

# Ruckus ICX Switch Family

Enterprise-Class Aggregation/Core Switch

## 10/40 GbE Distributed Chassis Switch for Aggregation/Core

Today's enterprise network core and aggregation layers are quickly moving to 10 and 40 Gigabit Ethernet (GbE) switching as enterprises rapidly adopt applications such as High-Definition (HD) video, Bring Your Own Device (BYOD), and Virtual Desktop Infrastructure (VDI), which drive the need for resilient, high-bandwidth access networks. To meet these challenges, campus network solutions must provide better performance, port density, reliability, security, Quality of Service (QoS), and Total Cost of Ownership (TCO). Likewise, data centers are expanding to accommodate data storage growth. Requirements such as application convergence, non-stop operation, scalability, high availability, and power efficiency are placing even greater demands on the network infrastructure.



### Benefits

#### Performance of Chassis in 1RU

- Deployed as aggregation or core solution
- Wire-speed, non-blocking performance

#### Industry-Leading 10/40 GbE Port Density

- 32 ports of 40 GbE or 96 ports of 10 GbE
- 2.56 Tbps switching capacity

#### Increased Reliability and Availability Through Redundancy

- Load-sharing, hot-swappable power supplies
- Ruckus MCT eliminates single point of failure

#### Advanced L3 Routing Delivers Network Design Flexibility

- OSPF, VRRP, PIM, PBR, BGP, VRRP, VRF

#### Market-Leading Stacking Scalability

- Up to 12 switches per stack
- Up to 10 km using standard optics or cables

#### Campus Fabric Reduces Cost of Operations, Increases Flexibility

- Delivers the benefits of a chassis with the flexibility of stackables
- Scales to over 1800 ports

#### Energy Efficient Use of Power and Cooling Lowers Opex Costs

The Ruckus® ICX® 7750 switch delivers industry-leading 10/40 GbE port density, advanced high-availability capabilities, and flexible stacking architecture, making it the most robust Ruckus aggregation and core distributed chassis switch offering for enterprise LANs. In addition to rich Layer 3 features, the Ruckus ICX 7750 scales to 12-unit distributed-chassis stacking and serves as the Control Bridge for Ruckus Campus Fabric technology.

Part of the Ruckus ICX family of switches for campus LAN and classic Ethernet data center environments, the Ruckus ICX 7750 switch is a 1U high-performance solution that meets the needs of business-sensitive campus deployments and classic data center environments. With a low latency, cut-through, non-blocking architecture, the Ruckus ICX 7750 provides a cost-effective, robust solution for the most demanding deployments.

Deployed as a standalone switch, a stack, or a network fabric, organizations reap the benefits of a flexible platform and the assurance that their investments are protected.

### Leading-Edge Design Flexibility and Reliability

The Ruckus ICX 7750 switch provides the capabilities of a chassis with the flexibility and cost effectiveness of a stackable switch. Ruckus ICX 7750 is available in three models: the Ruckus ICX 7750-48F, ICX 7750-48C, and ICX 7750-26Q. The Ruckus ICX 7750-48F and ICX 7750-48C both offer 48 10 GbE ports (SFP+ and 10GBASE-T, respectively) and up to 12 40 GbE ports (six optional) (see Figures 1 and 2). The Ruckus ICX 7750-26Q offers up to 32 40 GbE QSFP+ ports (six optional) (see Figure 3). All models support stacking, which allows organizations to buy only the ports they need now and expand later by adding switches to the stack where and when they are needed. This eliminates the need for a forklift upgrade and helps avoid provisioning an underutilized, centralized chassis.

Up to 12 Ruckus ICX 7750 switches can be stacked together using up to 12 full-duplex 40 Gbps standard QSFP+ stacking ports that provide an unprecedented maximum of 5.76 Tbps of aggregated stacking bandwidth with full redundancy, eliminating inter-switch bottlenecks (see Figure 4).

Ruckus ICX switches support a distributed chassis deployment model that uses standards-based optics and cabling interface connections to help ensure maximum distance between campus switches—up to 10 km—and minimum cabling costs—up to 50 percent less than incumbent solutions. The distributed chassis

design future-proofs campus networks by allowing networks to easily and cost-effectively expand in scale and capabilities.



Figure 1: The Ruckus ICX 7750-48F features 48 1/10 GbE SFP+ ports and 6 40 GbE QSFP+ ports that can each be split\* into 4x10 GbE SFP+ ports. The front panel also displays the unit stacking ID.



Figure 2: The Ruckus ICX 7750-48C features 48 10GBASE-T ports and 6 40 GbE QSFP+ ports that can each be split\* into 4x10 GbE SFP+ ports.



Figure 3: The Ruckus ICX 7750-26Q features 26 40 GbE QSFP+ ports that can be split\* into as many as 96 10 GbE SFP+ ports.

### Increased Reliability and Availability Through Redundancy

The Ruckus ICX 7750 includes dual internal redundant power supplies. These power supplies are hot-swappable and load-sharing with auto-sensing and auto-switching capabilities (see Figure 5). The hot-swappable power supplies (1+1) and fan assembly (3+1) allow organizations to replace components without service disruption. In addition, several high-availability and fault-detection features help in failover of critical data flows, enhancing overall system availability and reliability.

Ruckus Multi-Chassis Trunking (MCT) supports dual homing of wiring closet access switches, or servers in a rack, to two Ruckus ICX 7750 switches in an MCT peer group, eliminating the risk of a single point of failure. In conjunction with MCT, VRRP-E (the Ruckus extension to VRRP for MCT) provides redundancy and sub-second failover for both Layer 2 and Layer 3. For metro or campus deployments in a ring topology, the Ruckus Metro Ring Protocol (MRP-I and MRP-II) prevents Layer 2 loops and enables faster re-convergence than Spanning Tree Protocol (STP) with sub-second failover.

\* Split not supported with stacking.



Figure 4: Up to 12 Ruckus ICX 7750 Switches can be stacked using up to 12 standard full-duplex 40 Gbps QSFP+ ports per switch, providing up to 5.76 Tbps of aggregated stacking bandwidth.



Figure 5: The Ruckus ICX 7750 features hot-swappable redundant power supplies (1+1) and fans (3+1), and an optional 6 40 GbE ports module that can be used for stacking or as additional 40 GbE data ports.

### High Availability with Hitless Failover

Ruckus stacking technology helps provide high availability, performing real-time state synchronization across the stack and enabling instantaneous hitless failover to a standby controller in the unlikely event of a failure of the master stack controller. Organizations also can use hot-insertion/removal of stack members to avoid interrupting service when adding a switch to increase the capacity of a stack or replacing a switch that needs servicing. These features provide another level of availability for the campus wiring closet in a compact form factor. In addition to stack-level high availability, Ruckus ICX Switches also support stack-level In Service Software Upgrade (ISSU), a unique capability that enables a stack of Ruckus ICX Switches to go through a software upgrade without service interruption. Additional design features include intake and exhaust temperature sensors and fan spin detection to quickly identify abnormal or failed operating conditions—helping to minimize mean time to repair.

### Green Networks Lower TCO

As application data and storage requirements continue to rise exponentially, demand for higher port density and bandwidth grows, along with the number of network devices and power consumption. Organizations seeking to reduce TCO need solutions that can provide higher scalability and density per rack unit, thereby reducing power consumption and heat dissipation.

The Ruckus ICX 7750 addresses those needs with a state-of-the-art ASIC, reversible airflow, automatic fan-speed control, and power-efficient optics to ensure the most efficient use of power and cooling. For low-cost, low-latency, and low-energy-consuming cabling within and between the racks, the switch supports SFP+ direct-attached copper cables at up to 5 meters. For switch-to-switch connectivity, Ruckus ICX 7750 supports low-power consuming SFP+ and 40GBASE-SR4 QSFP+ optical transceivers at up to 100 meters. In high-port-density deployments, these features save significant operating costs.

### Advanced QoS Improves Data Traffic Integrity

The Ruckus ICX 7750 offers superior QoS features designed to ensure high reliability services throughout the data center. It can identify, mark, classify, reclassify, and manage traffic based on specific criteria. This enables organizations to classify bandwidth-critical application traffic, discriminating among various traffic flows and enforcing bandwidth policies. After the traffic is classified, organizations have complete control over the method the system uses to service the queues: Weighted Round Robin (WRR), Strict Priority (SP), or a mix of both. For granular control to regulate bandwidth utilization, the Ruckus ICX 7750 can also perform ingress rate limiting and egress rate shaping.

### Advanced Layer 2 and Layer 3 Features

To provide self-healing topologies in Layer 2 configurations, the Ruckus ICX 7750 supports industry-standard Ethernet protocols, including multiple varieties of STP and link aggregation as well as optic-, link-, and switch-level fault detection and correction features. The advanced Layer 2 and Layer 3 feature set is leveraged from Ruckus FastIron software that has been field-proven in enterprise and data center networks for more than a decade. With rich Layer 3 features enabled, organizations can utilize the Ruckus ICX 7750 in multiple applications.

### Multicast-Based Applications

The use of video, financial, and other one-to-many applications requires support for scalable multicast services. The Ruckus ICX 7750 supports IGMPv1/2/3, PIM-SM/SSM/DM, MSDP, Any cast RP, and PIM and IGMP/MLD Snooping for optimized multicast forwarding. In addition, the Ruckus ICX 7750 provides storm-control features to contain and intelligently switch rather than broadcast multicast traffic.

## Security Capabilities

Ruckus ICX 7750 provides robust security through a wide range of advanced features. Organizations can use both regular and extended Access Control Lists (ACLs) to control access to and through data center networks. Organizations can use control policies that permit or deny traffic based on a wide variety of identification characteristics—such as source/destination MAC addresses, source/destination IP addresses, TCP/UDP ports/sockets, and well-known port numbers—further protecting and restricting network access.

For maximum security, the Ruckus ICX 7750 leverages 802.1x security, MAC authentication, port MAC security, and MAC filter enhancements. The Ruckus ICX 7750 implements hardware-based ACL, so security does not adversely affect switching performance. In addition, the Ruckus ICX 7750 provides hardware-based protection against Distributed Denial of Service (DDoS) attacks (ICMP flood and TCP SYN) as well as hardware-based private VLAN attacks—with no impact on CPU utilization. BPDU Guard and Root Guard can be used to prevent rogue hijacking of the spanning tree root and maintain a contention-free—and loop-free—environment, especially during dynamic network deployments.

## Data Center Top-of-Rack Server Connectivity

The Ruckus ICX 7750 is designed to fit in server racks, consuming only one rack unit. To simplify cabling, the 10 GbE Network Interface Cards (NICs) in the servers connect to the ICX 7750 10 GbE ports by using fiber and SFP+ optical transceivers, SFP+ direct-attached copper cable, or standard copper Ethernet twisted pair cables with 10GBASE-T. If any servers in the rack have only 1 GbE-capable NICs, organizations can connect them to the same ICX 7750 switch by using a 10 GbE port as a 1 GbE port through an SFP or copper port. The Ruckus ICX 7750 ToR switch can connect to the data center middle-of-row/end-of-row aggregation chassis with either 10 GbE or 40 GbE, usually through link aggregation.

# Enterprise-Class Features Across Ruckus ICX Switches

The Ruckus ICX switch family delivers the enterprise class features for flexibility, scalability and simplified management.

- Ruckus Campus Fabric technology delivers unmatched flexibility, scalability and simplified management for campus network deployments. Incorporating all of the ICX 7000 switch families with up to 1800 ports in a single logical domain, Campus Fabric allows customers the benefits of a traditional chassis, with the flexibility of stackable switches at a dramatically reduced Total Cost of Ownership (TCO).
- Advanced stacking goes beyond traditional stacking with capabilities that take flexibility, ease of management and cost effectiveness to then next level, including:
  - Stacking on standard Ethernet ports
  - Long-distance stacking
  - No hardware module required for stacking
  - In Service Software Upgrade (ISSU) to minimize downtime
  - Superior scalability with the industry-leading number of switches per stack
  - Stacking at the access, aggregation and core layers
- Enterprise-Class Availability to improve resiliency and minimize downtime, including:
  - Hitless stack failover
  - Hot-insertion/removal of stack members
  - Redundant power supplies
  - In Service Software Upgrades for switch stacks
- Unified wired and wireless network management with Ruckus SmartZone network controller:
  - Ruckus SmartZone centralizes management of the entire family of Ruckus switches and wireless Access Points with a single easy to deploy management platform
  - Discovers, monitor, and deploys configurations to groups of switches and wireless APs
- On-boarding and security policies across ICX switches and wireless networks.
- OpenFlow 1.3 protocol support in hybrid mode allows user to deploy traditional Layer 2/3 forwarding with OpenFlow on the same port for Software Defined Network (SDN) enabled programmatic control of the network
- Open Standards based management, monitoring and authentication
  - sFlow-based network monitoring to help analyze traffic statistics and trends on every link and overcome unexpected network congestion
  - Open-standards management includes Command Line Interface (CLI), Secure Shell (SSHv2), Secure Copy (SCP), and SNMPv3
  - Support for Access Controller Access Control System (TACACS/TACACS+) and RADIUS authentication helps ensure secure operator access
  - LLDP and LLDP-MED protocol support for configuring, discovering, and managing network infrastructure such as QoS, security policies, VLAN assignments, PoE power levels, and service priorities

# Ruckus ICX 7750 Feature/Model Comparison

	26 QSFP+ Ports	48 SFP+ Ports	48 10GBASE-T Ports
	Ruckus ICX 7750-26Q	Ruckus ICX 7750-48F	Ruckus ICX 7750-48C
Feature			
Switching capacity (data rate, full duplex)	2.56 Tbps	1.92 Tbps	1.92 Tbps
Forwarding capacity (data rate, full duplex)	1.90 Bpps	1.44 Bpps	1.44 Bpps
Fixed ports: 1/10 Gbps SFP/SFP+		48	
Fixed ports: 100 Mbps, 1/10 Gbps 10GBASE-T RJ45			48
Fixed ports: 40 Gbps QSFP+	26	6	6
Modular slots	1	1	1
Modular ports: 40 Gbps QSFP+ (max.)	6	6	6
Latency	550 ns		40 Gbps - 40 Gbps: 550 ns 10 Gbps - 10 Gbps: 2.9 µs
Dynamic packet buffer size	12.2 MB	12.2 MB	12.2 MB
Base IPv4/IPv6 Layer 3 routing entitlement (Static Routing, RIP)	•	•	•
Advanced IPv4/IPv6 Layer 3 routing (OSPF, BGP, PIM, PBR, VRF)	With Certificate of Entitlement	With Certificate of Entitlement	With Certificate of Entitlement
Aggregated stacking bandwidth (data rate, full duplex)	5.76 Tbps	5.76 Tbps	5.76 Tbps
Stacking density (maximum switches in a stack)	12	12	12
Stacking ports (maximum ports usable for stacking)	Up to 12x40 GbE QSFP+ per switch		
Maximum stacking distance (distance between stacked switches)	10 km	10 km	10 km
Campus Fabric	Fabric Control Bridge (CB)		

Feature	POWER		
Power inlet (AC)	C14		
Input voltage/frequency	AC: 100 to 240 VAC @ 50 to 60 Hz DC: 40 to 60 VDC		
Maximum power draw	586 W	586 W	586 W
Power supply rated maximum (AC)	2x500 W	2x500 W	2x500 W
Power supply rated maximum (DC)	2x500 W	2x500 W	2x500 W
Switch power utilization <sup>1</sup> (25°C)			
Typical	274 W	250 W	511 W
Maximum	350 W	327 W	586 W

<sup>1</sup> Traffic load is based on utilizing all ports.

## Ruckus ICX 7750 Feature/Model Comparison

	26 QSFP+ Ports	48 SFP+ Ports	48 10GBASE-T Ports
	Ruckus ICX 7750-26Q	Ruckus ICX 7750-48F	Ruckus ICX 7750-48C
Feature	ENVIRONMENT		
<b>Weight</b> (with 2 power supplies, 4 fans, optional 6 ports module, no transceivers)	8.83 kg (19.43 lb)	9.08 kg (19.98 lb)	10.17 kg (22.38 lb)
<b>Dimensions</b>	440 mm (17.323 in.) W 406.4 mm (16 in.) D 43.6 mm (1.730 in.) H; (1U)	440 mm (17.323 in.) W 406.4 mm (16 in.) D 43.6 mm (1.730 in.) H; (1U)	440 mm (17.323 in.) W 431 mm (16.97 in.) D 43.6 mm (1.730 in.) H; (1U)
<b>Acoustics (25°C, ISO 7779)</b>	62 dBA	62 dBA	62 dBA
<b>MTBF (25°C)</b>	364,061 hours	353,967 hours	259,199 hours

## Ruckus ICX 7750 Specifications

Feature	CAPABILITIES
<b>Connector options</b>	<ul style="list-style-type: none"> <li>• 100<sup>2</sup>/1000 Mbps, 10 Gbps 10GBASE-T ports: RJ-45</li> <li>• 1/10 Gbps SFP+ ports</li> <li>• 40 Gbps QSFP+ ports</li> <li>• Out-of-band Ethernet management: 10/100/1000 Mbps RJ-45</li> <li>• Console management: mini-USB serial port (Mini-B plug) RS-232 serial signals</li> <li>• File transfer: USB port, (standard-A plug)</li> <li>• For the latest information about supported optics, please visit <a href="http://www.ruckuswireless.com/optics">www.ruckuswireless.com/optics</a>.</li> </ul>
<b>DRAM</b> <b>NVRAM (flash)</b> <b>Packet Buffer Size</b>	<ul style="list-style-type: none"> <li>• 8 GB</li> <li>• 2 GB</li> <li>• 12.2 MB</li> </ul>
<b>Maximum MAC addresses</b>	• 96,000 (switch image), 32,000 (router image)
<b>Maximum VLANs</b> <b>Maximum PVLANS</b>	<ul style="list-style-type: none"> <li>• 4,096</li> <li>• 32</li> </ul>
<b>Maximum STP (spanning trees)</b>	• 254
<b>Maximum VEs</b>	• 512
<b>Maximum routes (in hardware)</b>	<ul style="list-style-type: none"> <li>• IPv4 routes: Up to 128K (shared resource)</li> <li>• IPv6 routes: Up to 7K (shared resource)</li> <li>• Next Hop Addresses: Up to 16,000 (shared resource)</li> </ul>
<b>Trunking</b>	<ul style="list-style-type: none"> <li>• Maximum ports per trunk: 16</li> <li>• Maximum trunk groups: 256x8 or 128x16 per stack</li> </ul>
<b>Maximum jumbo frame size</b>	• 9,216 bytes
<b>QoS priority queues</b>	• 8 per port
<b>Multicast Groups</b>	<ul style="list-style-type: none"> <li>• 8192 (Layer 2)</li> <li>• 6144 (Layer 3)</li> </ul>
<b>VRF</b>	• 128 instances

<sup>2</sup> 100 Mbps in full duplex mode only.



## Ruckus ICX 7750 Specifications (continued)

Feature	FEATURES SETS	
<b>Layer 2 feature set</b>	<ul style="list-style-type: none"> <li>• 802.1s Multiple Spanning Tree</li> <li>• 802.1x Authentication with dynamic VLAN and ACLs</li> <li>• Auto MDI/MDIX</li> <li>• BPDU Guard, Root Guard</li> <li>• Dual-Mode VLANs</li> <li>• Dynamic VLAN Assignment</li> <li>• Dynamic Voice VLAN Assignment</li> <li>• Fast Port Span</li> <li>• GVRP: GARP VLAN Registration Protocol</li> <li>• IGMP Snooping (v1/v2/v3)</li> <li>• IGMP Proxy for Static Groups</li> <li>• IGMP v2/v3 Fast Leave</li> <li>• Inter-Packet Gap (IPG) adjustment</li> <li>• Link Fault Signaling (LFS)</li> <li>• MAC Address Filtering</li> <li>• MAC Learning Disable</li> <li>• MLD Snooping (v1/v2)</li> <li>• Multi-device Authentication</li> </ul>	<ul style="list-style-type: none"> <li>• Per-VLAN Spanning Tree (PVST/PVST+/PVRST)</li> <li>• Mirroring—Port-based, ACL-based, MAC Filter-based, and VLAN-based</li> <li>• PIM-SM v2 Snooping</li> <li>• Port Loop Detection</li> <li>• Private VLAN</li> <li>• Remote Fault Notification (RFN)</li> <li>• Single-instance Spanning Tree</li> <li>• Trunk Groups (static, LACP)</li> <li>• Uni-Directional Link Detection (UDLD)</li> <li>• Metro-Ring Protocol MRP (v1, v2)</li> <li>• Virtual Switch Redundancy Protocol (VSRP)</li> <li>• Topology Groups</li> <li>• Q-in-Q and selective Q-in-Q</li> <li>• VLAN Mapping</li> <li>• MCT (Ruckus Multi-Chassis Trunking)</li> <li>• VXLAN</li> </ul>
<b>Base Layer 3 IP routing feature set</b>	<ul style="list-style-type: none"> <li>• IPv4 and IPv6 static routes</li> <li>• RIP v1/v2, RIPv6 (IPv6)</li> <li>• ECMP (up to 32 paths)</li> <li>• Port-based Access Control Lists</li> <li>• Layer 3/Layer 4 ACLs</li> <li>• Host routes</li> </ul>	<ul style="list-style-type: none"> <li>• Virtual Interfaces</li> <li>• Routed Interfaces</li> <li>• Route-only Support</li> <li>• Routing Between Directly Connected Subnets</li> <li>• Virtual Route Redundancy Protocol (VRRP)</li> </ul>
<b>Premium Layer 3 IP routing feature set (with Certificate of Entitlement)</b>	<ul style="list-style-type: none"> <li>• IPv4 and IPv6 dynamic routes</li> <li>• OSPF v2, OSPF v3 (IPv6)</li> <li>• PIM-SM, PIM-SSM, PIM-DM, PIM passive (IPv4/IPv6 multicast routing functionality)</li> <li>• PBR</li> <li>• VRRP-E (IPv4, IPv6)</li> </ul>	<ul style="list-style-type: none"> <li>• VRRPv3 (IPv6)</li> <li>• BGP4, BGP4+ (IPv6)</li> <li>• GRE</li> <li>• IPv6 over IPv4 tunnels</li> <li>• VRF (IPv4 and IPv6)</li> </ul>
<b>Quality of Service (QoS)</b>	<ul style="list-style-type: none"> <li>• ACL Mapping and Marking of ToS/DSCP</li> <li>• ACL Mapping and Marking of 802.1p</li> <li>• ACL Mapping to Priority Queue</li> <li>• ACL Mapping to ToS/DSCP</li> <li>• Classifying and Limiting Flows Based on TCP Flags</li> <li>• DiffServ Support</li> </ul>	<ul style="list-style-type: none"> <li>• Honoring DSCP and 802.1p</li> <li>• MAC Address Mapping to Priority Queue</li> <li>• Priority Queue Management using Weighted Round Robin (WRR), Strict Priority (SP), and a combination of WRR and SP</li> <li>• Priority Flow Control</li> </ul>
<b>Traffic management</b>	<ul style="list-style-type: none"> <li>• ACL-based inbound rate limiting and traffic policies</li> <li>• Broadcast, multicast, and unknown unicast rate limiting</li> </ul>	<ul style="list-style-type: none"> <li>• Inbound rate limiting per port</li> <li>• Outbound rate limiting per port and per queue</li> </ul>

Feature	NETWORK AND DEVICE MANAGEMENT	
<b>Management</b>	<ul style="list-style-type: none"> <li>• DHCP Auto Configuration</li> <li>• Configuration Logging</li> <li>• Digital Optical Monitoring</li> <li>• Display Log Messages on Multiple Terminals</li> <li>• Embedded Web Management (HTTP/HTTPS)</li> <li>• Embedded DHCP Server</li> <li>• Industry-standard Command Line Interface (CLI)</li> <li>• Ruckus SmartZone Network Controller (sold separately)</li> <li>• Key-based activation of optional software features</li> <li>• Out-of-band Ethernet Management</li> <li>• ERSPAN support for remote troubleshooting and traffic monitoring</li> <li>• RSPAN</li> <li>• TFTP</li> <li>• TELNET Client and Server</li> <li>• Bootp</li> </ul>	<ul style="list-style-type: none"> <li>• 1157 SNMPv1/v2c</li> <li>• DHCP Server and DHCP Relay</li> <li>• SNMPv3 Intro to Framework</li> <li>• Architecture for Describing SNMP Framework</li> <li>• SNMP Message Processing and Dispatching</li> <li>• SNMPv3 Applications</li> <li>• SNMPv3 User-based Security Model</li> <li>• SNMP View-based Access Control Model SNMP</li> <li>• sFlow</li> <li>• NTP Network Time Protocol</li> <li>• Multiple Syslog Servers</li> <li>• Virtual Cable Tester (VCT)</li> <li>• Protected port</li> <li>• For Management MIB, please consult the “FastIron MIB Reference” document available from support. <a href="http://support.ruckuswireless.com">support.ruckuswireless.com</a></li> </ul>



## Ruckus ICX 7750 Specifications (continued)

Feature	ENVIRONMENT	
	Ruckus ICX 7750-26Q and 7750-48F	Ruckus ICX 7750-48C
<b>Operating temperature</b>	-5°C to 45°C, 50°C at sea level (0°F to 113°F, 122°F at sea level)	40°C at sea level (0°F to 96°F, 96°F at sea level)
<b>Non-operating temperature</b>	-40°C to 60°C (-40°F to 140°F)	-40°C to 60°C (-40°F to 140°F)
<b>Operating humidity</b>	10% to 90% at 50°C (122°F)	10% to 90% at 40°C (104°F)
<b>Non-operating humidity</b>	10% to 90% at 60°C (140°F)	10% to 90% at 60°C (140°F)
<b>Operating altitude</b>	10,000 ft. (3,000 m) maximum	10,000 ft. (3,000 m) maximum
<b>Non-operating altitude</b>	39,000 ft. (12,000 m) maximum	39,000 ft. (12,000 m) maximum

Feature	COMPLIANCE/CERTIFICATION	
<b>Electromagnetic emissions</b>	<ul style="list-style-type: none"> <li>FCC Class A (Part 15); EN 55022/CISPR-22 Class A; VCCI Class A; ICES-003 Electromagnetic Emission; AS/NZS 55022; EN 61000-3-2 Power Line Harmonics; EN 61000-3-3 Voltage Fluctuation and Flicker; EN 61000-6-3 Emission Standard (supersedes: EN 50081-1)</li> </ul>	
<b>Safety</b>	<ul style="list-style-type: none"> <li>CAN/CSA-C22.2 NO. 60950-1-07; UL 60950-1 Second Edition; IEC 60950-1 Second Edition; EN 60950-1:2006 Safety of Information Technology Equipment; EN 60825-1 Safety of Laser Products—Part 1: Equipment Classification, Requirements and User's Guide; EN 60825-2 Safety of Laser Products—Part 2: Safety of Optical Fibre Communication Systems</li> </ul>	
<b>Immunity</b>	<ul style="list-style-type: none"> <li>EN 61000-6-1 Generic Immunity and Susceptibility (supersedes EN 50082-1); EN 55024 Immunity Characteristics (supersedes EN 61000-4-2 ESD); EN 61000-4-3 Radiated, Radio Frequency, Electromagnetic Field; EN 61000-4-4 Electrical Fast Transient; EN 61000-4-5 Surge; EN 61000-4-6 Conducted Disturbances Induced by Radio-Frequency Fields; EN 61000-4-8 Power Frequency Magnetic Field; EN 61000-4-11 Voltage Dips and Sags</li> </ul>	
<b>Environmental regulatory compliance</b>	<ul style="list-style-type: none"> <li>RoHS-compliant (6 of 6); WEEE-compliant</li> </ul>	
<b>Vibration</b>	<ul style="list-style-type: none"> <li>IEC 68-2-36, IEC 68-2-6</li> </ul>	
<b>Shock and drop</b>	<ul style="list-style-type: none"> <li>IEC 68-2-27, IEC 68-2-32</li> </ul>	

## Ruckus ICX 7750 Ordering Information

Part Number	BARE SWITCHES AND PORT MODULES
<b>ICX7750-48F</b>	Ruckus ICX 7750 with 48x1/10 GbE SFP+ ports, 6x40 GbE QSFP ports and modular interface slot. No power supplies or fan units (must be ordered separately). No optics. Requires ICX7750-L3-COE Certificate of Entitlement to use advanced Layer 3 features.
<b>ICX7750-48F-RMT3</b>	Ruckus ICX 7750 with 48x1/10 GbE SFP+ ports, 6x40 GbE QSFP ports and modular interface slot, three years of remote service is included with this bundle. No power supplies or fan units (must be ordered separately). No optics. Requires ICX7750-L3-COE Certificate of Entitlement to use advanced Layer 3 features.
<b>ICX7750-48C</b>	Ruckus ICX 7750 with 48x1/10 GbE RJ-45 10GBASE-T ports, 6x40 GbE QSFP ports and modular interface slot. No power supplies or fan units (must be ordered separately). No optics. Requires ICX7750-L3-COE Certificate of Entitlement to use advanced Layer 3 features.
<b>ICX7750-26Q</b>	Ruckus ICX 7750 with 26x40 GbE QSFP ports and modular interface slot. No power supplies or fan units (must be ordered separately). No optics. Requires ICX7750-L3-COE Certificate of Entitlement to use advanced Layer 3 features.
<b>ICX7750-6Q</b>	Ruckus ICX 7750 6x40 GbE QSFP module for use in Ruckus ICX7750-48F, 7750-48C, or 7750-26Q

Part Number	POWER SUPPLIES AND FANS
<b>RPS9+I</b>	500 W AC power supply; power-supply-side intake (port-side exhaust) airflow
<b>RPS9+E</b>	500 W AC power supply; power-supply-side exhaust (port-side intake) airflow
<b>RPS9DC+I</b>	500 W DC power supply; power-supply-side intake (port-side exhaust) airflow
<b>RPS9DC+E</b>	500 W DC power supply; power-supply-side exhaust (port-side intake) airflow
<b>ICX7750-FAN-I</b>	Fan kit of 4; fan-side intake (port-side exhaust) airflow
<b>ICX7750-FAN-E</b>	Fan kit of 4; fan-side exhaust (port-side intake) airflow
<b>ICX7750-FAN-I-SINGLE</b>	Fan single unit; fan-side intake (port-side exhaust) airflow
<b>ICX7750-FAN-E-SINGLE</b>	Fan single unit; fan-side exhaust (port-side intake) airflow

Part Number	FEATURE LICENSES AND ACCESSORIES
<b>ICX7750-L3-COE</b>	Certificate of Entitlement to use routing and advanced functionality. Without the Certificate of Entitlement, customers may use base Layer 3 features: VRRP, RIP, and static routes. Other Layer 3 features are considered advanced and require the ICX7750-L3-COE. The Certificate of Entitlement is serialized paper that is not tied to a particular switch; no activation is required.

OPTICS	
<b>See Optics Datasheet at <a href="http://www.ruckuswireless.com/optics">www.ruckuswireless.com/optics</a></b>	CommScope offers a unique set of high-performance, reliable, and cost-effective optical transceivers to help enterprises and service providers meet the challenges of diverse network topologies. To ensure maximum quality, CommScope selects and tests the most reliable, highest-performing optical transceivers on the market, and then warrants their availability, capacity, and performance in Ruckus® product." for a the specific list of optics supported by each ICX product see the <a href="http://www.ruckuswireless.com/optics">Optics Datasheet</a> at <a href="http://www.ruckuswireless.com/optics">www.ruckuswireless.com/optics</a> .

MANAGEMENT SOFTWARE	
<b>See SmartZone Datasheet at <a href="http://www.ruckuswireless.com/smartzone">www.ruckuswireless.com/smartzone</a></b>	Ruckus SmartZone centralizes management of the entire family of Ruckus switches and wireless Access Points with a single easy to deploy management platform. It simplifies network set-up and management, enhances security, streamlines troubleshooting and eases upgrades. SmartZone Network Controllers are available in both appliance and virtual appliance form. For more information, go to <a href="http://www.ruckuswireless.com/smartzone">www.ruckuswireless.com/smartzone</a> .

## Warranty

Ruckus ICX 7750 Switches are covered by the Ruckus Assurance Limited Lifetime Warranty. For details, visit [www.ruckuswireless.com/warranty](http://www.ruckuswireless.com/warranty).

## Best-in-Class Support

Ruckus ICX 7750 switches come with 90 days of free technical support from the Ruckus Technical Assistance Center (TAC). For continued access to the TAC past the initial 90 days, customers must purchase a Ruckus Technical Support contract. For details, visit [support.ruckuswireless.com/programs](http://support.ruckuswireless.com/programs).

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