

7090-05 CE/7090-07 CE Packet Transport Platform

*Compact Carrier-Class Ethernet Transport
and Service Delivery*

COMPREHENSIVE CARRIER ETHERNET CAPABILITIES IN A COMPACT FORM FACTOR

The Coriant® 7090 CE Packet Transport Solutions offer a complete access and edge 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 7090-05 CE and 7090-07 CE are flexible and cost-effective Network Interface Devices (NIDs) that can operate as a Transport NID or Service NID to provide service demarcation for in-franchise and out-of-franchise applications. They include the standards-based Service Operations, Administration, and Maintenance (SOAM) features for the subscriber as well as the service provider to measure Key Performance Metrics (KPIs) per the Service Level Agreement (SLA).

By combining the 7090-05 CE and 7090-07 CE 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, operators can design, scale, and deliver cost-effective and reliable networks that meet users' varying service needs. The 7090-05 CE and 7090-07 CE can be managed by the Coriant® Transport Network Management System (TNMS) as well as the Coriant® 8000 Intelligent Network Manager (INM) as part of a larger Coriant turnkey solution with end-to-end provisioning and support.

COST EFFECTIVELY PROMOTE CE SERVICES AND EXTEND PACKET TRANSPORT NETWORKS

As a Service NID, the 7090-05 CE and 7090-07 CE provide service mapping and traffic policing and shaping functions. The 7090-05 CE and 7090-07 CE support MEF-certified User-to-Network Interface (UNI) functions, including Class of Service (CoS) prioritization, granular rate limiting, and 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 NID, the 7090-05 CE and 7090-07 CE act as a remotely managed network termination point with carrier-class OAM capabilities.

The 7090-05 CE and 7090-07 CE conform to the latest carrier-class Ethernet OAM standards – 802.3ah Link OAM proactively monitors the network provider's fiber access and customer-facing links for physical failures and deterioration of data quality, and Service OAM provides end-to-end 802.1ag Connectivity Fault Management (CFM) and Y.1731 performance monitoring.

BENEFITS OF THE CORIANT® 7090-05 CE/7090-07 CE

- **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, scalable packet solutions
- **Increase network visibility** with certified Carrier Ethernet OAM features
- **Accelerate service activation** with Zero Touch Provisioning



7090-05 CE



7090-07 CE



7090-07 CE PoE

These OAM features provide proactive detection of performance deterioration and rapid isolation of potential service problems to meet or exceed SLA assurance while reducing OpEx.

FLEXIBLE CONFIGURATIONS FOR NUMEROUS APPLICATIONS AND ENVIRONMENTS

The 7090-05 CE and 7090-07 CE fiber ports can support Gigabit (1000 Base-X) or Fast Ethernet (100 Base-FX) fiber access links by utilizing an SFP transceiver with the desired data rate. The triple-speed copper interface operates at 10/100/1000 Mbps rates. The 7090-05 CE may be used in two-port or three-port configurations. In the three-port configuration, the Coriant 7090-05 CE can be used in geographically diverse uplink redundancy applications and multi-tenant applications. The five-port 7090-07 CE can support redundancy towards geographically diverse network connectivity and customer side access links. Both the 7090-05 CE and 7090-07 CE support options for temperature hardened versions. This capability enables deployments into a wider variety of environments to extend the benefits of Carrier Ethernet functionality in the network.

Power over Ethernet (PoE) allows the LAN switching infrastructure to provide power to an endpoint (powered device) over a copper Ethernet cable. PoE supports scalable, manageable power delivery. As wireless networking emerges, PoE is utilized to power wireless devices in locations where local power access is not available. The 7090-07 CE supports an option for PoE, which provides 3 or 4 PoE interfaces per device and supports a high power option device to provide up to 60 W on each RJ45 interface.

The 7090-07 CE adheres to 802.3af (15.4 W) and 802.3at (25.5 W) PoE standards. While IP telephones and wireless access points are the most typical uses for PoE, 802.3af/at standardization of PoE provides power to a new generation of network attached devices, including:

- IP Surveillance Pan, Tilt, and Zoom (PTZ) video cameras
- Point-of-sale devices
- Security access control (card scanners)
- WiFi access points
- Building automation
- Industrial automation
- Small/pico cell backhaul demarcation

TECHNICAL SPECIFICATIONS

Ethernet

- Three-port and five-port configurations support redundant access link or multi-customer applications
- Interfaces
 - 7090-05 CE
 - 1 x 10/100/1000 Mbps electrical (RJ45)
 - 2 x 100/1000 Mbps optical (SFP)
 - 7090-07 CE
 - 5 x 100/1000 Mbps optical (SFP)
 - 10/100/1000 Mbps optical (RJ45 SFP)
 - 7090-07 CE PoE
 - 1/2 x 100/1000 Mbps optical (SFP)
 - 3/4 x 10/100/1000 Mbps electrical (RJ45)
 - All ports are configurable as NNI or UNI
- SFP transceivers for standard or CWDM/DWDM wavelength
- Media conversion for connectivity to

customer equipment

- 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
 - 802.1Q VLAN tagging
 - 802.1ad Provider Bridge VLAN stacking (Q-in-Q)
 - Service multiplexing up to 256 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)

TECHNICAL SPECIFICATIONS

- 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

Protection

- ITU-T G.8031 Ethernet Linear Protection Switching
- ITU-T G.8032v2 Ethernet Ring Protection
- 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
- 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+
- 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

Power over Ethernet (PoE)

- IEEE 802.3af for 15.4 W operation
- IEEE 802.3at for 25.5 W operation
- High PoE support for 60 W operation (not currently standardized)

Synchronization

- ITU-T G.8262 Synchronous Ethernet
- IEEE 1588v2 Transparent clock (one step)
- Network Time Protocol (NTP)

Physical and Environmental

- Dimensions
 - 25 x 97 x 122 mm / 1.0 x 3.8 x 4.8 in (H x W x D) (7090-05 CE)
 - 34 x 122 x 152 mm / 1.325 x 4.8 x 6.0 in (H x W x D) (7090-07 CE/PoE)
- Weight
 - 1.5 lb (0.68 kg), including AC power adapter (7090-05 CE)
 - 2.0 lb (0.91 kg), including AC power adapter (7090-07 CE)

- 2.5 lb (1.13 kg), including AC power adapter (7090-07 CE PoE)
- Temperature and Humidity
 - Available for normal and extended operating temperature range environments
 - 0°C to 50°C (7090-05A/C, 7090-07C, 7090-07 PoE)
 - -40°C to 75°C (7090-05B/D, 7090-07D, 7090-07 PoE)
 - Note: 7090-07 CE PoE AC to DC power supply operates only in commercial temperature
- Storage Temperature: -40°C to 80°C
- Humidity: 5% to 95% (non-condensing)

Power Specifications

- 8-32V DC (7090-05A/B), 8-60V DC (7090-05C/D), 11-60V DC (7090-07C/D), 48-57V DC (7090-07 CE PoE)
- 100-240V AC (50-60Hz) with adapter (included)
- Dual power inputs (7090-07 CE)

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)
- Power over Ethernet: 802.3af (15.4 W), 802.3at (25.5 W)

PRODUCT	05CE	05CE & 07CE
VERSION	A & B	C, D, P, GP
TELNET, SNMP v1, v2c, v3	x	x
SSH	–	x
Zero-Touch Provisioning	x	x
ITU-T Y.1564 Service Testing	–	x
RFC 2544 Throughput Testing	–	x
IEEE 802.3ah	x	x
IEEE 802.1ag	x	x
IEEE 802.3af	–	P1-P8, GP1-GP8
IEEE 802.3at	–	P1-P8, GP1-GP8
High PoE	–	P3-P4, P7-P8, GP1-GP8
ITU-T Y.1731	x	x
E-Line, E-LAN, E-Tree, E-Access	x	x
Rapid Spanning Tree Protocol	x	x
G.8031 Protection	–	x
G.8032 Ring Protection	–	x
Rate Limiting	x	x
MIB Statistics (RMON)	x	x
L2CP Policy Manager	x	x
Sync Ethernet	–	x
Dying Gasp	x	x
L2PT (STP, VTP, CDP protocols)	–	x
1588v2 Transparent Clock	–	x
Carrier Ethernet 2.0	–	x
IGMP Snooping	–	x
Synthetic Measurements (SLM/SLR)	–	x
TWAMP	–	x
Port Redundancy	x	x
TACACS+	–	x
IP Access Control Lists	–	x
RADIUS	–	x
Syslog	–	x
802.1x Port Authentication	–	x

7090-05 CE supports temperature hardened options

7090-07 CE supports temperature hardened and PoE options

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