

Datasheet

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Agregační OptiSwitch 9244-1210G Carrier-Ethernet Packet-Optical

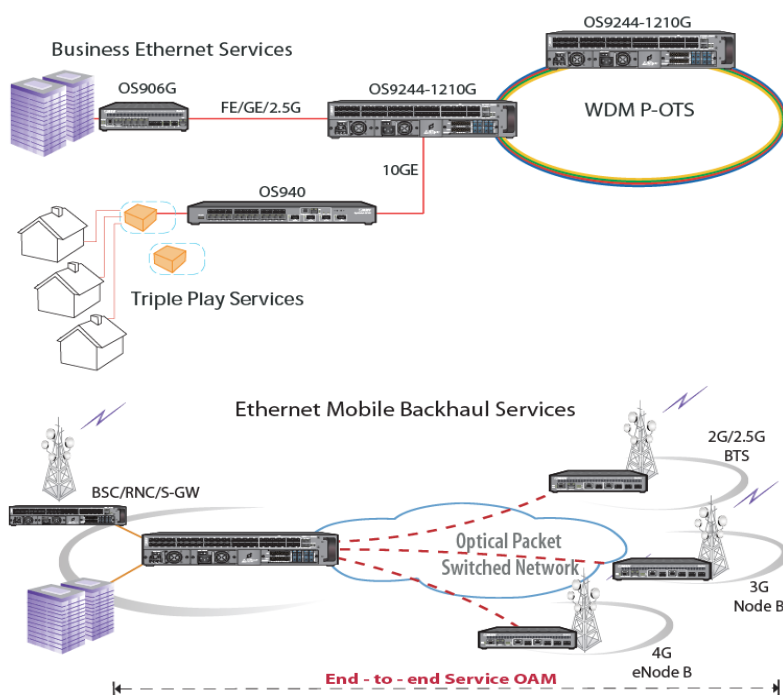
OS9244-1210G

MRV OptiSwitch® 9244-1210G je plně kompatibilní platforma MEF Carrier-Ethernet 2.0 a kompaktní paketově optická agregační platforma pro optické infrastruktury FE, GE a 10GE NGN v 1. a 2. míli.

Platforma je jednou z nejvýznamnějších agregačních systémů s hustotou 2RU v síti s celkovou šířkou portu 200Gbps s 32 x porty FE / 1 GE / 2.5GE (SFP) a porty 12 x 1GE / 10GE (SFP +).

Víceúčelový servisní slot platformy může být osazen všemi moduly OptiSwitch od společnosti MRV včetně CES (E1 / T1 a STM-1 / OC3) pro dodávku služeb TDM přes síť Ethernet a WDM Optical Transport.

Zařízení OptiSwitch 9244-1210G poskytuje poskytovatelům služeb plnohodnotnou sadu ethernetových služeb založených na technologii carrier s vysokou dostupností, vylepšenou kvalitou služeb, zabezpečením, podporou operací, správou a údržby (OAM) a Packet-WDM. Jedinečnost kompletního balíku nástrojů Carrier-Ethernet a MPLS činí tuto platformu dokonalým řešením pro poskytování služeb založených na SLA založených na podnikových sítích Ethernet a Mobile Backhaul Services.



Multipurpose Service Interfaces

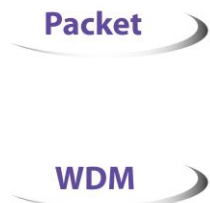
Platforma nabízí jedinečnou kombinaci funkcí a optických rozhraní, která umožňují vhodnou, snadnou a flexibilní konfiguraci portů a současně je ideální pro údržbu a inventury.

Integrace CWDM / DWDM eliminuje potřebu transpondéru v síti a nabízí optimální optimalizaci optického vlákna při oddělování fyzických služeb se specializovanými 1Gbps a 10Gbps rychlostmi pro prémiové optické služby se stejným pojmem jako starší služby "pronajaté linky".

Port numbering	Service Interface Options
Ports 1-32	100BaseFX - SGMII 100FX SFPs 1000BaseFX - standard GigE SFPs 2.5Gbps - 2000BaseFX - Standard multi-rate SFPs
Ports 33-44	1000BaseFX - standard GigE SFPs 10000BaseFX - SFPs +
Multi-service Expansion Slot	E1/T1 CES STM-1/OC3 CES WDM Services ITU-T G.694.1 Standard (DWDM) ITU-T G.694.2 Standard (CWDM) OADM's, MUX/DEMUX

- Všechna rozhraní mohou být konfigurována jako UNI / NNI pro umožnění přístupu k okrajovým a vnitrosystémovým službám
- Rozhraní 100FX (SGMII) a 1000FX lze rozdělit na rozhraní 10GE s určenou vlnovou délkou
- Zásuvná optická jednotka SFP / SFP + pro výměnu za provozu zaručuje flexibilní vzdálenost, náklady a výkon
- Zásuvné SFP / SFP + porty podporují vzdálenosti od krátkodobých až po dlouhé vzdálenosti, jednovláknové a CWDM a DWDM optiky
- Vzdálené sledování optické úrovně a alarmové prahové hodnoty na portech

End-to-end Service Provisioning and OAM



End-to-end service provisioning and activation across network infrastructure

Technical Specifications				
Standard compliance	FCC Part 15 (Class A); EMC Directive: Emission (Class A) and Immunity; LVD Directive: Electrical Safety; CE ; TUV-R mark (Canada, USA); GOST; RoHS Directive, REACH SVHC, WEEE Directive; ETSI compatible depth; NEBS conformance certified by NTS; C-Tick.			
Operating Temperature	0 to 50 °C (32 to 122 °F)			
Storage Temperature	-40 to +70 °C (-40 to 158 °F)			
Humidity	10% to 85% non-condensing			
Diagnostic LEDs	Power Supply, Management, Temperature, Fan, Link, and Activity			
Rack Mounting	19" or 23" racks , compact 2 RU height			
Maintainability	Front facing system configuration: eliminates the need to dismount the system for maintenance or installation of new hardware following initial installation Back-to-back installation in Telco racks: Doubling the 'port-per-rack' density.			
Performance	Non-blocking 200G (full-duplex) architecture. Full-wire packet forwarding on all ports (297 Mpps)			
Physical dimensions	447.6x300x88.1 mm 17.62x11.81x3.46 inch			
Weight (kg. /lbs.)	5.450 kg/11.9 lbs (fully loaded with 2PS 7.050 Kg/15.4 lbs)			
MTBF HRS @25C /77F	201,721			
Power Specifications (AC/DC) Hot swappable dual redundant Power Supplies	AC Input Voltage	DC Input Voltage Options		Power consumption(W)
	Line frequencies 50-60Hz			Min. Max
	100-240 VAC	-48VDC (-36VDC to -60VDC)		100W 135W

MEF compliant Carrier Ethernet 2.0 Services Packet Switching Services

- 200Gbps (Full-duplex) non-blocking wire-speed architecture
- Configurable for jumbo frames per port/EVC
- Packet buffer management
- IEEE802.1Q and IEEE802.1ad provider bridges
 - 4K active VLANs / EVCs
 - Selective Q-in-Q stacking per ACL criteria
 - Configurable Ethertype values
 - Private VLAN
- Transparent cross-connect mode
 - Per System, per port, or per EVC non-learning mode
- Learning table limit per VLAN/port
- Layer 2 control protocols tunneling
- UNI protected ports/Layer 1 filtering
- Provider Backbone Bridging (PBB) per 802.1ah¹



Protection Services

- Sub 50 ms ring and dual-homed topologies
- ITU-T G.8032 v2 Ethernet Ring Protection Switching
- ITU-T G.8031 Ethernet Linear Protection Switching
- MSTP per IEEE802.1s
- Link Aggregation (LAG n+1) - static and LACP
 - Load balancing based on L2-3-4 headers
- Link level 1:1 Loss of Signal (LOS) protection
- CFM (OAM) messages for fault detection and link fallback
- Bidirectional Link Fault Reflection
- Link flap protection and damping
- Unidirectional Link Detection

Multicast and IP Services

- Wire-speed multicast replication
- IGMP v1,v2 snooping , proxy, and fast leave, PIM-SM, PIM-SSM
- Wire-speed IPv4 and IPv6 packet forwarding and routing
 - RIP, RIPng, OSPFv2, OSPFv3 , BGP4, BGP4+, VRRP
 - BFD
 - DHCP server/client/relay

Layer 2.5 Services

- MPLS LER & LSR functionality
- Ethernet over MPLS pseudowire with Traffic Engineering
- MPLS Protection based on FRR detour mode and dual-homed spoke MTU-s
- MPLS BFD for MPLS OAM (based on RFC 5884)
- MPLS OAM (MPLS PING / MPLS Traceroute)

Security

- Wire-speed ACLs on L2-3-4 headers
 - Up to 8K rules
 - Ingress and Egress ACLs
 - Multiple actions in single ACL
- CPU Denial-of-Service protection
- MAC filters and MAC limit per port/per VLAN
- UNI Broadcast/Multicast/Unicast rate control
- Flood limiting of OAM frames
- ARP rate control
- DHCP option 82 & option 60
- ACL for management sessions from NOC
- View-based Access Control Model (VACM)

Traffic Management

- Traffic management per flow/EVC/Port
- Shaping and policing at L1/L2/L3
- Ingress and egress policing and shaping
- Color aware and color unaware BW-profile per MEF 10.2
- Congestion avoidance mechanisms: Tail-Drop and Weighted Random Early Discard (WRED)
 - Scheduling Mechanisms: Strict-Priority (SP), round-rubin (RR), and weighted round-rubin (WRR)
 - Classification by L1, L2, L3 and L4 criteria (Physical port, MAC, Ethertype, double VLAN tags, IP/ TCP/UDP)
 - Marking or/and Remarking profiles based on: IEEE802.1p, DSCP, and MPLS EXP
- 8 hardware Service Level queues for every physical and extra port
- Counters per UNI, CoS, EVC, control protocols - 4K counters

Availability

- 1:1 hot-swappable dual redundant power - AC/DC mix
- Hot-swappable pluggable fan tray
- Temperature sensor for environmental alerts
- Dual image & rollback processes

Management & Diagnostics Tools

- Industry Standard CLI
- Out-of-band management
 - EIA-232 port
 - Ethernet port
- Out-of-band Ethernet management - Dedicated ETH port
- TELNET, SSH v2, SNMPv3, RMON (4 groups)
- Port mirroring - ingress & egress traffic to analyzer port / VLAN
- Remote service/flow mirroring per ACL
- PING, Traceroute, DNS lookup, TCP dump (built-in sniffer)
- Management ACL for trusted connections (TELNET/SSH/ SNMP)
- Hierarchical Administration policy
- RADIUS / TACACS+ AAA for management sessions
- Configuration load/save using FTP, Secure Copy (SCP)
- Network Time Protocol (NTP)
- Internal/Remote Syslog
- Scripting tool for macro configurations & maintenance
- Scheduler for automated execution of pre-specified commands (time/day/cycle)
- Remote auto-configuration - DHCP server/client/relay
- IPv6 management
- DPOE 1.0 DEMARC auto configuration*

Standard Operation, Administration & Maintenance

- End-to-end Service OAM IEEE802.1ag
 - Connectivity Fault Management per service MEP/MIP
 - In-service EVC loopbacks, Linktrace & continuity check
- End-to-end Performance Measurement ITU-T Y.1731 & IP SLA
 - MEF SOAM PM (MEF 35)
 - Per service Jitter, Latency & Loss - nano second precision
 - RFC2544 throughput measurements for service baseline
- EFM Link OAM - IEEE802.3ah
 - Discovery, port-loopback, remote failure indication
- Optical signal level monitoring (SFP SFF-8472)
- Remote failure notification/reflection
- ITU-T Y.1563 service availability
- ITU-T Y.1564 Service Activation*
- Dying Gasp under EFM Link OAM per IEEE802.3ah
- MEF 10.2.1 service resiliency
- TWAMP reflector (RFC5357)
- JDSU Loopback Protocol*