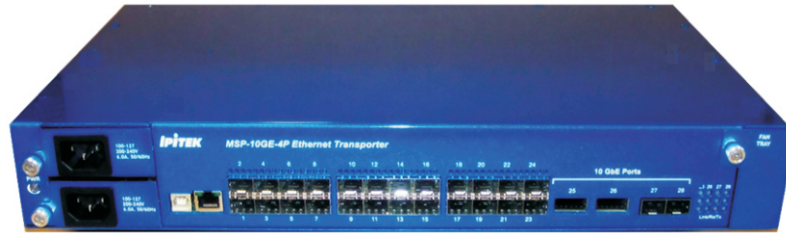


MSP-10GE-4P CARRIER ETHERNET TRANSPORT SYSTEM



FEATURES & BENEFITS

- Support for the latest Metro Ethernet Forum (MEF) CE 2.0 specifications
- Scalable capacity using 2 x 10G XFP, 2 x 10G SFP+ ports, and 24 x 1G optical/copper SFP
- MEF-defined Ethernet Virtual Circuits (EVC) for E-LINE, E-LAN and E-TREE services
- Dedicated hardware processor for Ethernet OAM, SLA and service testing: IEEE 802.1ag, IEEE 802.3ah, ITU-T Y.1731
- Point-to-point and ring protection switching supported on all ports using ERPS, LACP, RSTP and MSTP.
- Integrated IEEE 1588v2 and Sync-E network timing
- Extensive management features; CLI, WEB, SNMP-v2c/v3c with in-band and out-of-band support
- Advanced QoS and traffic management with multiple traffic profiling and H-QoS per EVC/ EVC.CoS
- Temperatures hardened system (-20° to 65°C)
- Single AC/DC or Dual DC, Dual AC, AC/DC power
- Integrates switching, aggregation and DWDM transport in 1.5RU and 80W power consumption

Description

IPITEK's MSP-10G-4P is a compact 1.5 RU system that multiplexes and transports Ethernet over a Metro Ethernet Network. It provides 24 ea 1GE SFP or copper ports, two 10G XFP ports, and two 10G SFP+ ports for robust Ethernet aggregation services. These networks provide Ethernet E-Line (Point-to-Point), E-LAN (Multipoint), or E-TREE (Point-to-Multipoint) circuits per network. The use of all optical interfaces provides the ability to combine up to 24 remotely located fiber-attached sites via 1GE links per site onto a 10GE protected backbone, while only consuming 1.5RU of rack space and 80 watts of protected AC or DC power. The resulting network is centrally provisioned via IPITEK's NodeWizard Element Management System.

Interfaces

24 ports of optical SFPs or copper SFPs, two 10G XFP, and two 10G SFP+ plug-in slots. Short reach MMF interfaces up to 40 ITU channels of 80km dispersion limit rated transceivers are offered on all ports. USB and Ethernet interfaces are also provided for management.

Service/Network Architectures

The MSP-10GE-4P allows any port to function as NNI (C-tag or S-tag) or UNI (C-tag or S-tag) thus enabling the formation of any network topology from point-to-point, ring and mesh. At the service level, Ethernet Virtual Circuits (EVCs) can be created to support E-Line, E-LAN or E-Tree customer connections. This allows for an optimized support of comprehensive services and applications including mobile backhaul, business services, access networks, aggregation networks, demarcation, etc.

Protection

The MSP-10GE-4P supports Link Aggregation (LAG) using 802.3ad LACP. In addition, ring and path protection are offered on all ports using standards-based ERPS (Ethernet Ring Protection Switching) and ELPS (Ethernet Linear Protection Switching). Protection per individual VLAN is also supported using RSTP and MSTP protection. This logical separation ensures that a fiber break in one protected ring does not impact other rings connected to the same MSP-10G-4P. Fast OAM support also allows service-level protection and monitoring.

Quality of Service

The MSP-10G-4P supports strict queuing with guaranteed bandwidth allocation, rate shaping and policing, broadcast/multicast policing, MEF bandwidth profiles (CIR, EIR, CBS), Eight QoS class queues per port with strict or deficit weighted round robin scheduling (DWRR), and Weighted Random Early Detection (WRED), etc.

Monitoring

Dedicated hardware allows for accurate SLA monitoring and OAM per IEEE 802.1ag, IEEE 802.3ah and end-to-end ITU-T Y.1731. In addition, optical power levels, Ethernet layer statistics and alarms are provided for each interface. Local logs of all command entries and events further simplifies trouble shooting. SNMP-v2c or v3c notifications are provided.

Provisioning

The MSP-10G-4P supports a variety of access protocols, including CLI over Telnet, SNMP, and TFTP. Incorporated security features include SSH, Web-based Secure Socket Layer (SSL), SNMPv3, RADIUS and Terminal Access Controller Access-Control System (TACACS+), as well as management access control list (ACL).

SPECIFICATIONS

Ethernet Interface Support

- 24 x 1GE SFP (optical or copper) ports
- 2 x 10GE XFP plug-in slots
- 2 x 10GE SFP+ plug-in slots

Carrier Ethernet

- 802.1QinQ switching with 32K MACs and 4K VLANs
- Push, pop, and translate ingress/egress
- Policing with storm control and MC/BC protection
- ERPS, ELPS, RSTP and MSTP support
- Independent and shared VLAN learning (IVL, SVL)
- Hardware and software-based learning
- TCAM-based classification
- Jumbo Frame support
- Strict priority and scheduler/shaper
- Dedicated OAM hardware and software support

Security

- Network Access Server (NAS): Port-based IEEE 802.1X, Single and multiple IEEE 802.1X, MAC-based authentication, VLAN and QoS assignment, Guest VLAN
- RADIUS accounting
- MAC address limit
- TACACS+
- Web and CLI Authentication
- Authorization (15 user levels)
- ACLs for filtering, policing, and port copy
- IP source guard

Monitoring

- Extensive monitoring capabilities of base unit
- OAM per 802.1ag, 802.3ah, and end-to-end OAM per Y.1731
- Optical power, temperature and current levels on optical ports
- Layer 2 statistics and utilization on all ports
- Event notification on user configurable thresholds
- Local logs of all command entries and events via syslog

Quality of Service

- Strict queuing with guaranteed bandwidth allocation
- Rate shaping and policing per port
- Broadcast / multicast policing per port
- MEF-based bandwidth profiles (CIR, EIR, CBS)
- Eight QoS class queues per port with strict or deficit weighted round robin scheduling (DWRR)
- Four drop precedence levels (DP-levels) per QoS class queue
- Weighted Random Early Detection (WRED) operation between DP-levels within each QoS class queue, providing intelligent congestion avoidance per QoS class
- TCAM-based QoS classification with pattern matching against Layer 2 through Layer 4 information
- DSCP translation, both ingress and/or egress, DSCP remarking based on QoS class and drop precedence level
- VLAN (PCP, DEI, and VID) translation, both ingress and/or egress, ingress and egress VLAN statistics counting both bytes and frames
- PCP and DEI remarking based on QoS class and drop

precedence level

- Per-queue and per-port policing and shaping, programmable in steps of 100 kbps
- Full-duplex flow control (IEEE 802.3x) and half-duplex back-pressure, symmetric and asymmetric

Multicast

- Layer 2 multicast
- IPv4 and IPv6
- IGMP and MLD

Synchronization

- Synchronous Ethernet (Sync-E) master and slave clock support per ITU-T G.8261-G.8264, with primary/secondary clock redundancy
- 1588v2 Precision Time Protocol slave and transparent clock with hardware-based timestamping 1 PPS, E1/T1 and 2 MHz signal frequency extracted from Sync-E, E1/T1 or 1588v2 slave

Power

Dual Power Supplies:	-42 to -56V DC or 110/220 AC
Power consumption:	80 watts max
BTU/hr:	276 BTU

Environmental

Operating temperature:	-20° to 65°C
Storage temperature:	-20° to +75°C
Relative humidity:	10 to 90%

Physical

Chassis dimensions:	17" x 10" x 2.625" (43.18cm x 25.4cm x 6.66cm)
Chassis weight:	~14.2 lbs. loaded
Rack mount requirements:	19" or 23" EIA cabinet or open-frame rack ETSI Compliant

Provisioning

Local Management	USB
Network mgmt Protocol	10/100BASE-T (OOB rear port) Telnet, SSH, HTTP/S, SNMP-v2c and SNMP-v3c
Software download	Dual flash bank, FTP, TFTP
Upload/download config	FTP, TFTP
In-band mgmt via a unique VLAN is supported on any front port	



2330 Faraday Avenue • Carlsbad • CA • 92008
(760) 438-1010 • Toll Free (888) 4-IPITEK (447-4835)

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FAX (760) 438-2412 • sales@ipitek.com • www.ipitek.com

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