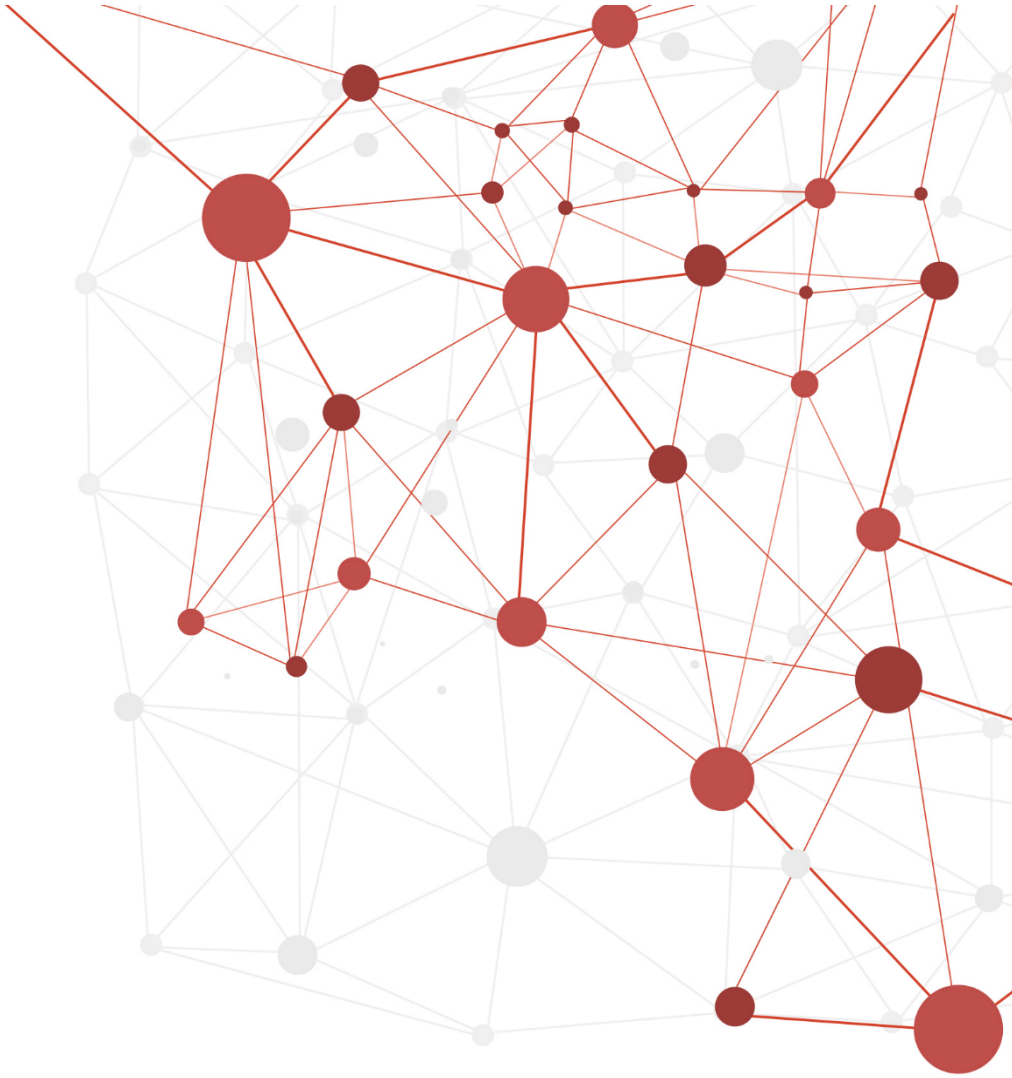

Huawei OptiX OSN 580 and Boards Datasheet

CONTENT

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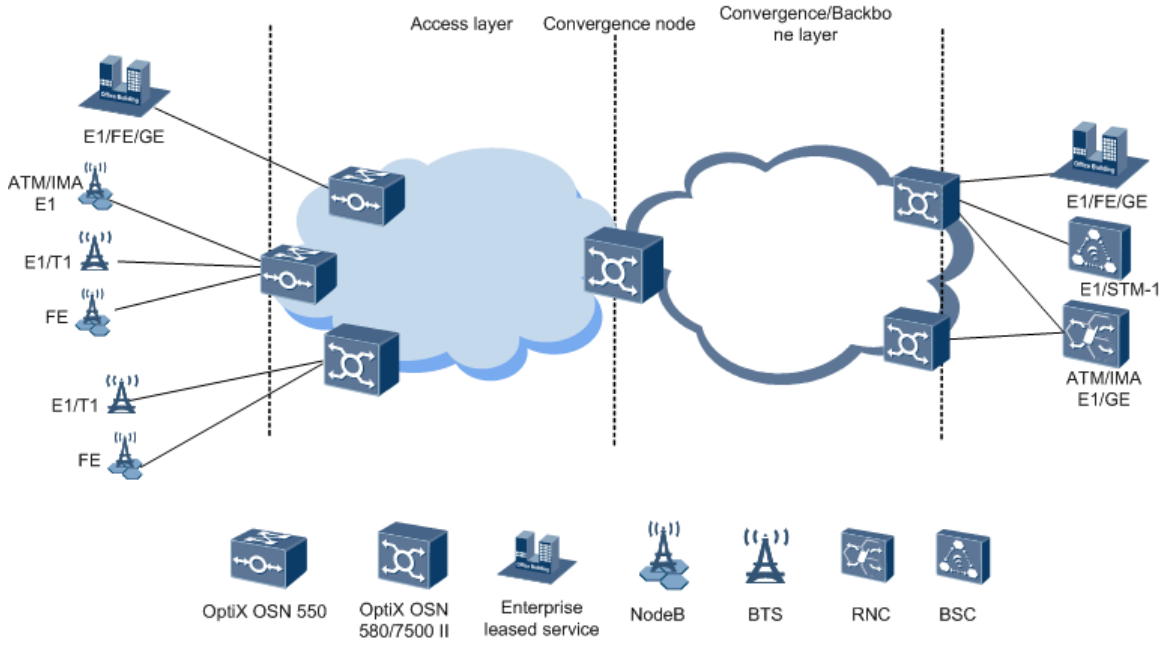
Overview

Huawei OptiX OSN 580 supports a variety of service network topologies in the TDM and packet domains, able to meet customers' various service development demands.

OptiX OSN 580 Appearance & Application

OptiX OSN 580



Network Application of The OptiX OSN 580

OptiX OSN 580 Highlights

★ Large Capacity, High Availability, Low Power Consumption, and Compact Structure

The OptiX OSN 580 is a device used at the convergence and access layers, which features large capacity, high availability, low power consumption, and compact structure. The OptiX OSN 580 supports:

- A maximum of 560 Gbit/s packet switching capacity and a maximum of 280 Gbit/s time division multiplexing (TDM) access capacity

- 1+1 equipment-level protection for the power supply board and the system control, switching, and timing board; tributary protection switching (TPS) for E1/T1 services; network-level protection such as tunnel automatic protection switching (APS), PW APS, Ethernet ring protection switching (ERPS), link aggregation group (LAG), multi-chassis link aggregation group (MC-LAG), MPLS-TP Ring Protection Switching (MRPS) (MPLS-TP is short for multiprotocol label switching transport profile), link-state pass through (LPT), subnetwork connection protection (SNCP), and multiplex section protection (MSP)

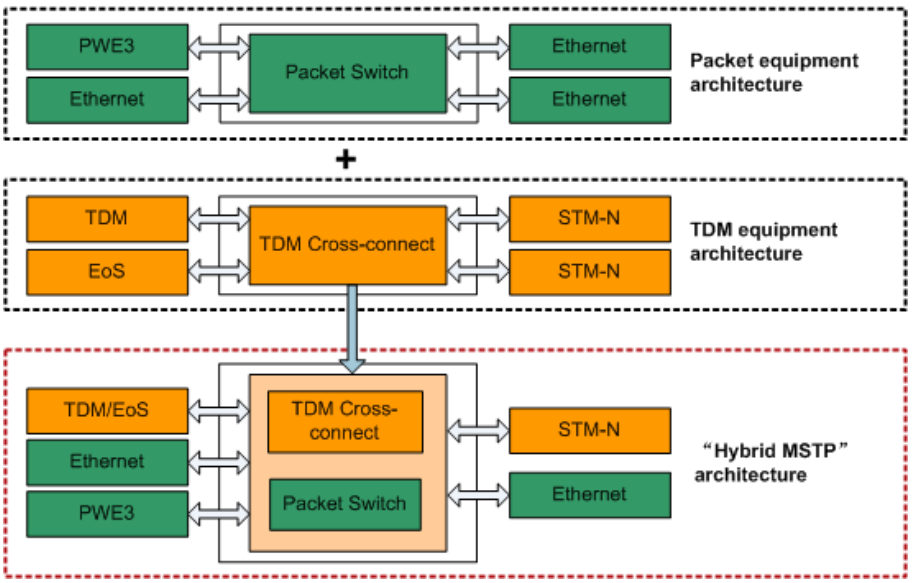
- A maximum power consumption of 1600 W and a typical power consumption of only 632.4 W. The equipment is energy saving, which helps reduce customers' OPEX.

- Both the DC-powered and AC-powered models of the 5U compact chassis can be easily installed in an ETSI or 19-inch cabinet. The DC power chassis can be installed in an outdoor cabinet.

★ Universal Switching Architecture and Multi-service Transmission

The OptiX OSN 580 has a universal switching architecture. The OptiX OSN 580 supports coexistence of the TDM domain and packet transport network (PTN) domain, which achieves smooth evolution from the TDM domain to the PTN domain while allowing the on-demand configuration and application of pure TDM services and packet services.

★ Architecture of the OptiX OSN 580



The OptiX OSN 580 can process and transport PDH, SDH, Ethernet, and MPLS-TP services.

In the PTN domain, the OptiX OSN 580 performs highly efficient statistical multiplexing for data services to reduce the transport expenditure per bit. In the TDM domain, the OptiX OSN 580 incorporates SDH functions to ensure the high transport quality of Native TDM services (mainly voice services).

Specification

Table 1. OptiX OSN 550 Specification.

Indicator and Specifications		**OptiX OSN 580**
Dimensions (H x W x D)		221 mm x 442 mm x 224 mm
Number of valid slots		DC power-supply chassis: 15 AC power-supply chassis: 12
Equipment capacity	**Packet**	560 Gbit/s
	TDM	280 Gbit/s higher order cross-connections and 20 Gbit/s lower order cross-connections
Service type supported		SDH, PDH, Ethernet, PCM and others
Network topology		Point-to-point, chain, star, ring, ring with chain, intersecting rings, tangent rings
Backup and protection	**Network-level protection (packet)**	MPLS-TP Tunnel 1:1 APS, MPLS-TP PW 1:1 APS/FPS, LPT, LAG, MC-LAG, MRPS, and ERPS
	Network-level protection (TDM)	SDH protection: linear MSP, ring MSP, SNCP, E1 SNCP, 64K SNCP, and hitless protection switching EoS protection: LCAS, LPT, STP/RSTP, LAG, and DLAG

	Device-level protection	1+1 protection for the power supply board 1+1 protection for the system control, switching, and timing board Tributary protection switching (TPS) for E1/T1 services Fan protection (The failure in a single fan does not affect the operation of the other fans.)
Maintenance	**MPLS OAM**	/
	MPLS-TP OAM	Continuity check (CC), remote defect indication (RDI), alarm indication signal (AIS), loopback (LB), linktrace (LT), single-ended loss measurement (LM), two-way delay measurement (DM), LCK (only for bidirectional tunnels and PWs), TST, and CSF (only for E-Line services carried by PWs)
	ETH OAM (packet)	Ethernet service OAM: CC, LB, LT, AIS, LM (only single-ended LM), DM (only two-way DM), and RDI Ethernet port OAM: OAM auto-discovery, link performance monitoring, remote loopback, fault detection, and self-loop detection
	ETH OAM (TDM)	Ethernet service OAM: CC, LB, LT, and OAM_Ping Ethernet port OAM: OAM auto-discovery, link performance monitoring, remote loopback, fault detection, and self-loop detection
Synchronization	**Packet**	Synchronous Ethernet Clock, IEEE 1588v2, and CES ACR
	TDM	SDH Synchronization Clocks

		Synchronous Ethernet Clock
DCN	**Outband DCN**	HWECC, IP over DCC
	Inband DCN	HWECC, IP
TP-Assist		- Service configuration: supports end-to-end service configuration and automatic deployment of alarm management. - Service commissioning: supports the one-click service connectivity test, one-click service performance test, and automatic test without any instrument. - Routine maintenance: supports performance statistics and monitoring and E-Line and E-LAN service path visualization. - Fault diagnosis: supports intelligent fault locating, IP ping initiation and response, and service loopback detection.
Standard working voltage		-48 V/-60 V DC power input 110 V/220 V AC power input
Installation method		In a cabinet (including ETSI and 19-inch cabinets), in an outdoor cabinet
Equipment running environment	**Subrack temperature**	Long-time operation: -5°C to +50°C Short-time operation: -10°C to +55°C
	Subrack humidity (relatively)	Long-time operation: 5%-85% Short-time operation: 5%-95%
Reliability specifications	**System availability**	0.999998866

	Annual average repair rate	< 1.85%
	Mean time to resolution (MTTR)	1 h
	Mean time between failures (MTBF)	100.69 years

Hardware Description

An OptiX OSN 580 chassis is 5U high and case-shaped and features high integration. The chassis can be AC powered or DC powered. A DC powered chassis uses the DC power board PIU, and an AC powered chassis uses the AC power board APIU. In an AC powered chassis, an APIU board occupies two service slots. The PIU and APIU boards cannot be installed in the same chassis. Install the PIU board only in a DC powered chassis and the APIU board only in an AC powered chassis.

Chassis Structure

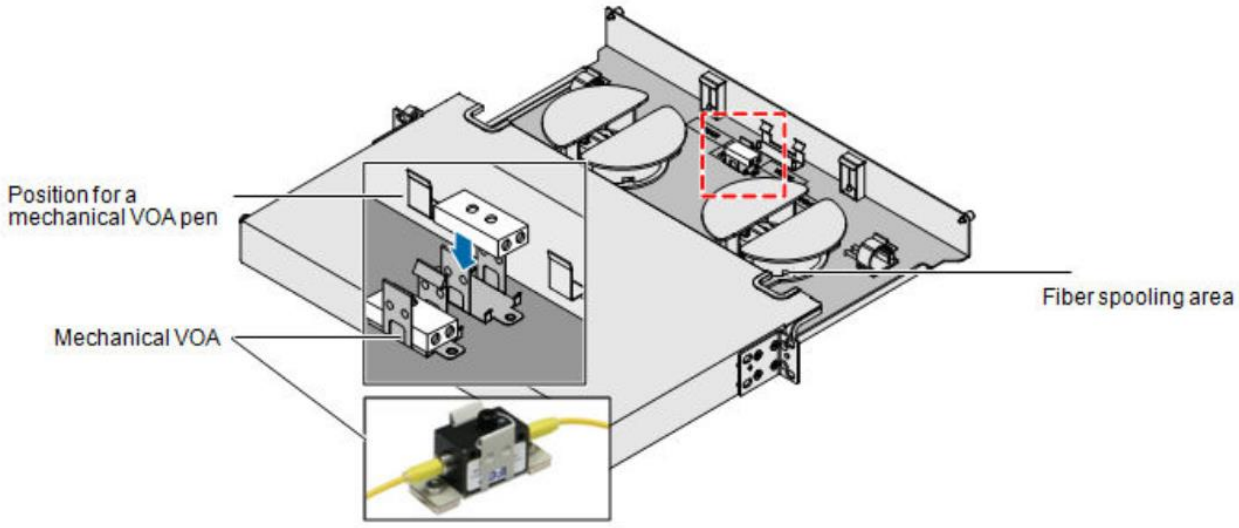
Installation Mode

The OptiX OSN 580 chassis supports the following installation modes: an ETSI or 19-inch cabinet. The DC power chassis can be installed in an outdoor cabinet.

The product provides the fiber management tray, which coils up the redundant fiber jumpers. The fiber management tray is the optional equipment.

The fiber management tray can be used to coil up the redundant fiber jumpers.

Fiber management tray



Drawing out the tray

NOTE:

Fibers are pulled in and pulled out though the fiber management tray at the right side. When you spool fibers, raise the cap of the fiber through hole.

Boards Description

There are various boards for Huawei OptiX OSN 580.

Table 2. Slot layout in an OptiX OSN 580 (DC powered chassis).

<table>
<tr><td rowspan="11">Slot 20 (FAN)</td><td colspan="2">Slot 7</td><td>Slot 14</td></tr>
<tr><td colspan="2">Slot 6</td><td>Slot 13</td></tr>
<tr><td colspan="2">Slot 5</td><td>Slot 12</td></tr>
<tr><td colspan="2">Slot 4</td><td>Slot 11</td></tr>
<tr><td colspan="3">Slot 16 (Control/cross-connect/clock integrated board)</td></tr>
<tr><td colspan="3">Slot 15 (Control/cross-connect/clock integrated board)</td></tr>
<tr><td colspan="2">Slot 3</td><td>Slot 10</td></tr>
<tr><td colspan="2">Slot 2</td><td>Slot 9</td></tr>
<tr><td colspan="2">Slot 1</td><td>Slot 8</td></tr>
<tr><td>Slot 17 (PIU)</td><td>Slot 18 (PIU)</td><td>Slot 19</td></tr>
</table>

Table 3. Slot layout in an OptiX OSN 580 (AC powered chassis).

<table>
<tr><td rowspan="11">Slot 20
(FAN)</td><td>Slot 7</td><td>Slot 14</td></tr>
<tr><td>Slot 6</td><td>Slot 13</td></tr>
<tr><td>Slot 5</td><td>Slot 12</td></tr>
<tr><td>Slot 4</td><td>Slot 11</td></tr>
<tr><td colspan="2">Slot 16 (Control/cross-connect/clock integrated board)</td></tr>
<tr><td colspan="2">Slot 15 (Control/cross-connect/clock integrated board)</td></tr>
<tr><td>Slot 3</td><td>Slot 10</td></tr>
<tr><td>Slot 2</td><td>Slot 9</td></tr>
<tr><td>Slot 17 (APIU)</td><td>Slot 19 (APIU)</td></tr>
</table>

Table 4. System control, switching, and timing board.

Board Acronym	Board Name
TNW1UCX	The system control, switching, and timing board supports: - A packet switching capacity of 280 Gbit/s - A higher order cross-connect capacity of 280 Gbit/s and a lower order cross-connect capacity of 5 Gbit/s - System control and communication
TNW1UCXE	The system control, switching, and timing board supports: - A packet switching capacity of 560 Gbit/s - A higher order cross-connect capacity of 280 Gbit/s and a lower order cross-connect capacity of 20 Gbit/s - System control and communication

Table 5. Packet processing board.

Board Acronym	Board Name
TNW1EM20	12xGE+8x10GE or 20xFE/GE switching and processing board
TNW1EM10	8xGE+2x10GE/GE switching and CES bridge processing board

Table 6. SDH board.

Board Acronym	Board Name
TNH2SL1Q	4xSTM-1 line board
TNH2SL4D	2xSTM-4 line board
TNW1SL41O	8xSTM-4/STM-1 line board
TNW1SL16Q	4xSTM-16 line board
TNW1SL64S	1xSTM-64 line board
TNW1SL64D	2xSTM-64 line board

Table 7. PCM board.

Board Acronym	Board Name
TNW1DXM	DDN service access and aggregation board
TNW1FXSO12	12 x FXS/FXO processing board
TNW1AT8	8x2/4 wire audio and E&M processing board
TNW1PF4E8	4 x 2M optical port service and 8 x E1/T1 tributary board
TNW1DIO	10-channel input and 4-channel output dry contact signal board

Table 8. PDH board.

Board Acronym	Board Name
TNH2SP3D	42xE1/T1 tributary board
TNH2PL3T	3xE3/T3 tributary board
TNM1PD1	32xE1/T1 TPS processing board
TNM1DMS	32xE1/T1 TPS interface board
TNW1PL1	16 x E1/T1 tributary board

Table 9. EoS board.

Board Acronym	Board Name
TNM1EGS4	4xGE switching and processing board
TNH3EFS8	8xFE switching and processing board

Table 10. Smart line board.

Board Acronym	Board Name
TNW1HUND2	2x10G line service processing board
TNW1HUNS3	40G hybrid service processing board providing a single optical port

Table 11. WDM board.

Board Acronym	Board Name
TNM1DMD2	Two-channel bidirectional optical add/drop multiplexing board
TNW1MR2	Two-channel optical add/drop multiplexing board

Table 12. Optical amplifier board.

Board Acronym	Board Name
TNF2OBU	TNF2OBU

Table 13. Auxiliary board.

Board Acronym	Board Name
TNM1AUX	Auxiliary interface board
TNM1FAN	Fan board

Table 14. Power supply board.

Board Acronym	Board Name
TNF5PIU	Power supply board
TNF5APIU	Power supply board

Basic Ordering Information

Table 15. Ordering information of Huawei OptiX OSN 580 chassis.

Model	Description
Huawei Optix OSN 580	Huawei OptiX OSN 580, supports various service networking topologies in the time division multiplexing (TDM) and packet domains, applicable to a wide range of scenarios

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Huawei OptiX OSN 6800	Huawei OptiX OSN 3800

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Sources

https://support.huawei.com/enterprise/en/transmission-network/optix-osn-580-pid-19907841