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RAX711-C-R

RAX711-C-R is a compact 10G NID providing 4x10G SFP+ network interfaces and 12x1G SFP user interfaces in half 19" space. It can work as a 10G EDD or an MPLS PE device. It is designed for 1G/10G leased-line service delivery and 4G/5G mobile backhaul. The support of standard CE2.0 services (E-Line, E-LAN, E-Tree, E-Access), various service models over MPLS (VPWS, VPLS, H-VPLS, L3VPN), and advanced OAM, SLA, resiliency features, ensures service providers great flexibility and reliability in service design and deployment. Temperature hardened HW design and the support of SyncE make RAX711-C-R ready for mobile backhaul.

RAX711-C-R

Highlights >>

Power Reliability	Dual hot-swappable power supply with voltage/temperature monitoring
Compact HW Design	Half-19" in width help service providers save installation space greatly
Temperature Hardened	Operating temperature range from -20 ˚C to +65 ˚C
Flexible Service Delivery	Standard CE2.0 service (E-Line, E-LAN, E-Tree, E-Access) delivery VPWS, VPLS, H-VPLS, L3VPN services over MPLS Flexible traffic classification guarantees customer-defined service SLA
Committed Network Resiliency	Protection mechanism including switchport backup, IEEE802.1ax Link Aggregation, MC-LAG, ITU-T G.8031 ELPS and ITU-T G.8032 ERPS, Static/dynamic IP FRR, TE/LDP/VPN/EVPN FRR, VRRP, MPLS PW redundancy, MPLS TE 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 (1us measurement resolution) speed up service provisioning and troubleshooting BFD helps customer achieve fast fault detection for dynamic IP services and MPLS services Standard RFC2544, Y.1564 SAT tests for various types of services available
IPv4/v6 Dual-Stack	IPv6 for management/services ready help customers plan their future network evolution
Synchronization	SyncE and IEEE1588v2 ready for mobile backhaul

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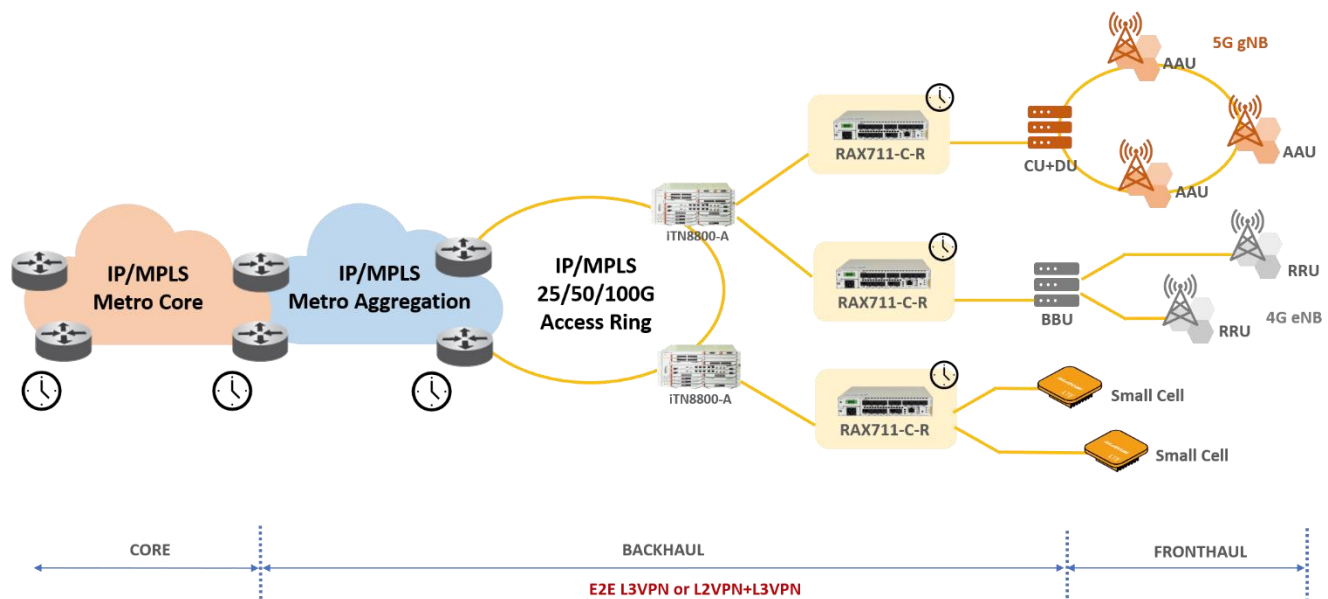
Application >>

Business Leased Line Service Delivery

RAX711-C-R is able to deliver 1G/10G standard CE2.0 E-Line, E-LAN, E-Tree and E-access services. It is also capable of delivering L2VPN and L3VPN services over MPLS core as a PE device. The service delivery can be very flexible with the support of VPWS, VPLS, H-VPLS, MS-PW, and inter-AS L2VPN/L3VPN. ZTP and hardware-based CFM and SLA ensure service providers easier way to deploy and manage the services. Various fault detection and protection mechanisms guarantee high availability and stability of services.
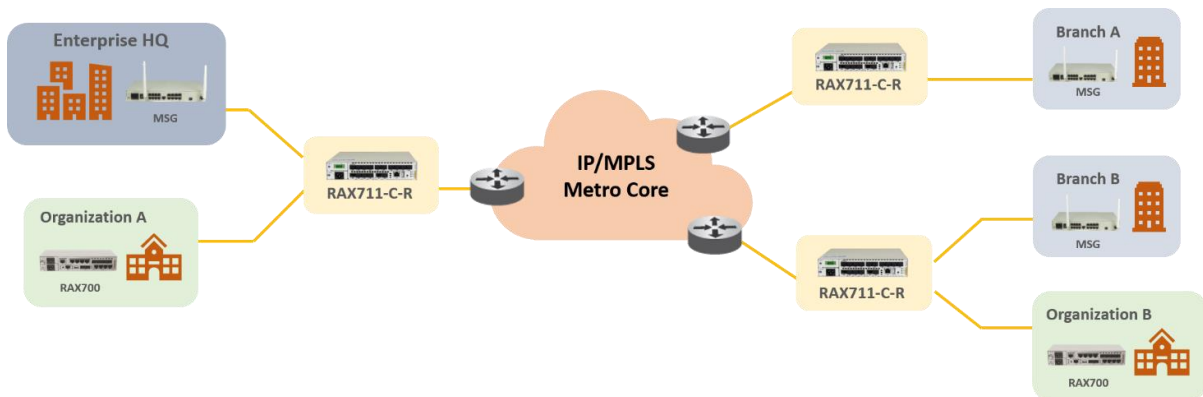
New Generation Mobile Backhaul

MPLS L2VPN + L3VPN and MPLS E2E L3VPN are the common ways to carry mobile backhaul traffic as the mobile network is evolving to 4G and 5G. RAX711-C-R supports the services with full flexibility and high reliability. In addition, its compact HW design (half 19" wide) helps service providers save installation space, its wide-range operating temperature (-20~65 ˚C) ensures the device to work stably in harsh environment, and its support of SyncE and IEEE1588 V2 guarantees accurate synchronization along the service delivery.

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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 - Static CR-LSP, LDP, CSPF, RSVP-TE, tunnel policy - Inter-AS MPLS L2VPN Option A, B, C - Inter-AS MPLS L3VPN Option A, B, C
Multicast	- IGMP v1, v2, v3 - IGMP Snooping, MVR, VLAN copy, Proxy - MLD v1, v2 - MLD Snooping - PIM-SM and PIM-SSM IPv4/v6 - MSDP
QoS	- Flexible traffic classification based on MAC, IP, port, VLAN, CoS, DSCP, etc. - Traffic policing with color-aware and color-blind mode, two-rate three-color marker - 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 - MC-LAG - Switchport backup - STP, RSTP, MSTP, MRSTP - ITU-T G.8031 ELPS and G.8032 ERPS based on port or CFM, switchover time less than 50ms - Port/VLAN-based Ethernet loop detection - Ethernet fault propagation, MPLS PW fault propagation

- ULDP
- IPv4/v6 ECMP
- Static/dynamic IPv4/v6 FRR, TE/LDP/VPN FRR over IPv4
- VRRP
- MPLS PW redundancy, MPLS TE 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
	RFC2544 for Ethernet and MPLS L2VPN, Y.1564 for Ethernet, IP, MPLS L2VPN, MPLS L3VPN
	10G throughput test
	TWAMP-Lite for Ethernet, IP, MPLS L3VPN
	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
	L2/L3 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
- IPv4/v6 IPSG
- ACL based on VLAN, CoS, MAC, Ethernet Type, IP or user-define
- RADIUS, TACACS+, DOT1X
- Storm control (broadcast, multicast, DLF)
- Port-security MAC

Maintenance and Management	
	Zero-touch provisioning based on standard DHCP
	SNMP v1/v2/v3 based GUI management
	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
- SyncE
- IEEE1588 v2 TC

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Specifications >>

Performance	Switching capacity: 52Gbps x 2
Physical Interface	1 x CONSOLE (USB);
	1 x management port (RJ-45)
	Client interfaces: 12 x 1G SFP
	Network interfaces: 4 x 10G SFP+
Power Supply	Dual, hot-swappable version available
	AC: 220V, 100~240V
	DC: -48V, -36~-72V
	Power Consumption: ≤40W
Environmental	Operating:
	Temperature: -20~65˚C
	Humidity: 10~90% non-condensing
	Storage and Transportation:
	Temperature: -25~75˚C
Dimensions	220(W)mm x 266(D)mm x 44(H)mm
Weight	2.5Kg

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
	IEEE1588v2
	ITU-T G.8261, G.8262, G.8264

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Ordering Information >>

Part No.	Description
RAX711-C-R-AC/S	Compact 10G NID, half-19" wide, 4x10G SFP+ for uplink, 12x1G SFP for downlink, CONSOLE and SNMP ports for management, single hot-swappable AC power supply
RAX711-C-R-DC/S	Compact 10G NID, half-19" wide, 4x10G SFP+ for uplink, 12x1G SFP for downlink, CONSOLE and SNMP ports for management, single hot-swappable DC power supply
RAX711-C-R-AC/D	Compact 10G NID, half-19" wide, 4x10G SFP+ for uplink, 12x1G SFP for downlink, CONSOLE and SNMP ports for management, dual hot-swappable AC power supply
RAX711-C-R-DC/D	Compact 10G NID, half-19" wide, 4x10G SFP+ for uplink, 12x1G SFP for downlink, CONSOLE and SNMP ports for management, dual hot-swappable DC power supply
RAX711-C-R-AC_DC	Compact 10G NID, half-19" wide, 4x10G SFP+ for uplink, 12x1G SFP for downlink, CONSOLE and SNMP ports for management, one hot-swappable AC power supply and one hot-swappable DC power supply