOC breakout cable
- ◆ 40GBASE-SR4 / LR4
- ◆ 40G DAC / AOC
- ◆ 40G to 4 × 10G AOC breakout cable

10G SFP+ Downlink

- ◆ IEEE 802.3ae compliant 10GBASE-SR / LR / ER / ZR
- ◆ 10GBASE-T (RJ-45 copper, up to 100 m)
- ◆ 10G DAC (1 / 3 / 5 m direct attach copper)
- ◆ 10G AOC (3 / 5 / 7 / 10 m active optical)
- ◆ IEEE 802.3z 1000BASE-SX / LX / EX / ZX
- ◆ 2.5GBASE-LX / EX (multi-rate operation)

TYPICAL APPLICATIONS

ISP / Carrier Aggregation Multi-tenant 10G subscriber aggregation with 100G uplinks to the core; ERPS rings for metro-edge resilience.	Enterprise Distribution Distribution-layer switching for medium and large campuses with full OSPF / BGP routing on a single platform.	Data-Centre Top-of-Rack Non-blocking 1 RU ToR with line-rate 10G server-facing ports and dedicated 100G uplinks to the spine.	Mission-Critical Networks Railway, utility and surveillance networks where -5 °C to 50 °C operation, dual PSUs and Y.1731 OAM matter.
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HARDWARE SPECIFICATIONS

Comprehensive hardware specifications for both ATHENA 3624C-30X (24-port) and ATHENA 3648C-54X (48-port) variants. Both models share an identical 1 RU chassis, common power supplies, and a fully interchangeable spares list — simplifying inventory and field-replacement procedures.

CATEGORY	ATTRIBUTE	ATHENA 3624C-30X	ATHENA 3648C-54X
PORTS	10G SFP+ ports (1G / 2.5G / 10G multi-rate)	24	48
	100G / 40G QSFP28 uplink ports	6	6
	Console (RJ-45) / OOB management (RJ-45) / USB Type-A	1 / 1 / 1	1 / 1 / 1
PERFORMANCE	Switching capacity (full-duplex)	1.68 Tbps	2.16 Tbps
	Forwarding rate	600 Mpps	600 Mpps
	Flash memory (eMMC) / System DRAM	8 GB / 4 GB	8 GB / 4 GB
	Shared packet buffer / MAC address table	6 MB / 32 K	6 MB / 32 K
	Jumbo frame size / Auto-negotiation / MDI-MDIX	10 KB / Yes / Yes	10 KB / Yes / Yes
	Fiber port surge protection	Yes	Yes
	MTBF (at 25 °C, Telcordia SR-332)	> 500,000 hrs	> 500,000 hrs
MECHANICAL	Dimensions (W × D × H) / Form factor	44.2 × 42 × 4.36 cm / 1 RU	44.2 × 42 × 4.36 cm / 1 RU
	Net weight	3.85 kg (8.49 lb)	4.70 kg (10.36 lb)
	Heat dissipation	680 BTU/hr	782 BTU/hr
	Acoustic noise (at 25 °C)	< 30 dB(A)	< 50 dB(A)
POWER	AC PSU input range	100–240 VAC, 50/60 Hz	100–240 VAC, 50/60 Hz
	DC PSU input range	-36 to -72 VDC	-36 to -72 VDC
	PSU redundancy	1+1 hot-swap CRPS	1+1 hot-swap CRPS
	Max system power consumption	200 W	230 W
ENVIRONMENT	Operating temperature / humidity (NC)	-5 °C to 50 °C / 5%–95%	-5 °C to 50 °C / 5%–95%
	Storage temperature / humidity (NC)	-40 °C to 70 °C / 5%–95%	-40 °C to 70 °C / 5%–95%
COMPLIANCE	EMC: FCC Class A / CE / CISPR Class A / BSMI	Yes	Yes
	Safety: UL 62368-1, IEC 62368-1 (CB), BSMI CNS 15598-1	Yes	Yes
	Environmental: RoHS / WEEE	Yes	Yes
MANAGEMENT	Hardware warranty (extended options available)	Supported	Supported
		3 years	3 years

LAYER 2 FEATURES

The ATHENA series implements a complete carrier-class Layer 2 feature set engineered for high-density aggregation, ring-based metro networks, and multi-tenant service delivery.

Spanning Tree

- ◆ IEEE 802.1D Spanning Tree Protocol (STP)
- ◆ IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)
- ◆ IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) — 64 instances
- ◆ BPDU Guard, BPDU Filtering, BPDU Transparent
- ◆ Root Guard and loopback detection

VLAN

- ◆ IEEE 802.1Q VLAN — up to 4 K active VLANs
- ◆ Port-based, MAC-based, IP subnet-based, IEEE 802.1v protocol-based VLAN
- ◆ GVRP dynamic VLAN registration
- ◆ Voice VLAN with auto-detection
- ◆ Traffic segmentation and private VLAN edge

Ring Protection

- ◆ ITU-T G.8032 v1 / v2 Ethernet Ring Protection (ERPS)
- ◆ Multiple-ring and sub-ring topologies
- ◆ Revertive and non-revertive operation modes
- ◆ Sub-50 ms convergence on link failure

Link Aggregation

- ◆ IEEE 802.3ad LACP and static link aggregation
- ◆ Up to 28 trunk groups, 8 GE / 4 × 10 G ports per group
- ◆ Load-balancing hash modes: SA, DA, SA+DA, SIP, DIP, SIP+DIP
- ◆ Multi-chassis link aggregation (MLAG)

L2 Tunnelling & QinQ

- ◆ IEEE 802.1ad Q-in-Q service tagging
- ◆ Selective Q-in-Q with per-CVID classification
- ◆ L2 protocol tunnelling: xSTP, CDP, VTP, PVST+, LLDP
- ◆ CDP / PVST+ filtering for cross-vendor interoperability

Flow Control & Buffering

- ◆ IEEE 802.3x full-duplex flow control
- ◆ Broadcast, multicast and unknown-unicast storm control
- ◆ Per-port and per-VLAN rate-limiting (granularity from 64 Kbps)
- ◆ Jumbo frame support up to 10 KB

IGMP Snooping

- ◆ IGMPv1 / v2 / v3 snooping with snooping authentication
- ◆ IGMP filtering, immediate-leave, proxy reporting
- ◆ Configurable IGMP querier and throttling
- ◆ MVR (Multicast VLAN Registration) — up to 5 multicast VLANs

Port Mirroring

- ◆ Local port mirroring with VLAN, MAC and ACL-based filters
- ◆ Remote SPAN (RSPAN) across the L2 domain
- ◆ Multiple-source to single-destination aggregation

Green Ethernet

- ◆ IEEE 802.3az Energy-Efficient Ethernet (EEE) on all 10G ports
- ◆ Smart fan control with thermal-based RPM regulation

LAYER 3 ROUTING & IPv6 FEATURES

The ATHENA series ships with a comprehensive Base L3 routing stack covering static routes, RIP and IPv4 / IPv6 unicast forwarding. The optional LIC-ATHENA-L3 software license unlocks the complete advanced routing suite — OSPF, BGP4+, VRRP, PIM, PBR and more — converting the platform from a pure aggregation switch into a full distribution / edge-routing device on the same hardware.

Base L3 (IPv4)

- ◆ Classless Inter-Domain Routing (CIDR)
- ◆ Static routes — up to 1 K entries
- ◆ RIPv1 and RIPv2 unicast routing
- ◆ DHCP relay and DHCP option 82
- ◆ IPv4 multi-netting (multiple IPs per interface)
- ◆ Equal-cost multi-path (ECMP) load balancing

Base L3 (IPv6)

- ◆ IPv6 unicast routing with static routes — up to 1 K entries
- ◆ DHCPv6 client and DHCPv6 relay
- ◆ IPv4 / IPv6 dual protocol stack
- ◆ IPv6 neighbor discovery, address resolution, DAD and unreachable-neighbor detection
- ◆ Stateless address auto-configuration (SLAAC)

Advanced L3 Routing (requires LIC-ATHENA-L3)

- ◆ OSPFv2 and OSPFv3 — multi-area, NSSA, virtual links
- ◆ BGP4 and BGP4+ (MP-BGP for IPv6) with route reflection and confederation
- ◆ RIPv2 (RIPv2 for IPv6)
- ◆ VRRP — gateway redundancy with sub-second failover
- ◆ IGMPv2 / IGMPv3 with multicast routing protocol integration
- ◆ PIM Sparse Mode (PIM-SM) and Source-Specific Multicast (PIM-SSM)
- ◆ Policy-Based Routing (PBR) with ACL-based next-hop selection
- ◆ UDP Helper for broadcast forwarding (DHCP, NetBIOS, etc.)
- ◆ Loopback and null interfaces for routing-protocol stability

IPv6 Features

- ◆ DHCPv6 snooping and IPv6 source guard
- ◆ MLD snooping v1 / v2
- ◆ MVR for IPv6 (MVR6)
- ◆ IPv6 Telnet, SSH, TFTP, syslog and SNMP transport
- ◆ HTTP and HTTPS over IPv6
- ◆ IPv6 sFlow for traffic accounting
- ◆ Remote IPv6 ping and traceroute

SECURITY, QoS & OPERATIONS

Defence-in-depth security, eight-queue hardware QoS, and a complete OAM toolkit covering EFM, CFM and Y.1731 ensure the ATHENA platform meets stringent service-level agreements in both enterprise and service-provider deployments.

Authentication & AAA

- ◆ IEEE 802.1X port-based and MAC-based authentication
- ◆ IEEE 802.1X supplicant mode
- ◆ RADIUS authentication and accounting
- ◆ TACACS+ authentication, authorisation and accounting
- ◆ Local user database with role-based access
- ◆ MAC authentication and web-portal authentication

L2/L3/L4 Access Control

- ◆ Standard IP ACL (source IP filtering)
- ◆ Extended IP ACL (5-tuple — src/dst IP, protocol, TCP/UDP ports)
- ◆ MAC ACL (src/dst MAC, EtherType, priority and VLAN ID)
- ◆ IPv6 ACL with full address and traffic-class matching
- ◆ Time-based ACL activation

Switch & Network Hardening

- ◆ DHCP snooping with DHCP Option 82 / 82-Relay
- ◆ Dynamic ARP inspection (DAI) and IP source guard
- ◆ Guest VLAN, dynamic VLAN assignment, Auto-QoS
- ◆ Port security with MAC-address limiting
- ◆ Denial-of-Service (DoS) attack protection
- ◆ PPPoE Intermediate Agent (PPPoE IA)
- ◆ Login security, SSHv2, HTTPS / SSL, SNMPv3
- ◆ Management interface access filtering (SNMP / Web / Telnet)

Quality of Service (QoS)

- ◆ 8 hardware priority queues per port
- ◆ Ingress policy map: police rate, remark CoS
- ◆ Egress policy map: police rate, remark CoS / DSCP
- ◆ Traffic classification by DSCP, IEEE 802.1p CoS, IP precedence, IP / MAC ACL
- ◆ Strict-priority, weighted round-robin (WRR) and strict + WRR scheduling
- ◆ Rate limiting at 64 Kbps granularity (1G / 10G / 100G)
- ◆ Auto Traffic Control for storm-affected ports

OAM & Performance Monitoring

- ◆ IEEE 802.3ah Ethernet First-Mile (EFM) OAM
- ◆ IEEE 802.1ag Connectivity Fault Management — cross-check, link trace, loopback
- ◆ ITU-T Y.1731 ETH OAM with delay, jitter and frame-loss performance monitoring

MANAGEMENT & SOFTWARE

Unified, multi-channel management with full automation hooks for large-scale, multi-site rollouts. The ATHENA platform integrates cleanly with existing OSS / BSS workflows through a complete private SNMP MIB, syslog, sFlow telemetry and zero-touch provisioning.

Management Access

- ◆ Industry-standard CLI via console (RJ-45) or Telnet / SSH
- ◆ Full-featured Web UI (HTTP / HTTPS) with IPv6 support
- ◆ SNMPv1 / v2c / v3 with complete private MIB for EMS integration
- ◆ Out-of-band management via dedicated RJ-45 port
- ◆ USB Type-A port for offline configuration and firmware

Provisioning & Lifecycle

- ◆ Zero-Touch Provisioning (ZTP) via DHCP Options 66 / 67
- ◆ DHCP client for management IP assignment
- ◆ Firmware upgrade via TFTP / HTTP / FTP / SFTP / SCP
- ◆ Multiple configuration files with versioning
- ◆ Configuration upload / download via TFTP / HTTP / FTP / SFTP / SCP
- ◆ IP Clustering for unified management of multiple devices

Telemetry & Logging

- ◆ sFlow v4 / v5 with IPv6 sample export
- ◆ RMON groups 1, 2, 3 and 9
- ◆ Syslog to local flash and remote (RFC 3164)
- ◆ SMTP e-mail notification on threshold events
- ◆ SNTP time synchronisation
- ◆ LLDP (IEEE 802.1ab) and LLDP-MED for topology discovery
- ◆ mDNS service discovery

ORDERING INFORMATION

Use the part-number reference below to construct an order. License keys (LIC-ATHENA-L3) and optics are ordered separately and can be added to a system at any point in its life cycle — no hardware swap required.

PART NUMBER	DESCRIPTION
SIGNALX SWITCHING PLATFORM	
ATHENA 3624C-30X	L3 managed switch, 24 × 10G SFP+ + 6 × 100G QSFP28, dual AC PSU
ATHENA 3624C-30X-DC	L3 managed switch, 24 × 10G SFP+ + 6 × 100G QSFP28, dual DC PSU
ATHENA 3648C-54X	L3 managed switch, 48 × 10G SFP+ + 6 × 100G QSFP28, dual AC PSU
ATHENA 3648C-54X-DC	L3 managed switch, 48 × 10G SFP+ + 6 × 100G QSFP28, dual DC PSU
LICENSE OPTIONS	
LIC-ATHENA-L3	Advanced L3 routing license — OSPFv2/v3, BGP4+, VRRP, IGMPv2/v3, PIM-SM/SSM, PBR, UDP Helper, RIPvng, Loopback / Null interfaces
OPTICAL TRANSCEIVERS	
SX-1G-SX	1 Gbps SFP, 850 nm MMF, 550 m, DDM
SX-1G-LX	1 Gbps SFP, 1310 nm SMF, 10 km, DDM
SX-1G-EX	1 Gbps SFP, 1310 nm SMF, 40 km, DDM
SX-1G-ZX	1 Gbps SFP, 1550 nm SMF, 80 km, DDM
SX-1G-T	1 Gbps SFP RJ-45 copper, 100 m
SX-2.5G-LX	2.5 Gbps SFP, 1310 nm SMF, 10 km, DDM
SX-2.5G-EX	2.5 Gbps SFP, 1310 nm SMF, 40 km, DDM
SX-10G-SR	10 Gbps SFP+, 850 nm MMF, 300 m, DDM
SX-10G-LR	10 Gbps SFP+, 1310 nm SMF, 10 km, DDM
SX-10G-ER	10 Gbps SFP+, 1550 nm SMF, 40 km, DDM
SX-10G-T	10 Gbps SFP+ RJ-45 copper, 100 m
SX-10G-DAC-{1,3,5}M	10 Gbps SFP+ Direct Attach Copper cable, 1 / 3 / 5 m
SX-10G-AOC-{3,5,7,10}M	10 Gbps SFP+ Active Optical Cable, 3 / 5 / 7 / 10 m
SX-40G-SR4	40 Gbps QSFP+, MMF MPO, 100/150 m on OM3/OM4
SX-40G-LR4	40 Gbps QSFP+, SMF LC, 10 km
SX-40G-AOC-xM	40 Gbps QSFP+ AOC cable, lengths 3 to 100 m
SX-40G-4x10G-AOC-xM	40 Gbps QSFP+ to 4 × 10G SFP+ AOC breakout, 1 to 100 m
SX-40G-DAC-{1,3,5}M	40 Gbps QSFP+ DAC cable, 1 / 3 / 5 m
SX-100G-SR4	100 Gbps QSFP28, MMF MPO, 100 m on OM4
SX-100G-LR4	100 Gbps QSFP28, SMF LC, 10 km
SX-100G-CWDM4	100 Gbps QSFP28 CWDM4, 1310 nm SMF, 2 km
SX-100G-AOC-xM	100 Gbps QSFP28 AOC cable, lengths 1 to 100 m
SX-100G-4x25G-AOC-xM	100 Gbps QSFP28 to 4 × 25G SFP28 AOC breakout, 1 to 30 m
SPARES & FIELD-REPLACEABLE UNITS	
ATHENA-PSU-AC	Spare hot-swap AC CRPS module (100–240 VAC)
ATHENA-PSU-DC	Spare hot-swap DC CRPS module (-36 to -72 VDC)
ATHENA-FAN	Spare hot-swap cooling fan module (front-to-back airflow)
ATHENA-RKMNT	19-inch rack-mount bracket kit

WARRANTY, SUPPORT & CONTACT

WARRANTY

Every SignallX ATHENA switch is covered by a comprehensive three-year limited hardware warranty against defects in materials and workmanship. Extended warranty coverage, advance hardware replacement (AHR) and on-site service contracts are available across India through the SignallX channel partner network. Please contact your authorised SignallX representative for full warranty terms applicable to your region.

TECHNICAL SUPPORT

SignallX provides 8x5 telephone and e-mail support as standard, with optional 24x7 critical-incident coverage available under premium support contracts. Customers also receive access to firmware updates, configuration guidance, and detailed deployment templates for common ISP, MSO, enterprise campus and railway / metro surveillance topologies.

ABOUT SIGNALLX

SignallX delivers carrier-grade networking platforms engineered for the demands of Indian and global service-provider, enterprise and critical-infrastructure markets. Our portfolio spans Layer 2 / Layer 3 aggregation switching, data-centre top-of-rack, PON / GPON access, and managed Wi-Fi — all backed by responsive in-country support, robust supply chain, and a partner ecosystem committed to long-term project success.

signalIX

D13 INFOTECH LLP

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