Ruckus ICX 7150

Enterprise-Class Stackable Access Switch

PRODUCT BROCHURE

BENEFITS

STACKABILITY SIMPLIFIES MANAGEMENT

- Class-leading stacking scalability with up to 12 switches per stack
- Long-distance stacking up to 10 km using standard optics or cables

10 GBE PORTS OPTIMIZE NETWORK PERFORMANCE

- Up to 8×10 GbE SFP+ ports for stacking or uplinks

DUAL POWER SUPPLIES FOR HIGH AVAILABILITY

- Dual load-sharing, hot-swappable power supplies available on the Z-Series switch

MULTIGIGABIT SUPPORT ENABLES NEXT GENERATION WIRELESS DEPLOYMENT

- Up to 16x 2.5 GbE ports optimized for 802.11ac Wave 2 wireless deployment

CLASS LEADING POE BUDGET TO POWER ADVANCED EDGE DEVICES

- PoE+/PoH/802.3bt budget (up to 1,480 watts)[1]
- Support advanced wireless APs and video surveillance equipment

SILENT OPERATION FOR DEPLOYMENT IN THE WORK ENVIRONMENT

- Fanless design or fanless mode enables silent non-disruptive deployment anywhere

ADVANCED L3 MAXIMIZES FLEXIBLITY

- OSPF, VRRP, PIM, PBR L3 features

CAMPUS FABRIC REDUCES COST OF OPERATIONS, INCREASES FLEXIBILITY

- Ruckus Campus Fabric delivers the benefits of a chassis with the flexibility of stackables
- Scales to over 1800 ports

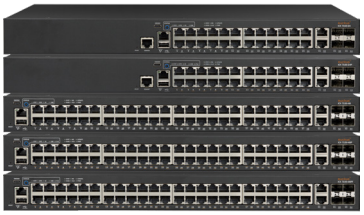
[1] Up to 90W per port, IEEE 802.3bt standard pending ratification. Compatible with uPoE.

ENTRY-LEVEL ACCESS SWITCH FAMILY DELIVERS UNPRECEDENTED PERFORMANCE AND FEATURES IN ITS CLASS

The Ruckus® ICX® 7150 family of stackable switches delivers the performance, flexibility, and scalability required for enterprise access deployment, raising the bar with non-blocking performance and up to 8x10 GbE ports for uplinks or stacking. It offers seamless interoperability with Ruckus wireless products to deliver unified wired and wireless network access. In addition, Ruckus Multigigabit Ethernet technology offers bandwidth speeds needed to optimize performance of the latest generation high performance wireless access points and edge devices, over standard Ethernet cables.

The Ruckus ICX 7150 family of switches are available in three formats:

RUCKUS ICX 7150 SWITCHES



The standard Ruckus ICX 7150 switches are available in 24-, and 48-port 10/100/1000 Mbps models with four 1/10 GbE dual-purpose uplink/stacking ports. These switches are available with or without PoE+ power. Silent operation is available for out-of-closet environments.

RUCKUS ICX 7150 Z-SERIES SWITCHES

The Ruckus ICX 7150-48ZP 48-port switch adds higher performance, greater resiliency and increased PoE power. The switch offers Multigigabit technology (IEEE 802.3bz) to match the highest performing 802.11ac Wave 2 wireless access points available, with dual redundant, hot-swappable power supplies and fans, and up to 8x10 GbE uplink/stacking ports.

The switch offers 16 Multigigabit (100Mbps/1Gbps/2.5Gbps) ports, each with Power-over-HDBaseT (PoH) up to 90 watts and 802.3bt ready, plus 32 10/100/1000 Mbps ports with PoE+. With a maximum PoE budget of 1480 watts, this switch delivers the power, and performance, to drive PoE+ power to all 48 ports.

RUCKUS ICX 7150 COMPACT SWITCHES

The Ruckus ICX 7150-C12P compact 12-port stackable switch features a fanless design to operate silently in out-of-closet environments such as offices, classrooms, and retail spaces. It offers PoE+ on all 12 ports to drive devices such as wireless APs, VoIP phones, lighting fixtures or surveillance cameras. With 2x1/10 GbE uplink/stacking ports, the ICX 7150-C12 delivers high performance in a small package.

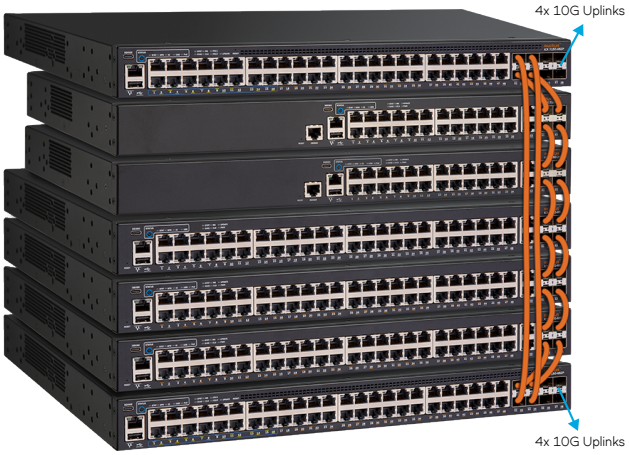


Figure 1: Up to 12 Ruckus ICX 7150 Switches can be stacked together using up to four SFP+ 10 Gbps ports per switch for a fully redundant backplane delivering 480 Gbps of aggregated stacking bandwidth.

STACKING ACROSS THE ICX 7150 FAMILY

Ruckus stacking technology makes it possible to stack up to twelve Ruckus ICX 7150 switches into a single logical switch. This allows the Ruckus ICX 7150 to deliver a class-leading 480 Gbps of aggregated stacking bandwidth and offer simple and robust expandability for future growth. Stacking is supported across the ICX 7150 family and all ICX 7150 models including the ICX 7150 compact switch and the ICX 7150-48ZP can be mixed within the same stack. This stacked switch has only a single IP address that simplifies management and offers transparent forwarding across up to 600×1 GbE ports or up to 192×2.5 GbE ports, and up to 96×10 GbE ports. When new switches join the stack, they automatically inherit the stack's existing configuration file, enabling a plug-and-play network expansion.

Because the ICX 7150-48ZP switch has twice as many uplink ports, when it is added to a stack of other ICX 7150 switch models, the effective bandwidth of all the switches is doubled. By designing the stack this way, all four of the 10GbE ports on the ICX 7150 switches can be used for stacking (rather than having to split the four ports between stacking and uplinks), and leveraging four of the 10GbE ports on the ICX 7150-48ZP for stacking and the other four 10GbE ports can be used for uplinks.

ENTERPRISE-CLASS AVAILABILITY

The Ruckus ICX 7150 Switches help deliver continuous availability to optimize the user experience. Ruckus stacking technology provides high availability by performing real-time state synchronization across the stack and transferring switch management control from the master stack controller to the standby controller if the master stack controller experiences a failure. When hot-inserting or hot-removing a stack member to increase capacity or perform service upgrade, traffic flows will not experience interruption.

In addition to stack-level high availability, Ruckus ICX 7150 Switches also support stack level ISSU (In Service Software Upgrade), a unique capability that allows the user to perform software upgrades to a Ruckus ICX 7150 stack without service interruption. Taking high-availability and reliability even further, the Ruckus ICX 7150 Z-Series switch offers redundant hot swappable load sharing power supplies and up to 2 hot swappable fans.

SILENT OPERATION

The Ruckus ICX 7150-C12P compact switch, along with the Ruckus ICX 7150-24 and the ICX 7150-48 switches, feature a fanless design that enables it to operate silently.

The Ruckus ICX 7150-24P and the ICX 7150-48P offer a "silent mode" configuration option, enabling these switches to operate with the fan disabled while providing a PoE budget of 150 watts. This Ruckus-exclusive feature enables users in hospitality, education, healthcare, and retail industries to deploy these switches outside of the wiring closet without disrupting the work environment.

MULTIGIGABIT ETHERNET SUPPORT

The Ruckus ICX® 7150-48ZP Switch raises the bar for entry-level switches even further with 16x IEEE 802.3bz compliant 2.5 GbE ports, up to 8×10 GbE uplink ports, dual redundant load sharing power supplies and class-leading stacking density with up to 12 switches per stack. It stacks with all other members of the ICX 7150 family allowing organizations to buy what they need now and easily scale as the need for Multigigabit support emerges. It is designed to work seamlessly with Ruckus wireless access points to deliver unified wired and wireless network access.

POWER NEXT-GENERATION EDGE DEVICES

All ICX 7150 family members offer PoE options. The compact 12 port switch delivers PoE+ on all ports with a 124W PoE budget. The 24- and 48-port ICX 7150 switches offer up to 740W of PoE+ power and the ICX 7150 Z-Series offers an industry leading 1480W PoE budget when equipped with 2 power supplies. In addition to supporting PoE and PoE+, the Ruckus ICX 7150 Z-Series also offers Power over HDBaseT (PoH) and is 802.3bt ready.[1] This new, high power standard delivers up to 90 watts per port through a standard Ethernet cable, simplifying the wiring of next-generation Ethernet-connected devices such as high-performance wireless APs, large HD displays, video surveillance equipment, and VDI thin terminals, enabling data and power to be carried by a single Ethernet wire. The PoE, PoE+ and PoH capabilities reduce the number of required power receptacles and power adapters while increasing reliability and wiring flexibility.

With a 1,480-watt power budget per switch (with two power supplies), the Ruckus ICX 7150 48ZP model can supply Class 4 PoE+ power (30 watts) to every port and PoH 802.3bt ready power (90 watts) on 16 dedicated Multigigabit ports.

[1] Up to 90W per port, IEEE 802.3bt standard pending ratification. Compatible with uPoE.

RUCKUS ICX 7150 PRODUCT FAMILY

RUCKUS ICX 7150

These Ruckus ICX 7150 models offer a single integrated power supply, one RJ-45 Ethernet port for out-of-band network management, one USB Type-C port for console management, one RJ-45 port for serial console management, and one USB port for external file storage.

	**Ruckus ICX 7150-24 Switch** 24× 10/100/1000 Mbps RJ-45 ports 2× 10/100/1000 Mbps uplink RJ-45 ports 4× 1/10 GbE uplink/stacking SFP/SFP+ ports
	**Ruckus ICX 7150-24P Switch** 24× 10/100/1000 Mbps RJ-45 PoE+ ports 370 W PoE budget 2× 10/100/1000 Mbps uplink RJ-45 ports 4× 1/10 GbE uplink/stacking SFP/SFP+ ports
	**Ruckus ICX 7150-48 Switch** 48× 10/100/1000 Mbps RJ-45 ports 2× 10/100/1000 Mbps uplink RJ-45 ports 4× 1/10 GbE uplink/stacking SFP/SFP+ ports
	**Ruckus ICX 7150-48P Switch** 48× 10/100/1000 Mbps RJ-45 PoE+ ports 370 W PoE budget 2× 10/100/1000 Mbps uplink RJ-45 ports 4× 1/10 GbE uplink/stacking SFP/SFP+ ports
	**Ruckus ICX 7150-48PF Switch** 48×10/100/1000 Mbps RJ-45 PoE+ ports 740 W PoE budget 2×10/100/1000 Mbps uplink RJ-45 ports 4×1/10 GbE uplink/stacking SFP/SFP+ ports

RUCKUS ICX 7150 Z-SERIES

The Ruckus ICX 7150 Z-Series Switch offers redundant hot swappable load sharing power supplies, up to 2 hot swappable fans, one RJ-45 Ethernet port for out-of-band network management, one USB Type-C port for console management, one RJ-45 port for serial console management, and one USB port for external file storage.

	**Ruckus ICX 7150-48ZP** 16x 100/1000 Mbps/2.5 Gbps RJ-45 PoH, 802.3bt ready ports[1] 32× 10/100/1000 Mbps RJ-45 PoE+ ports 1,480 W PoE budget (with two power supplies) 8× 1/10 GbE uplink/stacking SFP/SFP+ ports

RUCKUS ICX 7150 COMPACT SWITCH

The Ruckus ICX 7150 compact switch offer a single integrated power supply, one RJ-45 Ethernet port for out-of-band network management, one USB Type-C port for console management, one RJ-45 port for serial console management, and one USB port for external file storage.

	**Ruckus ICX 7150-C12P Compact Switch** 12× 10/100/1000 Mbps POE+ RJ-45 ports 124 W power budget 2× 10/100/1000 Mbps uplink RJ-45 ports 2× 1/10 GbE uplink/stacking SFP/SFP+ ports

[1] Up to 90W per port, IEEE 802.3bt standard pending ratification. Compatible with uPoE.

ENTERPRISE-CLASS FEATURES ACROSS ALL 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 7150 FEATURE/MODEL COMPARISON

	24 or 48 RJ-45 Ports		12 RJ45 PoE+ Ports	24 or 48 RJ45 PoE+ Ports			Z-Series
FEATURE	**Ruckus ICX 7150-24**	**Ruckus ICX 7150-48**	**Ruckus ICX 7150-C12P**	**Ruckus ICX 7150-24P**	**Ruckus ICX 7150-48P**	**Ruckus ICX 7150-48PF**	**Ruckus ICX 7150-48ZP**
Switching capacity (data rate, full duplex)	132 Gbps	180 Gbps	68 Gbps	132 Gbps	180 Gbps	180 Gbps	304 Gbps
Forwarding capacity (data rate, full duplex)	98 Mpps	134 Mpps	51 Mpps	98 Mpps	134 Mpps	134 Mpps	226 Mpps
10/100/1000 Mbps RJ45 downlinks	24	48	12	24	48	48	32
100/1000 Mbps/2.5 Gbps RJ45 downlinks (full duplex only)							16
10/100/1000 Mbps RJ45 uplinks (full duplex only, no PoE)	2	2	2	2	2	2	
1/10 Gbps SFP/SFP+ uplinks	4	4	2	4	4	4	8
PoE/PoE+ ports			12	24	48	48	32
PoH / PoE / PoE+ 802.3bt ready ports[1]							16
Dual hot-swap power supplies							Yes
Maximum PoE Class 3 ports (15.4 W per port)			8	24	24	48	48
Maximum PoE+ Class 4 ports (30 W per port)			4	12	12	24	48 (2 PSU)
Base IPv4/v6 Layer 3 routing (static routing, RIP)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Advanced IPv4/v6 Layer 3 routing (OSPF, VRRP, PIM, PBR features)	With license	With license	With license	With license	With license	With license	With license
Aggregated stacking bandwidth (data rate, full duplex)	480 Gbps	480 Gbps	240 Gbps	480 Gbps	480 Gbps	480 Gbps	480 Gbps
Stacking density (maximum switches in a stack)	12	12	12	12	12	12	12
Stacking ports (maximum ports[2] usable for stacking)	Up to 4×10 GbE SFP+		Up to 2×10 GbE SFP+	Up to 4×10 GbE SFP+			Up to 4×10 GbE SFP+
Maximum stacking distance (distance between stacked switches)	10 km	10 km	10 km	10 km	10 km	10 km	10 km
Campus Fabric	Fabric Port Extender (PE)						

[1] Up to 90W per port, IEEE 802.3bt standard pending ratification. Compatible with uPoE. [2] 10 Gbps SFP+ ports are required for stacking.

RUCKUS ICX 7150 FEATURE/MODEL COMPARISON

	24 or 48 RJ-45 Ports		12 RJ45 PoE+ Ports	24 or 48 RJ45 PoE+ Ports			Z-Series
	Ruckus ICX 7150-24	Ruckus ICX 7150-48	Ruckus ICX 7150-C12P	Ruckus ICX 7150-24P	Ruckus ICX 7150-48P	Ruckus ICX 7150-48PF	Ruckus ICX 7150-48ZP
FEATURE	**POWER**						
Power inlet (AC)	C14						
Input voltage/frequency	AC: 100 to 240 VAC @ 50 to 60 Hz						
Power supply rated maximum (AC)	36 W	65 W	150 W	525 W	525W	880 W	2x 920 W
PoE power budget (AC)			124 W	370 W	370 W	740 W	1480 W (2 PSU)
Switch power consumption[3] (25°C) **Idle** (no PoE load) **10% traffic**[4] (full PoE load) **100% traffic**[4] (full PoE load)	14 W 24 W 24 W	24 W 38 W 39 W	20 W 157 W 157 W	32 W 455 W 472 W	47 W 476 W 491 W	50 W 869 W 893 W	89 W 917 W 932 W
Airflow	Fanless	Fanless	Fanless	Side-to-back	Side-to-back	Side-to-back	Front-to-back
Switch heat dissipation (25°C)[3,5] **Idle** (no PoE load) **10% traffic**[4] (full PoE load) **100% traffic**[4] (full PoE load)	47 BTU/hr 81 BTU/hr 82 BTU/hr	83 BTU/hr 131 BTU/hr 132 BTU/hr	69 BTU/hr 536 BTU/hr 537 BTU/hr	108 BTU/hr 1554 BTU/hr 1610 BTU/hr	160 BTU/hr 1626 BTU/hr 1677 BTU/hr	170 BTU/hr 2964 BTU/hr 3049 BTU/hr	304 BTU/hr 2969 BTU/hr 3030 BTU/hr
FEATURE	**ENVIRONMENT**						
Net Weight (Kg)	3.8	4.82	2.58	4.93	6.17	6.28	6.61
Dimensions (mm)	440 (W) 280 (D) 43.65 (H)	440 (W) 370 (D) 43.65 (H)	269 (W) 213 (D) 43.4 (H)	440 (W) 280 (D) 43.65 (H)	440 (W) 370 (D) 43.65 (H)	440 (W) 370 (D) 43.65 (H)	440 (w) 332(D) 44(H)
Acoustics (25°C, min fan speed)	Fanless	Fanless	Fanless	41.4 dBA	41.8 dBA	47.7 dBA	52 dBA
MTBF (25°C)	871,931 hours	714,420 hours	562,889 hours	397,428 hours	335,853 hours	312,241 hours	104,626 hours

[3] ICX 7150-48ZP Switch includes one AC power supply and one fan.

[4] Traffic load on all ports connected with maximum possible PoE/PoE+ loads (if equipped).

[5] PoE power not included in switch heat dissipation figures since the heat is not dissipated at the switch.

RUCKUS ICX 7150 SPECIFICATIONS

FEATURES	SPECIFICATIONS
Connector options	• 10/100/1000 Mbps RJ-45 • 1 Gbps SFP ports • 1/10 Gbps SFP+ ports • Out-of-band Ethernet management: 10/100/1000 Mbps RJ-45 • Console management: RJ45 serial port and USB Type-C port with serial communication device class support • File transfer: USB port, standard-A plug • For the latest information about supported optics, please visit http://ruckuswireless.com/optics.
DRAM **NVRAM** (Flash) **Packet buffer size**	• 1 GB • 2 GB • 12/24 port: 2 MB, 48 port: 4 MB
Maximum MAC addresses	• 16,384
Maximum VLANs **Maximum PVLANs**	• 4,095 • 32
Maximum STP (spanning trees instances)	• 254
Maximum VEs	• 128
Maximum ARP entries	• 4,094
Maximum routes (in hardware)	• 1,000 (IPv4), 1,000 (IPv6) • Next hop address: 4,094
Trunking	• Maximum ports per trunk: 16 • Maximum trunk groups: 128
Maximum jumbo frame size	• 9,216 bytes
QoS priority queues	• 8 per port
Multicast groups	• 3,072 (Layer 2) • 2,048 (Layer 3)
Quality of Service (QoS)	• ACL Mapping and Marking of ToS/DSCP (CoS) • ACL Mapping and Marking of 802.1p • ACL Mapping to Priority Queue • Classifying and Limiting Flows Based on TCP Flags • DiffServ Support • Honoring DSCP and 802.1p (CoS) • MAC Address Mapping to Priority Queue • Priority Queue Management using Weighted Round Robin (WRR), Strict Priority (SP), and a combination of WRR and SP
Traffic management	• ACL-based inbound rate limiting and traffic policies • Broadcast, multicast, and unknown unicast rate limiting • Inbound rate limiting per port • Outbound rate limiting per port and per queue

RUCKUS ICX 7150 SPECIFICATIONS

Security	• 802.1X authentication • MAC authentication • Flexible authentication • Web authentication • DHCP snooping • Dynamic ARP inspection • Neighbor Discovery (ND) Inspection • Bi-level Access Mode (Standard and EXEC Level) • EAP pass-through support • IEEE 802.1X username export in sFlow • Protection against Denial of Service (DoS) attacks • Authentication, Authorization, and Accounting (AAA) • MAC Address Locking MAC Port Security • Advanced Encryption Standard (AES) with SSHv2 • RADIUS/TACACS/TACACS+ • Secure Copy (SCP) • Secure Shell (SSHv2) • Protected Ports • Local Username/Password • Change of Authorization (CoA) RFC 5176 • Trusted Platform Module • RADSEC (RFC 6614) • Encrypted Syslog (RFC 5425)
SDN features	• OpenFlow v1.0 and v1.3 • OpenFlow with hybrid port mode • Operates with an OpenDayLight Controller
High availability	• Layer 3 VRRP/VRRP-E protocol redundancy • Real-time state synchronization across the stack • Hitless failover and switchover from master to standby stack controller • Hot insertion and removal of stacked units • Layer 2 VSRP switch redundancy • In Service Software Update (ISSU)

FEATURES	FEATURE SETS
Layer 2 feature set	• 802.1s Multiple Spanning Tree • 802.1x Authentication • Auto MDI/MDIX • BPDU Guard, Root Guard • Dual-Mode VLANs • MAC-based VLANs, Dynamic MAC-based VLAN activation • Dynamic VLAN Assignment • Dynamic Voice VLAN Assignment • Fast Port Span • GVRP: GARP VLAN Registration Protocol • IGMP Snooping (v1/v2/v3) • IGMP Proxy for Static Groups • IGMP v2/v3 Fast Leave • Inter-Packet Gap (IPG) adjustment • Link Fault Signaling (LFS) • MAC Address Filtering • MAC Learning Disable • MLD Snooping (v1/v2) • Multi-device Authentication • Per-VLAN Spanning Tree (PVST/PVST+/PRST) • Mirroring: Port-based, ACL-based, MAC Filter-based, and VLAN-based • PIM-SM v2 Snooping • Port Loop Detection • Private VLAN • Remote Fault Notification (RFN) • Single-instance Spanning Tree • Trunk Groups (static, LACP) • Uni-Directional Link Detection (UDLD) • Metro-Ring Protocol (MRP) (v1, v2) • Virtual Switch Redundancy Protocol (VSRP) • Q-in-Q and selective Q-in-Q • VLAN Mapping • Topology Groups
Base Layer 3 IP routing feature set	• IPv4 and IPv6 static routes – RIP v1/v2, RIPng • ECMP • Port-based Access Control Lists • Layer 3/Layer 4 ACLs • Host routes • Virtual Interfaces • Routed Interfaces • Route-only Support • Routing Between Directly Connected Subnets
Premium Layer 3 IP routing feature set with software license	• IPv4 and IPv6 dynamic routes • OSPF v2, v3 • PIM-SM, PIM-SSM, PIM-DM, PIM passive (IPv4, IPv6) • PBR • Virtual Route Redundancy Protocol VRRP (IPv4) • VRRP v3 (IPv6) • VRRP-E(IPv4/IPv6)

RUCKUS ICX 7150 SPECIFICATIONS

FEATURES	STANDARD COMPLIANCE
IEEE standards compliance	• 802.1AB LLDP/ LLDP-MED • 802.1D MAC Bridging • 802.1p Mapping to Priority Queue • 802.1s Multiple Spanning Tree (MST) • 802.1w Rapid Reconfiguration of Spanning Tree (RSTP) • 802.1x Port-based Network Access Control (PNAC) • 802.3 Carrier Sense Multiple Access/Collision Detection (CSMA/CD) • 802.3ab 1000BASE-T • 802.3 10Base-T • 802.3ad Link Aggregation (Dynamic and Static) • 802.1 AX-2008 Link Aggregation • 802.3ae 10 Gigabit Ethernet • 802.3af Power over Ethernet • 802.3at Power over Ethernet Plus • 802.3bz Multigigabit Ethernet • 802.3u 100Base-TX • 802.3x Flow Control • 802.3z 1000Base-SX/LX • 802.3 MAU MIB (RFC 2239) • 802.1Q VLAN Tagging • 802.1BR Bridge Port Extension • 802.3az Energy Efficient Ethernet* (hardware ready)
RFC standards compliance	For a complete list of RFCs supported by the ICX 7000 product family, please visit support.ruckuswireless.com.

FEATURES	NETWORK AND DEVICE MANAGEMENT
Management	• DHCP Auto Configuration • Configuration Logging • Digital Optical Monitoring • Display Log Messages on Multiple Terminals • Embedded Web Management (HTTP/HTTPS) • Embedded DHCP Server • Industry-standard Command Line Interface (CLI) • Ruckus SmartZone Network Controller (sold separately) • CLI activation of optional software features • USB file management and storage • Macro for batch execution • Out-of-band Ethernet Management • RSPAN • TFTP • TELNET Client and Server • SSH / SSH V2 • Bootp • SNMPv1/v2c • DHCP Server and DHCP Relay • SNMPv3 Intro to Framework • Architecture for Describing SNMP Framework • SNMP Message Processing and Dispatching • SNMPv3 Applications • SNMPv3 User-based Security Model • SNMP View-based Access Control Model SNMP • sFlow • Network Time Protocol (NTP) • Multiple Syslog Servers • SCP • Virtual Cable Tester (VCT) • For management MIB, please visit ruckuswireless.com
Ruckus Campus Fabric technology	• The Ruckus ICX 7150 can operate in fabric Port Extender (PE) mode • Up to 36 PEs per fabric (up to 1800 ports) • PE cascade depth up to 6 units

FEATURES	ENVIRONMENT
Temperature	Operating temperature: -5°C to 45°C Storage temperature: −25°C to 70°C
Humidity	Operating relative humidity: 5% to 95% at 45°C, non-condensing Non-operating relative humidity: 0% to 95% at 70°C, non-condensing
Altitude	Operating altitude: 10,000 ft (3,000 m) maximum Storage altitude: 39,000 ft (12,000 m) maximum

* To be supported in a future software release.

RUCKUS ICX 7150 SPECIFICATIONS

FEATURES	COMPLIANCE/CERTIFICATION
Electromagnetic emissions	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)
Safety	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
Immunity	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
Environmental regulatory compliance	RoHS-compliant (6 of 6); WEEE-compliant
Vibration	IEC 68-2-36, IEC 68-2-6
Shock and drop	IEC 68-2-27, IEC 68-2-32

RUCKUS ICX 7150 ORDERING INFORMATION

PART NUMBER	RUCKUS ICX 7150 SWITCHES WITH 1 GBE UPLINKS
ICX7150-C12P-2X1G	Ruckus ICX 7150 Compact Switch, 12×10/100/1000 Mbps PoE+ ports, 2×1 GbE RJ45 uplink-ports, 2×1 GbE SFP uplink-ports upgradable to 2×10 GbE SFP+ with license. 124 W PoE budget, basic Layer 3 (static routing and RIP).
ICX7150-24-4X1G	Ruckus ICX 7150 Switch, 24×10/100/1000 Mbps ports, 2×1 GbE RJ45 uplink-ports, 4×1 GbE SFP uplink-ports upgradable to up to 4×10 GbE SFP+ with license, basic Layer 3 (static routing and RIP).
ICX7150-24P-4X1G	Ruckus ICX 7150 Switch 24×10/100/1000 Mbps PoE+ ports, 2×1 GbE RJ45 uplink-ports, 4×1 GbE SFP uplink ports upgradable to up to 4×10 GbE SFP+ with license, 370 W PoE budget, basic Layer 3 (static routing and RIP).
ICX7150-48-4X1G	Ruckus ICX 7150 Switch, 48×10/100/1000 Mbps ports, 2×1 GbE RJ45 uplink-ports, 4×1 GbE SFP uplink-ports upgradable to up to 4×10 GbE SFP+ with license, basic Layer 3 (static routing and RIP).
ICX7150-48P-4X1G	Ruckus ICX 7150 Switch, 48×10/100/1000 Mbps PoE+ ports, 2×1 GbE RJ45 uplink-ports, 4×1 GbE SFP uplink ports upgradable to up to 4×10 GbE SFP+ with license, 370 W PoE budget, basic Layer 3 (static routing and RIP).
ICX7150-48PF-4X1G	Ruckus ICX 7150 Switch, 48×10/100/1000 Mbps PoE+ ports, 2×1 GbE RJ45 uplink-ports, 4×1 GbE SFP uplink ports upgradable to up to 4×10 GbE SFP+ with license, 740 W PoE budget, basic Layer 3 (static routing and RIP).

PART NUMBER	RUCKUS ICX 7150 SWITCHES WITH 2×10 GBE UPLINKS
ICX7150-C12P-2X10GR	Ruckus ICX 7150 Compact Switch, 12×10/100/1000 Mbps PoE+ ports, 2×1 GbE RJ45, 2×10 GbE SFP+ stacking/uplink-ports, 124 W PoE budget, Layer 3 features (OSPF, VRRP, PIM, PBR).
ICX7150-24-2X10G	Ruckus ICX 7150 Switch, 24×10/100/1000 Mbps ports, 2×1 GbE RJ45 uplink-ports, 2×1 GbE SFP and 2×10 GbE SFP+ stacking/uplink-ports upgradable to 4×10 GbE SFP+ with license, basic Layer 3 (static routing and RIP).
ICX7150-24P-2X10G	Ruckus ICX 7150 Switch, 24×10/100/1000 Mbps PoE+ ports, 2×1 GbE RJ45 uplink-ports, 2×1 GbE SFP and 2×10 GbE SFP+ stacking/uplink-ports upgradable to 4×10 GbE SFP+ with license, 370 W PoE budget, basic Layer 3 (static routing and RIP).
ICX7150-48-2X10G	Ruckus ICX 7150 Switch, 48×10/100/1000 Mbps ports, 2×1 GbE RJ45 uplink-ports, 2×1 GbE SFP and 2×10 GbE SFP+ stacking/uplink-ports upgradable to 4×10 GbE SFP+ with license, basic Layer 3 (static routing and RIP).
ICX7150-48P-2X10G	Ruckus ICX 7150 Switch, 48×10/100/1000 Mbps PoE+ ports, 2×1 GbE RJ45 uplink-ports, 2×1 GbE SFP and 2×10 GbE SFP+ stacking/uplink-ports upgradable to 4×10 GbE SFP+ with license, 370 W PoE budget, basic Layer 3 (static routing and RIP).

RUCKUS ICX 7150 ORDERING INFORMATION

ICX7150-48PF-2X10G	Ruckus ICX 7150 Switch, 48×10/100/1000 Mbps PoE+ ports, 2×1 GbE RJ45 uplink-ports, 2×1 GbE SFP and 2×10 GbE SFP+ stacking/uplink-ports upgradable to 4×10 GbE SFP+ with license, 740 W PoE budget, basic Layer 3 (static routing and RIP).
ICX7150-48ZP-E2X10G	Ruckus ICX 7150 Z-Series Switch, 16×100/1000 Mbps/2.5 Gbps PoH ports, 32x10/100/1000 PoE+ ports, 6x1 GbE SFP uplink ports and 2×10 GbE SFP+ stacking/uplink-ports upgradable to up to 8x10 GbE SFP+ with license, 1x 920 W AC power supply, 1 fan, 740 W PoE budget, base L3 (static routing and RIP)

PART NUMBER	RUCKUS ICX 7150 SWITCHES WITH UP 4 OR 8×10 GBE UPLINKS AND LAYER 3 FEATURES
ICX7150-24-4X10GR	Ruckus ICX 7150 Switch, 24×10/100/1000 Mbps ports, 2×1 GbE RJ45 uplink-ports, 4×10 GbE SFP+ stacking/uplink-ports, Layer 3 features (OSPF, VRRP, PIM, PBR).
ICX7150-24P-4X10GR	Ruckus ICX 7150 Switch, 24×10/100/1000 Mbps PoE+ ports, 2×1 GbE RJ45 uplink-ports, 4×10 GbE SFP+ stacking/uplink-ports, 370 W PoE budget, Layer 3 features (OSPF, VRRP, PIM, PBR).
ICX7150-48-4X10GR	Ruckus ICX 7150 Switch, 48×10/100/1000 Mbps ports, 2×1 GbE RJ45 uplink-ports, 4×10 GbE SFP+ stacking/uplink-ports, Layer 3 features (OSPF, VRRP, PIM, PBR).
ICX7150-48P-4X10GR	Ruckus ICX 7150 Switch, 48×10/100/1000 Mbps PoE+ ports, 2×1 GbE RJ45 uplink-ports, 4×10 GbE SFP+ stacking/uplink-ports, 370 W PoE budget, Layer 3 features (OSPF, VRRP, PIM, PBR).
ICX7150-48PF-4X10GR	Ruckus ICX 7150 Switch, 48×10/100/1000 Mbps PoE+ ports, 2×1 GbE RJ45 uplink-ports, 4×10 GbE SFP+ stacking/uplink-ports , 740 W PoE budget, Layer 3 features (OSPF, VRRP, PIM, PBR).
ICX7150-48ZP-E8X10GR	Ruckus ICX 7150 Z-Series switch, 16×100/1000 Mbps/2.5 Gbps PoH ports, 32x10/100/1000 PoE+ ports, 8×10 GbE SFP+ stacking/uplink-ports (max 4 for stacking), 1x920 W AC power supply, 1 fan, 740 W PoE budget, L3 features (OSPF, VRRP, PIM, PBR).

PART NUMBER	RUCKUS ICX 7150 SWITCHES WITH THREE-YEAR REMOTE SUPPORT Please note that three-year remote support can be ordered separately to cover any Ruckus ICX 7150 model.
ICX7150-C12P-2X10GR-RMT3	Ruckus ICX 7150 Compact Switch, 12×10/100/1000 Mbps PoE+ ports, 2×1 GbE RJ45 uplink-ports, 2×10 GbE SFP+ stacking/uplink-ports, 124 W PoE budget, Layer 3 features (OSPF, VRRP, PIM, PBR), three-year remote support.
ICX7150-24-4X10GR-RMT3	Ruckus ICX 7150 Switch, 24×10/100/1000 Mbps ports, 2×1 GbE RJ45 uplink-ports, 4×10 GbE SFP+ stacking/uplink-ports, Layer 3 features (OSPF, VRRP, PIM, PBR), three-year remote support.
ICX7150-24P-4X10GR-RMT3	Ruckus ICX 7150 Switch, 24×10/100/1000 Mbps PoE+ ports, 2×1G RJ45 uplink-ports, 4×10 GbE SFP+ stacking/uplink-ports, 370 W PoE budget, Layer 3 features (OSPF, VRRP, PIM, PBR), three-year remote support.
ICX7150-48-4X10GR-RMT3	Ruckus ICX 7150 Switch, 48×10/100/1000 Mbps ports, 2×1 GbE RJ45 uplink-ports, 4×10 GbE SFP+ stacking/uplink-ports, Layer 3 features (OSPF, VRRP, PIM, PBR), three-year remote support.
ICX7150-48P-4X10GR-RMT3	Ruckus ICX 7150 Switch, 48×10/100/1000 Mbps PoE+ ports, 2×1 GbE RJ45 uplink-ports, 4×10 GbE SFP+ stacking/uplink-ports, 370 W PoE budget, Layer 3 features (OSPF, VRRP, PIM, PBR), three-year remote support.
ICX7150-48PF-4X10GR-RMT3	Ruckus ICX 7150 Switch, 48×10/100/1000 Mbps PoE+ ports, 2×1 GbE RJ45 uplink-ports, 4×10 GbE SFP+ stacking/uplink-ports, 740 W PoE budget, Layer 3 features (OSPF, VRRP, PIM, PBR), three-year remote support.
ICX7150-48ZP-E8X10GR-RMT3	Ruckus ICX 7150 Z-Series switch, 16×100/1000 Mbps/2.5 Gbps PoH ports, 32x10/100/1000 PoE+ ports, 8×10 GbE SFP+ stacking/uplink-ports (max 4 for stacking), 1x 920 W AC power supply, 1 fan, 740 W PoE budget, L3 features (OSPF, VRRP, PIM, PBR). Three-year remote support

RUCKUS ICX 7150 ORDERING INFORMATION

PART NUMBER	TAA-COMPLIANT RUCKUS ICX 7150 SWITCHES The Ruckus ICX 7150 models with the SKUs below meet the requirements of the Trade Agreements Act (TAA).
ICX7150-C12P-2X10GR-A	Ruckus ICX 7150 Compact Switch, 12×10/100/1000 Mbps PoE+ ports, 2×1 GbE RJ45 uplink-ports, 2×10 GbE SFP+ stacking/uplink-ports, 124 W PoE budget, Layer 3 features (OSPF, VRRP, PIM, PBR), TAA-compliant.
ICX7150-24-4X10GR-A	Ruckus ICX 7150 Switch, 24×10/100/1000 Mbps ports, 2×1 GbE RJ45 uplink-ports, 4×10 GbE SFP+ stacking/uplink-ports, Layer 3 features (OSPF, VRRP, PIM, PBR), TAA-compliant.
ICX7150-24P-4X10GR-A	Ruckus ICX 7150 Switch, 24×10/100/1000 Mbps PoE+ ports, 2×1 GbE RJ45 uplink-ports, 4×10 GbE SFP+ stacking/uplink-ports, 370 W PoE budget, Layer 3 features (OSPF, VRRP, PIM, PBR), TAA-compliant.
ICX7150-48-4X10GR-A	Ruckus ICX 7150 Switch, 48×10/100/1000 Mbps ports, 2×1 GbE RJ45 uplink-ports, 4×10 GbE SFP+ stacking/uplink-ports, Layer 3 features (OSPF, VRRP, PIM, PBR), TAA-compliant.
ICX7150-48P-4X10GR-A	Ruckus ICX 7150 Switch, 48×10/100/1000 Mbps PoE+ ports, 2×1 GbE RJ45 uplink-ports, 4×10 GbE SFP+ stacking/uplink-ports, 370 W PoE budget, Layer 3 features (OSPF, VRRP, PIM, PBR), TAA-compliant.
ICX7150-48PF-4X10GR-A	Ruckus ICX 7150 Switch, 48×10/100/1000 Mbps PoE+ ports, 2×1 GbE RJ45 uplink-ports, 4×10 GbE SFP+ stacking/uplink-ports, 740 W PoE budget, Layer 3 features (OSPF, VRRP, PIM, PBR), TAA-compliant.
ICX7150-48ZP-E8X10GR2-A	Ruckus ICX 7150 Z-Series switch, 16×100/1000 Mbps/2.5 Gbps PoH ports, 32x10/100/1000 PoE+ ports, 8×10 GbE SFP+ stacking/uplink-ports (max 4 for stacking), 2x920 W AC power supply, 2 fans, 1480 W PoE budget, L3 features (OSPF, VRRP, PIM, PBR). TAA compliant.

PART NUMBER	UPGRADE LICENSES All Ruckus ICX 7150 switch models with 1 GbE SFP uplink ports can be upgraded to 10 GbE SFP+ ports with a license.
BR-ICX-7150C-21U210R-P-01	License to upgrade the Ruckus ICX 7150 compact switch from 2×1 GbE SFP to 2×10 GbE SFP+ stacking/uplink-ports. Also includes Layer 3 features (OSPF, VRRP, PIM, PBR).
BR-ICX-7150-41U210-P-01	License to upgrade any Ruckus ICX 7150 24/48 ports except the Z-Series from 4×1 GbE SFP to 2×1 GbE SFP and 2×10 GbE SFP+ stacking/uplink-ports.
BR-ICX-7150-41U410R-P-01	License to upgrade any Ruckus ICX 7150 24/48 ports except the Z-Series from 4×1 GbE SFP to 4×10 GbE SFP+ stacking/uplink-ports. Also includes Layer 3 features (OSPF, VRRP, PIM, PBR).
BR-ICX-7150-210U410R-P-01	License to upgrade any Ruckus ICX 7150 24/48 ports except the Z-Series from 2×1 GbE SFP and 2×10 GbE SFP+ to 4×10 GbE SFP+ stacking/uplink-ports. Also includes Layer 3 features (OSPF, VRRP, PIM, PBR).
BR-ICX-7150Z210U810R-P-01	License to upgrade ICX 7150 Z-Series model from 6x1 GbE SFP and 2x10 GbE SFP+ to 8x10 GbE SFP+ stacking/uplink-ports (max 4 for stacking). Also includes L3 features (OSPF, VRRP, PIM, PBR).

PART NUMBER	FRUS AND ACCESSORIES
RPS20-E	Ruckus ICX 7150-48ZP 920 W AC hot-swap PoE power supply, front to back airflow (up to 2 per switch). Only applicable to the Z-Series
ICX-FAN11	Ruckus ICX 7150-48ZP hot-swap fan tray (up to 2 per switch). Only applicable to the Z-Series
ICX6400-C12-MGNT	Magnet Mount Kit for Ruckus ICX 7150/6450/6430 12 Port Compact Switch.
CC-RJ45-DB9	Console cable RJ45-RJ45 With RJ-45-DB9 Adapter (for RJ-45 console port on ICX 7150)
CC-USBC-USBA	USB 2.0 Cable, Type-C to Type-A, 1 meter (for USB Type-C console port on ICX 7150)
ICX7000-C12-RMK	ICX7150-C12P Compact Switch Rack Mount Kit
ICX7000-C12-WMK	ICX7150-C12P Compact Switch Wall Mount & Under Desk Mount Kit
XBR-R000295	Universal Rack Mount Kit ,4 post FRU.
ICX7000-RMK	Rack Mount Kit, 2-post FRU for ICX 7000 series 24/48 port models.
RMK-LRM-ADP	Rack Mount Kit for LRM adapters. This 1RU shelf can accommodate up to 8 LRM adapters.

RUCKUS ICX 7150 ORDERING INFORMATION

OPTICS	
See Optics Datasheet at www.ruckuswireless.com/optics	Ruckus 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, Ruckus 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 Optics Datasheet at www.ruckuswireless.com/optics.

MANAGEMENT SOFTWARE	
See SmartZone Datasheet at www.ruckuswireless.com/smartzone	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 www.ruckuswireless.com/smartzone.

ORDERING NOTES

All Ruckus ICX 7150 switches come with an accessory kit that includes a rubber foot kit, power cord clip, rack mount kit (for 24/48 ports model), RJ-45 console cable and US AC power cord. Stacking cables, USB console cables, compact switch rack mount kit, and optics need to be ordered separately.

All Ruckus ICX 7150 switch models with 1 GbE SFP uplink ports can be upgraded to 10 GbE SFP+ ports with a license.

Standard Ruckus ICX 7150 1 RU Switch models can be ordered configured with either 4×1 GbE SFP, 2×1 GbE SFP, and 2×10 GbE SFP+, or 4×10 GbE SFP+ uplinks.

The Ruckus ICX 7150 compact switch can be ordered configured with either 2×1 GbE SFP or 2×10 GbE SFP+ uplinks.

The Ruckus ICX Z-Series switch can be ordered configured with 2×10 GbE SFP+ uplinks and 6×1 GbE SFP, or 8×10 GbE SFP+ uplinks.

Upgrade licenses are available to upgrade standard Ruckus ICX 7150 1 RU switches to either 2×1 GbE SFP and 2×10 GbE SFP+ or to 4×10 GbE SFP+, the Ruckus ICX 7150 compact switch to 2×10 GbE SFP+, and the Ruckus Z-Series switch to 8×10 GbE SFP+.

Ruckus ICX 7150 Switches with 4×10 GbE SFP+ and 8×10 GbE SFP+ (2×10 GbE SFP+ for the compact switch) include a license to enable Layer 3 features (OSPF, VRRP, PIM, PBR).

Special SKUs have been created to enable customers to order specific Ruckus ICX 7150 models with three-year remote support included. Please note that additional years of remote support can always be ordered separately to cover any Ruckus ICX 7150 model. Contact Ruckus or channel partner representative for details about Ruckus support options and support part numbers.

For your convenience, a fully loaded ICX 7150-48ZP model with dual power supplies and 8×10 GbE ports bundle has been created. It comes with factory installed power supplies, fans and 8×10 GbE port licenses.

WARRANTY

Ruckus ICX 7150 Switches are covered by the Ruckus Assurance Limited Lifetime Warranty. For details, visit www.ruckuswireless.com/warranty.

BEST-IN-CLASS SUPPORT

Ruckus ICX 7150 switches are supported by next-business-day advance replacement where available, as well as software defect repairs and maintenance updates. 90 days remote support is included with the product purchase. Many on-site and remote support options are available and can be purchased bundled with the product or separately.

LEGAL DISCLAIMER

Product features, functionality and specifications may change or be discontinued without notice. Nothing in this document shall be deemed to create a warranty of any kind, either express or implied, statutory or otherwise, including but not limited to, any implied warranties of merchantability, fitness for a particular purpose, non-infringement of third-party rights or availability with respect to any products and services.

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