ACX7024 AND ACX7024X CLOUD METRO ROUTERS DATASHEET

Product Overview

Operators are finding opportunities and facing challenges to support new and complex services and applications with 5G, IoT, and cloud—all while keeping experience-first networking in mind. The ACX7000 family platforms can help operators thrive. The ACX7024 and ACX7024X are fixed, 360 Gbps, 1 U (24 cm deep) multiservice routers, powered by Junos OS Evolved and Paragon Automation. They provide 1GbE to 100GbE port flexibility and delivers exceptional TCO, investment protection, and multiservice support for service provider, enterprise, and wholesale use cases. Its compact footprint and precision timing support make the ACX7024 and ACX7024X ideal for 4G/5G mobile network deployments.

Product Description

The Juniper Networks® ACX7000 family of Cloud Metro Routers is designed to help operators achieve their capital, operational, and user experience goals. Part of the Juniper Networks ACX7000 family of routers, the ACX7024 and ACX7024X deliver exceptional TCO, investment protection, and support Juniper® Cloud Metro for 5G, Internet of Things (IoT), and cloud applications. These routers are ideal for service provider, enterprise, and residential use cases requiring a highly flexible, compact, multiservice, and environmentally industrial-rated platform.

ACX7000 Family Overview

ACX7000 family of routers is purpose-built for the IP service fabric underlay of a Juniper Cloud Metro. They leverage the industry's fastest chipset, provide a unique balance of system design, and set new benchmarks for sustainable, high-performance platforms. Managed by Junos® OS Evolved and Juniper Paragon™ Automation Portfolio, the 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 industrial-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 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 ACX7024 and 7024X, 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

ACX7024 and ACX7024X, from the ACX7000 family, are compact, fixed, 1 U (24 cm deep), high-performance multiservice routers. Designed for Cloud Metro deployments in industrial and commercial temperature environments, both routers incorporate 6 integrated fans (5+1 redundancy) for front-to-back airflow. They come with 2x field replaceable AC or DC power supplies (1+1 redundancy). Cost-effective and efficient thermal design enables usage of high-power 100GbE ZR transceivers on all supporting ports. They incorporate precision- timing capabilities, including advanced Class C timing for low- latency 5G services and GPS/GNSS (Global Navigation Satellite System) transceiver for best-in-class network experience. They support next-generation protocols, including segment routing, SRv6, MPLS, and Ethernet VPN (EVPN)–Virtual Extensible LAN (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 ACX7024 and ACX7024X routers share identical features and capabilities while providing operators with key differentiators to fit the exacting needs of each deployment. The ACX7024 is designed to work in less-than-desirable, industrial-temperature applications. The ACX7024X, with its 8C processor and 64MB of RAM, provides high-scale and low-latency capabilities in commercial-temperature applications.

ACX7024: The ACX7024 is an industrial-rated (I-Temp) multiservice router. Next-generation silicon delivers 360 Gbps of throughput, a comprehensive feature set, and the scale needed to support today's and tomorrow's performance and bandwidth requirements. The ACX7024 router's fixed ports include 24 multi-rate (SFP28) ports, each configurable as 1GbE, 10GbE, and 25GbE, enabling operators to perform today's most common upgrades on a port-by-port basis. An additional 4 fixed (QSFP-28) 100GbE uplinks are available to support scale.

ACX7024X: The ACX7024X is a commercial-rated (C-Temp), high-scale multiservice router. Key highlights are next-generation silicon that delivers 360 Gbps of throughput, a comprehensive feature set, a more powerful processor, 4 times the memory for high-scale environments, a higher FIB scale, and faster look-ups. All these features help operators and enterprises meet the needs of high-performance bandwidth requirements today and tomorrow. The ACX7024X router fixed ports include 24 multi-rate (SFP28) ports, each configurable as 1GbE, 10GbE, and 25GbE, enabling operators to perform today's most common upgrades on a port-by-port basis. An additional 4 fixed (QSFP-28) 100GbE uplinks are available to support scale.

Features and Benefits

The cloud metro ready ACX7024 and ACX7024X are engineered for sustainability. They address the challenges of evolving service requirements and relentless traffic growth imposed by 4G/5G, IoT, and cloud applications, turning them into opportunities for operators to thrive.

Table 1: ACX7024 and ACX7024X 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 platforms enabling automated monitoring, diagnosis, remediation, and optimization of service delivery, service performance, and differentiated user experience.
Rugged and Efficient Design	Environmentally industrial-rated (-40 °C to +65 °C), commercial-rated (0° C to 40° C), and compact footprint (1 U, 24 cm deep, 19 in. rack) supports a variety of deployments. Efficient range (<97 W typical*, 150 W max) with front-to-back airflow. NOTE: Typical power consumption measured at 25° C ambient with 50% load on all ports
Build-As-You-Grow Operational Simplicity	Two-post, fixed rack mounting, 24 multi-rate ports support native port-by-port 1GbE, 10GbE, and 25GbE configuration and migration. As service demand grows, ACX7024 routers support usage of high-power 100GbE ZR transceivers on all supporting ports.
Next-Gen Capabilities	Next-gen capabilities include leading protocols such as segment routing, SRv6, MPLS, EVPN-VXLAN, advanced programmability, leading network slicing, telemetry, and support for any overlay, underlay, or service.
Zero-Trust Security	Enhanced security capabilities include secure boot, integrated tamper-proof design, and trust anchor with DevID, enabling device attestation and enhanced security through a unique cryptographic digital identity.
Cloud Metro-Ready	ACX7024 and ACX7024X offer deep buffering for end-to-end service assurance, precision timing capabilities such as Synchronous Ethernet, Precision Time Protocol (PTP), and advanced Class C timing for latency-optimized 5G service experiences, as well as GNSS/GPS (Grand master clock support via external GNSS receiver) network synchronization. An ideal choice for cloud metro, enterprise, and residential use cases, ACX7024 and ACX7024X also support the Juniper Unified PON Solution, IoT, and 4G/5G mobile applications.

Figure 2. Juniper Networks ACX7024—engineered for Metro CSR, CE, small WAN edge access and aggregation/pre-aggregation of a Juniper Cloud Metro

Figure 3. Juniper Networks ACX7024X—engineered for service provider and enterprise WANs, CPE, CE, access, and pre-aggregation of a Juniper Cloud Metro

Table 2. Built-In Interface Options

Model	1GbE/10GbE/25GbE SFP-28	100GbE QSFP-28
ACX7024	24	4
ACX7024X	24	4

Table 3. Maximum Port Capacity Supported Per Port Speed

Native Port Speeds	ACX7024	ACX7024X
100GbE	4	4
40GbE	4	4

Native Port Speeds	ACX7024	ACX7024X
25GbE	24	24
10GbE	24	24
1GbE	24	24

*Exact power consumption is subject to operating conditions and unit-to-unit variations.

Feature Matrix

A key differentiator and operator benefit of the ACX7000 family of Cloud Metro Router is that all platforms in the portfolio share the same feature set with limited hardware-driven exceptions. Refer to the [ACX7000 family of Cloud Metro Routers Datasheet](#) and Table 2 for a list of ACX7000 family features and platform-specific exceptions.

Specifications

This section lists basic specifications for the ACX7024 line of routers. For further detail, please refer to the hardware installation manuals at www.juniper.net/techpubs.

Table 4: Specifications

Specification	ACX7024	ACX7024X
ASIC throughput	360 Gbps	360 Gbps
CPU	Intel 4C	Intel 8C
Memory	RAM: 16GB DDR4	RAM: 64GB DDR4
Chassis type	Fixed	Fixed
Dimensions (W x H x D)	19 x 1.75 x 9.6 in (48.2 x 4.4 x 24.4 cm)	19 x 1.75 x 9.6 in (48.2 x 4.4 x 24.4 cm)
Weight (lb/kg) fully configured	12.5 lb (5.66 kg)	12.5 lb (5.66 kg)
Power (DC)	-48 VDC through -60 VDC	-48 VDC through -60 VDC
Power (AC)	90 VAC to 264 VAC	90 VAC to 264 VAC
Typical power draw (without optics)*	97 W @ 25° C	97 W @ 25° C
Maximum power draw (without optics)*	150 W	150 W
Operating temperature	-40° C to +65° C GR3108-class-2	0° C to 40° C GR-63-CORE
Cooling	6 fans, front-to-back airflow, baffle for side-side	6 fans, front-to-back airflow, baffle for side-side
Humidity	5% to 90% RH (noncondensing) operating	5% to 90% RH (noncondensing) operating
Interfaces	24x 1GbE/10GbE/25GbE SFP28 4x 100GbE QSFP-28	24x 1GbE/10GbE/25GbE SFP28 4x 100GbE QSFP-28
Synchronization interfaces	• 1x RJ-45 port + TOD • 1 PPS/10 MHz input and output • GNSS Antenna (via USB)	• 1x RJ-45 port + TOD • 1 PPS/10 MHz input and output • GNSS Antenna (via USB)

*Exact power consumption is subject to operating conditions and unit-to-unit variations.

	ACX7024	ACX7024X
Safety Approvals		
CAN/CSA-C22.2 No. 60950-1-07, Information Technology Equipment	Yes	Yes
CAN/CSA-C22.2 No. 62368-1-14 Information Technology Equipment	Yes	Yes

	ACX7024	ACX7024X
EN 60825-1 Safety of Laser Products—Part 1: Equipment classification and requirements	Yes	Yes
IEC 60950-1:2005, AMD1:2009, AMD2:2013 Information Technology Equipment	Yes	Yes
IEC 62368-1:2014 (2nd Edition) Audio/Video, Information and Communication Technology Equipment	Yes	Yes
IEC 62368-1:2018 (3rd Edition) Audio/Video, Information and Communication Technology Equipment	Yes	Yes
UL 60950-1:2007 R10.14 Information Technology Equipment	Yes	Yes
UL/CSA 62368-1:2019 (3rd edition) Audio/Video, Information and Communication Technology Equipment	Yes	Yes
EMC		
Australian Communications and Media Authority (ACMA) AS/NZS CISPR 32: 2015 Class A	Yes	Yes
BSMI CNS 13438 and NCC C6357 Taiwan Radiated and Conducted Emissions (at 10 meter)	Yes	Yes
CISPR 22:2008, Class A	Yes	Yes
CISPR 32:2015, Class A	Yes	Yes
Deutsche Telekom EMC specification 1TR9, Edition 03 2016	Yes	Yes
EN 55022:2010, Class A	Yes	Yes
EN 300 386, V1.6.1 (2012-09), Class A	Yes	Yes
EN 55032:2015, Class A	Yes	Yes
EN 300386 V2.1.1 (2016-07), Class A	Yes	Yes
FCC Part 15, Subpart B, for Class A digital devices	Yes	Yes
Innovation, Science and Economic Development Canada ICES 003, dated January 2016 Class A	Yes	Yes
KN32 Korea Radiated Emission Characteristics (at 10 Meter)	Yes	Yes
QCN 118:2018/BTTTT "Information technology equipment-Radio disturbance characteristics -limits and methods of measurement" Class A	Yes	Yes
TEC/SD/DD/EMC/221/05/OCT-16	Yes	Yes
VCCI-CISPR32:2016	Yes	Yes
Network Equipment Building System (NEBS)		
Data Center DC 3160	Yes	Yes
EN 50125-3 Railway application Humidity (in building, shelter with C.C)	Yes	Yes
EN 50125-3 Railway application Vibration (outside track)	Yes	Yes
ETSI 300 019 -2-1 Class 1.2 Storage	Yes	Yes
ETSI 300 019 -2-2 Class 2.3 Transportation	Yes	Yes
ETSI 300 019 -2-3 Class 3.2 Operational	Yes	Yes
GR-63-CORE: NEBS, Physical Protection	Yes	Yes
GR-1089-CORE: EMC and Electrical Safety for Network Telecommunications Equipment	Yes	Yes
GR 3108 Class 2 environment (environmentally sealed cabinet)	Yes	No
IEC 61850- 3 Power utility (environmental)	Yes	Yes
IEE 1613 Power station (DC input minus 48VDC meets dielectric strength)	Yes	Yes
IEEE 1613 Power station (exception – forced air cooling and boot up time)	Yes	Yes
SR-3580 NEBS Criteria Levels (Level 3 Compliance)	Yes	Yes
Immunity		
CISPR 24:2010	Yes	Yes
CISPR 35:2016	Yes	Yes
Deutsche Telekom EMC specification 1TR9, Edition 03 2016	Yes	Yes
EN 55024:2010	Yes	Yes
EN 300 386, V1.6.1 (2012-09)	Yes	Yes

	ACX7024	ACX7024X
EN 300386 V2.1.1 (2016-07)	Yes	Yes
Energy Utilities (Power utility/Substations): IEEE1613, IEEE 1613.1and IEC 61850-3 with IEC 61000-6-5	Yes	Yes
ECR 3.0.1	Yes	Yes
KN35 Korea Radiated Immunity Characteristics	Yes	Yes
Railroad Utilities: EN50121-4	Yes	Yes
TCVN 7317:2003	Yes	Yes
TEC/SD/DD/EMC/221/05/OCT-16	Yes	Yes
Energy Efficiency		
AT&T TEER (ATIS-06000015.03.2013)	Yes	Yes
Verizon TEEER (VZ.TPR.9205 Issue 6)	Yes	Yes
ETSI ES 203 136 (2013-05)	Yes	Yes
ECR 3.0.1	Yes	Yes

Ordering Information

Product	Description
Hardware	
ACX7024-DC-1PSU	ACX7024, 1 U high, 240 mm deep; 24xSFP28 and 4xQSFP28; operating range -40 C to 65 C; DC non-redundant power supply unit
ACX7024-DC-2PSU	ACX7024, 1 U high, 240 mm deep; 24xSFP28 and 4xQSFP28; operating range -40 C to 65 C; DC redundant power supply unit
ACX7024-AC-1PSU	ACX7024, 1 U high, 240 mm deep; 24xSFP28 and 4xQSFP28; operating range -40 C to 65 C; AC non-redundant power supply unit
ACX7024-AC-2PSU	ACX7024, 1 U high, 240 mm deep; 24xSFP28 and 4xQSFP28; operating range -40 C to 65 C; AC redundant power supply unit
ACX7024X-AC-2PSU	ACX7024X, 1 U high, 240 mm deep, 24xSFP28 and 4xQSFP28, operating range 0 C to 40 C; AC dual power supply unit
ACX7024X-DC-2PSU	ACX7024X, 1 U high, 240 mm deep, 24xSFP28 and 4xQSFP28, operating range 0 C to 40 C; DC dual power supply unit

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 Table 3 in the [ACX7000 family of Cloud Metro Routers Datasheet](#) for a complete list of build-as-you-grow software license options.

Optics and Transceivers

The ACX7000 family supports varying port speeds with different transceiver options of direct attach copper (DAC), active optical cable (AOC), and breakout cable (BO). The most recent 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.

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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