Product Highlights

Performance

- 7280R3A: 144 x 100G or 36 x 400G
- High density 100G and 400G
- Flexible 10G, 25G, 100G, 200G and 400G support
- Up to 14.4 Tbps system capacity
- Up to 5.4 billion packets per second
- QSFP, OSFP and QSFP-DD: for 10-400G
- 400G ZR and ZR+ Support
- MACsec, IPsec and VXLANsec encryption

Cloud Grade Routing

- Secure Internet Peering
- Carrier Edge VPN Services
- Next Generation EVPN Services for 5G/ MEC, CIN, & Metro
- Carrier Core transport (LDP, RSVP-TE, SR-TE) and HA with FRR and TI-LFA
- Next Generation timing (IEEE 1588)
- Open programmable APIs (JSON-RPC, NETCONF) for provisioning, telemetry, path selection/topology discovery

Data Center Optimized Design

- 16 GB Ultra-deep packet buffer
- Virtual Output Queues per port to eliminate head of line blocking
- Over 93% efficient power supplies
- Redundant & hot-swap power and fans

Virtualization and Provisioning

- CloudVision
- EVPN-VXLAN for next generation DC
- LANZ for microburst detection
- Zero Touch Provisioning (ZTP)
- Accelerated sFlow (RFC3176)

Cloud Networking Ready

- Up to 384K MAC Addresses
- Over 5M IPv4 Routes with 7280R3AK
- Algorithmic ACLs for 400K+ rules

Resilient Control Plane

- High Performance eight-core x86 CPU
- 64GB DRAM and 240GB SSD

Arista Extensible Operating System

- Single 64-bit binary image
- Fine-grained truly modular network OS
- Stateful Fault Containment & Repair
- Full access to Linux shell and tools
- Extensible platform - bash, python, C++

Overview

The Arista 7280R3A Modular Series are purpose built 100G and 400G systems built for the highest performance environments, and to meet the needs of the largest scale data centers and service providers. They deliver 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 modular 7280R3A system provides 14.4 Tbps of packet processing in an extremely compact and power efficient 4RU form factor providing flexibility to deploy a range of interface types. Line rate performance with up to 144 ports of 100G or 36 ports of 400G is combined with rich functionality for 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 provide complete deployment flexibility.

All elements of the 7280R3A modular are field replaceable, and optimized for simple maintenance, a broad range of network interfaces with a choice of industry standard interfaces allowing for easy transitions to the latest 100G/400G networks. Combined with Arista EOS the 7280R3A series deliver advanced features for high performance large scale layer 2 and layer 3 cloud designs, enterprise data centers and service provider networks.

Arista 7289R3A: 144 ports of 100G or 36 ports of 400G

Arista EOS

The Arista 7280R3A series run the same Arista EOS software as all Arista products, simplifying network administration. 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.

Arista's 64-bit EOS is purpose built for high performance, large scale workloads and embeds advanced monitoring, telemetry and automation capabilities. With a powerful x86 CPU subsystem and full access to Linux, a wealth of standard tools can also be run natively on the switch for simple integration into automation workflows.

Model Overview

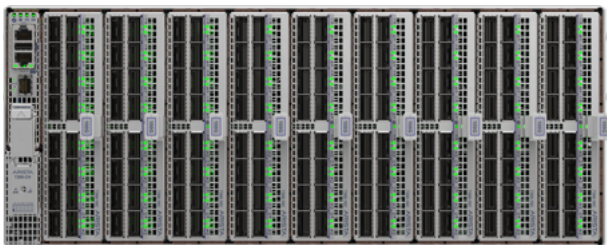
The modular Arista 7280R3A is a high performance system that delivers 14.4Tbps of system forwarding and up to 5.4 Bpps with two high capacity, deep buffer, packet processors in a configurable system. Nine interface module slots enable flexible configurations of up to 36 ports of 400G, 144 ports of 100G, or up to 144 ports of 25G in a compact 4RU system.

Designed with ease of maintenance operations and flexibility in mind, the 7280R3A modular platform can be deployed as a common building block for multiple network roles, with the ability to deploy the right interface mix in each deployment. The system also shares its power supplies and high performance IO modules with the Arista 7358X4 for simple migration, reconfiguration and sparing.

The 7280R3A modular provides a choice of three levels of scale and functionality. The Standard (R3A), Encryption (R3AM) and Large Scale (R3AK) Switch Cards each deliver high performance with a comprehensive feature set for enterprise and service providers. Suited for both leaf or spine deployment in modern large scale networks, addressing the challenges of increasing network capacity and efficiency through lower power, enhanced automation and advances in scalability.

The modular 7280R3A is designed around the 7289R3A switch card (7289R3A-SC), that is fully connected to 9 I/O module slots delivering 3.2Tbps of system capacity to each slot with 16GB deep packet buffers for superior burst absorption. The supervisor module runs Arista Extensible Operating System (EOS) on an eight core CPU with 64GB of memory with the scalability to support demanding control plane workloads. The removable interface modules provide for mix and match of interface types and density including 25G, 100G, 200G and 400G with each module supporting a range of interface speeds using industry standard optics and cables. Each IO module connects directly to the switch card without adding any oversubscription. All components of the system including the switch card are removable for ease of maintenance and simplifying upgrades.

The system supports up to 4 high efficiency hot-swappable AC or DC power supplies, providing sufficient power for both current and future needs, with both grid and power supply redundancy to eliminate downtime when replacing power supplies. High performance fan modules deliver resilient data center optimized system cooling from front to rear.

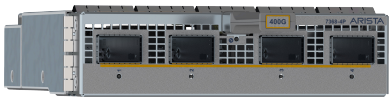


Arista 7280R3A 9-Slot System

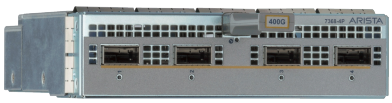
System Front (144 ports of 100G)

System Rear (Front to Rear Airflow)

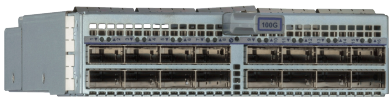
DCS-7289-SUP-D Supervisor Module
Eight core CPU and 64GB memory for high performance control plane, Ethernet and management ports with optional SSD for storage.



DCS-7368-4P OSFP - 4 ports of 400G with OSFP optics and cables, and the use of existing 100G optics and cables.



DCS-7368-4D QSFP-DD - 4 ports of 400G with QSFP-DD optics and cables and the use of existing 100G optics and cables.



DCS-7358-16C QSFP100 - 16 ports of 100G, up to 8 ports of 200G mode (alternate ports)

DCS-7368-16S SFP28 - 16 ports of 25G with support for 25G and 10G on all ports.

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 EVPN for network virtualization flexibility
- Non blocking leaf-spine architecture for 10K-500K 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 Openstack OVSDB

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 High Performance Data Centers

The Arista 7280R3A Series deliver non-blocking switching capacity that enables dramatically faster and simpler network designs for data centers and lowers both capital and operational expenses. Arista's wide range of systems, with a single consistent EOS, allows for flexible, right-sized product choice for all tiers of the network with a strong focus on open standards and interoperability.

The 7280R3A family provides comprehensive support for all common data center architectures, including layer 2 MLAG, layer 3 ECMP and EVPN-VXLAN overlay networking. Leaf-spine topologies provide the most efficient foundation for modern high performance applications, scalable to hundreds of thousands of hosts, while providing predictable, non-blocking, low latency performance. Arista's Multi-Chassis Link Aggregation (MLAG) technology supports active/active L2 network topologies, while layer 3 Equal Cost Multi-Path (ECMP) designs enable construction of very high radix topologies for large scale deployment. Both designs support EVPN-VXLAN overlay networks for additional segmentation and can integrate with standards-based overlay controller solutions.

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. The Arista 7280R3A Series FlexRoute engine provides Internet scale routing to support deployment as an Internet border/peering router, enterprise CDN backbone or data center interconnect (DCI). 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.

Cloud Grade Routing

The 7280R3A series are key components of Arista's portfolio of Cloud Grade Routing platforms that encompasses a wide choice of fixed and modular systems. Combining Arista EOS's proven and feature rich Service Provider functionality, telemetry and open programmability with industry leading scale, density and power efficiency, the R3 series systems are designed for versatile deployment in a wide variety of open networking environments.

Next generation multi-service environments require flexibility, security and open programmability to leverage the power efficiency and proven scale of cloud networks. The R3 Series routing solutions include large scale layer 2, layer 3 and EVPN based telco and cloud data center designs, low latency MEC overlay fabrics, data center interconnect (DCI) with long haul optics, provider edge networks with scaleable L2 and L3 VPN services, high density 100G/400G traffic engineered MPLS and SR-TE cores, 5G infrastructure and metro-aggregation for the backhaul of E-LINE services.

7280R3A Deterministic Network Performance

The Arista 7280R3A 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 7280R3A 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.

Routing Table Scale and FlexRoute™

Network scalability is directly impacted by the size of a system's 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 7280R3A 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.

Arista's innovative FlexRoute Engine, with its patented algorithmic approach to building layer 3 forwarding tables on Arista R-Series, provides support for the full internet routing table in hardware. Scaling to more than 5 million routes in 7280R3AK, the R series Universal Spine and Leaf platforms have sufficient headroom for future growth in both IPv4 and IPv6. 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.

10-400G Wire-speed Encryption with TunnelSec

7280R3AM and 7280R3AK series platforms support Arista's TunnelSec technology, enabling line-rate, industry standard, authenticated strong encryption with using the AES-256-GCM block cipher. TunnelSec devices offer IEEE 802.1AE MAC Security (MACsec), IPsec (RFC 4303) and VXLANsec for flexible encryption of layer 2, layer 3 or overlay networks. While MACsec operates at the link layer, offering point to point encryption, IPsec and VXLANsec enable the construction of encrypted IP tunnels that traverse multiple unencrypted hops between router or VTEP endpoints enabling line-rate strong encryption across third party infrastructure for WAN or DCI deployments.

The flexibility to offer multiple types of encryption enables a broad range of deployments and removes the need for additional encryption devices while providing orders of magnitude improvements in latency and throughput when compared to traditional appliance based implementations. The 7280R3AM and 7280R3AK series support TunnelSec on all interface speeds, from 10G to 400G without a performance penalty. Encryption services are an EOS licensed feature and requires a license file to enable the encryption feature. License information is included in the ordering information section of this document.

Dense 400G DWDM

Arista's R3A platforms are optimized to support high power 400ZR OSFP and QSFP-DD optical modules. 400ZR modules are software tunable, DWDM, coherent optical modules, with a reach of up to 120km. When combined with Arista's ZR Line System, up to 8x 400ZR modules can be multiplexed to transport 3.2 Tb/s over a single fiber pair. Arista's ZR Line System consists of the AMP-ZR, an optical amplifier packaged into a single transceiver module, and the CAB-LC8-CS, a simple fiber splitter/combiner that multiplexes up to 8x 400ZR modules into a fiber pair. Selected 7280R3A platforms include dedicated ports that can house the amplifier without using data plane ports. The combination of 7280R3A, 400G-ZR and the ZR-LS represent a revolutionary plug-and-play approach, completely eliminating external transponders and line systems while reducing cost and complexity - allowing DCI links to be turned up as quickly and easily as inside-the-datacenter links.

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 7280R3AK Series of products.

- 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

Enhanced Features for High Performance Cloud Networks

The Arista 7280R3A Series 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.
Arista offers solutions for a variety of approaches to cloud-like network automation.

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.

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, offering both Boundary and Transparent clock modes. The system clock can be synchronized using IEEE 1588 PTP.

Cluster Load Balancing (CLB)

Cluster Load Balancing is an innovative new AI load balancing mechanism, utilizing RDMA queue pairs to ensure optimal traffic distribution. AI clusters typically have low quantities of large bandwidth flows, which can result in high tail end latency if congestion occurs. CLB implements granular global flow placement to ensure high performance for all flows, minimizing job completion time.
Traditional load balancing methods perform local load-aware flow placement, optimizing leaf-to-spine links, however traffic from spine-to-leaf is typically less optimized. CLB approaches this problem with a global view, and is able to simultaneously optimize flows from both leaf-to-spine and spine-to-leaf, maximizing network utilization and efficiency.

Virtualization

The foundation for Arista's Network Virtualization solutions is VXLAN, an open IETF specification designed to standardize an overlay encapsulation protocol. Arista solutions range from OVSDB and Openstack integration to BGP EVPN in conjunction with EOS CloudVision®, a platform for network-wide workload orchestration and workflow automation.
The 7280R3A builds on the deep buffer wire-speed gateway with EVPN/VXLAN for layer-2 and layer-3 stretch within data center as well as DCI use cases. The 7280R3A is the perfect solution for transit gateway between EVPN domains connected over MPLS.

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 7280R3A, 7280R3AM and 7280R3AK Series of products, with the ability to originate, pass and terminate, along with mirroring to external collectors.

7280R3A 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. With the 7280R3A 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 full wire speed systems or higher rates with selective sampling based on triggers and filters. All sFlow v5 information is included in the sFlow records ensuring consistent integration with existing standard sFlow collection and analysis tools and no loss of information.

Maximum Network Design Flexibility

- Scalable designs with up to a 512-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
- Scalable routing tables to support internet route peering
- Wide choice of dense 25G, 100G and 400G interfaces with broad support for flexible 10G, 25G, 50G or 200G 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, Accelerated 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

7280R3A High Availability

The Arista 7280R3A switches were designed for continuous operations with system wide monitoring of both hardware and software components, simple serviceability and provisioning to prevent single points of failure. Key high availability features include:

- N+N hot-swappable power supplies and hot-swap fans provide dynamic temperature control combined with N+1 redundancy
- Color coded PSU's and fans that deliver platinum level power efficiency
- Live software patching
- Self healing software with Stateful Fault Repair (SFR)

7280R3A System Scalability

Switch Model	**7280R3A Modular Series**			**7280R3AK Modular Series**			
Profile	L3	L3-Traffic Policy	Balanced	L3-XL	L3-XXL	L3-XXXL	Balanced-XL
ARP Entries	88k	88k	80k	112k	112k	80k	96k
MAC Addresses	224k	192k	224k	256k	192k	384k	256k
IPv4 Unicast Routes	1450k	800k	800k	2250k	2850k	3950k	1850k
Additional IPv4 Unicast Routes with FlexRoute	+ 1792k	+ 1536k	+ 1792k	+ 2048k	+ 1536k	+ 3072k	+ 2048k
IPv6 Unicast Routes	433-483k	250-267k	250-267k	683-750k	833-950k	1100-1317k	567-617k
Multicast Routes	112k	96k	112k	128k	96k	192k	128k
TCAM ACL Entries (Per chip)	24k	24k	24k	24k	24k	24k	24k
Traffic Policy ACL IPv4 Prefixes	30k	561k	30k	561k	374k	30k	561k
Traffic Policy ACL IPv6 Prefixes	10k	187k	10k	187k	125k	10k	187k
ECMP	512-Way	512-Way	512-Way	512-Way	512-Way	512-Way	512-Way
CFM	-	-	Yes	-	-	-	Yes

Maximum values dependent on shared resources in some cases

Supported Features in EOS

A list of supported features can be found at: https://www.arista.com/en/support/product-documentation/supported-features

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
  - 2048 groups per system (subject to system density)
- MLAG (Multi-Chassis Link Aggregation)
  - Uses IEEE 802.3ad LACP
  - 512 ports per MLAG
- 802.1Q VLANs/Trunking
- 802.1AB Link Layer Discovery Protocol
- 802.3x Receive Flow Control
- IGMP v1/v2/v3 snooping
- Storm Control
- Layer 2 sub-interfaces

Layer 3 Features

- Static Routes
- Routing Protocols: OSPF, OSPFv3, BGP, MP-BGP, IS-IS, and RIPv2
- BGP FlowSpec, BMP, BGP-RPKI, PIC
- 512-way Equal Cost Multipath Routing (ECMP)
- Unequal Cost Multipath Routing with BGP communities
- VRF, Inter-VRF Route Leaking
- Bi-Directional Forwarding Detection (BFD)
- Micro BFD (RFC 7130)
- Unicast Reverse Path Forwarding (uRPF)
- VXLAN Bridging and Routing
- VRRP / VRRPv3
- Virtual ARP (VARP)
- Policy Based Routing (PBR)
- Route Maps & RCF (Routing Control Functions)
- Layer 3 sub-interfaces
- Route-target pruning, Route-target constraints
- Route Reflector, Optimal Route Reflector

Multicast

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

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 (14 sessions)
  - Enhanced Remote Port Mirroring
  - SPAN/TAP M:N Aggregation
  - L2/3/4 Filtering Post-card Telemetry
- 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
- IPFIX

Security Features

- Control Plane Protection (CPP)
- Ingress / Egress ACLs using L2, L3, L4 fields
- Ingress / Egress ACL Logging and Counters
- MAC ACLs
- UDF (User Defined Fields)
- ACL Deny Logging
- ACL Counters
- Atomic ACL Hitless restart
- DHCP Relay / Snooping
- MAC Security
- RADIUS/TACACS+
- ARP trapping and rate limiting
- Scalable traffic policies
- MACsec (IEEE 802.1AE)
- IPsec
- VXLANsec

Quality of Service (QoS) Features

- Up to 8 queues per port / sub-interface
- Strict priority queueing
- DSCP based classification and remarking
- Egress shaping / Weighted round robin (WRR)
- WFQ, CIR*, ETS*, Fixed Priority
- Policing / Shaping, H-QoS
- Explicit Congestion Notification (ECN) marking
- 802.1Qbb Per-Priority Flow Control (PFC)
- 802.1Qaz Enhanced Transmission Selection (ETS)
- Data Center Bridging Extensions (DCBX)
- Virtual Output Queueing
- Distributed Scheduler

Precision Timing

- Synchronous Ethernet with ESMC
- IEEE 1588-2008 PTP T-GM, T-BC, T-TSC
- G.8275.1, G.8275.2, G.8261, G.8264

* Not currently supported in EOS

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

MPLS

- LDP, RSVP-TE, FRR, BGP-LU, BGP-LS
- Bandwidth reservation, auto-bandwidth, split-tunneling
- ISIS-SR, OSPF-SR*, SR-TE, TI-LFA, BGP-SR, BGP-LU for EPE, ISIS FlexAlgo
- Seamless BFD with Round Trip Time
- Class Based Forwarding
- Flow-Aware Transport (RFC 6391), Entropy label (RFC 6790)

L2/L3 VPN

- IP-VPN (RFC 4364), 6PE, 6vPE, inter-as option A,B&C
- LDP pseudowires (Type-4 & Type-5)
- VPLS with LDP signaling, BGP-AD
- VPLS with BGP signaling*
- Multicast VPN (NG-MVPN) mLDP with default MDT, data MDT*
- EVPN-VXLAN (L2 & L3)
- EVPN-MPLS (L2 & L3)
- EVPN VLAN based & VLAN-aware services
- EVPN Multihoming
- EVPN VPWS & VPWS-FXC with MPLS
- EVPN integrated Routing & Bridging (IRB)
- EVPN E-tree with MPLS
- EVPN L2 multicast, L3 OISM with VXLAN
- EVPN-VXLAN to EVPN-MPLS, EVPN-VXLAN to EVPN-VXLAN, EVPN-VXLAN to IP-VPN GWs

Extensibility

- Linux Tools
  - Bash shell access and scripting
  - RPM support
  - Custom kernel modules
- Software Defined Networking (SDN)
  - OpenStack Neutron Plug-in support
- Programmatic access to system state
  - EOS SDK, Python, C++, GO
  - Chef, Puppet
  - eAPI (HTTP & HTTPS), NETCONF, RESTCONF, GNMI
  - OpenConfig yang models, EOS native models
- Native KVM/QEMU support

Ethernet OAM

- Ethernet CFM (UP, DOWN MEPs)
- LM (Loss Measurement), SLM (Synthetic Loss Measurement), DM (Delay Measurement)
- RFC2544 (Initiator & reflector)
- TWAMP (Two Way Active Measurement Protocol)
- Link Fault signaling
- EOS connectivity monitor
- MPLS ping & trace route, VCCV support

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)
- RFC 2461 Neighbor Discovery for IP Version 6 (IPv6)
- RFC 2462 IPv6 Stateless Address Autoconfiguration
- RFC 2463 Internet Control Message Protocol (ICMPv6)
- IEEE 1588-2008 Precision Time Protocol

SNMP MIBs

- MIBs available at https://www.arista.com/en/support/product-documentation/arista-snmp-mibs

OpenConfig paths

- Supported paths available at https://www.arista.com/en/support/toi/path-support

* Not currently supported in EOS

Chassis	DCS-7289-CH
Supervisor slots	1
Linecard Slots	9
Power Supply Slots	4 (N+N Redundant)
Fan Modules	5 (N+1 Redundant)
Size (HxWxD) including ejectors and handles	7″ x 17.4″ x 27.1″ (17.9 x 44.2 x 68.83 cm)
Rack Space	4 RU
Weight (Chassis only)	30 lbs (13.6 kg)
Weight (Fully configured system)	105 lbs (47.62 kg)
Typical Power Consumption	1244 W [2/3]
Maximum Power Consumption	1927 W [4]
Power Supplies	PWR-1900 AC or DC
EOS Feature Licenses	LIC-FIX-5
Minimum EOS	4.28.2

Supervisor Module	DCS-7289-SUP-D	DCS-7289-SUPS-D
CPU	Eight-Core x86	
System Memory	64 Gigabytes	
10/100/1000 Mgmt Ports	1	
1G SFP Mgmt Port (SX, LX)	1	
RS-232 Serial Ports	1 (RJ-45)	
USB Ports	1	
SSD Storage	240 GB	
Typical/Max Power Draw	35 W / 55 W	
Size (HxWxD)	4.0″ x 1.0″ x 17.0″ (10.2 x 2.43 x 43.2 cm)	
Weight	2.5 lbs (1.14 kg)	
Minimum EOS	4.28.2	

Interface Modules	DCS-7368-16S	DCS-7358-16C	DCS-7368-4D	DCS-7368-4P
Ports	16 x SFP28	16 x QSFP28	4 x QSFP-DD	4 x OSFP
Max 400GbE Ports	—	—	4	4
Max 200GbE Ports	—	4	8	8
Max 100GbE Ports	—	16	16	16
Max 25GbE Ports [1]	16	20	16	16
Max 10GbE Ports [1]	16	20	16	16
Typical/Max Power Draw [2]	36 W [3] / 88 W [4]	83 W [3] / 140 W [4]	72 W [3] / 140 W [4]	72 W [3] / 140 W [4]
Size (HxWxD)	6.7″ x 1.7″ x 9.5″ (17 x 4.4 x 24.2 cm)	6.7″ x 1.7″ x 9.5″ (17 x 4.4 x 24.2 cm)	6.7″ x 1.7″ x 9.5″ (17 x 4.4 x 24.2 cm)	6.7″ x 1.7″ x 9.5″ (17 x 4.4 x 24.2 cm)
Weight	2.56 lbs (1.16 kg)	3.1 lbs (1.41 kg)	2.7 lbs (1.23 kg)	2.7 lbs (1.23 kg)
Chassis Support	DCS-7289-CH			
Airflow Option	Front to Rear Only			
Minimum EOS	4.28.2			

1. Maximum port values depend on system-wide limits and EOS support, may require the use of break-outs and are subject to transceiver/cable capabilities. It may not be possible to achieve full breakout on all line card ports simultaneously. Detailed information can be found here.
2. System configuration: 1 x Sup, 1 x Switch Card, 8 x 16C line cards, 5 x fans, 2 x power supplies
3. Typical power measured at 25C ambient with 50% load (Excluding optics and cables)
4. Maximum power measured with 2.5W SFP+ / 4.5W QSFP100 / 20W OSFP or QSFP-DD on all ports, adjust as appropriate for lower power optics

Switch Card	DCS-7289R3A-SC DCS-7289R3AM-SC DCS-7289R3AK-SC
Packet Buffer Memory	16 GB
Maximum Throughput	14.4 Tbps / 5.4 Bpps
Latency	From 3.8 us
Size (HxWxD)	4.8" x 17.0" x 17.8" (12..2 x 43.2 x 45.2 cm)
Weight	36.0 lbs (16.3 kg)
Typical/Max Power Draw	650 W / 950 W
Chassis Support	DCS-7289-CH
Minimum EOS	4.28.2

Power Supply Specifications

Power Supply	PWR-1900AC	PWR-1900-DC
Output Power	2000 W	1900 W
Input Voltage	200-240 V AC	40-72 V DC
Typical Input Current	11.2 - 9.5 A	44 A Max (-48 V)
Input Frequency	50/60 Hz	DC
Input Connector	IEC 60320 C20	AWG #6 Max
Efficiency (Typical)	93% Platinum	95%

Environmental Characteristics

Operating Temperature	0 to 40°C (32 to 104°F)
Storage Temperature	-40 to 70°C (-40 to 158°F)
Relative Humidity	5 to 95%
Operating Altitude	0 to 10,000 ft, (0-3,000m)

Standards Compliance

EMC	FCC A ICES-003 Issue 7 EN 55032:2015 EN IEC 61000-3-2:2019 EN 61000-3-3 KS C 9832 VCCI-CISPR 32:2016 AS/NZS CISPR 32:2015 +A1 2020 EN 300 386 TEC/SD/DD/EMC-221 CNS 15936 BS EN 55032:2015+A11:2020 BS EN IEC 61000-3-2 BS EN 61000-3-3
Immunity	EN 55035:2017+A11:2020 EN 300 386 KS C9835 BS EN 55035:2017+A11:2020
Safety	EN 62368-1:2020+A11:2020 EN 62368-1:2014+A11:2017 IEC 62368-1: 2018 Korea KC Safety KC 62368-1 (2021-08) CSA/UL 62368-1:2019 NOM 019-SCFI-1998 CNS 15598-1 AS/NZS 62368.1:2022
Certifications	BSMI (Taiwan) FCC Class A (United States) ICES-003 (Canada) CE (European Union) KCC (South Korea) NRTL (North America) RCM (Australia / New Zealand) UKCA (United Kingdom) VCCI (Japan) TEC (India) ANATEL (Brazil) ICASA (South Africa) NOM Equivalency (Mexico)
European Union Directives	2014/35/EU Low Voltage Directive 2014/30/EU EMC Directive 2012/19/EU WEEE Directive 2011/65/EU RoHS Directive 2015/863/EU Commission Delegated Directive
Further Information	Product Certification Portal

Arista Optics and Cables

The Arista 7280R3A Modular Series supports a wide range of 10G to 400G pluggable optics and cables. For details about the different optical modules and the minimum EOS Software release required for each of the supported optical modules, visit: https://www.arista.com/en/products/transceivers-cables.

Supported Optics and Cables [1]

Interface Type	400G OSFP ports
400GBASE-CR8	OSFP to OSFP: 1m-3m lengths
400GBASE-AOC	OSFP to OSFP: 1m-30m lengths
400GBASE-SR8	100m OM3/4 Parallel MMF
400GBASE-DR4	500m Parallel SM
400GBASE-XDR4	2km Parallel SM
400GBASE-FR4	2km Duplex SM
400GBASE-2FR4	2km 2 x Duplex SM
400GBASE-LR4	10km Duplex SM
400GBASE-PLR4	10km Parallel SM
400GBASE-ZR	120km (with optical amplification)
200GBASE-CR4	OSFP to 2xQSFP: 1m to 3m lengths
200GBASE-SR4	100m (using OSFP-400G-SR8)
200GBASE-FR4	2km (using OSFP-400G-2FR4)
100GBASE-CR2	OSFP to 4xQSFP: 1m to 3m lengths
100GBASE-CR4 [2]	OSFP to 2xQSFP: 1m to 3m lengths
50GBASE-CR	OSFP to 8xSFP: 1 to 3m lengths
50GBASE-CR2 [2]	OSFP to 4xQSFP: 1m to 3m lengths
25GBASE-CR [2]	OSFP to 8xSFP: 1m to 3m lengths

Supported Optics and Cables [1]

Interface Type	400G QSFP-DD ports
400GBASE-CR8	QSFP-DD to QSFP-DD: 1m-2.5m lengths
400GBASE-AOC	QSFP-DD to QSFP-DD: 1m-30m lengths
400GBASE-SR8	100m OM3/4 Parallel MMF
400GBASE-DR4	500m Parallel SM
400GBASE-XDR4	2km Parallel SM
400GBASE-FR4	2km Duplex SM
400GBASE-LR4	10km Duplex SM
400GBASE-PLR4	10km Parallel SM
400GBASE-ZR	120km (with optical amplification)
200GBASE-CR4	QSFP-DD to 2xQSFP: 1m to 2.5m lengths
200GBASE-SR4	100m (QDD-400G-SR8 / QSFP-200G-SR4)
200GBASE-FR4	2km (using QSFP-200G-FR4)
100GBASE-CR2	QSFP-DD to 4xQSFP: 1m to 3m lengths
100GBASE-CR4 [2]	QSFP-DD to 2xQSFP: 1m to 3m lengths
50GBASE-CR	QSFP-DD to 8xQSFP: 1m to 3m lengths
50GBASE-CR2 [2]	QSFP-DD to 4xQSFP: 1m to 3m lengths
25GBASE-CR [2]	QSFP-DD to 8xSFP: 1m to 3m lengths

1. For a complete list of transceivers, please refer to the Transceiver Datasheet and check EOS release notes for support
2. 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 [1]

Interface Type	40G QSFP ports
10GBASE-CR	QSFP+ to 4xSFP+: 0.5m-5m lengths
40GBASE-CR4	QSFP+ to QSFP+: 0.5m-5m lengths
40GBASE-AOC	3m to 100m lengths
40GBASE-UNIV	150m OM3 / 150m OM4, 500m SM
40GBASE-SRBD	100m OM3 /150m OM4 Duplex MMF
40GBASE-SR4	100m OM3 /150m OM4 Parallel MMF
40GBASE-XSR4	300m OM3 /400m OM4 Parallel MMF
40GBASE-PLRL4	1km (1km 4x10G LR/LRL)
40GBASE-PLR4	10km (10km 4x10G LR/LRL)
40GBASE-LRL4	1km Duplex SM
40GBASE-LR4	10km Duplex SM
40GBASE-ER4	40km Duplex SM
100GbE	**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 Duplex SM
100GBASE-LR4	10km Duplex SM
100GBASE-LRL4	2km Duplex SM
100GBASE-XCWDM4	10km Duplex SM
100GBASE-CWDM4	2km Duplex SM
100GBASE-FR	2km Duplex SM
100GBASE-DR	500m Duplex SM
100GBASE-PSM4	500m Parallel SM
100GBASE-AOC	1m to 30m lengths
100GBASE-ERL4	40km Duplex SM
100GBASE-CR4	QSFP to QSFP: 1m to 5m lengths
50GBASE-CR2	QSFP to 2xQSFP: 1m to 5m lengths
25GBASE-CR	QSFP to SFP25: 1m to 5m lengths

Supported Optics and Cables [1]

10GbE	SFP+ ports
10GBASE-CR	SFP+ to SFP+: 0.5m-5m lengths
10GBASE-AOC	SFP+ to SFP+: 3m-30m lengths
10GBASE-SRL	100m OM3 /150m OM4 Duplex MMF
10GBASE-SR	300m OM3 / 400m OM4 Duplex MMF
10GBASE-LRL	1km Duplex SM
10GBASE-LR	10km Duplex SM
10GBASE-ER	40km Duplex SM
10GBASE-ZR	80km Duplex SM
10GBASE-T	Up to 30m over Cat6a
10GBASE-DWDM	80km Duplex SM
25GbE	**25G SFP Ports**
25GBASE-CR	SFP25 to SFP25: 1m-5m lengths
25GBASE-AOC	SFP+ to SFP+: 3m-30m lengths
25GBASE-MR-XSR	25G: 200m OM3 / 300m OM4 Duplex MMF 10G: 300m OM3 / 400m OM4 Duplex MMF
25GBASE-MR-SR	25G: 70m OM3 / 100m OM4 Duplex MMF 10G: 300m OM3 / 400m OM4 Duplex MMF
25GBASE-SR	70m OM3 / 100m OM4 Duplex MMF
25GBASE-LR	10km Duplex SM
25GBASE-MR-LR	10km Duplex SM

1. For a complete list of transceivers, please refer to the Transceiver Datasheet and check EOS release notes for support
2. Requires OSFP / QSFP-DD port to be configured for 200G, 8 x 25G NRZ lanes. Allows interop with 100G QSFP and 25G SFP ports

Product Number	Product Description
DCS-7289R3A-BND-D-F	Arista 7289R3 System bundle. Includes 7289 chassis, AC PS, Fans, Supervisor and R3A Switch Card (front to rear air)
DCS-7289R3AM-BND-D-F	Arista 7289R3 System bundle. Includes 7289 chassis, AC PS, Fans, Supervisor and R3AM Switch Card (front to rear air)
DCS-7289R3AK-BND-D-F	Arista 7289R3 System bundle. Includes 7289 chassis, AC PS, Fans, Supervisor and R3AK Switch Card (front to rear air)
DCS-7289R3A-BND-D-DC-F	Arista 7289R3 System bundle. Includes 7289 chassis, DC PS, Fans, Supervisor and R3A Switch Card (front to rear air)
DCS-7289R3AM-BND-D-DC-F	Arista 7289R3 System bundle. Includes 7289 chassis, DC PS, Fans, Supervisor and R3AM Switch Card (front to rear air)
DCS-7289R3AK-BND-D-DC-F	Arista 7289R3 System bundle. Includes 7289 chassis, DC PS, Fans, Supervisor and R3AK Switch Card (front to rear air)
DCS-7289R3A-SC	7289R3A Switch Card for 7289 chassis, R3A-SC, includes Fans, Spare
DCS-7289R3AM-SC	7289R3A Switch Card with Enh MACsec for 7289 chassis, R3AM-SC, includes Fans, Spare
DCS-7289R3AK-SC	7289R3A Switch Card with Route Scale and Enh MACsec for 7289 chassis, R3AK-SC, includes Fans, Spare
DCS-7289-CH	Arista 7289 empty chassis, 1 supervisor slot, 9 module slots
DCS-7289-SUP-D	Supervisor module for 7289 Series, with SSD, Spare
DCS-7289-SUPS-D	Supervisor-S module for 7289 Series, with SSD, Spare
DCS-7368-4P	Arista 7368X-4P module for 7358X, 7368X and 7289R Series, 4 port 400GbE OSFP (Spare)
DCS-7368-4D	Arista 7368X-4D module for 7358X, 7368X and 7289R Series, 4 port 400GbE QSFP-DD (Spare)
DCS-7358-16C	Arista 7358X-16C module for 7358X, 7368X and 7289R Series, 16 port 100GbE QSFP (Spare)
DCS-7368-16S	Arista 7368X-16S module for 7358X, 7368X and 7289R Series, 16 port 25GbE SFP (Spare)
LIC-FIX-5-E	Enhanced L3 License for Arista Group 5 Fixed switches, (BGP, OSPF, ISIS, PIM, NAT)
LIC-FIX-5-Z	Monitoring & Automation license for Arista Group 5 Fixed switches (ZTP, LANZ, TapAgg, OpenFlow)
LIC-FIX-5-V	Virtualization license for Group 5 Arista Fixed switches (VMTracer and VXLAN)
LIC-FIX-5-V2	EOS Extensions, Security and Partner Integration license for Arista Group 3 Fixed switches
LIC-FIX-5-FLX-L	FLX-Lite License for Arista Fixed switches Group 5 - Full Routing Up to 256K Routes, EVPN, VXLAN, SR, base MPLS LSR (no TE or link/node protection)
LIC-FIX-5-FLX	FLX License for Arista Fixed Group 5 - Full Routing up to 2M Routes, >24K ACL, EVPN, VXLAN, SR, Adv MPLS-LER/LSR, with TE & link/node protection
LIC-FIX-5-MACSEC	MACSEC Encryption License for Arista Group 5 Fixed switches, MACSEC capable ports
LIC-FIX-5-ENCR	Enhanced Security Encryption License for Arista Group 5 Fixed switches, Encryption capable ports, TunnelSec, IPsec and MACsec

Optional Components and Spares

FAN-7012MP-RED	Spare fan module for Arista 7000 Series 2RU Enhanced Fan Speed (front-to-rear airflow)
PWR-1900AC-F	Spare 1900 Watt AC power supply for Arista 7358X/7368X/7289R3A Switches (front-to-rear airflow)
PWR-1900-DC-F	Spare 1900W DC Power Supply for 7358X/7368X/7289R3A Switches (front to rear airflow)
DCS-7368-PCVR	Blank Cover for 7358X/7368X/7289R3A Power Supply Slot
DCS-7368-LCVR	Blank cover for 7358X/7368X/7289R3A module slot
KIT-7368	Spare accessory kit for Arista 7358X, 7368X and 7289R Series 4U switches. 4-post mount. (2x C19-C20, 2m)
CAB-C19-C20	Power cord C19 to C20 (2m)
CAB-C19-L6-20	Power cord C19 to L6-20 (2.5m)

Warranty

The Arista 7280R3A Modular switch comes 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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