The PT7860A multi PTN (MPLS/CE Packet Transport Network) is a new and cost-effective solution for transmitting many different data types, including traditional TDM circuit-based traffic, Ethernet over a packet-based transportation network. In up to 1000 PseudoWire and 2000 LSP.

By adopting MPLS-TP (Multi-Protocol Label Switching Transport Profile) or Carrier Ethernet Technologies, the PT-7860 can transport Ethernet (EPL, EVPL, ELAN, EVC defined in MEF), E1/T1 TDMoE, and SDH CEP* traffic.

The unit is also equipped with OAM tools to perform diagnosis on the LSPs (Label Switched Paths) and PseudoWires. The PT7860A series is a perfect packet transport platform for IP-Mobile and lease-line applications containing hub, ring and mesh topologies.

### Transported Services

**TDM Services:**
- E1/T1 Circuit Emulation per IETF-PW3 SAToP and CESoP
- Timing recovery : Adaptive clock & Differential method
- SDH Circuit Emulation over Packet (CEP), per RFC 4842
- PDH cross-connection to SDH/SONET from VC4 or VC12 to E1 of FE1.
- Up to 1000 PseudoWire emulation

**Ethernet Services**
- E-Line, E-LAN, E-Tree services as defined by MEF 9 and 14 and using VPWS/VPLS
- Port-based and VLAN-based services
- Supports QinQ
- Native Ethernet packets supported
- Encapsulation: PW/LSP (MPLS-TP)

**VPLS**
- VPLS bridging
- H-VPLS bridging
- 32K MAC addresses
- 1K VPLS instances per device
- Split horizon to prevent forwarding loops

**OAM**
- MPLS-TP OAM per ITU G.8113.2
- Ethernet OAM – 802.3ah, 802.1ag/Y.1731

**Timing**
- IEEE 1588 v2 PTP
  - Clock modes: Ordinary/Boundary/Transparent
  - ToD (Time of day)
  - PPS (Pulse per second) output interface
- SyncE
  - Synchronous Ethernet from all GE ports
  - ESMC per ITU-T (Ethernet Synchronous Message Channel)
- External clock input and output (2 Mbps/2 MHz)*

**CoS/QoS**
- 8 Priority Queues
- Scheduling: Strict Priority, WRR with Hierarchy
- Ingress Policing & Egress Shaping per service
- CIR / PIR (EIR) 2-rate-3-color
- MPLS : TC/EXP-Inferred-PSC (Per Hop Behavior Scheduling Class) LSP
**Specifications 1/2**

**E1 Tributary Interface (E1/T1 software selectable)**
- **Interfaces**: 16 E1/T1 fixed tributary, optional module 32 E1/T1
- **Connector**: One SCSI-II 68 pin for 16 E1/T1, order CA-SCSI-x and IX-PAN-16E1-RJ45, IX-PAN-16E1-BNC or IX-PAN-16E1-W
- **Line Rate**: 2.048 Mbps ± 50 ppm
- **Line Code**: AMI/ HDB3
- **Framing**: ITU G.704 (CRC: on/off, CAS: on/off, unframed)
- **Output Signal**: ITU G.703
- **Input Signal**: ITU G.703
- **Jitter**: ITU G.823

**T1 Tributary Interface (E1/T1 software selectable)**
- **Line Rate**: 1.544 Mbps ± 32 ppm
- **Line Code**: AMI / B8ZS (selectable)
- **Framing**: D4 / ESF/ ESF&T1.403/ OFF (clear channel)
- **Output Signal**: DS1 with LBO Setting
- **Input Signal**: DS1

**STM1/STM4 - B155/622 Interface**
- **Interfaces**: 4 SFP with 4*STM1 or 1*STM4 , protection MSP (1+1)
- **Line Rate**: 155/622 Mbps
- **Protection**: MSP (1+1), SNCP
- **Operational modes**: SDH (STM-1/4) or SONET (OC3/12) mode

**FE/GE Interface**
- **Number of Ports**: 4
- **Connector**: Copper 10/100/1000BaseT with RJ45

**10G Interface**
- **Number of Ports**: 6 include in the chassis
- **Connector**: SFP+ (delivered without module )

**Management and Administration**
- **Management ports**: Console and NMS (RJ45 connectors)
- **CLI**: Fully manageable with CLI (command line interface)
- **Remote login**: Telnet, SSH
- **SNMP**: SNMP v1, v2, v3
- **DHCP relay**

**QoS**
- **Eight priority queues**
- **Scheduling**: Strict Priority, Weighted Round Robin with hierarchy
- **Ingress policing per service**
- **Egress shaping per service**
- **CIR / PIR (EIR)** Two-rate, three-color. (committed information rate, peak or expected information rate)
- **E-LSP**: EXP-Inferred PSC (Per Hop Behavior Scheduling Class) LSP. (label switching path)
- **WRED** for congestion management. (weighted random early detection)
**Evolutive Switch**

**Module for Slot 1 and Slot 2:** Hot swappable interface cards
- 8 ports GE with SFP, 8 ports GE 10/100/1000 Base T
- Dual STM1/OC3 or 1 STM4/OC12 use as independent or 2 MSP 1+1, or use as 1 STM4
- 32 E1/T1 use 2 CA-SCSI-2 cable and IX-PAN-16E1...
- 8 ports PoE+
- CWDM

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**Specifications 2/2**

**Electrical**
- DC -48 Vdc Module: Single Plug-in module -36 to -72 Vdc (maxi 2)
- DC 12 Vdc Module: Plug-in module with Dual DC12Vdc (+12V) (maxi 2)
- AC power Module: Single Plug-in module 95 to 240 Vac (maxi 2) *
- Power Consumption:
  - Main unit: 45W
  - 32E1/T1: 11W
  - 8GE plug-in card: 7W
  - STM1/4: 10 W
  - 2XG plug-in card: 6W

**Redundant Power Supply**
- Hot swappable, One on the front, second on the rear

**Physical and Environmental**
- Dimensions: 19” 1U, 438 x 44 x 225.5 (W x H x D)
- Net Weight: 4.0 Kg
- Temperature: 0 to +50°C (normal operation), Tested +65°C
- Humidity: 5-95% RH (non-condensing)
- Mounting: Desk-top stackable, rack mount

**Standards Compliance**

**IEEE**
- 802.1ad
- 802.3ag
- 802.3ah
- 1588 v2

**ITU**
- G.8113.2
- Y.1731

**RFC (IETF)**
- 2131 & 2132
- 6378

**MEF**

**Certification**
- Engineering
- Safety
- * Future option

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The solution to carry over Packet Networks:

**TDM (PDH/SDH)**

Ethernet services encapsulated inside PseudoWires with Label Switching
**APPLICATIONS**

**MULTISERVICE TRANSPORTATION over PTN / MPLS-TP**

**ORDERING INFORMATION**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PT7860</td>
<td>Switch MPLS-TP</td>
</tr>
<tr>
<td>PT7860A-BASE</td>
<td>1U height ETSI chassis with 2 WAN 10G SFP+ ports, 6 Universal SFP FX/GLX, 16 E1/T1 ports, 2 slots for tributaries ports, 2 slots for Power supply (to be added), Chassis with 1 internal FAN and 1 Air filter. Console and NMS RJ45 ports. SFP modules and IX-PAN not included.</td>
</tr>
<tr>
<td>PT7860-PW48</td>
<td>Single -48Vdc power plug-in module (-36 to -72 Vdc)</td>
</tr>
<tr>
<td>PT7860-FAN</td>
<td>Fan board with “fan power” and “fan fail” LED indicator lights</td>
</tr>
<tr>
<td>PT7860-FILTER</td>
<td>Air filter rack for GT860, air filter included.</td>
</tr>
<tr>
<td>PT7860-8TGX</td>
<td>Eight port Gigabit Ethernet (1000/100/10) card with RJ45 interfaces</td>
</tr>
<tr>
<td>PT7860-8USF</td>
<td>Eight port GE/FE card with SFP interfaces</td>
</tr>
<tr>
<td>PT7860-8GPX</td>
<td>8 ports Giga POE+</td>
</tr>
<tr>
<td>PT7860-32E1</td>
<td>32E1 interfaces, w/o SCI and IX-PAN-16E1</td>
</tr>
<tr>
<td>PT7860-STM1/4</td>
<td>Dual STM-1/OC3 or STM-4/OC12 SFP (w/o modules) SDH/SONET software configurable.</td>
</tr>
<tr>
<td>PT7860-1588UPGR</td>
<td>Software Upgrade to IEEE 1588 v2 Precision Time Protocol (PTP). This option will provide an activation code.</td>
</tr>
<tr>
<td>PT7860-PAN</td>
<td>Blank panel to cover empty slot 1 or slot 2, maxi 2</td>
</tr>
</tbody>
</table>

The information contained in this document is not contractual. CXR continuously improves its products, specifications are subject to change without notice.