



RAX721 Series

RAX721 series are compact IP/MPLS pre-aggregation devices with 10GE, 40GE and 100GE uplink interfaces, providing rich port options in a standard 1U 19-inch enclosure. They are optimized for metro access and aggregation, leased-line service delivery, and multi-service aggregation scenarios. Standard Carrier Ethernet service models, L2VPN/L3VPN over MPLS and the support of OAM & SLA greatly simplify service delivery and monitoring. With rich L2/L3 unicast and multicast features, advanced QoS and high reliability on both hardware and software, RAX721 series are very flexible and reliable service aggregators for enterprise campus, university/college, government networks and residential LAN, and are capable of delivering multiple services (Internet, VoIP, IPTV, video surveillance etc) and fitting in various networking structures. The support of IPv4/v6 dual stack makes it a future-proof investment for customers.



RAX721-A



RAX721-A-T



RAX721-A-XF



RAX721-B



RAX721-B-T



RAX721-C-2C24

Highlights >>

Power Reliability	Dual hot-swappable power supply with voltage/temperature monitoring
Flexible Service Delivery	Standard CE2.0 service (E-Line, E-LAN, E-Tree, E-Access) delivery VPWS, VPLS, H-VPLS, MS-PW, L3VPN, 6PE/6VPE over MPLS EVPN over MPLS/SR on roadmap* Flexible traffic classification guarantees customer-defined service SLA
Multicast	Full set of multicast routing and control protocols implemented for flexible multiple service access and aggregation
Committed Network Resiliency	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
OAM & Hardware-based SLA	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 BFD helps customer achieve fast fault detection for dynamic IP services and MPLS services
IPv4/v6 Dual-Stack	IPv6 for management and services 6PE/6VPE support helps customers plan their future network evolution

* Features that will be available in future release

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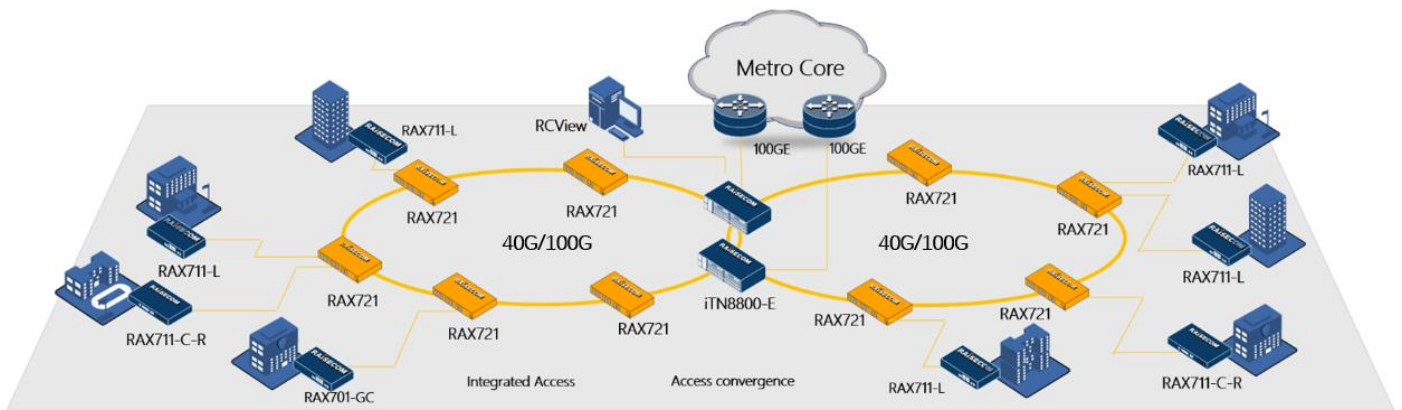
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Application >>

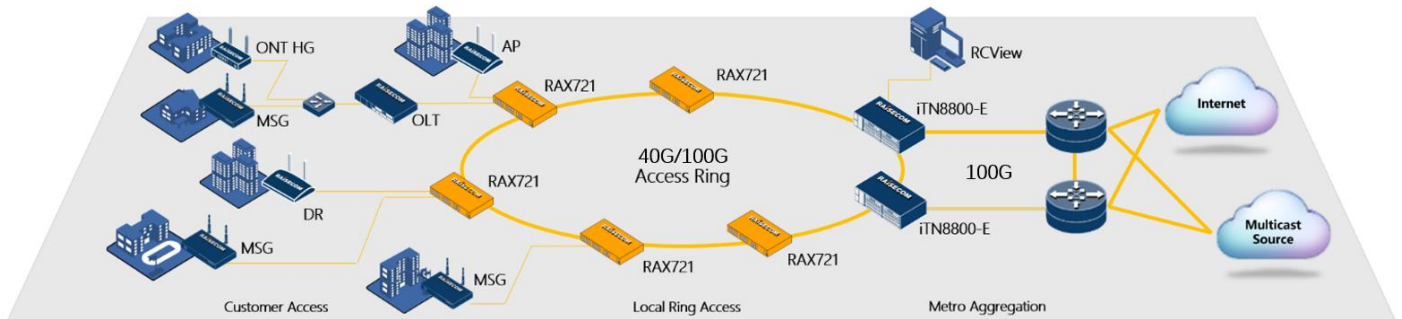
Business Leased-Line Service Delivery

RAX721 series working with Raisecom intelligent CPE RAX700 series can deliver 1G/10G/40G/100G standard CE2.0 E-Line, E-LAN, E-Tree and E-access services. It is also capable of delivering VPWS, VPLS, H-VPLS, MS-PW, and L3VPN services over MPLS, 6PE, 6VPE over MPLS, EVPN* over MPLS and EVPN* over SR* as a PE device. The service delivery can be very flexible. ZTP and hardware-based CFM and SLA offer service providers an easier way to deploy and manage the services. Various fault detection and protection mechanisms guarantee high availability and stability of services. The whole solution is fully managed on unified GUI-based B/S structured NMS system with rich NBI options.



Multi-Service Access and Aggregation

RAX721 series can work as an aggregator of multi-service access network, such as campus network, enterprise network, and residential LAN. Its high port density and rich protection mechanisms allow it to flexibly fit in different network topology. The support of a full set of L2/L3 unicast/multicast protocols guarantees fluent access of multiple services. Flexible traffic classification, scheduling and policing ensures quality of different types of services.



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Key Features >>

Ethernet Service

- MAC address table: 32K
- Jumbo frame up to 12288 Bytes
- 4,094 VLANs, IEEE802.1Q VLAN, IEEE802.1ad QinQ
- Layer 2 control protocol (L2CP) handling
- Super VLAN
- Private VLAN (PVLAN) with primary, community and isolated type

IP Service

- IPv4/v6 static routing
- RIPv1/v2/ng, OSPFv2/v3, ISISv4/v6 and BGP4/4+
- PMTU IPv4/v6
- VRF Lite IPv4/v6
- DHCPv4/v6* server, client, relay, snooping

MPLS Service

- MPLS L2VPN: VPWS, VPLS, H-VPLS, MS-PW
- MPLS L3VPN
- MPLS EVPN*
- 6PE/6VPE
- Inter-AS MPLS L2VPN Option A, B, C
- Inter-AS MPLS L3VPN Option A, B, C
- Static CR-LSP, LDP, CSPF, RSVP-TE, tunnel policy

Multicast

- IGMP v1, v2, v3
- IGMP Snooping, MVR, VLAN copy, Proxy
- MLD v1, v2*
- MLD Snooping*
- PIM-SM and PIM-SSM IPv4/v6*

QoS

- Flexible traffic classification based on MAC, IP, port, VLAN, CoS, DSCP, etc.
- Traffic policing
- Hierarchical CAR
- 8 local priority, 8 queues per port
- WRED
- Traffic shaping per queue/port
- SP/WRR/SP+WRR queue scheduling

Reliability

- IEEE802.1ax Link aggregation group, manual, LACP
- Switchport backup
- STP, RSTP, MSTP, MRSTP
- ITU-T G.8032 ERPS based on port or CFM, switchover time less than 50ms
- Loop detection
- Ethernet fault propagation, MPLS PW fault propagation

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- ULDP
- IPv4/v6 ECMP
- Static/dynamic IPv4/v6 FRR, TE/LDP/VPN FRR
- VRRP
- MPLS PW redundancy, MPLS TE hot-standby*

OAM

- 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
- TWAMP-Lite for Ethernet, IP, MPLS L3VPN, 6PE/6VPE*
- SAT: RFC2544, Y.1564
- Layer 2 loopback with MAC swap
- MPLS ping and traceroute
- BFD for interface, static routing, RIP, OSPF, ISIS, BGP, LDP, LSP, CR-LSP*, PW, MS-PW*, VRRP, FRR, PIM*
- Dying Gasp in case of power failure

Security

- CPU CAR
- CPU anti-attack
- DHCPv4/v6 Snooping
- ARP filter, DAI
- IPv4/v6* IPSG
- DOT1X
- ACL based on VLAN, CoS, MAC, EtherType, IP or user-define
- RADIUS, TACACS+
- Storm control (broadcast, multicast, DLF)
- Port-security MAC

Maintenance and Management

- Zero-touch provisioning based on standard DHCP
- 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

Synchronization

- NTP, SNTP
- IEEE1588v2 TC*

* Features that will be available in future release

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Specifications >>

Performance	<p>Switching capacity:</p> <p>RAX721-A(-T): 64Gbps</p> <p>RAX721-A-XF: 280Gbps</p> <p>RAX721-B(-T): 88Gbps</p> <p>RAX721-C-2C24: 320Gbps</p>
Physical Interface	<p>Management Interface:</p> <p>1 x CONSOLE (USB/RJ-45);</p> <p>1 x SNMP management port (RJ-45)</p> <p>Interface:</p> <p>RAX721-A: 4 x 10G SFP+ uplink, 24 x 1G SFP downlink</p> <p>RAX721-A-T: 4 x 10G SFP+ uplink, 24 x 1000/100M RJ-45 downlink</p> <p>RAX721-A-XF: 4 x 10G SFP+ uplink, 24 x 10/1G SFP+/SFP downlink</p> <p>RAX721-B: 4 x 10G SFP+ uplink, 48 x 1G SFP downlink</p> <p>RAX721-B-T: 4 x 10G SFP+ uplink, 48 x 1000/100M RJ-45 downlink</p> <p>RAX721-C-2C24: 2 x 100G QSFP28 uplink, 24 x 10/1G SFP+/SFP downlink</p>
Power Supply	<p>Dual, hot-swappable AC, DC, AC_DC</p> <p>AC: 220V, 100~240VAC</p> <p>DC: -48V, -36~-72V</p> <p>Power Consumption: ≤ 75W</p>
Environmental	<p>Operating:</p> <p>Temperature: -5~55°C</p> <p>Humidity: 10~90% non-condensing</p> <p>Storage and Transportation:</p> <p>Temperature: -25~60°C</p>
Dimensions	444(W)mm x 360(D)mm x 44(H)mm
Weight	4.42Kg

Compliances >>

Standards & protocols

CE, UL, FCC compliance

EMC Class A

RoHS compliance

IEEE802.3, 802.3u, 802.3z, 802.3-2008

IEEE802.1D, 802.1Q, 802.1p, 802.1ad

IEEE802.1ax, ITU-T G.8031, G.8032

IEEE802.3ah, 802.1ag, ITU-T Y.1731

RFC5357

IEEE802.1AB

MEF6, 9, 10, 11, 13, 14, 16, 17, 20, 31, 36

MEF CE2.0 Compliance

RFC826, 768, 793

RFC792, 4443

RFC2131, 2132, 3046, 3315, 4649

RFC2328, 3630, 5187, 3101, 3137, 3623

RFC1195,2966, 3567, 3277, 2763

RFC1771, 1772, 1997, 2439, 3065, 4271, 4273, 4760, 4893, 5575

RFC3031, 3032, 3034, 3035, 3036, 3037, 4182, 5036, 5462

RFC3209, 3473, 6511

RFC4447, 4448, 4761, 4762, 5659

RFC4090, 5286, 5883, 7130

RFC4377, 4378, 4379

RFC1112, 2236, 3376, 4605, 3618, 2362, 2710, 4541

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Ordering Information >>

Equipment

Part No.	Description
RAX721-A-AC/D	Standard 1U, 19" standalone IP/MPLS pre-aggregation device, 4 x 10G SFP+ for uplink, 24 x 1G SFP for downlink, CONSOLE and SNMP ports for management, dual hot-swappable AC power supply
RAX721-A-DC/D	Standard 1U, 19" standalone IP/MPLS pre-aggregation device, 4 x 10G SFP+ for uplink, 24 x 1G SFP for downlink, CONSOLE and SNMP ports for management, dual hot-swappable DC power supply
RAX721-A-AC_DC	Standard 1U, 19" standalone IP/MPLS pre-aggregation device, 4 x 10G SFP+ for uplink, 24 x 1G SFP for downlink, CONSOLE and SNMP ports for management, one hot-swappable AC power supply and one hot-swappable DC power supply
RAX721-A-T-AC/D	Standard 1U, 19" standalone IP/MPLS pre-aggregation device, 4 x 10G SFP+ for uplink, 24 x 1000/100M RJ-45 for downlink, CONSOLE and SNMP ports for management, dual hot-swappable AC power supply
RAX721-A-T-DC/D	Standard 1U, 19" standalone IP/MPLS pre-aggregation device, 4 x 10G SFP+ for uplink, 24 x 1000/100M RJ-45 for downlink, CONSOLE and SNMP ports for management, dual hot-swappable DC power supply
RAX721-A-T-AC_DC	Standard 1U, 19" standalone IP/MPLS pre-aggregation device, 4 x 10G SFP+ for uplink, 24 x 1000/100M RJ-45 for downlink, CONSOLE and SNMP ports for management, one hot-swappable AC power supply and one hot-swappable DC power supply
RAX721-A-XF-AC/D	Standard 1U, 19" standalone IP/MPLS pre-aggregation device, 4 x 10G SFP+ for uplink, 24 x 10G/1G SFP+/SFP for downlink, CONSOLE and SNMP ports for management, dual hot-swappable AC power supply
RAX721-A-XF-DC/D	Standard 1U, 19" standalone IP/MPLS pre-aggregation device, 4 x 10G SFP+ for uplink, 24 x 10G/1G SFP+/SFP for downlink, CONSOLE and SNMP ports for management, dual hot-swappable DC power supply
RAX721-A-XF-AC_DC	Standard 1U, 19" standalone IP/MPLS pre-aggregation device, 4 x 10G SFP+ for uplink, 24 x 10G/1G SFP+/SFP for downlink, CONSOLE and SNMP ports for management, one hot-swappable AC power supply and one hot-swappable DC power supply
RAX721-B-AC/D	Standard 1U, 19" standalone IP/MPLS pre-aggregation device, 4 x 10G SFP+ for uplink, 48 x 1G SFP for downlink, CONSOLE and SNMP ports for management, dual hot-swappable AC power supply
RAX721-B-DC/D	Standard 1U, 19" standalone IP/MPLS pre-aggregation device, 4 x 10G SFP+ for uplink, 48 x 1G SFP for

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downlink, CONSOLE and SNMP ports for management, dual hot-swappable DC power supply

RAX721-B-AC_DC Standard 1U, 19" standalone IP/MPLS pre-aggregation device, 4 x 10G SFP+ for uplink, 48 x 1G SFP for downlink, CONSOLE and SNMP ports for management, one hot-swappable AC power supply and one hot-swappable DC power supply

RAX721-B-T-AC/D Standard 1U, 19" standalone IP/MPLS pre-aggregation device, 4 x 10G SFP+ for uplink, 48 x 1000/100M RJ-45 for downlink, CONSOLE and SNMP ports for management, dual hot-swappable AC power supply

RAX721-B-T-DC/D Standard 1U, 19" standalone IP/MPLS pre-aggregation device, 4 x 10G SFP+ for uplink, 48 x 1000/100M RJ-45 for downlink, CONSOLE and SNMP ports for management, dual hot-swappable DC power supply

RAX721-B-T-AC_DC Standard 1U, 19" standalone IP/MPLS pre-aggregation device, 4 x 10G SFP+ for uplink, 48 x 1000/100M RJ-45 for downlink, CONSOLE and SNMP ports for management, one hot-swappable AC power supply and one hot-swappable DC power supply

RAX721-C-2C24-AC/D Standard 1U, 19" standalone IP/MPLS pre-aggregation device, 2 x 100G QSFP28 for uplink, 24 x 1G SFP for downlink, CONSOLE and SNMP ports for management, dual hot-swappable AC power supply

RAX721-C-2C24-DC/D Standard 1U, 19" standalone IP/MPLS pre-aggregation device, 2 x 100G QSFP28 for uplink, 24 x 1G SFP for downlink, CONSOLE and SNMP ports for management, dual hot-swappable DC power supply

RAX721-C-2C24-AC_DC Standard 1U, 19" standalone IP/MPLS pre-aggregation device, 2 x 100G QSFP28 for uplink, 24 x 1G SFP for downlink, CONSOLE and SNMP ports for management, 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
RPD1241-48S12	DC power supply module

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