

# 7100 Nano™ Packet Optical Transport Platform

*Multifunctional High-Density Packet Optical Transport in a Compact Package*

The Coriant™ 7100 Nano™ Packet Optical Transport Platform is one of the most successful optical networking products in the market with thousands of deployments across the globe. In a single compact 5RU chassis, the 7100 Nano provides the industry's most advanced optical networking solution with unparalleled flexibility to support virtually any metro/regional application and the ability to migrate seamlessly from one configuration to another. The system boasts impressive density with 10G (576x 10G ports per rack), 100G (72x 100G ports per rack), and packet switching (288x 10G + 432x GbE ports per rack). The 7100 Nano functions independently or in conjunction with the Coriant™ 7100 Optical Transport System, Coriant™ mTera™ Universal Transport Platform, Coriant™ hiT 7300 Multi-Haul Transport Platform, Coriant™ 7090 Packet Transport Platform, and Coriant™ 8600 Smart Router Series as part of a complete end-to-end network solution.

## ENABLES FLEXIBLE NETWORK EVOLUTION TO MEET UNPREDICTABLE FUTURE REQUIREMENTS

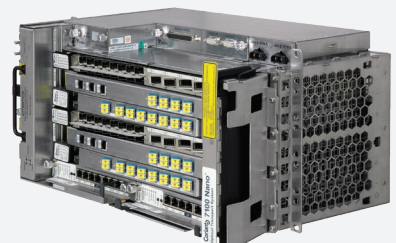
To successfully manage changing applications and unpredictable network requirements, the 7100 Nano transitions smoothly from grey light configurations to multi-degree ROADM configurations. At the same time, the 7100 Nano supports SONET/SDH, OTN switching, integrated packet, 10G/40G/100G transmissions, and wavelength services including full non-blocking grooming of all protocols. From 10G to 100G and from transparent to SONET/SDH, OTN, or packet grooming, the 7100 Nano can be tailored to meet your exact network requirements.

## 7100 NANO AND THE CORIANT DYNAMIC OPTICAL CLOUD™

In addition to providing a high-density, versatile platform for evolving network configurations, the 7100 Nano offering is further enhanced by Coriant's innovative approach to Software Defined Networking (SDN) and Network Functions Virtualization (NFV). The Coriant Dynamic Optical Cloud™ Solution, which encompasses the 7100 Nano, combines a flexible transport infrastructure, dynamic network control based on the Coriant Transcend™ SDN Solution, and integrated network planning to create a powerful toolkit for multi-layer network efficiencies and next-generation service innovation in the new networked world.

## BENEFITS OF THE CORIANT™ 7100 NANO™ PLATFORM

- Provides the industry's most versatile metro/regional transport platform supporting seamless growth from grey light to multi-degree ROADM and from transponders/muxponders to multi-layer grooming (SONET/SDH, OTN, and packet)
- Supports a wide variety of applications with a single platform: Business and Enterprise; Mobile Backhaul; Data Center Interconnect; Multi-Service Residential Triple Play
- Enables cost-effective growth by extending optical express capabilities to the edge of the network
- Improves network efficiency with integrated multi-layer fabric-less grooming
- Reduces space and power requirements with the industry's highest density ROADM, 10G, 100G, and packet grooming solution
- Simplifies network deployments and reduces network failures with a fully automated optical layer including per channel power balancing and optical health reports
- Improves network reliability with a wide range of protection and OAM features for every layer



*Coriant 7100 Nano™ Platform ranked as the market leader in Packet Optical Transport by industry analysts*

# 7100 NANO SHELF OVERVIEW

## FLEXIBLE SCALABLE PLATFORM

- Universal shelf architecture
- 480G Transparent; 120G OTN; 552G Packet
- 6 Slots per shelf - 8 shelves per system

## FULL INTELLIGENT SERVICES LAYER SUPPORT

- 10G, 40G, & 100G Transparent
- SONET/SDH, Packet, OTN Switching
- Full shelf fabric-less grooming via meshed backplane

4/8 Degrees  
88 Channels per Degree  
w/ Full Add/Drop

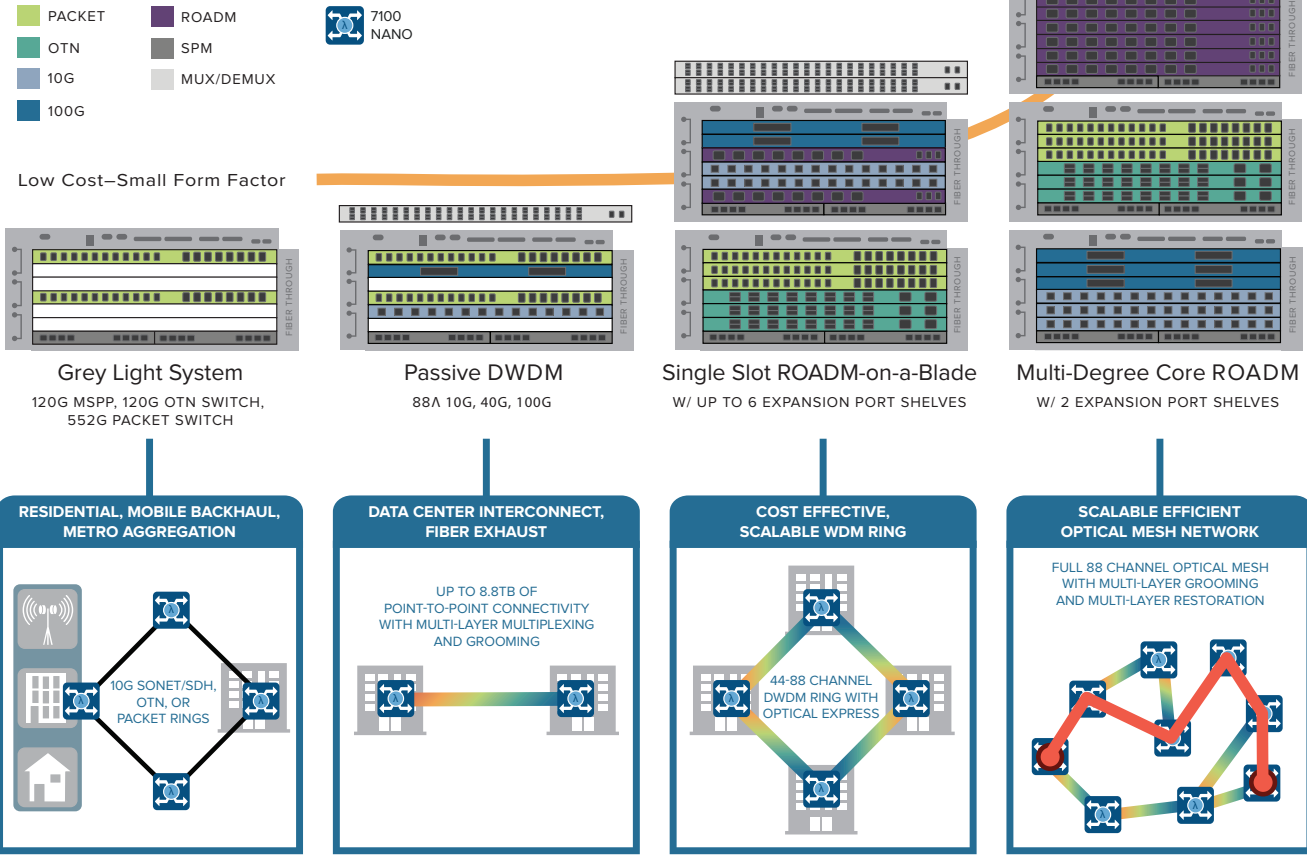


Figure 1: Versatile Multi-service 7100 Nano Configurations

## GROOMING FLEXIBILITY WITHOUT THE UPFRONT COST

The 7100 Nano supports a wide range of traffic management options including transponders and muxponders, OTN switching, packet switching, and SONET/SDH switching simultaneously in a single shelf. With an innovative meshed backplane, the 7100 Nano facilitates non-blocking grooming between modules on a shelf without upfront investment in expensive central switch fabric. By supporting the ability to seamlessly migrate from any configuration to any other configuration simply by adding the appropriate modules into the universal shelf, the 7100 Nano enables network operators to easily and cost effectively evolve their systems and networks from a basic point-to-point infrastructure to a more advanced, efficient, and multi-service grooming solution.

## TRANSPONDERS/MUXPONDERS

Multi-Port 10G  
Transponder/  
Muxponder



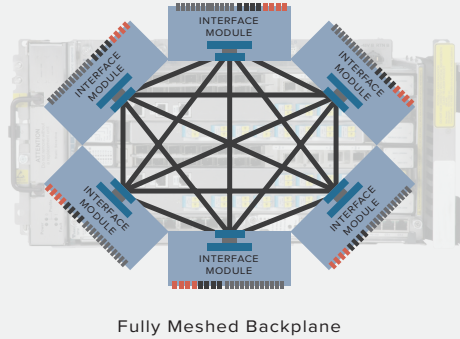
40G  
Transponder/  
Muxponder



100G  
Transponder/  
Muxponder



## FULL SHELF, FABRIC-LESS GROOMING MODULES



SONET/SDH  
Switch



20G MSPP On-a-Blade  
(120G MSPP Switch Per Shelf)

Packet  
Switch



92G Packet Switch Module  
(552G Packet Switch Per Shelf)

OTN  
Switch



20G OTN Switch Module  
(120G OTN Switch Per Shelf)

Figure 2: Broad Range of Transponder/Muxponder and Fabric-less Switching Options

## EFFECTIVELY EXTEND THE BENEFITS OF OPTICAL EXPRESS

Optical express capabilities are a powerful tool to facilitate network growth, decrease operational costs, and reduce network failures. The 7100 Nano provides a compact and cost-effective optical express solution for core metro/regional networks and an innovative solution to extend optical express capabilities to the metro edge and to smaller metro networks. In addition, the 7100 Nano offers numerous features to simplify optical express even in the most complex network architectures.

### OPTICAL HEALTH REPORTS

- Per channel optical health reports provide detailed power information across the network including baselining to model signal degradation

### AUTOMATIC NETWORK BALANCING

- Automatic recovery from power fluctuations
- Fast AGC with transient suppression
- ATPS – Automatic Transmit Power Shutdown
- APR – Automatic Power Reduction

### PER CHANNEL POWER BALANCING

- Automated per channel power balancing simplifies operations & ensures optimal network performance
- WSS balances each channel
- Amplifiers support tilt control for long OLA chains

Figure 3: 7100 Nano Operational Features to Facilitate Optical Express

## OPTICAL EXPRESS SOLUTION FOR METRO/REGIONAL CORE NETWORKS

The 7100 Nano offers an industry-leading high-density solution enabling up to six ROADM degrees in a single 5RU shelf at only 0.83RU per 88 channel degree. The 7100 Nano solution supports complete integration of all multi-degree ROADM components including the Wavelength Selective Switch (WSS), input amplifier, output amplifier, Optical Supervisory Channel (OSC), and per channel power monitoring and power balancing in a single-slot ROADM module.

## OPTICAL EXPRESS SOLUTION FOR METRO EDGE AND SMALLER METRO NETWORKS

To extend the benefits of optical express capabilities deeper into core networks and to smaller networks, Coriant has developed an innovative Automated Edge OADM solution. The Automated Edge OADM (OADMF8) delivers all of the operational and scalability benefits of a traditional ROADM without the expense associated with multi-degree Wavelength Selectable Switches. The Automated Edge OADM is a compact, cost-effective, two degree solution ideal for smaller networks and the edge of dense metro networks.

## THE SOLUTION TO MEET DYNAMIC SERVICE DEMANDS

Network operators require a flexible and cost-effective solution that evolves with changing service demands. The Coriant 7100 Nano provides the ideal network solution to meet current requirements and seamlessly transition to meet future network capacity and traffic management requirements.

### TECHNICAL SPECIFICATIONS

#### Topology

- Point-to-Point, Linear Add/Drop, Ring, Ladder, Mesh

#### Shelf Dimensions

- 436.9 x 220.9 x 283 mm or 17.2 x 8.7 x 11.1 inches (W x H x D)

#### System Configurations

- Up to eight shelves per system
- Eight ROADM degrees (six degrees on a single shelf)
- Single-shelf system configurations include two ROADM degrees plus four transponders, muxponders, and/or switching cards (SONET/SDH, OTN, packet)

#### Interfaces

- OC-3, OC-12, OC-48, OC-192, OC-768
- STM-1, STM-4, STM-16, STM-64, STM-256
- ESCON/SBCON, 1G/2G/4G/8G/10G FICON
- InfiniBand SDR, DDR
- FC/2, FC/4, FC/8, 1G/2G/4G/8G/10G FC, 1G/2G ISC
- 10/100/1000 Base TX/FX/LX, 1GbE, 10GbE, 40GbE, 100GbE
- ODU0, OTU1, OTU1e, OTU2, OTU2e, OTU3, OTU4, ODUflex
- Any generic rate 125 Mbps to 5 Gbps
- SD-SDI, HD-SDI, 3G-SDI, DVB-ASI

#### Networking and Grooming

- DWDM
  - Up to 88 wavelengths at 10 Gbps, 40 Gbps, and 100 Gbps w/o guardbands
  - All DWDM interfaces widely tunable across all 88 wavelengths
- ROADM and Amplifiers
  - Up to eight degree ROADM with colorless and directionless
  - Two degree Edge DWDM supporting up to 44 channels with add/drop of 4, 8, or 44 wavelengths
  - All optical pass-through for transit wavelengths
  - Flexible amplifier configurations for a wide range of fiber span distances: 35db with EDFA, 49db with EDFA + Raman, 55db with EDFA + Raman and reduce channel count
- Grooming
  - Meshed backplane for fabric-less non-blocking switching
- SONET/SDH
  - Grooming: STS-1, VC4
  - Protection: SNCP, UPSR, OCH-DPRing, 1+1, APS
- OTN
  - Grooming: ODU0, ODU1, ODU2, ODU2e + ODUflex support
  - Protection: ODUk SNC/N, SNC/I
- Carrier Ethernet
  - Grooming: VLAN, MAC
  - Protection: G.8031/8032, RSTP, MSTP, LAG with LACP
  - OAM: 802.1ag, Y.1731, 802.3ah

#### • MPLS-TP

- Grooming: Point-to-point, bidirectional, co-routed
- Protection: Linear 1:1 end-to-end LSP (RFC6378)
- OAM: BFD (RFC6428), LSP Ping (RFC6426)

#### Control, Management, and Planning

- ASON/GMPLS dynamic control plane for connection management and automated mesh restoration
- Coriant 7191 Craft Station
- Coriant 7196 Optical Planning Tool
- Coriant 7194 Network Management System
- Coriant 8000 Intelligent Network Manager (INM)
- Coriant Transport Network Management System (TNMS)
- Coriant Transcend™ SDN Solution

#### Certifications

- MEF CE 2.0 certified
- SAN: Brocade certified, EMC qualified, IBM GDPS qualified
- Interoperability-proven OIF E-NNI 1.0, 2.0
- Joint Interoperability Test Command (JITC)

#### Environmental

- GR-63 compliant (vertical installation)
- GR-3160 compliant (19-inch horizontal installation)
- ETSI Class 3.2 compliant
- VCCI certified

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