

Overview

Arista 7250QX 10/40G Data Center Switch Series

HPE and Arista share a common vision around the need to deliver secure hybrid IT solutions and experiences built on industry-leading software-defined infrastructure—helping customers to operate their workloads with speed and agility to grow their business. This partnership will provide our customers with proven networking solutions that are superior to legacy alternatives and that complement HPE compute, storage, virtualization, and cloud offerings.

The Arista 7050QX switches are members of the Arista 7050X Series and key components of the Arista portfolio of data center switches. Arista 7050X Series switches are purpose built 10/40GbE data center switches in compact and energy efficient form factors with wire speed Layer 2 and Layer 3 features, combined with advanced features for software-defined cloud networking.

Increased adoption of 10 gigabit Ethernet servers, coupled with applications using higher bandwidth, is accelerating the need for dense 10- and 40-gigabit Ethernet switching. The 7050QX Series supports a flexible combination of 10G and 40G in a highly compact form factor that allows customers to design large leaf and spine networks to accommodate east-west traffic patterns found in modern data centers, high performance compute, and Big Data environments.

Featuring 32 QSFP+ ports in a 1RU form factor, the switches deliver feature-rich Layer 2 and Layer 3 wire speed performance, with an overall throughput of 2.56 Tbps. For configuration flexibility, all models support up to 32x 40GbE ports, or 24 QSFP+ ports can be used as 4x10GbE for a 96x10GbE and 8x 40GbE system. In addition, the 7050QX-32S and 7050QX2-32S feature four SFP+ ports that are internally shared with the first QSFP+ port for directly connecting 10GbE and 1GbE interfaces. The Arista 7050QX switches offer low latency from 550ns in cut-through mode, and a shared packet buffer pool that is allocated dynamically to ports that are congested. With typical power consumption of less than 5 watts per 40GbE port, the 7050QX Series provides industry leading power efficiency. An optional built-in SSD supports advanced logging, data captures, and other services directly on the switch.

Combined with Arista EOS, the 7050QX Series delivers advanced features for Big Data, cloud, and virtualized and traditional designs.



Arista 7050QX-32: 32 x 40GbE QSFP+ ports
Arista 7050QX-32S: 32 x 40GbE QSFP+ ports, 4 SFP+ ports

Product Highlights

Performance

- 7050QX-32: 32x40GbE ports
- 7050QX-32S: 32x40GbE ports & 4x10GbE
- 7050QX2-32S: 32x40GbE ports & 4x10GbE
- Up to 2.56 terabits per second
- Up to 1.44 billion packets per second
- Wire speed L2 and L3 forwarding
- Latency from 550ns

Resilient control plane

- High-performance x86 CPU
- Up to 8 GB DRAM
- Up to 4 GB flash
- User applications can run in a VM

Built-in solid state storage

- Solid state drive option
- Store logs and data captures

Overview

Data center optimized design

- Typical power of 5W per 40GbE port for lower cost of ownership
- Over 92% efficient power supplies
- 1+1 redundant and hot-swappable power
- N+1 redundant and hot-swappable fans
- Front-to-rear or rear-to-front cooling
- Tool-less rails for simple installation

- Leverage Linux tools with no limitations

Advanced provisioning and monitoring

- CloudVision
- Zero touch provisioning (ZTP)
- LANZ for microburst detection
- DANZ advanced mirroring for improved visibility
- sFlow
- Self-configure and recover from USB

Cloud Networking Ready

- VXLAN and VM Tracer
- OpenFlow, DirectFlow, and eAPI
- 288K MAC entries
- 144K IPv4 routes
- 208K IPv4 host routes
- Up to 16 MB dynamic buffer allocation

Arista Extensible Operating System

- Single binary image for all products
- 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++

Arista Extensible Operating System (EOS)

The Arista 7050X runs 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.

With Arista EOS, advanced monitoring and automation capabilities such as zero touch provisioning, VM Tracer, and Linux based tools can run natively on the switch with the powerful x86 CPU subsystem.

High availability

The Arista 7050X Series switches were designed for high availability from both a software and hardware perspective. Key high-availability features include:

- 1+1 hot-swappable power supplies and four N+1 hot-swap fans
- Color coded PSUs and fans
- Live software patching
- Self-healing software with stateful fault repair (SFR)
- Smart System Upgrade (SSU) and Accelerated Software Update (ASU)
- Up to 64 10GbE or 40GbE ports per link aggregation group (LAG)
- Multi-chassis LAG for active/active L2 multi-pathing
- Up to 128-way ECMP routing for load balancing and redundancy

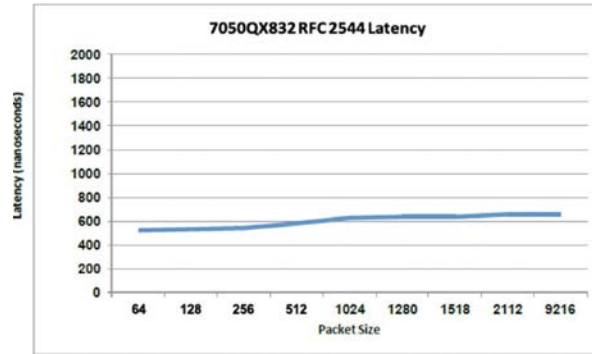


Arista 7050QX 1RU rear view: Front to rear (red) and rear-to-front (blue) airflow

Overview

Dynamic buffer allocation

In cut-through mode, the Arista 7050QX switches forward packets with a latency of 550 nanoseconds to 650 nanoseconds. Upon congestion, the packets are buffered in shared packet memory that has a total size of 12 MB. Unlike other architectures that have fixed per-port packet memory, the 7050QX Series switches use dynamic buffer allocation (DBA) to allocate up to 6.7 MB of packet memory to a single port for lossless forwarding. The 7050QX2-32S has an optimized 16 MB buffer for more demanding environments..

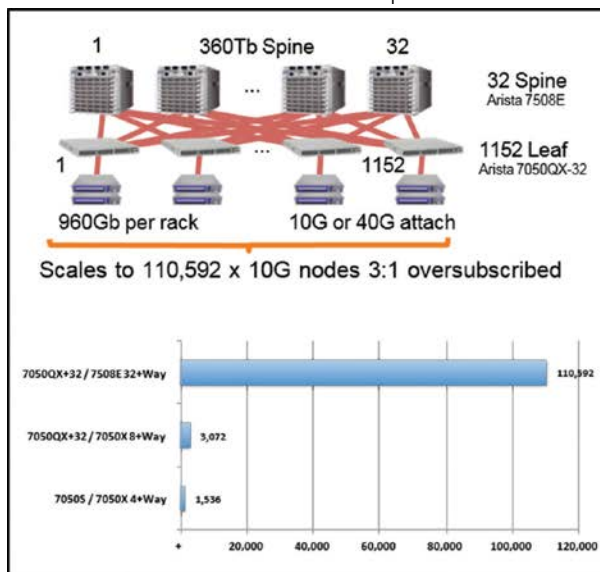


Arista 7050QX: Latency through QSFP+ ports

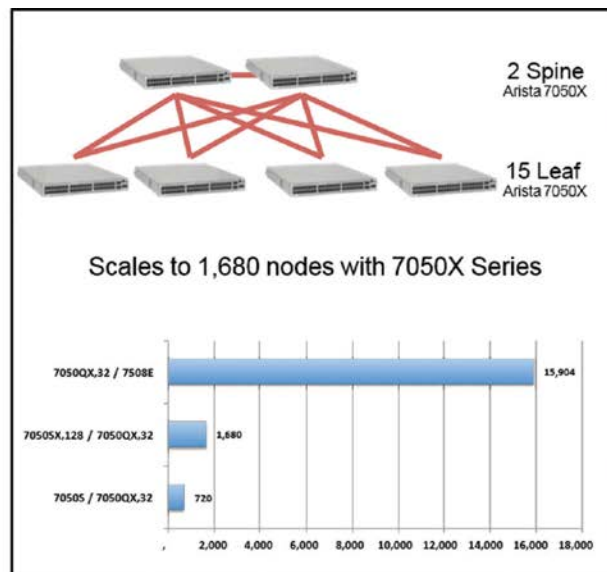
Scaling data center performance

The Arista 7050QX Series delivers line rate switching at Layer 2 and Layer 3 to enable faster and simpler network designs for data centers, which dramatically lowers network capital and operational expenses. When used in conjunction with the Arista 7000 Series of fixed and modular switches, it allows networks to scale to over 110,000 10G servers in low-latency two-tier networks that provide 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. Arista EOS advanced features provide control and visibility with a single point of management.

Arista leaf-spine two-tier network architecture with 7050QX Series



Arista leaf-spine design with L3 ECMP



Arista leaf-spine design with L2MLAG

Maximum flexibility for scale-out network designs

Scale-out network designs enable solutions to start small and evolve over time. A simple two way design can grow as large as 64-way without significant changes to the architecture. The Arista 7050QX includes enhancements that allow for flexible scale-out designs:

- Up to 128-way ECMP and 64-way MLAG provide scalable designs and balance traffic evenly across large-scale two-tier

Overview

leaf-spine designs

- Custom hash algorithms for efficient hashing, persistent hashing, and custom lookups for tunneled protocols.
- Flexible allocation of L2 and L3 forwarding table resources for more design choice
- Wide choice of dense 10G/40G ports for single-port multi-speed flexibility
- VXLAN routing, bridging, and gateway for physical-to-virtualization communication to enable next-generation data center designs
- DANZ, sFlow, and multi-port mirroring to detect micro-burst congestion and provide network wide visibility and monitoring

Software-defined networking

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—with the trend in software-defined networking that delivers: network virtualization, custom programmability, simplified architectures, and lower CAPEX. This combination creates a proven software foundation for raising the value of the network for both the enterprise and service provider data center. This new architecture for the most mission-critical location within the IT infrastructure 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.

Smart System Upgrade

Smart System Upgrade is a network application designed to address one of the most complicated and challenging tasks facing data center administrators: network infrastructure maintenance. Changes to the underlying network infrastructure can affect large numbers of devices and cause significant outages. SSU provides a fully customizable suite of features that tightly couples data center infrastructure to technology partners, allowing for intelligent insertion and removal, programmable updates to software releases, and open integration with application and infrastructure elements.

Advanced Event Management (AEM)

Simplifying the overall operations, AEM provides the tools to customize alerts and actions. AEM is a powerful and flexible set of tools to automate tasks and customize the behavior of EOS and the operation of the overall data center switching infrastructure. 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.

Enhanced features for high-performance networks

The Arista 7050QX delivers a suite of advanced traffic control and monitoring features to improve the agility of modern high-performance environments, with solutions for data monitoring and next-generation virtualization.

Precise data analysis

Arista Latency Analyzer (LANZ) is an integrated feature of EOS. 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.

Virtualization

Supporting next-generation virtualized data centers requires tight integration with orchestration tools and emerging encapsulation technologies such as VXLAN. The 7050QX 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/L3 environments, the 7050QX 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.

Unified forwarding table

Cloud network scalability is directly impacted by the size of a switch'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 7050QX leverages a common unified forwarding table for the L2 MAC, L3 routing, L3 host and IP multicast forwarding entries, which can be partitioned per entry type. The ideal size of each partition varies depending on the network deployment scenario. The flexibility of the UFT, coupled with the range of predefined configuration profiles available on the 7050QX, ensures optimal resource allocation for all network topologies and network virtualization technologies.

Overview

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
 - 64 ports/channel
 - 104 groups per system
- Multi-Chassis Link Aggregation (MLAG)
 - 64 ports per MLAG
- Custom LAG Hashing
- 802.1AB Link Layer Discovery Protocol
- 802.3x Flow Control
- Jumbo Frames (9216 Bytes)
- IGMP v1/v2/v3 Snooping
- Storm Control
- RAIL

Layer 3 features

- Routing protocols: OSPF, OSPFv3, BGP, MP-BGP, IS-IS, and RIPv2
- 64-way Equal Cost Multipath Routing (ECMP)
- Resilient ECMP Routes
- VRF
- BFD
- Route maps
- IGMP v2/v3
- PIM-SM/PIM-SSM/PIM-BIDIR
- Anycast RP (RFC 4610)
- VRRP
- Virtual ARP (VARP)
- Policy Based Routing
- uRPF
- Selective Route Download

Advanced monitoring and provisioning

- Zero touch provisioning (ZTP)
- Latency Analyzer and Microburst Detection (LANZ)
 - Configurable Congestion Notification (CLI, Syslog)
 - Streaming Events (GPB Encoded)*
 - Capture/Mirror of congested traffic*
- Advanced Monitoring
 - Port mirroring (4 active sessions)

Overview

- L2/3/4 Filtering on Mirror Sessions
- Mirror to EOS/SSD
- Advanced Event Management suite (AEM)
 - CLI Scheduler
 - Event Manager
 - Event Monitor
 - Linux tools
- Optional SSD for logging and data capture
- Integrated packet capture/analysis with TCPDump
- RFC 3176 sFlow
- Restore and configure from USB
- Blue Beacon LED for system identification
- Software-defined networking (SDN)
 - OpenFlow 1.0²
 - OpenFlow 1.3²
 - Arista DirectFlow³
 - eAPI
 - OpenStack® Neutron Support
- IEEE 1588 PTP (Transparent Clock and Boundary Clock)³

² Not supported on 7050QX2-32S

³ Not currently supported on 7050QX2-32S

Virtualization support

- VXLAN Gateway (draft-mahalingam-dutt-dcops-vxlan-01)
- VXLAN Tunnel Endpoint
- VXLAN Routing
- VXLAN Bridging
- VM Tracer VMware® Integration
 - VMware vSphere® support
 - VM Auto Discovery
 - VM Adaptive Segmentation
 - VM Host View

Security features

- IPv4/IPv6 Ingress and Egress ACLs using L2, L3, L4 fields
- MAC ACLs
- ACL Drop Logging
- ACL Counters
- Control Plane Protection (CPP)
- DHCP Relay/Snooping
- MAC Security
- TACACS+
- RADIUS

Overview

Quality of service (QoS) features

- Up to 8 queues per port
- 802.1p based classification
- DSCP based classification and remarking
- Explicit Congestion Notification (ECN)
- QoS interface trust (COS/DSCP)
- Strict priority queueing
- Weighted Round Robin (WRR) Scheduling
- Per-Priority Flow Control (PFC)
- Data Center Bridging Extensions (DCBX)
- 802.1Qaz Enhanced Transmissions Selection (ETS)*
- ACL-based DSCP Marking
- ACL-based Policing
- Policing/Shaping
- Rate limiting
- Audio Video Bridging (AVB)*

Network management

- CloudVision
- 10/100/1000 Management Port
- RS-232 Serial Console Port
- USB Port
- SNMP v1, v2, v3
- Management over IPv6
- Telnet and SSHv2
- Syslog
- AAA
- Industry Standard CLI
- Accelerated Software Upgrade (ASU)³

³ Not currently supported on 7050QX2-32S

Extensibility

- Linux tools
 - Bash shell access and scripting
 - RPM support
 - Custom kernel modules
- Programmatic access to system state
 - Python
 - C++
- Native KVM/QEMU support

Standards compliance

- 802.1D Bridging and Spanning Tree

Overview

- 802.1p QOS/COS
- 802.1Q VLAN Tagging
- k802.1w Rapid Spanning Tree
- 802.1s Multiple Spanning Tree Protocol
- 802.1AB Link Layer Discovery Protocol
- 802.3ad Link Aggregation with LACP
 - 802.3ab 1000BASE-T
- 802.3z Gigabit Ethernet
- 802.3ae 10 Gigabit Ethernet
- 802.3ba 40 Gigabit Ethernet
- RFC 2460 Internet Protocol, Version 6 (IPv6) Specification
- RFC 4861 Neighbor Discovery for IP Version 6 (IPv6)
- RFC 4862 IPv6 Stateless Address Autoconfiguration
- RFC 4443 Internet Control Message Protocol (ICMPv6) for the Internet Protocol Version 6 (IPv6) Specification

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

Overview

- ARISTA-REDUNDANCY-MIB
- RFC 2787 VRRPv2-MIB
- 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 the EOS release notes for latest supported MIBs.

* Not currently supported in EOS

Configuration

Ordering Information

Product description

Arista 7050X 32QSPF 4SFP+ F-B AC Switch
Arista 7050X 32QSPF 4SFP+ B-F AC Switch

Product number

JH579A
JH580A

Licenses

Arista Enhanced L3 Software 10G Fix-3 E-LTU
Arista Provisioning Software 10G Fix-3 E-LTU
Arista Virtualization Software 10G Fix-3 E-LTU
Arista FlexRoute L3 Lite Software Fix-3 E-LTU
Arista FlexRoute L3 Software Fix-3 E-LTU
Arista FlexRoute L3 Lite Software Fix-2

JL409AAE
JL411AAE
JL414AAE
JQ050AAE
JQ051AAE
JQ049AAE

Transceivers

Arista 10G SFP+ LC SRL Transceiver
Arista 10G SFP+ LC SR Transceiver
Arista 10G SFP+ LC LRM Transceiver
Arista 10G SFP+ LC LR Transceiver
Arista 10G SFP+ SFP+ 0.5m DAC Cable
Arista 10G SFP+ SFP+ 1.5m DAC Cable
Arista 10G SFP+ SFP+ 2m DAC Cable
Arista 10G SFP+ SFP+ 2.5m DAC Cable
Arista 10G SFP+ SFP+ 3m DAC Cable
Arista 10G SFP+ SFP+ 5m AOC Cable
Arista 10G SFP+ SFP+ 3m AOC Cable
Arista 40G QSFP+ LC BiDi Transceiver
Arista 40G QSFP+ Universal Transceiver
Arista 40G QSFP+ MPO SR4 Transceiver
Arista 40G QSFP+ LC LR4L Transceiver
Arista 40G QSFP+ LC PLRL4 Transceiver
Arista 40G QSFP+ QSFP+ 1m DAC Cable
Arista 40G QSFP+ QSFP+ 2m DAC Cable
Arista 40G QSFP+ QSFP+ 3m DAC Cable
Arista 40G QSFP+ QSFP+ 5m DAC Cable
Arista QSFP+ 4x10G SFP+ 0.5m DAC Cable
Arista QSFP+ 4x10G SFP+ 1m DAC Cable
Arista QSFP+ 4x10G SFP+ 2m DAC Cable
Arista QSFP+ 4x10G SFP+ 3m DAC Cable
Arista QSFP+ 4x10G SFP+ 5m DAC Cable

JH644A
JH645A
JH646A
JH647A
JH651A
JH652A
JH653A
JH654A
JH655A
JH661A
JH662A
JH633A
JH634A
JH635A
JH636A
JH637A
JH638A
JH639A
JH640A
JH641A
JH656A
JH657A
JH658A
JH659A
JH660A

Power Cords

Arista C13 North America 2.5 m power cord
Arista C13 Europe 2.5 m power cord
Arista C13 UK 2.5 m power cord

JH618A
JH619A
JH620A

Configuration

Arista C13 Australia 2.5 m power cord	JH621A
Arista C13 Italy 2.5 m power cord	JH622A
Arista C13 Argentina 2.5 m power cord	JH623A

Spare options

Power cord C13 to C14 (2 m)	JH617A
Configurable fan module for Arista 7150, 7124SX(FX), 7050, 7050X 1U, 7280 & 7048-A switches (front-to-rear airflow)	JH614A
Configurable fan module for Arista 7150, 7124SX(FX), 7050, 7050X 1U, 7280 & 7048-A switches (rear-to-front airflow)	JH615A
Spare 500W DC power supply for 7050X and 7280 series (front-to-rear airflow switch)	JH597A
Configurable 500W DC Power Supply for 7050X and 7280 series (front-to-rear airflow switch)	JH598A
Spare 500W DC power supply for 7050X and 7280 series (rear-to-front airflow switch)	JH599A
Configurable 500W DC power supply for 7050X and 7280 series (rear-to-front airflow switch)	JH600A

Support

Arista A-Care 7250QX-64 2H Software 1 Month Support E-LTU	JH727AAE
Arista A-Care 7250QX-64 4H Software 1 Month Support E-LTU	JH728AAE
Arista A-Care 7250QX-64 NBD Software 1 Month Support E-LTU	JH729AAE

CouldVision

Arista Cloudvision Software Unlimited 1 Month E-STU	JH523AAE
Arista Cloudvision Software Sw-500 1 Month E-STU	JH524AAE
Arista Cloudvision Software Sw-150 1 Month E-STU	JH525AAE
Arista Cloudvision Software Sw-1 1 Month E-STU	JH526AAE
Arista Cloudvision Lite Software Sw-1 1 Month E-STU	JH527AAE
Arista CloudVision Software Lab Switch-1 1 Month E-STU	JH895AAE

Technical Specifications

Technical Specifications

System resources	7050X Series	7050X2 Series
STP instances	64 (MST)/510 (RPVST+)	
IGMP groups	288K, with 8K unique groups	
Ingress ACLs	4K	11K
Egress ACLs	1K	756
ECMP	64-way, 1K groups	128-way, 2K groups

Forwarding resources	Base mode	UFT modes
MAC addresses	32K	288K
IPv4 hosts	16K	208K
IPv4 routes—unicast	16K	144K
IPv4 routes—multicast	16K	104K*
IPv6 hosts	16K	104K
IPv6 routes—unicast	8K	77K*
IPv6 routes—multicast	4K	52K*

Notes

1. 11K, if VLAN ID is not used as key; 5500, if VLAN is used as key.
2. In some cases, the maximum values are dependent on shared resources.

Specifications

	7050QX-32	7050QX-32S	7050QX2-32S
Ports	32 x QSFP+	32 x QSFP+	32 x QSFP+
		4 x SFP+	4 x SFP+
Max 40GbE Ports	32 x QSFP+	32 x QSFP+	32 x QSFP+
Max 10GbE Ports	96	96	96
Max 1GbE Ports	—	4	4
Throughput			2.56 Tbps
Packets/second			1440 Mpps
Latency			550 ns
CPU	Dual-Core x86	Quad-Core x86	Quad-Core x86
System memory		4 gigabytes	8 gigabytes
Flash storage memory	2 gigabytes	4 gigabytes	4 gigabytes
Packet buffer memory	12 MB (Dynamic buffer allocation)		16 MB
SSD storage (optional)	100 gigabytes	120 gigabytes	120 gigabytes
10/100/1000 management ports		1	
RS-232 serial ports			1 (RJ-45)
USB ports		1	
Hot-swap power supplies		2 (1+1 redundant)	
Hot-swappable fans		4 (N+1 redundant)	
Reversible airflow option		Yes	
Typical/max power draw*	162W/332W	150W/302W	129W/283W
Size (WxHxD)		19 x 1.75 x 16 in (48.3x 4.4x 40.64 cm)	
Weight	20 lb (9.1 kg)	20 lb (9.1 kg)	20 lb (9.1 kg)

Technical Specifications

Minimum EOS version	4.12.4	4.14.0	TBD
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NOTE: Performance rated over operation with average packets larger than 200 bytes.

Power supply specifications

Switch model	7050QX-32		7050QX-32S/7050QX2-32S	
	PWR-460-AC	PWR-460-DC	PWR-500AC	PWR-500-DC
Power supply model	PWR-460-AC	PWR-460-DC	PWR-500AC	PWR-500-DC
Input voltage	100-240V AC	40-72V DC	100-240V AC	40-72V DC
Typical input current	5.3-2.2A	12.8-7.1A 11.3A at -48V	6.3-2.2A	13.1-7.3A 11A at -48V
Input frequency	50/60 Hz	DC	50/60 Hz	DC
Input connector	IEC 320-C13	AWG #16-12	IEC 320-C13	AWG #16-12
Efficiency (typical)	92%	-	93% Platinum	-

Supported optics and cables

Interface type

10GBASE-CR
40GBASE-CR4
40GBASE-AOC
40GBASE-UNIV
40GBASE-SRBD
40GBASE-SR4
40GBASE-XSR4
40GBASE-PLRL4
40GBASE-LRL4
40GBASE-PLR4
40GBASE-LR4
40GBASE-ER4

QSFP+ ports

0.5 m-5 m QSFP+ to 4x SFP+
 0.5 m to 5 m QSFP+ to QSFP+
 3 m to 100 m
 150 m (OM3)/150m (OM4)/500 m (SM)
 100 m (OM3)/150 m (OM4)
 100 m (OM3)/150 m (OM4)
 300 m (OM3)/400m (OM4)
 1 km (1km 4x10G LR/LRL)
 1km
 10 km (10 km 4x10G LR/LRL)
 10 km
 40 km

Interface type

10GBASE-CR
10GBASE-AOC
10GBASE-SRL
10GBASE-SR
10GBASE-LRL
10GBASE-LR
10GBASE-ER
10GBASE-ZR
10GBASE-DWDM
100/1000BASE-T, 1GbE SX/LX

SFP+ ports

SFP+ to SFP+: 0.5m-5m
 SFP+ to SFP+: 3m-30m
 100 m (OM3)/150 m (OM4)
 300 m (OM3)/400 m (OM4)
 1 km
 10 km
 40 km
 80 km
 80 km
 Yes

Environmental characteristics

Operating temperature	0 °C to 40 °C (32 °F to 104 °F)
Storage temperature	-40 °C to 70 °C (-40 °F to 158 °F)
Relative humidity	5% to 95%

Technical Specifications

Operating altitude 0 to 10,000 ft (0 to 3000 m)

Standards compliance

EMC Emissions: FCC, EN55022, EN61000-3-2, EN61000-3-3 or EN61000-3-11, EN61000-3-12 (as applicable)
Immunity: EN55024

Safety Emissions and immunity: EN300 386
UL/CSA 60950-1, EN 60950-1, IEC 60950-1
CB Scheme with all country differences

Certifications North America (NRTL)
European Union (EU)
BSMI (Taiwan)
C-Tick (Australia)
CCC (PRC)
MSIP (Korea)
EAC (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

Summary of Changes

Date	Version History	Action	Description of Change
04-Dec-2017	From Version 1 to 2	Added	SKUs added: JL409AAE, JL411AAE, JL414AAE, JQ050AAE, JQ051AAE, JQ049AAE, JH727AAE, JH728AAE, JH729AAE, JH523AAE, JH524AAE, JH525AAE, JH526AAE, JH527AAE, JH895AAE
10-Mar-2017	Version 1	Created	Document creation.



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