TJ1400P M2 Switch Series

Modular L2/L3 Gigabit Ethernet Switch

TJ1400P M2 switching family is specifically optimized for LAN applications and Metro Applications.

The TJ1400P M2 models are enterprise-plus class L2/L3 Switches with Carrier Ethernet features for OAM and resiliency. They support GigE electrical and optical interfaces with auto-negotiation and Jumbo frames and are available in several factory fitted configurations.

Using L3 upgrade capability, the TJ1400P M2 provides L2 isolation and bridges traffic between L2 & L3 domains. The target applications are campus networks, power utilities, transportation and traffic control systems, industrial factory floor installations, video surveillance systems, and installations, which require gigabit switching capability.

Features:

QoS Features

- 8 levels of packet prioritization
- Per-port Rate Limiting at 64 kbps granularity and Traffic Policing
- Policy based Bandwidth Classification
- Statistics of classification ACLs

Switching Functionalities

- VLAN tagging & classification (IEEE 802.1 Q)
- VLAN stacking (Q in Q)
- Support for Link Aggregation (IEEE 802.3ad)
- Spanning Tree Protocol (IEEE 802.1 D) & Rapid Spanning Tree Protocol (IEEE 802.1 w) Ethernet Service Management

Carrier Ethernet Features

- Ethernet Ring Protection Switching (ERPS)
- Connectivity Fault Management (CFM)
- Performance Management (Y.1731)

TJ1400P M2

Routing Functionalities

- L3 switching/routing based on OSPF, RIP etc
- Router redundancy support based on VRRP

Optional POE Capability

- 802.3af compliant PoE support

Benefits:

Enhanced Traffic Management

- Enables Traffic metering, shaping and scheduling
- Lesser latency and unpredictability leading to better Quality of Service (QoS)
- Enables the service provider to offer differentiated services with different levels of QoS

Ethernet Service Management

- Enables separation of Applications
- Facilitates re-use of VLAN's across multiple customer
- Enhanced granularity of service provisioning over the backhaul

Metro Service Management

- Efficient Ring deployments in Metros
- Enhanced OAM for Carriers
- SLA Monitoring capability

Layer 3 Service Management

- Enables network planning and scalability
- Enables high availability networks
- Allows peering
- Enables converged applications by providing power to IP phones, surveillance cameras, and wireless access points

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Technical Specifications[*]

Traffic Interfaces

24 10/100/1000 + 2 x 1/10G Optical
24 10/100/1000 with PoE + 2 x 1/10G Optical (88)
24 1000 Base-X SFP ports + 2 x 1/10G (88)

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 802.1 s
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
BGPv4
VRF
RFC 1519 CIDR
VRRP
Router Discovery
BootP/DHCP Relay
ECMP
Proxy ARP
Multinetting

Services

Residential Triple-play : Broadband Access, IP-TV,
   VoIP Services
Enterprise Services : Ethernet Private Lines (EPL),
   Ethernet Virtual Private Line (EVPL), Ethernet
   Private LAN (EPLAN)
MEF E-Line, E-LAN and E-Tree Services
3G/ WIMAX Backhaul

Switch Scalability

4094 VLANs (IEEE 802.1Q)
Line Rate switching on all ports
Up to 256 Multicast groups
MAC Table Size of 32K
Maximum 6 LAGs
Up to 8 ports per LAG
Up to 4 MSTP instances
Up to 100 ACL entries
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)
Ethernet Ring Protection (ERP) [-M option]
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 port

Operations, Administration and Management

IEEE 802.3ah (ETH-OAM)
IEEE 802.1ag and ITU Y.1731 OAM capabilities
   CCM (Connectivity), LTM/LTR (Link Trace) and LBM/
   LBR (Loopback) Messages
   DMM/DMR (Delay/Jitter) measurements
   15minute and Daily Bins for DMM/DMR
Trap and Syslog messages

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 supportL2,
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

Orderable Switch Models

Layer2 Switches
TJ1400P M2-24TD-L
TJ1400P M2-24PD-L
TJ1400P M2-24SD-L

Metro Switches
TJ1400P M2-24TD-M
TJ1400P M2-24PD-M
TJ1400P M2-24SD-M

Layer3 Switches
TJ1400P M2-24TD-S
TJ1400P M2-24PD-S
TJ1400P M2-24SD-S

Enhanced Layer3 Switches

TJ1400P M2-24TD-E
TJ1400P M2-24PD-E
TJ1400P M2-24SD-E

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 802.3ah (EFM)
IEEE 802.3ag (CFM)
ITU-T G.8032 (ERP)
ITU-T Y.1731 (PM)

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 mm x 450 mm x 500 mm

Power Supply

AC Operation (220V)
Redundant AC Power supplies

Environmental

Operating Temperature: -5 degC to +60 degC
Relative Humidity: 10% to 95% RH non-condensing
FCC Class A

Orderable SFP/SFP+ Modules

SFP-1GE-T Electrical 1000-BaseT RJ45
SFP-1GE-SX Multi-Mode, 550m
SFP-1GE-LX Single Mode, 10Km
SFP-1GE-LH Single Mode, 40Km
SFP-1GE-ZX Single Mode, 80Km
SFP-10GE-SX Multi-Mode, 550m
SFP-10GE-LX Single Mode, 10Km
SFP-10GE-LH Single Mode, 40Km
SFP-10GE-ZX Single Mode, 80Km

*upcoming release
specifications subject to change without notice