



## ITN201-R – Intelligent Service Access Aggregation Device

Raisecom ITN201-R series, as a new generation Ethernet/MPLS device, is optimized for access and pre-aggregation in IP/MPLS network. The ITN201-R series offers 56Gbps switch capability in a small 1RU form factor with 2 sub slots. iTN201-4GF-R provides up to 24xGE links.

iTN201-2XG-R provides up to 4x10GE + 16x1GE links. It is well suited for the cost-effective access of residential, business and mobile services. The ITN201-R series provides a comprehensive and scalable feature set of Layer 2 VPN (L2VPN), Layer 3 VPN (L3VPN), VRF-Lite services with routing, MPLS, clock synchronization technologies optimized for service providers. It also supports a broad set of hardware-based end-to-end OAM tools (IEEE802.1ah/IEEE802.3ag/Y.1731/RFC2544/Y.1564) to help providers reduce their OpEx and to assure the agreed SLA, like Jitter, delay and packet loss.



ITN201-4GF-R



ITN201-2XG-R

### Highlights >>

<b>IP MPLS</b>	Supports multiple routing functions, such as OSPF, ISIS, BGP, and MP-BGP, and supports LDP and RSVP-TE to dynamically establish MPLS tunnels and PW services.
<b>Multiservice</b>	Supports multiple service type, including L2VPN, L3VPN, PWE3, VRF-Lite service.
<b>Committed resiliency &amp; Protection</b>	Supports link-based, protocol-based, and service-based multi-layer protection functions, such as LAG/LACP, primary/secondary link aggregation, G.8031, G.8032, G.8131, TE Hot-standby, PW protection, and LSP protection with sub 50ms switching time.
<b>Hardware-based SLA</b>	Hardware-based BFD, MPLS-TP OAM and Y.1731 features supply multi-layer continuity check, frame delay, frame jitter and packet loss measurement mechanism. Includes on-board, line-rate RFC2544&Y.1564 testing capabilities for end-to-end SLA verification.
<b>Management</b>	Supports auto-Provisioning, plug & play. End-to-end configuration and service management in Raisecom NView platform.
<b>Synchronization for MBH</b>	Compliant with ITU-T G.8261/G.8262 (SyncE) and IEEE1588v2 for network-based synchronization.
<b>High Availability</b>	Supports graceful restart for routing protocol. Dual hot-swappable power supply design.

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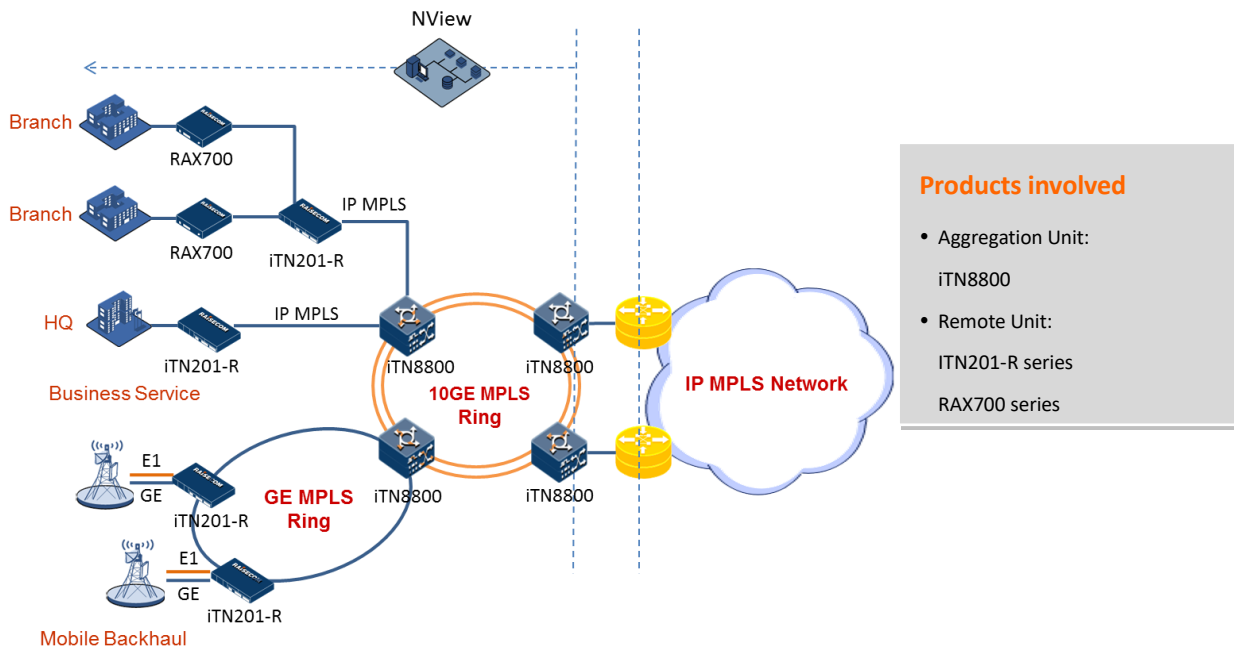
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**Application >>**



**Figure.1 Multi-Service delivery or Pre-aggregation**

**Large Enterprise, Small/Medium Business services Application**

The iTN201-R series are optimized for remote-access and small pre-aggregation sites where a fully featured, compact access platform is needed. It delivers Layer 2, IP, and MPLS transport for advanced L2VPN, L3VPN, TDM services etc. With iTN201-R series, services can be prioritized, differentiated and monitored. The service offering is enhanced with comprehensive OAM/SLA functionality, including Ethernet CFM, Y.1731, BFD, MPLS-TP OAM. Its various sub cards will help providers to extend client ports, extend TDM services or extend clock synchronization features.

**New Generation Mobile Backhaul Application**

The ITN201-R series enables service providers to transmit GE bandwidth and native TDM traffic with SyncE and IEEE1588v2 when converging and migrating 2G and 3G to 4G and newer IP-based mobile technologies. It is easy to create GE ring with Ethernet G.8032 or MPLS technologies. To guarantee the huge mobility data application as well as voice, its PW protection/LSP protection/TE Hot-standby features conform to switch over within 50ms. MPLS-TP OAM, Y.1731 and RFC2544&Y.1564 will help to report the quality of service from end-to-end.

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## Key Features >>

<b>Ethernet service</b>	IEEE 802.1Q VLAN; 4K active VLANs; QinQ; VLAN translate
<b>MPLS Service</b>	MPLS VPWS,VPLS, L3VPN LDP for LSP/PW, MPLS-TP, RSVP-TE
<b>PWE3</b>	PW payload type: SAToP, CESoPSN
<b>Layer 3 Service</b>	IPv4 Stack and IPv4 hardware forwarding OSPF for IPv4, ISIS for IPv4, BGP for IPv4, MP-BGP, VRRP, VRF-Lite
<b>Switching mode</b>	Store and Forward mode Supports Jumbo frames
<b>MAC Address Table</b>	MAC address learning/add/remove/searching Up to 32K MAC addresses
<b>Route Table</b>	Up to 8K FIB table
<b>Packet forwarding</b>	MTU: 9600 byte (default: 1500 byte) Storm control on DLF, Multicast and Broadcast packets L2CP Tunnel/Discard/Peer
<b>Link Aggregation</b>	Up to 16 link aggregation groups Load balance based on MAC, MPLS label and IP address
<b>Link Resilience</b>	PW redundancy, PW dual-home protection PW 1:1 and LSP 1:1 based on ITU-T G.8131 TE Hot-standby ITU-T G.8031 ELPS & ITU-T G.8032 ERPS Port based Ethernet local loop detection Link fault pass through
<b>IP and MPLS OAM</b>	IPv4 Ping, IPv4 Traceroute LSP Ping/PW Ping/Tunnel Ping/L3VPN Ping LSP Traceroute/PW Traceroute/Tunnel Traceroute/L3VPN Traceroute Supports BFD message is sent per 3.3ms BFD for OSPF/ISIS/VRRP, BFD for PW/Static LSP/LDP LSP/CR-LSP/Tunnel/IP
<b>MPLS-TP OAM</b>	Supports MPLS-TP OAM on PW/LSP/Section based on ITU-T G.8113.1 Supports Check message is sent per 3.3ms Supports Hardware-based Frame Delay and Packet Loss Measurement Supports CC/LB/LT/AIS/RDI/APS/LM/DM/CSF
<b>Carrier Ethernet OAM</b>	Supports IEEE 802.3ah EFM-OAM link management Dying gasp message in case of power failure Supports IEEE 802.1ag CFM and ITU-T Y.1731 SLA Supports Check message is sent per 3.3ms

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	Supports Hardware-based Frame Delay and Packet Loss Measurement
	Supports ETH-CC/LB/LT/AIS/RDI/LCK/APS/LM/DM/LCK
	Supports IEEE 802.1ag CFM and ITU-T Y.1731 SLA over MPLS PW EFP
<b>SAT</b>	Support L2 RFC2544 and L2&L3 Y.1564
	Supports RFC2544 over MPLS PW EFP
	Supports Y.1564 over MPLS PW EFP
<b>ACL</b>	Supports MAC/IP/MPLS based ACL and L2~L4 based ACL MAP
	Supports user defined ACL
	MAC based ACL combination with VLAN/CoS/MAC/EtherType
	IP based ACL combination IP/L4 protocol/DSCP/VRF
	MPLS based ACL combination with MPLS Label/MPLS EXP
<b>QoS</b>	Supports Port/Trunk/VlanIf/Sub-interface mapping
	Supports CoS/DSCP/MPLS EXP mapping
	Supports SP, WRR, DRR, SP+WRR, and SP+DRR scheduling
	Supports port-based/flow-based shaping
	Up to 8 queues per port
	Flow-based statistics/mirroring/rate-limiting/redirecting/VLAN-rewriting
	Rewriting of 802.1p CoS/DSCP per EVC
	Supports Weighted Random Early Detection, weight 0-15
<b>MPLS QoS</b>	Supports MPLS Pipe and Uniform mode
	Bandwidth configuration check between PW/LSP/Port
	H-CAR(Hierarchical bandwidth rate-limit) between PW/LSP/Port
<b>Rate-Limit</b>	Supports ingress rate-limit and egress rate-limit
	Supports H-CAR based on Cos/IPP/DSCP binding DSCP
	Based on Flow/RFC2697/RFC2698/RFC4115/MEF modes
<b>LLDP</b>	Discovery remote base on link layer
	Get remote basic information
<b>Mirror</b>	Mirroring per port
	Separate mirroring configurations for ingress port & egress port & CPU port
<b>Synchronization</b>	SyncE according to ITU-T G.8261/G.8262, supports SSM-QL
	IEEE1588v2 OC/BC/TC
<b>DHCP</b>	Supports DHCP Server & Client & Relay
<b>High Available</b>	Supports graceful restart on OSPF, ISIS, BGP
<b>Statistics</b>	Ingress and egress statistics based on Port/Interface/Rate-Limit/VPWS/VPLS
	In-profile and out-profile statistics based on ACL
<b>Management</b>	CLI/ARP/Telnet/Console/SNMP/SSH/SysLog/Trap

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	Raisecom NMS FAN/Power/Temperature/CPU/Memory/Card/Module management
<b>Safety Features</b>	Client classification and password protection RADIUS & TACACS+ CPU protection based on rate-limit Port Isolation
<b>Time management</b>	Timezone, Time modification Supports SNTP & NTP
<b>DDM</b>	SFP digital diagnostic function

## Specifications >>

<b>Performance</b>	Switching fabric: 56Gbps
<b>Physical Interface</b>	Management port: 1 console (USB) 1 outband SNMP(RJ45) iTN201-4GF-R: Network interfaces: 4 x 1Gbps SFP port Client interfaces: 12 x 100M/1Gbps with 6 x TSFP port iTN201-2XG-R: Network interfaces: 2 x 10Gbps XFP port Client interfaces: 12 x 100M/1Gbps with 6 x TSFP port
<b>Ethernet Card</b>	4 x GE SFP Card 4 x GE Copper Card 4 x FX SFP Card 2 x 10GE XFP Card
<b>PWE3 Expansion Card</b>	8 x E1 Balance TDMoP Card
<b>Clock Card</b>	IEEE1588v2 Clock Card
<b>Power Specs</b>	AC: 100~240V, 47~63Hz DC: -48V or +24V Full load: ≤70W
<b>User nditions</b>	Operating temp: -5~50°C (-23~122°F) Storage temp: -25~60°C (-13~140°F) Humidity: 10~90% non-condensing
<b>Lightning Proof</b>	6kV
<b>Dimensions</b>	440(W) x 266(D) x 44(H) mm <sup>3</sup>

## Compliances >>

<b>Standards &amp; protocols</b>	IEEE802.3 IEEE802.3z IEEE802.3x IEEE802.3ad Link Aggregation IEEE802.1p IEEE802.1Q VLAN IEEE802.1ad QinQ IEEE802.3ah OAM&IEEE802.1ag CFM IEEE1588v2 ITU-T G.8261/G.8262 SyncE ITU-T Y.1731 Services OAM ITU-T G.8031 ELPS ITU-T G.8032 ERPS ITU-T G.8131 MPLS Linear Protection ITU-T G.8113.1 MPLS-TP OAM RFC2544 RFC2328 OSPFv2 RFC1195 IS-IS RFC4271 BGPv4 RFC4760 MP-BGP RFC3031 MPLS Architecture RFC3985 PWE3 RFC4664 L2VPN RFC4762 VPLS RFC2547 BGP/MPLS VPN RFC5036 LDP RFC4447 LDP for PW RFC3209 RSVP-TE RFC5880 BFD RFC5086 CESoPSN RFC4553 SAToP RADIUS TACACS+ SNMPv1/v2c/v3 EMC Class B MEF 9 & MEF 14
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Weight ≤ 6Kg

## Ordering Information >>

iTN201-4GF-R-X	4xGE SFP uplink with 12xGE(6xTSFP) downlink, X can be any combination of AC and DC power module
iTN201-2XG-R-X	2x10GE XFP uplink with 12xGE(6xTSFP) downlink, X can be any combination of AC and DC power module
iTN200-SUB-4GF	4xGE SFP interface card
iTN200-SUB-4GE	4xGE copper interface card
iTN200-SUB-4FX	4xFX SFP interface card for RC-Link EDD
iTN200-SUB-2XG	2x10GE XFP optical interface card, used with iTN201-2XG-R.
iTN200-PWE3-8E1-BL	8xE1 Balance interface card, TDMoP card
iTN200-SUB-GPS-BL	IEEE1588v2 Clock card with GPS input
RPD0601-48S12	-48V DC power module for iTN201-4GF-R
RPD0601-24S12	+24V DC power module for iTN201-4GF-R
RPA0601-SI-220S12	220V AC power module for iTN201-4GF-R
RPD1101-48S12	-48V DC power module for both iTN201-4GF-R and iTN201-2XG-R
RPD1101-24S12	+24V DC power module for both iTN201-4GF-R and iTN201-2XG-R
RPA1101-SI-220S12	220V AC power module for both iTN201-4GF-R and iTN201-2XG-R
FANS306	Smart tunable fan

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