L3 Core Switch
TJ1400-H

TEJAS® NETWORKS

DATA SHEET

Overview

The TJ1400 series of Aggregation and Core Switches are Telecom Grade systems that deliver carrier-class Ethernet, MPLS and IP capabilities to realize converged, multi-service Packet Networks. High availability is critical at Aggregation and Core layers with redundancy and hot-swap ability of various functional modules (Line Ports, Power Modules, Fan), full front access, half-depth for back-to-back mounting in 19" racks are key benefits.

With a choice of Gigabit, 10G and 100G interfaces large amounts of Mobile Backhaul, Broadband, IPTV and Enterprise VPN services can be supported.

Carrier Ethernet capabilities by way of ERPS (G.8032) along with a comprehensive OAM suite comprising CFM and PM allow operators to provide native Layer2 services, E-LINE, E-LAN compliant to MEF 2.0 specification. Dynamic Host Configuration Protocol (DHCP) relay support for IP address assignment.

Synchronization via Sync-E and 1588v2* allow these to be used in Mobile Backhaul and will be useful in upcoming 5G rollouts.

Key Features and Benefits

High Performance Design: State of art silicon powers the 1400P-H ensuring low power consumption. The Multi-layer hardware data path capable of Layer2, Layer3 processing allow for line-rate lookup and forwarding at all packet sizes from 64bytes to 9K bytes.

All the pluggable optical modules are MSA compliant and meet IEEE 802.3 specification and definition.

Carrier Ethernet Switching: Comprehensive Layer2 feature set includes the ability to offer Ethernet services over double VLAN tagged frames (802.1ad) along with Ring protection using ERPS for 50ms switching capability.

Synchronization: SyncE and NTP provides the required timing synchronization over Ethernet interfaces for carrying TDM applications.

IP Routing: Scalable implementation of IP routing is provided in the TJ1400P-H platforms. These include Unicast and Multicast Routing protocols like OSPF, and PIM. Border Gateway Protocol (BGP) is used for scalable IP routing.

Management: Management of the nodes can be done locally using the console port or remotely using Secure access. Access to the switch via CLI commands, Web based management or SNMP interface. Features like Telnet, FTP and TFTP are also supported.

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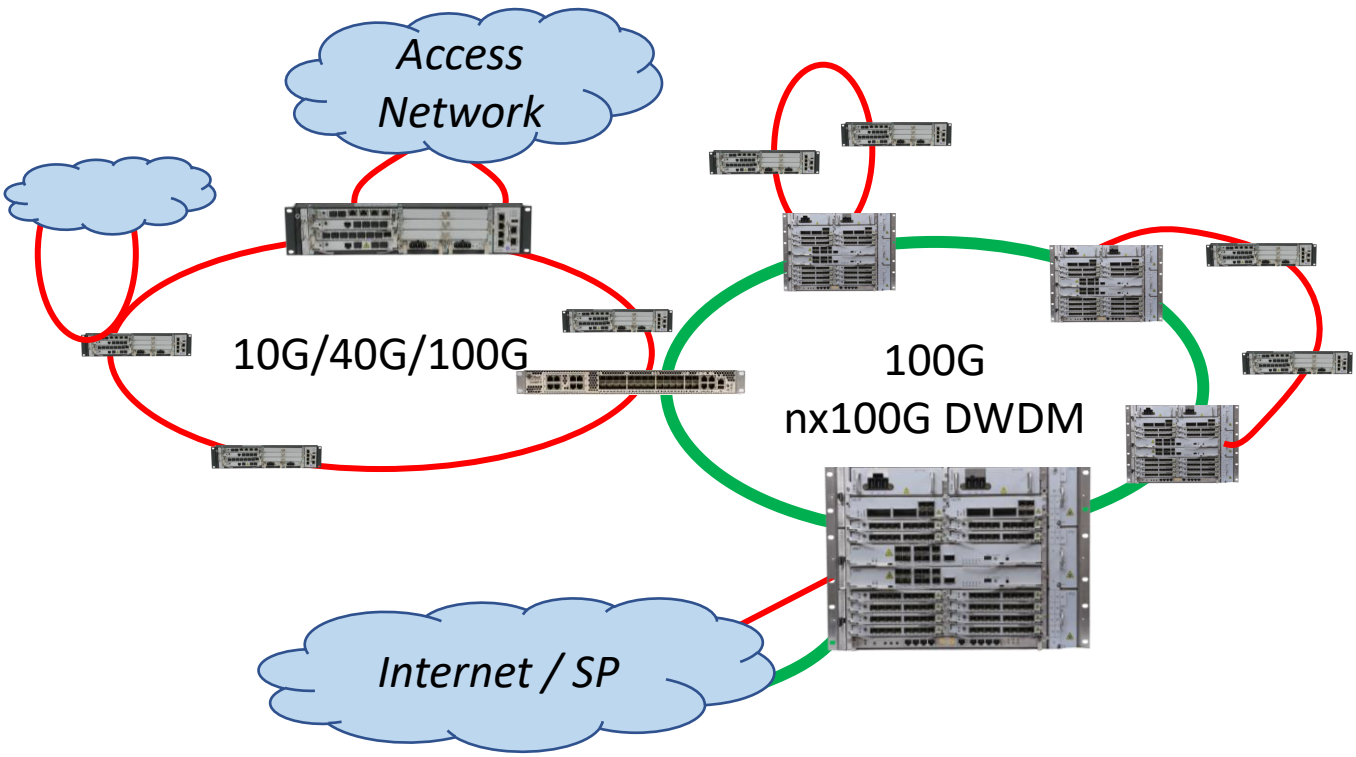
TJ1400P-H:

100GE - 2xCFP2 and 1 QSFP28

10 GE/1G – Up to 28 x10GE/1GE

Sample Deployment



System Switching Components

The TJ1400P-H has flexible Interface that can be used to match deployments. The following table lists the modules in terms of the ports available. Note that Fabric cards can have traffic interfaces for higher density and these run the TejNOS (Tejas Network Operating System) high-availability software.

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Feature Scalability

Parameter	TJ1400P-H
Unidirectional Switching	600 Gbps
Forwarding Rate	300 MPPS
VLANs (.1Q, .1ad)	4K
Frame Size supported	64 to 9216 bytes

Environmental Range

Operating Temperature	TJ1400P-H : -40 degC to +65 0C
Storage Temperature	-40 degC to +70 degC
Operating Altitude	Up to 3000 meters
Humidity	5% to 90% non-condensing

Overview of TejNOS Software

The TJ1400P-H runs the TejNOS (Tejas Network Operating System) software that provides scalable, feature-rich, high-availability software to ensure high network availability.

TejNOS delivers traditional IP/MPLS capabilities based on distributed in-node control plane to interoperate with legacy deployments. The key differentiation of TejNOS is the addition of recent MPLS Transport Profile support that aligns with the modern network design approach of using a controller to provision the services in the network to provide agility, ease of deployment and upgrade of the network.

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Feature detail of TejNOS software

Layer2 Switching	
Flow Control	Supports flow control as per IEEE 802.3x
Layer2 Discovery	Supports 802.1ad to discover links to neighbouring devices
MAC Learning and Switching	• Dynamic Learning of MAC addresses with configurable Aging Timers and Learning limits on every port • Static MAC addresses that are not subject to aging
VLAN support	• Supports 802.1Q and the ability to configure a port to receive packets that are untagged, tagged or both (Hybrid port) • 4K VLANs are supported
Provider Bridging	• Double VLANs tag (Q-in-Q, 802.1ad) allows S-VLAN to be added to distinguish different customer's traffic which could use the same CVLAN (.1Q tag) • 4K VLANs are supported
Link Aggregation	• Multiple Links can be combined into a higher-capacity interface as per IEEE 802.3ad • Supports Static LAG as well as Dynamic LAG using LACP (Load Balancing and Protection)
Spanning Tree	Loop-free Layer2 topology can be created using any of: • Standard Spanning Tree 802.1d • Rapid Spanning Tree (RSTP) 802.1w • Multiple Spanning Tree (MSTP) 802.1s • Root Guard*, Loop Guard*, BPDU Guard*
Ring Protection	50-ms Protection switching on a per VLAN basis is supported in accordance the ERPS specification of ITU-T G.8032
Ethernet Services	Ethernet services (E-Line, E-LAN) are supported as per the MEF CE2.0 specifications
IGMP Snooping	Supports snooping of IGMP v2/v3 requests to deliver the bandwidth intensive IPv4 multicast traffic only to the requesters

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Layer3 Features	• Routing Interfaces • OSPFv2 • BGP • ECMP • RSVP-TE* • IGMP V1,V2,V3 • Protocol Independent Multicast – Sparse Mode (PIM-SM) • Multi Protocol Label Switching (MPLS)* • Static Routes • VRRP • VRF
Synchronization	• SyncE • NTP

Quality of Service	
Queuing	8 Hardware Queues per Port Hardware support for Hierarchical Queue Management
Scheduling Disciplines	• Strict Priority • Choice at each level of Queue Nesting
Congestion Management	• Weighted Random Early Discard (WRED)

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