

ADTRAN

## 8312-32

100G Aggregation Switch  
SDX Series

## Benefits

- Deliver SLA-based enterprise services via comprehensive MEF support
- Offer broadband video from multiple video content providers and deployment models
- Supports stringent backhaul services features including low latency/jitter and network timing sync.
- Accelerates differentiated service creation via open, multi-vendor, SDN programmability
- Supports the uncertain demand of emerging differentiated services through data centre switching architectures.
- Improves customer experience via strong traffic management and QoS feature set
- Avoids vendor-specific component lock-in via open interfaces and APIs

## Overview

The ADTRAN SDX 8200 and 8300 Series access and aggregation switches apply open, programmable SDN models and data centre scaling principles. These differentiated attributes allow our next-generation services access solution to achieve the massive scalability required to support the uncertain demand of emerging, differentiated broadband services and to support the consolidation of SLA-based enterprise and backhaul services.

### High-Performance, Meshed Switching

ADTRAN access and aggregation switches support switching capacity up to 3.2Tbps and offer 10G SFP+, 40G QSFP+, and 100G QSFP28 interface configurations. This allows these highly flexible solutions to be deployed as either a Spine, Top of Rack/Leaf switch or Middle of Row Leaf switch to interconnect computing and storage functions; as well as aggregate Fibre-to-the Premises and Carrier Ethernet access and aggregation components.

### Traffic Management and Service Assurance

To ensure high customer Quality of Experience these switches use efficient meshed network protocols like Layer 3 BGP with ECMP, segment routing, and multi-chassis LAG load sharing, providing strong performance guarantees when scaling the system. The switches also support VxLANs for virtualised data centre environments, allowing faster scale while logically isolating tenant apps and physical compute resources. The switches also feature hot-swappable power supplies and fans, and redundant AC or DC power supplies ensuring non-stop, continuous operations for critical service provider and enterprise data centre environments.

### Multi-market, Multi-service Consolidation

These switches are an integral part of a next-generation access solution supporting the consolidation of 1 and 10Gbps services across multiple market segments. Residential broadband, mobile backhaul/fronthaul and enterprise networking and cloud connectivity services can be simultaneously deployed on a common architecture due to its comprehensive feature set combined with its enormous scale. Operators can offer broadband video from multiple video content providers via unicast and multi-cast IPTV and OTT deployment models. Deliver SLA-based enterprise and mobile back and fronthaul services through MEF CE2.0 compliance, Ethernet OAM and PM as well as support for stringent network timing distribution and synchronisation.

### Open, SDN-programmable Architecture

These switches support open interfaces and APIs from vendor-neutral SDN controllers. This helps operators avoid vendor-specific component and process lock-in that lead to long release schedules that stifles the agility of in-house DevOps teams. The switches support multiple Linux-based Network Operating Systems and offer Open-Flow and NETCONF/YANG APIs for SDN programmability.



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## Product Specifications

### Ports

- **Switch Ports:**
  - ◆ 32 x QSFP28 ports List Item 2
  - ◆ Each port supports 1x40/100G or 2x50G or 4x10/25G using splitter cables
- **Management ports on port side:**
  - ◆ 1 x RJ-45 serial console
  - ◆ 1 x RJ-45 100/1000BASE-T management
  - ◆ 1 x USB Type A storage

### CPU Modules

- Intel Xeon D-1518 Quad-core 2.4 GHz x86 processor
  - ◆ 16 GB SO-DIMM DDR4 RAM
  - ◆ 16 MB SPI Flash
  - ◆ 8GB NAND Flash
  - ◆ 32 GB m.2 SSD MLC

### Performance

- Switching Capacity: 3.2 Tbps
- Jumbo frames support up to 9216 Bytes
- Packet Buffer Size: 16 MB integrated packet buffer

### Scale Numbers and QoS

- 136K simultaneous S-TAG, C-TAG combinations
- 136K MAC addresses
- Support for full range of 4096 VLANs
- 16K active multicast replication groups
- 32 LAG/LACP sessions per device
- Unicast Hosts
- IPv4 - Up to 136K)
- IPv6 - Up to 68K
- IPv4 routes - Up to 128K
- IPv6 routes - Up to 64K
- ACLs - Up to 64K
- Multiple QoS Classes per VLAN
- Buffering
- 16 MB On-chip Memory
- Allocated and Shared Across All Ports and Queues

### Environment

- **Operating Temperature:** 32° F to 113° F (0° C to 45° C)
- **Storage Temperature:** -40° F to 158° F (-40° C to 70° C)
- **Operating Humidity:** 5% to 95% non-condensing
- **Operating Altitude:** 0 to 10,000 feet

### Physical

- **Chassis:** 19in, 21in and 23in rack mounts 2-post, 4-post options
- **Dimensions:** 17.3 x 20.3 x 1.7 in (43.8 x 51.5 x 4.35 cm) (W x H x D)
- **Weight:** 23 lb (10 kg)
- **Power Supply:**
  - ◆ Redundant, AC/DC Power Supply
  - ◆ 100-250V at 50 or 60 Hz
- **Redundancy:**
  - ◆ Hot-Swappable Power Supplies
  - ◆ Hot-Swappable Fan

### LEDs

- QSFP 28 Port LEDs: Link Status, Activity, Rate
- Ethernet Management Port LED: Link Status, Activity
- Console Port LED: Link Status
- System LEDs: Diagnostic, Locator, PSU and Fan Status

### Power

- **PSUs:** two redundant, load-sharing, hot-swappable AC or -48 VDC
- **Input Voltage:** 90 to 240 VAC at 50-60 Hz. -36 to -72 VDC.
- **PSU Efficiency:** Up to 93% for AC PSUs
- **Power input option:** 12 VDC
- **Max Power:** 350 W, without pluggable optics
- **Typical Power:** 310 W, without pluggable optics

## Ethernet Services Support

- Single Stack VLAN and Double Stack VLANs (Q-in-Q)
- Manipulation Based on 802.1q and DSCP Field
- STAG TPID Provisioning Supports 802.1ad and 802.1Q Standards
- Port-based Service Support
- Service Scale and Flexibility
- MEF Compliant E-Line, E-LAN, E-Tree, E-Access
- Strict Priority and WDRR Scheduling
- Support for full VLAN Range plus Tag Stacking
- Supports 10k Jumbo Frame in Four Byte Increments
- Egress Shaping Per Port and Per Queue
- Hierarchical QoS

## IPTV Support

- IGMP v2 and v3
- Dynamic Host Configuration Protocol (DHCP) Support with Option 82
- Lightweight DHCPv4 and DHCPv6 Relay Agent Support

## Layer 3 Features

- VxLAN
- OSPF
- IS-IS
- VRRP
- RSVP
- L3VPN
- MPLS
- Multicast Routing (PIM-SM, DM, SSM)
- Virtual Routing and Forwarding (VRF)
- RIP
- OSPFv3
- BFD
- LDP
- L2VPN (VPWS and VPLS)
- Segment Routing

## Security

- Accounting and Authorization (RADIUS, AAA, TACACS+)
- ACL Logging and Mirroring
- DHCP Snooping
- DOS Protection
- Ingress/Egress L2/L3/L4 ACL
- IP Source Guard
- Management IP Filtering (SNMP/Telnet/SSH)
- Port MAC Locking
- Static MAC Filtering

## Network Timing and Synchronization

- ADTRAN Differential and Adaptive Timing Methods
- Synchronous Ethernet

## Network Management and Monitoring

- NETCONF/YANG
- CLI
- Telnet/SSH
- FTP/SFTP
- IPv4/IPv6 management
- DHCPv4, DHCPv6
- Port Mirroring
- sFlow
- SNMPv3
- Syslog

## Regulatory Agency Approvals

- FCC Part 15 Class A
- FCC Part 68
- UL 60950, CAN/CSA C22.2 No.60950
- EN 60950, IEC 60950, AS 3260/ AS NZS60950
- RoHS Compliant
- ITU-T K21:2000
- CE Marking
- NEBS Level 3 Compliant

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## Ordering Information

Equipment	Part No.
SDX8312-32 switch bundle (Front-to-back DC powered, 19" rack mounting)	41971102F11
SDX8312-32 switch bundle (Back-to-front DC powered, 19" rack mounting)	41971102F21
SDX8312-32 switch bundle (Front-to-back AC powered 19" rack mounting)	41971102F31
SDX8312-32 switch bundle (Front-to-back DC powered, 21" rack mounting)	41971102F12
SDX8312-32 switch bundle (Back-to-front DC powered, 21" rack mounting)	41971102F22
SDX8312-32 switch bundle (Front-to-back AC powered 21" rack mounting)	41971102F32
SDX8312-32 switch bundle (Front-to-back DC powered, 23" rack mounting)	41971102F13
SDX8312-32 switch bundle (Back-to-front DC powered, 23" rack mounting)	41971102F23
SDX8312-32 switch bundle (Front-to-back AC powered 23" rack mounting)	41971102F33
SDX8312-32 switch chassis	11971102F1
<b>Accessories</b>	
Front-to-back fan module	11971012F1
Back-to-front fan module	11971012F2
Front-to-back DC power supply module	11971013F1
Back-to-front DC power supply module	11971013F2
Front-to-back AC power supply module	11971014F1
Back-to-front AC power supply module	11971014F2
23inch rack mount (2-post)	11971011F1
21inch rack mount (2-post)	11971011F2
19inch rack mount (4-post)	11971011F3



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