



TJ1400P-M4 Series of switches are designed for DataCenter and Cloud Deployments. The TJ1400P-M4-48DQ-S model is a top-of-rack (ToR) switch with 48 SFP/SFP+ ports capable of supporting 1G/10G/25G Ethernet and 8 QSFP uplink ports of 40G/100G. The switch is compatible with the Open Compute Project Specifications and comes loaded with a software feature set required to support cloud and data-center deployments. However, Tejas is open to working with customers to support use of an Open Stack of the customer's choice.

#### Hardware Features

- 48 x SFP+ switch ports, supporting 10 GbE (DAC, 10GBASE-SR/LR) or 1 GbE (1000BASE-T/SX/LX).
- 4 x 40 QSFP+ switch ports, supporting 40 GbE (DAC, 40GBASE-SR4/LR4) or 4 x 10 GbE (DAC or fiber breakout cable)
- Port Grouping to group 4 x 10G ports into one 40G port at the physical layer for maximum bandwidth utilization, and for 300m optical reach over MMF.
- Full line-rate Layer 2 or Layer 3 forwarding of 2Tbps Gbps full-duplex
- Supports hot/cold aisle with port-to-power and power-to-port airflow SKUs.
- All ports on front; PSUs, fan tray on rear.
- Hot-swappable, load-sharing, redundant AC PSUs or -48VDC PSUs
- Hot Swappable fan tray with 3:1 fans.
- Energy Efficiency: 170 W typical power consumption 48x10G DAC, 4x40GBASE-SR4
- Management: Ethernet and console RJ-45 ports; USB storage port.

#### Software Features:

- Switching
- Routing (IPv4 and IPV6 Routing)
- Management
- Quality of Service
- Multicast, BGP4
- Data Center features

# Technical Specifications\*

## Traffic Interfaces

- 48 SFP+ Ports supporting 1G/10G/25G
- 8 QSFP ports supporting 40/100Gbps

## Switching Support

- RFC 768 UDP
- RFC 783 TFTP
- RFC 791 IP
- RFC 792 ICMP
- RFC 793 TCP
- RFC 826 ARP
- RFC 951 BootP
- RFC 2131 DHCP
- RFC 2131, 2132 DHCP Server
- TFTP / BOOTP
- IEEE 802.1D
- IEEE 802.1Q VLAN Tagging
- Double VLAN Tagging
- GARP/GVRP
- IEEE 802.1p
- IEEE 802.3x
- IEEE 802.1s
- IEEE 802.1x
- IEEE 802.1ab
- IEEE 802.3ad - LAGs
  - Support for IP-Address based hash (distribution on Routing interface)
- Static LAGs
- XMODEM
- Broadcast Storm Recovery
- Port Mirroring
- Static MAC Filtering
- Protocol Based VLANs (IP, ARP, IPX)
- Protected port
- DHCP snooping
- GMRP
- Outbound Telnet
- Syslog (RFC 3164)
- Port Locking
- SNTP
- Denial of Service Protection (control plane)

## Routing

- Static Routing (IPv4, IPv6)
- Port Based Routing
- VLAN Routing
  - 802.3ad (LAG) for router ports
- VLAN Router Slot Number (unit = 0 for stacking) 2
- OSPFv2, OSPFv3
- RIPv1/v2
- BGP (-E feature)
- IS-IS (-E feature)
- VRF (-E feature)
- RFC 1519 CIDR
- VRRP
- Router Discovery
- BootP/DHCP Relay
- ECMP
- Proxy ARP

## DataCenter Support

- Open Flow Specification
  - Version 1.0.0
  - Version 1.3.4
- NVGRE
- VXLAN
- RFC 7047 Open vSwitch Database Management Protocol
- RFC 3032 MPLS Label Stack Encoding

## Switch Scalability

- Line rate forwarding on all ports for all packet sizes
- Switching Bandwidth 2 Tbps
- 4094 VLANs (IEEE 802.1Q)
- MAC Table Size of 256K
- L3 Routes IPv4 256K, IPv6 64K
- Up to 18K Multicast routes
- 8 COS queues per port
- 64 Policing profiles
- 32 Shaping profiles
- 8 WRED profiles
- RMON 1,2,3,9
- 64 byte to 9216 byte Ethernet Frames

## Multicast

- IGMPv2
- IGMPv3
- Expediated leave function
- IGMP Snooping
  - IGMPv3 Snooping
  - Enable IGMP Snooping per VLAN
- DVMRP
- PIM-DM
- PIM-SM
- IPMC replication (hardware support)

## Protection

- Link Aggregation Groups (LAG)
- STP, RSTP, MSTP

## Security

- Hardware based ACL (wire speed)
- L2 Filter Criteria:
  - Source/Destination MAC Address/Mask
  - CVLAN (TPID, VLAN ID, 802.1p)
  - SVLAN (TPID, VLAN ID, 802.1p)
- L3/L4 Filter Criteria:
  - Source/Destination IP Address
  - IP Protocol, ToS, DSCP
  - Source TCP/UDP port
- Storm control for Multicast, Broadcast, DLF (Destination Lookup Failed) frames and Broadcast suppression
- Port Mirroring for incoming/outgoing packets
- Multiple source ports mirrored to a probe

# Technical Specifications\*

## Quality of Service

- 64Kbps ingress rate limiting on all ports
- 64kbps egress rate shaping on all ports
- Programmable burst sizes (4,8,...,32KB)
- CIR, PIR, CBS and PBS support
- L2, L3, L4 packet classification
- L2 attributes:
  - Source/Destination MAC
  - VLAN ID
  - IEEE 802.1p bit
- L3 attributes:
  - Source/Destination IP Address/Mask
  - IP ToS, Precedence, DSCP
  - IP Protocol Type
- Source/Destination TCP/UDP ports
- Set DSCP, Precedence and COS values
- 8 COS queues per port
- Strict Priority, WRR, WFQ egress scheduling
- Tail Drop, WRED COS queue management
- DiffServ
  - Edge Node applicability
  - Interior Node applicability
  - 802.3ad (LAG) for service interface

## Supported Optics and Cables

### SFP+ Ports:

- 10GBASE-CR DAC: 0.5 m to 7 m; Passive and Active
- 10GBASE-SRL/SR: up to 100/300 m over OM3 MMF
- 10GBASE-LR: Up to 10 km over SMF
- 1000BASE-SX, 1000BASE-LX, 100/1000BASE-T

### QSFP Ports:

- 40GBASE-CR4 DAC; 0.5 m to 7 m; Passive and Active
- 40GBASE-CR4 DAC to 4 x SFP+ 10GBASE-CR DAC; 0.5 to 7 m
- 40GBASE-SR4: Up to 100 m over OM3 MMF, 150 m over OM4 MMF
- 40GBASE-SR4 to 4 x 10GBASE-SR: 100 m over OM3, 150 m OM4
- 40GBASE-LR4: Up to 10 km over SMF
- 40GBASE-ZR: Up to 40 km over SMF

## Standards Support

- IEEE 802.3x (Flow Control)
- IEEE 802.1 D (Spanning Tree Protocol)
- IEEE 802.1w (Rapid Spanning Tree Protocol)
- IEEE 802.1 s (Multiple STP)
- IEEE 802.1 p
- IEEE 802.1q (VLAN tagging)
- IEEE 802.3ad (Link aggregation)
- IEEE 802.1ab (LLDP)
- IEEE 802.1ad (Q-in-Q)
- IEEE 802.1Qau
- IEEE 802.1Qaz)

## Management Capability

- SNMP v1, v2, v3 support
- SNMP Traps on Alarms and Security violations
- Telnet
- SSH
- CLI based configuration
- WebGUI based configuration
- TACACS+
- RADIUS

## Physical Characteristics

- Dimensions (H x W x D): 44 x 438 x 436 mm
- Weight: 8.5 Kg

## Power Supply

- Redundant, load-sharing, hot-swappable
- AC or -48VDC
- AC Input : 90 to 264 VAC at 50-60 Hz.
- DC Input : -48 to -72 VDC

## Environmental and Regulatory

- Operating Temperature: 0 deg C to +40 deg C
- Relative Humidity: 5% to 95% non-condensing
- FCC Part 15 Class A
- RoHS-6 Compliant
- CB, EN60950

\* Technical Specifications are subject to change without notice

Contact us at: [sales@tejasnetworks.com](mailto:sales@tejasnetworks.com) Visit us at: [www.tejasnetworks.com](http://www.tejasnetworks.com)

