INNOVATIVE PACKET-OPTICAL NETWORKS FROM ACCESS TO CORE

Infinera XTM Series
An Innovative Packet-Optical Metro Network

- Industry-leading key metro capabilities
- From the customer premises to 100G core
- Cost-optimized for your application

Our XTM Series packet-optical networking platform delivers high-performance metro access, metro aggregation and metro core networks with industry-leading capabilities in areas such as power, density, latency and synchronization across Layer 0 to 2.5.

Whether it’s used to push wavelength-division multiplexing (WDM) all the way up to the antenna or to the cell site in mobile networks, to connect enterprises together or to the cloud, or to deliver high-definition TV (HDTV), the XTM Series provides all the capabilities needed to meet your requirements for a flexible and future-proof metro network.

Supporting Layer 0 optical wavelengths to Layer 2.5 multi-protocol label switching-transport profile (MPLS-TP), using technologies such as Ethernet, optical transport network (OTN), synchronous digital hierarchy (SDH)/synchronous optical network (SONET), and Intelligent WDM (iWDM®), the XTM Series builds on key design philosophies such as low power, high density and a high level of scalability.

High Density + Low Power = Lower Cost

The XTM Series has a heritage of low power and compact products and solutions, fitting ideally in metro deployments or remote access sites where space is scarce and expensive. Single-slot transponders and muxponders are successfully combined with reconfigurable optical add-drop multiplexers (ROADM) and/or packet-optical transport switches (EMXP) in configurations that prove our leading density and low-power capabilities for both Layer 1 optical and Layer 2 Ethernet services. For example, our 10 gigabit per second (Gb/s) services use just 5 watts (W) of power—the equivalent of an iPhone charger.

Add to this the XTM Series’ wide range of chassis options, from small single rack unit (RU) chassis to large 11 RU chassis, and it becomes even easier to right-size the network, matching your requirements for low power as well as space.
**Mobile Fronthaul and iWDM-PON—Innovations Supporting Mobile and Access Networks**

The XTM Series offers a multitude of unique capabilities that make the platform ideal in a number of key applications. Examples include:

- Superior sync capabilities that are vital in mobile backhaul, especially as networks evolve to support Long Term Evolution-Advanced (LTE-A)
- Support for Common Public Radio Interface (CPRI)/Open Base Station Architecture Initiative (OBSAI), enabling WDM in cloud radio access network (C-RAN) architectures and mobile fronthaul applications

- iWDM®-PON, the Infinera WDM-passive optical network (WDM-PON) solution, enables scalable access networks that are easy to install and configure, making them ideal for fiber to the x (FTTx) business access applications

- Intelligent small form-factor pluggables (iSFP) enabling transparent delivery of SDH/SONET services over a packet-optical architecture, and eventually a smooth migration of legacy time-division multiplexing (TDM) networks to a common Ethernet/TDM network that fulfills strict sync and availability requirements

- True Layer 1/Layer 2 (forward error correction [FEC], OTN transport, MPLS-TP, long-reach optics) all on one blade

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**The XTM Series Is Ideal in a Broad Range of Network Applications:**

- Mobile Transport
- Triple-play Backhaul
- Business Ethernet
- Enterprise
- Metro/Regional Core Networking
- Wholesale

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**CORE CAPABILITIES**

- Low Power Design and High Density Design
- Layer 1, 2 and 2.5 integrated
- Multi-Service

**APPLICATION ORIENTED CAPABILITIES**

- Scalable access networks
- SLA monitoring portal
- Broad and diverse offering including hardened passives
- SLA dashboard for operator and customer
- Migration from TDM/SDH/SONET to packet-optical
- Eliminate the need for edge routers in video broadcast applications
- MEF CE2.0 certified products
- SONET/SDH, Async, Fibre Channel, OTN, Ethernet, CPRI, PDH, SONET/SDH over Ethernet
- Multicast in P-OTS
- CE2.0

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**Evolutionary approach to multi-vendor SDN**

- SDN-enabled
- Flexible
- Cost-efficient and scalable

**Examples:** 5 W per 10 Gb/s 8X100 Gb/s transponders in 11RU

**Native Small Form-factor 2.0, CE2.0-certified, cost-efficient aggregation**

**Layer 1 and Layer 2 (SyncE/1588v2) performance**

**Low latency**

<4 ns at Layer 1 and less than 2 μs at Layer 2/2.5

**Superior synchronization**

**Migration**

Legend:

- C-RAN networks
- Enable C-RAN networks
- Pluggable optics, short/long reach, reconfigurable HW
- Evolutionary approach to multi-vendor SDN
- CPRI/OBSA transport

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**iWDM®-PON**

- CWDM/DWDM/WDM-PON, small chassis options, design options, single fiber

**Examples:**

- 5 W per 10 Gb/s 8X100 Gb/s transponders in 11RU
An SDN-enabled Packet-Optical Platform Optimized for Metro Supporting 100G and Beyond

To manage the network and the services deployed with the XTM Series, we offer our multi-layer management suite, Enlighten®. In a lifecycle approach, Enlighten and the XTM Series provide a software defined network (SDN)-enabled transport network that makes network and service management simple and highly scalable.

With tools such as the Enlighten Portal, a web-based service level agreement (SLA) dashboard for multi-layer networks, our customers, and optionally their customers in turn, are given full visibility of the performance of the SLAs for services deployed in their networks. For applications such as business Ethernet or wholesale services, this is a vital tool to prove the service quality and fulfillment of SLAs.

Easy Management of the XTM Series

Managing the XTM Series network and its services becomes easy with Enlighten, the multi-layer management suite with a lifecycle approach.
# Infinera XTM Series

## XTM Series Products

Below is a selection of the Infinera XTM Series products. Please contact your Infinera sales representative for a full product range overview.

### MUXPONDERS

<table>
<thead>
<tr>
<th>4G</th>
<th>MS-MXP</th>
<th>8-client port, 4G Multi-service Muxponder. Dual line interfaces for 1+1 protection. SDH/SONET/GbE/SAN. 4x 4G Regenerator.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10G</td>
<td>MS-MXP/10G</td>
<td>10-client port Multi-service Muxponder. SDH/SONET, Ethernet, SAN, etc. Multiple traffic images. FEC on line. Dual line ports for 1+1 Line protection.</td>
</tr>
<tr>
<td></td>
<td>MXP10GOTN</td>
<td>10-client port OTU2 Muxponder. STM-16/OC-48, GbE, 1G/2G/4G FC. GFEC and EFEC on line.</td>
</tr>
<tr>
<td></td>
<td>FH-MXP10G</td>
<td>10-client port Fronthaul Muxponder. CPRI, SyncE.</td>
</tr>
<tr>
<td>100G</td>
<td>MXP100GOTN</td>
<td>10-client port coherent CFP-based OTU4 Muxponder. STM-64/OC-192, OTU2, OTU2e, 10GbE LAN, 8G FC in any mix.</td>
</tr>
</tbody>
</table>

### TRANSPONDERS

<table>
<thead>
<tr>
<th>2.5G</th>
<th>TPDDG8E</th>
<th>2x (2xGbe) Transponder. Dual line interfaces for 1+1 protection. 4x 2.5G Regenerator.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4G</td>
<td>TPQMP</td>
<td>Quad Multi-protocol (125 Mb/s–4.25 Gb/s) Transponder and Regenerator.</td>
</tr>
<tr>
<td>10G</td>
<td>TPD10G-Lite</td>
<td>Dual 10G Lite Transponder. 2G/4G/8G/10G FC, 10GbE, STM-64/OC-192, OTU2, OTU2e, CPRI/OBSAI. 2x 10G Regenerator.</td>
</tr>
<tr>
<td></td>
<td>TPD10GFEC/I</td>
<td>Quad 10G Multi-service Transponder. STM-64/OC-192, 10 GbE-WAN, 10 GbE-LAN. 2xRegenerator.</td>
</tr>
<tr>
<td></td>
<td>TPD10G</td>
<td>Double 10 GbE FEC Transponder. STM-64/OC-192, 10 GbE-WAN, 10 GbE-LAN. 2xRegenerator.</td>
</tr>
<tr>
<td></td>
<td>TPMHEX-Lite</td>
<td>6x Transparent Transponders on a 1-slot unit. 614 Mb/s to 14 Gb/s; see datasheet for details.</td>
</tr>
<tr>
<td></td>
<td>TPHEX10GOTN</td>
<td>6x OTU2/OTU2e Transponders on a 1-slot unit. 10 GbE, SDH/SONET, OTU2, OTU2e, 8G FC.</td>
</tr>
<tr>
<td>100G</td>
<td>TP100GOTN</td>
<td>Coherent CFP-based 100G Transponder. OTU4, 100 GbE-LAN.</td>
</tr>
</tbody>
</table>

### Layer 2

<table>
<thead>
<tr>
<th>1G, 10G</th>
<th>EDU</th>
<th>Ethernet Demarcation Unit. MEF9 + MEF14 certified. Multiple product models available; see datasheet for details.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1G</td>
<td>NID</td>
<td>Network Interface Device. Port device to EMXP/IIe; see datasheet for details.</td>
</tr>
<tr>
<td>1G, 10G, 100G</td>
<td>EMXPII, EMXP/Ile</td>
<td>Packet-Optical Transport Switch up to 240G. CE2.0, MEF9 + MEF14 certified; MPLS-TP, Sync-E, 1588v2. Multiple product models available; see datasheets for details.</td>
</tr>
<tr>
<td>10G, 100G</td>
<td>PT-Fabric</td>
<td>Packet-Optical Transport Switch with frontplane connected interface modules for 10 Gb/s and 100 Gb/s services; see datasheet for details.</td>
</tr>
</tbody>
</table>

### ROADMs

| 1x2 ROADM | 2-degree ROADM, 50/100 GHz. |
| 1x4 ROADM | 4-degree ROADM, 100 GHz. |
| 1x8 ROADM | 8-degree ROADM, 50 GHz. |

### MISCELLANEOUS OPTICAL NETWORKING EQUIPMENT

<table>
<thead>
<tr>
<th>CWDM/DWDM</th>
<th>Wide range of MUX/DEMUX/OADM units to support up to 80/40 channel DWDM and 8 channel CWDM over dual/single fiber(s).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amplifiers</td>
<td>OA-RAED, OA26C Raman/EDFA hybrid Amplifier, Power Extender C-Band.</td>
</tr>
<tr>
<td></td>
<td>OA17, OA20 Several EDFA Amplifier models available with different gain characteristics.</td>
</tr>
<tr>
<td>VOA Units</td>
<td>VOA-8CH, VOA-2CH 8 ch (using VOA-SFP) and 2 ch Variable Optical Attenuators.</td>
</tr>
<tr>
<td>iWDM-PON</td>
<td>OA2-SEED, OCUSEED Seed Light Unit and Seed Light Coupler Unit. C-Band WDM-PON solution; see datasheet for details.</td>
</tr>
<tr>
<td>Power Meters</td>
<td>OCM DWDM/CWDM Optical Channel Monitoring units.</td>
</tr>
</tbody>
</table>

### CHASSIS

<table>
<thead>
<tr>
<th>TM-3000II</th>
<th>19”, ETSI, 23” 11 U, up to 17 full-sized slots / 10 half-sized slots.</th>
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</thead>
<tbody>
<tr>
<td>TM-301</td>
<td>19”, ETSI, 23” 3 U, up to 4 full-sized slots / 4 half-sized slots.</td>
</tr>
<tr>
<td>TM-102II</td>
<td>19”, ETSI, 23” 1 U, 1 full-sized slot + 1 half-sized slot.</td>
</tr>
</tbody>
</table>
About Infinera
Infinera (NASDAQ: INFN) provides Intelligent Transport Networks, enabling carriers, cloud operators, governments and enterprises to scale network bandwidth, accelerate service innovation and simplify optical network operations. Infinera’s end-to-end packet-optical portfolio is designed for long-haul, subsea, data center interconnect and metro applications. Infinera’s unique large-scale photonic integrated circuits enable innovative optical networking solutions for the most demanding networks. To learn more about Infinera visit www.infinera.com, follow us on Twitter @Infinera and read our latest blog posts at: blog.infinera.com.