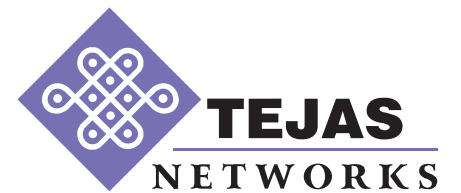


# TJ1400P-HE

Packet Transport Network



## Product Highlights

- ✓ Convergence of TDM and PTN in a compact chassis
- ✓ Range of back-haul solutions for 4G/LTE and 5G
- ✓ Technologies: Carrier Ethernet, MPLS-TP, best in class circuit Emulation: SDH

## Key Features and Benefits

TJ1400P-HE is one of the industry's most feature-rich packet access and aggregation platforms. It provides unparalleled integration of Access, transport networks and introduces a revolutionary way of building modern-day telecom infrastructure, bringing down the cost of network build-outs dramatically. TJ1400P-HE is designed for cost-optimized delivery of Mobile Backhaul, Broadband Access, Utility networks and Enterprise Services. It is a highly reliable platform providing redundancy, low power consumption, and high service scale in a compact next-generation platform.

Key features include:

- Access technologies ERPS.
- Transport technologies such as PTN, MPLS-TP, Massive-scale Circuit Emulation with 1+1 APS support of TDM technologies such as SDH(STM-n) Synchronization.

**Software-defined Hardware™ and Modular Architecture:** Software-defined Hardware™ allows easy upgrades as per new protocols and technology standards. Modular interfaces decrease meantime to repair by requiring only the affected module to be replaced, not the entire unit.

**Advanced Ethernet Features:** TJ1400 -HE

provides best-in-class packet switching to create networks with the highest performance. Ingress rate limiting ensures that every packet entering the network is within the SLA bounds thus preventing any one customer/service from congesting/choking the network. Each packet is classified so that the appropriate network policies (like prioritization and scheduling) can be applied. Eight hardware CoS queues, and scheduling algorithms ensure that there are sufficient options available to manage the data traffic efficiently. The platform supports 802.1q VLANs, 802.1ad provider VLANs (Q-in-Q), and G.8032 ERPS (Ethernet Ring Protection Switching). ERPS provides 50ms protected packet rings for greater resiliency. Multiple ringlets and multiple ring topologies are supported.

**Ethernet OAM:** Allows real-time monitoring of end-to-end circuits, connections or trunks thus enabling quick detection and isolation of faults to a particular subnet, trunk, link or node. The TJ1400 supports BFD based Fault OAM and ping/traceroute at tunnel/pseudowire level. It also supports Y.1731/IEEE 802.1ag based CFM OAM, Y.1731PM counters, IEEE 802.1AB Link Layer Discovery Protocol (LLDP) and built-in RFC 2544/ITU-T Y.1564 are supported .

**Flexible Network Architectures:** TJ1400P-HE can build a flexible architecture best suited for all services: Linear for rapid deployment, Hub and spoke for cost-effective aggregation, Ring and ringlet for high utilization and resiliency and Meshed for low latency and flexible protection. This is achieved with a unique combination of functionality and ability for every optical port to be an UNI or an NNI.

**Multi-Service Support:** TJ1400P-HE supports high speed enterprise services through Ethernet and MPLS-TP, Network modernization through circuit emulation, legacy TDM applications on SDH, residential multiplay and next-generation mobile backhaul.

**Enterprise Services:** Supports a versatile mix of services ranging from low speed E1 channelized

in a STMn Port to 100 Gbps.

- Carrier Ethernet for interoperable E-Line, E-LAN and E-Tree Business Ethernet services.

**Mobile Backhaul:** TJ1400P-H can be used for 2G/3G/4G and 5G backhaul; simpler converged packet equipment with PTN/MPLS-TP and Carrier Ethernet support instead of using expensive IP/MPLS in the access.

- Operators can reuse their existing investments in L2 transport; selective introduction of L3 functionality (e.g., L3 VPN) for 5G mid-haul without requiring expensive network overhaul.
- Advanced packet synchronization and circuit emulation features for pure-packet backhaul of 2G/3G voice and TDM services.

## Technical Specifications

### Packet Switching Capacity

Upto 300 Gbps bidirectional switching capacity

### Interfaces

- Upto 3 x 100GE (QSFP-DD)
- Upto 28 x 1/10GE (SFP+)
- Upto 4 x STM/1/4/16
- 1 x RJ-45 1000BASE-T management Ethernet port (MGMT)
- BITS (2.048MHz/2 Mbps)
- Pulse-per-Second (PPS) input and output.
- Time-of-Day (TOD) input and output
- 10MHz input and output
- Local console port

### Services

- MEF2.0 compliant Carrier Ethernet
- L2 VPN Services - PW, MS-PW, VPLS & H-VPLS services
- Circuit Emulation
- Topologies: Mesh, dual homing, multi-ring, ring, star, linear

### Ethernet/MPLS-TP OAM

- MPLS-TP OAM RFC 5860
- BFD
- ITU-T Y.1731
- 802.1ag OAMP
- LSP/PW Ping and Traceroute (RFC6426)
- ERPS (G.8032)
- 1:1 Linear Protection
- On demand LM/DM at VLAN level
- Port Mirroring and Loopback
- Link integrity (LLCF/LLR)
- 802.1ad LLDP
- In Built RFC2544/Y.1564

### Other features

- LACP (Protection and Distribution)
- Static LAG (Protection and Distribution)
- SyncE, 1588v2
- IGMPv1/v2/v3
- Jumbo Frame support upto 9600 bytes frame size
- Multi-Segment Pseudowires
- VLAN Translation
- NTP
- Performance Monitoring
- Hierarchical Protection
- Port based EPL services
- VLAN Tagged MPLS-TP

### QOS

- Supports 8 Hardware Queues
- Traffic classification based on priority/DSCP, Shaping, Scheduling (WRED/Tail-Drop), Policing (sTCM, srTCM, trTCM)
- EXP mapping
- Storm Control

### Security

- ACLs
- RADIUS
- Secure Protocols: HTTPS, SNMPv3

### Management

- All configurations via TJ5500: Point and click simple and user friendly GUI supports FCAPS functionality

### Circuit Emulation Services

SONET/SDH CEM-CEP: STM1/4/16

Electrical Specifications

- Input Voltage: -40V to -60V DC
- Maximum Power: 360 Watts maximum per unit.
- AC voltage: 90V to 260V AC

Environmental

- Operating Temperature: -40°C to 60°C
- Storage Temperature: -40°C to 70°C
- Operating Humidity: 5% to 95% RH
- ETS 300 019-1-1, Class 1.2 Storage
- ETS 300 019-1-2, Class 2.3 Transportation
- ETS 300 019-1-3, Class 3.2 Operating stationary use.
- QM333 –Standard for Environmental Testing of Telecommunication Equipment

EMI/EMC

- FCC Part-15, Subpart B, Class-A
- ICES-003, Class-A
- EN 55032 Class-A/CISPR-32 Class-A
- EN 61000-3-2 and EN 61000-3-3
- EN 55035/CISPR 35 EN61000-4-2,

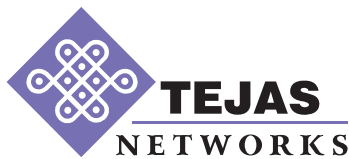
EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11, and EN61000-4-29)

RoHS compliant  
Directive 2011/65/EU and Directive

Safety  
• Certified for CB – Scheme  
• IEC 62368-1/EN 62368-1  
• UL 62368-1

Laser Safety  
• IEC 60825-1/EN 60825-1  
• IEC 60825-2/EN 60825-2  
• 21 Code of Federal Regulations (CFR) 1040

Physical  
• Rack Size: 2 RU  
• Dimensions (W\*H\*D in mm): 478 x 44 x 483  
• FAN: Hot Swappable  
• Airflow: Front to Back



HQ: Bangalore, India  
New Delhi | Gurgaon | Mumbai | Kolkata | Chennai  
  
www.tejasnetworks.com | +91-80-4179-4600  
info@tejasnetworks.com

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