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.

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.

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

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

### 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 |

### 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) |

* Typical power consumption measured at 25°C ambient with 50% load.
<table>
<thead>
<tr>
<th>Product Number</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCS-7124FX-F</td>
<td>Arista 7124FX 24-port 10GbE switch (SFP+), FPGA, SSD, precision clock, front-to-rear air, 2xAC, 2xC13-C14 cords</td>
</tr>
<tr>
<td>DCS-7124FX-R</td>
<td>Arista 7124FX 24-port 10GbE switch (SFP+), FPGA, SSD, precision clock, rear-to-front air, 2xAC, 2xC13-C14 cords</td>
</tr>
<tr>
<td>FAN-7000-F</td>
<td>Spare fan module for Arista 7124FX (front-to-rear airflow)</td>
</tr>
<tr>
<td>FAN-7000-R</td>
<td>Spare fan for Arista 7124FX (rear-to-front airflow)</td>
</tr>
<tr>
<td>PWR-460AC-F</td>
<td>Spare 460W AC Power supply for Arista 7124FX switches (front-to-rear airflow)</td>
</tr>
<tr>
<td>PWR-460AC-R</td>
<td>Spare 460W AC Power supply for Arista 7124FX switches (rear-to-front airflow)</td>
</tr>
<tr>
<td>PWR-460DC-F</td>
<td>Spare 460W DC power supply for Arista 7124FX switches (front-to-rear airflow)</td>
</tr>
<tr>
<td>PWR-460DC-R</td>
<td>Spare 460W DC power supply for Arista 7124FX switches (rear-to-front airflow)</td>
</tr>
<tr>
<td>LIC-VM-TRACER-1</td>
<td>VM Tracer License for 7048, 7120 and 7124 Switches</td>
</tr>
<tr>
<td>LIC-7124-E</td>
<td>Enhanced License for Arista 7100 24-port Switches (OSPF, BGP, PIM)</td>
</tr>
<tr>
<td>LIC-7124-Z</td>
<td>Network monitoring and provisioning feature set license for Arista 7100 24-port switches (ZTP, API, LANZ)</td>
</tr>
<tr>
<td>KIT-7000</td>
<td>Spare accessory kit for Arista 7124FX switches</td>
</tr>
<tr>
<td>DCS-7124FX-DEV1</td>
<td>Application Switch development and programming software, programming cable, 15hrs support</td>
</tr>
</tbody>
</table>

**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](http://www.aristanetworks.com/en/service)