

CORIANT IS NOW PART OF INFINERA

7100 Pico™ Packet Optical Transport Platform

Compact, Flexible Transport for the Metro Edge and Metro Access

As application demands and service requirements evolve, network operators are addressing these challenges with the cost-effective flexibility and network efficiencies of the Coriant® 7100 Pico™ Packet Optical Transport Platform. Building on the field-proven capabilities of Coriant® 7100 Packet Optical Transport Solutions in metro/regional networks, the 7100 Pico extends services to the metro edge and enables metro access applications. The 7100 Pico is a highly compact 2RU shelf with AC power and extended temperature range options and offers two full size slots and one auxiliary slot for the modular components of the Coriant® Pluggable Optical Layer. Leveraging the success of over 10,000 deployed network elements in the 7100 Series, the 7100 Pico supports a wide range of intelligent services modules including high-density 10G, single slot 100G, OTN ADM, and packet switching. The 7100 Pico also supports fabricless switching, which enables a paired 100 Gbps ADM with 400 Gbps OTN switching capacity or a 400 Gbps packet switch.

POWERING APPLICATIONS WITH MULTIPLE CONFIGURATIONS

The 7100 Pico supports a broad range of applications including business Ethernet services, mobile and fixed broadband backhaul, SAN and native video transport, private enterprise networks, ROADM network extension, and migrating SONET/SDH rings to packet, OTN, or WDM.

Supporting multiple topologies such as point-to-point, ring, chain, and mesh, the 7100 Pico configurations can include:

- 100G CPE, packet switch, 10G ADM, or 100G ADM
- 10G/100G transparent WDM
- A converged platform integrating multiple technologies including packet switching, OTN, and WDM in a single NE

The 7100 Pico can address these applications either as a standalone solution or as an extension to Coriant metro and optical core solutions including the Coriant® 7100 Nano™ Packet Optical Transport Platform, Coriant® hiT 7300 Multi-Haul Transport Platform, Coriant® mTera® Universal Transport Platform, and Coriant® 7090 Packet Transport Solutions. The 7100 Pico can also enable data center interconnect either as a standalone solution where capacity requirements are more limited or as an optical layer for the Coriant Groove™ G30 DCI Platform.

BENEFITS OF THE CORIANT® 7100 PICO™ PLATFORM

- **Extend** the field-proven Coriant® 7100 Series metro packet optical platforms to the metro edge and metro access
- **Prepare** for the future with a flexible platform that supports integrated OTN switching/ADM, packet switching, 10G, 100G, and WDM based on the Coriant® Pluggable Optical Layer
- **Deliver** MEF 2.0 certified Ethernet services with 400 Gbps packet switching with 100 GbE, 10 GbE and GbE interfaces and with support for Ethernet Bridging, VLAN cross-connects, and MPLS-TP
- **Minimize** space and power requirements with a compact 2RU shelf and dense, highly integrated modules
- **Maximize** network availability with a wide range of protection options including Y-cable, 1+1 OCh, ODUk SNC, G.8031 Linear VLAN protection, G.8131 Linear LSP protection, and G.8032 Ethernet Ring Protection
- **Reduce** operational costs with extensive OTN and packet OAM, simplified end-to-end multi-layer provisioning, and Zero Touch Commissioning



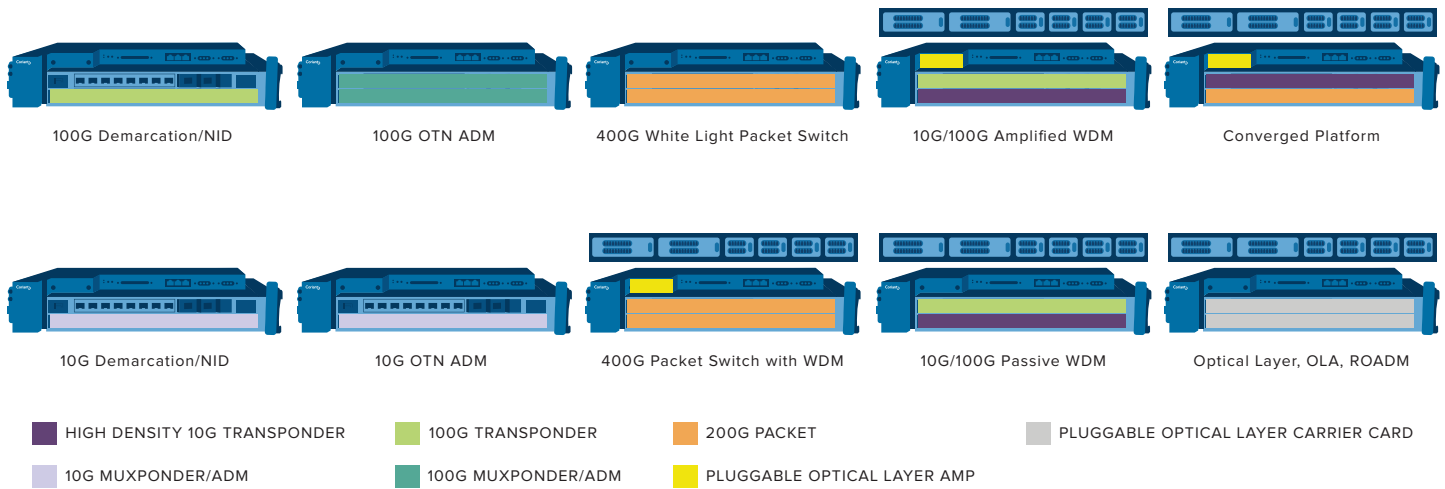


Figure 1: Example 7100 Pico Configurations

ENABLING HIGH-DENSITY 10G AND 100G WITH TRANSPONDERS AND MUXPONDERS/ADMS

Delivering high-density 10G and 100G, the 7100 Pico enables a wide range of client interfaces including Ethernet, SONET/SDH, OTN, Fibre Channel, and native video from 155 Mbps to 100 Gbps leveraging transponder, muxponder, and ADM functionality. Up to sixteen 10G transponders are supported with two high-density HDTG2 modules, which each deliver eight 10G transponders with sixteen SFP+ ports. The OMM-X module provides eight low speed SFP ports with support for Ethernet, SONET/SDH, OTN, Fibre Channel/FICON, native video, and anyrate interfaces up to 5 Gbps and two 10G/OTU2 XFP line interfaces. The OMM-X can be used as a single unprotected muxponder, a muxponder with line protection, a dual muxponder, or a 10G ADM with 40 Gbps OTN switching capacity. Two OMM-X modules can be paired via the backplane for redundancy.

The 7100 Pico also supports up to two single slot 100G modules. Supported 100G transponders include the single slot HGTM-S with a CFP4 client and CFP line (coherent or grey), and the HGTM-S2 supporting a CFP4 client and a coherent CFP2-ACO line interface. Supported single slot muxponders include the single slot HGTM-MS with ten 8G/10G SFP+ clients and a CFP line, and the HGTM-MS2 with ten 8G/10G/16G SFP+ clients and a CFP2-ACO line. Two HGTM-MS2 modules can be paired via the backplane to form an ADM with two 100 Gbps line interfaces and 400 Gbps OTN switching capacity. Both the HGTM-S2 and HGTM-MS2 support ODU payload encryption.

OFFERING 400 GBPS PACKET SWITCHING INCLUDING CARRIER ETHERNET AND MPLS-TP

The 7100 Pico supports 400 Gbps fabricless packet switching with the PSM-2C and PSM-2S packet switching modules. The 200 Gbps PSM-2C supports one CFP interface with support for 100 GbE or OTU4, eight SFP+ ports with support for 10 GbE or OTU2, and two SFP/SFP+ ports with support for 10 GbE or 10/100/1000M Ethernet. The 200 Gbps PSM-2S supports sixteen SFP/SFP+ ports with support for 10 GbE or 10/100/1000M Ethernet, and 4 SFP+ ports with support for 10 GbE or OTU2. Two modules can be paired via the backplane to create a 400 Gbps packet switch. Software-defined protocol options include Ethernet Bridging, VLAN cross-connects, and MPLS-TP/VPLS.

COST-EFFECTIVE AND FLEXIBLE WDM WITH THE CORIANT PLUGGABLE OPTICAL LAYER

By shrinking optical layer functions including EDFA-based amplifiers, EVOAs, optical per channel power monitoring (OCM), OSC, OTDR, and WSS to compact pluggables, the Pluggable Optical Layer enables network planners to mix and match optical layer functions to optimally meet the requirements of their networks in the short term, with the ability to extend functionality over time as needs evolve. The Pluggable Optical Layer can support a wide range of applications including CWDM, fixed DWDM, and ROADMs. The 7100 Pico supports active pluggables including amplifiers in the auxiliary slot and offers two full size slots for intelligent services modules. The platform can also support active pluggables through the Pluggable Optical Carrier Card (POCC) in its two full size slots. These pluggables can be deployed alongside the passive elements of the Pluggable Optical Layer to support a wide variety of CWDM and DWDM applications.

Active Components



EVOA
Electronic
Variable
Optical Attenuator



OSC
Optical
Supervisory
Channel



EDFA
Fixed
Power
Amplifier



EDFA
Variable Gain
Erbium
Amplifier



OCM
Optical
Channel
Monitor



OTDR
Optical
Time-Domain
Reflectometer



WSS
Wavelength
Selective
Switch



SFP



XFP



OFP2



OFP1

Passive Equipment



Carrier Cards for Active Pluggables



Figure 2: Coriant Pluggable Optical Layer

PROVIDING MANAGEMENT AND CONTROL VIA CORIANT NMS AND SDN

The 7100 Pico supports a comprehensive set of features to simplify installation and management. In-band management can be supported by OSC, GCC, or VLAN. PRBS test and loopback facilities are supported on all intelligent services modules. Per channel power monitoring is an option enabled by the Pluggable Optical Layer. Extensive OAM features include OTN OTUk, ODUkP, and Tandem Connection Monitoring (TCM), Y.1731/802.1ag Ethernet OAM, RFC 2544 and Y.1564 Ethernet service testing, and MPLS-TP IETF-based LSP fault management. Zero Touch Commissioning simplifies installation and reduces time and cost by downloading the software and configuration automatically from a central server based on the location of the node in the network.

NMS support is provided by the Coriant® Transport Network Management System (TNMS), an end-to-end management platform (FCAPS) that enables operators to easily and cost effectively manage multi-layer, multi-domain, and multi-vendor networks. TNMS integrates into existing OSS environments and empowers a holistic approach to network and service management. SDN support is provided by the Coriant Transcend™ SDN Controller, which enables multi-layer control and network programmability via open interfaces, supporting new applications including bandwidth-on-demand, network as a service, and SLA-aware service assurance.

TECHNICAL SPECIFICATIONS

Supported Coriant® 7100 Series

Intelligent Services Modules

- OMM-X: OTN muxponder/ADM-on-a-blade with 2xXFP + 8xSFP
- HDTG2: High-density 10G transponder module with 16xSFP+
- HGTM-S: Single slot 100G transponder module with CFP and CFP4
- HGTM-MS: Single slot 100G muxponder module with CFP and 10xSFP+
- HGTM-S2: Single slot 100G transponder module with CFP2-ACO and CFP4
- HGTM-MS2: Single slot 100G muxponder/ADM module with CFP2-ACO and 10xSFP+
- PSM-2C: 200G packet switching module with CFP and 10xSFP/SFP+
- PSM-2S: 200G packet switching module with 20xSFP/SFP+

Interfaces and Protocols

- OTN: OTU1, OTU2, OTU2e, OTU4
- Ethernet: 10/100M, 1GbE, 10GbE, 100GbE
- SONET: OC-3, OC-12, OC-48, OC-192
- SDH: STM-1, STM-4, STM-16, STM-64
- Fibre Channel/FICON: 1G/2G/4G/8G/10G/16G
- Native Video: DVB-ASI, SD-SDI, HD-SDI, 3G-SDI
- Any generic rate 125 Mbps to 5 Gbps

Network

- Topologies: Point-to-point, ring, chain, mesh
- 100% pluggable interfaces (SFP, SFP+, XFP, CFP, CFP2, CFP4)
- Grey light or DWDM line side interfaces
- Electrical Switching:
 - Backplane for fabricless switching
 - OTN: ODU0, ODU1, ODU2, ODU2e, ODUflex
 - Carrier Ethernet: Bridging, VLAN cross-connect
 - MPLS-TP/VPLS
- Coriant® Pluggable Optical Layer:
 - CWDM and DWDM
 - Amplified and Unamplified
 - ROADM with pluggable WSS

Protection and Restoration

- Client: Y-Cable
- Optical: 1+1 OCh
- OTN: ODUk SNC/N, SNC/I
- Ethernet: G.8031 1:1 linear VLAN protection, G.8032 Ethernet Ring Protection, RSTP, MSTP, 802.1AX LAG
- MPLS-TP: Linear 1:1 LSP (G.8131, RFC6378)

Synchronization

- Transparent via OTN
- Synchronous Ethernet
- 1588v2 hardware ready

Management and Planning

- In-band management: OSC, GCC, Ethernet VLAN
- Coriant® 7191 Craft Station
- Coriant® 7196 Optical Planning Tool
- Coriant® Transport Network Management System (TNMS)
- Coriant Transcend™ SDN Solution

Physical, Installation, and Power Options

- DC shelf version: 450.35 x 88 x 300 mm or 17.73 x 3.46 x 11.8 in (W x H x D)
- AC Version: 450.35 x 88 x 426 mm or 17.73 x 3.46 x 16.77 in (W x H x D)
- 19-inch, 23-inch, and ETSI support

Certifications

- MEF CE 2.0 certified
- SAN: Brocade certified, EMC qualified

Environmental

- GR-3160 compliant
- ETSI Class 3.2 compliant
- UL and CE compliant
- NEBS compliant
- VCCI certified
- Options for outside deployment/extended temperature range (-40°C to +65°C)

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