AX8600R Series

1. Overview

The ALAXALA next-generation terabit router AX8600R Series has the following two models:

AX8616R (common chassis for AC and DC)

AX8632R (common chassis for AC and DC)

1.1 Product concept

The AX8600R Series are high-end routers that are 100 Gigabit Ethernet compatible and provide stable, cost-efficient operations over a long period with diverse expandability and scalability, unique power saving functionality, and efficient management functionality to achieve an advanced, high-speed, high-capacity network infrastructure.

1. High performance

    Bandwidth shortage has become a serious issue among networks of common carriers that have intensive Internet traffic. The AX8600R, with its concentration of the latest technology, eliminates band bottlenecks by using a 100 Gigabit Ethernet line and provides a next-generation experience with its stress-free network environment.

2. Efficient investment

    The need to optimize investment by expanding only the required amount of resources at the required time is rapidly increasing, even in the network world. The AX8600R offers an efficient migration plan for upgrading bandwidth from 1 Gigabit to 10 Gigabits and from 10 Gigabits to 100 Gigabits.
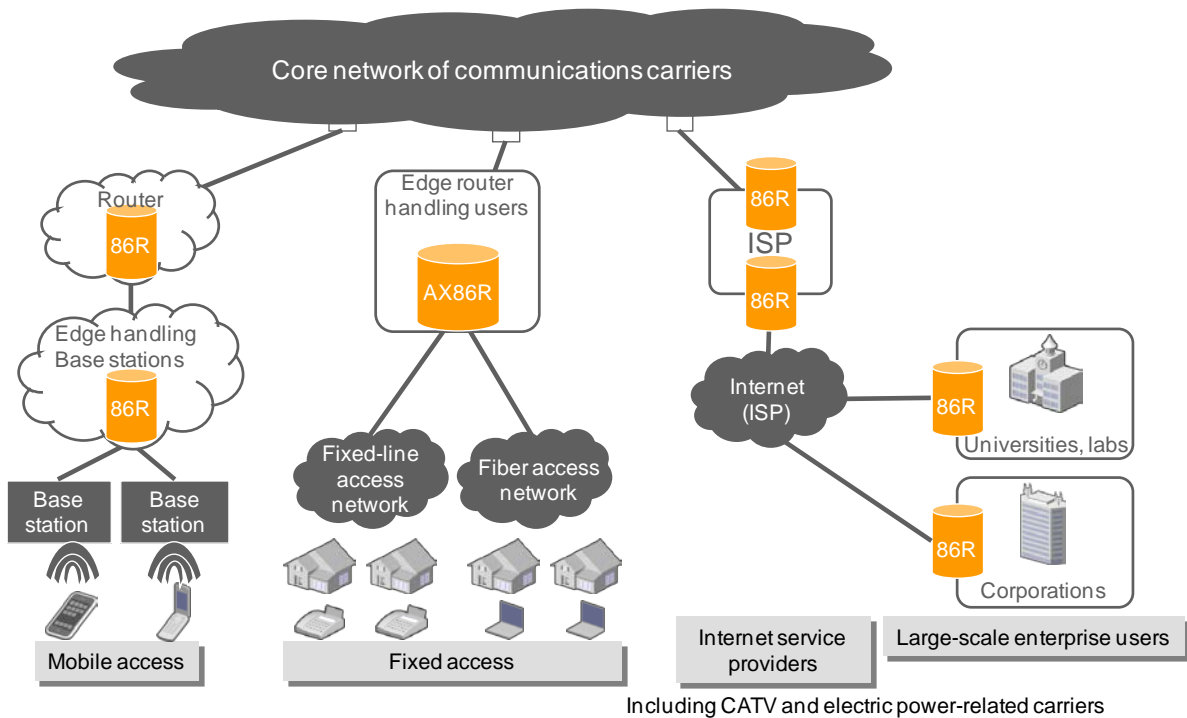
3. Flexibility to keep up with changes

    Common carriers are constantly looking for precisely appropriate responses to ever-changing environments. A hybrid engine architecture, which enables a flexible response to new services and protocols in the future not only improves convenience but also contributes to lengthening the operating lifecycle of common carriers.

1.2 Usage examples

The AX8600R Series is a high-end router with 100 Gigabit Ethernet support. This device is the successor to the AX7800R, which has seen widespread use especially by carriers and ISPs. The AX8600R Series provides an advanced network infrastructure that solves various issues of backbone networks and can be used stably for a long period of time.

Example of use in a communication carrier network:

Core network of communications carriers

Router
86R

Edge router
handling users

86R
ISP
86R

Edge handling
Base stations
86R

AX86R

Internet
(ISP)

86R
Universities, labs

Base
station

Base
station

Fixed-line
access
network

Fiber access
network

86R
Corporations

Mobile access

Fixed access

Internet service
providers

Large-scale enterprise users

Including CATV and electric power-related carriers

Usage example		Feature
Carrier, ISP	Edge router handling users	- Uses a micro line card structure for highly-efficient handling of low-speed and high-speed lines. - Hybrid engine architecture can support new services and protocols. - High reliability of mission-critical support - Advanced network management, maintenance, and operation functions
	External connection router	- High performance architecture with 100 Gigabit Ethernet support - Stable and scalable routing - High reliability of mission-critical support - Top-class network management, maintenance, and operation functions
Large-scale enterprise	External connection router	- High-speed transfer with 100 Gigabit Ethernet support - Power saving functionality - High reliability of mission-critical support - Top-class network management, maintenance, and operation functions

2. Features

2.1 AX8600R Series features

(1) High-performance architecture
- 100 Gigabit Ethernet support
- Employs a distributed engine system and switching fabric system ideal for increasingly-large capacity.

(2) Compact design and high density
- Front intake and rear exhaust airflow
  - Employs an airflow system with a front intake and rear exhaust in a compact chassis.
  - Contributes to greater space efficiency and cooling efficiency of the facility and server room.
- Efficient handling of low-speed and high-speed lines
  - Employs a micro line card structure that efficiently consolidates and handles different interfaces, including 1 Gigabit Ethernet used in existing facilities and 10 Gigabit Ethernet used for future expansion and increased capacity.
  - Because the Device can be expanded with network interface cards of 1/4 slot size (single half size), power usage of idle ports can be reduced and capital investment efficiency can be increased even for gradual increases in capacity.

(3) High reliability for configuring mission-critical networks
- High product quality
  - High reliability assured through exacting component selection and strict design and testing standards
  - Stable routing processing based on software used successfully by communication carriers and ISPs
- FT architecture for high reliability as a stand-alone device
  Configuration of a fault-tolerant network (FTN) through the redundancy of internal device power, CPU parts, and packet forwarding parts
- Variety of redundant network configurations
  - Fast Reroute
  Link aggregation (IEEE compliance), hot standby (VRRP), static polling (Note 1), and other functionality
  - Load balancing
  Equal traffic balancing at the IP level based on OSPF equal-cost multipath routing
- Comes with functionality to prevent software high load.
  - Protects software from a DoS attack and other issues due to the rate limit or priority control of packets processed with software and achieves stable operations of routing processing.

(Note 1): Monitoring functionality that polls a node on a specified path to check its reachability, and dynamically selects a new route in conjunction with static routing

(4) Guaranteed communication quality by using powerful hardware-based QoS functionality
- High-performance hardware-based QoS processing
- Precise QoS control by specification of detailed parameters (L2, L3, and L4 headers)
- Wide range of QoS control functionality
  - IP-QoS (Diff-Serv, bandwidth control, priority control, drop control, etc.)

(5) Proven routing functionality
- Stable and sophisticated routing
  - Inheritance of proven routing software
  - A variety of routing protocols enable a diverse, flexible, and highly-reliable network (compatible with static, RIP, RIPng, OSPF, OSPFv3, BGP4, BGP4+, PIM-SM/SSM, IGMP, MLD, VRF, etc.)
- Scalable routing functionality
  - Full route support with IPv4/IPv6 dual stack
  - High-speed routing processing that supports large-scale networks
  - Multiple routing sessions are also supported by VRF, etc.

(6) Robust security
- Advanced and fine-grained packet filtering
  - Hardware-based high-performance filtering processes
  - L2, L3, and L4 headers can be specified as filtering conditions.
- uRPF support
  - Supports uRPF for detecting and dropping invalid senders by using a routing table.
- Device user account control
  - RADIUS or TACACS+-based switch login and password authentication
  - Executable commands can be limited for each user

(7) Advanced network management, maintenance, and operation
- Offers IPv4/v6 Dual Stack and full network management functionality for IPv6 environments, including SNMP over IPv6.
- In addition to the basic MIB-II, supports a wide range of MIBs including IPv6 MIB and RMON.
- Supports mirror-port functionality to monitor and analyze traffic (through both receiving and sending ports).
- Capable of analyzing traffic characteristics using sFlow and the sFlow-MIB.
- Online maintenance
  - Command-free expansion and exchange of boards, power supplies, and fans. Non-stop software upgrades are also supported.
- The Ethernet ports, console port, and the memory card slot are all on the front panel.
- Employs a system operation panel.
  - Various types of information can be displayed and operation instructions can be performed without using a console terminal.
- Supports the Ethernet Connectivity Fault Management (CFM) functionality and Link Layer Discovery Protocol (LLDP) for network maintenance and management.
- Advanced configuration management
  - Supports full configuration management functionalities, including template functionality, merge functionality, rollback functionality, and commit application mode.

(8) Power saving
- Low power consumption-oriented architecture design and part selection.
  - This helps to reduce the total cost of ownership (TCO) after installation.
- Visualization of power consumption information
  - Power consumption is displayed with an operation command.

3. Specifications

3.1 Device specifications of the AX8600R Series

Specifications						
Model name			AX8616R		AX8632R	
Performance	Maximum switching capacity		3.2 Tbit/s		6.4 Tbit/s	
	Maximum packet processing performance		480 Mpackets/s		960 Mpackets/s	
	PRU slot transfer performance (full duplex)		120 Gbit/s		120 Gbit/s	
Number of slots	BCU		2		2	
	SFU		4		4	
	PRU		4		8	
	NIF (Note 1)	Single full size	8		16	
		Single half size	16		32	
Port count	100GBASE-R (CFP)		8		16	
	10GBASE-R (SFP+)		96		192	
	1000BASE-X (SFP)		192		384	
	10/100/1000BASE-T		192		384	
Redundancy			BCU, SFU, power supply unit		BCU, SFU, power supply unit	
Airflow			Front intake, rear exhaust		Front intake, rear exhaust	
Power supply requirements			AC power	DC power	AC power	DC power
	Voltage	Rated input voltage (V)	100 to 120 AC/ 200 to 240 AC	-48 DC	100 to 120 AC/ 200 to 240 AC	-48 DC
		Variation range (V)	90 to 132 AC/ 180 to 264 AC	-40.5 to -57 DC	90 to 132 AC/ 180 to 264 AC	-40.5 to -57 DC
	Frequency (Hz)		50/60 ± 3	--	50/60 ± 3	--
	Maximum input current (per power supply unit) (A)		15 x 1 system @ 100 V AC 16 x 1 system @ 200 V AC	44 x 2 systems @ -40.5 V DC 37 x 2 systems @ -48 V DC	15 x 1 system @ 100 V AC 16 x 1 system @ 200 V AC	44 x 2 systems @ -40.5 V DC 37 x 2 systems @ -48 V DC
	Maximum power consumption (W)		5160	5340	9290	9620
Maximum calorific power (kJ/h)			18576	19224	33444	34632
Equipment requirements	External dimensions W x D x H (mm) (height [U]) (Note 2)		443 x 734 x 426 (10U)	443 x 763 x 426 (10U)	443 x 734 x 709 (16U)	443 x 763 x 709 (16U)
	Weight (kg) (with full installation)		135		220	
Environmental requirements	Temperature	Acceptable operating range	0°C to 40°C (recommended value: 23°C to 28°C)			
		When not operating (not energized)	-10°C to 43°C			
		During storage and transportation	-25°C to 65°C			
	Relative humidity	Acceptable operating range	5% to 85% (non-condensing) (recommended value: 45% to 55%)			
		When not operating (not energized)	5% to 85% (non-condensing)			
		During storage and transportation	5% to 95% (non-condensing)			
	Suspended particulates		Suspended particles smaller than approx. 10 microns: No more than 0.15mg/m^3			
	Vibration (m/s^2)		No more than 2.45			
Applicable standards	EMI standard		VCCI Class A			
	Harmonic current emission standard		JIS C61000-3-2			
	EMS standard		JEITA IT-3001A			
	Safety standard		UL60950-1 compliant			

(Note 1):   The number of slots is the value when the same size NIF is installed in each slot.

(Note 2): The width dimension does not include the dimensions of the rack mounting brackets. The depth dimension includes the dimensions of the device, fan handle, and power supply input projections. The height dimension does not include the dimensions of the rubber feet.

3.2 Functionality of the AX8600R Series

Category	Functionality			Relevant standards	Remarks
Network interface	Ethernet	10BASE-T/100BASE-TX/1000BASE-T		IEEE Std 802.3 2008 Edition	
		10BASE-T/100BASE-TX/1000BASE-T (SFP)		IEEE Std 802.3 2008 Edition	
		1000BASE-SX/LX/LH/BX/BX40/SX2 (SFP)		IEEE Std 802.3 2008 Edition	
		10GBASE-SR/LR/ER (SFP+)		IEEE Std 802.3 2008 Edition	
		100GBASE-LR4 (CFP)		IEEE Std 802.3ba 2010	
	Ethernet functionality	Automatic recognition of cross cable and straight cable		--	
		Jumbo frame		--	
		Flow control		IEEE Std 802.3x-1997	
		link debounce		--	
Layer 2 functionality	Link aggregation			IEEE 802.1AX	
		LACP		IEEE 802.1AX	
		Port detachment restriction functionality	LACP	--	
		Standby link	Static (link-down mode)	--	
			Static (link-not-down mode)	--	
		Mixed-speed mode (line speed transition)		--	
		Allocation mode	Information within frame	--	
			Output VLAN Tag	--	
		Switch back suppression	LACP	--	
	CFM (Connectivity Fault Management) (Ether OAM)			IEEE 802.1ag-2007 ITU-T Y.1731	
Layer 3 functionality	Router port	Physical port		--	
			Subinterface	IEEE 802.1Q	
		Link aggregation		--	
			Subinterface	IEEE 802.1Q	
	IP interface	Router port		--	
		Management port		--	
		Loopback	One interface per VRF	--	
		AUX		--	
		NULL		--	
	IPv4 unicast	IP, ARP, ICMP, TCP, UDP		RFC 768, RFC 791, RFC 792, RFC 793, RFC 813, RFC 826, RFC 896, RFC 922, RFC 950, RFC 1027, RFC 1122, RFC 1191, RFC 1323, RFC 1519, RFC 1812, RFC 2018, RFC 2474, RFC 2644, RFC 2883, RFC 3168, RFC 3782, RFC 4632, RFC 5227, RFC 5494, RFC 5681, RFC 5927, RFC 6056	
		Static routing		--	
		RIP, RIP2		RFC 1058, RFC 1519, RFC 2453, RFC 4822	
		OSPF		RFC 1519, RFC 2328, RFC 3101, RFC 3137, RFC 3623, RFC 5250, RFC 5309	
		BGP4	EBGP, IBGP peering	RFC 1519, RFC 2385, RFC 2918, RFC 4271, RFC 4724, RFC 5004, RFC 5492	
			Community	RFC 1997	
			Route reflection	RFC 4456	
			Confederation	RFC 5065	
			Route flap dampening	RFC 2439	
			BGP Maximum Prefix	--	
		Multipath		--	
		Fast Reroute		--	

Category	Functionality			Relevant standards	Remarks
	IPv4 multicast	IGMP	IGMP ver1, ver2, ver3	RFC 2236, RFC 3376	
			Group membership (Static)	--	
		PIM	PIM-SM	RFC 2362 (Note 1), RFC 4601, RFC 5059 (Note 2)	(Note 3)
			PIM-SSM	RFC 4601, RFC 4604, RFC 4607, RFC 4608	
	IPv6 unicast	IPv6, ICMPv6, NDP, TCP, UDP		RFC 768, RFC 793, RFC 813, RFC 896, RFC 1323, RFC 1981, RFC 2018, RFC 2460, RFC 2474, RFC 2710, RFC 2883, RFC 3168, RFC 3587, RFC 3782, RFC 3879, RFC 4291, RFC 4311, RFC 4443, RFC 4861, RFC 4862, RFC 5095, RFC 5681, RFC 5722, RFC 5927, RFC 5942, RFC 5952, RFC 6056, RFC 6085	
		Static routing		--	
		RIPng		RFC 2080	
		OSPFv3		RFC 3137, RFC 5187, RFC 5309, RFC 5340, draft-kompella-ospf-oqaquev2-00	
		BGP4+	EBGP, IBGP peering	RFC 2385, RFC 2545, RFC 2918, RFC 4271, RFC 4724, RFC 4760, RFC 5004, RFC 5492	
			Community	RFC 1997	
			Route reflection	RFC 4456	
			Confederation	RFC 5065	
			Route flap dampening	RFC 2439	
			BGP Maximum Prefix	--	
		Fast Reroute		--	
		RA		RFC 4862	
	IPv6 multicast	MLD	MLD ver1, 2	RFC 2710, RFC 3590, RFC 3810	
			Static	--	
		PIM	PIM-SM	RFC 2362 (Note 1), RFC 4601, RFC 5059 (Note 2)	(Note 3)
			PIM-SSM	RFC 4601, RFC 4604, RFC 4607	
	DHCP	DHCP and BOOTP relay agent		RFC 1542, RFC 2131	
		DHCPv6 relay agent		RFC 3315, RFC 3633	
	Graceful restart	OSPF, OSPFv3		RFC 3623, RFC 5187, RFC 5250, draft-kompella-ospf-opaquev2-00	
		BGP4, BGP4+		RFC 4724	
	Multipath (load balancing)	IPv4, IPv6		--	
	Policy-based routing	IPv4, IPv6		--	
	uRPF	IPv4, IPv6		RFC 3704	
Filters and QoS functionality	Flow detection	Layer 2 condition		--	
		Layer 3 condition		--	
		Layer 4 condition		--	
	Filtering			--	
	QoS / Diff-Serv	Contract bandwidth monitoring	Policer	RFC 2697, RFC 2698	
		Marker	User priority marking	IEEE 802.1D	
			DSCP marking	RFC 2474, RFC 2475, RFC 2597, RFC 3246, RFC 3260	
		Priority control	Output priority control	RFC 2597, RFC 3246, RFC 3260	
			DSCP mapping	--	
		Drop control	Tail drop	--	

Category	Functionality			Relevant standards	Remarks
		Port shaper	Scheduling: PQ	--	
			Scheduling: RR	--	
			Scheduling: 4PQ+4WFQ	--	
			Scheduling: 2PQ+4WFQ+2BEQ	--	
			Scheduling: 4WFQ+4BEQ	--	
			Port bandwidth control	--	
			Specification of the number of queues	--	
		Priority control for packets generated by the device		--	
		Priority control for packets addressed to the device		--	
		Bandwidth adjustment for packets addressed to the device		--	
Mirroring functionality	Port mirroring			--	
Network functionality	VRF			--	
Reliability	Redundant configuration	BCU		--	
		SFU		--	
		Link aggregation across PRUs		--	
		Link aggregation across NIFs		--	
		Power supply	Redundant power supply units	--	
			Redundant power feeds	--	
	Hot standby	VRRP(IPv4)		RFC 3768, RFC 5798 draft-ietf-vrrp-unified-spec-02.txt	
			VRF supported		
			Group switching functionality		
		VRRP(IPv6)		draft-ietf-vrrp-ipv6-spec-02.txt draft-ietf-vrrp-ipv6-spec-07.txt draft-ietf-vrrp-unified-spec-02.txt RFC 5798	
			VRF supported		
			Group switching functionality		
Network management	SNMP	SNMPv1, v2c, v3 (IPv4, IPv6)		RFC 1155, RFC 1157, RFC 1901, RFC 1902, RFC 1903, RFC 1904, RFC 1905, RFC 1906, RFC 1907, RFC 1908, RFC 2578, RFC 2579, RFC 2580, RFC 3410, RFC 3411, RFC 3412, RFC 3413, RFC 3414, RFC 3415, RFC 3416, RFC 3417, RFC 3584	
	MIB	Standard MIB		IEEE 8023-LAG-MIB RFC 1158, RFC 1213, RFC 1215, RFC 1354, RFC 1643, RFC 1657, RFC 2452, RFC 2454, RFC 2465, RFC 2466, RFC 2787, RFC 2819, RFC 2863, RFC 2934, RFC 3411, RFC 3412, RFC 3413, RFC 3414, RFC 3415, RFC 3418, RFC 3635, RFC 4022, RFC 4113, RFC 4293, RFC 4750, RFC 5643, draft-ietf-vrrp-unified-mib-04	
		Private MIB		--	
	LLDP			IEEE 802.1AB/D6.0 IEEE Std 802.1AB-2009	
	Network management device	Management by JP1/Cm2 (OpenView-based)		--	
		NEC WebSAM Netvisor		--	
	Flow statistics	sFlow		RFC 3176	
		Flow statistics of filters and QoS		--	
Operation and maintenance	Operation and maintenance port	Serial (console)		--	
		Communication port (NIF)		--	
		Serial (AUX)		--	
		Management port (IPv4)		--	
		Management port (IPv6)		--	

Category	Functionality			Relevant standards	Remarks
	Operation security	Login authentication	User name, password	--	
			Host address	--	
			RADIUS or TACACS+	RFC 2865, RFC 2866, RFC 3162 draft-grant-tacacs-02-txt	
		SSH (Ver1, Ver2)	IPv4	RFC 4251, RFC 4252, RFC 4253, RFC 4254 draft-ietf-secsh-dh-group-exchange-02.txt draft-ietf-secsh-publickeyfile-03.txt draft-ylonen-ssh-protocol-00.txt	
			IPv6	RFC 4251, RFC 4252, RFC 4253, RFC 4254 draft-ietf-secsh-dh-group-exchange-02.txt draft-ietf-secsh-publickeyfile-03.txt draft-ylonen-ssh-protocol-00.txt	
	Configuration	CLI		--	
		Merge		--	
		Rollback		--	
		Commit		--	
		Template		--	
	Collection of management information	Display of device/interface status		--	
		Operation messages and logs		--	
	Display of system status	SOP (System Operation Panel)		--	
		Status LED (each board)		--	
		Lamp test functionality		--	
	Communication check	ping (IPv4, IPv6)		--	
		traceroute (IPv4, IPv6)		--	
	Collection of logging and failure information	syslog		RFC 3164, RFC 5424	
		e-mail		--	
	Adding or removing modules while online	Each board, power supply, fan		--	(Note 4) (Note 5)
	Non-stop software upgrade			--	
	Power saving functionality	Display of power consumption information		--	
	Network utility	Telnet		RFC 854, RFC 855	
		FTP, TFTP		RFC 959	
		DNS Resolver		RFC 1034, RFC 1035	
	Time management	NTP	NTP (IPv4)	RFC 1305	
			SNTP (IPv4, IPv6)	RFC 5905	
		Summer time supported		--	

(Note 1): Only the bootstrap router, Oif-Deletion-Delay and Probe-Time of the timer value conform to this standard.

(Note 2): Only the sections related to generation IDs of the PIM hello option and fragmentation of bootstrap messages conform to this standard.

(Note 3): Forwarding between VRFs (extranet) is not supported.

(Note 4): Stop the device before adding or removing a BCU (active).

(Note 5): Execute the `inactivate` command before adding or removing a BCU (standby), SFU, PRU, or NIF.

4. Ordering Information

No.	Model name	Abbreviated name	Basic specifications
Network interconnected devices		

1	AX-8600-R16X	AX8616R	Chassis for AX8616R
			Includes the following products:
			  - Fan unit for AX8616R (FAN-21) x 3, Fan unit for AX8616R/AX8632R (FAN-22) x 3
			  - Blank panel for PS of AX8600R (BPNL-PS21) x 3, Blank panel for BCU of AX8600R (BPNL-BU21) x 1
			  - Blank panel for SFU of AX8616R (BPNL-FU21) x 3, Blank panel for PRU of AX8600R (BPNL-PU21) (Note 1) x 4

2	AX-8600-R32X	AX8632R	Chassis for AX8632R
			Includes the following products:
			  - Fan unit for AX8616R/AX8632R (FAN-22) x 9
			  - Blank panel for PS of AX8600R (BPNL-PS21) x 5, Blank panel for BCU of AX8600R (BPNL-BU21) x 1
			  - Blank panel for SFU of AX8632R (BPNL-FU22) x 3, Blank panel for PRU of AX8600R (BPNL-PU21) (Note 1) x 8

	Basic control unit		
1	AX-F8600-31RX	BCU-1R	Basic control unit for AX8600R (fixed 16 GB memory)
	Switch fabric unit		
1	AX-F8600-4M1X	SFU-M1	Switching fabric part for AX8616R
2	AX-F8600-4L1X	SFU-L1	Switching fabric part for AX8632R
	Power supply unit/Power input unit		
1	AX-F8600-1A1X	PS-A21	AC power supply (100 V AC/200 V AC) for AX8600R, without cable attachment
2	AX-F8600-1D1X	PS-D21	DC power supply (-48 V DC) for AX8600R, without cable attachment
3	AX-F8600-2A1X	PSIN-A21	AC power supply input, 100 V AC/200 V AC, for PSINPUT slots 1, 3, and 5
4	AX-F8600-2A2X	PSIN-A22	AC power supply input, 100 V AC/200 V AC, for PSINPUT slots 2, 4, and 6
5	AX-F8600-2D1X	PSIN-D21	DC power supply input, -48 V DC, for PSINPUT slots 1, 3, and 5
6	AX-F8600-2D2X	PSIN-D22	DC power supply input, -48 V DC, for PSINPUT slots 2, 4, and 6
	Common options		
1	AX-F0110-SD8GX	SD8G	8 GB SD Memory card
2	AX-F8600-BCSPT2X	CBLSPT-22	Cable support for AX8616R
3	AX-F8600-BCSPT3X	CBLSPT-23	Cable support for AX8632R
	Packet routing unit		
1	AX-F8600-51AX	PRU-1A	Packet routing processor 1A, router functionality (full route) (Note 2)
	Network interface board		
1	AX-F8600-711TX	NL1G-12T	10BASE-T/100BASE-TX/1000BASE-T x 12 ports, single half size, RJ-45 interface
2	AX-F8600-711SX	NL1G-12S	1000BASE-X (SFP) x 12 ports, single half size, separate SFP required
3	AX-F8600-721SX	NLXG-6RS	10GBASE-R (SFP+) x 6 ports, single half size, separate SFP required
4	AX-F8600-751CX	NMCG-1C	100GBASE-R (CFP) x 1 port, single full size, separate CFP required
	Optical transceiver		
1	AX-F6244-3S1TX	SFP-T	10BASE-T/100BASE-TX/1000BASE-T SFP (UTP: 100 m)
2	AX-F6244-3S1SX	SFP-SX	1000BASE-SX SFP (MMF (LC 2-core): 2 to 550 m)
3	AX-F6244-3S1S2X	SFP-SX2	1000BASE-SX2 SFP multi-mode optical fiber (MMF: 2 m to 2 km)
4	AX-F6244-3S1LX	SFP-LX	1000BASE-LX SFP (MMF (LC 2-core): 2 to 550 m) (SMF: 2 m to 5 km)
5	AX-F6244-3SB1UX	SFP-BX1U	1000BASE-BX10-U SFP single-core bidirectional single-terminal mode optical fiber (upstream) (SMF: 0.5 m to 10 km)
6	AX-F6244-3SB1DX	SFP-BX1D	1000BASE-BX10-D SFP single-core bidirectional single-terminal mode optical fiber (downstream) (SMF: 0.5 m to 10 km)
7	AX-F6244-3SB4UX	SFP-BX4U	1000BASE-BX40-U SFP single-core bidirectional single-terminal mode optical fiber (upstream) (SMF: 0.5 m to 40km)
8	AX-F6244-3SB4DX	SFP-BX4D	1000BASE-BX40-D SFP single-core bidirectional single-terminal mode optical fiber (downstream) (SMF: 0.5 m to 40km)
9	AX-F6244-3S1LHX	SFP-LH	1000BASE-LH SFP (SMF: 2 m to 70 km)
10	AX-F0110-3P1SX	SFPP-SR	10GBASE-SR SFP+ (MMF (LC 2-core): 2 to 300 m)

No.	Model name	Abbreviated name	Basic specifications
11	AX-F0110-3P1LX	SFPP-LR	10GBASE-LR SFP+ (SMF: 2 m to 10 km)
12	AX-F0110-3P1EX	SFPP-ER	10GBASE-ER SFP+ (SMF: 2 m to 40 km)
13	AX-F0110-3C1LX	CFP-LR4	100GBASE-LR4 CFP (SMF: 2 m to 10 km)
	Components for maintenance and configuration changes		
1	AX-F8600-BFAN1X	FAN-21	Fan unit for AX8616R
2	AX-F8600-BFAN2X	FAN-22	Fan unit for AX8616R/AX8632R
3	AX-F8600-BPS1X	BPNL-PS21	Blank panel for AX8600R PS, required for open slot
4	AX-F8600-BBU1X	BPNL-BU21	Blank panel for AX8600R BCU, required for open slot
5	AX-F8600-BFU1X	BPNL-FU21	Blank panel for AX8600R SFU, required for open slot
6	AX-F8600-BFU2X	BPNL-FU22	Blank panel for AX8632R SFU, required for open slot
7	AX-F8600-BPU1X	BPNL-PU21	Blank panel for AX8600R PRU, required for open slot (Note 1)
8	AX-F8600-BNF1X	BPNL-NF21	Blank panel for AX8600R NIF, required for open slot (single half size)
	Software		
1	AX-P8600-R1X	OS-R	Basic software for AX8600R - SSH not supported
2	AX-P8600-R2X	OS-RE	Basic software for AX8600R - SSH supported

(Note 1): The blank panel for PRU (BPNL-PU21) includes three blank panels for NIF (BPNL-NF21) (single half size).

(Note 2): When arranging the packet routing unit by replacing with a blank panel (BPNL-PU21), we recommend that it be arranged together with one or more network interface boards.

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AlaxalA

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