

Product Highlights

Performance

- 230 Terabits per second fabric capacity
- Up to 48 Billion packets per second
- Up to 19.2 Terabit per second per slot
- Up to 288 wire-speed 400G ports
- 25G and 50G mode support
- Under 4 microsecond latency (64 bytes)

High Hardware Availability

- N+N Grid redundant power system
- 1+1 Supervisor redundancy
- Fabric module redundancy
- N+1 Fan module redundancy

Virtualization and Provisioning

- CloudVision
- VXLAN for next generation DC
- LANZ for microburst detection
- VM Tracer
- Zero Touch Provisioning (ZTP)
- Advanced Event Monitoring
- sFlow (RFC3176)
- IEEE 1588 PTP

Scalable Architecture

- Dense 400G and 100G
- Flexible support for 25G and 50G
- Deep packet buffer (16GB per line card)
- Virtual Output Queues per port to eliminate head of line blocking
- Algorithmic ACLs for 100K rules

Resilient Control Plane

- Multi-core Hyper-threaded x86 CPU
- 32GB DRAM / 4GB Flash
- Dual Supervisor modules
- User applications can run in a VM

Data Center Class Design

- AC and DC power options
- Front-to-rear airflow for optimized cooling
- 50W per 400G port typical power
- Up to 864 100G ports per 42U rack

Arista Extensible Operating System

- Single binary image
- Fine-grained truly modular network OS
- Stateful Fault Containment (SFC)
- Stateful Fault Repair (SFR)
- Full access to Linux shell and tools
- Extensible platform - bash, python, C++ , GO, OpenConfig

Overview

The Arista 7500R3 Series of purpose built modular switches deliver the industry's highest performance with 230 Tbps of system throughput to meet the needs of the largest scale data centers. They combine scalable L2 and L3 resources and high density with advanced features for network monitoring, precision timing and network virtualization to deliver scalable and deterministic network performance while simplifying designs and reducing Opex.

The 7500R3 can be deployed in a wide range of open networking solutions including large scale layer 2 and layer 3 cloud designs, overlay networks, virtualized or traditional enterprise data center networks. Deep packet buffers and large routing tables allow for internet peering and secure data center interconnect applications and provides complete deployment flexibility.

Available in a compact system design, as a choice of 12, 8 and 4 slot, the Arista 7500R3 is the next generation of the 7500 Series and delivers seamless upgrades ensuring investment protection of fabric modules, line cards and supervisor modules while setting a new standard for performance, density, reliability, and power efficiency. The 7500R3 can support up to 288 ports of wire speed 400G and 576 ports of 100G and offers over 230 Tbps of total capacity with a broad choice of line cards. Standards based OSFP and QSFP-DD 400G and QSFP 100Gb interfaces support a choice of speeds including 25G and 50G providing unparalleled flexibility and the ability to seamlessly transition data centers to the next generation of Ethernet performance.

All components are hot swappable, with redundant supervisor, power, fabric and cooling modules with front-to-rear airflow. The system is purpose built for data centers and is energy efficient with typical power consumption of under 25 watts per 100G port for a fully configured chassis. These attributes make the Arista 7500R3 an ideal platform for building reliable and highly scalable data center networks.



Arista 7500R3 Series Modular Data Center Switches

Arista EOS

All Arista products including the 7500R3 Series runs the same Arista EOS software, binary image simplifying network administration with a single standard across all switches. Arista EOS is a modular switch operating system with a unique state sharing architecture that cleanly separates switch state from protocol processing and application logic. Built on top of a standard Linux kernel, all EOS processes run in their own protected memory space and exchange state through an in-memory database. This multi-process state sharing architecture provides the foundation for in-service-software updates and self-healing resiliency together with stateful switchover without the loss of data plane forwarding.

Arista EOS enables advanced monitoring and automation capabilities such as Zero Touch Provisioning, LANZ, VM Tracer and Linux based tools to be run natively on the switch.

Software Defined Cloud Networks

Arista Software Defined Cloud Networking (SDCN), combines the principles that have made cloud computing the unstoppable force that it is: automation, self service provisioning, and linear scaling of both performance and economics coupled with the trend in Software Defined Networking that delivers: network virtualization, custom programmability, simplified architectures, and lower capital expenditure. This combination creates a best-in-class software foundation for maximizing the value of the network to both the enterprise and service provider data center. A new architecture for the most mission-critical location within the IT infrastructure that simplifies management and provisioning, speeds up service delivery, lowers costs and creates opportunities for competitive differentiation, while putting control and visibility back in the hands of the network and systems administrators.

The Four Pillars of Arista's Software Defined Cloud Networking:

Universal Cloud Network

- Scalable standards-based MLAG at Layer 2, ECMP for Layer 3 and VXLAN for network virtualization flexibility
- Non blocking leaf-spine for 50K-1M hosts

Cloud Control

- Standards based EOS with AEM, ZTP/ZTR, LANZ and DANZ
- Automated Monitoring for visibility and telemetry

Network Wide Virtualization

- Multi-vendor API Support with eAPI
- Support for VMWare and NSX with VXLAN and VMTracer
- Support for Microsoft OMI and Openstack OVSDDB

Network Applications and Automated Management

- Single point of network-wide state with Arista CloudVision
- Networked applications for workload mobility, smart systems rollback and upgrades and workflow telemetry
- Open Partner integration

Scaling Data Center Performance

The Arista 7500R3 Series deliver non-blocking switching capacity that enables dramatically faster and simpler network designs for data centers and lower both capital and operational expenses. A wide range of modular systems with a single consistent EOS allows for flexible selections at all tiers of the network and deployment scenarios including layer 2 MLAG, layer 3 ECMP, VXLAN Overlay and Internet Peering.

Arista's **Multi-Chassis Link Aggregation** (MLAG) technology supports a leaf and spine active/active L2 network topology. An **Equal Cost Multi-Path (ECMP)** design at Layer 3 scales the network in a fully non-blocking, low-latency, two-stage network that provides predictable and consistent application performance. The flexibility of the L2 and L3 multi-path design options combined with support for open standards provides maximum flexibility, scalability and network wide virtualization that scales to hundreds of thousands of hosts in a single two-tier design. Both designs support overlay networks via VXLAN and can integrate with standards-based overlay controller solutions.

The Arista 7500R3 Series **FlexRoute** engine provides the flexible scalability to support deployment as a routing platform with Internet scale routing. Arista FlexRoute along with EOS NetDB enables innovation not natively available in merchant chipsets. Arista EOS provides operational savings through visibility, automation and improved network operations.

Routing Table Scale

Network scalability is directly impacted by the size of a systems forwarding tables. In many systems a 'one size fits all' approach is adopted using discrete fixed size tables for each of the common types of forwarding entry. The Arista 7500R3 Series leverage a database for forwarding resources which can be allocated for MAC, Routing, Host and ARP tables with a choice of forwarding profiles that optimizes these tables. The flexibility coupled with the range of system forwarding profiles ensures optimal resource allocation for a wide range of network topologies and use cases including Internet Peering, virtualization, Carrier Edge and Security as well as datacenter spine and leaf.

Enhanced Features for High Performance Cloud Networks

The Arista 7500R3 delivers a suite of advanced traffic control and monitoring features to improve the agility of modern high performance environments, with solutions for automation, data monitoring, precise timing and next-generation virtualization.

Automating the data center enables customers to dynamically provision computing resources in the most efficient manner while also meeting business needs by maintaining service level agreements (SLAs). Arista EOS automates complex IT workflows and simplifies network operations while reducing or even eliminating downtime. Arista EOS rich automation capabilities not only reduce the human error element in network operations but also enable IT operators to make the network work the way they want.

Arista offers solutions for a variety of approaches to cloud-like network automation. Addressing the needs of the largest public cloud environments as well as applying those lessons learned in the turnkey CloudVision automation offering.

CloudVision

CloudVision is a network-wide approach for workload orchestration and workflow automation as a turnkey solution for Cloud Networking. CloudVision extends the EOS publish subscribe architectural approach across the network for state, topology, monitoring and visibility. This enables enterprises to move to cloud-class automation without needing any significant internal development.

Arista Event Management (AEM)

Advanced Event Management (AEM), a sub-system of Arista EOS, is a powerful and flexible tool to automate tasks and customize the behavior of EOS and the operation of the overall data center switching infrastructure. Simplifying the overall operations, AEM provides the tools to customize alerts and actions. AEM allows operators to fully utilize the intelligence within EOS to respond to real-time events, automate routine tasks, and automate actions based on changing network conditions.

Precise Data Analysis

Arista Latency Analyzer (LANZ) and Precision Data Analyzer (DANZ) are integrated features of EOS. DANZ provides a solution to monitoring and visibility challenges at 100Gbps and 400Gbps giving IT operations the ability to proactively deliver feedback on congestion events, filter, replicate, aggregate and capture traffic without affecting production performance. LANZ provides precise real-time monitoring of micro-burst and congestion events before they impact applications, with the ability to identify the sources and capture affected traffic for analysis.

Precision Timing (IEEE 1588)

Arista's hardware derived Precision Time Protocol solution provides a robust mechanism for accurate in-band time distribution in high performance environments. The system clock can be synchronized using the Supervisor module clock input port with a PPS source or IEEE 1588 PTP.

Virtualization

Supporting next-generation virtualized data centers requires tight integration with orchestration tools and emerging encapsulation technologies such as VXLAN. The 7500R3 builds on the valuable tools already provided by the Arista VM Tracer suite to integrate directly into encapsulated environments. Offering a wire-speed gateway between VXLAN and traditional L2/3 environments, the 7500R3 makes integration of non-VXLAN aware devices including servers, firewalls and load-balancers seamless and provides the ability to leverage VXLAN as a standards based L2 extension technology for non-MPLS environments.

Maximum Network Design Flexibility

- Scalable designs with up to a 256-way ECMP provides flexibility and balances traffic evenly across the largest leaf-spine designs
- MLAG designs are effective at almost any layer of the network and maximize cross-sectional bandwidth with fast failover times measured in 100's of milliseconds for link failures.
- VXLAN gateway, bridging and routing with VMTracer features to enable next generation data center designs
- Scaleable routing tables to support internet route peering
- Wide choice of dense 100G and 400G line cards with support for flexible 25G or 50G modes
- Support for standards based IEEE 25GbE with mix and match support for simple and cost effective migration
- Virtual output queue (VoQ) architecture and deep packet buffering to eliminate head of line blocking with low latency
- ACL scalability with up to 100K entries per forwarding engine allows for rich policy control
- Flexible allocation of L2 and L3 forwarding table resources for more design choice
- PTP, sFlow, DANZ and multi-port mirroring tools provide network wide visibility and monitoring to detect traffic bursts, monitor latency and congestion and allow capacity planning to improve application performance and availability

System Overview

The 7500R3 Series offers complete investment protection with the Arista 7500R Series with seamless upgrade paths for key components and a common system architecture that ensures long term investment protection. The following 7500R3 chassis options are available:

- **7512R** a 12-slot 18 RU chassis that supports up to 12 line cards with both AC or DC power options
- **7508R** an 8-slot 13 RU chassis that supports up to 8 line cards with both AC or DC power options
- **7504R** a 4-slot 7 RU chassis that supports up to 4 line cards with both AC or DC power options

These three 7500R systems can accommodate any combination of the 7500R3 Series line cards, providing a choice of density, scale and speed, with all options including support for FlexRoute, Accelerated sFlow and Algorithmic ACLs along with innovations for routing and programmability.

The Arista 7500R3 lowers total cost of ownership as it is designed to be efficient with power per port as low as 25W per 100G port which combined with front to rear cooling to optimize the data center environment produces the most reliable, dense and power efficient modular switch.

7500R3 Deterministic Network Performance

The Arista 7500R3 Series uses a deep buffer virtual output queue (VOQ) architecture that eliminates head-of-line (HOL) blocking and virtually eliminates packet drops even in the most congested network scenarios.

An advanced traffic scheduler fairly allocates bandwidth between all virtual output queues while accurately following queue disciplines including weighted fair queueing, fixed priority, or hybrid schemes. As a result, the Arista 7500R3 can handle the most demanding data center requirements with ease, including mixed traffic loads of real-time, multicast, and storage traffic while still delivering low latency.

7500R Series Chassis - 12-slot, 8-slot and 4-slot

The 7500R Series chassis each provide room for two supervisor modules, four, eight or twelve line card modules, grid redundant power supply modules, and six fabric modules. Supervisor and line card modules plug in from the front, while the fabric modules and power supplies are inserted from the rear. The system uses a completely passive midplane and provides control plane connectivity to each of the fabric and line card modules. The system design is optimized for data center deployments with front-to-rear airflow and allows migration from previous generations of the 7500R Series with full support for backward compatibility and mixed mode operation.



Arista 7500R3 Series Chassis (left to right) - 7512R, 7508R and 7504R

Line Card Modules

Wire-speed line cards deliver up to 4 Billion packets per second of forwarding each, with a distributed virtual output queue architecture and lossless fabric that eliminates head-of-line blocking and provides fairness across all ports. Line cards contain up to 16GB of packet memory for approximately 50msec of traffic buffer per ingress port and virtually eliminating packet drops in congestion scenarios. Line cards connect to all fabric modules in a non-blocking full mesh.

The Arista 7500R3 systems can be populated with any combination of line cards. For environments requiring the highest performance combined with scalability a wide choice of speed and interface options is available to provide cloud scale density with carrier grade features for flexible deployment in data center, internet edge, peering and backbones with advanced features for routing, telemetry and programmable packet processing.

7500R3 and 7500R3K Series Line Cards

The 7500R3 Series line cards provide a choice of 100G and 400G interfaces with support for industry standard optics for both single and multi-mode fiber along with flexibility for multi-rate configurations to ensure future proofing for next generation network architectures. Speed changes and breakout modes are enabled independently of the other ports on the line card. 100G ports allow high density 10G and 25G among with 50G mode. Both OSFP and QSFP-DD 400G ports allow 4x100G and 2x200G modes along with support for breakouts.

The 7500R3 Series of line cards build on the capability of the 7280R and 7500R Series with support for FlexRoute, Accelerated sFlow and large scale ACLs. FlexRoute provides scalability to support deployment as a routing platform with Internet scale routing. Algorithmic ACLs provide flexible pattern matching for access control, policy based forwarding and network telemetry. All variations of the 7500R3 Series line cards interoperate and the large scale 7500R3K Series of line cards expand FlexRoute support to over 2.5M IPv4 and IPv6 routes. Accelerated sFlow at high density 100G and 400G provides visibility and programmatic control of traffic steering with no impact on packet forwarding.

FlexRoute™

The Arista FlexRoute Engine provides support for the full internet routing table, in hardware, with IP forwarding at Layer 3 and with sufficient headroom for future growth in both IPv4 and IPv6 route scale to more than 1.3 million routes. The innovative FlexRoute Engine with its patented algorithmic approach to building layer 3 forwarding tables on Arista R-Series Universal Spine and Leaf platforms is unique to Arista and a key enabler in calling these platforms routers. The large scale 7500R3K Series expand FlexRoute support to over 2.5M IPv4 and IPv6 routes.

7500R3 Accelerated sFlow

sFlow is a powerful tool used commonly by network operators for advanced network telemetry, capacity planning, security analysis and quality of experience monitoring. Traditional sFlow utilizes a system CPU for processing samples of hundreds of thousands of flows. In modern high performance systems, guaranteed high rate sampling requires the capability to both sample and process packet rates of billions of packets per second. With the 7500R3 Series Accelerated sFlow feature the sampling and processing of flow samples into sFlow datagrams is handled via integrated sFlow engines capable of supporting 1:500 sampling rates on of full wire speed systems or even higher rates with selective sampling based on triggers and filters. All sFlow v5 information is included in the sFlow records ensuring integration with standard sFlow collection and analysis tools and no loss of key information.



7500R3-36CQ and 7500R3K-36CQ: 36 port 100G QSFP line card

- Up to 36 100G ports per line card or 72 50G ports
- 3.6Tbps of forwarding
- 2Bpps of wire speed performance with 8GB of buffer

7500R3-24P and 7500R3-24D: 24 port 400G OSFP or QSFP-DD line card

- Offers 24 wire speed 400G ports with OSFP or QSFP-DD optics
- Up to 96 100G ports with breakout cables and optics
- Flexible 10G, 25G, 50G and 100G with optics or cables
- 9.6Tbps and 4Bpps of wire speed performance with 16GB of buffer

Algorithmic ACLs

Algorithmic ACLs combine both software and hardware to enable more flexible and scalable solutions for access control, policy based forwarding and network telemetry. Combining general purpose memory with advanced software algorithms delivers higher scale, performance and efficiency with lower power and is more cost effective than traditional solutions. Algorithmic ACLs leverage efficient packet matching algorithms that in turn enables flow matching for access control, policy and visibility. The net benefits are a high performance policy engine with both increased functionality and scale in a cost and power efficient solution. Algorithmic ACLs are available on the 7500R3 and 7500R3K Series of linecards.

- Enables IPv4 and IPv6 access control at the same scale
- L4 rule ranges are programmed efficiently without expansion or reduced capacity
- Multiple actions can be performed on a single packet or flow
- User defined filters allow flexible packet classification based on offsets for custom actions
- Supports rich policy with consistent semantics that would exhaust classical resources

7500R Inband Network Telemetry

Inband network telemetry, or INT, is a standards approach to providing deep visibility into traffic in real-time, with no impact on switch performance. INT provides per-flow monitoring of traffic drops, latency, congestion and the network path. INT information can be exported in IPFIX or sFlow formats to a management system or collector such as Arista CloudVision, for predictive analytics and deep forensics to measure latency per device and across the network, trace packets and reconstruct path topology as well as detecting hot-spots.

Inband Network Telemetry is available on the 7500R3 and 7500R3K Series of products, with the ability to originate, pass and terminate, along with mirroring to external collectors.

Supervisor Module

The supervisor modules for the 7500R3 series run Arista Extensible Operating System (EOS) and handle all control plane and management functions of the system. One supervisor module is needed to run the system and a second can be added for 1+1 redundancy. The multi-core x86 CPU with 32GB of DRAM and an optional SSD provides the control plane performance needed to run an advanced data center switch scaling to over 500 physical ports and thousands of virtual ports. A pulse per second clock input port enables synchronizing with an external source to improve the accuracy of monitoring tools.

Fabric Module

At the heart of the 7500R3 series is the fabric. It interconnects all line cards in a non-blocking architecture irrespective of the traffic. Each line card module connects to the fabric with multiple links and data packets are spread across the links to fully utilize the fabric capacity. Unlike hash-based selection of fabric links, the 7500R3 architecture provides 100% efficient connectivity from any port to any other port with no drops. The fabric modules are always active-active, provide redundancy and can be hot-swapped with zero performance degradation. The Fabric Modules for the each of the 7500R3 Series are different based on the size of the chassis and all integrate a fan assembly for flexible and redundant cooling.

Power Supply Modules

The 7500R3 series switches are equipped with redundant and hot-swappable AC or DC power supplies with an internal variable speed fan. Each system supports N+N power redundancy with a choice of 3000W AC or DC power supplies. The AC supplies are Titanium climate saver rated and have an efficiency of over 94% with single stage conversion to the internal 12V DC voltage. The DC power supplies use -40 to -72V direct current inputs.

7500R3 High Availability

The Arista 7500R3 Series are designed for continuous operations with system wide monitoring of both hardware and software components, simple serviceability and provisioning to prevent single points of failure. The hardware supports high-availability with hot-swap of all components with redundant supervisors, power supplies, fabric and cooling modules. Fabric resilience and redundancy provides deterministic degradation and integrated fan systems provide dynamic temperature control combined with N+1 redundancy. The 7500R3 Series offer power redundancy that supports both power source and power supply redundancy. The Arista EOS software supports stateful failover (*) between the dual redundant supervisors as well as self-healing stateful fault containment (SFC), stateful fault repair (SFR) and live patching through in-service-software updates to help ensure continuous service.

Layer 2 Features

- 802.1w Rapid Spanning Tree
- 802.1s Multiple Spanning Tree Protocol
- Rapid Per Vlan Spanning Tree (RPVST+)
- 4096 VLANs
- Q-in-Q *
- 802.3ad Link Aggregation/LACP
 - 256 Ports / Channel
 - 1152 groups per system
- MLAG (Multi-Chassis Link Aggregation) *
 - Uses IEEE 802.3ad LACP
 - 128 ports per MLAG
- 802.1Q VLANs/Trunking
- 802.1AB Link Layer Discovery Protocol
- 802.3x Flow Control *
- Jumbo Frames (9216 Bytes)
- IGMP v1/v2/v3 snooping
- Storm Control *

Layer 3 Features

- Static Routes
- Routing Protocols: OSPF, OSPFv3, BGP, MP-BGP, IS-IS, and RIPv2
- 512-way Equal Cost Multipath Routing (ECMP) *
- VRF
- Bi-Directional Forwarding Detection (BFD)
- Unicast Reverse Path Forwarding (uRPF)
- VRRP
- Virtual ARP (VARP)
- Policy Based Routing (PBR)
- Route Maps

Multicast

- IGMP v2/v3
- Protocol Independent Multicast (PIM-SM / PIM-SSM)
- PIM-BiDir *
- Anycast RP (RFC 4610)
- Multicast Source Discovery Protocol (MSDP)

Advanced Monitoring and Provisioning

- Latency Analyzer and Microburst Detection (LANZ)
 - Configurable Congestion Notification (CLI, Syslog) *
 - Streaming Events (GPB Encoded) *
- Zero Touch Provisioning (ZTP)
- Advanced Mirroring
 - Port Mirroring (16 sessions)
 - Enhanced Remote Port Mirroring
 - SPAN/TAP M:N Aggregation
 - L2/3/4 Filtering
- Advanced Event Management suite (AEM)
 - CLI Scheduler
 - Event Manager
 - Event Monitor
 - Linux tools
- Integrated packet capture/analysis with TCPDump
- Restore and Configure from USB
- RFC 3176 sFlow

- Optional SSD for logging and data capture
- IEEE 1588 PTP

Virtualization Support

- VXLAN Bridging and Routing (VRF, MLAG) *
- VM Tracer VMware Integration *

Security Features

- Control Plane Protection (CPP)
- Ingress / Egress ACLs using L2, L3, L4 fields
- Ingress / Egress ACL Logging and Counters
- MAC ACLs
- ACL Deny Logging
- ACL Counters
- Atomic ACL Hitless restart
- DHCP Relay / Snooping
- MAC Security *
- TACACS+
- RADIUS
- ARP trapping and rate limiting

Quality of Service (QoS) Features

- Up to 8 queues per port
- Strict priority queueing
- 802.1p based classification
- DSCP based classification and remarking
- Egress shaping / Weighted round robin (WRR)
- Policing / Shaping
- Explicit Congestion Notification (ECN) marking *
- 802.1Qbb Per-Priority Flow Control (PFC)
- 802.1Qaz Enhanced Transmission Selection (ETS) *
- Data Center Bridging Extensions (DCBX) *

Network Management

- CloudVision
- Configuration rollback and commit
- 100/1000 Management Port
- RS-232 Serial Console Port
- USB Port
- SNMP v1, v2, v3
- Management over IPv6
- Telnet and SSHv2
- Syslog
- AAA
- Industry Standard CLI
- Beacon LED for system identification
- System Logging
- Environment monitoring

* Not currently supported in EOS

High Availability

- L2 Stateful Switchover (SSO) *
- L3 Stateful Switchover (SSO) *
- SSU Spine

Extensibility

- Linux Tools
 - Bash shell access and scripting
 - RPM support
 - Custom kernel modules
- Software Defined Networking (SDN)
 - eAPI
 - OpenStack Neutron Support
- Programmatic access to system state
 - Python
 - Chef
 - Puppet
 - C++
 - eAPI
 - OpenStack Neutron Plug-in support
- Native KVM/QEMU support

System Scalability

- 9216 Byte Jumbo Frame Support
- 8 Priority Queues per Port
- 1152 Link Aggregation Groups (LAG)
- 32 Ports per LAG
- Virtual Output Queueing
- Distributed Scheduler
- WFQ, CIR*, ETS*, Fixed Priority

Standards Compliance

- 802.1D Bridging and Spanning Tree
- 802.1p QOS/COS
- 802.1Q VLAN Tagging
- 802.1w Rapid Spanning Tree
- 802.1s Multiple Spanning Tree Protocol
- 802.1AB Link Layer Discovery Protocol
- 802.3ad Link Aggregation with LACP
- 802.3x Flow Control
- 802.3ab 1000BASE-T
- 802.3z Gigabit Ethernet
- 802.3ae 10 Gigabit Ethernet
- 802.3by 25 Gigabit Ethernet
- 802.3ba 40 Gigabit Ethernet
- 802.3ba 100 Gigabit Ethernet
- 802.3bs 400 and 200 Gigabit Ethernet
- 802.3cm 400 Gigabit over multimode fiber
- RFC 2460 Internet Protocol, Version 6 (IPv6) Specification
- RFC 2461 Neighbor Discovery for IP Version 6 (IPv6)
- RFC 2462 IPv6 Stateless Address Autoconfiguration
- RFC 2463 Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6) Specification
- IEEE 1588-2008 Precision Time Protocol

SNMP MIBs

- RFC 3635 EtherLike-MIB
- RFC 3418 SNMPv2-MIB
- RFC 2863 IF-MIB
- RFC 2864 IF-INVERTED-STACK-MIB
- RFC 2096 IP-FORWARD-MIB
- RFC 4363 Q-BRIDGE-MIB
- RFC 4188 BRIDGE-MIB
- RFC 2013 UDP-MIB
- RFC 2012 TCP-MIB
- RFC 2011 IP-MIB
- RFC 2790 HOST-RESOURCES-MIB
- RFC 3636 MAU-MIB
- RMON-MIB
- RMON2-MIB
- HC-RMON-MIB
- LLDP-MIB
- LLDP-EXT-DOT1-MIB
- LLDP-EXT-DOT3-MIB
- ENTITY-MIB
- ENTITY-SENSOR-MIB
- ENTITY-STATE-MIB
- ARISTA-ACL-MIB
- ARISTA-QUEUE-MIB
- RFC 4273 BGP4-MIB
- RFC 4750 OSPF-MIB
- ARISTA-CONFIG-MAN-MIB
- ARISTA-REDUNDANCY-MIB
- RFC 2787 VRRPv2MIB
- MSDP-MIB
- PIM-MIB
- IGMP-MIB
- IPMROUTE-STD-MIB
- SNMP Authentication Failure trap
- ENTITY-SENSOR-MIB support for DOM (Digital Optical Monitoring)
- User configurable custom OIDs

See EOS release notes for latest supported MIBs

Chassis	DCS-7512N	DCS-7508N	DCS-7504N
Supervisor slots	2	2	2
Linecard Slots	12	8	4
Fabric Module Slots	6	6	6
Power Supply Slots	12	8	4
Physical Dimensions (HxWxD)	31.5 x 17.3 x 33.4" (80.1x44.1x 84.8cm)	22.75x 17.3 x 31.3" (57.8x 44.1 x 79.5cm)	12.25 x 17.3 x 31.3" (31.2 x 44.1 x 79.5cm)
Rack Units	18	13	7
Weight (Chassis only)	185 lbs (84 kg)	95 lbs (43.1 kg)	76.5 lbs (34.7 kg)
Weight (Full System)	661 lbs (300 kg)	400 lbs (182 kg)	222 lbs (101 kg)
Maximum 10G Density	2304 Ports	1536 Ports	768 Ports
Maximum 25G Density	2304 Ports	1536 Ports	768 Ports
Maximum 40G Density	432 Ports	288 Ports	144 Ports
Maximum 50G Density	2304 Ports	1536 Ports	768 Ports
Maximum 100G Density	432 Ports	288 Ports	144 Ports
Maximum 400G Density	288 Ports	192 Ports	96 Ports
Maximum Throughput/PPS	230Tbps / 48 Bpps	153Tbps / 32 Bpps	76.8Tbps / 16 Bpps
Max Power Consumption	tbd	tbd	tbd

* Maximum density values with all ports in breakout, based on per line card breakout and subject to EOS Scale support

Fabric Module	DCS-7512R3-FM	DCS-7508R3-FM	DCS-7504R3-FM
Redundancy	Graceful degradation	Graceful degradation	Graceful degradation
Dimensions (HxWxD)	2.5 x 21 x 10.25" (6.4 x 53 x 26cm)	2.5 x 14 x 10.25" (6.4 x 35.6 x 26cm)	2.5 x 8.5 x 10.25" (6.4 x 21.6 x 26cm)
Weight	26.75 lbs (12.2 kg)	13.25 lbs (6.0 kg)	7.5 lbs (3.4 kg)
Typical (Max) Power *	tbd	225W (380W)	130W (230W)
Integrated Fan Module	Yes	Yes	Yes
Chassis Support	DCS-7512N	DCS-7508N	DCS-7504N

* Typical power consumption measured at 25C ambient with 50% load on all ports

7500R3 Series	7500R3-24P	7500R3-24D	7500R3-36CQ	7500R3K-36CQ
Ports	24 OSFP	24 QSFP-DD	36 QSFP100	36 QSFP100
Max 10G	192	192	96	96
Max 25G	192	192	96	96
Max 40G	—	—	36	36
Max 50G	192	192	72	72
Max 100G	96	96	36	36
Max 400G	24	24	—	—
Accelerated sFlow	Yes	Yes	Yes	Yes
Port Buffer	16GB	16GB	8GB	8GB
Typical (Max) Power *	538W (722W) Excluding optics	530W (714W) Excluding optics	442W (576W)	442W (576W)
Weight	19 lbs (8.6kg)	20 lbs (9.1 kg)	17.75 lbs (8.1 kg)	17.75 lbs (8.1 kg)
Dimensions (WxHxD)	17.5" x 1.75" x 23" (44.5 x 4.5 x 58.4cm)			
Chassis Support	DCS-7512N, DCS-7508N, DCS-7504N			

* Max with all ports in breakout, subject to EOS Scale support

Linecard Resources ¹

Profile	7500R3 Series		7500R3K Series		
	Balanced	L3	Balanced	L3	L2
MAC Addresses	448K	128K	736K	160K	1.4M
IPv4 Host Routes	896K	256K	1.4M	320K	2.8M
IPv6 Unicast Host Routes	224K	64K	368K	80K	736K
IPv4 Unicast LPM Routes	704K	1.3M	1.2M	2.5M	128K
IPv6 Unicast LPM Routes	235K	440K	411K	821K	42K
Multicast Routes	448K	128K	736K	160K	1.4M
ACL Entries	24K	24K	24K	24K	24K

1. Maximum values dependent on shared resources in some cases

* Typical power consumption measured at 25C ambient with 50% load on all ports

Supervisor Module	DCS-7500-SUP2
Processor	1.9Ghz, Multi Core, x86, 64-bit
System Memory	32 GB
Flash Storage Memory	4 GB
RS-232 Serial Ports	One (RJ-45)
100/1000 Management Ports	Two (RJ-45)
USB 2.0 Interface	Two
SSD Storage	120GB Optional
Physical Dimensions (WxHxD)	8.5" x 1.75" x 23" (21.6 x 4.4 x 58.4cm)
Weight	5 lbs (2.4 kg)
Typical (Max) Power *	80W (120W)
Chassis Support	DCS-7512N, DCS-7508N DCS-7504N

Environmental Characteristics

Operating Temperature	0 to 40°C (32 to 104°F) <small>Note 1</small>
Storage Temperature	-40 to 70°C (-40 to 158°F)
Relative Humidity	5 to 90%
Operating Altitude	0 to 10,000 ft, (0-3,000m)

Standards Compliance

EMC	Emissions: FCC, EN55032, EN61000-3-2, EN61000-3-3
Immunity	EN55024, EN55035 EN300 386
Safety	UL/CSA 60950-1, EN 62368-1, IEC-62368-1, IEC 60950-1 CB Scheme with all country differences
Certifications	North America (NRTL) European Union (EU) BSMI (Taiwan) C-Tick (Australia) CCC (PRC) KC (S. Korea) EAC (Eurasian Customs Union) VCCI (Japan)
European Union Directives	2006/95/EC Low Voltage Directive 2004/108/EC EMC Directive 2011/65/EU RoHS Directive 2012/19/EU WEEE Directive

Power Supply	PWR-3KT-AC-RED	PWR-3KT-HV-RED	PWR-3K-DC-RED
Input Circuit (Max)	200-240V, 16A (20A UL)	208-240V, AC, 16A (20A UL) 240V DC (China Only)	-48 to -60V DC, 69A Max (-48V)
Input Frequency	50-60 Hz, single phase	50-60 Hz, single phase AC	DC
Output Power	3000W	3000W	3000W
Input Connector	IEC 60320 C20	IEC 60320 C20	AWG #2 Max
Efficiency	96% Titanium	96% Titanium	90%
Size (WxHxD)		2.75" x 4.13" x 11.65" (7.0 x 10.5 x 29.6cm)	
Weight		5.5 lbs (2.49 kg)	
Chassis Support		DCS-7512N, DCS-7508N, DCS-7504N	

* Typical power consumption measured at 25C ambient with 50% load on all ports

Supported Optics and Cables *

Interface Type	400G OSFP ports
400GBASE-CR8	OSFP to OSFP: 1m-3m
400GBASE-AOC	OSFP to OSFP: 1m-30m
400GBASE-SR8	100m
400GBASE-DR4	500m
400GBASE-XDR4	2km
400GBASE-FR4	2km
400GBASE-2FR4	2km
400GBASE-LR4	10km
200GBASE-CR4	OSFP to 2xQSFP: 1m to 3m
100GBASE-CR2	OSFP to 4xQSFP: 1m to 3m lengths
100GBASE-CR4 **	OSFP to 2xQSFP: 1m to 3m lengths
50GBASE-CR2 **	OSFP to 4xQSFP: 1m to 3m lengths
25GBASE-CR **	OSFP to 8xSFP: 1m to 3m lengths
Interface Type	400G QSFP-DD ports
400GBASE-CR8	QSFP-DD to QSFP-DD: 1m-2.5m
400GBASE-AOC	QSFP-DD to QSFP-DD: 1m-30m
400GBASE-SR8	100m
400GBASE-DR4	500m
400GBASE-XDR4	2km
400GBASE-FR4	2km
400GBASE-2FR4	2km
400GBASE-LR4	10km
200GBASE-CR4	QSFP-DD to 2xQSFP: 1m to 2.5m
100GBASE-CR2	QSFP-DD to 4xQSFP: 1m to 3m lengths
100GBASE-CR4 **	QSFP-DD to 2xQSFP: 1m to 3m lengths
50GBASE-CR2 **	QSFP-DD to 4xQSFP: 1m to 3m lengths
25GBASE-CR **	QSFP-DD to 8xSFP: 1m to 3m lengths

** Requires OSFP / QSFP-DD port to be configured for 200G, 8 x 25G NRZ lanes. Allows interop with 100G QSFP and 25G SFP ports

Supported Optics and Cables *

Interface Type	100G QSFP Ports
100GBASE-SR4	70m OM3 / 100m OM4 Parallel MMF
100GBASE-XSR4	150m OM3 / 300m OM4 Parallel MMF
100GBASE-SWDM4	70m OM3 / 100m OM4 Duplex MMF
100GBASE-SRBD	70m OM3 / 100m OM4 Duplex MMF
100GBASE-LR	10km SM Duplex
100GBASE-LR4	10km SM Duplex
100GBASE-LRL4	2km SM Duplex
100GBASE-XCWDM4	10km SM Duplex
100GBASE-CWDM4	2km SM Duplex
100GBASE-FR	2km SM Duplex
100GBASE-DR	500m SM Duplex
100GBASE-PSM4	500m SM Parallel
100GBASE-AOC	1m to 30m
100GBASE-ERL4	40km SM Duplex
100GBASE-CR4	QSFP to QSFP: 1m to 5m
25GBASE-CR	QSFP to SFP25: 1m to 3m lengths

Supported Optics and Cables *

Interface Type	40G QSFP ports
40GBASE-CR4	QSFP+ to QSFP+: 0.5m-5m
40GBASE-AOC	3m to 100m
40GBASE-UNIV	150m (OM3) / 150m (OM4), 500m (SM)
40GBASE-SRBD	100m (OM3) / 150m (OM4)
40GBASE-SR4	100m (OM3) / 150m (OM4)
40GBASE-XSR4	300m (OM3) / 400m (OM4)
40GBASE-PLRL4	1km (1km 4x10G LR/LRL)
40GBASE-PLR4	10km (10km 4x10G LR/LRL)
40GBASE-LRL4	1km
40GBASE-LR4	10km
40GBASE-ER4	40km

Product Number	Product Description
DCS-7512R3-BND	Arista 7512R Chassis bundle. Includes 7512N chassis, 8x3kW PS, 6xFM-R, 1xSup2
DCS-7508R3-BND	Arista 7508R Chassis bundle. Includes 7508N chassis, 6x3kW PS, 6xFM-R, 1xSup2
DCS-7504R3-BND	Arista 7504R Chassis bundle. Includes 7504N chassis, 4x3kW PS, 6xFM-R, 1xSup2
DCS-7512R3-BND-D	Arista 7512R Chassis bundle. Includes 7512N chassis, 8x3kW PS, 6xFM-R, 1xSup2-D
DCS-7508R3-BND-D	Arista 7508R Chassis bundle. Includes 7508N chassis, 6x3kW PS, 6xFM-R, 1xSup2-D
DCS-7504R3-BND-D	Arista 7504R Chassis bundle. Includes 7504N chassis, 4x3kW PS, 6xFM-R, 1xSup2-D
DCS-7512R3-BND-DC	Arista 7512R DC Chassis bundle. Includes 7512N chassis, 8xDC PS, 6 FM-R, 1xSup2
DCS-7508R3-BND-DC	Arista 7508R DC Chassis bundle. Includes 7508N chassis, 6xDC PS, 6 FM-R, 1xSup2
DCS-7504R3-BND-DC	Arista 7504R DC Chassis bundle. Includes 7504N chassis, 4xDC PS, 6 FM-R, 1xSup2
DCS-7512R3-BND-DC-D	Arista 7512R DC Chassis bundle. Includes 7512N chassis, 8xDC PS, 6 FM-R, 1xSup2-D
DCS-7508R3-BND-DC-D	Arista 7508R DC Chassis bundle. Includes 7508N chassis, 6xDC PS, 6 FM-R, 1xSup2-D
DCS-7504R3-BND-DC-D	Arista 7504R DC Chassis bundle. Includes 7504N chassis, 4xDC PS, 6 FM-R, 1xSup2-D
DCS-7500-SUP2	Supervisor-2 module for 7500 Series (spare)
DCS-7500-SUP2-D	Supervisor-2 module for 7500 Series, with SSD (spare)
DCS-7500R3-24P-LC	7500R3 Series 24 port 400GbE QSFP wirespeed line card
DCS-7500R3-24D-LC	7500R3 Series 24 port 400GbE QSFP-DD wirespeed line card
DCS-7500R3-36CQ-LC	7500R3 Series 36 port 100GbE QSFP100 wirespeed line card
DCS-7500R3K-36CQ-LC	7500R3 Series 36 port 100GbE QSFP100, large routes, wirespeed line card
Optional Components and Spares	
DCS-7512N-CH	Arista 7512N chassis, 2 supervisor slots, 12 line card slots, 6 fabric slots, AC or DC power (ordered separately)
DCS-7508N-CH	Arista 7508N chassis, 2 supervisor slots, 8 line card slots, 6 fabric slots, AC or DC power (ordered separately)
DCS-7504N-CH	Arista 7504N chassis, 2 supervisor slots, 4 line card slots, 6 fabric slots, AC or DC power (ordered separately)
DCS-7512R3-FM	7500R3 Series Fabric (integrated fan) Module for 7512N Chassis, required for fabric slots 1-6
DCS-7508R3-FM	7500R3 Series Fabric (integrated fan) Module for 7508N Chassis, required for fabric slots 1-6
DCS-7504R3-FM	7500R3 Series Fabric (integrated fan) Module for 7504N Chassis, required for fabric slots 1-6

Note:

- Arista 7500N switches ship with four, six, 8 or 12 C19-C20 power cables (2m). Other power cables must be ordered separately
- Front-to-rear means the air flows from the switch port side to the fan side

Optional Components and Spares

LIC-MOD-1-E	Enhanced Software License for Arista Modular switches - 4 slots (OSPF, BGP, ISIS, PIM)
LIC-MOD-2-E	Enhanced Software License for Arista Modular switches - 8 slots (OSPF, BGP, ISIS, PIM)
LIC-MOD-3-E	Enhanced Software License for Arista Modular switches - 12 slots (OSPF, BGP, ISIS, PIM)
LIC-MOD-1-V	Virtualization license for Arista Modular switches - 4 slots (VM Tracer and VXLAN)
LIC-MOD-2-V	Virtualization license for Arista Modular switches - 8 slots (VM Tracer and VXLAN)
LIC-MOD-3-V	Virtualization license for Arista Modular switches - 12 slots (VM Tracer and VXLAN)
LIC-MOD-1-V2	EOS Extensions, Security and Partner Integration license for Arista Modular switches - 4 slots
LIC-MOD-2-V2	EOS Extensions, Security and Partner Integration license for Arista Modular switches - 8 slots
LIC-MOD-3-V2	EOS Extensions, Security and Partner Integration license for Arista Modular switches - 12 slots
LIC-MOD-1-Z	Monitoring & provisioning license for Arista Modular switches - 4 slots (ZTP, LANZ, API, TapAgg)
LIC-MOD-2-Z	Monitoring & provisioning license for Arista Modular switches - 8 slots (ZTP, LANZ, API, TapAgg)
LIC-MOD-3-Z	Monitoring & provisioning license for Arista Modular switches - 12 slots (ZTP, LANZ, API, TapAgg)
LIC-MOD-1-FLX	FLX License for Arista 4-Slot Modular - Full Routing upto 2M Routes, >24K ACL, EVPN, VXLAN, SR, Adv MPLS-LER/LSR, with TE & link/node protection
LIC-MOD-2-FLX	FLX License for Arista 8-Slot Modular - Full Routing upto 2M Routes, >24K ACL, EVPN, VXLAN, SR, Adv MPLS-LER/LSR, with TE & link/node protection
LIC-MOD-3-FLX	FLX License for Arista 12-Slot Modular - Full Routing upto 2M Routes, >24K ACL, EVPN, VXLAN, SR, Adv MPLS-LER/LSR, with TE & link/node protection
LIC-MOD-1-FLX-L	FLX-Lite License for Arista 4-Slot Modular - Full Routing Up to 256K Routes, EVPN, VXLAN, SR, base MPLS LSR (no TE or link/node protection)
LIC-MOD-2-FLX-L	FLX-Lite License for Arista 8-Slot Modular - Full Routing Up to 256K Routes, EVPN, VXLAN, SR, base MPLS LSR (no TE or link/node protection)
LIC-MOD-3-FLX-L	FLX-Lite License for Arista 12-Slot Modular - Full Routing Up to 256K Routes, EVPN, VXLAN, SR, base MPLS LSR (no TE or link/node protection)
PWR-3KT-AC-RED	Spare 3kW Titanium AC Power Supply for 7300 and 7500N series (red handle)
PWR-3K-DC-RED	Spare 3kW DC Power Supply for 7300 and 7500N series (red handle)
PWR-3KT-HV-RED	Spare 3kW HV AC and DC Power Supply for 7300 and 7500N series (red handle)
DCS-7300-PCVR	Blank cover for 7300 and 7500N power supply slot
DCS-7500-SCVR	Blank cover for 7500 supervisor slot
DCS-7500-LCVR	Blank cover for 7500 line card slot
KIT-7512	Spare accessory kit for Arista 7512N. Includes 8x C19-C20 power cords, 2 & 4 post mounting brackets
KIT-7508	Spare accessory kit for Arista 7508 and 7508N. Includes 4x C19-C20 power cords, 2 & 4 post mounting brackets
KIT-7504	Spare accessory kit for Arista 7504 and 7504N. Includes 4x C19-C20 power cords, 2 & 4 post mounting brackets
CAB-C19-C20	Power cord, C19 to C20 (2m)
CAB-C19-L6-20	Power cord, C19 to L6-20 (2.5m)

Warranty

The Arista 7500R3 Series switches come with a one-year limited hardware warranty, which covers parts, repair, or replacement with a 10 business day turn-around after the unit is received.

Service and Support

Support services including next business day and 4-hour advance hardware replacement are available. For service depot locations, please see: <http://www.arista.com/en/service>

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