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Packet Switching Modules (PSM-2C/PSM-2S)

High-density Service Aggregation for the Coriant 7100 Nano and 7100 Pico

MORE THAN DOUBLING PACKET SWITCHING CAPACITY WHILE LOWERING COSTS

The next-generation Coriant® Packet Switching Modules (PSM-2C and PSM-2S) enhance the packet switching capabilities of the Coriant® 7100 Nano™ Packet Optical Transport Platform and Coriant® 7100 Pico™ Packet Optical Transport Platform. With support for up to 200 Gbps per module, the PSM-2C and PSM-2S more than double the packet switching capacity of the platforms and offer a flexible combination of interfaces to increase service efficiency while decreasing CapEx and OpEx. The PSM-2C offers a 1 x 100GE or ODU4 coherent DWDM, 2 multi-speed ports with 10/100/1000, 100BASE-FX, GE, or 10GE, and 8 x 10GE or OTU2 interfaces. The PSM-2C increases optical spectral efficiency by a factor of ten, optimizes scalability of the platform for hyper-growth applications with a 350% increase in DWDM capacity per module, and increases efficiency of router port hand-offs, router port density, and router fabric utilization. The PSM-2S provides 16 multi-speed ports with 10/100/1000, 100BASE-FX, GE, or 10GE and offers 4 x 10GE or OTU2 interfaces. With these packet switching solutions, an impressive 1.2 Tbps can be switched in a 5RU 7100 Nano shelf and up to 400 Gbps in a 2RU 7100 Pico shelf.

The architecture of the PSM-2C and PSM-2S includes an integrated switch fabric, which enables interconnection through the backplane in an any-to-any mesh configuration in a 7100 Nano shelf or two cards paired in a 7100 Pico shelf. This fabricless configuration provides a high level of density as well as scalability and a low entry point from 200 Gbps up to 1.2 Tbps switching capacity, as shown in Figure 1.

BENEFITS OF THE CORIANT® 7100 PACKET SWITCHING MODULES

- Leverages flexible packet switching capacity of 200 Gbps per module
- Provides industry-leading packet switching density of 1.2 Tbps aggregate capacity in a 5RU 7100 Nano and 400 Gbps in a 2RU 7100 Pico
- Lowers CapEx by up to 25% with converged packet optical in the 7100 Series
- Offers space and cost savings with integrated OTN framing and enhanced forward error correction without the need for additional transponders
- Enables unrestricted service flexibility with simultaneous support for MPLS-TP, Connection-oriented Ethernet (CoE), and Ethernet Bridging across the entire shelf
- Facilitates pay-as-you-grow scalability with 100% pluggable interfaces

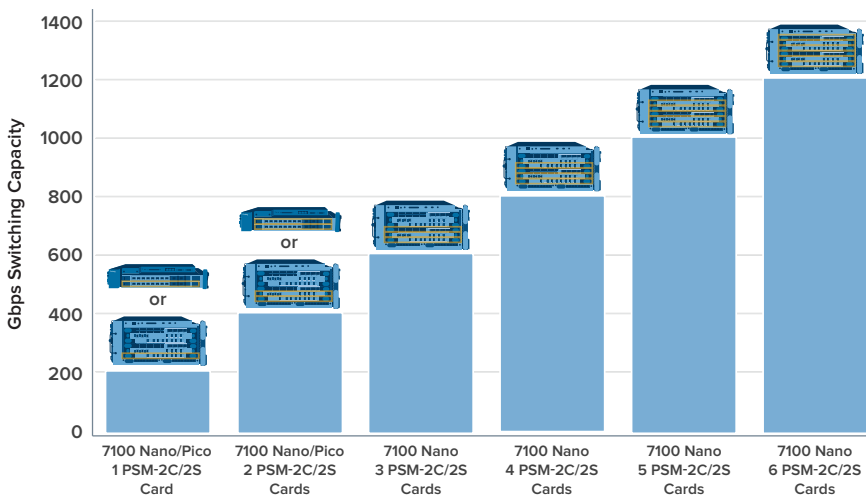


Figure 1 : 7100 Nano and 7100 Pico Scalable Switching Capacity



IMPROVING NETWORK SAVINGS, EFFICIENCY, AND FLEXIBILITY

Due to dramatic bandwidth growth, service providers require more cost-effective networking solutions to reduce operations expenses and increase service efficiency, flexibility, and reliability. Packet-based transport solutions deliver significant network savings over transponder and circuit-based (OTN/SONET/SDH) solutions. This substantial cost reduction occurs as the result of aggregating services from multiple interfaces into a single, oversubscribed statistically multiplexed interface. Service aggregation significantly reduces the number of ports required to support network traffic demands when the packet transport solution interfaces with routers, switches, or other transport devices.

Built on a flexible packet processor, the PSM-2C and PSM-2S deliver a broad and robust set of packet features that offer both Carrier Ethernet (both Bridging and VLAN cross-connect) and MPLS-TP grooming capabilities. The PSM-2C and PSM-2S support a wide variety of traffic management functionalities including hardware-accelerated OAM and protection options with sub-50 ms switch times and support for point-to-point (E-Line), multipoint-to-multipoint (E-LAN), and point-to-multipoint (E-Tree) services. Ranging from 10 Mbps up to 100 Gbps ports, the different card variants deliver the ideal solution for mobile backhaul, broadband aggregation, Fixed Mobile Convergence, Enterprise Business Ethernet, IP VPN, Smart City, cloud service connectivity, and legacy network migration applications.

The PSM-2C and PSM-2S packet switching modules in the 7100 Nano and 7100 Pico, together with the Coriant® 7090 Packet Transport Solutions and Coriant® mTera® Universal Transport Platform, provide a full end-to-end MEF CE2.0 certified and MPLS-TP transport solution, which is fully managed by the Coriant® Transport Network Management System (TNMS). The PSM-2C and PSM-2S offer the ideal solution for a more efficient, more cost-effective, more flexible, and more scalable transport network.

TECHNICAL SPECIFICATIONS

PSM-2C Interfaces

- 8 x SFP+ supporting either 10GE or OTU2-wrapped 10GE
- 2 x SFP/SFP+ supporting 10/100/1000, 100BASE-FX, GE, or 10GE
- 1 x CFP supporting 100GE or DWDM OTU4

PSM-2S Interfaces

- 4 x SFP+ supporting either 10GE or OTU2 wrapped 10GE, fixed or tunable lasers
- 16 x SFP/SFP+ supporting 10/100/1000, 100BASE-FX, GE, or 10GE

Physical

- Single slot module, 6 PSM-2C/PSM-2S modules per 7100 Nano, 2 PSM-2C/PSM-2S modules per 7100 Pico
- Weight: 2.8 pounds (1.3 kg)
- PSM-2C temperature range: 5° C to 40° C, 5%-85% relative humidity
- PSM-2S extended temperature range: -40° C to 65° C, 5%-85% relative humidity
- Dimensions
 - Height: 14.44 in (366.78 mm)
 - Width: 0.95 in (24.13 mm)
 - Depth: 10.07 in (255.78 mm)

Power Requirements

- PSM-2C: Typical Expected Wattage: 103 W
- PSM-2S: Typical Expected Wattage: 100 W

Module Interface Capacity

- 200 Gbps of front panel interface capacity
- 1.2 Tbps switching capacity per 7100 Nano
- 400 Gbps switching capacity per 7100 Pico

Timing

- Synchronous Ethernet (SyncE)
- IEEE 1588v2 hardware ready

General Features

- Integrated OTN encapsulation with enhanced FEC on 10GE and 100GE ports
- MEF Carrier Ethernet 2.0 Certified Services
- VLAN cross-connect: E-Line, E-LAN, E-Tree
- 802.3 MAC including Auto Negotiation, Flow Control, Link Level OAM, LAG, and RMON
- 802.1Q, 802.1ad with various bridge types

Static MPLS-TP Features

- P2P, bidirectional, co-routed LSPs
- Ethernet PW encapsulation (Terminating-PE)
- Multi-segment PWs (Switching-PE)
- LSP switching (P-Router)
- IETF-based LSP fault management (RFC6428, RFC6426)
- 1:1 linear LSP protection (RFC6378, G.8131)
- H-VPLS

Ethernet Protection Features

- 802.3ad LAG: active-active, active-standby modes
- RSTP, MSTP
- G.8031 1:1 linear VLAN protection
- G.8032 Ethernet ring protection

Ethernet OAM Features

- 802.3ah Link OAM
- 802.1ag Ethernet connectivity fault management
 - Continuity Check
 - RDI/AIS
 - Loopback
 - Link trace
- MPLS-TP fault management based on RFC 6427
- Y.1731 AIS and performance management

- Port/VLAN Mirroring
- RFC2544 benchmark test functions
- Link Layer Discovery Protocol (LLDP)
- In-band management VLAN

QoS and Traffic Management Features

- 8 queues per port, 4 queues per logical port (VLAN, LSP)

- Multi-level hierarchical scheduling and shaping
- MEF 10.2-based policing for Ethernet
- Hierarchical policing per MEF 10.3
- RED, WRED, and tail drop congestion avoidance
- WFQ and strict priority

- Performance monitoring on policers and shapers
- Classification based on Port and MAC, L2, L2.5, L3 headers
- P-bit manipulation (mark, override, regeneration)
- RFC 4115 and 2698-based policing

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