



RAX721-C-6C48

With the constantly rising of user bandwidth, operators also put forward higher demands for the port bandwidth and performance of aggregator.

Raisecom RAX721-C series are next-generation carrier-class pre-aggregation and aggregation products that provide high performance, high reliability and high densities 1GE, 10GE, 25GE, 40GE and 100GE port types in a compact standard 1U enclosure, flexibly adapting to diversified operator's network bandwidth requirements. They support rich Layer 2 and Layer 3 features, with advanced QoS features, customers' services at different levels can be flexibly and finely scheduled, and support various VPN services over MPLS-TP, IP/MPLS, SR-MPLS and SRv6 networks, to implement services isolation through network virtualization, greatly improved network capacity and utilization, and help customers build a powerful next-generation packet transport network.



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Highlights >>

Power Reliability	<p>The device has a short-circuit proof mechanism to prevent accidental contact with voltage-carrying parts when the device is under maintenance. (It is recommended to turn off the power during maintenance, or wear an anti-static wristband)</p> <p>Dual hot-swappable DC or AC power supplies with voltage/temperature monitoring</p> <p>Support to prevent accidental polarity reversal on the input to protect the device from damage</p>
Flexible Service Delivery	<p>Standard CE2.0 service (E-Line, E-LAN, E-Tree, E-Access) delivery</p> <p>VPWS, VPLS, H-VPLS, MS-PW, L3VPN, 6PE/6VPE over MPLS</p> <p>EVPN over SR-MPLS and SRv6</p> <p>Flexible traffic classification guarantees customer-defined service SLA</p>
Multicast	<p>Full set of multicast routing and control protocols implemented for flexible multiple service access and aggregation</p>
Committed Network Resiliency	<p>Protection mechanism including STP/RSTP/MSTP, switchport backup, IEEE802.1ax Link Aggregation, MC-LAG, ITU-T G.8032 ERPS, Static/dynamic IP FRR, TE/LDP/VPN/EVPN* FRR, VRRP, MPLS PW redundancy, MPLS TE hot-standby* guarantee network resiliency in chain, star, mesh, dual-homing and ring topologies</p>
OAM & Hardware-based SLA	<p>Hardware-based IEEE802.1ag/ITU-T Y.1731 end-to-end CFM (CCM interval 3.3ms), hardware-based ITU-T Y.1731 end-to-end SLA performance monitoring with test result showing on user-friendly GUI</p> <p>BFD helps customer achieve fast fault detection for dynamic IP services and MPLS services</p>
IPv4/v6 Dual-Stack	<p>IPv6 for management and services</p> <p>6PE/6vPE support helps customers plan their future network evolution</p>

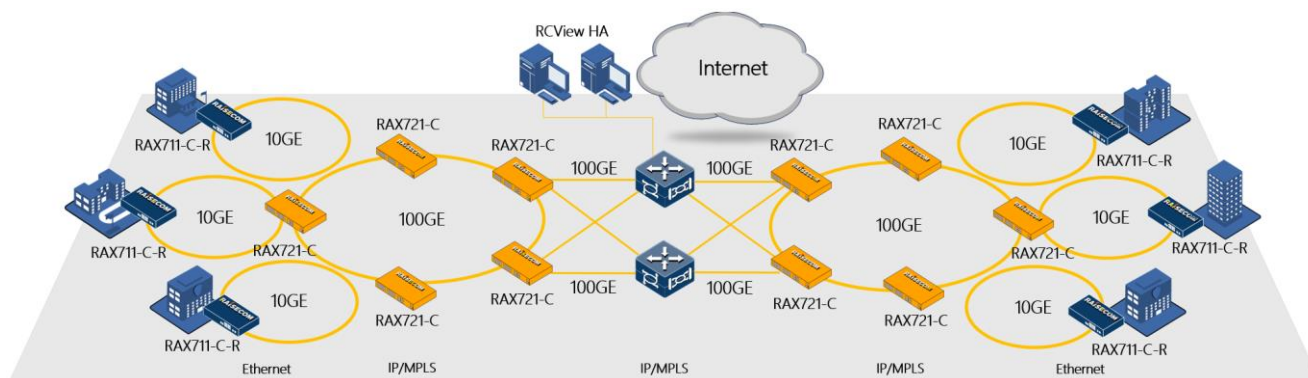


* Features that will be available in future release

Application >>

Metro Ethernet Pre-aggregation and Aggregation

RAX721-C series working with Raisecom intelligent CPE RAX711 series can deliver high-capacity 1GE/10GE/40GE/100GE diversified metro ethernet pre-aggregation and aggregation. support complete standard CE2.0 E-Line, E-LAN, E-Tree and E-Access services, as well as VPWS, VPLS, H-VPLS, MS-PW, and BGP L3VPN services over MPLS, 6PE, 6VPE over MPLS, EVPN over SR MPLS and EVPN over SRv6 as a PE device. The service delivery can be very flexible and reliable. ZTP and hardware-based CFM and SLA offer service providers an easier way to deploy and manage either devices or services. Various fault detection and protection mechanisms guarantee high availability and stability of services. The whole solution is simply and completely managed on brand new B/S structured RCView system.



Key Features >>

Ethernet Service

- MAC addresses
- Jumbo frame up to 12288 Bytes
- 4,094 VLANs, IEEE802.1Q, IEEE802.1P, IEEE802.1ad QinQ
- Layer 2 control protocol (L2CP) handling
- MAC address limit function
- Super VLANs
- Private VLAN (PVLAN) with primary, community and isolated type

IP Service

- support IPv4/IPv6 Dual Stack
- IP static routes ,multicast static routes
- RIP、RIPng, OSPF、OSPFv3, ISIS、ISISv6 and BGP,BGP+,support BGP route reflector.
- support routing policy.
- SRv6
- SR-TE,SR-BE
- SRv6 BE, SRv6 TE
- PMTU IPv4/v6
- VRF Lite IPv4/v6
- DHCPv4/v6 server, client, relay, snooping



- MPLS Service**
- support dual-stack VPN
 - MPLS L2VPN: VPWS, VPLS, H-VPLS, MS-PW
 - support VLAN and VPLS services
 - MPLS L3VPN
 - Ethernet VPN
 - EVPN over SRv6
 - EVPN over SRv6 BE
 - 6PE/6vPE
 - BGP-LU
 - Inter-AS MPLS L2VPN Option A,Bor C
 - Inter-AS MPLS L3VPN Option A,Bor C
 - Static CR-LSP, LDP, RSVP-TE, SR-MPLS, tunnel policy, OSPF- LDP, IS-IS LDP synchronization, MPLS LDP and MPLS RSVP-TE

- Multicast**
- IGMP v1, v2, v3
 - IGMP Snooping, MVR, VLAN copy, Proxy
 - MLD v1, v2*
 - MLD Snooping*
 - PIM-SM and PIM-SSM IPv4/v6*
 - NG-MVPN
 - mLDP In-Band MVPN*
 - anycast RP and Reverse Path Forwarding
 - Ethernet and trunk interfaces support multicast protocols
 - support multicast protocols such as: IGMPv2, PIM-SM, MBGP, MSDP, IGMPv3

- QoS**
- Flexible Traffic classification base on MAC, IP, Port, VLAN, CoS, DSCP, etc.
 - Traffic policing
 - Hierarchical CAR
 - CPU CAR
 - 8 local priority, 8 queues per port
 - WRED
 - Traffic shaping per queue/port
 - support PQ, WFQ and LPQ,SP, DRR, WRR, SP+DRR, SP+WRR queue scheduling
 - 3-level H-QoS

- Reliability**
- IEEE802.1ax Link aggregation group, manual, LACP
 - Muti-chassis LAG
 - Switchport backup
 - STP, RSTP, MSTP, MRSTP
 - ITU-T G.8032 ERPS based on port or CFM, switchover time less than 50ms
 - ITU-T G.8031 ELPS based on port or CFM, switchover time less than 50ms
 - support load balancing in unequal cost multiple path mode
 - support Dual- Device hotbackup
 - Loop detection



- Ethernet fault propagation, MPLS PW fault propagation
- ULDP
- IPv4/v6 ECMP
- Flow Aware Labels
- Static/dynamic IPv4/v6 FRR, TE FRR, LDP FRR, VPNv4/v6 FRR, TI-LFA FRR
- VRRPv2/v3
- MPLS PW redundancy
- MPLS TE hot-standby

Flex-E

- 100GE ethernet mode & Flex-E mode
- Slicing to 1/2/3/.../N x 5Gbps
- Supporting Ethernet service, IP service and MPLS service

OAM/SLA

- IEEE 802.3ah EFM-OAM
- IEEE 802.1ag/ITU-T Y.1731 CFM
- ITU-T Y.1731 performance monitoring (LM, DM) for Ethernet and MPLS L2VPN
- support Ethernet in the First Mile and connectivity Fault
- TWAMP-Lite for Ethernet, IP, MPLS L3VPN, 6PE/6VPE*
- SAT: RFC2544, Y.1564
- support RFC2544 as a sender and reflector
- support Y.1564 as a sender and reflector
- Layer 2 loopback with MAC swap
- MPLS ping and traceroute
- VCCV ping and traceroute
- BFD for interface, static routing, RIP, OSPF, ISIS, BGP, LDP, TE,SR,LSP, CR-LSP*, PW, MS-PW*, VRRP, VRRPv6,OSPFv3,ISISv6,BGP4+,SRv6,FRR, PIM
- support Eth-Trunk interfaces and BFD for eth-trunk to detect the eth-trunk interface status
- support hardware BFD. BFD detect package send period should within 3.3ms
- support LDP and TE FRR, support complete the FRR switching within 200ms
- Layer 2 or 3 Dying Gasp in case of power failure

Security

- CPU CAR
- CPU anti-attack for Land, Ping of death, ICMP unreachable/redirecting/forward, Tear drop, Smurf, Fraggle, WinNuke, TCP malformed
- DHCPv4/v6 Snooping
- ARP filter, DAI
- IPSGv4/v6
- DOT1X
- ACL based on VLAN, CoS, MAC, EtherType, IP or user-define
- RADIUS, TACACS+
- Storm control (broadcast, multicast, DLF), support traffic suppression include multicast, broadcast, and unknown unicast traffic
- Port-security MAC
- URPF



	<ul style="list-style-type: none"> TCP and UDP Small Servers disabled by default MD5 authentication
Maintenance and Management	<ul style="list-style-type: none"> Zero-Touch Provisioning SNMP v1/v2/v3 Netconf, Telemetry CLI management by local CONSOLE, Telnet and SSHv2 KeepAlive, RMON, LLDP, Syslog SFP digital diagnostic management (DDM) CPU, memory monitoring Voltage and temperature monitoring Telnet client, Telnet server sshv2 client, sshv2 server
Synchronization	<ul style="list-style-type: none"> NTP, SNTP IEEE 1588v2 TC Sync E
Capacity	<ul style="list-style-type: none"> FIBIPv4:32K IPv6: 16K RIIPv4:48K IPv6:24k MAC address at least 32k ACLv4 at least 512 ACLv6 at least 256

* Features that will be available in future release

Model Comparison >>

Model	RAX721-C-2C24	RAX721-C-4C24	RAX721-C-6C48
Switching capacity	800Gbps	2Tbps	4.8Tbps
	NOTE: device's switching capability / chip's switching capability		
Management interface	1 x CONSOLE (USB TYPE-A) 1 x NEG management port (RJ-45)		
Service Interface	2x 100G/40G QSFP28/QSFP+ 24 x 10G/1G/100M SFP+/SFP support 100G 80km optical module	4 x 100G/40G QSFP28/QSFP+ 24 x 25G/10G/1G SFP28/SFP+/SFP support 100G 80km optical module	6 x 100G/40G QSFP28/QSFP+ 24 x 25G/10G/1G SFP28/SFP+/SFP 48 x 10G/1G SFP+/SFP support 100G 80km optical module
Power Supplies	2 hot-swappable AC/DC power supplies provide 1+1 redundancy AC:220V, 100~240VAC		



	DC: -48V, -36~-72V		
Fan	redundancy for fans		
Power consumption	≤ 73W	≤ 300W	≤ 339W
Operating Temperature (Below altitude 1800m)	-10~55°C*	-10~55°C*	
Humidity	10~90% non-condensing		
Dimension (mm)	1U: 440(W) x 360(D) x 44(H)	1U: 442(W) x 360(D) x 44(H)	
Weight	4.47kg	8.095kg	8.625kg
SRv6	SRv6 BE	SRv6 BE, SRv6 TE	
Flex-E	○	●	
H-QoS	2-level	3-level	

* The maximum operating temperature is reduced to 45°C when using 100G 80KM Optical module, and 50°C when using 100G 40KM Optical module

Compliances >>

Standards & Protocols

CE, UL, FCC compliance
 EMC Class A
 RoHS compliance
 IEEE802.3, 802.3u, 802.3z, 802.3-2008
 IEEE802.1AB, 802.1D, 802.1Q, 802.1p, 802.1ad, 802.1ax,
 IEEE802.3ah, 802.1ag,
 ITU-T G.8031, G.8032, G.8261, G.8262, G.8264, ITU-T Y.1731
 MEF CE2.0 Compliance, MEF6, 9, 10, 11, 13, 14, 16, 17, 20, 31, 36
 RFC826, 768, 792, 793, 1112, 1195, 1771, 1772, 1997, 2131, 2132, 2236, 2328, 2362, 2439, 2460, 2474, 2475,
 2710, 2763, 2966, 3031, 3032, 3034, 3035, 3036, 3037, 3046, 3065, 3101, 3107, 3137, 3209, 3277, 3315, 3376,
 3473, 3567, 3618, 3623, 3630, 4090, 4182, 4271, 4273, 4377, 4378, 4379, 4443, 4447, 4448, 4541, 4605, 4649,
 4760, 4761, 4762, 4893, 4950, 5036, 5120, 5187, 5286, 5357, 5462, 5575, 5659, 5883, 6391, 6511, 6842, 7130

Ordering Information >>

Equipment

Part No.	Description
RAX721-C-2C24	Standard 1U, 19" standalone IP/MPLS pre-aggregation device, 2 x 100G/40G QSFP28/QSFP+ for uplink, 24 x 10G/1G/100M SFP+/SFP for downlink, CONSOLE and SNMP ports for management



- AC/D: dual hot-swappable AC power supply
- AC/S: single hot-swappable AC power supply and single FANS310 module
- DC/D: dual hot-swappable DC power supply
- DC/S: single hot-swappable DC power supply and single FANS310 module
- AC_DC: one hot-swappable AC power supply and one hot-swappable DC power supply

RAX721-C-4C24 Standard 1U, 19" standalone IP/MPLS pre-aggregation device, 4 x 100G/40G QSFP28/QSFP+ for uplink, 24 x 25G/10G/1G SFP28/SFP+/SFP for downlink, 2FANS, CONSOLE and SNMP ports for management

- AC/D: dual hot-swappable AC power supply
- AC/S: single hot-swappable AC power supply
- DC/D: dual hot-swappable DC power supply
- DC/S: single hot-swappable DC power supply
- AC_DC: one hot-swappable AC power supply and one hot-swappable DC power supply

RAX721-C-6C48 Standard 1U, 19" standalone IP/MPLS pre-aggregation device, 6 x 100G/40G QSFP28/QSFP+ for uplink, 24 x 25G/10G/1G SFP28/SFP+/SFP and 24 x 10G/1G SFP+/SFP for downlink, 2FANS, CONSOLE and SNMP ports for management

- AC/D: dual hot-swappable AC power supply
- AC/S: single hot-swappable AC power supply
- DC/D: dual hot-swappable DC power supply
- DC/S: single hot-swappable DC power supply
- AC_DC: one hot-swappable AC power supply and one hot-swappable DC power supply

Power Supplies

Part No.	Description
RPA1221-S-220S12	AC power supply module for RAX721-C-2C24
RPD1241-48S12	DC power supply module for RAX721-C-2C24
RPA1551-220D12	AC power supply module for RAX721-C-4C24 and RAX721-C-6C48
RPD1551-48D12	DC power supply module for RAX721-C-4C24 and RAX721-C-6C48

Fan Module

Part No.	Description
FANS310	Fan module for RAX721-C-2C24
FANS339	Fan module for RAX721-C-4C24 and RAX721-C-6C48