

## Product Highlights

### Density and Performance

- 7280CR3MK-32P4S: 32x 100G and 4x 400G
- 7280CR3MK-32D4S: 32x 100G and 4x 400G
- 7280SR3M-48YC8: 48x 25G and 8x 100G
- Wire speed L2 and L3 forwarding
- Up to 4.8Tbps of wire speed performance with 8GB of buffer
- Broad connectivity with 25G SFP, 100G QSFP and 400G OSFP / QSFP-DD
- Up to 256K MAC Addresses
- Over 1.4M IPv4 Unicast Routes
- Over 5M IPv4 Routes with 7280R3K
- Algorithmic ACLs for 100K rules

### Wire-speed Encryption

- IEEE 802.1AE MACsec encryption
- Optimized for secure DCI and site-site encryption in a compact footprint

### 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 (PTP and SyncE\*)
- Open programmable APIs (JSON-RPC, NETCONF) for provisioning, telemetry, path selection/topology discovery

### Data Center Optimized Design

- Ultra-deep packet buffers
- Virtual Output Queues per port to eliminate head of line blocking
- Redundant & hot-swap power and fans
- Front-to-rear or rear-to-front cooling

### Virtualization and Provisioning

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

### Resilient Control Plane

- High Performance x86 CPU
- Up to 64GB System memory / 120 GB SSD

### Arista Extensible Operating System

- Single 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 7280R3 Series of fixed systems, including the 7280R3 and the 7280R3K, are key components of the Arista 7000 Series portfolio of data center switches. The 7280R3 MACsec systems are high performance compact routing platforms with built-in wire speed MACsec encryption that is purpose built for the highest performance environments, and to meet the needs of large scale data centers. They deliver scalable L2 and L3 resources and high density with advanced features for encryption, network monitoring, precision timing and network virtualization to deliver scalable and deterministic network performance while simplifying designs and reducing Opex. The built-in MACsec capability removes the need for external encryption devices and provides security against intrusion, passive wire tapping and other playback attacks. MACsec encryption meets regulatory compliance requirements and provides data protection without loss of performance.

The Arista MACsec solution utilizes proven encryption technology to protect traffic for simple, reliable and scalable data center interconnect and for securing links between tiers in leaf and spine data center designs. MACsec offers security in the data link layer and is transparent and non-disruptive to L2/L3 traffic. Flexible 100GbE QSFP and 400GbE OSFP or QSFP-DD pluggable optics ensure a broad choice of cost effective connections.

The 7280R3 MACsec systems can be deployed in a wide range of open networking solutions including secure Data Center Interconnect (DCI), large scale layer 2 and layer 3 cloud designs, overlay networks and virtualized or traditional enterprise data center networks. Deep packet buffers and large routing tables allow for internet peering applications. The broad range of interfaces and density choice provides deployment flexibility.



*Arista 7280R3 MACsec systems*

## Arista EOS

All Arista products including the 7280R3 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.

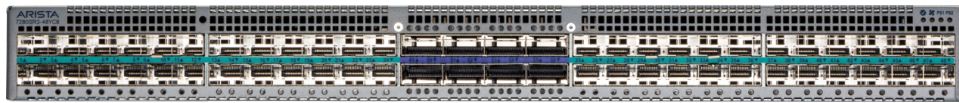
## Model Overview

The Arista 7280R3 MACSec systems delivers high performance, large packet buffers, high scale and availability with wire speed MACSec encryption. EOS provides feature rich layer 2 and layer 3 forwarding suited for leaf, spine and DCI roles, connecting to existing and next generation systems with a choice of interface speeds.



7280CR3MK-32P4S or -32D4S: 32 ports QSFP100 and 4 ports OSFP 400G or QSFP-DD

- 32x 100G QSFP ports with MACsec enable 32 x 100GbE or 40G, and breakout to 10G, 25G and 50G modes on alternate ports.
- 4 x 400G OSFP/QSFP-DD for flexible capacity expansion with both 100G and 400G optics
- 4.8Tbps of wire speed performance with 8GB of buffer and 2Bpps of performance



7280SR3M-48YC8: 48 ports 25G SFP and 8 ports QSFP100

- 48x 25G SFP ports with MACsec allow choice of 1G, 10G and 25G.
- 8 x 100G QSFP ports with MACsec for flexible allow choice of 8 x 100GbE, or 40G, and breakout to 10G, 25G and 50G.
- 2.4Tbps of wire speed performance with 4GB of buffer and 1Bpps of performance

## 100G Wire-speed Encryption

Industry standard IEEE 802.1AE (MAC Security standard, referred to as MACsec) capabilities provide line-rate frame encryption and authentication for all traffic. This removes the need for additional encryption devices and ensures confidentiality as well as provides anti-replay protection and therefore confidence in the integrity of encrypted traffic. MACsec is a link layer encryption technology and operates at the speed of the Ethernet ports, providing high performance without the processing overheads associated with encryption options such as IPSec.

MACsec uses a long-term key to derive session keys used for encryption utilizing the MACsec Key Agreement Protocol per IEEE 802.1X-2010. Long term keys can either be statically defined or derived via RADIUS server(s). Data is encrypted using the 128 bit or 256-bit GCM-AES-XPB block cipher suite. MACsec encryption is a 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.

## 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.

## Cloud Grade Routing

The 7280R3 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.

## 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 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 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 High Performance Interconnects

The Arista 7280R3 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 EVPN/VXLAN and can integrate with standards-based overlay controller solutions.

The Arista 7280R3 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.

## Enhanced Features for High Performance Cloud Networks

The Arista 7280R3 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.

## Advanced 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.

## 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.

## 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.

## 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 7280R3 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 7280R3 is the perfect solution for transit gateway between EVPN domains connected over MPLS.

## 7280R3 Deterministic Network Performance

The Arista 7280R3 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 7280R3 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.

## 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 7280R3 and 7280R3K 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

## 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 7280R3 and 7280R3K Series of products, with the ability to originate, pass and terminate, along with mirroring to external collectors.

## 7280R3 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 7280R3 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.

## 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 7280R3 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.

## 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 1.4 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 7280R3K Series expand FlexRoute support to over 5M routes.

## 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 100G and 400G interfaces with broad 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, 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

## 7280R3 High Availability

The Arista 7280R3 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:

- 1+1 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)
- Smart System Upgrade (SSU) and Accelerated Software Update (ASU)



*Arista 7280R3 1RU Rear View: Front to Rear airflow (red)*



*Hot swap fan modules*



*Hot swap power supplies*

## 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
  - 1024 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 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
- BGP FlowSpec, BMP, BGP-RPKI, PIC
- 512-way Equal Cost Multipath Routing (ECMP)
- VRF, Inter-VRF Route Leaking
- Bi-Directional Forwarding Detection (BFD)
- Unicast Reverse Path Forwarding (uRPF)
- VXLAN Bridging and Routing
- VRRP
- Virtual ARP (VARP)
- Policy Based Routing (PBR)
- Route Maps
- RCF

## Multicast

- IGMP v2/v3
- MLD v2
- 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 (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
- IEEE 1588 PTP

## MPLS Support

- LDP, RSVP-TE, Segment Routing (SR), SR-TE, BGP-LU, BGP-LS, TE-FRR, TI-LFA
- L3VPN, 6PE/6vPE, L2VPN - EoMPLS PWEs, VPLS\*, EVPN-MPLS Gateway
- EVPN (L2 and L3), EVPN-MPLS, EVPN A-A, EVPN-VPWS, EVPN-DCI\*, EVPN-Multicast

## 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
- MACsec (802.1AE)
- 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)
- 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) \*

## 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

## 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
  - GO
  - OpenConfig
  - OpenStack Neutron Plug-in support
- Native KVM/QEMU support

## System Scalability

- 9216 Byte Jumbo Frame Support
- 8 Priority Queues per Port
- Large Scale Link Aggregation Groups (LAG)
  - 1024 x 16 Ports per LAG
  - 64 x 256 Ports per LAG
- Virtual Output Queueing
- Distributed Scheduler

## 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

- 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

Model	7280CR3MK-32P4S	7280CR3MK-32D4S	7280SR3M-48YC8
Ports	32 x QSFP100, 4 x OSFP	32 x QSFP100, 4 x QSFP-DD	48 x SFP 1/10/25G, 8 x QSFP100
Max 400G Ports <sup>1</sup>	4	4	—
Max 100G Ports <sup>1</sup>	48	48	8
Max 50G Ports <sup>1</sup>	96	96	16
Max 40G Ports <sup>1</sup>	36	36	8
Max 25/10G Ports <sup>1</sup>	96	96	80
Max 1G Ports <sup>1</sup>	—	—	48
Max Total Interfaces <sup>2</sup>	96	96	80
MACsec Support	QSFP100 Ports	QSFP100 Ports	All Ports
Throughput (FDX)	4.8 (9.6) Tbps	4.8 (9.6) Tbps	2.0 (4.0) Tbps
Packets/Second	2 Bpps	2 Bpps	1 Bpps
Latency	From 3.8 us	From 3.8 us	From 3.8 us
CPU	Multi-core x86	Multi-core x86	Multi-core x86
System Memory	64 GB	64 GB	8 GB
Packet Buffer Memory	8 GB	8 GB	4 GB
USB Ports	1	1	1
Flash Storage Memory	8 GB	8 GB	8 GB
SSD Storage	120 GB	120 GB	—
100/1000 Mgmt Ports		1	
RS-232 Serial Ports		1 (RJ-45)	
Hot-swap Power		2 (1+1 redundant)	
Hot-swap Fans		3 (N+1 redundant)	
Airflow Direction		Front to rear	Front to rear and Rear to front
Rack Units		1 U	
Size (WxHxD)		17.3 x 1.72 x 22.0 in (43.99 x 4.37 x 55.83 cm)	17.3 x 1.72 x 22.28 in (43.99 x 4.35 x 56.6 cm)
Typical/Max Power Draw <sup>3</sup>		535 W / 851 W	272 W / 485 W
Weight		27 lbs (12.27 kg)	26.2 lbs (11.88 kg)
Fan Tray		FAN-7011H	FAN-7011M
Power Supplies		PWR-1011 (AC or DC)	PWR-1011 (AC or DC)
EOS Feature License		Group 3	Group 2
Minimum EOS		4.25.2F	TBD

1. Maximum port numbers are uni-dimensional, may require the use of break-outs and are subject to transceiver/cable capabilities

2. Where supported by EOS, each system supports a maximum number of interfaces. Certain configurations may impose restrictions on which physical ports can be used

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



Switch Model	7280R3 Series		7280R3K Series			
	L3	Balanced	L3-XL	L3-XXL	L3-XXXL	Balanced-XL
Profile	L3	Balanced	L3-XL	L3-XXL	L3-XXXL	Balanced-XL
ARP Entries	88k	80k	112k	112k	80k	96k
MAC Addresses	224k	224k	256k	192k	384k	256k
IPv4 Unicast Routes	1450k	800k	2250k	2850k	3950k	1850k
Additional IPv4 Unicast Routes with FlexRoute	+ 1,792k	+ 1,792k	+ 2,048k	+ 1,536k	+ 3,072k	+ 2,048k
IPv6 Unicast Routes	433-483k	250-267k	683-750k	833-950k	1100-1317k	567-617k
Multicast Routes	128k	128k	128k	128k	128k	128k
TCAM ACL Entries (Per chip)	24k	24k	24k	24k	24k	24k
Traffic Policy ACL IPv4 Prefixes	30k	30k	430k	296k	30k	430k
Traffic Policy ACL IPv6 Prefixes	10k	10k	150k	100k	10k	150k
ECMP	512-Way	512-Way	512-Way	512-Way	512-Way	512-Way

Maximum values dependent on shared resources in some cases

### Power Supply Specifications

Power Supply	PWR-1011AC	PWR-1011 DC
Input Voltage	100-240V AC	-48 to -60 VDC
Typical Input Current	12 - 6A	23A Max (-48V)
Input Frequency	50/60Hz	DC
Output Power	1100 W	1000 W
Input Connector	IEC 320-C13	AWG #6 Max
Efficiency	93% Platinum	94%

### 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)

### Standards Compliance

European Union Directives	2006/95/EC Low Voltage Directive 2004/108/EC EMC Directive 2011/65/EU RoHS Directive 2012/19/EU WEEE Directive
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### 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)

\*Higher power or reduced temperature range optics may reduce system operating temperature to 35°C (95°F)

### Supported Optics and Cables <sup>1</sup>

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 <sup>2</sup>	OSFP to 2xQSFP: 1m to 3m lengths
50GBASE-CR	OSFP to 8xSFP: 1 to 3m lengths
50GBASE-CR2 <sup>2</sup>	OSFP to 4xQSFP: 1m to 3m lengths
25GBASE-CR <sup>2</sup>	OSFP to 8xSFP: 1m to 3m lengths

### Supported Optics and Cables <sup>1</sup>

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 <sup>2</sup>	QSFP-DD to 2xQSFP: 1m to 3m lengths
50GBASE-CR	QSFP-DD to 8xQSFP: 1m to 3m lengths
50GBASE-CR2 <sup>2</sup>	QSFP-DD to 4xQSFP: 1m to 3m lengths
25GBASE-CR <sup>2</sup>	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 <sup>1</sup>

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 <sup>1</sup>

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
1GbE SX/LX/TX	550m / 10km / 100m
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-7280CR3MK-32P4S-F	Arista 7280R3S, 32x100GbE QSFP and 4x400GbE OSFP switch router, MACsec, large route, front to rear air, 2 x AC
DCS-7280CR3MK-32P4S-R	Arista 7280R3S, 32x100GbE QSFP and 4x400GbE OSFP switch router, MACsec, large route, rear to front air, 2 x AC
DCS-7280CR3MK-32P4S#	Arista 7280R3S, 32x100GbE QSFP and 4x400GbE OSFP switch router, MACsec large route, configurable fans and psu
DCS-7280CR3MK-32P4S-FLX-F	Arista 7280R3S, 32x100GbE QSFP and 4x400GbE OSFP switch router, MACsec, large route, front to rear air, 2 x AC. Over 256K Routes, MPLS and VXLAN
DCS-7280CR3MK-32P4S-FLX-R	Arista 7280R3S, 32x100GbE QSFP and 4x400GbE OSFP switch router, large route, MACsec, rear to front air, 2 x AC. Over 256K Routes, MPLS and VXLAN
DCS-7280CR3MK-32P4S-FLX#	Arista 7280R3S, 32x100GbE QSFP and 4x400GbE OSFP switch router, large route, MACsec, configurable fans and psu. Over 256K Routes, MPLS and VXLAN
DCS-7280CR3MK-32D4S-F	Arista 7280R3S, 32x100GbE QSFP and 4x400GbE QSFP-DD switch router, MACsec, large route, front to rear air, 2 x AC
DCS-7280CR3MK-32D4S-R	Arista 7280R3S, 32x100GbE QSFP and 4x400GbE QSFP-DD switch router, MACsec, large route, rear to front air, 2 x AC
DCS-7280CR3MK-32D4S#	Arista 7280R3S, 32x100GbE QSFP and 4x400GbE QSFP-DD switch router, MACsec large route, configurable fans and psu
DCS-7280CR3MK-32D4S-FLX-F	Arista 7280R3S, 32x100GbE QSFP and 4x400GbE QSFP-DD switch router, MACsec, large route, front to rear air, 2 x AC. Over 256K Routes, MPLS and VXLAN
DCS-7280CR3MK-32D4S-FLX-R	Arista 7280R3S, 32x100GbE QSFP and 4x400GbE QSFP-DD switch router, large route, MACsec, rear to front air, 2 x AC. Over 256K Routes, MPLS and VXLAN
DCS-7280CR3MK-32D4S-FLX#	Arista 7280R3S, 32x100GbE QSFP and 4x400GbE QSFP-DD switch router, large route, MACsec, configurable fans and psu. Over 256K Routes, MPLS and VXLAN
DCS-7280SR3M-48YC8-F	Arista 7280R3, 48x25GbE SFP and 8x100G QSFP switch router, MACsec, front to rear air, 2 x AC
DCS-7280SR3M-48YC8-R	Arista 7280R3, 48x25GbE SFP and 8x100G QSFP switch router, MACsec, rear to front air, 2 x AC
DCS-7280SR3M-48YC8#	Arista 7280R3, 48x25GbE SFP and 8x100G QSFP switch router, MACsec, configurable fans and psu
PWR-1011-AC-RED	Arista PSU, 1RU, AC/DC, 1000W, FORWARD, 73.5MM
PWR-1011-AC-BLUE	Arista PSU, 1RU, AC/DC, 1000W, REVERSE, 73.5MM
PWR-1011-DC-RED	Arista PSU, 1RU, DC/DC, 1000W, FORWARD, 73.5MM
PWR-1011-DC-BLUE	Arista PSU, 1RU, DC/DC, 1000W, REVERSE, 73.5MM
FAN-7011H-F	Spare fan module for Arista 7000 Series 1RU High Speed Fan (front-to-rear airflow)
FAN-7011H-R	Spare fan module for Arista 7000 Series 1RU High Speed Fan (rear-to-front airflow)
KIT-7001	Spare accessory kit for Arista 1RU tool-less switches
KIT-2POST-1U-NT	Spare 1RU 2 post rail kit for 1RU tool less systems (7050QX-32S, 7050SX/TX and 7280R)
KIT-4POST-NT	Spare 1RU/2RU tool-less rail kits for 4-post installation (7050QX-32S, 7050SX/TX, 7280R and 7250X)
KIT-7202	Configurable accessory kit for Arista 7280R3 Series 2U / C19 switches
KIT-GND-EXT-1RU	Arista 7000 Series 1RU Ground Extender Kit for NEBS compliance (All 7280R3 1RU models)

Note: Front-to-rear means the air flows from the switch port side to the fan side. Rear to front means the air flows from the fan side to the switch port side.

Product Number	Product Description
LIC-FIX-2-MACSEC	MACSEC Encryption License for Arista Group 2 Fixed switches, MACSEC capable ports
LIC-FIX-2-E	Enhanced L3 License for Arista Group 2 Fixed switches, (BGP, OSPF, ISIS, PIM, NAT)
LIC-FIX-2-V	Virtualization license for Group 2 Arista Fixed switches (VMTracer and VXLAN)
LIC-FIX-2-V2	EOS Extensions, Security and Partner Integration license for Arista Group 2 Fixed switches
LIC-FIX-2-Z	Monitoring & Automation license for Arista Group 2 Fixed switches (ZTP, LANZ, TapAgg, API, Time-stamping, OpenFlow)
LIC-FIX-2-FLX-L	FLX-Lite License for Arista Fixed switches Group 2 - Full Routing Up to 256K Routes, EVPN, VXLAN, SR, base MPLS LSR (no TE or link/node protection)
LIC-FIX-2-FLX	FLX License for Arista Fixed Group 2 - Full Routing upto 2M Routes, >24K ACL, EVPN, VXLAN, SR, Adv MPLS-LER/LSR, with TE & link/node protection
LIC-FIX-3-MACSEC	MACSEC Encryption License for Arista Group 3 Fixed switches, MACSEC capable ports
LIC-FIX-3-E	Enhanced L3 License for Arista Group 3 Fixed switches, (BGP, OSPF, ISIS, PIM, NAT)
LIC-FIX-3-V	Virtualization license for Group 3 Arista Fixed switches (VMTracer and VXLAN)
LIC-FIX-3-V2	EOS Extensions, Security and Partner Integration license for Arista Group 3 Fixed switches
LIC-FIX-3-Z	Monitoring & Automation license for Arista Group 3 Fixed switches (ZTP, LANZ, TapAgg, API, Time-stamping, OpenFlow)
LIC-FIX-3-FLX-L	FLX-Lite License for Arista Fixed switches Group 3 - Full Routing Up to 256K Routes, EVPN, VXLAN, SR, base MPLS LSR (no TE or link/node protection)
LIC-FIX-3-FLX	FLX License for Arista Fixed Group 3 - Full Routing upto 2M Routes, >24K ACL, EVPN, VXLAN, SR, Adv MPLS-LER/LSR, with TE & link/node protection

## Warranty

The Arista 7280R3 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>

### Headquarters

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### Support

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