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.

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

- CloudVision
- LANZ Microburst Analysis
- IEEE 1588 PTP high precision clock option
- Ultra Low Latency NAT, MNAT
- DANZ Advanced Mirroring & TAP
- Aggregation for improved visibility
- 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

- 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++

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.

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.

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

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
- 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
- Audio Video Bridging (AVB)
- 

Layer 3 Features

- 70K IPv4 Routes
- 20K IPv4 Multicast Routes
- 18K IPv6 Routes*
- 64K Next Hops
- VRF
- RIPv2
- OSPF
- OSPFv3
- BGP
- MP-BGP
- ISIS
- 32-way Equal Cost Multi-path Routing (ECMP)
- BFD
- IGMP v2/v3
- PIM-SM / PIM-SSM
- Anycast RP (RFC 4610)
- MSDP
- Selective Route Download
- 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)
• PDP
• Service ACLs
• DHCP Relay / Snooping
• TACACS+
• RADIUS

Virtualization Support
• VXLAN Routing and Bridging
• VMTracer VMware Integration
  • VMware vSphere support
  • VM Auto Discovery
  • VM Adaptive Segmentation
  • VM Host View

Advanced Monitoring and Provisioning
• Zero Touch Provisioning (ZTP)
• Enhanced Latency Analyzer and Microburst Detection (LANZ)
  • Configurable Congestion Notification (CLI, Syslog)
  • Streaming Events (GPB Encoded)
  • Capture/Mirror of congested traffic
  • Continuous Latency Monitoring
• Advanced Monitoring and TAP Aggregation (DANZ)
  • Port Mirroring M:N (4 sessions)
  • SPAN/TAP M:N Aggregation
  • L2/3/4 Filtering
  • Custom header matching and filtering*
  • Traffic Steering*
  • Custom load balancing
  • Time-stamping
  • Ingress and Egress Truncation
  • Mirror to EOS/SSD
• Advanced Event Management suite (AEM)
  • CLI Scheduler
  • Event Manager
  • Event Monitor
  • Linux tools
• Integrated packet capture/analysis with TCPDump
• Optional SSD for logging and data capture
• RFC 3176 sFlow
• Restore & Configure from USB
• Blue Beacon LED for system identification
• Software Defined Networking (SDN)
  • OpenFlow 1.0*
  • Arista DirectFlow*
  • eAPI

Quality of Service (QoS) Features
• Up to 8 queues per port
• Strict priority queuing
• 802.1p based classification
• Per-Priority Flow Control (PFC)
• Data Center Bridging Extensions (DCBX)
• DSCP based classification and remarking
• Egress Rate Shaping/WRR
• Policers
• Rate limiting

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

Network Management
• CloudVision
• 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
• eAPI
• Linux Tools
  • Bash shell access and scripting
  • RPM support
  • Custom kernel modules
• Programmatic access to system state
  • Python
  • C++
• Native KVM/QEMU

* Not yet supported in EOS
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
- 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
- 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

Table Sizes*

<table>
<thead>
<tr>
<th>Table Sizes</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAC Addresses</td>
<td>64,000</td>
</tr>
<tr>
<td>STP Instances</td>
<td>64 (MST)/256 (RPVST+)</td>
</tr>
<tr>
<td>IGMP Groups</td>
<td>20,000</td>
</tr>
<tr>
<td>ACLs</td>
<td>up to 20,000 ACEs</td>
</tr>
<tr>
<td>IPv4 Hosts</td>
<td>64,000</td>
</tr>
<tr>
<td>IPv4 Routes - Unicast</td>
<td>70,000</td>
</tr>
<tr>
<td>IPv4 Routes - Multicast</td>
<td>20,000</td>
</tr>
<tr>
<td>IPv6 Routes - Unicast</td>
<td>18,000</td>
</tr>
<tr>
<td>IPv6 Routes - Multicast</td>
<td>2,000</td>
</tr>
<tr>
<td>ECMP</td>
<td>32-way</td>
</tr>
</tbody>
</table>

* The 7150 series employs dynamic resources shared amongst several features. Actual capacity depends on configuration.
### 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)

### Environmental Characteristics

**Operating Temperature**

0 to 40°C **

**Storage Temperature**

-40°C to 70°C

**Relative Humidity**

5 to 95%

**Operating Altitude**

0 to 10,000 ft

### 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/Max Power Draw***

191 / 334 W

191 / 450 W

224 / 455 W

**Minimum EOS Version**

4.11.0

4.11.1

4.11.3

**EOS Feature Licenses**

Group 1

Group 2

Group 2

**Supported Optics and Cables**

#### Interface Type

<table>
<thead>
<tr>
<th>Interface Type</th>
<th>QSFP+ ports</th>
</tr>
</thead>
<tbody>
<tr>
<td>40GBASE-CR4</td>
<td>0.5-5m QSFP+ to QSFP+</td>
</tr>
<tr>
<td>40GBASE-AOC</td>
<td>3m to 100m</td>
</tr>
<tr>
<td>40GBASE-UNIV</td>
<td>150m (OM3) / 150m (OM4)</td>
</tr>
<tr>
<td>40GBASE-SRBD</td>
<td>100m (OM3) / 150m (OM4)</td>
</tr>
<tr>
<td>40GBASE-SR4</td>
<td>100m (OM3) / 150m (OM4)</td>
</tr>
<tr>
<td>40GBASE-XSR4</td>
<td>300m (OM3) / 400m (OM4)</td>
</tr>
<tr>
<td>40GBASE-PLRL4</td>
<td>1km (1km 4x10G LR/LRL)</td>
</tr>
<tr>
<td>40GBASE-PLR4</td>
<td>10km (10km 4x10G LR/LRL)</td>
</tr>
<tr>
<td>40GBASE-LRL4</td>
<td>1km</td>
</tr>
<tr>
<td>40GBASE-LR4</td>
<td>10km</td>
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<tr>
<td>40GBASE-ER4</td>
<td>40km</td>
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</table>

#### Supported Optics and Cables

<table>
<thead>
<tr>
<th>Interface Type</th>
<th>SFP+ ports</th>
<th>QSFP+ ports</th>
</tr>
</thead>
<tbody>
<tr>
<td>10GBASE-CR</td>
<td>SFP+ to SFP+ 0.5-5m</td>
<td>0.5-3m QSFP+ to 4 x SFP+</td>
</tr>
<tr>
<td>10GBASE-AOC</td>
<td>SFP+ to SFP+ 3m-30m</td>
<td></td>
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<tr>
<td>10GBASE-SRL</td>
<td>100m</td>
<td></td>
</tr>
<tr>
<td>10GBASE-SR</td>
<td>300m</td>
<td></td>
</tr>
<tr>
<td>10GBASE-LRL</td>
<td>1km</td>
<td></td>
</tr>
<tr>
<td>10GBASE-LR</td>
<td>10km</td>
<td></td>
</tr>
<tr>
<td>10GBASE-ER</td>
<td>40km</td>
<td></td>
</tr>
<tr>
<td>10GBASE-ZR</td>
<td>80km</td>
<td></td>
</tr>
<tr>
<td>10GBASE-DWDM</td>
<td>80km</td>
<td></td>
</tr>
<tr>
<td>100/1000BASE-T, 1Gbe SX/LX</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

* Typical power consumption measured at 25°C ambient with 50% load on all ports.
<table>
<thead>
<tr>
<th>Product Number</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCS-7150S-64-CL-F</td>
<td>Arista 7150, 48x1/10G SFP+ &amp; 4xQSF+ switch, high precision clock, front-to-rear airflow, 2x AC PSU</td>
</tr>
<tr>
<td>DCS-7150S-64-CL-R</td>
<td>Arista 7150, 48x1/10G SFP+ &amp; 4xQSF+ switch, high precision clock, rear-to-front airflow, 2x AC PSU</td>
</tr>
<tr>
<td>DCS-7150S-64-CL#</td>
<td>Arista 7150, 48x1/10G SFP+ &amp; 4xQSF+ switch, high precision clock, no fans, no PSU (requires fans and power supplies)</td>
</tr>
<tr>
<td>DCS-7150S-64-CLD#</td>
<td>Arista 7150, 48x1/10G SFP+ &amp; 4xQSF+ switch, high precision clock, 50GB SSD, no fans, no PSU (requires fans and power supplies)</td>
</tr>
<tr>
<td>DCS-7150S-52-CL-F</td>
<td>Arista 7150, 52x1/10G SFP+ switch, high precision clock, front-to-rear airflow, 2x AC PSU</td>
</tr>
<tr>
<td>DCS-7150S-52-CL-R</td>
<td>Arista 7150, 52x1/10G SFP+ switch, high precision clock, rear-to-front airflow, 2x AC PSU</td>
</tr>
<tr>
<td>DCS-7150S-52-CL#</td>
<td>Arista 7150, 52x1/10G SFP+ switch, high precision clock, no fans, no PSU (requires fans and power supplies)</td>
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<tr>
<td>DCS-7150S-52-CLD#</td>
<td>Arista 7150, 52x1/10G SFP+ switch, high precision clock, 50GB SSD, no fans, no PSU (requires fans and power supplies)</td>
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<tr>
<td>DCS-7150S-24-F</td>
<td>Arista 7150, 24x1/10G SFP+ switch, front-to-rear airflow, 2x AC PSU</td>
</tr>
<tr>
<td>DCS-7150S-24-R</td>
<td>Arista 7150, 24x1/10G SFP+ switch, rear-to-front airflow, 2x AC PSU</td>
</tr>
<tr>
<td>DCS-7150S-24#</td>
<td>Arista 7150, 24x1/10G SFP+ switch, no fans, no PSU (requires fans and power supplies)</td>
</tr>
<tr>
<td>DCS-7150S-24-CL#</td>
<td>Arista 7150, 24x1/10G SFP+ switch, high precision clock, no fans, no PSU (requires fans and power supplies)</td>
</tr>
<tr>
<td>DCS-7150S-24-CLD#</td>
<td>Arista 7150, 24x1/10G SFP+ switch, high precision clock, 50GB SSD, no fans, no PSU (requires fans and power supplies)</td>
</tr>
</tbody>
</table>

Optional Components

<table>
<thead>
<tr>
<th>Optional Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAN-7000-F</td>
<td>Spare fan module for Arista 7124SX, 7150 &amp; 7048-A switches (front-to-rear airflow)</td>
</tr>
<tr>
<td>FAN-7000-R</td>
<td>Spare fan module for Arista 7124SX, 7150 &amp; 7048-A switches (rear-to-front airflow)</td>
</tr>
<tr>
<td>PWR-460AC-F</td>
<td>Spare 460 Watt AC PSU for Arista 7124SX, 7050, 7150 &amp; 7048-A Switches (front-to-rear airflow)</td>
</tr>
<tr>
<td>PWR-460AC-R</td>
<td>Spare 460 Watt AC PSU for Arista 7124SX, 7050, 7150 &amp; 7048-A Switches (rear-to-front airflow)</td>
</tr>
<tr>
<td>PWR-460DC-F</td>
<td>Spare 460 Watt DC PSU for Arista 7124SX, 7050, 7150 &amp; 7048-A Switches (front-to-rear airflow)</td>
</tr>
<tr>
<td>PWR-460DC-R</td>
<td>Spare 460 Watt DC PSU for Arista 7124SX, 7050, 7150 &amp; 7048-A Switches (rear-to-front airflow)</td>
</tr>
<tr>
<td>LIC-FIX-1-E</td>
<td>Enhanced L3 License for Arista Group 1 Fixed switches (BGP, OSPF, ISIS, PIM, NAT)</td>
</tr>
<tr>
<td>LIC-FIX-2-E</td>
<td>Enhanced L3 License for Arista Group 2 Fixed switches, (BGP, OSPF, ISIS, PIM, NAT)</td>
</tr>
<tr>
<td>LIC-FIX-1-V</td>
<td>Virtualization license for Group 1 Arista Fixed switches (VMTracer and VXLAN)</td>
</tr>
<tr>
<td>LIC-FIX-2-V</td>
<td>Virtualization license for Group 2 Arista Fixed switches (VMTracer and VXLAN)</td>
</tr>
<tr>
<td>LIC-FIX-1-Z</td>
<td>Monitoring &amp; Automation license for Arista Group 1 Fixed switches (ZTP, LANZ, TapAgg, API, Time-stamping, OpenFlow)</td>
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<tr>
<td>LIC-FIX-2-Z</td>
<td>Monitoring &amp; Automation license for Arista Group 2 Fixed switches (ZTP, LANZ, TapAgg, API, Time-stamping, OpenFlow)</td>
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<tr>
<td>LIC-FIX-1-FLX-L</td>
<td>FLX-Lite License for Arista Fixed switches, Group 1 - Full Routing Up to 256K Routes, EVPN, VXLAN</td>
</tr>
<tr>
<td>LIC-FIX-2-FLX-L</td>
<td>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)</td>
</tr>
<tr>
<td>KIT-7000</td>
<td>Spare accessory kit for Arista 7150 series switches</td>
</tr>
</tbody>
</table>
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.arista.com/en/service