

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

*Compact 1 Gigabit Carrier-Class Ethernet Transport
and Service Delivery*

COMPREHENSIVE CARRIER ETHERNET CAPABILITIES IN A COMPACT FORM FACTOR

The Coriant® 7090-05 CE and Coriant® 7090-07 CE Packet Transport Platforms 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 performance and Operations, Administration, and Maintenance (OAM) features that network operators need to successfully transport and deliver Carrier Ethernet services.

The 7090-05 CE and 7090-07 CE are part of the Coriant® 7090 Packet Transport Platform and an integral component of Coriant Packet Transport Solutions. By combining the 7090-05 CE and 7090-07 CE with the Coriant® 7100 Packet Optical Transport Platform, 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® 8000 Intelligent Network Manager (INM) as well as the Coriant® Transport Network Management System (TNMS) as part of a larger Coriant solution providing 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 and E-LAN 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 are service transparent and pass data without performing traffic management. Traffic management functions are performed by carrier equipment at the edge of the service provider network.

In both operational modes, 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 802.1ag Service OAM provides end-to-end Connectivity Fault Management (CFM) and performance monitoring. These OAM features enable efficient detection and rapid isolation of potential service problems to provide Service Level Agreement (SLA) assurance while reducing Operational Expenditures (OpEx).

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

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 7090-05 CE can be used in geographically diverse uplink redundancy applications and multi-tenant applications (Figure 1). The five-port 7090-07 CE can support redundancy to the CPE as well as geographically diverse redundant network connectivity. 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 to more places in the network. The 7090-07 CE supports an option for Power over Ethernet (PoE). This capability enables the option for the 7090-07 CE to provide power to subtended devices, which can greatly simplify powering configurations for facilities and improve network reliability during power failure scenarios. The 7090-07 CE can support 3 or 4 PoE interfaces per device and supports a high power option device to provide up to 60W on each RJ45 interface. The 7090-07 CE adheres to the following PoE standards: 802.3af (15.4W), 802.3at (25.5W).

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
 - 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 wavelength
- Media conversion for connectivity to customer equipment
- Supports 10,240 byte jumbo frames
- Supports Rapid Spanning Tree Protocol (RSTP)

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 end-to-end Service OAM and CFM
 - Supports eight levels of Maintenance domains and Maintenance End Points (MEP)
 - 64 Maintenance Associations
 - Connectivity Check Messages (CCM)
 - Remote Defect Indication (RDI)
 - Link Trace
 - Diagnostic loopback (Layer 2 ping)
- Y.1731 Alarm Indication Signal (AIS)
- Sub 50ms 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 64 Ethernet Virtual Connections (EVCs) for E-Line, E-LAN, and E-Access Services
 - Layer 2 control protocol policy (L2CP) management
- Traffic policing and shaping
 - Granular rate limiting
 - CIR/EIR and CS/EBS
 - Hierarchical Rate Limiting with two level color aware policing
- CoS based on 802.1p QoS prioritization
- IGMP Snooping per RFC 4541

Protection

- Active/Standby LACP LAG (7090-07 CE)
- Static LAG w/o LACP (7090-07 CE)
- LACP A/A LAG (7090-07 CE)
- 802.1w Rapid Spanning Tree
- G.8031 Ethernet Linear Protection
- G.8032 Ethernet Ring Protection

Node Management & Security

- Flexible management tools:
 - Command Line Interface (CLI)
 - Craft station GUI (Coriant® 7191 Craft Station interface)
 - Coriant® 8000 Intelligent Network Manager (INM)
 - Coriant® Transport Network Management System (TNMS)
- 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

Performance Testing & Monitoring

- Y.1731 Performance Monitoring
 - Frame delay
 - Frame delay variation (jitter)
 - Frame loss
 - Service availability
- IETF RFC 2544 with built-in Test-head
- ITU-T Y.1564 Service activation tests
- Third-party remote tester loopback support

Power over Ethernet (PoE)

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

TECHNICAL SPECIFICATIONS

Synchronization

- IEEE 1588v2 Transparent Clock
- G.8264 Synchronization Ethernet*

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
- 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)
- 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)
- 100-240V AC (50-60Hz) with adapter (included)
- Dual Power Inputs (7090-07)

Regulatory & Standards Compliance

- FCC Part 15, Class A
- UL 60950 1st Edition
- IEC 60950
- CSA C22.2 60950
- NEBS Level 3 Compliant
- RoHS2
- WEEE
- MEF 9, 14, 21 Certified Compliant
- Carrier Ethernet 2.0 Certified by the MEF 1/29/2013 (E-LAN, E-Line, E-Access and E-Tree)
- MEF 30, 31 Compliant
- Power over Ethernet: 802.3af (15.4W), 802.3at (25.5W)

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	–	*
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
802.1x Port Authentication	–	x

7090-05 CE supports temperature hardened options

7090-07 CE supports temperature hardened and PoE options

* Supported by upcoming release

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