

7090-15 CEM Packet Transport Platform

Carrier Ethernet Services and Packet Transport Simplified

MEF CE 2.0 CERTIFIED COMPACT 10G PACKET SOLUTION

The Coriant® 7090 CE Packet Transport Solutions offer a complete end-to-end portfolio for aggregation and switching. The 7090 CE Series provides Carrier Ethernet technology supporting different types of products including the Coriant® 7090-01 CE SFP-NID, Coriant® 7090-05 CE Packet Transport Platform, Coriant® 7090-07 CE Packet Transport Platform, Coriant® 7090-07 PoE CE Packet Transport Platform, and Coriant® 7090-15 CE Packet Transport Platform.

The Coriant® 7090-15 CEM Packet Transport Platform is a Metro Ethernet Forum (MEF) Carrier Ethernet (CE) 2.0 certified interface device that provides demarcation and flexible aggregation options allowing customers to start with 1G services and grow into 10G services. The 7090-15 CEM offers standards-based Service Operations, Administration, and Maintenance (SOAM) features for the subscriber and the service provider to measure Key Performance Metrics (KPIs) per the Service Level Agreement (SLA).

The 7090-15 CEM is an integral component of the Coriant comprehensive end-to-end transport portfolio and works seamlessly with the Coriant® 7100 Packet Optical Transport Solutions, the Coriant® mTera® Universal Transport Platform, the Coriant® hiT 7300 Multi-Haul Transport Platform, and the Coriant® 8600/8800 Smart Router Series. All of these platforms can be managed by the Coriant® Transport Network Management System (TNMS) and the Coriant® 8000 Intelligent Network Manager (INM). The 7090-15 CEM provides flexible and reliable transport solutions that meet a wide variety of service needs from the access to metro/regional networks.

COST EFFECTIVELY ENABLE NEW CE SERVICES AND EXTEND PACKET TRANSPORT NETWORKS

As a service demarcation device, the 7090-15 CEM provides service mapping and traffic policing and shaping functions. Because it is MEF-certified, the 7090-15 CEM supports best-in-class User-to-Network Interface (UNI) functions, including Class of Service (CoS) prioritization and granular rate-limiting with 802.1ad Provider Bridge VLAN stacking (Q-in-Q) for service multiplexing of multiple E-Line, E-LAN, E-Tree, and E-Access services.

When functioning as a transport device, the 7090-15 CEM acts as a remotely managed demarcation and aggregation device with carrier-class OAM capabilities. The solution supports both passing data transparently without performing traffic management as well as a robust set of traffic management and prioritization features. Thus, traffic management functions can be performed by carrier equipment at the edge of the service provider network.

BENEFITS OF THE CORIANT™ 7090-15 CEM

- **Grow revenue** by providing cost-effective feature-rich Carrier Ethernet services
- **Improve network efficiency** with packet-based transport
- **Upgrade existing networks** to more cost-effective 10G packet solutions
- **Increase network visibility** with certified Carrier Ethernet OAM features
- **Future proof** using 1G/10G and 100M/1G transceivers without forklift upgrades
- **Accelerate service activation** with Zero Touch Provisioning



The 7090-15 CEM conforms to the latest carrier-class Ethernet OAM standards: 802.1ah Link OAM and 802.1ag Service OAM. These OAM features provide proactive detection of performance deterioration and rapid isolation of potential service problems to help ensure that SLAs are met while keeping operational expenditures at a minimum for service providers.

Service providers are embracing a packet-based future. CE is the preferred transport technology to support business services and mobile backhaul services and to replace legacy SONET/SDH technology. The 7090-15 CEM is an intelligent CE access and aggregation solution that integrates seamlessly into any CE OAM landscape.

Key target applications include:

- High-density aggregation Ethernet services from access devices such as DSLAMs, GPON/EPON, and OLTs at the network edge
- Ethernet business services
- Wholesale access services
- Mobile backhaul services for small cell and 3G/4G
- Edge aggregation and switching applications in metro networks

TECHNICAL SPECIFICATIONS

Ethernet

- Interfaces
 - 3 x 10 Gigabit Ports: 10GBASE-R SFP+; ports can be configured as 1 Gigabit with GE SFP
 - Up to 4 x 1 Gigabit Ports: 1000BASE-X/100BASE-FX fiber SFP or 10/100/1000BASE-T RJ45 copper
 - All ports configurable as UNI or NNI
- SFP and SFP+ transceivers for standard CWDM, DWDM, and bidirectional wavelengths
- Port Mirroring
- Supports 10,240 byte jumbo frames

Fault Management

- Supports a variety of link fault detection and fault propagation features
 - Link fault notifications
 - Link/VLAN RDI (T-RDI and 802.1ag RDI)
 - Link fault propagation over port level service via automatic laser shut off
- 802.3ah Link OAM
 - Link loopback
 - Unidirectional link fault detection
 - Threshold-based monitoring and notification
 - Dying gasp
- 802.1ag and Y.1731 end-to-end Service OAM and CFM
 - Supports eight levels of Maintenance domains and Maintenance End Points (MEPs)
 - 256 Maintenance Associations

- 256 Maintenance Intermediate Points (MIPs)
- Connectivity Check Messages (CCMs)
- Remote Defect Indication (RDI)
- Link Trace
 - Diagnostic loopback (Layer 2 ping)
- Y.1731 Alarm Indication Signal (AIS)
- Sub 50 ms failover protection switching
- IEEE 802.1AX/802.3ad LAG with LACP

Traffic Management

- Service mapping to enable multiple services per UNI
 - IEEE 802.1Q VLAN tagging
 - 802.1ad Provider Bridge VLAN stacking (Q-in-Q)
- Service multiplexing of up to 1024 Ethernet Virtual Connections (EVCs) for E-line, E-LAN, E-Tree, and E-Access Services
- Layer 2 Control Protocol policy (L2CP) management
- Layer 2 Protocol Tunneling (L2PT)
- Traffic policing and shaping
 - Granular rate limiting
 - CIR/EIR and CS/EBS
 - Hierarchical Rate Limiting with two level color aware policing
- Ingress and egress traffic management
- CIR/EIR Color Aware “two rates, three colors” bandwidth profiles for ingress rate limiting with hierarchical policing
- CoS based on 802.1p QoS prioritization
- CoS L1, L2, L3, L4 filtering
- L2CP CoS subtypes

- IGMP Snooping per RFC 4541
- IPv4 or IPv6 for management access
- Advanced Flow and CoS classification per Port, VLAN ID, PCP, IPv4/IPv6 (TOS/DiffServe) Priority, L2CP, MAC address, IP address, or TCP Port

Protection

- ITU-T G.8031 Ethernet Linear Protection Switching
- ITU-T G.8032v2 Ethernet Ring Protection Switching
- Sub 50 ms failover for G.8031 and G.8032v2
- Active/Standby LACP LAG
- Static LAG without LACP
- LACP A/A LAG
- 802.1w - Rapid Spanning Tree

Node Management and Security

- Flexible management tools:
 - Command Line Interface (CLI)
 - Craft station GUI (Coriant® 7191 Craft Station interface)
 - Coriant® Transport Network Management System (TNMS)
 - Coriant® 8000 Intelligent Network Manager (INM)
- Secure Shell (SSH)
- Remote management
 - In-band VLAN
 - SNMP V1/V2c/V3
 - Telnet
 - IP-less 802.3ah OAM extensions

TECHNICAL SPECIFICATIONS

- Local management via serial console port
- Public (non-proprietary) 802.1ag CFM SNMP MIBs
 - Easy third-party SNMP management software integration
- Zero Touch Provisioning (DHCP/TFTP)
- DHCP Relay with Option 82
- 802.1x, ACL, RADIUS, TACACS+
- Syslog
- Link Layer Discovery Protocol (LLDP)

Performance Testing and Monitoring

- Y.1731 Performance Monitoring
 - Frame delay (one way and two way)
 - Frame loss
 - Synthetic loss
 - Service availability
- IETF RFC 2544 with built-in Test-head (Initiator/Responder)
- ITU-T Y.1564 service activation tests (Initiator/Responder)
- Third-party remote tester loopback support

- TWAMP
- Per-port and per-flow loopback with MAC swap
- Built-in UTP cable tester for troubleshooting through to the customer equipment

Synchronization

- ITU-T G.8262 Synchronous Ethernet
- IEEE 1588v2 Boundary Clock, Transparent Clock, Slave Clock
- Network Time Protocol (NTP)

Physical and Environmental

- Dimensions: 41.4 x 185.17 x 232.41 mm / 1.63 x 7.29 x 9.15 in (H x W X D)
- Weight: 3.24 lb (1.47 kg)
- Temperature and Humidity:
 - Available for normal and extended operating temperature range environments
 - 0°C to 50°C
 - -40°C to 75°C
- Storage Temperature: -40°C to 80°C
- Humidity: 5% to 95% (non-condensing)

Power Specifications

- 2.5 mm barrel connector: 12V DC
- 3-Pin terminal: +/-20 to 60V DC
- 100-240V AC (50 - 60Hz) with adapter (included)
- Dual power inputs

Regulatory and Standards Compliance

- FCC Part 15, Class A
- UL 60950 1st Edition
- IEC 60950
- CSA C22.2 60950
- NEBS Level 3 Compliant
- RoHS2
- WEEE
- REACH
- MEF Carrier Ethernet 2.0 Certified (E-LAN, E-Line, E-Access, and E-Tree)

These trademarks are owned by Coriant or its affiliates: Coriant®, Coriant CloudWave™, Coriant Dynamic Optical Cloud™, Coriant Groove™, Coriant Transcend™, mTera®, Nano™, and Pico™. Other trademarks are the property of their respective owners. Statements herein may contain projections regarding future products, features, or technology and resulting commercial or technical benefits, which may or may not occur. This publication does not constitute legal obligation to deliver any material, code, or functionality. This document does not modify or supplement any product specifications or warranties. Copyright © 2017 Coriant. All Rights Reserved. 74C.0019 Rev. D 08/17