

CM-401X Carrier Ethernet Transport Packet Transport Network (PTN) Access Products

Orckit-Corrigent CM-401x Packet Transport Network (PTN) portfolio is a complete access solution for mobile backhaul, legacy SDH and PDH migration, and enterprise CLE and pre-aggregation applications.

The CM-401x portfolio includes CM-4011, CM-4012 and CM-4013 products and is fully compatible with the company's metro aggregation products that include the CM-4140, CM-4206, and CM-4314T/4314 chassis based PTN products, and the company's CM-View NMS product.

All CM-401x products deliver 16G of non blocking switching capacity and are packed only in 1RU fixed configuration size.

The CM-401x portfolio is equipped with a broad mixture of Ethernet, PDH and SDH interfaces and therefore fits to various networking scenarios and increases network scalability.

As packet transport solution, Ethernet, IP/MPLS and MPLS-TP technologies are implemented in the CM-401x portfolio, as well as standard and interoperable packet synchronization and circuit emulation technologies.

For telecommunication service providers worldwide, the CM-401x are future-proof products with their bandwidth, technologies and cost offering.

Portfolio highlights

- Complete PTN access solution with comprehensive mix of technologies and interfaces
- Enables end-to-end mobile backhaul and enterprise access applications
- Enables legacy SDH and PDH infrastructure migration, including ADM-1 and ADM-4 replacement
- Dual stack IP/MPLS and MPLS-TP
- Layer 2 and Layer 3 VPN services
- SDH/Ethernet/MPLS/MPLS-TP OAM and protection
- Packet synchronization, including SyncE, 1588v2, DCR, Absolute mode
- Circuit emulation, including SAToP for E1/E3 services and CEP for STM-1/STM-4 services
- 1RU size, fixed configuration
- 16G non blocking switching capacity
- Minimized power consumption
- Integration with CM-View NMS



CM-4011



CM-4012



CM-4013

Portfolio for networking applications

Product	Mobile backhaul	Enterprise
CM-4011	2G/3G/4G CSG	CLE
CM-4012	2G/3G/4G CSG or HSG	CLE
CM-4013	2G/3G/4G CSG or HSG	CLE / pre aggregation

Portfolio for networking infrastructure

Product	Networking infrastructure
CM-4011	Ethernet and PDH migration
CM-4012	Ethernet and PDH migration
CM-4013	Ethernet and PDH and SDH migration

Portfolio technologies

Product	Packet			Synchronization		Circuit emulation	
	Ethernet	IP/MPLS	MPLS-TP	SyncE	IEEE 1588v2	SAToP	CEP
CM-4011	Yes	Yes	Yes	Yes	Yes	Yes	No
CM-4012	Yes	Yes	Yes	Yes	Yes	Yes	No
CM-4013	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Portfolio interface

Product	10/100/1000 FE/GE ports	GE ports	STM-1/4 ports	E1 ports
CM-4011	8	6	0	16
CM-4012	8	6	0	63
CM-4013	8	6	4/1	63

Technical Specifications*

General specification

- Fixed configuration, non redundant switch fabric
- Dimensions: 1RU, 19", 220mm
- 16G non-blocking switching capacity

Interfaces

- 8 x 10/100/1000BaseT
- 6 x 100/1000 SFP
- 4 x STM-1 or 1 x STM-4 (SFP) at CM-4013
- 16 x E1 at CM-4011
- 63 x E1 at CM-4012 and CM-4013

Applications

- CSG / HSG for mobile backhaul
- Access PTN for SDH and PDH migration
- CLE / pre-aggregation for Enterprise VPN

Services

- MEF certified
- E-Line, E-LAN, E-Tree services
- Virtual Private LAN Services (VPLS)
- Virtual Private Wire Services (VPWS)
- Layer 3 VPN
- Layer 3 VPN for Multicast
- SDH private line: VC-12/3 circuits over packet (CEP)
- SAToP (RFC4553) services for PDH E1/E3

Ethernet Functionality

- Ethernet protocol (IEEE 802.3)
- Ethernet MAC learning, forwarding and flooding
 - Unicast
 - Multicast
 - Broadcast
- Ethernet static MAC configuration
- VLAN Manipulations: no change (transparent) / change (translate) / trunk (stack)
- Ethernet provider bridging (IEEE 802.1Q, 802.1ad)
- Link aggregation (IEEE 802.3ad)

Dual stack IP/MPLS and MPLS-TP Functionality

- IETF PWE3 encapsulation
- Label swap, push, pop
- DiffServ: E-LSP, L-LSP
- RSVP-TE
- LDP
- MPLS-TP LSP static provisioning
- Multi-Segment PW (MS-PW)

SDH Functionality

- E1/E3 SAToP circuits
- HO and LO SDH circuits, cross connect and grooming
- SDH OAM

Routing

- ISIS-TE routing protocol
- OSPF-TE routing protocol
- BGP
- Static routing
- IPv4, IPv6

OAM

- Ethernet OAM (IEEE 802.1ag and ITU-T Y.1731)
- IP/MPLS OAM (LSP Ping, LSP Trace-route)
- MPLS-TP OAM (CC/AIS/RDI/LB/LT/DM)

Protection

- IP/MPLS Fast Reroute (FRR)
- IP/MPLS end-to-end LSP protection
- IP/MPLS dual-homed tunnel protection
- MPLS-TP 1:1 linear LSP/PW protection (G.8131)
- MPLS-TP ring protection (G.8132)
- Virtual Router Redundancy Protocol (VRRP)
- Ethernet IEEE 802.3ad Ethernet Link Aggregation (LAG)
- Ethernet Ring Protection (ERP, ITU-T G.8032)

Timing and synchronization

- Synchronous Ethernet (ITU-T G.8261) GE interfaces
- IEEE 1588v2 master / slave / boundary / transparent clock
- BITS in/out: 2Mbps, 2MHz, 64Kbps composite clock
- Internal Stratum 3 clock (holdover state)
- Primary and secondary sources (supports SSM bits)
- SDH sync on STM-n interfaces
- DCR, absolute timing modes
- TOD interface
- 1PPS interface

Traffic Management

- Traffic Classification based on:
 - Port, VLAN, Port+VLAN
 - IEEE 802.1p
 - IPv4 TOS and DSCP
- Network wide Call Admission Control (CAC)
- 8 Classes of Service (CoS)
 - Strict priority (SP)
 - Weighted Fair Queuing (WFQ)
 - Congestion management using WRED
 - Best Effort + guaranteed bandwidth + Delay/jitter sensitive and TDM traffic

Security

- Access Control List (ACL)
- TACACS+, RADIUS
- SSH

Management

- CM-View NMS
 - Service oriented NMS, point-and-click GUI
 - Full FCAPS support
 - Bi-directional A-Z provisioning (tunnel and LSP)
 - Physical + logical + service trees
 - Multiple partition views
 - Unified NMS for IP/MPLS and MPLS-TP
 - VPLS on graphical map
 - Northbound APIs for external OSSs
 - CORBA, SNMPv2/v3
 - TMF 814
- TLI
- SNMPv2/v3
- DHCP with option 82
- LLDP
- Dying Gasp Alarm

Power specification

- CM-4011: 50W, CM-4012: 60W, CM-4013: 70W
- Dual feed power supply
- 48 DC Voltage (range): -40 to -72 VDC
- 24 DC Voltage (range): -18 to -36 VDC
- AC Voltage (range): 110-240 VAC, 50-60Hz

Environmental Specifications

- Operating temperature range
 - Indoor: 23 - 131°F (-5 to +55°C)
 - Outdoor: -4 - 149°F (-20 to +65°C)
- Operating humidity range: 5 - 95% RH (non-condensing)
- Storage temperature range: -40 to +158°F (-40 to +70°C)
- Storage humidity: 93% RH (non-condensing) maximum

Regulatory Approval

- CE and UL
- Operating conditions: ETSI 300 019, class 3.1
- Storage conditions: ETSI 300 019, class 3.1
- Transportation conditions: ETSI 300 019, class 3.1
- EMC: EN 300 386, EN55022, FCC part 68, VCCI
- Safety: UL60950, EN60950, IEC60950



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* future releases included

