Extreme 7720
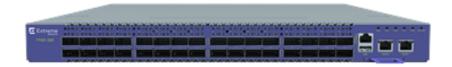
Highlights

- High-performance, fixed-form switches for leaf, spine, aggregation, or core applications
- Universal dual-persona hardware allows user choice of switch operating systems
- ExtremeCloud™ IQ and ExtremeCloud IQ - Site Engine for powerful, secure and easy to use cloud-based network management
- Fabric Connect for automated network operations, simplified network provisioning and enhanced security

Key Hardware Features

- 32x 40Gb/100Gb fiber ports in a fixed 1U form factor
- AC and DC power options
- Back-to-front and front-to-back airflow options
- Up to 8-unit stacking
- Integrated Application Hosting enables 3rd-party applications without impacting switch performance
- Non-blocking, wire-speed design

Universal Aggregation/Core Switch Platform

The Extreme 7720 are purpose-built switches designed for high-performance aggregation and core applications. As a universal hardware platform, the 7720 provides end-to-end secure network segmentation, in addition to advanced policy capabilities, with a user-selectable choice of Extreme's flagship switch operating systems. This makes the 7720 a uniquely flexible platform that can be deployed in a variety of aggregation and core environments.

The Extreme 7720 network hardware platform enables organizations to design networks that accommodate a variety of applications and east-west traffic patterns. With its high-density scale-out architecture, leading power efficiency, and airflow options, the 7720 platform delivers a cost-effective solution that optimizes power, cooling, and equipment room space, wherever your network operating center might be.

One model of the 7720 is available with the following port capacity.

7720-32C

- 32 x 40Gb/100Gb QSFP28 fiber ports

Universal Hardware Platform

The 7720 Series comes with a dual-persona capability allowing user choice of the switch operating system (OS). Either the Switch Engine (EXOS) or Fabric Engine (VOSS) persona can be enabled on 7720 hardware models. The desired persona can be selected at start-up or changed at a later stage. Once selected, the 7720 assumes the features/capabilities of the selected OS.

7720 persona activation can be done manually at boot-up, including via the system CLI. Or, it can be automated by pre-provisioning the 7720 persona in ExtremeCloud IQ. When first booted, the 7720 automatically connects to ExtremeCloud IQ to find its persona. The pre-provisioned OS persona is then remotely enabled on the 7720 system – eliminating the need for manual selection.

Ethernet Fabric Services

The 7720 supports a variety of Ethernet Fabric services, including Extreme's Fabric Connect when running Fabric Engine (VOSS) and Extreme's IP Fabric when running Switch Engine (EXOS). It also supports Fabric Attach for automated connection to either Layer 2 or Layer 3 fabric services. Extreme's Fabric Connect and IP Fabric on the 7720 enable the creation of virtualized networks that automate network operations, simplify network provisioning, and enhance security, all while reducing the strain on network and IT personnel.

High-Performance Stacking

Two of the 7720's QSFP28 uplink ports can be used for high-speed 400Gb stacking when running Switch Engine (EXOS). Up to eight systems can be stacked using qualified direct attach cables and/or optical transceivers. (Note: Stacking is not supported when running Fabric Engine (VOSS)).

Management

The 7720 can be managed by ExtremeCloud IQ and ExtremeCloud IQ-Site Engine for comprehensive unified management with a consolidated view of users, devices and applications across wired and wireless networks.

Zero-touch provisioning from ExtremeCloud IQ lets one quickly bring new 7720 switches online as well as enable the selection of the operating system (OS) persona. Alternatively, 7720 on-box management can be done manually via a web-based GUI or generic CLI.

Switch Specifications - 7720 (32 x 100Gb)

Ports	32 x QSFP+QSFP28 40Gb/100Gb ports 124 x 10G/25G ports using break-out cables 1 x Serial console port RJ-45 2 x 10/100/1000BASE-T out-of-band management port (only the first port is used for out-of-band management) USB Type A storage port
Power Supplies	Modular 800W AC power supply (up to 2 PSUs) Modular 800W DC power supply (up to 2 PSUs) Front-Back and Back-Front airflow options
Fan Tray	6 fan modules, support one fan redundancy Front-Back and Back-Front airflow options
Dimensions	17.3in W/22.44in D/1.7in H (44.0cm/57.0cm/4.3cm)
Weight	16.3 lb (7.4 kg) no PSU/19.9 lb (9.0 kg) with two PSUs
Performance	Line rate 6.4 Tbps Switching Capacity (3.2 Tbps ingress, 3.2 Tbps egress) Forwarding Rate: 2000 Mpps Average Latency: 800 ns
CPU/Memory	8-core Processor 16GB DDR4 ECC memory 128GB SSD memory
Packet Buffers	32MB
Operating Conditions	Environmental Operating Temperature Front-to-back: 0°C (32°F) to 50°C (124°F) at sea level 0°C (32°F) to 45°C (113°F) up to 1800 m (6000ft) 0°C (32°F) to 40°C (104°F), up to 3000m (10000 ft) Back-to-front: 0°C (32°F) to 45°C (113°F) at sea level 0°C (32°F) to 40°C (104°F) up to 1800 m (6000ft) 0°C (32°F) to 35°C (95°F) up to 3000m (10000 ft)

7720 Software Scaling Values

Switch Engine

MAC Table: 294,000
IPv4 ARP Table: 172,000
IPv4 Route Table: 294,000
IP Multicast Entries (S,G,V): 110,000
IPv6 Neighbor Table: 78,000
IPv6 Route Table: 218,000
ACLs (Ingress/Egress): 38,864/2,048
QoS Egress Queues per port: 8
VLANs: 4,094
Routed VLANs: 4,094

One Policy Scaling

Policy Profiles: 63
Unique Permit/Deny Rules per switch: 16,312

Fabric Engine

MAC Table: 164,000

IPv4 ARP Table: 65,536
IPv4 Route Table: 24,576
IP Multicast Entries (S,G,V): 6,000
IPv6 Neighbor Table: 32,768
IPv6 Route Table: 12,288
ACLs (Ingress/Egress): 8,192/6,144
QoS Egress Queues per port: 8
VLANs: 4,059
IP Interfaces (Routed VLANs): 1,000

Fabric Connect Scaling

Fabric Adjacencies per switch: 255
Fabric nodes per area (BEB + BCB): 1,000
BEB Nodes per VSN: 2,000
L2 VSNs: 4,000
L3 VSNs: 256

Power and Heat Dissipation

Switch Model	Minimum Heat Dissipation (BTU/hr) (Idle,no ports linked)	Minimum Power Consumption (Watts) (Idle, no ports linked)	Maximum Heat Dissipation (BTU/hr) (Fans high, all ports 100% traffic)	Maximum Power Consumption (Watts) (Fans high, all ports 100% traffic)
7720-32C-AC(F/R)	972 BTU/hr	285W	1340 BTU/hr	393W
7720-32C-DC(F/R)	975 BTU/hr	286W	1381 BTU/hr	405W

Power Supply Specifications

	800W AC PSU XN-ACPWR-800W-F/R	800WDC PSU XN-DCPWR-800W-F/R
Dimensions	3.15in W x 1.57in H x 8.11in D (8.0 cm x 4.0 cm x 20.6 cm)800	3.15in W x 1.57in H x 8.11in D (8.0 cm x 4.0 cm x 20.6 cm)800
Weight	1.79 lb (0.81kg)	1.85 lb (0.85kg)
Voltage Input Range	100-140 VAC/200 -240 VAC	-48 to -60 VDC
Line Frequency Range	50– 60 HZ	N/A
PSU Input Socket	IEC320 C14	Terminal Block
PSU Output Cord	IEC320 C13	N/A
Operating Conditions	0°C–55°C operation	0°C–55°C operation

Environmental

Environmental Specifications

EN/ETSI 300 019-2-1 v2.1.2 - Class 1.2 Storage

EN/ETSI 300 019-2-2 v2.1.2 - Class 2.3 Transportation

EN/ETSI 300 019-2-3 v2.1.2 - Class 3.1e Operational

EN/ETSI 300 753 (1997-10) - Acoustic Noise

ASTMD3580 Random Vibration Unpackaged 1.5 G

Environmental Compliance

EU RoHS - 2011/65/EU

EUWEEE - 2012/19/EU

EU REACH – Regulation (EC) No 1907/2006 Reporting

China RoHS - SJ/T 11363-2006

Taiwan RoHS - CNS 15663(2013.7)

Environmental Operating Conditions

Temp: 0°C to 50°C (32°F to 122°F)

Humidity: 10% to 95% relative humidity, non-condensing

Altitude: 0 to 3,000 meters (9,850 feet)

Shock (half sine) 30m/s2 (3G), 11ms, 60 shocks

Random vibration: 3 to 500 Hz at 1.5 G rms

Packaging and Storage Specifications

Temp: -40°C to 70°C (-40°F to 158°F)

Humidity: 10% to 95% relative humidity, non-condensing

Packaged Shock (half sine): 180 m/s2 (18 G), 6 ms, 600 shocks

Packaged Vibration: 5 to 62 Hz at velocity 5 mm/s, 62 to 500 Hz at 0.2 G

Packaged Random Vibration: 5 to 20 Hz at 1.0 ASD w/–3 dB/oct. from 20 to 200Hz

Packaged Drop Height: 14 drops minimum on sides and corners at 42 inches (<15 kg box)

Regulatory and Safety

North American ITE

UL60950-1

UL/CuL62368-1 Listed

CSA 22.2 No. 60950-1 2nd edition 2014 (Canada)

Complies with FCC 21CFR 1040.10 (U.S. Laser Safety)

CDRH Letter of Approval (US FDA Approval)

European ITE

EN 60950-1 2nd Edition

EN62368-1

EN 60825-1 Class 1 (Lasers Safety)

2014/35/EU Low Voltage Directive

International ITE

CB Report & Certificate per IEC 60950-1

CB Report & Certificate IEC 62368-1

AS/NZS 60950-1 (Australia/New Zealand)

Regulatory and Safety

EMI/EMCStandards

North American EMC for ITE

FCC CFR 47 Part 15 Class A (USA)

ICES-003 Class A (Canada)

European EMCStandards

EN 55032 Class A EN55024

EN 61000-3-2,2014 (Harmonics)

EN 61000-3-3 2013 (Flicker)

EN 300 386 (EMC Telecommunications) 2014/30/EU EMC Directive

International EMC Certifications

CISPR 32, Class A (International Emissions) AS/NZSCISPR32

CISPR24 Class A (International Immunity)

IEC 61000-4-2/EN 61000-4-2 Electrostatic Discharge, 8 kV Contact, 15 kV Air,CriteriaB

IEC 61000-4-3/EN 61000-4-3 Radiated Immunity 10V/m, Criteria A

IEC 61000-4-4/EN 61000-4-4 Transient Burst, 2 kV, Criteria B

IEC 61000-4-5/EN 61000-4-5 Surge, 2 kV L-L, 2 kV L-G, Level 3, Criteria B

IEC61000-4-6 Conducted Immunity, 0.15-80 MHz, 10V/rms, 80%AM (1kHz), Criteria A

IEC/EN61000-4-11 Power Dips & Interruptions, >30%, 25 periods, Criteria C

Country Specific

VCCI Class A (Japan Emissions)

ACMA RCM (Australia Emissions)

CCC Mark (China)

KCCMark, EMC Approval (Korea)

BSMI (Taiwan)

Anatel (Brazil)

NoM (Mexico)

EAC (Russia, Belarus, Kazakhstan)

NRCS (South Africa)

IEEE802.3 Media Access Standards

IEEE 802.3ab 1000BASE-T

IEEE 802.3ae 10GBASE-X

IEEE 802.3 10GBASE-T (up to 100m using Cat6a cabling or better)

IEE802.3by-2016 25Gb/s Operation

IEEE 802.3ba/802.3bm 40 GBASE-X and 100 GBASE-X

IEEE 802.3az Energy Efficient Ethernet (7520-48XT only)

Ordering Notes

Customers ordering an AC-bundled version of the 7520 Series switch receive the hardware switch along with a Base software license, integrated power supply, fan modules, and rack-mount kit.

Customers ordering a non-bundled version of the 7520 Series switch customers will only receive the hardware switch, Base software license, and rackmount kit. Customers in this case, must order Power Supply Units (PSU) and fan modules separately.

At least one Power Supply Unit (PSU) is required for 7520 operations. Additional power supplies, transceiver/optics, power cords, as well as Premier and/or MACsec licenses, must be ordered separately.

Base Software and Optional Premier License

The Base software included with each 7520 unit supports most available software features. Certain features, however, require a Premier License to operate:

For Switch Engine, a Premier License is required for:

5 or more OSPF interfaces
PIM DM/PIM SSM
Anycast RP (Rendezvous Point)
MultiSource Discovery Protocol (MSDP)
IS-IS/BGP4/MBGP*
GRE Tunneling
Ethernet VPN (EVPN)

* Up to 2 BGP interfaces included in Base software

For Fabric Engine, a Premier License is required for :

Layer 3 Virtual Services Networks (VSNs)
Distributed Virtual Routing Controller
VXLAN Gateway
5 or more active OSPF interfaces
17 or more BGP peers
Insight Architecture/Integrated Application Hosting (IAH)

Base Software and Optional Premier License

The Base software included with each 7720 unit supports most available software features. Certain features, however, require a Premier License to operate:

For Switch Engine, a Premier License is required for:

- 5 or more OSPF interfaces
- PIM DM/PIM SSM
- Anycast RP (Rendezvous Point)
- MultiSource Discovery Protocol (MSDP)
- IS-IS/BGP4/MBGP*
- GRE Tunneling
- Ethernet VPN (EVPN)

*Up to 2 BGP interfaces included in Base software

For Fabric Engine, a Premier License is required for:

- Layer 3 Virtual Services Networks (VSNs)
- Distributed Virtual Routing Controller
- VXLAN Gateway
- 5 or more active OSPF interfaces
- 17 or more BGP peers
- Insight Architecture/Integrated Application Hosting (IAH)

Power Supplies for Use with Your Switch

Each 7720 Series switch runs with two replaceable internal power supply modules that provide all of the power needed for the switch to operate. You can remove one power supply module without interrupting the switch's operation. Supported power supply configurations include two 750W AC power supply modules, two 750 W750Wower supply modules, or one 750 W AC a750We 750 W DC power 750Wy module. Power supply modules have integrated cooling fans that operate independently of the switch fans and are available with front-to-back or back-to-front airflow. The direction of the airflow in both power supply modules must be in the same direction and must also be in the same direction of the airflow in the fan modules.

Ordering Information

7720 Systems

Part Number	Product Name	Description
7720-32C	7720-32C Base System	Extreme 7720-32C Switch with two empty power supply slots, six empty fan slots, Ships with one 4-post rack mount kit. Supports 32 x 40G/100G fiber ports
7720-32C-AC-F	7720-32C with front-to-back airflow	Extreme 7720-32C Switch - Ships with two AC front-to-back airflow power supplies, six front-to- back airflow fans, one 4-post rack mount kit. Supports 32 x 40G/100G fiber ports
7720-32C-AC-R	7720-32C with back-to-front airflow	Extreme 7720-32C Switch - Ships with two AC back-to-front airflow power supplies, six back-to- front airflow fans, one 4-post rack mount kit. Supports 32 x 40G/100G fiber ports

Accessories

Part Number	Product Name	Description
XN-ACPWR-800W-F	800W AC PSU (Front-to-Back)	AC800W PSU, Front to Back Airflow for use in 7520, 7720
XN-ACPWR-800W-R	800W AC PSU (Back-to-Front)	AC800W PSU, Back to Front Airflow for use in 7520, 7720
XN-DCPWR-800W-F	800W DC PSU (Front-to-Back)	DC800W PSU, Front to Back Airflow for use in 7520, 7720
XN-DCPWR-800W-R	800W DC PSU (Back-to-Front)	DC800W PSU, Back to Front Airflow for use in 7520, 7720
XN-FAN-001-F	Fan Module (Front-to-Back)	Single Fan module Front to Back Airflow (also used in X695, VSP 7400, SLX 9150, SLX 9250, 8520, 8720, and 7520)
XN-FAN-001-R	Fan Module (Back-to-Front)	Single Fan module Back to Front Airflow (also used in X695, VSP 7400, SLX 9150, SLX 9250, 8520, 8720, and 7520)
XN-2P-RKMP299	Two-post rack mount kit	Two-post rack mount kit for 7520 and 7720 switches
XN-4P-RKMT298	Four-post rack mount kit	Four-post rack mount kit for 7520-48Y, 7520-48XT, and 7720 switches

Software Licenses

Part Number	Product Name	Description
7000-PRMR-LIC-P	Premier License for 7000 Series	Extreme7000 Premier Feature License (Includes Integrated Application Hosting)

Warranty

All 7720 Series models are covered under Extreme's Universal LLW policy. For warranty details, visit: http://www.extremenetworks.com/support/policies

Maintenance Services

Extreme'smaintenance and support services with 100% in-sourced engineering experts and over 90% first-person resolution ensure efficient operation of your business- essential network. 24x7x365 phone support, advanced parts replacement, and on-site support augment your staff with experienced resources that help you mitigate critical network issues fast. Visit Extreme Maintenance Services for more information.

Optics / Transceivers

For a list of the optics/transceivers supported on the 7720 Series hardware, refer to our Extreme Optics Compatibility Tool at https://optics.extremenetworks.com.

Power Cords

In support of Extreme Networks green initiatives, power cords are not included with the 7720 but can be ordered separately. They should be specified at time of ordering.