DATA SHEET

# 7100-Series

High Density 10 Gigabit Ethernet Data Center Switch

## Benefits

### BUSINESS ALIGNMENT

- Standards-based Terabit architecture to support secure, reliable deployment of business-critical applications.
- Flexible, high speed connectivity support for 1,10, and 40 Gbps Ethernet to scale with growth in your data center.

### OPERATIONAL EFFICIENCY

- Integral element of Extreme Networks' OneFabric edge-to-edge network architecture reduces deployment and maintenance costs.
- High-density, small form system provides up to 64 wire speed 10Gb ports in a single rack unit, significantly reducing footprint costs.
- Management automation and built in resiliency reduce Total Cost of Ownership.
- Virtual Machine (VM) mobility tracking across multiple systems with dynamic policy.
- Automatically identifies and provisions devices and services, reducing IT deployment time.

### SECURITY

- Reduces risk and simplifies network administration with integrated security.

### SUPPORT AND SERVICE

- Industry leading customer satisfaction and first call resolution rates

Versatile high performance data center solution

Line rate 1.28 Tbps throughput with 952 Mpps packet forwarding

Automated network provisioning for the virtualized data center

Flexible connectivity options for 10 Gigabit and 40 Gigabit Ethernet

## Product Overview

The Extreme Networks 7100-Series is a family of high density, high-performance 10Gigabit Ethernet switches that are ideally suited for the demands of today's Enterprise data center. The 7100-Series is an ideal fit for support of high bandwidth and latency-sensitive applications.

The 7100-Series offers flexible connectivity options using modular SFP+ transceivers and Direct Attach Cables as well as integrated 10GBASE-T in both 24 and 48 access port configurations. Gigabit, 10 Gigabit, and 40 Gigabit ports are supported. Up to 64 line rate 10 Gigabit Ethernet ports can be supported in a in single rack unit configuration, maximizing the space available for servers and storage in dense data center Top of Rack (ToR) applications. Configurable air flow allows for adaptation to the specific hot-aisle / cold-aisle configuration of your data center.

The 7100-Series 10 Gigabit Ethernet switches are available in the following configurations:

- 7148 - 48 ports 1/10Gb SFP+ with 4 10/40Gb QSFP+ ports
- 7124 - 24 ports 1/10Gb SFP+ with 4 10/40Gb QSFP+ ports
- 7148T - 48 ports 1/10GBASE-T with 4 10/40Gb QSFP+ ports
- 7124T - 24 ports 1/10GBASE-T with 4 10/40Gb QSFP+ ports

All systems support redundant modular power supplies and fan modules and Extreme Networks Virtual Switch Bonding to configure highly available system configurations for mission critical data center environments.

The 7100-Series is an integral element of the Extreme Networks OneFabric network architecture. OneFabric is designed to help enterprises maintain an integrated end user experience while migrating towards a virtualized network environment.

Virtualization awareness addresses the need for visibility and awareness as virtual servers get deployed and adapt to Virtual Machine mobility. Data Center Bridging effectively supports the convergence of LAN I/O and storage traffic in the data

center fabric. High performance virtual switching increases the available bandwidth in the data center and enables resilient network topologies to servers and aggregation switches. Higher aggregated capacity enables data centers to effectively scale with lower latency and higher levels of availability.

Management integration and automation enables a high degree of visibility and control of critical data center resources, providing a consistent edge-to-core network implementation. Bandwidth and priority policies can be centrally provisioned, delivering a consistent implementation across the network.

## Features/Standards and Protocols

### SWITCHING/VLAN SERVICES

802.3ab Gigabit Ethernet (copper)

802.3z Gigabit Ethernet (fiber)

802.3ae 10 Gigabit Ethernet (fiber)

802.3an 10GBASE-T (copper)

802.3ba 40 Gigabit Ethernet

802.1Q VLANs

802.1D MAC Bridges

802.1w Rapid re-convergence of Spanning Tree

802.1s Multiple Spanning Tree - up to 16 instances

802.1t – Path Cost Amendment to 802.1D

802.1AX-2008 LACP

- 802.3ad Link Aggregation
- up to 64 groups with up to 8 ports in a group

Loop Protect

802.3x Flow Control

Jumbo Packet (9216 bytes)

RFC 1191 Path MTU Discovery

Link Flap Detection

Dynamic Egress (Automated VLAN Port Configuration)

IGMP v1/v2/v3

IGMP snooping

IGMP querier

IPv6 Multicast Listener Discovery (MLDv1/v2)

MLD snooping

MLD querier

GARP VLAN Registration Protocol (GVRP)

802.1ak Multiple VLAN Registration Protocol (MVRP/MRP)

Provider Bridges (IEEE 802.1ad) Ready

### DATA CENTER BRIDGING

802.1Qaz

- Enhanced Transmission Selection (ETS )
- Data Center Bridge Exchange Protocol (DCBx )
- Application Priority

802.1Qbb Priority Flow Control (PFC)

802.1Qau Congestion Notification (CN)

### QOS

Strict Priority Queuing

Weighted Round Robin

8 Transmit Queues per Port

ToS/DSCP Marking/Remarking

802.1p – Class of Service

802.1D Priority-to-Transmit Queue Mapping

Ingress rate limiting

Transmit queue shaping

### SECURITY

802.1X Port-based Authentication

Port Web-based Authentication (PWA)

MAC-based Authentication

Extreme Networks dynamic policy

Convergence Endpoint (CEP) Discovery with Dynamic Policy Mapping (Siemens HFA, Cisco VoIP, H.323, and SIP)

Multiple Authentication Types per Port Simultaneously

Multiple Authenticated users per Port with unique policies per user/End System (VLAN association independent)

RFC 3580 IEEE 802.1 RADIUS Usage Guidelines, with VLAN to Policy Mapping

Broadcast Suppression

RADIUS snooping

MAC-to-Port Locking - static and dynamic

Span Guard (Spanning Tree Protection)

Host CPU Denial of Service (DoS) protection

MSCHAP RADIUS authentication

IPsec RADIUS connection

802.1AE MACsec Hardware Capable

### HIGH AVAILABILITY

Virtual Switch Bonding (VSB) for up to two systems with 40Gb links

High Availability Firmware Upgrade (HAU)

Redundant hot swappable fan modules

Redundant hot swappable power supplies

## EXTREME NETWORKS MANAGEMENT

NMS Console

NMS Policy Manager

NMS Inventory Manager

NMS Automated Security Manager

NMS NAC Manager

Data Center Manager (DCM)

## NETWORK MANAGEMENT

SNMP v1/v2c/v3

WebView Management Interface

Industry Common Command Line Interface

Configurable Login Banner

Dual IPv4/IPv6 Management Support

Multiple local user account management

Multiple Software Image Support with Revision Roll Back

Multi-configuration File Support

Editable Text-based Configuration File

COM Port Boot Prom and Image Download

Telnet Server and Client

Secure Shell (SSHv1/v2) Server and Client

Cabletron Discovery Protocol

Cisco Discovery Protocol v1/v2

802.1ab LLDP, LLDP-MED

802.3-2008 Clause 57 (Ethernet OAM – Link Layer OAM)

Port Mirroring – one to one, many to one, one to many

Unidirectional Link Detection (ULD)

Syslog

Audit Trail Logging

FTP/TFTP Client

Secure Copy Protocol (SCP)

RFC 2030 Simple Network Time Protocol (SNTP)

RFC 2865 RADIUS

RFC 2866 RADIUS Accounting

TACACS+

Management VLAN

RMON – Statistic, History, Alarms, Events

RFC 2613 SMON

DHCP server

Environmental Monitoring

## STANDARD MIB SUPPORT

RFC 1156/1213 & RFC 2011 IP-MIB

RFC 1493 Bridge MIB

RFC 1659 RS-232 MIB

RFC 2578 SNMPv2 SMI

RFC 2579 SNMPv2-TC

RFC 3417 SNMPv2-TM

RFC 3418 SNMPv2 MIB

RFC 2012 TCP MIB

RFC 2013 UDP MIB

RFC 3411 SNMP Framework MIB

RFC 3412 SNMP-MPD MIB

RFC 3413 SNMPv3 Applications

RFC 3414 SNMP User-Based SM MIB

RFC 2276 SNMP-Community MIB

RFC 2613 SMON MIB

RFC 2674 802.1p/q MIB

RFC 2737 Entity MIB

RFC 2819 RMON MIB (Groups 1-9)

RFC 3273 HC RMON MIB

RFC 2863 IF MIB

RFC 2864 IF Inverted Stack MIB

RFC 2922 Physical Topology MIB

RFC 3291 INET Address MIB

RFC 3415 SNMP View Based ACM MIB

RFC 3635 EtherLike MIB

RFC 3636 MAU MIB

RFC 4022 MIB for the Transmission Control Protocol (TCP)

RFC 4113 MIB for the User Datagram Protocol (UDP)

RFC 4293 MIB for Internet Protocol (IP)

IEEE 8023 LAG MIB

RSTP MIB

USM Target Tag MIB

U Bridge MIB

SNMP-REARCH MIB

IANA-address-family-numbers MIB

IEEE 802.1PAE MIB

# 7100-Series Switch Model Specifications

| | 7148 | 7124 | 7148T | 7124T |
|---|---|---|---|---|
| **PERFORMANCE** | | | | |
| Switching Throughput Mpps | 952 Mpps | 595 Mpps | 952 Mpps | 595 Mpps |
| Switching Capacity | 1.28 Tbps | 800 Gbps | 1.28 Tbps | 800 Gbps |
| Max 10Gb Ethernet Ports | 64 | 40 | 64 | 40 |
| MAC Address Table | 128K | 128K | 128K | 128K |
| VLANs Supported | 4,094 | 4,094 | 4,094 | 4,094 |
| Packet Buffers | 9MB | 9MB | 9MB | 9MB |
| **PHYSICAL SPECIFICATION** | | | | |
| Dimensions (H x W x D), Rack Units | • 1 Rack Unit high<br>• 4.37 cm H x 44.73cm W x 43.40cm D<br>• 1.72" H x 17.61" W x 17.086" D | • 1 Rack Unit high<br>• 4.37 cm H x 44.73cm W x 43.40cm D<br>• 1.72" H x 17.61" W x 17.086" D | • 1 Rack Unit high<br>• 4.37 cm H x 44.73cm W x 43.40cm D<br>• 1.72" H x 17.61" W x 17.086" D | • 1 Rack Unit high<br>• 4.37 cm H x 44.73cm W x 43.40cm D<br>• 1.72" H x 17.61" W x 17.086" D |
| Net Weight | 7.12 kg (15.7 lb) | 7.12 kg (15.7 lb) | 7.12 kg (15.7 lb) | 7.12 kg (15.7 lb) |
| Physical Ports | • (48) 1Gb/10Gb SFP+ ports<br>• (4) 10Gb/40Gb QSFP+ ports<br>• (1) Console port<br>• (1) Micro-USB port | • (24) 1Gb/10Gb SFP+ ports<br>• (4) 10Gb/40Gb QSFP+ ports<br>• (1) Console port<br>• (1) Micro-USB port | • (48) 1Gb/10Gb 10GBASE-T ports<br>• (4) 10Gb/40Gb QSFP+ ports<br>• (1) Console port<br>• (1) Micro-USB port | • (24) 1Gb/10Gb 10GBASE-T ports<br>• (4) 10Gb/40Gb QSFP+ ports<br>• (1) Console port<br>• (1) Micro-USB port |
| **POWER** | | | | |
| Power Supplies | Up to two load sharing redundant 460 W power supplies | Up to two load sharing redundant 460 W power supplies | Up to two load sharing redundant 460 W power supplies | Up to two load sharing redundant 460 W power supplies |
| Normal Input Voltage | 100 - 240 VAC | 100 - 240 VAC | 100 - 240 VAC | 100 - 240 VAC |
| Input Frequency | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz | 50 - 60 Hz |
| Max Power Consumption | 174 W | 138 W | 318 W | 206 W |
| **ENVIRONMENTAL** | | | | |
| Operating Temperature | 5° to 40° C (41° to 104° F) | 5° to 40° C (41° to 104° F) | 5° to 40° C (41° to 104° F) | 5° to 40° C (41° to 104° F) |
| Non-Operating Temperature | -30° to 73° C (-22° to 164° F) | -30° to 73° C (-22° to 164° F) | -30° to 73° C (-22° to 164° F) | -30° to 73° C (-22° to 164° F) |
| Operating Relative Humidity | 5% to 95% (non-condensing) | 5% to 95% (non-condensing) | 5% to 95% (non-condensing) | 5% to 95% (non-condensing) |
| **AGENCY SPECIFICATIONS** | | | | |
| Safety | UL 60950-1, FDA 21 CFR 1040.10 and 1040.11, CAN/CSA C22.2, No. 60950-1, EN 60950-1, EN 60825-1, EN 60825-2, IEC 60950-1, 2006/95/EC (Low Voltage Directive) | | | |
| Electromagnetic Compatibility | FCC 47 CFR Part 15 (Class A), ICES-003 (Class A), EN 55022 (Class A), EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZ CISPR-22 (Class A). VCCI V-3. CNS 13438 (BSMI), 2004/108/EC (EMC Directive) | | | |
| Environmental | 2002/95/EC (RoHS Directive), 2002/96/EC (WEEE Directive), Ministry of Information Order #39 (China RoHS) | | | |

## Model Number Information

| PART NUMBER | DESCRIPTION |
|---|---|
| **7100-SERIES SWITCHES** | |
| 71K11L4-48 | 7148, 48 ports 1/10Gb SFP+ with 4 10/40Gb QSFP+ ports, includes 2 reversible fan modules and a two post rack mount kit. Power supplies ordered separately. |
| 71K11L4-24 | 7124, 24 ports 1/10Gb SFP+ with 4 10/40Gb QSFP+ ports, includes 2 reversible fan modules and a two post rack mount kit. Power supplies ordered separately. |
| 71K91L4-48 | 7148T, 48 ports 1/10GBASE-T with 4 10/40Gb QSFP+ ports, includes 2 reversible fan modules and a two post rack mount kit. Power supplies ordered separately. |
| 71K91L4-24 | 7124T, 24 ports 1/10GBASE-T with 4 10/40Gb QSFP+ ports, includes 2 reversible fan modules and a two post rack mount kit. Power supplies ordered separately. |
| **POWER SUPPLIES** | |
| 71A-PS-A | 7100 Power Supply, 460W, 100-240VAC input, System I/O side air exhaust |
| 71A-PS-B | 7100 Power Supply, 460W, 100-240VAC input, System I/O side air intake |
| **SPARES AND ACCESSORIES** | |
| 71A-FAN | 7100 Fan Module, Spare. Reversible air flow. |
| 71A-RACK-U | 7100 Universal rack mount kit for four post rack mount options |

See the Extreme Networks Pluggable Transceivers data sheet at http://www.extremenetworks.com/products/transceivers-ds.pdf for a full list of supported transceivers.

## Transceivers

Extreme Networks transceivers provide flexible connectivity options for Ethernet. All Extreme Networks transceivers meet the highest quality for extended life cycle and the best possible return on investment. For detailed specifications, compatibility and ordering information please go to:
http://www.extremenetworks.com/products/transceivers-ds.pdf

## Warranty

The Extreme Networks 7100-Series comes with a one year hardware warranty. For full warranty terms and conditions please go to:
http://www.extremenetworks.com/support/warranty.aspx

## Service and Support

Extreme Networks provides comprehensive service offerings that range from Professional Services to design, deploy and optimize customer networks, customized technical training, to service and support tailored to individual customer needs. Please contact your Extreme Networks account executive for more information about Extreme Networks Service and Support.

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