

## 7090-15 CEM Packet Transport Platform

*Carrier Ethernet Services and Packet Transport Simplified*

### CE 2.0 CERTIFIED COMPACT 10G PACKET RING SOLUTION

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 for a mix of 1G and 10G interfaces. The 7090-15 CEM offers standards-based performance metrics and Operations, Administration, and Maintenance (OAM) features that simplify the support and delivery of CE services for network operators.

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® 8000 Intelligent Network Manager (INM) and the Coriant® Transport Network Management System (TNMS). 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 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 and E-LAN 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.

In both operational modes, 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 efficient detection and rapid isolation of potential service problems to help ensure that Service Level Agreements (SLAs) are met while keeping operational expenditure at a minimum for service providers.

### BENEFITS OF THE CORIANT™ 7090-15 CEM

- **Enable** compact, cost-effective, scalable packet transport to the edge of the network
- **Efficiently upgrade** existing SONET/SDH networks to 10G packet rings
- Enable **new revenue generating MEF CE 2.0 services**
- **Extend** the powerful networking capabilities of the Coriant® 7100, mTera® UTP, and hiT 7300 Packet Optical Transport Solutions
- **Simplify provisioning and troubleshooting** with fully MEF-certified OAM capabilities
- **Accelerate** network deployments with Zero Touch Provisioning of nodes



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 of 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
- Migration of legacy TDM links to Ethernet

## TECHNICAL SPECIFICATIONS

### Interface Configurations

- 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 RJ-45 copper
- SFP and SFP+ transceivers for standard CWDM, DWDM, and Bidi wavelengths
- Port Mirroring

### Traffic Management

- IEEE 802.1Q VLAN tagging and 802.1ad Q-in-Q VLAN stacking
- Service multiplexing of up to 256 EVCs
- User-configurable Ethernet type
- Ingress and egress traffic management
- CIR/EIR Color Aware “two rates, three colors” bandwidth profiles for ingress rate limiting with hierarchical policing
- Advanced Flow and CoS classification per Port, VLAN ID, PCP, IPv4/IPv6 (TOS/DiffServe) Priority, L2CP, MAC address, IP address, or TCP Port
- Layer 2 Protocol Tunneling (L2PT) to encapsulate STP, VTP, PVST, and CDP protocols
- All ports configurable as UNI or NNI
- Supports up to 10,056 byte frames
- IGMP Snooping per RFC 4541

### Synchronization

- ITU-T G.8264 Synchronous Ethernet
- IEEE 1588v2 Boundary Clock, Transparent Clock, Slave Clock
- NTP - Network Time Protocol

### Protection and Redundancy

- ITU-T G.8031 Ethernet Linear Protection Switching
- ITU-T G.8032v2 Ethernet Ring Protection Switching with multi-ring protection and sub-ring support
- Sub-50 ms failover for G.8031 and G.8032v2
- Link failover 50 ms protection switching
- Rapid Spanning Tree
- Link modes for port-to-port and UNI-to-UNI failure propagation
- LACP LAG, A/A, A/S, and Static

### Service OAM and Testing

- 802.3-2008 [3ah] – Ethernet First Mile
- IEEE 802.1ag Maintenance Intermediate Points (MIPs) for fault isolation
- ITU-T Y.1731 End-to-End Performance Monitoring and AIS
- Hardware-based delay and loopback measurement with nanosecond resolution
- Advanced classification and filtering of Layer 1, 2, 3, or 4 subscriber traffic as a EVC or CoS flow
- ITU-T Y.1731 threshold monitoring and threshold crossing alerts
- IEEE 802.3ah Ethernet Link OAM with dying gasp
- RFC 2544 Ethernet Service Activation testing with wirespeed, per flow testing of throughput, latency, jitter, and loss
- ITU-T Y.1564 Ethernet Service Activation testing with multi-flow testing of data

- rate, latency, jitter, and frame loss
- RFC 2544 and ITU-T Y.1564 test head support generation/reception of in-service and out-of-service L2, L3, and L4 frames
- Per-port and per-flow loopback with MAC swap
- Compatible with third-party in-band loopback testing
- Built-in UTP cable tester for troubleshooting through to the customer equipment
- TWAMP Reflector
- Synthetic Loss Measurement, Synthetic Loss Ratio

### Network Management

- Built-in UTP cable tester for troubleshooting through to the customer equipment
- Remote management via TELNET, SNMP V1/V2c/V3, SSH, Craft Station, 8000 INM, and TNMS
- Zero Touch Provisioning (DHCP/TFTP)
- RADIUS
- Syslog
- LLDP – Link Layer Discovery Protocol
- MEF 30 and 31 Service OAM Fault Management MIBs
- IP Access Control Lists
- 802.1X Port Authentication
- TACACS+
- DHCP Relay with Option 82

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