iTN201 | Packet Transport Network Device

Product Overview

iTN201 acts as the access node in Raisecom intelligent transport network product line, and mainly applicable for broadband Carrier Ethernet E-Line/E-LAN/E-Tree access services and packet-based 3G/LTE mobile backhaul (P-MBH) solutions. The product promises rich functionality in terms of network resiliency, protection, Carrier Ethernet service and management. Specifically, it supports IEEE G.8031 and G.8032 (ELPS/ERPS), IEEE 802.3ah Link OAM, IEEE 802.1ag end-to-end connectivity OAM, ITU-T Y.1731 end-to-end performance diagnostic, and MPLS-TP. It is also highlighted that iTN201 can not only play the role of Ordinary Clock (OC; master/slave) and Transparent Clock (TC), but also Boundary Clock (BC), which is responsible for conversions of different encapsulations.

iTN201 is designed as an intelligent Carrier Ethernet/MPLS demarcation device. It has 2 x GE SFP network interfaces, 4 x combo GE client interfaces and two expansion slots for clock signal input/output and PWE3 interfaces. It features IEEE 1588v2 and SyncE functions to provide PPS+ToD signals over Carrier Ethernet for 3G and LTE Mobile Backhaul (MBH) applications. Up to 8 E1/T1 interfaces are provided on PWE3 interface expansion card to connect legacy 2G BTS where E1/T1s are needed to support voice traffic. 2Mbps and 2MHz interfaces are provided to derive external clock synchronization from legacy E1/T1 circuit or GPS.

<table>
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<tr>
<th>Highlights</th>
<th>Specifications</th>
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<tr>
<td>• Compliant with ITU-T G8262 (SyncE) for frequency synchronization</td>
<td>Physica interface:</td>
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<tr>
<td>• Compliant with IEEE 1588v2 (PTP) for phase and frequency synchronization</td>
<td>Management port: 1 console (RJ45);</td>
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<td>• Supports ITU-T G8031 linear and ITU-T G.8032 ring protection with switching time less than 50ms</td>
<td>4 x COMBO (4 x 100/1000M SFP);</td>
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<tr>
<td>• Supports STP/RSTP/MSTP, redundant links and IEEE 802.3ad Link Aggregation</td>
<td>4 x 10/100/1000Base-T RJ45 ports);</td>
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<tr>
<td>• Supports IEEE 802.3ah Link OAM, IEEE 802.1ag end-to-end connectivity OAM and ITU-T Y.1731 end-to-end service and performance</td>
<td>2 x 100/1000M SFP connector</td>
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<tr>
<td>• Supports up to 8 E1/T1 interfaces for connecting legacy TDM networks</td>
<td>Clock Expansion Card:</td>
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<tr>
<td>• Supports MPLS-TP as a Provider/Provider Edge (PE) device</td>
<td>1 x 2Mbit/2MHz input/output;</td>
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Access Capacity
- MTU: 13k byte (default 1,526 byte)
- DLF control

Synchronization
- Support IEEE 1588v2 and Synchronous Ethernet
- IEEE 1588-2008 one-step/two step mode, OC, BC and TC mode support
- Provide 1PPS+ToD interface when deployed as OC and BC
- Clock synchronization performance according to ITU-T G8261/8262

Ethernet
- Up to 32k MAC per port
- Support 4,094 VLANs (C-tag), stacked VLANs (QinQ, S-tag based on C-tag/C-tag+cos), 1:1 inner/outer VLAN translation
- Loopback per port/MAC/VLAN/IP
- Interface protection, port monitoring
- IGMP Snooping(v1,v2,v3)
IP Services
- ARP
- DHCP client, option60
- IPv4, IPv6 (Ping, traceroute)
- Static routing (IPv4)

Traffic Management
- Service classification per port/VLAN/CoS(DSCP)/ACL
- Support SP, WRR, DRR, SP+WRR and SP+DRR scheduling modes, and up to 8 queues per port
- MEF-compliant 3-color policing with color-aware and color-blind mode
- Bandwidth throttling per port/VLAN/PW/Tunnel (PW & Tunnel only for Uplink)

Security
- Secure MAC address
- ACL based on VLAN, CoS, MAC, EtherType, IPv4, IPv6, or user-defined combinations
- RADIUS and TACACS+
- IEEE 802.1x port authentication
- Storm control (broadcast, multicast, DLF)

Reliability
- Link aggregation group (LAG) – up to 3 groups with 4 ports in each group
- Interface backup
- Load balancing based on source/destination IP and MAC address
- ITU-T G.8031 Ethernet link protection switching (ELPS) and G.8032 Ethernet ring protection switching (ERPS) with the automatic protection switchover time less than 50ms
- Port based Ethernet local loop detection
- Fault propagation

MPLS
- MPLS-TP
- Multiple PW per LSP
- MPLS pipe/uniform model
- Static/E-Line(vpws)/E-Lan(vpws)/E-Tree L2 VPN
- PWE3 encapsulating Ethernet/SAToP TDM/CESoP TDM Service
- MPLS OAM supports CC, MEP(UNM) alarm; UNP alarm; UNI/MMG alarm and LOC alarm
- Supports LB and RDI of LSP
- MPLS-TP 1:1 protection

CES
TDM interface:
- Framing: Unframed/Framed with or without CRC configurable
- TX clock mode configurable
- Internal/external/bidirectional loopback
- E1 alarm statistics

PWE3:
- Up to 128 LSP; 512 PW; 64 CES PW and 64 VSI
- Supports PSN type MPLS and MEF
- Configurable Jitter Buffer
- Supports up to 8 E1/T1 service ports to access legacy voice services

Ethernet OAM
- IEEE802.3ah OAM including discovery, link performance, remote loopback, fault detection & performance stats per OAM standards
- LSP OAM including CV(Connectivity Verification), LB, AIS, RDI, LCK, Test, packet loss, jitter and delay
- OAM Active/Passive mode
- OAM MIB Variable Get function
- OAM Event function
- Extended OAM (configure on remote switches)
- E-LMI (MEF 16)

System Management
- Remote management via SNMP v1/v2/v3, Telnet and SSH v1/v2
- Local management via console interface
- MEF 36 compliant MIB
- KeepAlive, RMON, LLDP, Syslog
- Port/VLAN/Cos-based statistics
- Alarm management
- SFP digital diagnostic management (DDM)
- Voltage and temperature monitoring

**Standard Compliance**
- IEEE802.1Q (VLAN), 802.1ad (QinQ), 802.1ag (CFM), 802.1p (QoS/CoS Priority), 802.1x (Security), 802.3ad (LAG), 802.3ah (EFM),
- G.8031 (ELPS), G8032 (ERPS), Y.1731
- IETF RFC 2865 (RADIUS), 2819 (RMON)
- Safety CE certified, UL RoHS and NEBS3 compliant
- EMI Class A

**Ordering Information**
iTN201-AC/D
iT201-DC/D
iTN201-PWE3-8E1T1
iT201-SyncE-PTP

*Supplied Accessories (included):*
AC power cord or DC connection kit
Console cord
Manual CD

**Notifications**
All features above are planned in the device functionality. Due to this model still in developing, the end product might be having a slight difference.