



## RAX721-T Series

Raisecom RAX721-T series is a high bandwidth, high-performance telecommunications grade product designed specifically for 4G/5G backhaul networks, providing access and aggregation mobile bearer solutions for 4G/5G. The high-density 1GE/10GE/25GE interface is not only suitable for 4G/5G mobile services, but also for integrated services carrying such as access to leased line services etc. The temperature-hardened (-40°C to +65°C) and 1U compact design perfectly comply with the ETSI 300 standard and can running stably in harsher environments. The device supports both hard slicing (FlexEthernet) and soft slicing (Segment Routing), as well as "3A" Ultra-high precision clock synchronization (Telecom profile 8275.1), to meet the different requirements of various industries in the 5G era for network bandwidth, latency, and packet loss rate. RAX721-T series is the ideal equipment for 4G/5G backhaul and fixed-mobile convergence network.

## Product Models and Appearances



**RAX721-T-XF**



**RAX721-T-4C24**

## Product Features and Highlights >>

### Large Capacity, High performance and Compact Design

- The RAX721-T-4C24 has 4.8Tbps chip switching capability and provides high-density 1GE/10GE/25GE ports to meet customers' access requirements for 4G/5G networks and FMC services, and provides non-blocking line speed forwarding capability.
- The RAX721-T-4C24 has a chassis depth of 248mm. The compact design reduces the need for installation space and can be installed in a 300mm deep street cabinet.

### High-precision Clock Synchronization

- The RAX721-T series models support the Sync-E and IEEE1588v2 OC, BC, TC protocols, low cost, high-precision and high-reliability clock synchronization.
- The powerful clock synchronization feature can meet the strict requirements of customers in different industries, such as power grid, transportation, etc.

### Easy Plug and Play

- The RAX721-T series models support the DHCP zero-touch provisioning feature. The device can automatically online after powered on,

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automatically download customized configuration files, and automatically upgrade the latest firmware without manual involvement, greatly reducing Opex and highly improving deployment efficiency.

- The protection feature provided by the zero-touch provisioning can automatically enable the backup management channel when the main channel is interrupted, keeping the device online and able to be managed.

## Comprehensive Network Slicing

- The RAX721-T-4C24 can provide hard network slicing (FlexEthernet) capability for customers or applications with different needs, and each network slice allocates dedicated, non-shared resources to ensure the performance, availability and reliability required by each customer or application.
- The RAX721-T series can also provide soft network slicing (Segment Routing) functionality with powerful H-QoS, to provide customers with more flexible transmission paths and bandwidth, while also making network resources more economical for loosely constrained high-capacity applications.

## Hardware-based OAM

- The RAX721-T series has hardware-based OAM capability. It supports multiple OAM protocols, such as Y.1731, Y.1564, BFD over everything, TWAMP, and RFC2544. The 3.3ms probe interval ensures that faults can be detected quickly and service switching can be completed within 50ms, minimizing the impact on services.

## Networking and Application >>

### 4G/5G backhaul Access and Pre-aggregation

The 5G RAN network provides the features of eMBB, uRLLC and mMTC, meeting the increasingly diverse multi scenario applications of V2X, telemedicine, cloud AR/VR, and more. The next generation IPRAN bearer network will meet the needs of comprehensive bearer for 5G services and fixed-mobile convergence (FMC).

The Raisecom 5G IPRAN bearer solution is based on a high-performance router core, using IP/MPLS packet forwarding and further integrating SR/EVPN/IPv6 technology to achieve the goals of simplifying network structure, improving network performance, and low latency transmission network. Targeting 5G services, government enterprise dedicated lines, and cloud integration services, construct a 10G/25G/40G/50G/100G bearer access ring network on demand, with transmission network characteristics such as large bandwidth, low latency, and high-performance clock synchronization.

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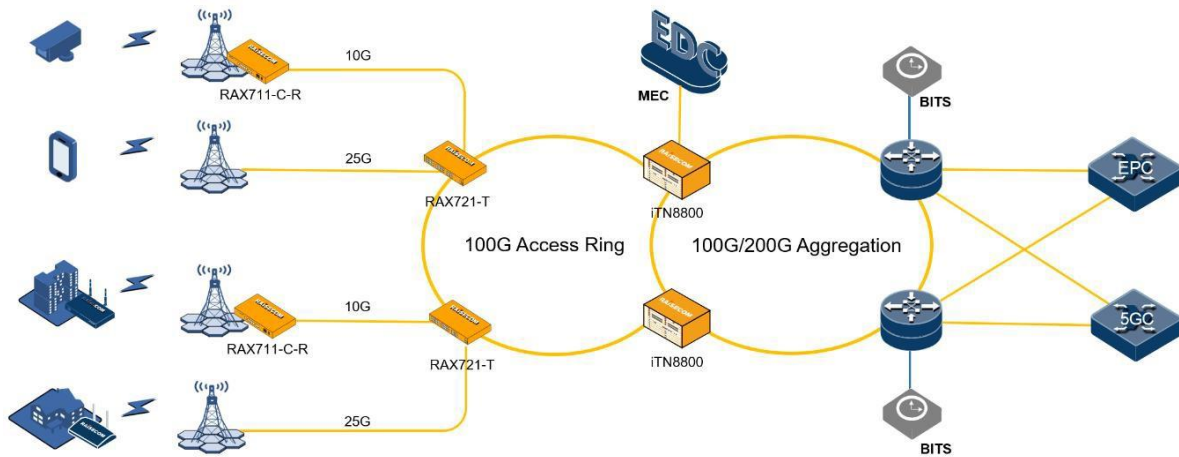
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## Key Features >>

### 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
- Super VLANs
- 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+
- SRv6 BE, SRv6 TE
- 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
- Ethernet VPN
- 6PE/6vPE
- Seamless MPLS
- Inter-AS MPLS L2VPN Option A, C
- Inter-AS MPLS L3VPN Option A, C
- Static CR-LSP, LDP, RSVP-TE, SR-MPLS, tunnel policy

### Multicast

- IGMP v1, v2, v3
- IGMP Snooping, MVR, VLAN copy, Proxy
- MLD v1, v2\*

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- MLD Snooping\*
- PIM-SM and PIM-SSM IPv4/v6\*
- NG-MVPN
- mLDP In-Band MVPN\*

## QoS

- Flexible Traffic classification base 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, DRR, WRR, SP+DRR, SP+WRR queue scheduling
- 3-level H-QoS

## Reliability

- IEEE802.1ax Link aggregation group, manual, LACP
- Multi-chassis LAG
- 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
- 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, IP 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
- TWAMP-Lite for Ethernet, IP, MPLS L3VPN, 6PE/6VPE\*
- SAT: RFC2544, Y.1564
- Layer 2 loopback with MAC swap
- MPLS ping and traceroute
- VCCV ping and traceroute
- BFD for interface, static routing, RIP, OSPF, ISIS, BGP, LDP, LSP, CR-LSP\*, PW, MS-PW\*, VRRP, FRR, PIM

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Security	<ul style="list-style-type: none"><li>• Layer 2 or 3 Dying Gasp in case of power failure</li><li>• CPU CAR</li><li>• CPU anti-attack for Land, Ping of death, ICMP unreachable/redirecting/forward, Tear drop, Smurf, Fraggle, WinNuke, TCP malformed</li><li>• DHCPv4/v6 Snooping</li><li>• ARP filter, DAI</li><li>• IPSGv4/v6</li><li>• DOT1X</li><li>• ACL based on VLAN, CoS, MAC, EtherType, IP or user-define</li><li>• RADIUS, TACACS+</li><li>• Storm control (broadcast, multicast, DLF)</li><li>• Port-security MAC</li><li>• URPF</li><li>• TCP and UDP Small Servers disabled by default</li></ul>
Maintenance and Management	<ul style="list-style-type: none"><li>• Zero-Touch Provisioning</li><li>• SNMP v1/v2/v3</li><li>• Netconf, Telemetry</li><li>• CLI management by local CONSOLE, Telnet and SSHv2</li><li>• KeepAlive, RMON, LLDP, Syslog</li><li>• SFP digital diagnostic management (DDM)</li><li>• CPU, memory monitoring</li><li>• Voltage and temperature monitoring</li><li>• Telnet client, Telnet server</li><li>• sshv2 client, sshv2 server</li></ul>
Clock sync	<ul style="list-style-type: none"><li>• NTP, SNTP</li><li>• 1588v2 OC BC TC</li><li>• Telecom profile ITU-T 8275.1</li><li>• Sync E</li></ul>

\* Features that will be available in future release

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## Model Comparison >>

Model	RAX721-T-XF	RAX721-T-4C24
Switching capacity	560Gbps / 800Gbps	2Tbps / 4.8Tbps
	NOTE: device's switching capability / chip's switching capability	
Management interface	2 x CONSOLE (USB-A & RJ-45) 1 x NEG management port (RJ-45)	
Service Interface	4 x 10G/1G SFP+/SFP 24 x 10G/1G/100M SFP+/SFP	4 x 100G/40G QSFP28/QSFP+ 24 x 25G/10G/1G SFP28/SFP+/SFP
GNSS antenna	NA	SMA-K
1PPS+TOD(I/O)	NA	RJ45
2MHz	NA	RJ48
Power Supplies	2 hot-swappable AC/DC power supplies provide 1+1 redundancy AC:220V, 100~240VAC DC: -48V, -36~-72V	
Power consumption	≤ 75W	≤ 223W
Operating Temperature (Below altitude 1800m)	-5°C ~ +55°C (+23°F~+131°F)	-40°C ~ +65°C (-40°F~+149°F)
Humidity	10~90% non-condensing	
Dimensions (mm)	1RU: 440(W) x 360(D) x 44(H)	1RU: 440(W) x 248(D) x 44(H)
Weight	4.42kg	5.1kg
SRv6	SRv6 BE	SRv6 BE, SRv6 TE
Flex-E	○	●
H-QoS	2-level	3-level
G.8273.2 clock	Class C	Class B (Class C in roadmap)

## 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-T-XF	Standard 1U, 19" standalone IP/MPLS pre-aggregation device, 4 x 10G SFP+ for uplink, 24 x 10G/1G SFP+/SFP for downlink, 1588v2 BC and OC  -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-T-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, 1588v2 BC and OC  -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

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Part No.	Description
RPA1221-S-220S12	AC power supply module for RAX721-T-XF
RPD1241-48S12	DC power supply module for RAX721-T-XF
RPA1301-220S12	AC power supply module for RAX721-T-4C24
RPD1305-48S12	DC power supply module for RAX721-T-4C24

### Fan Module

Part No.	Description
FANS310	Fan module for RAX721-T-XF

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