DATA SHEET

CORIANT IS NOW PART OF INFINERA

hiT 7300
Multi-Haul Transport Platform

Industry-Leading, High Performance Optical Transport

Telecommunication, data, internet, and cloud operators are experiencing a monumental transformation in data communication networks. In addition to the increasing demand for capacity in all network domains, providers face the critical challenge of ensuring the profitability of transport networks by significantly reducing the cost per bit. Furthermore, the rapid growth of data center and cloud services is fundamentally changing connectivity patterns. These drivers are fueling the need for more flexible, more dynamic, and more customized transport services in a new generation of transport solutions. Coriant, with its full end-to-end IP-Optical transport solutions portfolio, addresses these challenges with industry-leading innovative and scalable solutions for all network domains.

DELIVERING AN UNRIVALED DWDM OPTICAL TRANSPORT SOLUTION

The Coriant® hiT 7300 Multi-Haul Transport Platform is a flexible and cost-efficient flexi-grid DWDM optical solution optimized for high-capacity transport from regional to long haul (LH) and ultra-long haul (ULH) optical transport scenarios, data center interconnections, and optical terrestrial-submarine interconnection. The platform can carry a total capacity of 38.4 Tbps per fiber pair with a maximum of 128 DWDM wavelengths. With configurations including a 15 slot standard shelf for ANSI and ETSI installations, a 13 traffic slot 19-inch shelf, a 5 traffic slot Flatpack shelf, and a 4 traffic slot shelf for data center installations, all chassis offer the highest level of optical layer performance and flexibility for deployment in numerous applications and sites.

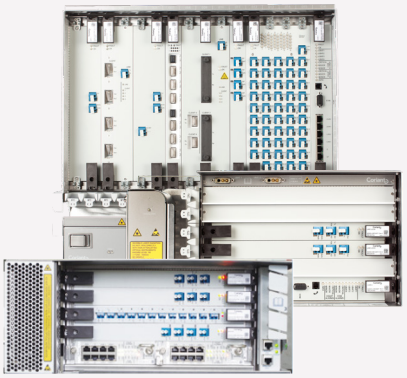
The hiT 7300 supports various types of network nodes and provides solutions for cost-efficient FOADM to flexi-grid ROADM configurations – both broadcast and select as well as route and select – with up to 16 directions. These features combined with the full scope of add/drop capabilities spanning from fixed add/drop to Colorless, Directionless, and Contentionless (CDC) enable operators to build a variety of network topologies including simple point-to-point, ring, and fully meshed configurations. The hiT 7300 is an integral component of the Coriant optical core solution portfolio, which also includes:

- Coriant® mTera® Universal Transport Platform (UTP) for unparalleled grooming flexibility
- Coriant® 7100 Nano™ Packet Optical Transport Platform for seamless migration between configurations in metro applications
- Coriant Groove™ G30 Network Disaggregation Platform (NDP) for cloud and data center networks

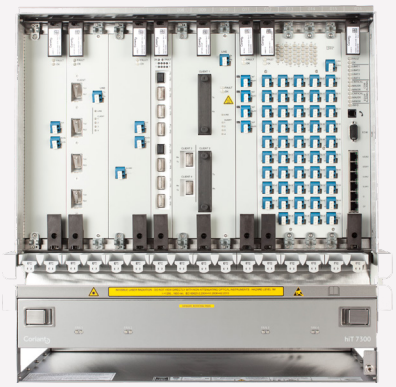
The Coriant optical core solutions are managed by the Coriant Transcend™ Chorus for Transport Management System, an end-to-end management platform (FCAPS) that enables simplified and cost-effective control and monitoring of multi-layer (PDH, SDH, IP/Ethernet, MPLS-TP, DWDM), multi-domain (access, metro, core), and multi-vendor networks.

BENEFITS OF THE CORIANT hiT 7300

- **Extract maximum value from your fiber assets** with our industry-leading Coriant CloudWave™ Optics and Link Control technology offering superior performance even in the most challenging fiber conditions
- **Deliver highest density and lowest power consumption for highest capacity services** through Coriant CloudWave™ Optics
- **Extend the lifetime of your network** with Coriant CloudWave™ T technology to upgrade existing systems with 100G to 600G per wavelength without touching the line system
- **Attain the highest network resiliency** with cost-effective sub 50 msec optical line protection switching options and Virtualized ASON restoration capabilities that can be combined for multi-failure resiliency
- **Support end-to-end electronic workflow and automation** to limit manual errors and reduce installation, optical channel, and end-user service provisioning effort



hiT 7300 Multi-Haul Transport Platform



hiT 7300 Standard Shelf SRS-3 with 15 traffic slots

hiT 7300 Flatpack Shelf SFL-1 with 5 traffic slots

hiT 7300 Flatpack Shelf SFL600-3 for Data Center Applications

ENABLING NEXT-GENERATION OPTICAL TRANSPORT WITH CORIANT CLOUDWAVE™ T OPTICS

Coriant CloudWave™ T Optics is a leading optical interface solution with an optimized feature suite including a power efficient processing engine, custom-built integrated photonics, and embedded software intelligence that leverages the hardware and introduces a new level of flexibility, efficiency, and scalability to next-generation optical transport networks. Offering software programmable line side modules with up to 600G capacity per wavelength, tunable spectral allocation, and channel frequency flexibility, Coriant CloudWave™ T Optics delivers unmatched optical layer performance and flexibility for optical networks and data center interconnections.

MAXIMIZING OPTICAL PERFORMANCE IN LH AND ULH NETWORKS

The hiT 7300 provides the highest optical layer flexibility available in the industry. With configuration options including 96 channel fixed grid, up to 128 channel flexi-grid, and super-channel technology, the hiT 7300 supports any channel capacities in all topologies such as point-to-point, ring, and fully meshed network configurations. By leveraging flexi-rate technology, the hiT 7300 addresses high performance and high-capacity requirements in core networks with unregenerated reach of up to 5,000 km and capacities of up to 38.4 Tbps in terrestrial applications as well as submarine transmission of more than 12,000 km. Including support for EDFA and hybrid EDFA/Raman amplifiers and fixed CDC add/drop structures, the hiT 7300 can be configured according to the required network conditions.

For efficient usage of the fiber and optimized transmission of the optical channels over the entire distance in LH and ULH networks, Coriant has developed an advanced Optical Link Control (OLC), which is supported on the hiT 7300 and the mTera UTP. OLC runs on each network element using the Optical Supervisory Channel (OSC) and provides automated end-to-end optical power control per channel.

ADVANCING ADAPTABILITY WITH FLEXI-RATE INTERFACE MODULES

The advanced hiT 7300 flexi-rate interface modules are important components of the Coriant Dynamic Optical Cloud™ Solution that leverages Coriant CloudWave™ Optics. The flexi-rate modules introduce a new level of flexibility, capacity, cost efficiency, and lowest power consumption for 100G+ optical transmission. The hiT 7300 flexi-rate line side module provides two fully programmable physical DWDM line side interfaces that can be configured between 100G QPSK (Quadrature Phase Shift Keying), 150G 8QAM (Quadrature Amplitude Modulation), and 200G 16QAM modulation schemes. In addition, the line side interfaces support fixed grid and flexi-grid channel arrangements with various super-channels (200G, 300G, 400G, 1T) in meshed networks. CloudWave T, the latest DSP technology provides programmable bandwidth per channel (100G to 600G), based on flexible spectrum allocation (30 to 100 GHz per wavelength) and programmable modulation schemes, such as QPSK, 16/32/64QAM, SP-16QAM, and hybrid modes that mix different modulation formats. This technology, delivered within the Groove G30 NDP, provides the next generation in transponder technology for the hiT 7300. Coriant CloudWave™ technology is fully backward compatible with legacy and third-party infrastructure and line side compatible with the 7100 Series, mTera UTP, and Groove G30. The optical implementation of this innovative technology powers operations across multi-vendor network environments to protect existing infrastructure investment. This next-generation technology enables a smooth evolution of existing optical transport networks to dynamically programmable terabit services and beyond.

Two client modules complement the flexi-rate line module providing connectivity for up to 20x 10G clients and for 4x 100G clients. The 10G client card can also be operated as an add/drop multiplexer. In the hiT 7300, this functionality enables support for 10G OTN switching or add/drop multiplexing (ADM) for a few 10G channels through a cost-efficient solution while offering compatibility with the mTera® UTP at sites with higher add/drop multiplexing capacity or flexibility demands.

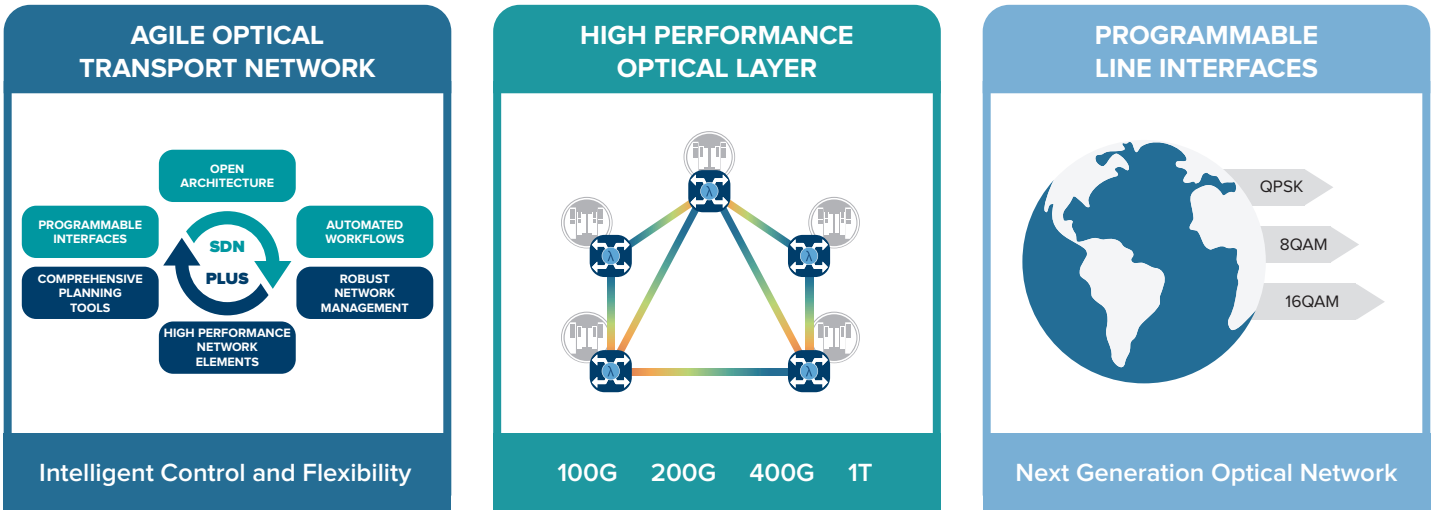


Figure 1: Cornerstones of Next-generation Optical Transport

INCREASING FIBER ASSET VALUE AND WITHSTANDING CHALLENGING FIBER CONDITIONS

The hiT 7300 delivers a fully optimized and robust combination of transponders, in-line amplifiers, optical nodes, and link control proven to handle changing network and environmental conditions. Coriant transport solutions, including the hiT 7300 and the mTera UTP for long haul and optical core applications, are designed to address multiple challenges such as transient suppression of fluctuations caused by adding or dropping wavelengths, performance optimization on a channel-by-channel basis using adaptive tilt-control in the optical layer equipment, and a superior tolerance against additional span loss. Fiber loss can increase over time with fiber breaks and splices or it can occur immediately when fiber is bent around patch panels leading to a loss increase of several decibels. Coriant's robust and adaptive link control guarantees superior performance through these network conditions. Environmental impairments, such as vibrations on fiber cables laid on bridges and next to railroad tracks or lightning strikes on aerial fibers, lead to time-varying, polarization-changing effects and require a dedicated transceiver enabling coherent technology to withstand polarization-induced link impairments. Coriant advanced signal processing allows for higher link budgets, thus extending the lifetime of installed networks and protecting investment in the fiber plant.

ENSURING NETWORK AVAILABILITY WITH OPTICAL PROTECTION

The hiT 7300 supports comprehensive functionality for network and service resilience. This capability is crucial for reliable transport of high-capacity traffic over long distances where the highest availability of transport connectivity is important for service providers and carrier's carrier applications to sustain quality of service in case of multiple fiber cuts or equipment failures in the network. With fast protection of DWDM links for long amplified optical multiplex sections (OMS), including in-line amplifiers, or of fibers between non-amplified optical transport sections (OTS), the hiT 7300 ensures effective protection of the DWDM infrastructure.

For optical wavelength channels consisting of single and multiple sub-carriers (super-channels), the hiT 7300 achieves <50 msec traffic recovery performance after a fiber cut, which exceeds the industry standard for optical protection in non-regenerated ULH DWDM line systems with flexi-rate transponders and coherent channel selection, thereby providing significantly cost-effective end-to-end traffic resilience for high-bandwidth pipes.

In addition to traffic protection, the hiT 7300 includes protection of failures on optical line interfaces and complete transponder or muxponder failures. Exceptionally fast <50 msec optical path protection can be configured on various ODUk levels, either protecting line traffic terminated on the muxponders from disjoint directions or protecting the complete end-to-end traffic on the client side interfaces between different transponders/muxponders via an optical protection card or passive Y-cable.

For large meshed optical transport networks, where multiple fiber cuts can occur in parallel before a repair is possible, service resilience can be ensured by shared restoration provided by Virtualized Automatically Switched Optical Network (vASON) functionality or by the embedded GMPLS control plane, which performs dynamic rerouting of optical channels around disrupted fibers or failed nodes using any spare bandwidth. Beyond standard functionalities of a distributed GMPLS control plane, vASON provides improved multi-layer coordination for OTN/DWDM and packet optical transport networks, better utilization of network resources, and a significant improvement in the user experience. Moreover, networks using GMPLS control plane can be seamlessly migrated to vASON. hiT 7300 networks use Coriant Aware™ Technology that checks and validates routes in real time by measuring optical impairments. The Aware Technology determines a residual margin of a defined route taking into account OSNR, transponder parameters, and link penalties.

TRANSFORMING YOUR NETWORK WITH THE CORIANT DYNAMIC OPTICAL CLOUD™ SOLUTION

Delivering a completely new level of adaptability for optical transmissions, Coriant CloudWave™ Optics along with the comprehensive management of Coriant Transcend™ Chorus for Transport network management system and the programmable, dynamic control of the Coriant Transcend™ Software Suite represent important components of the Coriant Dynamic Optical Cloud™ Solution. By combining Coriant's fully adaptable optical transport platforms with optical transmissions provided by Coriant CloudWave™ Optics, CDC ROADM technology, and the Coriant Transcend™ Solution, network operators have a powerful end-to-end networking solution that optimizes connectivity across network layers and can be programmed to efficiently and seamlessly adapt to any network requirements.

TECHNICAL SPECIFICATIONS

System Configurations

- ETSI and ANSI Standard Shelf with 15 traffic slots (13 traffic slots in 19-inch variant)
- Flatpack Shelf with 5 traffic slots
- DCI optimized Flatpack Shelf with 4 traffic slots

Physical Dimensions (W x D x H)

Rack Options

- 19-inch rack: 19 in W x 11 in D x 20.4 in H
- ANSI rack: 23 in W x 11 in D x 20.4 in H
- ETSI rack: 533 mm W x 280 mm D x 517.5 mm H

hiT 7300 Standard Shelf

- SRS-3:
  - ANSI: 23 in W x 11 in D x 20.4 in H
  - ETSI: 533 mm W x 280 mm D x 517.5 mm H
- SRS19-3:
  - 19-inch Standard Shelf: 19 in W x 11 in D x 20.4 in H

Flatpack Shelf

- SFL-1:
  - ANSI: 23 in W x 11.4 in D x 8.9 in H
  - ETSI: 535 mm W x 290 mm D x 225 mm H
  - 19-inch: 19 in W x 11.4 in D x 8.9 in H
- SFL600-3 for Data Centers:
  - ANSI: 23 in W x 22.4 in D x 7 in H
  - ETSI: 535 mm W x 545 mm D x 180 mm H
  - 19-inch: 19 in W x 22.4 in D x 7 in H

Client Services

- Ethernet Interfaces:
  - Fast Ethernet, 1G, 10GbE, 40GbE, 100GbE
  - FlexE and 400GbE ready
- Fiber Channels:
  - 1G, 2G, 4G, 8G, 10G, FICON
  - FC32 and FC128 ready
- Optical Transport Network:
  - OTU1, OTU1e, OTU2, OTU2e, OTU3, OTU4
- SONET/SDH Interfaces:
  - STM-1/OC-3, STM-4/OC-12
  - STM-16/OC-48, STM-64/OC-192
  - STM-256/OC-768
- Any-rate 100M-4.25G
- Coriant CloudWave™ Optics Client Interface Types:
  - OTU4, 100GbE (4xCFP4 or QSFP28 per slot)
  - OC-192/STM-64, OTU2/2e, 10GbE, 8/10/16G Fiber Channel (20xSFP+ per slot)
  - 400GbE, FlexEthernet, FC32, FC128 ready

Transponder, Muxponder

- Coriant CloudWave™ Optics Flexi-rate Line Interface Types
  - 25% SD-FEC
  - 100G (QPSK), 150 (8QAM), and 200G (16QAM) line rate
  - Software-switchable modulation
  - Bidirectional single slot 100G and 200G regenerator
  - Supports all greenfield and legacy terminals and channel grids
  - Power watts/Gbps: 1.1 W (QPSK), 0.95 W (8QAM), 0.71 W (16QAM)
- 100G Coherent Detection Transponder, Muxponder
  - SD-FEC
  - 100G regeneration
  - 10G and 40G in 100G aggregation
- Multiport 10G Transponder, Regenerator
  - Pluggable line and client interfaces
- 10G Transponder, Muxponder, Regenerator
  - Full C Band tunable and fixed laser options
- ODU Switch Integrated on a Blade
  - 10G Multiservice ADM and ODU0 cross-connect
- Coriant CloudWave™ T Optics muxponder, delivered by the Coriant Groove™ G30
  - Up to 2 x 600 Gbps line capacity
  - 15% and 27% FEC modes
  - Programmable modulation formats up to 64QAM, SP-16QAM, hybrid
  - Leading footprint and energy efficiency
  - Long haul carrier performance and full compatibility with the hiT 7300

Optical Layer

- DWDM transmission systems for 40, 80, or 96 DWDM channels fixed grid or up to 128 carriers in flexi-grid operation, expansion port for in-service upgrade to L-Band
- Terrestrial transmission of >5,000 km for 200G/wavelength and >1,000 km for 400G/wavelength
- Submarine reach more than 12,000 km on newly designed links
- 100G transponder/regenerator interworking with Juniper 100G colored interface
- Advanced amplifier technology with EDFA and hybrid EDFA Raman options including Raman forward pumping
- Integrated in-service OTDR
- Coriant Optical Link Control providing robustness against fiber bending, bad fiber splices and fiber cuts, transients, and extreme environmental conditions

Optical Add-Drop Multiplexer (OADM)

- Fixed OADM (FOADM) for up to 16 nodal degree
- Bandwidth Agile Multi-Degree Reconfigurable OADM (MD-ROADM)
  - Broadcast and select, route and select options
  - Optimized configurations for 4, 8, and 16 nodal degree plus local add/drop
  - Flexi-grid (gridless), Colorless, Directionless, and Contentionless (CDC) add/drop options
  - Filterless add/drop utilizing the capabilities of the coherent receivers

TECHNICAL SPECIFICATIONS CONTINUED

Resilience
- 1+1 Optical Transport Section Protection
- 1+1 Optical Multiplex Section Protection
- 1+1 Optical Channel Protection
- Optical Channel Dynamic Restoration by Control Plane
- 1+1 ODU Path Protection
- 1+1 Client Signal Protection
- Redundant controller and power supply
- Optional East/West separation in ROADM
- Resilient internal communication for management and control plane
- Redundant network management connection

Management
- Network Management System and SDN Control
  - Coriant Transcend™ Chorus for Transport network management system
  - Coriant Transcend™ Symphony multi-vendor SDN controller
  - Built-in web LCT

Environmental Specifications
- Operating range according to ETSI standard 300 019 class 3.1E
- Operating range according to Telcordia GR-63-CORE
- Operating temperature range: -5° to +55°C
- Storage according to ETSI standard 300 019 class 1.2
- Storage according to Telcordia GR-63-CORE
- Storing temperature range: -40° to +70°C
- Humidity: 5% to 95%
- Earthquake shock/vibration: Zone 4

Power Supply
- Battery supply voltage: 48/60 V
- DC supply voltage range: -40.0 V to -75.0 V
- AC input voltage range/frequency (Data Center Flatpack Shelf): 85 to 264 VAC / 47 to 400 Hz

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