

Arista 7170 series: Q&A

Product Overview

What are the 7170 series?

The Arista 7170 Series are purpose built multifunctional programmable 100GbE systems built for the highest performance environments and to meet the needs of the largest scale data centers. With a highly flexible and programmable architecture, the 7170 series with Arista EOS allow the selection of forwarding profiles that customize the data plane for multiple network roles for Cloud, Enterprise, Service Provider and Content Delivery Networks. The forwarding profiles, written in P4, address real world networking requirements for advanced telemetry, network security and flexible tunnel termination and address translation, and can be further customized to match specific customer use-cases.

Examples of use cases for the 7170 include replacing traditional non-programmable appliances or routers for large scale tunnel termination, IPv4 and IPv6 network address translation or traffic filtering where high throughput and network flexibility are needed. The 7170 Series enable the integration of critical networking functionality into the leaf and spine tiers, avoiding the cost and complexity of dedicated devices with high latency, low density and inflexible architectures.

The 7170 Series deliver the flexibility of a programmable data plane and multiple profiles in a family of fixed systems. The **7170-64C** delivers leading 100GbE port density within a fixed form factor chassis offering 64 line rate 100GbE interfaces via QSFP100 optics. The 7170-64C is a single chip system for low power and high performance. Each QSFP port can be used for either 100G or 40G, 4x 10/25G or 2x50G with support for a wide choice of optics and cables.

Featuring 32 100G QSFP and 2 10G SFP+ ports in a 1RU form factor the **7170-32C** and **7170-32CD** deliver the same feature rich layer 2 and layer 3 features and performance with an overall throughput of 6.4Tbps. For configuration flexibility, the 100GbE ports can be broken out into wide range of speed choices.

The Arista 7170 Series switches offer a fully shared packet buffer of up to 22MB that is allocated dynamically across all ports. The packet buffer can be programmatically configured using PFC, ECN and other QoS techniques to ensure the performance of applications such as storage or video along with standard data center applications to avoid congestion from micro-bursts or fan-in configurations. The 7170-64C and 7170-32C are wirespeed with up to 4.8Bpps and 2.4Bpps of forwarding respectively.

What switch models are available in the 7170 Family?

- The 7170-64C offers 64 100G QSFP ports in a 2RU fixed configuration system. Two SFP+ ports are provided in addition to the 64x100GbE ports, and support 1/10GbE operation.
- The 7170-32C offers a high capacity pipeline with 32 100G QSFP and 2 SFP+ ports in a 1RU fixed configuration system. Two SFP+ port for 1/10GbE are in addition to the 32 x 100GbE.
- The 7170-32CD offers 32 100G QSFP and 2 SFP+ ports in a 1RU fixed configuration system. Two SFP+ port for 1/10GbE are in addition to the 32 x 100GbE.
- All systems offer a choice of airflow direction and AC or DC power supplies.

What are the focus solutions for the 7170 Series?

The 7170 series supports a unique programmable pipeline with the flexibility to allow the parser to be changed to add new functionality and vary lookup table size and operations. This provides phenomenal investment protection along with opening the possibility to support highly personalized use cases to solve traditional and new network challenges which are otherwise not feasible with traditional switching platforms. With Arista EOS delivering a comprehensive set of features and programmability for cognitive data and control, the same platform can be used in multiple roles, each with its own profile, ensuring consistent management and provisioning.

The following are examples of the solutions the 7170 Series enable:

- **Network Overlay and Virtualization** to offload network functions such as traffic segmentation or tunnel encapsulation from virtual servers in a bare metal environment and free up compute and accelerate applications
- **Flexible Routing and Segmentation** to support a large FIB along with customizations such as remove/change VLAN tags, modify MPLS labels and implement custom protocols
- **Network Security** with firewall functionality such as learn and track micro flows and sessions, identify anomalies and take preventive measures dynamically
- **Large Scale Network Address Translation** to conceal internal networks, allow duplicate address spaces and facilitate IPv4 to IPv6 migration
- **Network and Application Telemetry** for flow level visibility, custom application counters, configurable thresholds and alarms, timestamping and end to end latency
- **Large Scale ACL** for stateful ACLs, rule based policies, hierarchical ACLs and conditional filtering for enhanced security and application performance

What are the key markets for the 7170 Series?

The key features of the 7170 Series are support for a programmable packet processing architecture and flexible resources in high density and cost effective 25GbE, 50GbE and 100GbE systems. These characteristics are attractive to a number of markets:

- Cloud Scale Data Centers

With the 7170 deployed as a 25G or 50G leaf switch, offloading the hypervisors from performing networking functions, the server throughput increases significantly freeing up CPU cycles for more VMs and applications. As a result, the primary market for the 7170 series is cloud-based top of rack solutions, when obtaining the maximum application level work from a fixed pool of compute is important.

- 25G and 100G HPC Clusters

In addition to 25GbE the emergence of 50GbE and 100GbE host connectivity for the largest scale of high performance compute (HPC) is driving a requirement for dense 100G in fixed form factors. In these areas the 7170 series deliver advanced features for scaling the network in fixed format systems that enables cost effective solutions with long term investment protection.

- Service Provider Deployments

Network function virtualization (NFV) provides unique challenges requiring tight integration for multiple service provider services. The programmable architecture and flexible resources on 7170 can be leveraged for service chaining with segment routing and scale to 100 of 1,000s of tunnels. The 7170 series also provide solutions for large scale tunnel termination in a multi-tenant design, NAT64 for IPv4 to IPv6 translation to facilitate migration to IPv6 only networks.

How can the customers take advantage of the flexibility and the EOS Programmability for data plane control offered on the Arista 7170?

The 7170 Series with Arista EOS supports a rich set of both data plane and control plane features and capabilities with a programmable SDK for deployment in either a leaf or spine role in two-tier cloud networks. The 7170 offers a choice of data plane profiles including the default cloud and bare metal profiles. Additional custom profiles can be defined in P4 to add features, to alter the operation or change the lookups performed through the data plane of the 7170 switch. The flexibility provided by multiple forwarding profiles written in P4, that can be adopted on the fly by customers, addresses multiple real world networking requirements for scale, advanced telemetry, security and encapsulation and can be further customized to specific customer use-cases. Arista and customers can leverage P4 to define a new forwarding profile for all or part of the 7170 packet pipeline, to deliver custom behavior or rapidly develop and test new functionality.

What EOS licenses are available and what features require them?

The 7170 series use the same license structure as the existing 7000 series fixed platforms.

NOTE: RIPv2 is supported without the Enhanced L3 License.

Description	Product SKU	Platform
Virtualization license for Group 2 Arista Fixed switches (VMTracer and VXLAN)	LIC-FIX-2-V	7170-32C 7170-32CD
EOS Extensions, Security and Partner Integration license for Arista Group 2 Fixed switches	LIC-FIX-2-V2	
Monitoring & Automation license for Arista Group 2 Fixed switches (ZTP, LANZ, TapAgg, API, Time-stamping, OpenFlow)	LIC-FIX-2-Z	
Enhanced L3 License for Arista Group 2 Fixed switches, (BGP, OSPF, ISIS, PIM, NAT)	LIC-FIX-2-E	
Virtualization license for Group 4 Arista Fixed switches (VMTracer and VXLAN)	LIC-FIX-4-V	7170-64C
EOS Extensions, Security and Partner Integration license for Arista Group 4 Fixed switches	LIC-FIX-4-V2	
Monitoring & Automation license for Arista Group 4 Fixed switches (ZTP, LANZ, TapAgg, API, Time-stamping, OpenFlow)	LIC-FIX-4-Z	
Enhanced L3 License for Arista Group 4 Fixed switches, (BGP, OSPF, ISIS, PIM, NAT)	LIC-FIX-4-E	

For more information on Arista licensing please refer to the official [licensing page](#).

How many ports does each of the switches have?

Within the 7170 series the various platforms provide a wide range of interface combinations. The table below summarizes the interface combinations.

Platform	SFP+	QSFP100	RU
7170-32C	2	32	1
7170-32CD	2	32	1
7170-64C	2	64	2

What port speeds do the 7170 series support?

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

Platform	10G, 25G, 40G, 50G, 100G Mode	1/10G Mode
7170-32C	Ports 1 – 32	Ports 33 – 34
7170-32CD	Ports 1 – 32	Ports 33 – 34
7170-64C	Ports 1 – 64	Ports 65 – 66

How are the SFP+ ports on 7170 series enabled?

The 2 SFP+ interfaces are enabled by default and operate in addition to other front panel interfaces, without requiring the disabling of other ports.

What are the advantages of buffer allocation on the 7170 series?

The Arista 7170 Series switches offer a unified packet buffer of up to 22MB that is shared dynamically across all ports. The packet buffer can be allocated programmatically across multiple classes to optimize performance for custom applications along with standard data center applications to avoid congestion from micro-bursts or fan-in packets. Unlike architectures that have fixed per-port packet memory, or smaller shared memory pools the 7170 Series use a scheme to allocate memory intelligently based on a combination of traffic class, queue depth and quality of service policy ensuring fair allocation to all ports. Buffer utilization, occupancy and thresholds are all visible with Arista LANZ and can be exported to monitoring tools for detailed analysis.

What are the maximums for forwarding tables on the 7170 series?

The 7170 series supports comprehensive L2 and L3 resources optimized for data center deployments. The table below shows examples of two profiles with different L2 and L3 scale.

Resources	Profile 1	Profile 2
MAC Addresses	64K	32K
IPv4 Hosts	64K	96K
IPv4 Routes - Unicast	128K	160K
IPv4 Routes - Multicast	16K	16K
IPv6 Hosts	64K	32K
IPv6 Routes - Unicast	16K	8K

Maximum values are dependent on shared resources in some cases
* Supported in a future software release

Additional 7170 EOS profiles can be added, as a RPM file, to adjust the scale of logical resources, for example with IPv4 route scale of 500K, and 256K MAC Addresses.

High capacity systems, such as the 7170-32C support profiles with significantly higher scaling than regular 7170 models.

What is the power draw on the 7170 series?

The 7170 series with a single chip architecture features an efficient power draw with typical power consumption of just 5W per 100GbE port.

What efficiency rating do the power supplies have?

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

Do the 7170 series support both AC and DC PSUs?

Yes, all members of the 7170 series support AC and DC power supply options.

How many fans are needed for the 2RU 7170 models?

The 7170 2RU systems have 4 fan modules. These fan modules are fully hot-swappable. The 7170 fans operate in an N+1 redundancy mode, however all fans should be installed for normal operation.

What are the key high availability options?

The Arista 7170 switches were all 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?

A full range of 10G SFP+, QSFP+ and 100G QSFP transceivers are supported on the Arista 7170 series. The 100G QSFP ports support a wide range of 10GbE, 25GbE, 40GbE and 100GbE options for single and multi-mode fiber up to 80km and copper cables for connecting over shorter distances. The SFP+ ports accommodate a wide range of 10GbE SFP+ 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.

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 7170 series?

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