ACX7300 LINE OF CLOUD METRO ROUTERS DATASHEET

Product Overview

Network operators are finding incredible opportunities with 5G, IoT, and cloud, along with daunting challenges to support new and increasingly complex services and applications, while striving to deliver experience-first networking. In this environment, ACX7000 family platforms help operators thrive. Powered by Junos OS Evolved and Juniper Paragon Automation, the ACX7300 line of Cloud Metro routers are hardened, compact, fixed plus modular, 3 U solutions that delivering 2.4 Tbps of throughput supporting 1GbE to 400GbE flexibility. They deliver exceptional TCO, investment protection, and multiservice support for service provider, enterprise, and wholesale use cases. Compact footprint and precision timing makes the ACX7300 line ideal for 4G/5G mobile deployments.

Product Description

The Juniper Networks® ACX7300 line of Cloud Metro routers is designed to help operators achieve their capital, operational, and user experience goals. Part of the Juniper Networks ACX7000 family portfolio, ACX7300 routers are Juniper® Cloud Metro-ready for 4G/5G, Internet of Things (IoT), and cloud-based applications. They are designed for metro access and aggregation, large enterprise, and residential use cases requiring a highly flexible (1GbE to 400GbE), compact (29-cm-deep), 3 U, multiservice, and multi-environmental rated platforms. Whether your network demands are temperature-dependent or high-scale, the industrial-temperature (I-Temp) rated ACX7348 or extended-temperature (E-Temp) rated and external ternary content addressable memory (eTCAM) enabled ACX7332 can fit your Cloud Metro requirements today and into the future.

ACX7000 Family Overview

ACX7000 family of routers, purposely built for the IP service fabric underlay of a Juniper Cloud Metro, leverages the industry's fastest chipset, provides a unique balance of system design, and sets new benchmarks for sustainable high-performance platforms. Managed by Junos® OS Evolved and Juniper Paragon™ Automation, ACX7000 routers are embedded with Paragon Active Assurance and with Zero-Trust security built in, enabling operators to deliver highly differentiated customer experiences. Available in environmentally rated, fixed, fixed plus modular, and fully modular designs, these energy and footprint efficient, multiservice routers support high-precision timing technologies and are engineered for service provider, enterprise, residential (including passive optical network (PON) with the Juniper Unified PON Solution), IoT, and 4G/5G mobile applications.

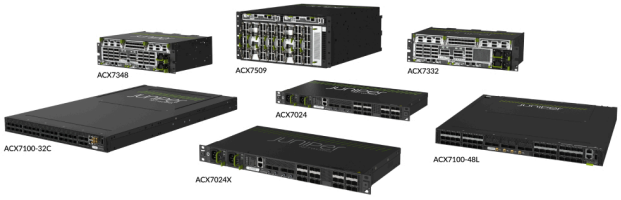

Figure 1. Juniper Networks ACX7000 Family–engineered for the IP service fabric of a Juniper Cloud Metro

Individually, ACX7000 platforms bring leading-edge performance, scale, and capability to any deployment. When building a comprehensive Juniper Cloud Metro architecture consisting of multiple ACX7000 family platforms, new dimensions of end-to-end operational capability, performance, and simplicity are realized. Forming the foundation of an IP service fabric underlay, the ACX7000 family of routers shares innovative features that elevate operations and enable the core characteristics of a Cloud Metro. To learn more about the full potential of the ACX7300 line, combine the information in this datasheet with the ACX7000 Family of Cloud Metro Routers Datasheet to fully understand the capabilities of the ACX7000 family investment.

Product Offering

The ACX7300 line are hardened, compact 3 U (29cm deep), fixed-plus-modular platforms (supporting three I/O bays) that deliver high-performance access and aggregation routing optimized for space, power, and value. Next-generation silicon delivers 2.4 Tbps of throughput, a comprehensive feature set, exceptional 50GbE density (32 ports in 3 U), and Media Access Control Security (MACsec) with support across all port speeds (1GbE to 400GbE). Combine these foundational capabilities with exceptional scale and highly flexible build-as-you-grow port configuration, and operators are equipped to evolve network protocols and features at their own pace. At the same time, they can support today's most common transport upgrades without a platform forklift.

Resiliency and precision timing are also key attributes of the ACX7300 line and its role in Cloud Metro deployments. An optional, second Routing Engine (RE) card can be added to both platforms enabling quick switchover from the active routing engine (RE) to the standby RE to prevent service interruption. The ACX7300 line supports up to 8-fan trays (N+1 redundancy), four of which are field replaceable. Equipped with 2-field replaceable AC or DC power supplies (1+1 redundancy), a cost-effective and efficient thermal design enables unrestricted high-power ZR/ZR+ use across all supporting ports. Precision timing capabilities, including Class C timing and an integrated Global Navigation Satellite System (GNSS) transceiver, facilitates low latency services and dependable networking synchronization for consistent and reliable user experiences. The ACX7300 line supports next-generation protocols, including SR, SRv6, MPLS, Ethernet VPN-Virtual Extensible LAN (EVPN-VXLAN), and any overlay, underlay, or service. They deliver service-assured network slicing, network intelligence, and Juniper Paragon Automation for network efficiency and operational simplicity.

The ACX7332 and ACX7348 share identical features and capabilities while providing operators with key differentiators to fit the exacting needs of each deployment. The ACX7332 design includes on-board eTCAM-enhanced scale and latency for E-Temp applications, while the ACX7348 delivers 16 additional fixed ports for I-Temp applications.

ACX7332: The E-Temp rated ACX7332 delivers high-end, eTCAM-enhanced, multiservices in a 3 U fixed plus modular, compact (29 cm deep), power-efficient footprint. It provides 2.4 Tbps forwarding capacity, supports 32 fixed multi-rate (SFP28) ports, each configurable as 1GbE, 10GbE, and 25GbE client services enabling operators to perform today's most common transport upgrades on a port-by-port basis without a platform forklift. An additional 8 fixed (QSFP-28) ports support 100GbE (ZR capable) uplinks. ACX7300 platforms have three I/O bays that provide support for optional interface modules covering a range of port speeds: one I/O bay delivers an additional 400 Gbps of capacity capable of supporting speeds from 1GbE to 100GbE. The other two I/O bays each provide an additional 800 Gbps of capacity capable of supporting port speeds from 10GbE to 400GbE. Integrated eTCAM technology facilitates the highest FIB scale, quicker lookups, and lower latency performance.

ACX7348: The I-Temp rated ACX7348 delivers multiservices in the same 3 U fixed-plus-modular, compact (29 cm deep), power efficient footprint. It also provides 2.4 Tbps forward capacity, 48 fixed multi-rate (SFP28) ports, each configurable as 1GbE, 10GbE, and 25GbE client services, and 8 additional fixed (QSFP-28) ports of 100GbE (ZR capable) uplinks. Three I/O bays support the same optional interface modules): one I/O bay delivering 400 Gbps of capacity supporting 1GbE to 100GbE port speeds. Two other I/O bays provide 800 Gbps of capacity each, supporting 10GbE to 400GbE ports speeds. Exceptional scale provides low-latency, high FIB and platform performance.

ACX7300 Interface Modules: The following modules can be used on both ACX7300 line platforms. Each module's capability will be dependent on whether the module is used within one of the two 800 Gbps I/O bays or in the 400 Gbps I/O bay as noted.

- **16-ports, multi-rate 50GbE (SFP56) interface module**, port-by-port configurable as 1GbE, 10GbE, 25GbE, and 50GbE
  NOTE: This capability applies when this interface module is used in either of the two 800 Gbps I/O bays. When used in the 400 Gbps I/O bay, optional native port speeds are 1GbE, 10GbE, and 25GbE.
- **4-ports of 100GbE (QSFP28) and 2 ports of 400GbE (QSFP56) interface modules**
  NOTE: This capability applies when this interface module is used in either of the two 800 Gbps I/O bays. When used in the 400 Gbps I/O bay, top port speed is 100GbE.

Features and Benefits

The Cloud Metro-ready ACX7300 line are engineered for sustainability. They address the challenges of evolving service requirements and the relentless traffic growth imposed by the 4G/5G, IoT, and cloud applications, turning them into opportunities for operators to thrive.

Table 1: ACX7300 Line Features and Benefits

Feature	Benefits
Junos OS Evolved and Embedded Active Assurance	Managed by Junos OS Evolved, Juniper Paragon Active Assurance test agents are embedded into all ACX7000 family platforms enabling automated monitoring, diagnosis, remediation, and optimization of service delivery, service performance, and user experience.
Rugged, Resilient, and Efficient Design	The compact footprint (3 U, 29cm deep, 19-inch rack) of ACX7300 platforms, the I-Temp rated (-40° C to +65° C) ACX7348, and the E-Temp rated (0° C to 55° C) ACX7332, support a variety of deployment scenarios. Efficient power supply, fan, and airflow (with front-to-back and side-to-side with baffle) design, with RE redundancy facilitate consistent and reliable service delivery experience.
Build-As-You-Grow Operational Simplicity	ACX7300 platforms deliver multi-rate fixed plus modular I/O for the ultimate in port configuration flexibility. As service demand grows, ACX7300 platforms provide support for 100GbE/400GbE uplinks enhanced by three I/O bays for additional capacity and unrestricted high-power ZR/ZR+ transceiver use across all supporting ports.
Next-Gen Capabilities	Next-gen capabilities include leading technologies such as SR, SRv6, MPLS, Ethernet VPN-Virtual Extensible LAN (EVPN-VXLAN), advanced programmability, telemetry, programmable ASIC for future feature upgrades, customizable forwarding scale, and support for any overlay, underlay, or service. Operators can evolve across protocol generations at their own pace.
Zero-Trust Security	Enhanced security capabilities, including MACsec encryption, secure boot, integrated tamper-proof design, and trust anchor with DevID, enable device attestation and enhanced security through a unique cryptographic digital identity.
Cloud Metro-Ready	The ACX7300 line offers deep buffering for end-to-end service delivery assurance, precision timing capabilities include SyncE, Precision Time Protocol (PTP), and Class C timing for latency-optimized 5G service experiences, as well as GNSS/GPS (primary clock support via external GNSS receiver) network synchronization. ACX7300 line is an ideal choice for service provider, enterprise, and residential use cases, and IoT and 4G/5G mobile applications.

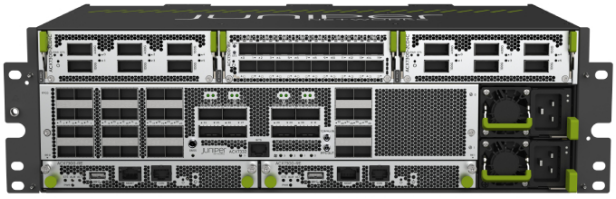

Figure 2. Juniper Networks ACX7332—engineered for the IP service fabric of a Juniper Cloud Metro

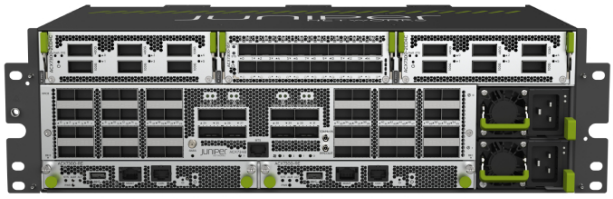

Figure 3. Juniper Networks ACX7348—engineered for the IP service fabric of a Juniper Cloud Metro

Table 2. Built-In Interface Options and Maximum Port Count for ACX7300 Models

Model (fixed and fixed + I/O bays comparison)	1/10/25GbE	50GbE	40/100GbE	400GbE
ACX7332 fixed ports only	32	-	8	-
ACX7332 leveraging fixed and I/O bays	78	32	27	4
ACX7348 fixed ports only	48	-	8	-
ACX7348 leveraging fixed and I/O bays	94	32	27	4

Table 3. ACX7300 Models Fixed Ports Optical Technology Supported

Model	SFP	SFP+	SFP28	QSFP
ACX7332	Y	Y	Y	Y
ACX7348	Y	Y	Y	Y

Table 4. ACX7300 Module Line Card Optical Technology Supported

Module–Port Numbers	SFP	SFP+	SFP28	SFP56	QSFP28	QSFP56
ACX7300-16Y	Yes	Yes	Yes	Yes		
ACX7300-2DC4C					Yes	Yes

Feature Matrix

A key differentiator and operator benefit of the ACX7000 family of Cloud Metro Routers is that all platforms share the same feature set with limited hardware-driven exceptions. Refer to the ACX7000 Family of Cloud Metro Routers Datasheet, Table 2. ACX7000 Family Feature Matrix for a list of ACX7000 family features and platform-specific exceptions.

Specifications

This section lists basic specifications for the ACX7300 line of Cloud Metro routers. For further details, please refer to the hardware installation manuals at www.juniper.net/techpubs.

Table 5. ACX7300 Line Specifications

Specifications	ACX7332	ACX7348
ASIC throughput	2.4 Tbps	
Routing Engine (RE)	• Optional RE Redundancy • CPU: 4Core • RAM: 64 GB DDR4 (2x 32GB SODIMM) • Mass Storage: 100GB SATA/NVME SSD • TPM2.0	
Redundancy	• Optional Control Plane (RE) • Fan • Power Supply (AC or DC)	
Chassis Type	Fixed plus Modular (3x I/O Bays)	

Specifications	ACX7332	ACX7348
Dimensions (W x H x D)	17.4 x 5.25 x 11.42 in (44.20 x 13.33 x 29.00 cm)	
Weight (lb/kg) base bundle	35.6 lb/16.1 kg (DC) 36 lb/16.3 kg (AC)	35.5 lb/16.1 kg (DC) 35.9 lb/16.3 kg (AC)
Power (DC)	40 VDC through 72 VDC	
Power (AC)	180 VAC to 264 VAC	
Typical power draw (without optics) *	465 W (1x RE) 520 W (2x RE)	
Maximum power draw (without optics) *	495 W (1x RE) 551 W (2x RE)	
Operating temperature	Operating (0° to 55° C)	Operating (-40° to 65° C)
Cooling	• E-Temp (0° to 55° C at 6000 ft) • 8-Fans (4x Fran Trays – FRU), N+1	• I-Temp (-40° to 65° C at 6000 ft) • 8-Fans (4x Fran Trays – FRU), N+1
Humidity	5% through 90% noncondensing	
Interfaces supported	1/10/25/100/200/400GbE (fixed and modular capability combined)	
Interfaces (fixed)	• 32x 1-25GbE, SFP/SFP+/SFP28 (MACsec) • 8x 100GbE, QSFP28	• 48x 1-25GbE, SFP/SFP+/SFP28 (MACsec) • 8x 100GbE, QSFP28
Interface (modular)	3x I/O Bays–2x 800GbE (10-400GbE ports) and 1x 400GbE (1-100GbE ports) support the following modules (MACsec support on all ports): • 16x SFP56 FPC (16x 1/10/25/50GbE) • 2x QSFP56/2xQSFP28-DD & 4x QSFP28 (2x 400GbE/2x 200GbE and 4x 100GbE)	
Timing	• SynchE, PTP, and Class C • 1PPS and 10 MHz, BITS • Integrated GNSS	

* Typical power consumption measured at 77°F (25°C) ambient with 50% load on all ports. Exact power consumption is subject to operating conditions and unit-to-unit variations.

Safety Approvals
CAN/CSA-C22.2 No. 60950-1 Information Technology Equipment–Safety
UL 60950-1 (2nd Edition) Information Technology Equipment—Safety
EN 60950-1: 2006/A2:2013 Information Technology Equipment—Safety
IEC 60950-1: 2005/A2:2013 Information Technology Equipment—Safety (All country deviations): CB Scheme
CAN/CSA-C22.2 No. 62368-1-14 Information Technology Equipment—Safety
UL 62368-1 Information Technology Equipment— Safety
EN 62368-1: 2014 Information Technology Equipment—Safety
IEC 62368-1: 2014 2nd Edition Information Technology Equipment—Safety (All country deviations): CB Scheme
EN 60825-1 Safety of Laser Products—Part 1: Equipment classification and requirements
Electromagnetic Capability (EMC)
CAN/CSA-C22.2 No. 60950-1 Information Technology Equipment–Safety
EN 300 386 V1.6.1 Class A Telecom Network Equipment—EMC requirements
EN 300 386 V2.1.1 Class A Telecom Network Equipment—EMC requirements
FCC 47 CFR Part 15 Class A USA Radiated and Conducted Emissions
EN 55032 Class A European Radiated and Conducted Emissions
AS/NZS CISPR 32 Class A Australia/New Zealand Radiated and Conducted Emissions
ICES-003 Class A Canada Radiated and Conducted Emissions
VCCI- CISPR 32 Class A Japanese Radiated and Conducted Emissions
BSMI CNS 13438 and NCC C6357 Taiwan Radiated and Conducted Emissions (at 10 meter)
KN32 Korea Radiated and Conducted Emission (at 10 meter)
TEC/EMI/TEL-001/FEB-09
TEC-SD-DD-EMC-221-05-OCT-16
Network Equipment Building System (NEBS)
SR-3580 NEBS Criteria Levels (Level 3 Compliance)
GR-63-CORE: NEBS, Physical Protection
GR-1089-CORE: EMC and Electrical Safety for Network Telecommunications Equipment
Data Center DC 3160
Immunity
EN 300 386 V1.6.1 Class A Telecom Network Equipment—Immunity requirements
EN 300 386 V2.1.1 Class A Telecom Network Equipment—Immunity requirements
EN 55024 (CISPR 24)
IEC/EN 61000-4-X (-2, -3, -4, -5, -6, -11)
KN35 Korea Immunity
KN61000-4-X (-2, -3, -4, -5, -6, -11) Korea Immunity
TEC/EMI/TEL-001/FEB-09 India Immunity
TEC-SD-DD-EMC-221-05-OCT-16
IG Surge
EN 55035 (CISPR 35:2016) Electromagnetic compatibility of multimedia equipment

Ordering Information

Table 7. Ordering Information

Product Number	Description
Hardware	
ACX7332-BASE [1]	ACX7332 Base Bundle with ACX7332 CHAS, 4 FAN and 2PSU DC or AC
ACX7348-BASE [1]	ACX7348 Base Bundle with ACX7348 CHAS, 4 FAN and 2PSU DC or AC
ACX7300-16Y	ACX7300 16xSFP56 (16x50G/25G/10G/1G) (With MACsec) Line Card
ACX7300-2CD4C	ACX7300 2xQSFP56-DD/ 2xQSP28-DD+ 4xQSFP28 (2x400G/ 2x200G+4x100G) (With MACsec) Line Card
ACX7300-RE	ACX7300 Routing Engine, Intel X86 Base CPU, 64GB DDR4 RAM & 100GB SSD
ACX7300-FRPNL	ACX7300 Front Panel Cover
ACX7300-RAIL	ACX7300 Telescopic Rail
ACX7300-RMK	ACX7300 Rack Mount Kit
Spares	
ACX7332-CHAS	ACX7332 Chassis 3RU, 290mm Depth, 8xQSFP28+ 32xSFP28, Operating Range 0C to 55C, Spare
ACX7348-CHAS	ACX7348 Chassis 3RU, 290mm Depth, 8xQSFP28+ 48xSFP28, Operating Range -40C to 65C, Spare
ACX7300-FAN-AO	ACX7300 Fan, Spare
ACX7300-2K-AC	AC Power Supply, 2000W, Spare
ACX7300-2K-DC	DC Power Supply, 2000W, Spare

[1] Base Bundle includes 1x Chassis, 4x Fan, and 2x PSU (DC or AC)

Common ACX7000 Family Software License

A recurring Cloud Metro theme highlights the many benefits operators experience by designing their brownfield or greenfield IP service fabric around the ACX7000 family portfolio. Benefits include common features and protocols, synchronized software updates, leading-edge performance and sustainability, network as a

sensor (Active Assurance), embedded zero trust security, secure zero-touch provisioning (sZTP), Junos OS Evolved, Juniper Paragon Automation, and more. The application of common software license options across the entire portfolio is another example of operator convenience, flexibility, and simplicity. Refer to the ACX7000 Family of Cloud Metro Routers Datasheet, Table 3. **Common ACX7000 Family Software License** for a complete list of build-as-you-grow software license options.

Optics and Transceivers

The ACX7000 family supports varying port speeds and transceiver options, including direct attach copper (DAC), active optical cable (AOC), and breakout (BO) cable. Detailed information on supported optics can be found at https://apps.juniper.net/home/.

Juniper Networks Service and Support

Juniper Networks is the leader in performance-enabling services that are designed to accelerate, extend, and optimize your high-performance network. Our services allow you to maximize operational efficiency while reducing costs and minimizing risk, achieving a faster time to value for your network. Juniper Networks ensures operational excellence by optimizing the network to maintain required levels of performance, reliability, and availability. For more details, please visit https://www.juniper.net/us/en/products.html.

Ordering Information

Please contact your Juniper sales representative for information on ordering platforms in the ACX7000 Family or visit https://www.juniper.net/us/en/how-to-buy/form.html.

About Juniper Networks

At Juniper Networks, we are dedicated to dramatically simplifying network operations and driving superior experiences for end users. Our solutions deliver industry-leading insight, automation, security, and AI to drive real business results. We believe that powering connections will bring us closer together while empowering us all to solve the world's greatest challenges of well-being, sustainability, and equality.

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