Arista 7160 series: Q&A

Product Overview

What are the 7160 Series?

Highly dynamic cloud data center networks continue to evolve with the introduction of new protocols and server technologies such as containers bringing with them ever increasing bandwidth demands, accelerating the need for dense 25 and 100 Gigabit Ethernet switching in both leaf and spine tiers of modern networks.

The Arista 7160 series are purpose-built 10/25GbE and 100GbE data center switches in compact and energy efficient form factors with wirespeed layer 2 and layer 3 features. They combine scalable L2 and L3 resources with an adaptable forwarding engine and a highly programmable and customizable switch architecture that supports multiple overlay technologies and advanced encapsulations. Simple software updates allow reconfiguration of packet parsing, lookups, traffic scheduling, packet modification and traffic monitoring without re-engineering of the switch.

The 7160 Series offers support for a broad set of software features and support for 10/25/40/50/100G Ethernet, and are each equipped with 24MB of packet buffer that is fully shared across all ports together with the flexible forwarding tables that can be arranged to address multiple use cases including data center leaf and spine architectures providing a transition from 1/10G at the leaf to 10/25G server connections and 40G/100G in the spine. The flexibility provided by the 7160 Series allows customers to start with a design leveraging 10G/40G today and migrate easily to a 25G/100G solution.

What switch models are available in the 7160 Family?

There are three members of the 7160 Series, each in a compact 1RU system:

7160-32CQ - 1RU WITH 32 PORT 100GBE QSFP

- Offers a choice of port combinations with 40G and 100G QSFP optics and cables
- Flexible interface combinations - 32x 40G, 128x 10G, 32x 100G, 128 x 25G, 64x 50G
- IEEE 25GbE and 25G Consortium specification support
- 5 speeds for flexible 10GbE, 25GbE, 40GbE, 50GbE and 100GbE with optics or cables
- 6.4Tbps of wire speed performance with 24MB of buffer

7160-48YC6 - 1RU WITH 48 PORT 25GBE SFP AND 6 PORT 100GBE QSFP

- Offers 48 wire speed 25GbE ports with six 40/100G QSFP ports for up to 72 total 25G or 10G ports
- IEEE 25GbE and 25G Consortium specification support
- Easy migration from 1/10G to 1/10/25G using familiar SFP connections.
- Six 40/100G QSFP ports for flexible combinations of 40G and 100G QSFP
- 3.6Tbps of wire speed performance with 24MB of buffer

7160-48TC6 - 1RU WITH 48 PORT 10GBASE-T AND 6 PORT 100GBE QSFP

- Offers 48 wire speed 1/10G ports with six QSFP100 for up to 72 total 10G ports
- Six QSFP100 ports allow choice of 6x 100GbE, 24x 25GbE, 6x 40GbE, or 24x 10GbE
- IEEE 25GbE and 25G Consortium specification support on 25G breakout ports
- 5 speeds for flexible 10GbE, 25GbE, 40GbE, 50GbE and 100GbE with optics or cables
- 2.16Tbps of wire speed performance with 24MB of buffer

The Arista 7160 lower total cost of ownership as they are designed to be efficient with power per port as low as 10W per 100GbE port which combined with front to rear cooling to optimize the data center environment produces reliable, dense and power efficient 100GbE fixed configuration switches. The Arista 7160 switches were designed for continuous operations with system wide monitoring of hardware and software components, simple serviceability and provisioning to prevent single points of failure. Redundant 1+1 hot-swappable power supplies and four hot-swap fans provide dynamic temperature control combined with N+1 redundancy.

Is IEEE 25GbE standard support available on the 7160 Series?

The 7160 Series offers full support for the IEEE 802.3by 25Gigabit Ethernet standard ensuring long term investment protection, and support for the 25G and 50G Consortium specification for backward compatibility to existing 25G devices.

The introduction of 25GbE provides a 2.5X performance improvement over 10GbE while using the same familiar cabling and designs. Support for 10G/25GbE modes allows for future investment protection with the ability to migrate as needed without expensive network upgrades.

What are the main differences in the 7160 Series and the Arista 7060X series?

The 7160 series represent an expansion of the Arista 7000 series portfolio with an adaptable forwarding engine and highly programmable and customizable switch architecture. 7160 Series capabilities include support for IEEE 25GbE for seamless migration from 10G networks and Arista AlgoMatch.

The 7160 offer a wide range of features in common with the 7050X and 7060X Series. There are a number of key differentiators.

- Up to 24MB of fully shared packet buffer across all ports
- A 1RU 25GbE fixed configuration switch for next generation leaf switches.
- Choice of both 10G and 25G 1RU systems offering six 100GbE uplinks
- Flexible forwarding profiles that allows for a common pool of L2 and L3 logical resources to be optimized to suit the deployment - balanced, L2 centric or large routing profiles.
- 25GbE and 100GbE ports support both 25G Ethernet Consortium and IEEE 25GbE (802.3by)
- Arista AlgoMatch for flexible and scalable network policy enforcement.

All Arista products including the 7160 Series runs the same Arista EOS software binary image simplifying network administration with a single standard across all switches. The majority of 7160 Series EOS capabilities are common to the 7050X and 7060X series. This provides a broad level of consistency for customers who will add the 7160 series to existing network architectures.

What is Arista AlgoMatch?

Arista AlgoMatch is a unique innovation combining software and hardware to implement Access Control Lists for policy control and network telemetry that are more scalable and require lower power use. AlgoMatch utilizes an efficient packet matching algorithm that in turn enables flow matching for access control, policy and visibility that is more flexible than traditional technology allowing for multiple actions to be performed on a single packet or flow, and user defined filters for packet classification and custom actions.

What Data Center solutions does the 7160 Series target?

Each of the 7160 models offers multiple connectivity options that provide flexibility in building scalable leaf and spine designs. The operational flexibility offered by the entire 7160 series ensures suitability for a variety of deployment scenarios. The following are a selection of use cases:

- Dense top of rack for server racks with both 10GbE and 25GbE systems

- 10GbE to 25GbE Migration — 802.3by 25GbE and Consortium compliant for seamless transition to the next generation of Ethernet performance

- Grid / HPC — designs requiring cost effective and power efficient systems to enable non-blocking or minimal over-subscription for 10G and 25G Servers

- Leaf-Spine — open standards based L2 and L3 with telemetry and visibility features

- Secure Cloud Environments — with support for up to 48K ACLs

- 100GbE Scale Out Designs — Small to medium locations requiring power efficiency and high density compact systems

- ECMP designs up to 128-way — cost-effective multi-pathing using open protocols and the Arista 7320X and 7500R as 100GbE modular spine switches

- Large scale L2 environments — flexible resource allocations achieve higher maximum L2 scale without inefficiency associated with traditional systems

What EOS licenses are available and what features require them?

The 7160 series use the same license structure as the existing 7000 series fixed platforms.

NOTE: RIPv2 is supported without the Enhanced License.

Description	License	Platform
Virtualization feature license for Arista Fixed switches 40-132 port 10G (VM Tracer and VXLAN)	LIC-FIX-2-V	7160-32CQ 7160-48YC6 716048TC6
Network monitoring and provisioning feature license for Arista Fixed switches 40-132 port 10G (ZTP, LANZ, API, Time-stamping)	LIC-FIX-2-Z	
Enhanced L3 License for Arista Fixed switches, 40-132 port 10G (BGP, OSPF, ISIS, PIM, NAT)	LIC-FIX-2-E	

For more information on Arista licensing please refer to the official licensing page.

How many ports do each of the 7160 series switches have?

Within the 7160 series the various models provide a wide range of interface combinations. The table below summarizes the interface combinations.

Platform	RJ45	SFP+	SFP25	QSFP+	QSFP100	RU
7160-32CQ		4			32	1
7160-48YC6			48		6	1
7160-48TC6	48				6	1

What speeds do the 7160 series ports support?

The table below shows the combinations of speeds supported on each switch.

Platform	10G Mode	25G Mode	100G Mode
7160-32CQ	Ports 1 – 36	1 – 32	1 – 32
7160-48YC6	Ports 1 - 54	1 – 54	49 – 54
7160-48TC6	Ports 1- 54	49 – 54	49 – 54

How are the multi-purpose QSFP100 ports on the 7160 Series moved between 25GbE, 50GbE and 100GbE modes and what is the default?

The default QSFP100 interface speed is 100GbE. The 7160 series feature multi-speed QSFP100 ports that can be used as four 25GbE ports or 10GbE, two 50GbE ports or a single 40GbE port. To migrate the links to a different speed, use the 'speed forced' command on the master interface. For 100GbE the master lane is x/1, for 50GbE x/1 and x/3, and for 25GbE and 10GbE x/1, x/2, x/3 and x/4.

7160(config)#interface ethernet 3/1
7160(config-if-Et3/1)#speed forced 40gfull

What are the advantages in the buffering of the 7160 series?

The 7160 Series incorporate an advanced traffic manager with 24MB of packet buffer that is fully shared across all ports and is an excellent choice for scalable data centers and modern intensive workloads. Unlike other architectures that have fixed per-port packet memory or buffers arranged in multiple slices the 7160 Series buffer is dynamically allocated across all ports with the ability to adjust in real time to the demands of bursty applications, mixed speeds and congestion. Extensive support for Active Queue Management mechanisms such as WRED, DCTCP and ECN ensure that high priority flows and lossless storage traffic are handled equally well with the ability to absorb large bursts with extensive counters for visibility and accounting.

What are the maximums for forwarding tables on the 7160 series?

The 7160 series support comprehensive L2 and L3 resources optimized for data center deployments:

Resources	Balanced Mode
MAC Addresses	128K
ARP Entries	128K
Ingress ACLs	48K
IPv4 Hosts	128K
IPv4 Routes - Unicast	128K
IPv4 Routes - Multicast	12K
IPv6 Hosts	32K
IPv6 Routes – Unicast	32K
IGMP Groups	128K
ECMP	128-Way

Values are based on the balanced profile and are shared resources in some cases.

What is the power draw on the 7160 series?

The 7160 series feature low power draw, with typical per port power of just 10W per 100GbE port on the 7160-32CQ.

What efficiency rating do the power supplies have?

The 500W, AC power supplies are rated at over 93% efficient for typical use, or Platinum rated.

Do the 7160 series support both AC and DC PSUs?

Yes, all members of the 7160 series support AC and DC power supply options.

What are the key high availability options?

The Arista 7160 Series 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-swappable fans
- Live software patching
- Color-coded PSUs and fans
- Self-healing software with Stateful Fault Repair (SFR)
- Smart System Upgrade (SSU) Leaf and Spine
- Multi-chassis LAG for active/active L2 multi-pathing
- 128-way ECMP routing for load-balancing and redundancy

Which cables and optics can be used in the QSFP and SFP ports?

All full range of SFP+, QSFP+ and QSFP100 transceivers are supported on the Arista 7160 series. The 25G SFP ports accommodate a wide range of 25G, 10GbE and 1GbE SFP transceivers and cables to provide support for a wide range of connectivity options from short reach copper and multi-mode fiber, to longer reaches over single mode up to 80km and DWDM solutions up to 80km. The SFP options include multi-mode and single-mode fiber transceivers, and 1Gb over copper cabling. QSFP+ and QSFP100 ports support a wide range of 10GbE, 40GbE and 100GbE options for cables, single and multi-mode fiber.

What are the options for support?

Arista A-Care Service Options are designed to provide you with world-class support. A-Care service offerings are available 24x7x365 with advance replacement options to minimize any network downtime. All A-Care Service options include full access to bug fixes and software downloads. For more information about A-Care Service options go to http://www.arista.com/en/service.

Where do I get more information on the Arista 7160 series?

For more information please go to www.arista.com or contact us at sales@arista.com

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