

## Product Highlights

### Forwarding Performance

- 24 1/10GbE ports in 1RU
- 480 Gbps/360Mpps
- Wire speed L2/3/4 forwarding
- Sub-500 nanosecond latency
- Low latency and jitter for all packets sizes and traffic types
- Dynamic buffer allocation

### Data Center Optimized Design

- 1+1 redundant & hot-swappable power
- N+1 redundant & hot-swappable fans
- Front-to-rear or rear-to-front fans
- Typical power consumption 6W/port

### Robust CPU Subsystem

- Dual-core x86 CPU
- 4GB DRAM
- 2GB Flash
- Full Kernel VM support
- Onboard precision clock

### Embedded Application Switch Subsystem

- FPGA subsystem for custom embedded applications
- Dedicated memory and PCIe connectivity
- Natively integrated with EOS instrumentation and operations
- Create your own, or install 3rd party apps

### Built-in Solid State Storage

- 50GB Solid State Drive
- Store additional applications and virtual machines
- Store logs and data captures
- Leverage linux tools with no limitations

### Advanced Provisioning & Monitoring

- Zero Touch Provisioning (ZTP)
- Latency Analyzer (LANZ)
- VM Tracer
- sFlow

### Arista Extensible Operating System

- Single binary image for all products
- Fine-grained truly modular network OS
- Stateful Fault Containment (SFC)
- Stateful Fault Repair (SFR)
- Access to Linux tools
- Extensible platform

## Overview

The Arista 7124FX Application Switch is a high performance, ultra-low latency embedded application switch. Based on the award winning Arista 7124SX, the 7124FX adds an inline programmable subsystem that is directly integrated with the forwarding plane. The 7124FX offers 24 1/10GbE wirespeed ports in a compact and power efficient 1RU chassis. The 16 standard front panel ports accommodate the full range of 10GbE SFP+ and GbE SFP options, allowing for maximum flexibility and deployment options. The 8 FX ports are directly connected to the user programmable subsystem, providing a flexible and open platform for custom and 3rd party embedded applications.

The integrated subsystem provides a unique capability to run latency sensitive and mission critical applications directly in the switch improving performance and determinism, while reducing overall latency and costs. A built in SSD is included for advanced logging, data captures and supporting embedded applications.



*Arista 7124FX: 24-port Application Switch*

## Application Switch Programmability

The Application Switch subsystem includes an advanced FPGA with 160Gbps of wire speed performance and 6.2Million Gates. It's purpose built for inline programmability and customized forwarding. Potential applications include data stream processing, integrated compute and networking functions for high performance applications, content based forwarding, IDS, and many others. Customers may choose to develop their own logic based on the Arista development kit, offering the ultimate in flexibility and customization. For customers that prefer off-the-shelf applications, Arista partners will provide system integration support and "appliance" images for the Application Switch subsystem.

Features	Benefits
High Speed	Sub microsecond delivery of application processing handled entirely within the inline FX solution reducing total latency
Deterministic Latency	The proven ultra low latency solution provides deterministic latency even under load for processing critical traffic
Data Distribution	8 10GbE FX and 16 standard wirespeed interfaces allows for multiple sources and destinations per FX switch
Reduced Costs	A single FX switch can run multiple applications concurrently. Integration with an ultra low latency switch lowers power and footprint compared to server solutions
Scalability	24 10GbE interfaces allows connectivity to multiple inputs and outputs. Cascading ultra low latency switches provides additional scalability.
Ease of Integration	Scalability, performance and cost savings are realized through native integration with EOS and existing tools.

## Deterministic, Ultra-Low Latency

The Arista 7124FX is optimized to deliver industry-leading ultra-low latency, cut-through forwarding at sub-500 nanoseconds for both unicast and multicast traffic, on the standard interfaces, for all packet sizes. The latency does not change even when additional features such as L3 forwarding, L4 inspection, ACL, QoS, Multicast or Port Mirroring functionality are enabled. The 7124FX also forwards packets in cut-through mode at 1GbE speeds at low latency for legacy connections.

## High Availability

The Arista 7124FX switch was designed for high availability from both a software and hardware perspective. Key high availability features include:

- 1+1 hot-swappable power supplies
- Four N+1 hot-swappable fans
- Live patching
- Self healing software with Stateful Fault Repair (SFR)
- Up to 16 10GbE ports per link aggregation group (LAG)
- Multi-chassis LAG for active/active L2 multipathing
- 16-way ECMP routing for load balancing and redundancy



*Arista 7124FX Front View :16 Standard and 8 FX SFP+ Ports*



*Arista 7124FX Rear View: Front-to-rear airflow model*



*Arista 7124FX Rear View: Rear-to-front airflow model*

## Arista EOS

The Arista 7124FX switches run 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 other Linux based tools can be run natively on the switch, with the powerful dual-core x86 CPU subsystem.

## Provisioning Tools and Built-in Storage

The 7124FX switches offer advanced capabilities for network provisioning. The integrated 50GB SSD provides storage for application and system logging that allows for a whole new family of applications that can be run from the network itself. This includes having the switch be a PXE boot server, store syslogs for audit and compliance right on the switch, logging latency trends per queue, capturing and saving data packets via tcpdump and running Linux based services such as DHCP and Precision Time Protocol (PTP).

## Latency Analyzer (LANZ)

The 7124FX offers advanced capabilities for latency and application analysis. Congestion points can be identified and tracked over time with granular precision, allowing a network operator to peer "inside" a burst event. LANZ streaming provides an open standards based mechanism for streaming queue depth metrics off the switch to an external collecting station, providing a valuable data point for operational and application insight.

## Built-in Precision Time

The Arista 7124FX provides industry leading time synchronization and precision clock features. The FX subsystem includes an external connector for direct external synchronization to PPS or IRIG time sources. Additionally a temperature controlled clock is provided on the CPU subsystem to provide an accurate pulse for CPU based applications and logging LANZ data. Both systems can work in conjunction to provide nanosecond levels of accuracy for the most sensitive and precise timing applications.

## Layer 2 Features

- 16K L2 Forwarding Entries
- 802.1w Rapid Spanning Tree
- 802.1s Multiple Spanning Tree Protocol
- Rapid Per VLAN Spanning Tree (RPVST+)
- 802.3ad Link Aggregation/LACP
  - 16 ports/channel / 256 groups per system
- Multi-Chassis Link Aggregation (MLAG)
  - Uses IEEE 802.3ad LACP
  - 32 ports per MLAG
- 802.1Q VLANs/Trunking
  - 4096 VLANs
- Q-in-Q
- 802.1AB Link Layer Discovery Protocol
- Port Mirroring
- 802.3x Flow Control
- Jumbo Frames (9216 Bytes)
- IGMP v1/v2/v3 snooping
- Storm Control

## Layer 3 Features

- 16K IPv4 Routes, 4K IPv6 Routes\*
- Static Routes
- OSPF, BGP and ISIS
- 16-way Equal Cost Multipath Routing (ECMP)
- Route Maps
- PIM-SM
- Anycast RP (RFC 4610)
- VRRP
- Virtual ARP (VARP)

## Embedded FX Subsystem

- Altera Stratix V FPGA
  - 6.2M Gates
  - 50Mb onboard SRAM
  - 8GB DDR3 DRAM ECC
  - 216Mb QDRII SRAM
- PCIe Gen2 Interface to CPU
- External JTAG connection via top panel
- PPS Precision time input via MCX connector

## Monitoring and Provisioning

- Latency Analyzer (LANZ)
- Zero Touch Provisioning (ZTP)
- SSD for logging and data capture
- Restore from USB
- Blue Beacon LED for system identification
- eAPI

## Security Features

- L2, L3, L4 ACL's
- Control Plane Protection (CPP)
- MAC Security
- TACACS+ / RADIUS / AAA
- Private VLAN

## VM Tracer Feature Set

- VMware vSphere support
- VM Auto Discovery
- VM Adaptive Segmentation
- VM Host View

## Quality of Service (QoS) Features

- Up to 8 queues per port
- 802.1p based classification
- Per-Priority Flow Control (PFC)
- Data Center Bridging Extensions (DCBX)
- DSCP based classification and remarking\*
- Egress queueing and shaping
- Policers\*
- Rate limiting

## Network Management

- 10/100/1000 Management and Serial Console port
- USB Port
- SNMP v2, v3
- Management over IPv6
- Telnet and SSHv2
- Syslog
- Industry Standard CLI

## 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

## SNMP MIBs

- ARISTA-SMI-MIB
- ARISTA-PRODUCTS-MIB
- 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
- LLDP-MIB
- LLDP-EXT-DOT1-MIB
- LLDP-EXT-DOT3-MIB
- ENTITY-MIB
- ENTITY-SENSOR-MIB
- ENTITY-STATE-MIB

\* Supported in a future software release

## Table Sizes

MAC Addresses	16,000
STP Instances	64 (MST)/4,000 (PVST)
IGMP Groups	3,000
ACLs	2,000
IPv4 Hosts	16,000
IPv4 Routes - Unicast	16,000
IPv4 Routes - Multicast	4,500
IPv6 Routes - Unicast	4,000
IPv6 Routes - Multicast	1,125
ECMP	16-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

## Power Specifications

Input Voltage	100-240AC
Input Current (Max)	2.2-5.3A
Input Frequency	50-60Hz
Input Connector	IEC 320-C13

## 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

## Physical Characteristics

Size (WxHxD)	19" x 1.75" x 16" (44.5 x 4.4 x 40.64 cm)
Weight	18 lbs (8.16 kg)

## Specifications

Ports	24 10GbE : (16 Standard / 8 FX)
Interface Type	SFP/SFP+
Throughput	480 Gigabits per second
Packets/Second	360 Million pps
Latency	500 nanoseconds
CPU	Dual-Core x86
System Memory	4 Gigabytes
Flash Storage Memory	2 Gigabytes
SSD Storage	50 Gigabytes
10/100/1000 Mgmt Port	1
Serial Console Port	1 (RJ-45, RS-232)
USB Ports	1
Hot-swappable Power Supplies	2 (1+1 redundant)
Hot-swappable Fans	4 (N+1 redundant)
Reversible Airflow	Yes
Typical Power Draw	150W*
Maximum Power Draw	210W

## Supported Optics and Cables

Interface Type	Standard Ports	FX Ports
10GBASE-CR	0.5m to 7m	-
10GBASE-SRL	50 µm MMF 100m	50 µm MMF 100m
10GBASE-SR	50 µm MMF 300m	50 µm MMF 300m
10GBASE-LRM	62.5 µm MMF 220m	-
10GBASE-LR	9 µm SMF 10km	9 µm SMF 10km
10GBASE-ER	9 µm SMF 40km	9 µm SMF 40km
10G-DWDM	9 µm SMF 40km	9 µm SMF 40km
1000BASE-SX	50 µm MMF 550m	50 µm MMF 550m
1000BASE-LX	9 µm SMF 10km	9 µm SMF 10km
100/1000BASE-T	Category 5 Copper 100m	Category 5 Copper 100m

\*Typical power consumption measured at 25C ambient with 50% load

Product Number	Product Description
DCS-7124FX-F	Arista 7124FX 24-port 10GbE switch (SFP+), FPGA, SSD, precision clock, front-to-rear air, 2xAC, 2xC13-C14 cords
DCS-7124FX-R	Arista 7124FX 24-port 10GbE switch (SFP+), FPGA, SSD, precision clock, rear-to-front air, 2xAC, 2xC13-C14 cords
FAN-7000-F	Spare fan module for Arista 7124FX (front-to-rear airflow)
FAN-7000-R	Spare fan for Arista 7124FX (rear-to-front airflow)
PWR-460AC-F	Spare 460W AC Power supply for Arista 7124FX switches (front-to-rear airflow)
PWR-460AC-R	Spare 460W AC Power supply for Arista 7124FX switches (rear-to-front airflow)
PWR-460DC-F	Spare 460W DC power supply for Arista 7124FX switches (front-to-rear airflow)
PWR-460DC-R	Spare 460W DC power supply for Arista 7124FX switches (rear-to-front airflow)
LIC-VM-TRACER-1	VM Tracer License for 7048, 7120 and 7124 Switches
LIC-7124-E	Enhanced License for Arista 7100 24-port Switches (OSPF, BGP, PIM)
LIC-7124-Z	Network monitoring and provisioning feature set license for Arista 7100 24-port switches (ZTP, API, LANZ)
KIT-7000	Spare accessory kit for Arista 7124FX switches
DCS-7124FX-DEV1	Application Switch development and programming software, programming cable, 15hrs support

## Warranty

The Arista 7124FX switch comes 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>

### Headquarters

5470 Great America Parkway  
Santa Clara, California 95054  
408-547-5500

### Support

[support@aristanetworks.com](mailto:support@aristanetworks.com)  
408-547-5502  
866-476-0000

### Sales

[sales@aristanetworks.com](mailto:sales@aristanetworks.com)  
408-547-5501  
866-497-0000