Product Highlights

Performance
- 7150S-24: 24x1/10GbE
- 7150S-52: 52x1/10GbE
- 7150S-64: 48x1/10GbE and 4 x 10/40GbE
- Up to 1.28 terabits per second
- Up to 960 million packets per second
- Wire speed L2 and L3 forwarding

Ultra Low Latency
- From 350 nanosecond latency
- Same latency for L2 and L3
- Low latency at 1,10 and 40GbE
- Low jitter for unicast and multicast
- Dynamic buffer allocation

Advanced Provisioning & Monitoring
- LANZ Microburst Analysis
- IEEE 1588 PTP
    - high precision clock option
- Ultra Low Latency NAT, MNAT
- Advanced Mirroring with Time-stamping
- sFlow (RFC3176)
- Zero Touch Provisioning (ZTP)
- VMTracer
- Self-configure/recover from USB

Data Center Optimized Design
- Typical power draw from 3.5W/port
- 1+1 redundant & hot-swappable power
- N+1 redundant & hot-swappable fans
- Front-to-rear or rear-to-front fans

Resilient Control Plane
- Dual-core x86 CPU
- 4GB DRAM
- 2GB Flash
- User applications can run in a VM

Built-in Solid State Storage
- 50GB Solid State Drive option
- Store logs and data captures
- Leverage linux tools with no limitations

Arista Extensible Operating System
- Single binary image
- 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++

Overview

The Arista 7150S series represents the industry's leading ultra low latency 1RU 1/10/40GbE layer 2/3/4 wire speed switch family, offering a unique combination of performance, advanced functionality and extensive onboard resources.

Designed to suit the requirements of demanding environments such as ultra low latency financial ECNs, HPC clusters and cloud data centers, the class-leading deterministic latency from 350ns is coupled with a set of advanced tools for monitoring and controlling mission critical environments.
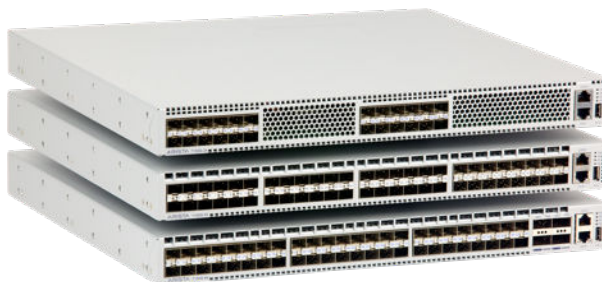
Arista 7150S family

| Feature	Benefits
Wire-speed Low Latency Network Address Translation	Reduce NAT latency by 10s of microseconds vs traditional high latency solutions
IEEE 1588 Precision Time Protocol (Boundary and Transparent modes)	Provides hardware-based timing for accurate in-band time distribution with nanosecond accuracy
Integrated High Precision Oscillator	Ensures highly accurate timing with extended holdover
Latency and Application Analysis LANZ	Detect, capture, stream microbursts and transient congestion at microsecond rates
Advanced Multi-port Mirroring Suite	Avoid costly SPAN/TAP aggregators with in-switch capturing, filtering and time-stamping
Wire-speed VXLAN Gateway	Enabling next generation Data Center virtualization
AgilePorts	Adapt from 10G to 40G without costly upgrades

Arista EOS

The Arista 7150S 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, VMTracer and Linux based tools can be run natively on the switch with the powerful dual-core x86 CPU subsystem.

Deterministic, Ultra Low Latency

The Arista 7150S is optimized for ultra low latency, cut-through forwarding. It offers the same low latency characteristics at all packet sizes. The latency remains consistent even when features such as L3, ACL, QoS, Multicast, Port Mirroring, LANZ+ and Time-Stamping are enabled. The 7150S also supports cut-through mode at 100Mb and 1GbE speeds at low latency for legacy connections.
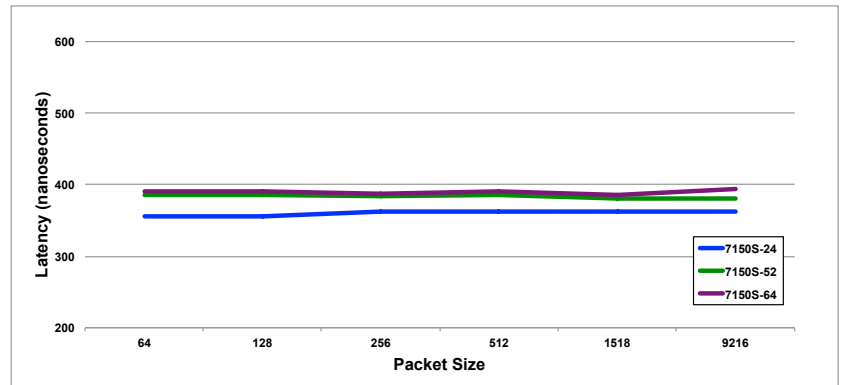
Arista 7150S family 10G latency profile

Dynamic Buffer Allocation

The Arista 7150S forwards packets at an ultra low latency of 350 nanoseconds from any port to any other port. However when a microburst or transient in-cast condition causes contention of an egress interface, packets must be buffered. The 7150S' global packet memory is dynamically allocated on demand to congested interfaces, avoiding packet loss.

Enhanced Features for High Performance Networks

The Arista 7150S delivers a suite of advanced traffic control and monitoring features to improve the agility of modern high performance environments, with solutions for network address translation, precise timing and next-generation virtualization.

Low-Latency Address Translation

The Arista 7150S includes support for line rate NAT while still delivering latency of under 1 microsecond. Latency and performance sensitive environments can take advantage of NAT to resolve addressing challenges such as masking internal addresses and translating overlapping ranges to avoid conflicts without penalty.

Monitoring, Analysis and Forensics

Arista's enhanced LANZ microburst and latency analysis enables the monitor of even the slightest transient congestion at microsecond granularity. Data affected by congestion is captured and verbose logs are written locally and streamed in real time to external tools over an open protocol buffer encoded format. Event Monitoring complements LANZ with protocol-layer captures, providing a forensic history of network adds, moves and changes. The combination of Arista's Advanced Mirroring Suite and the ability to time-stamp every packet in hardware with features such as sFlow, delivers unmatched instrumentation of network behavior and performance. Optimized to support pro-active capacity planning and pre-empt issues, the 7150 is uniquely equipped to root-cause network anomalies.

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 versatile 7150S enables timing networks to scale independently of Grand Master capacity, maintaining accuracy approaching that of a dedicated out-of-band platform. Uniquely, the 7150S employs a High Precision Oscillator for consistent timekeeping. With disciplined stability measured in single-digit picoseconds and 24 hr holdover of single-digit nanoseconds, the optional clock module ensures exceptional determinism in timing operations.

Virtualization

Supporting next-generation virtualized data centers requires tight integration with orchestration tools and emerging encapsulation technologies such as VXLAN and NVGRE. The 7150S builds on the valuable tools already provided by the Arista VMTracer suite to integrate directly into encapsulated environments. Offering a true, wire-speed, low latency gateway between VXLAN and traditional L2/3 environments, the 7150S 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.

AgilePorts Enable Flexible Deployment

AgilePorts deliver complete flexibility in connectivity - each SFP+ interface is capable of supporting 100M-10G over a variety of media, including DWDM with distances up to 80km. The AgilePorts feature also enables groups of adjacent SFP+ ports to be configured for 40Gb operation using 10Gb transceivers and cables providing maximum port flexibility and a seamless migration from 10Gb to 40Gb.

Native 40GbE interfaces

Arista 7150S AgilePorts - Four SFP+ grouped to deliver 40GbE

High Availability

The Arista 7150S switches were designed for high availability and simple provisioning from both a software and hardware perspective. Key high availability features include:

• 1+1 hot-swap power supplies and four N+1 hot-swap fans
• Color coded PSUs and fans - common to Arista 1RU devices
• EOS Zero Touch Provisioning (ZTP)
• Self healing software with Stateful Fault Repair (SFR)
• Live software patching
• 32-way MLAG and ECMP routing for all-active L2 and L3

Arista 7150S Rear View: Front-to-rear airflow model

Arista 7150S Rear View: Rear-to-front airflow model

Feature Overview

Layer 2 Features

• 64K L2 Forwarding Entries
• 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
    • 16 ports/channel
    • 64 groups per system
• Multi-Chassis Link Aggregation (MLAG)
    • Uses IEEE 802.3ad LACP
    • 32 ports per MLAG
• 802.1AB Link Layer Discovery Protocol
• 802.3x Flow Control
• Jumbo Frames (9216 Bytes)
• IGMP v1/v2/v3 snooping
• Storm Control
• Private VLANs*

Layer 3 Features

• 84K IPv4 Routes
• 23K IPv4 Multicast Routes
• 21K IPv6 Routes*
• 2K IPv6 Multicast Routes*
• 64K Next Hops
• RIPv2
• OSPF
• OSPFv3
• BGP
• MP-BGP
• ISIS
• 32-way Equal Cost Multi-path Routing (ECMP)
• BFD
• IGMP v2/v3
• PIM-SM
• Anycast RP (RFC 4610)
• MSDP
• VRRP
• Virtual ARP (VARP)
• Network Address Translation
    • Source/Destination NAT
    • Source/Group Multicast NAT

Security Features

- Ingress/Egress* ACLs using L2, L3, L4 fields
- ACL Logging and Counters
- Control Plane Protection (CoPP)
- DHCP Relay
- MAC Security
- TACACS+
- RADIUS

Virtualization Support

- VXLAN Gateway (draft-mahalingam-dutt-dcops-vxlan-01)
- VMTracer VMware Integration
  - VMware vSphere support
  - VM Auto Discovery
  - VM Adaptive Segmentation
  - VM Host View

Provisioning Tools

- Zero Touch Provisioning (ZTP)
- Restore & Configure from USB

Precision Timing

- Precision Time Stamping
- Precision Time Protocol - Transparent Clock
- Precision Time Protocol - Boundary Clock
- High Precision Oscillator (optional on -24)

Advanced Monitoring Suite

- Enhanced Latency Analyzer and Microburst Detection (LANZ)
  - Configurable Congestion Notification (CLI, Syslog)
  - Streaming Events (GPB Encoded)
  - Capture/Mirror of congested traffic*
- Advanced Monitoring and Aggregation
  - Port Mirroring (4 sessions)
  - SPAN/TAP M:N Aggregation*
  - L2/3/4 Filtering*
  - Time-stamping
  - Mirror to EOS/SSD
  - Tap Aggregation
- Advanced Event Management suite (AEM)
  - CLI Scheduler
  - Event Manager
  - Event Monitor
  - Linux tools
- Integrated packet capture/analysis with TCPDump
- RFC 3176 sFlow
- Optional SSD for logging and data capture

Quality of Service (QoS) Features

- Up to 8 queues per port
- Strict priority queueing

- 802.1p based classification
- Per-Priority Flow Control (PFC)
- Data Center Bridging Extensions (DCBX)
- 802.1Qaz Enhanced Transmissions Selection (ETS)*
- DSCP based classification and remarking
- Egress Rate Shaping/WRR
- Policers*
- Rate limiting

Network Management

- CloudVision Task-Oriented Multi-device CLI
- 100/1000 Management Port
- RS-232 Serial Console Port
- USB Port
- SNMP v2, v3
- Management over IPv6
- Telnet and SSHv2
- Syslog
- Role based Access Control
- AAA
- Industry Standard CLI
- Blue Beacon LED for system identification

Extensibility

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

* Supported in a future software release

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

• 802.3ab 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

• IEEE 1588-2008 Precision Time Protocol (Transparent Clock)

• IEEE 1588-2008 Precision Time Protocol (Boundary Clock)

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

• User configurable custom OIDs

Table Sizes

MAC Addresses	64,000
STP Instances	64 (MST)/256 (RPVST+)
IGMP Groups	36,000
ACLs	20,000
IPv4 Hosts	64,000
IPv4 Routes - Unicast	84,000
IPv4 Routes - Multicast	23,000
IPv6 Routes - Unicast	21,000
IPv6 Routes - Multicast	2,000
ECMP	32-way

Environmental Characteristics

Operating Temperature	0 to 40C **
Storage Temperature	-40C to 70C
Relative Humidity	5 to 95%
Operating Altitude	0 to 10,000 ft

Physical Characteristics

Size (WxHxD)	19" x 1.75" x 16" (44.5 x 4.4 x 40.64 cm)
Weight	7150S-52/64: 19 lbs (8.61 kg) 7150S-24: 18 lbs (8.18 kg)

Power Supply Specifications

	AC	DC
Input Voltage	100-240AC	40-72V DC
Input Current	2.2-5.3A	12.8-7.1A 11.3A at -48V
Input Frequency	50/60Hz	DC
Input Connector	IEC 320-C13	AWG #16-12

Standards Compliance

EMI	FCC Part 15 Class A ICES-003 Class A VCCI Class A
Safety	IEC/UL/CSA/EN 60950 CE, UL, TUV Mark
Other	ROHS-6 Compliant

* Typical power consumption measured at 25C ambient with 50% load on all ports
** Refer to Installation guide for operating ranges for each model and airflow direction.

Model Comparison

	7150S-24	7150S-52	7150S-64
Ports	24 x SFP+	52 x SFP+	48 x SFP+ 4 x QSFP+
Max 40GbE Ports	4	13	16
Max 10GbE Ports	24	52	64
Throughput	480Gbps	1.04Tbps	1.28Tbps
Packets/Second	360 Mpps	780 Mpps	960 Mpps
Latency (SFP+ Ports)	350ns	380ns	380ns
CPU	Dual-Core x86		
System Memory	4 Gigabytes		
Flash Storage Memory	2 Gigabytes		
Packet Buffer Memory	9.5MB (Dynamic Buffer Allocation)		
SSD Storage (optional)	50 Gigabytes		
100/1000 Mgmt 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*	191 / 334 W	191 / 450 W	224 / 455 W

Supported Optics and Cables

Interface Type	SFP+ ports	QSFP+ ports
40GBASE-CR4	-	0.5-5m QSFP+ to QSFP+
AOC-40G-Q-Q	-	3m to 30m
40GBASE-SR4	-	100m (OM3) /150m (OM4)
40GBASE-XSR4	-	300m (OM3) /450m (OM4)
40G-PLRL4	-	1km (1km 4x10G LR/LRL)
40GBASE-LR4	-	10km
10GBASE-CR	SFP+ to SFP+: 0.5-5m	0.5-3m QSFP+ to 4 x SFP+
10GBASE-SRL	100m	-
10GBASE-SR	300m	-
10GBASE-LRL	1km	
10GBASE-LR	10km	-
10GBASE-ER	40km	-
10GBASE-ZR	80km	
10G-DWDM	80km	-
100TX 1GbE SX/ LX/TX	Yes	-

Product Number	Product Description
DCS-7150S-64-CL-F	Arista 7150, 48x1/10G SFP+ & 4xQSFP+ switch, high precision clock, front-to-rear airflow, 2x AC PSU
DCS-7150S-64-CL-R	Arista 7150, 48x1/10G SFP+ & 4xQSFP+ switch, high precision clock, rear-to-front airflow, 2x AC PSU
DCS-7150S-64-CL#	Arista 7150, 48x1/10G SFP+ & 4xQSFP+ switch, high precision clock, no fans, no PSU (requires fans and power supplies)
DCS-7150S-64-CLD#	Arista 7150, 48x1/10G SFP+ & 4xQSFP+ switch, high precision clock, 50GB SSD, no fans, no PSU (requires fans and power supplies)
DCS-7150S-52-CL-F	Arista 7150, 52x1/10G SFP+ switch, high precision clock, front-to-rear airflow, 2x AC PSU
DCS-7150S-52-CL-R	Arista 7150, 52x1/10G SFP+ switch, high precision clock, rear-to-front airflow, 2x AC PSU
DCS-7150S-52-CL#	Arista 7150, 52x1/10G SFP+ switch, high precision clock, no fans, no PSU (requires fans and power supplies)
DCS-7150S-52-CLD#	Arista 7150, 52x1/10G SFP+ switch, high precision clock, 50GB SSD, no fans, no PSU (requires fans and power supplies)
DCS-7150S-24-F	Arista 7150, 24x1/10G SFP+ switch, front-to-rear airflow, 2x AC PSU
DCS-7150S-24-R	Arista 7150, 24x1/10G SFP+ switch, rear-to-front airflow, 2x AC PSU
DCS-7150S-24#	Arista 7150, 24x1/10G SFP+ switch, no fans, no PSU (requires fans and power supplies)
DCS-7150S-24-CL#	Arista 7150, 24x1/10G SFP+ switch, high precision clock, no fans, no PSU (requires fans and power supplies)
DCS-7150S-24-CLD#	Arista 7150, 24x1/10G SFP+ switch, high precision clock, 50GB SSD, no fans, no PSU (requires fans and power supplies)

Optional Components

FAN-7000-F	Spare fan module for Arista 7124SX, 7150 & 7048-A switches (front-to-rear airflow)
FAN-7000-R	Spare fan module for Arista 7124SX, 7150 & 7048-A switches (rear-to-front airflow)
PWR-460AC-F	Spare 460 Watt AC PSU for Arista 7124SX, 7050, 7150 & 7048-A Switches (front-to-rear airflow)
PWR-460AC-R	Spare 460 Watt AC PSU for Arista 7124SX, 7050, 7150 & 7048-A Switches (rear-to-front airflow)
PWR-460DC-F	Spare 460 Watt DC PSU for Arista 7124SX, 7050, 7150 & 7048-A Switches (front-to-rear airflow)
PWR-460DC-R	Spare 460 Watt DC PSU for Arista 7124SX, 7050, 7150 & 7048-A Switches (rear-to-front airflow)
LIC-FIX-1-E	Enhanced L3 License for Arista Fixed switches, 24-36 port 10G (BGP, OSPF, ISIS, PIM, NAT)
LIC-FIX-2-E	Enhanced L3 License for Arista Fixed switches, 40-64 port 10G (BGP, OSPF, ISIS, PIM, NAT)
LIC-FIX-1-V	Virtualization license for Arista Fixed switches 24-36 port 10G (VMTracer, VXLAN)
LIC-FIX-2-V	Virtualization license for Arista Fixed switches 40-64 port 10G (VMTracer, VXLAN)
LIC-FIX-1-Z	Monitoring & provisioning license for Arista Fixed switches 24-36 port 10G (ZTP, LANZ, TapAgg, API, Timestamping)
LIC-FIX-2-Z	Monitoring & provisioning license for Arista Fixed switches 40-64 port 10G (ZTP, LANZ, TapAgg, API, Timestamping)
KIT-7000	Spare accessory kit for Arista 7150 series switches

Warranty

The Arista 7150S 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.aristanetworks.com/en/service

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