Product Highlights

Performance

- 7130B-32QD: 32x QSFP-DD (10G NRZ)
- Up to 256 x 10GbE ports
- Fully-connected layer 1 fabric
- Crosspoint latency from 7 ns
- 2.56 Tbps integrated L2/L3 switch

Core Features

- Ultra low latency layer 1 crosspoint
- Programmable integrated switch
- Flexible front-panel connectivity
- High performance x86 control-plane

Advanced L1 Functionality

- Signal regeneration
- Media conversion
- Port mirroring
- Telemetry
- Dynamic patching/link management
- Layer 1+ statistics on every link

Integrated Switch

- Wire-speed L2/L3 forwarding
- Flexible resource allocation
- P4 Programmable pipeline profiles
- Configurable in-band or out-of-band
- Advanced telemetry with packet traces and user defined triggers

Data Center Optimized Design

- Up to 256 x 10GbE L1 ports in 2RU
- Over 93% efficient power supplies
- 1+1 redundant & hot-swappable power
- N+1 redundant & hot-swappable fans
- Front-to-rear cooling
- Tool-less rails for simple installation

Advanced Provisioning & Monitoring

- CloudVision
- Zero Touch Provisioning (ZTP)
- LANZ for microburst detection
- DANZ Advanced Mirroring for visibility
- Self-configure and recover from USB

Arista Extensible Operating System

- Single binary image for all products
- 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++ , GO, OpenConfig

Overview

Low latency, deterministic Layer 1 forwarding is critical in many telecom, media distribution, and financial networks. Arista's 7130B Series offers up to 256, ultra-low latency Layer 1 interfaces at 10G, enabling large scale interconnection, replication and dynamic re-patching. Through the addition of a P4 programmable integrated switch with a further 256 internal interfaces to the Layer 1 crosspoint, each port can also be patched to an L2/L3 switch interface or custom packet pipeline defined by the user.

The Layer 1 crosspoint fabric features 1:N replication, allowing both front panel and switch interfaces to be mirrored to any set of internal or front-panel ports. This path flexibility enables a hybrid data distribution model: deterministic, low latency layer 1 fan-out replication combined with a standard Layer 3 upstream interface. Whether the path is Layer 1 or L2/L3, the integrated switch provides a complete set of counters and telemetry, simplifying operations and monitoring.

Built around a fully P4 programmable data plane, the integrated switch allows for complete definition of packet parsing, lookups, traffic scheduling, packet modification and traffic monitoring. The 7130B harnesses this flexibility to deploy complex functions, usually only available in CPU based appliances, at wire speed directly in the network layer providing orders of magnitude performance improvements and power/space reduction.

Arista provides multiple user selectable pipeline profiles that focus on use cases including high scale address translation, low latency switching, and server load balancing combined with scalable L2 and L3 resources and rich EOS features. The unique flexibility means new pipeline features and applications can be developed and deployed without replacing the underlying hardware.
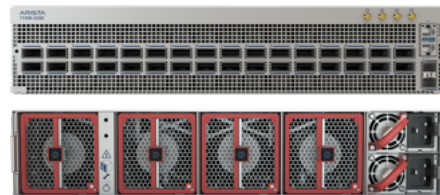
Arista 7130B-32QD: 32 x QSFP-DD ports

Arista EOS

All Arista products including the 7130B Series run the same Arista EOS software, simplifying network administration with a single standard across all switches. 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 state sharing architecture provides the foundation for self-healing resiliency and enables straightforward third-party development and application integration.

Arista EOS enables advanced monitoring and automation capabilities such as Zero Touch Provisioning, LANZ, and Linux based tools to be run natively on the switch.

Layer 1 Forwarding

The 7130B Series features a high-density Layer 1 crosspoint that forwards data across any set of front-panel ports in as little as 7 nanoseconds with full signal recovery and regeneration. Ports configured in Layer 1 path mode are non-blocking, deterministic with virtually undetectable jitter, and do not buffer or queue data.

Combining the performance of Layer 1 forwarding with the manageability of a standard network switch, the 7130B Series provides comprehensive packet statistics and counters, signal quality monitoring, and live streaming telemetry to simplify monitoring.

Arista's 7130B Series can be used in a network as a remotely configurable patch panel, ad-hoc tapping system, media converter, or link monitor with no degeneration of signal quality. The determinism and low latency of Layer 1 forwarding is ideal for 1:N distribution of financial market data, broadcast media, and custom events requiring a high degree of synchronization.

Layer 1 path configuration and status is accessible through Arista's eAPI (JSON-RPC) or EOS SDK with a variety of languages including Python and C++.

7130B Series Key Features

- Scalable, low latency data distribution across 256 ports
- Ultra-low jitter and deterministic latency from 7 nanoseconds
- Unlimited number of 1:N replication groups
- Simplified monitoring & management with a full set of counters and telemetry
- Flexible L2/L3 features available through the integrated P4 programmable switch

Fully-Connected Crosspoint Fabric

The 7130B series features a Layer 1 crosspoint fabric providing any-to-any connectivity across all front-panel ports and the integrated P4 programmable switch. For deterministic, low latency data distribution, any input port can be replicated to an arbitrary set of output ports (1:N) solely through the crosspoint. In this port mode, the P4 programmable switch is out-of-band and maintains a complete set of counters and streaming telemetry for monitoring and management.

Any front-panel port can also be connected to an internal switch interface. In this mode, the ports operate as normal switch interfaces with a complete set of L2/L3 features. Since both input and output lanes transit the layer 1 fabric, either direction can be replicated at Layer 1 through any set of front-panel ports. This unique, fully-connected architecture enables a variety of hybrid distribution designs combining the determinism and low latency of Layer 1 replication and the flexibility of L2/L3 switching.
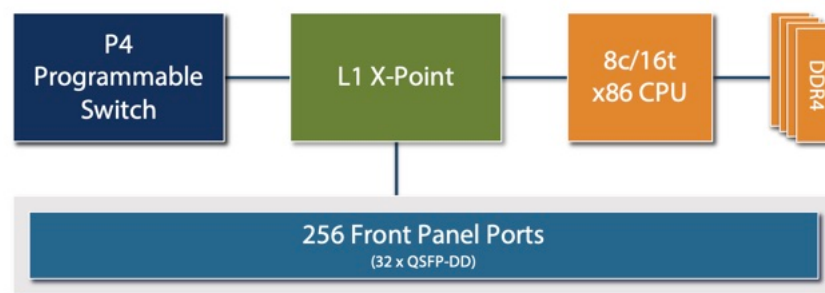
Arista 7130B Series Packet Pipeline Architecture

Software Defined Cloud Networks

Arista Software Defined Cloud Networking (SDCN), combines the principles that have made cloud computing the unstoppable force that it is: automation, self service provisioning, and linear scaling of both performance and economics coupled with the trend in Software Defined Networking that delivers: network virtualization, custom programmability, simplified architectures, and lower capital expenditure. This combination creates a best-in-class software foundation for maximizing the value of the network to both the enterprise and service provider data center. A new architecture for the most mission-critical location within the IT infrastructure that simplifies management and provisioning, speeds up service delivery, lowers costs and creates opportunities for competitive differentiation, while putting control and visibility back in the hands of the network and systems administrators.

Integrated Switch

Each front-panel port on the 7130B can be connected to an integrated switch port with a complete set of L2/L3 features. In multicast distribution applications, this provides a convenient point for managing peers and group membership. Routed traffic through these ports can also be replicated through the Layer 1 crosspoint fabric to reduce jitter and latency.

The integrated switch offers additional capabilities through a highly programmable packet pipeline that allows the addition of new protocols, encapsulation and tunneling features, and Layer 4 applications through simple software upgrades without changes to the underlying hardware.

Arista leverages P4 to define advanced forwarding profiles for the 7130B packet pipeline that deliver custom behavior, change lookups performed on the packets or to rapidly develop and test new functionality. The flexibility provided by multiple forwarding profiles addresses multiple real world requirements for scale, advanced telemetry, security and encapsulation and can be further customized to specific customer use-cases. The Enhanced feature license enables use of specialist profiles.
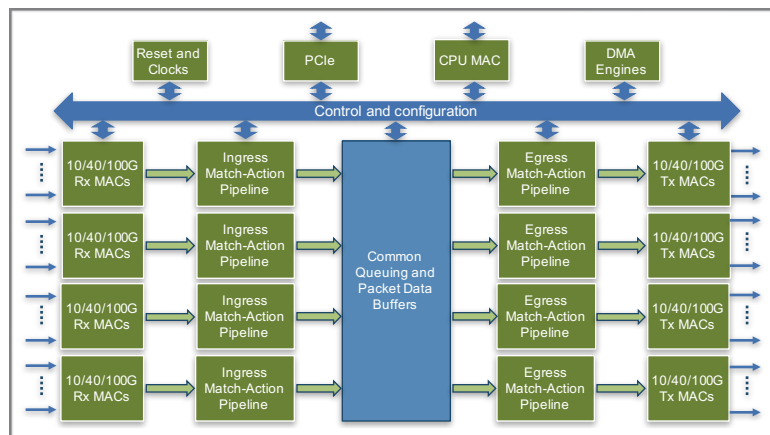
Arista 7130B Series Integrated Switch Pipeline Architecture

Match-Action Units

The 7130B series packet processor pipeline consists of identical blocks of pipeline stages or Match-Action Units. The pipeline program, know as a profile, defines the functions implemented by each Match-Action Unit, matching specific information extracted from packet headers and performing lookups in the resource tables which then define modifications and forwarding decisions. This architecture results in a configurable data plane with very high throughput, broad range of packet processing functionality and application visibility.

Flexible and Scalable Resources

Network scalability is directly impacted by a switch's forwarding tables. Programmable profiles enable the 7130B Series to provide flexibility on how memory resources are allocated among the different tables and features. The architecture allows for flexible and programmable allocation of available resources to achieve maximum efficiency for a given customer application. The unique level of pipeline programmability enables deployment of the 7130B Series in traditional roles with standard scale requirements as well as a wide range of use cases with unique resource requirements.

Application Profiles

The 7130B series supports a rich set of both data plane and control plane features and capabilities with a programmable SDK that addresses the deployment in either a leaf or spine role in two-tier networks. In addition, configurable application specific profiles provide a targeted set of data plane and control plane features with the feature scale tailored to address specific deployment scenarios.

Some examples of solutions the 7130B Application Profiles can enable:

- Bare-metal Integration with Network Overlays and Virtualization
- Large Scale Network Address Translation
- IPv4 to v6 transition with MAP-T
- Stateless Load Balancing
- Broadcast Media Workflows

For further information about available pipeline profiles or new profile development, please contact your Arista representative.

Integrated Switch Features [1]

Layer 2 Features

• 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
   • 128 ports/channel
• Multi-Chassis Link Aggregation (MLAG)
   • 64 ports per MLAG
• 802.1AB Link Layer Discovery Protocol
• 802.3x Flow Control
• Jumbo Frames (9216 Bytes)
• IGMP v1/v2/v3 snooping
• Storm Control

Layer 3 Features

• Routing Protocols: OSPF, OSPFv3, BGP, MP-BGP, IS-IS, and RIPv2
• Static Routes
• Equal Cost Multipath Routing (ECMP)
• Resilient ECMP Routes
• VRF
• Bi-Directional Forwarding Detection (BFD)
• Route Maps
• IGMP v2/v3
• PIM-SM / PIM-SSM
• Anycast RP (RFC 4610)
• VRRP
• Virtual ARP (VARP)
• Policy Based Routing (PBR)
• uRPF
• Network Address Translation
   • Source/Destination NAT
   • Source/Group Multicast NAT

Advanced Monitoring and Provisioning

• Zero Touch Provisioning (ZTP)
• 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
   • L2/3/4 Filtering on Mirror Sessions
   • Port Channel source and destination
   • Mirror to CPU

• Advanced Event Management suite (AEM)
   • CLI Scheduler
   • Event Manager
   • Event Monitor
   • Linux tools
• Integrated packet capture/analysis with TCPDump
• RFC 3176 sFlow
• Restore & configure from USB
• Blue Beacon LED for system identification
• eAPI
• OpenStack Neutron Support
• IEEE 1588 PTP (Transparent Clock and Boundary Clock)

Virtualization Support

• VXLAN Routing and Bridging
• VM Tracer VMware Integration

Security Features

• Control Plane Protection (CPP)
• Ingress ACLs using L2, L3, L4 fields
• ACL Deny Logging
• ACL Counters
• DHCP Relay / Snooping
• MACsec (802.1AE)
• TACACS+
• RADIUS

Quality of Service (QoS) Features

• Up to 8 queues per port
• 802.1p based classification
• DSCP based classification and remarking
• Explicit Congestion Notification (ECN)
• QoS interface trust (COS / DSCP)
• Strict priority queueing
• Weighted Round Robin (WRR) Scheduling
• Per-Priority Flow Control (PFC)
• Data Center Bridging Extensions (DCBX)
• 802.1Qaz Enhanced Transmissions Selection (ETS)
• Per port MMU Configuration
• Policing/Shaping
• Rate limiting

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1. Due to the highly programmable nature of the packet processor, available functionality and scale varies by the current active profile

Network Management

- CloudVision
- Configuration rollback and commit
- 100/1000 Management Port
- RS-232 Serial Console Port
- USB Port
- SNMP v1, v2, v3
- Management over IPv6
- Telnet and SSHv2
- Syslog
- AAA
- Industry Standard CLI
- Beacon LED for system identification
- System Logging
- Environment monitoring

Extensibility

- Linux Tools
    - Bash shell access and scripting
    - RPM support
    - Custom kernel modules
- Software Defined Networking (SDN)
    - eAPI
    - OpenStack Neutron Support
- Programmatic access to system state
    - Python
    - Chef
    - Puppet
    - C++
    - eAPI
    - GO
    - OpenConfig
    - OpenStack Neutron Plug-in support
- Native KVM/QEMU support

Standards Compliance [1,2]

- 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
- 802.3x Flow Control
- 802.3ae 10 Gigabit Ethernet
- RFC 2460 Internet Protocol, Version 6 (IPv6)
- RFC 2461 Neighbor Discovery for IP Version 6 (IPv6)
- RFC 2462 IPv6 Stateless Address Autoconfiguration
- RFC 2463 Internet Control Message Protocol (ICMPv6)
- IEEE 1588-2008 Precision Time Protocol

SNMP MIBs [2]

- 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

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1. Due to the highly programmable nature of the packet processor, available functionality and scale varies by the current active profile
2. Applies to integrated switch interfaces

Specifications

Switch Model	7130B-32QD [E]
Ports	32x QSFP-DD (8 x 10G NRZ)
Layer 1 Crosspoint Interfaces	256
Layer 1 Throughput	100M-11.3Gbps per lane
Layer 1 Latency	From 7 ns
Internal Switch Interfaces	256 x 10G
Switch Throughput (FDX)	2.56 (5.12) Tbps
Switch Packet Buffer	22 MB
Switching Latency [1]	From 650 ns
Programmable Pipeline Stages [1]	Up to 96
Clock	OCXO
CPU	Eight-Core x86
System Memory	32 GB
System SSD Storage	120 GB
PPS Input Ports (5V TTL, 50Ω)	2x SMA
PPS Output Ports (5V TTL)	2x SMA
10/100/1000 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 [2]	1600W/2400W
Rack Units	2 U
Size (WxHxD)	17.32 x 3.46 x 30.00 inches (44.0 x 8.8 x 76.2 cm)
Weight	50.5 lbs (22.9 kg)
Fan Tray	7012H
Power Supplies	PWR-2411-AC PWR-2411-DC
Minimum EOS	4.28.0F

1. Raw chip properties, actual number of processing stages and latency depends on the profile installed and interface configuration
2. Typical power consumption measured at 25C ambient with 50% load
E. Product is subject to an End of Sale notice

Environmental Characteristics

Operating Temperature [1]	0 to 40°C (32 to 104°F)
Storage Temperature	-40 to 70°C (-40 to 158°F)
Relative Humidity	5 to 95%
Operating Altitude	0 to 10,000 ft, (0-3,000m)

Power Supply Specifications

Power Supply	PWR-2411-AC	PWR-2411-DC
Input Voltage	200-240V AC	-48 to -60 VDC
Typical Input Current	14A	55A Max (-48V)
Input Frequency	50/60Hz	DC
Output Power	2400W	2400W
Input Connector	IEC 60320 C20	AWG #6 Max
Efficiency (Typical)	93% Platinum	94%

Standards Compliance

EMC	FCC Class A, ICES-003, EN 55032, EN IEC 61000-3-2:2019, EN 61000-3-3
Immunity	EN 55035 EN 300 386
Safety	EN 62368-1:2014 + A11:2017 IEC-62368-1:2014
Certifications	BSMI (Taiwan) CE (European Union) KCC (South Korea) NRTL (North America) RCM (Australia/New Zealand) UKCA (United Kingdom) VCCI (Japan)
European Union Directives	2014/53/EU Radio Equipment Directive 2014/35/EU Low Voltage Directive 2014/30/EU EMC Directive 2012/19/EU WEEE Directive 2011/65/EU RoHS Directive 2015/863/EU Commission Delegated Directive
Further Information	Product Certification Portal

1. Certain airflow configurations or the use of higher power or reduced temperature range optics may reduce maximum operating temperature.

Arista Optics and Cables

The QSFP-DD ports of the 7130B-32QD platform accept QSFP-DD modules operating at 8x 10G, as well as QSFP modules operating at 4x 10G speeds. Note that when QSFP modules or cables are inserted into QSFP-DD ports of the 7130B platforms, only 4 out of the 8 available lanes in the QSFP-DD port are used.

The table below summarizes the most commonly used optics and cables in the 7130B platforms. For more details about Arista's pluggable optics and cables, refer to the Optics Modules and Cables Data sheet, the Arista Transceiver and Cable Guide, and Arista's Enhanced Performance Series Optics Q&A.

Supported Optics and Cables

Application / Interface Type	Supported Optics and Cables	Description and Reach
8x 10GBASE-CR	CAB-D-8S-400G-xM, or CAB-D-8S-200G-xM	QSFP-DD to 8x SFP Breakout Copper Cables: 1m to 2.5m QSFP-DD port configured for 8x 10GE, SFP breakout ports configured for 10GE
	CAB-D-2Q-400G-xM, or CAB-D-2Q-200G-xM	QSFP-DD to 2x QSFP Breakout Cables: 1m to 3m length QSFP-DD port configured for 8x 10GE, QSFP breakout ports configured for 4x 10GE
	CAB-D-D-400G-xM	QSFP-DD to QSFP-DD Copper Cables: 1m to 3m length QSFP-DD ports configured for 8x 10GE
8x 10GBASE-SR	QDD-8X25-MR-SR-E (E-Series Transceiver for low latency)	QDD-8X25-MR-SR-E Transceiver configured as 8x 10GE 300m OM3 / 400m OM4 Parallel MMF
4x 10GBASE-CR	CAB-Q-4S-100G-xM	QSFP to 4x SFP Breakout Copper Cables: 1m to 5m QSFP port configured for 4x 10GE SFP breakout ports configured for 10GE
	CAB-Q-Q-100G-xM	QSFP to QSFP Copper Cables: 1m to 5m QSFP ports configured for 4x 10GE
4x 10GBASE-CR	CAB-Q-S-xM	QSFP to 4x SFP Breakout Copper Cables: 0.5m to 5m The QSFP "head end" port configured for 4x 10GE SFP breakout ports configured for 10GE
	CAB-Q-Q-xM	QSFP to QSFP Copper Cables: 0.5m to 5m QSFP ports configured for 4x 10GE
4x 10GBASE-SR	QSFP-40G-SR4	QSFP-40G-SR4 Transceiver configured as 4x 10GE 100m OM3 /150m OM4 Parallel MMF
4x 10GBASE-LR	QSFP-40G-PLR4	QSFP-40G-PLR4 Transceiver configured as 4x 10GE 10km over Parallel MMF

Product Number   Product Description

Product Number	Product Description
DCS-7130B-32QD-F	Arista 7130 Series, with 32 QSFP-DD, Layer 1 X-point, B series switch, front-to-rear air, 2xAC
DCS-7130B-32QD-R	Arista 7130 Series, with 32 QSFP-DD, Layer 1 X-point, B series switch, rear-to-front air, 2xAC
DCS-7130B-32QD#	Arista 7130 Series, with 32 QSFP-DD, Layer 1 X-point, B series switch, configurable fans & psu
LIC-FIX-3-E	Enhanced L3 License for Arista Group 3 Fixed switches, (BGP, OSPF, ISIS, PIM, NAT)
LIC-FIX-3-V	Virtualization license for Group 3 Arista Fixed switches (VMTracer and VXLAN)
LIC-FIX-3-V2	EOS Extensions, Security and Partner Integration license for Arista Group 3 Fixed switches
LIC-FIX-3-Z	Monitoring & Automation license for Arista Group 3 Fixed switches (ZTP, LANZ, TapAgg, OpenFlow)
LIC-FIX-ENH1	Enhanced License Group 1 for 7130B & 7170 platforms - All non-default profiles. Includes E, V2, Z, FLX.

Optional Components and Spares

Product Number	Product Description
PWR-2411-AC-RED	Arista PSU, 1RU, AC, 2400W, FORWARD, 73.5MM
PWR-2411-DC-RED	Arista PSU, 1RU, DC/DC, 2400W, FORWARD, 73.5MM
PWR-2411-AC-BLUE	Arista PSU, 1RU, AC, 2400W, REVERSE, 73.5MM
PWR-2411-DC-BLUE	Arista PSU, 1RU, DC/DC, 2400W, REVERSE, 73.5MM
PWR-2421-HV-RED	Arista 2400W HV AC and DC Power Supply, FORWARD, 73.5MM
FAN-7012H-RED	Spare fan module for Arista 7000 Series 2RU High Speed Fan (front-to-rear airflow)
FAN-7012H-BLUE	Spare fan module for Arista 7000 Series 2RU High Speed Fan (rear-to-front airflow)
KIT-2POST	Spare 2RU 2 post rack mount installation kit.
KIT-7202	Spare tool-free accessory kit (v2) for Arista 2RU switches. 4-post mount. (2x C19-C20, 2m)
KIT-7004-2UL	Spare extended tool-free 4-post mount kit (v2) for 2-4RU Arista tool-free switches

Warranty

The Arista 7130B series 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

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