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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. It provides 4x1GE uplinks + 12xGE downlinks and 2 sub slots which can insert Ethernet service cards. 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) to help providers reduce their OpEx and to assure the agreed SLA, like Jitter, delay and packet loss.

ITN201-R-4GF

Highlights >>

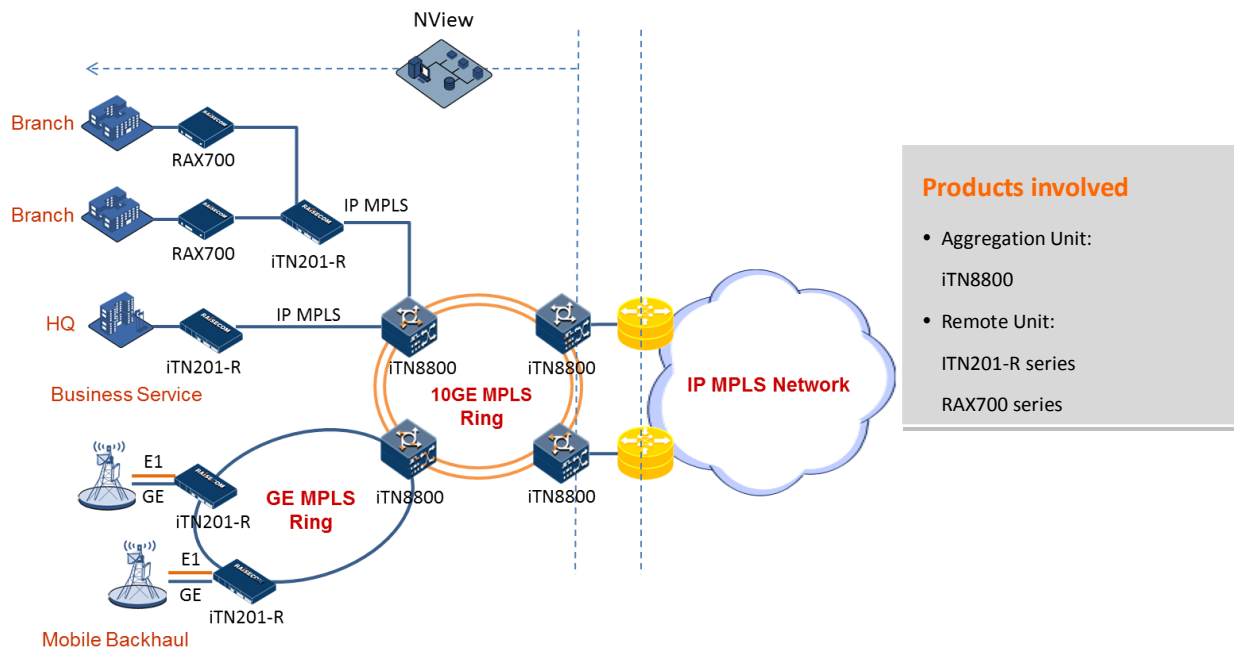|	
IP MPLS	Supports multiple routing functions, such as OSPF, BGP, and MP-BGP, and supports LDP and *RSVP-TE to dynamically establish MPLS tunnels and PW services.
Multiservice	Supports multiple service type, including L2VPN, L3VPN, *PWE3, VRF-Lite service.
Committed resiliency & Protection	Supports 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.
Hardware-based SLA	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 testing capabilities for end-to-end SLA verification.
Management	Supports auto-Provisioning, plug & play. End-to-end configuration and service management in Raisecom NView platform.
Synchronization for MBH	Compliant with ITU-T G.8261/G.8262 (*SyncE) and *IEEE1588v2 for network-based synchronization.
High Availability	Supports graceful restart for routing protocol. Dual hot-swappable power supply design.

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 will help to report the quality of service from end-to-end.

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Key Features >>

Ethernet service	IEEE 802.1Q VLAN: 4K active VLANs; QinQ
MPLS Service	MPLS VPWS,VPLS, L3VPN
	LDP for LSP/PW, MPLS-TP, *RSVP-TE
*PWE3	PW payload type: SAToP, CESoPSN
Layer 3 Service	IPv4 Stack and IPv4 hardware forwarding
	OSPF for IPv4, BGP for IPv4, MP-BGP, VRRP, VRF-Lite
Switching mode	Store and Forward mode
	16Mbit switching buffer
MAC Address Table	MAC address learning/add/remove/searching
	Up to 32K MAC addresses
Route Table	Up to 8K FIB table
Packet forwarding	MTU: 9600 byte (default: 1500 byte)
	Storm control on DLF, Multicast and Broadcast packets
Link Aggregation	Up to 16 link aggregation groups
	Load balance based on MAC, MPLS label and IP address
Link Resilience	PW 1:1 and LSP 1:1 based on ITU-T G.8131, PW redundancy
	*RSVP-TE Hot-standby
	ITU-T G.8031 ELPS & ITU-T G.8032 ERPS
	Port based Ethernet local loop detection
IP and MPLS OAM	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/VRRP, BFD for PW/Static LSP/LDP LSP/CR-LSP/Tunnel/IP
MPLS-TP OAM	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
Carrier Ethernet OAM	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
	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

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SAT	Supports RFC2544 over MPLS PW EFP
ACL	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
QoS	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
MPLS QoS	Supports MPLS Pipe and Uniform mode
	Bandwidth configuration check between PW/LSP/Port
	H-CAR(Hierarchical bandwidth rate-limit) between PW/LSP/Port
Rate-Limit	Supports ingress rate-limit and egress rate-limit
	Based on Flow/RFC2697/RFC2698/RFC4115/MEF modes
LLDP	Discovery remote base on link layer
	Get remote basic information
Mirror	Mirroring per port
	Separate mirroring configurations for ingress port & egress port & CPU port
*Synchronization	SyncE according to ITU-T G.8261/G.8262, supports SSM-QL
	IEEE1588v2
DHCP	Supports DHCP Server & Client & Relay
High Available	Supports graceful restart on OSPF, BGP
Statistics	Ingress and egress statistics based on Port/Interface/Rate-Limit/VPWS/VPLS
	In-profile and out-profile statistics based on ACL
Management	CLI/ARP/Telnet/Console/SNMP/SSH/SysLog/Trap
	Raisecom NMS
	FAN/Power/Temperature/CPU/Memory/Card/Module management
Safety Features	Client classification and password protection
	RADIUS & TACACS+
	CPU protection based on rate-limit
	Port Isolation
Time management	Timezone, Time modification

	Supports SNTP & NTP
DDM	SFP digital diagnostic function
*Roadmap in 2015	

Specifications >>

Performance	Switching fabric: 56Gbps
Physical Interface	Management port:
	1 console (USB)
	1 outband SNMP(RJ45)
	Network interfaces:
	4 x 1Gbps SFP port
	Client interfaces:
	6 x 100/1000 Base-X TSFP port
Subcard	Ethernet card:
	4GE/GF card
Power Specs	AC: 100~240V, 47~63Hz
	DC: -48V or +24V
	Full load: ≤70W
User Conditions	Operating temp: -5~50˚C (23~122˚F)
	Storage temp: -25~60˚C (-13~140˚F)
	Humidity: 10~90% non-condensing
Lightning Proof	6kV
Dimensions	440(W) x 266(D) x 44(H) mm³
Weight	≤ 6Kg

Compliances >>

Standards & protocols	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
	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

Ordering Information >>

iTN201-4GF-R-X	4GF uplink with 6TSFP downlink, X could be any combination of AC and DC mentioned above
iTN200-SUB-4GE	4GE copper interface card
iTN200-SUB-4GF	4GF optical interface card
RPA0601-SI-220S12	220V AC power module for iTN201-4GF-R

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RPD0601-48S12	-48V DC power module for iTN201-4GF-R
RPD0601-24S12	+24V DC power module for iTN201-4GF-R
FANS306	Smart tunable fan