Product Highlights

Performance

- 7020TR-48: 48 x 100/1000Mb and 6 SFP+
- Up to 216Gbps throughput
- Up to 162Mpps forwarding
- Wire speed L2 and L3 forwarding

Data Center Optimized Design

- Ultra-deep packet buffer up to 3GB
- Virtual Output Queues per port to eliminate head of line blocking
- 1+1 redundant & hot-swappable power
- N+1 redundant & hot-swappable fans
- Front-to-rear or rear-to-front cooling
- Tool less rails for simple installation
- 2 post and 4 Post mounting
- Over 90% efficient power supplies
- AC or DC Power Options

Cloud Networking Ready

- Up to 256K MAC entries
- Up to 200K IPv4/IPv6 Routes
- Up to 80K IPv4/IPv6 Host Routes
- 128-way ECMP
- 64-port MLAG
- 3GB Buffer

Resilient Control Plane

- Multi-core x86 CPU
- 8GB DRAM
- 4GB Flash

Advanced Provisioning & Monitoring

- CloudVision
- Zero Touch Provisioning (ZTP)
- Advanced Event Monitoring
- sFlow (RFC3176)
- VXLAN for next generation DC*
- LANZ for microburst detection*
- VM Tracer*
- OpenStack
- Chef, Puppet, Ansible

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++ , GO, OpenConfig

Overview

The Arista 7020R Series offers a purpose built high performance and power efficient solution for high density data center deployments. With 48 ports of 100/1000Mb and 6 integrated 1/10GbE SFP+ ports, the switch delivers non-blocking forwarding of 216Gbps combined with feature rich L2 and L3 switching. A natural extension to the 7280R Series, the 7020R are members of the Arista portfolio of data center switches.

With broad support for QoS, security, automation and monitoring features, the 7020R provides an ideal solution to the challenges of implementing network policy consistently in both 1G and 10G environments when combined with the Arista fixed configuration 7280R Series 10 and 40 Gigabit switches. The 7020R delivers the flexibility to be deployed as the server edge of 1Gb Ethernet leaf and spine designs or as a high performance storage network switch. Arista EOS advanced automation, monitoring and provisioning features are consistent to all Arista switches, eliminating the complexity associated with managing mixed environments with inconsistent feature sets. The 7020R Series deep packet buffers and large forwarding tables allow for a broad set of networking applications.

The 7020TR provides 48 100/1000Mb RJ45 ports and 6 SFP+ ports for both 1G or 10G uplink connections with a full range of optics and cables. The Arista 7020TR switches offer low latency and a deep packet buffer of up to 3GB that is fully shared and allocated dynamically to ports that are congested.

Consuming under 1W per gigabit, the 7020TR are extremely power efficient with choices of AC and DC power and built in power redundancy along with redundant fans supporting either forward or reverse airflow in a single system.

Combined with Arista EOS, the 7020R Series delivers advanced features for big data, cloud, virtualized and traditional designs together with enhancements for video streaming, media and entertainment.

7020TR: 48 port 100/1000 Mb and 6 port 10GbE Switch

Arista EOS

The Arista 7020R Series 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, LANZ, VMTracer and Linux based tools can be run natively on the switch with the powerful x86 CPU subsystem.

High Availability

The Arista 7020R switches were designed for continuous operations with system wide monitoring of both hardware and software components, simple serviceability and provisioning to prevent single points of failure. Key high availability features include:

- 1+1 hot-swappable power supplies and four hot-swap fans provide dynamic temperature control combined with N+1 redundancy
- Color coded PSU's and fans that deliver platinum level power efficiency
- Live software patching
- Self healing software with Stateful Fault Repair (SFR)
- Up to 32 ports per link aggregation group (LAG)
- Multi-chassis LAG for active/active L2 multi-pathing
- 128-way ECMP routing for load balancing and redundancy

7020TR-48 1RU Rear View: Front to Rear

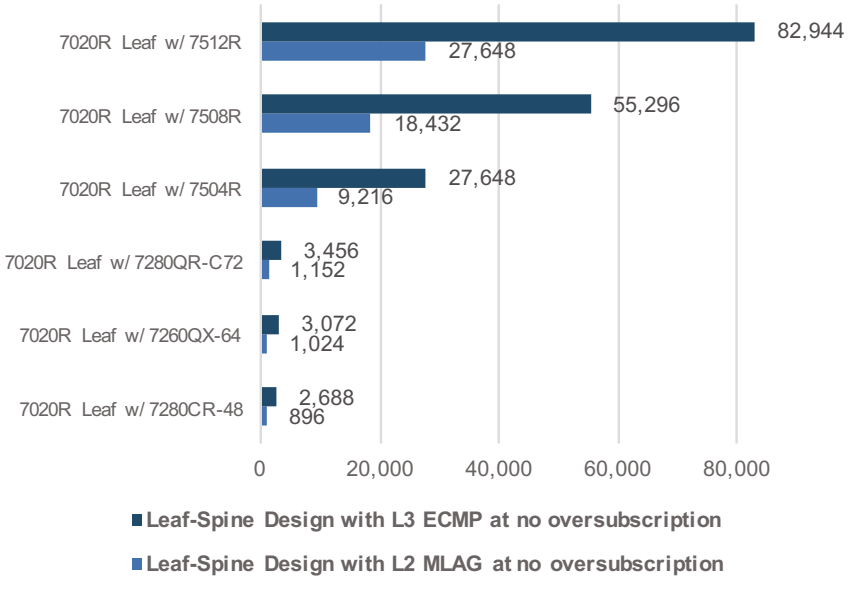
Hot swap power supplies

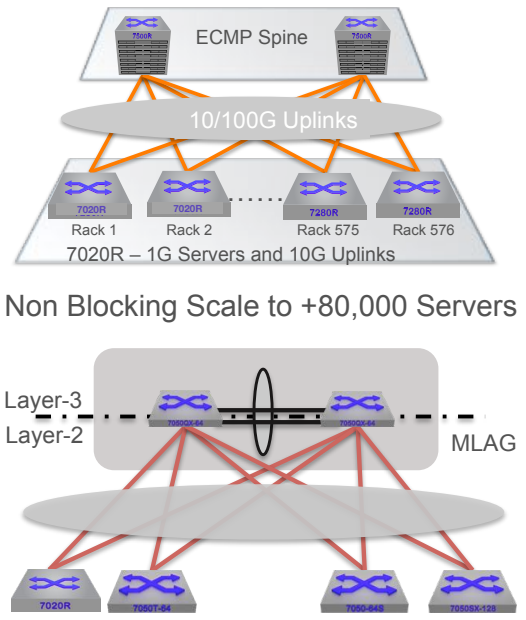
Hot swap fan modules

Scaling Data Center Performance

The Arista 7020R series delivers line rate switching at layer 2 and layer 3 to enable dramatically faster and simpler network designs for data centers that lowers the network capital and operational expenses. When used in conjunction with the Arista 7000 series of fixed and modular switches it allows networks to scale to over 80,000 1G servers in a high performance and low-latency two-tier network that provides predictable and consistent application performance. The flexibility of the L2 and L3 multi-path design options combined with support for open standards provides maximum flexibility, scalability and network wide virtualization. Arista EOS advanced features provide control and visibility with single point of management.

Number of 1GbE Nodes Interconnected Using Arista Leaf-Spine Designs





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.

Maximum Flexibility for Scale Out Network Designs

Scale out network designs enable solutions to start small and evolve over time. A simple two-way design can grow as far as 128-way without significant changes to the architecture. The Arista 7020R include enhancements that allow for flexible scale-out designs:

- 6 ports of 1/10G to provide scalable designs and balance traffic evenly across large scale 2 tier leaf-spine designs
- Comprehensive L2 and L3 forwarding table resources for more design choice
- VXLAN gateway, bridging and routing with VMTracer features to enable next generation data center designs *
- Virtual output queue (VoQ) architecture and deep packet buffering to eliminate head of line blocking with low latency
- ACL scalability with up to 12K entries per forwarding engine allows for rich policy control
- Wide choice of both 1G and 10G transceivers and cables for single port multi-speed flexibility
- Integrated packet capture, sFlow and multi-port mirroring provide network wide visibility and monitoring to detect traffic bursts, monitor latency and congestion and allow capacity planning to improve application performance and availability *

Advanced Event Management (AEM)

Simplifying the overall operations, AEM provides the tools to customize alerts and actions. AEM is a powerful and flexible set of tools to automate tasks and customize the behavior of EOS and the operation of the overall data center switching infrastructure. AEM allows operators to fully utilize the intelligence within EOS to respond to real-time events, automate routine tasks, and automate actions based on changing network conditions.

CloudVision

CloudVision is a network-wide approach for workload orchestration and workflow automation as a turnkey solution for Cloud Networking. CloudVision extends the EOS publish subscribe architectural approach across the network for state, topology, monitoring and visibility. This enables enterprises to move to cloud-class automation without needing any significant internal development.

Next Generation Provisioning and Monitoring

Zero Touch Provisioning (ZTP) combined with other Arista features, like VMTracer's adaptive VLAN configuration allows data center managers to fully automate the bring-up of network elements and virtual servers and leverage Arista's unique 'hands-off' provisioning. Designed to integrate with VMware, OpenStack and Microsoft OMI, Arista's open architecture allows for integration with any virtualization and orchestration system providing visibility to the VM-level enabling portable policies, persistent monitoring and rapid troubleshooting of cloud networks.

7020R Deterministic Network Performance

The Arista 7020R Series uses a deep buffer virtual output queue (VOQ) architecture that eliminates head-of-line (HOL) blocking and virtually eliminates packet drops even in the most congested network scenarios. An advanced traffic scheduler fairly allocates bandwidth between all virtual output queues while accurately following queue disciplines including weighted fair queueing, fixed priority, or hybrid schemes. As a result, the Arista 7020R can handle the most demanding data center requirements with ease, including mixed traffic loads of real-time, multicast, and storage traffic while still delivering low latency.

Virtualization *

Supporting next-generation virtualized data centers requires tight integration with orchestration tools and emerging encapsulation technologies such as VXLAN. The 7020R builds on the valuable tools already provided by the Arista VM Tracer suite to integrate directly into encapsulated environments. Offering a wire-speed gateway between VXLAN and traditional L2/3 environments, the 7020R 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.

EOS Software Licensed Features

Arista EOS delivers a comprehensive feature set along with single image consistency with all other Arista switches. The default EOS system software has a broad Layer 2 feature set with extensive monitoring and provisioning, security, QoS and management features. Layer 3 IPv4 and IPv6 unicast and IPv4 multicast routing functions require the Enhanced license, and VMTracer requires the Virtualization license.

* Not currently supported in EOS

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
  - 32 ports/channel
  - 54 groups per system
- Multi-Chassis Link Aggregation (MLAG)
  - 64 ports per MLAG
- 802.1Q VLANs/Trunking
- 802.1AB Link Layer Discovery Protocol
- 802.3x Flow Control
- Jumbo Frames (9216 Bytes)
- IGMP v1/v2/v3 snooping
- Storm Control

Layer 3 Features

- Static Routes
- Routing Protocols: OSPF, OSPFv3, BGP, MP-BGP, IS-IS, and RIPv2
- 128-way Equal Cost Multipath Routing (ECMP)
- VRF
- Bi-Directional Forwarding Detection (BFD)
- Route Maps
- Policy Based Routing (PBR) *
- VRRP
- Virtual ARP (VARP)
- uRPF *

Multicast

- IGMP v2/v3
- PIM-SM / PIM-SSM
- PIM-BiDir *
- Anycast RP (RFC 4610)
- Multicast Source Discovery Protocol (MSDP)

Advanced Monitoring and Provisioning

- Zero Touch Provisioning (ZTP)
- Port Mirroring
- 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

Virtualization Support*

- VXLAN Gateway (draft-mahlingam-dutt-dcops-vxlan-01)
- VXLAN Tunnel Endpoint
- VXLAN Bridging
- VXLAN Routing (VRF, MLAG) *
- VM Tracer VMware Integration *
  - VMware vSphere support
  - VM Auto Discovery
  - VM Adaptive Segmentation
  - VM Host View

Security Features

- IPv4 / IPv6 Ingress & Egress ACLs using L2, L3, L4 fields
- MAC ACLs
- ACL Deny Logging
- ACL Counters
- Control Plane Protection (CPP)
- DHCP Relay / Snooping
- MAC Security
- 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
- Per-Priority Flow Control (PFC) *
- Data Center Bridging Extensions (DCBX) *
- ACL based DSCP Marking *
- Policing/Shaping
- Rate limiting *

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
- System Logging
- Environment monitoring

* Not currently supported in EOS

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

- 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 full duplex on 100BASE-TX and 1000BASE-T
- 802.3u 100BASE-TX
- 802.3ab 1000BASE-T
- 802.3z 1000BASE-X
- 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

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
- 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	
STP Instances	64 (MST)/510 (RPVST+)
IGMP Groups	up to 64K
Ingress ACLs	12K
Egress ACLs	12K
ECMP	128-way
MAC Addresses	256K
IPv4 Host Routes	80K
IPv4 Multicast (S,G)	24K
IPv6 Host Routes	80K
IPv4 Routes - Unicast	200K
IPv6 Routes - Unicast	200K

Maximum values dependent on shared resources in some cases

* Not yet supported in EOS

Environmental Characteristics

Operating Temperature	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)

Standards Compliance

EMC	Emissions: FCC, EN55022, EN61000-3-2, EN61000-3-3 or EN61000-3-11, EN61000-3-12 (as applicable) Immunity: EN55024 Emissions and Immunity: EN300 386
Safety	UL/CSA 60950-1, EN 60950-1, IEC 60950-1 CB Scheme with all country differences
Certifications	North America (NRTL) European Union (EU) BSMI (Taiwan) C-Tick (Australia) CCC (PRC) MSIP (Korea) EAC (Customs Union) VCCI (Japan)
European Union Directives	2006/95/EC Low Voltage Directive 2004/108/EC EMC Directive 2011/65/EU RoHS Directive 2012/19/EU WEEE Directive

Supported SFP Optics and Cables

Interface Type	SFP+ ports
10GBASE-CR	SFP+ to SFP+: 0.5m-5m
10GBASE-AOC	SFP+ to SFP+: 3m-30m
10GBASE-SRL	100m (OM3) / 150m (OM4)
10GBASE-SR	300m (OM3) / 400m (OM4)
10GBASE-LRL	1km SMF
10GBASE-LR	10km SMF
10GBASE-ER	40km
10GBASE-ZR	80km
10GBASE-DWDM	80km
100/1000BASE-T, 1GbE SX/LX	Yes

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

Specifications	7020TR-48
Ports	48 x100/1000 Mb RJ-45 6 x 1/10GbE SFP+
1/10GbE SFP/SFP+ Ports	6
100/1000BASE-T (RJ45) Ports	48
Throughput	216 Gbps
Packets/Second	162 Mpps
Latency (RJ45 to uplinks)	From 3.8 microseconds
CPU	Quad-Core x86
System Memory	8 Gigabytes
Flash Storage Memory	4 Gigabytes
Packet Buffer Memory	3 Gigabytes
100/1000 Mgmt Ports	1
RS-232 Serial Ports	1 (RJ-45)
USB Ports	2
Power Supplies	2 (1+1 redundant)
Hot-swappable Fans	4 (N+1 redundant)
Reversible Airflow	Yes
Typical Power Draw*	105W
Max Power Draw	115W
Size (WxHxD)	17.3 x 1.71 x 15.8″ (43.9 x 4.34 x 40.1cm)
Weight	17 lbs (7.71kg)

Power Supply Specifications

Power Supply Model	PWR-500AC	PWR-500-DC
Input Voltage	100-240AC	40-72V DC
Typical Input Current	6.3 - 2.3A	13.1 - 7.3A 11A at -48V
Input Frequency	50/60Hz	DC
Input Connector	IEC 320-C13	AWG #16-#12
Efficiency (Typical)	93% Platinum	90%

Ordering Information

Product Number	Product Description
DCS-7020TR-48-F	Arista 7020R, 48x RJ45 (100/1000Mb), 6 x SFP+ (1/10GbE) switch, front to rear air, 2x AC, 2xC13-C14 cords
DCS-7020TR-48-R	Arista 7020R, 48x RJ45 (100/1000Mb), 6 x SFP+ (1/10GbE) switch, rear to front air, 2x AC, 2xC13-C14 cords
DCS-7020TR-48#	Arista 7020R, 48x RJ45 (100/1000Mb), 6 x SFP+ (1/10GbE) switch, configurable fans and PSU
LIC-7048-E	Enhanced License for Arista Fixed 48-port Gigabit Ethernet Switch (OSPF, BGP, ISIS, PIM)
LIC-7048-V	Virtualization license for Arista Fixed 48-port 1G (VMTracer)
LIC-FIX-FLX-L-1G	FlexRoute-Lite License for Arista Gigabit Ethernet Switches - OSPF, ISIS, BGP/MP-BGP, PIM, Up to 32K Routes, EVPN, VXLAN
LIC-FIX-FLX-1G	FlexRoute License for Arista Gigabit Ethernet Switches - OSPF, ISIS, BGP/MP-BGP, PIM, 32K - 200K Routes, EVPN, VXLAN
Spare Options	
PWR-500AC-F	Spare 500 Watt AC power supply for Arista 7050X, 7020R and 7280R 1RU Switches (front-to-rear airflow)
PWR-500AC-R	Spare 500 Watt AC power supply for Arista 7050X, 7020R and 7280R 1RU Switches (rear-to-front airflow)
PWR-500-DC-F	Spare 500 Watt DC power supply for Arista 7050X, 7020R and 7280R 1RU Switches (front-to-rear airflow)
PWR-500-DC-R	Spare 500 Watt DC power supply for Arista 7050X, 7020R and 7280R 1RU Switches (rear-to-front airflow)
FAN-7000-F	Spare fan module for Arista 7150, 7124SX(FX), 7050, 7020R, 7280 & 7048-A switches (front-to-rear airflow)
FAN-7000-R	Spare fan module for Arista 7150, 7124SX(FX), 7050, 7020R, 7280 & 7048-A switches (rear-to-front airflow)
KIT-7001	Spare accessory kit for Arista 1RU tool-less switches
KIT-2POST-1U-NT	Spare 1RU 2 post rail kit for 1RU tool less systems
KIT-4POST-NT	Spare 1RU/2RU tool-less rail kits for 4-post installation

Warranty

The Arista 7020R switches 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.arista.com/en/service

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