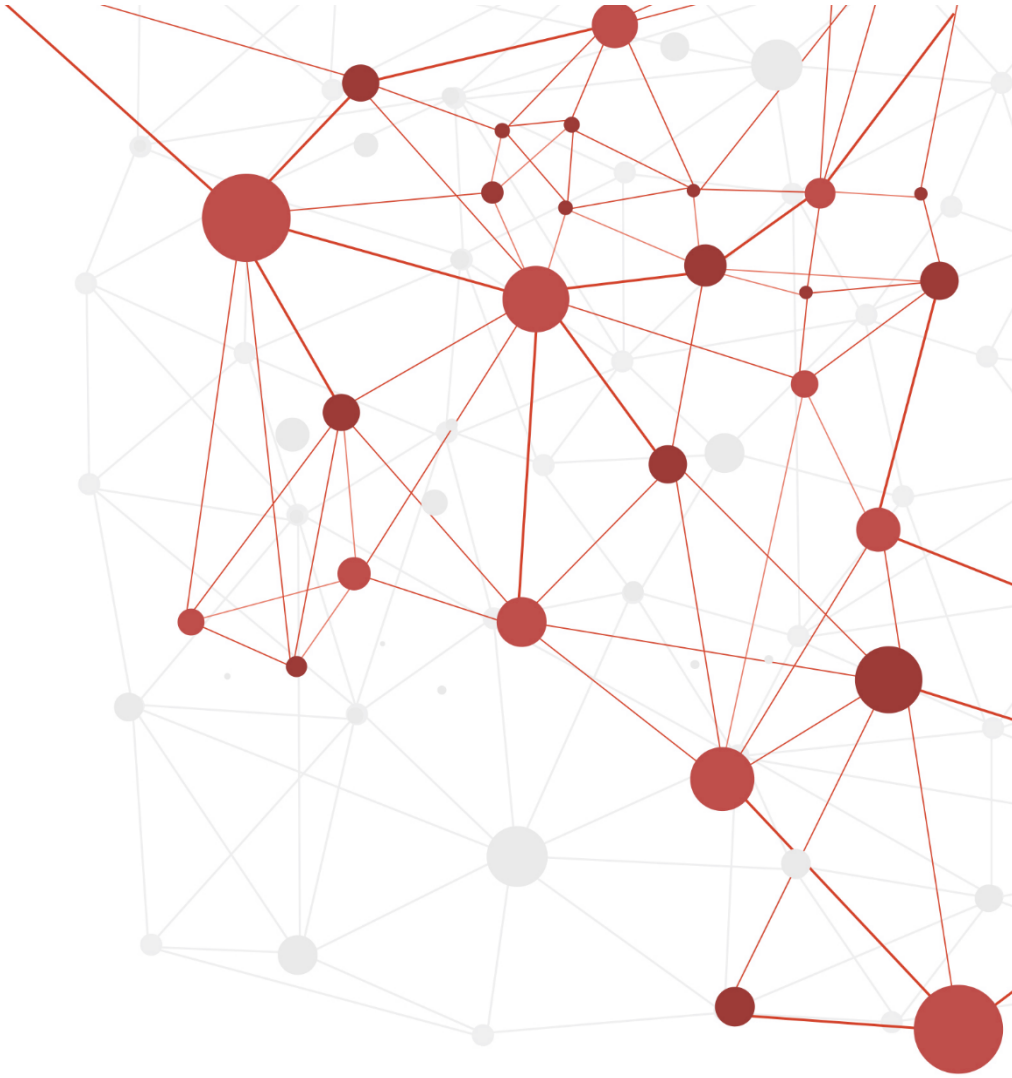

Huawei OptiX OSN 550 and Boards Datasheet

CONTENT

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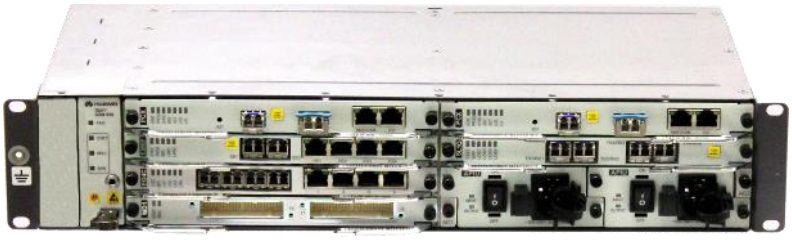
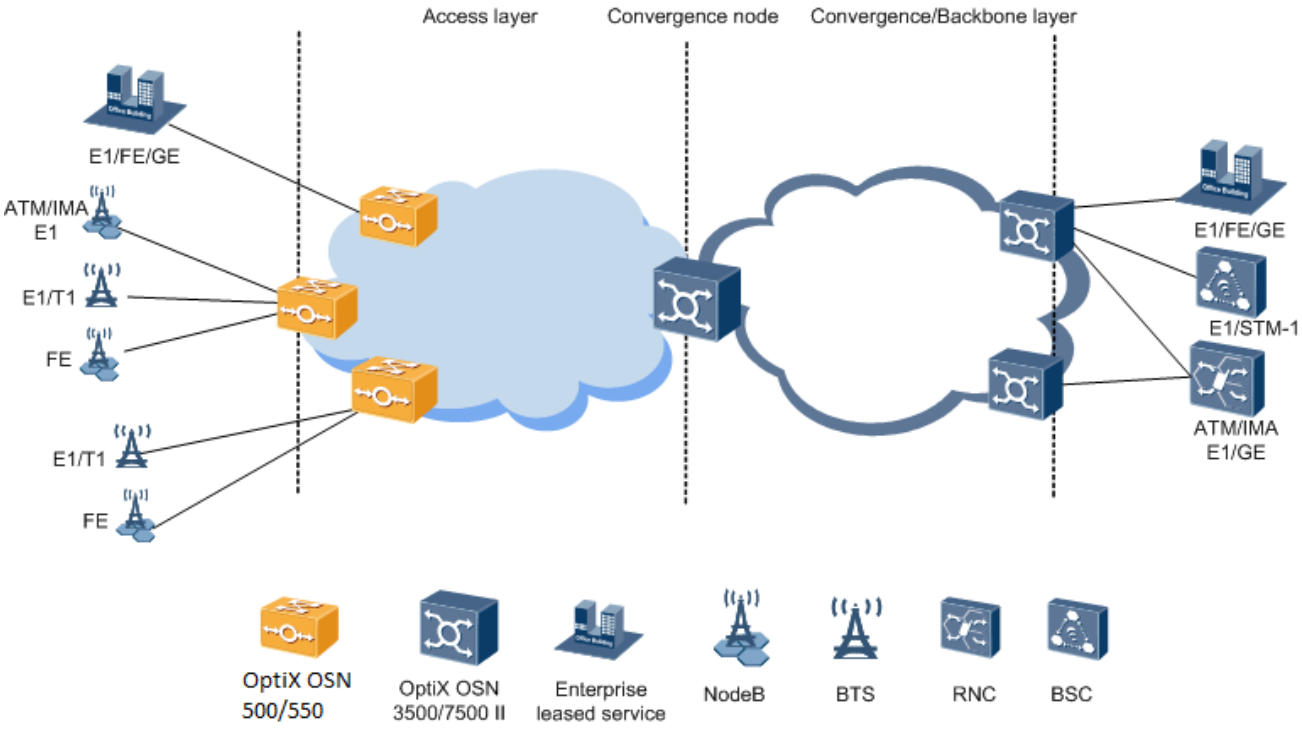
Overview

Huawei OptiX OSN 550 supports various service networking topologies in the time division multiplexing (TDM) and packet domains, applicable to a wide range of scenarios.

OptiX OSN 550 Appearance & Application



OptiX OSN 550



Network Application of The Optix OSN 500/550

OptiX OSN 550 Highlights

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

The OptiX OSN 550 is a device used at the access layer, which features large capacity, high availability, low power consumption, and compact structure. The OptiX OSN 550 supports:

- A maximum of 64 Gbit/s packet switching capacity, a maximum of 20 Gbit/s SDH cross-connect capacity, and a maximum of four 10GE ports

- 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, Multiple Spanning Tree Protocol (MSTP), Ethernet ring protection switching (ERPS), link aggregation group (LAG), link-state pass through (LPT), Multi-Link Point-to-Point Protocol (ML-PPP), linear multiplex section protection (LMSP), MPLS-TP Ring Protection Switching (MRPS) (MPLS-TP is short for multiprotocol label switching transport profile), subnetwork connection protection (SNCP), and multiplex section protection (MSP), to improve equipment reliability

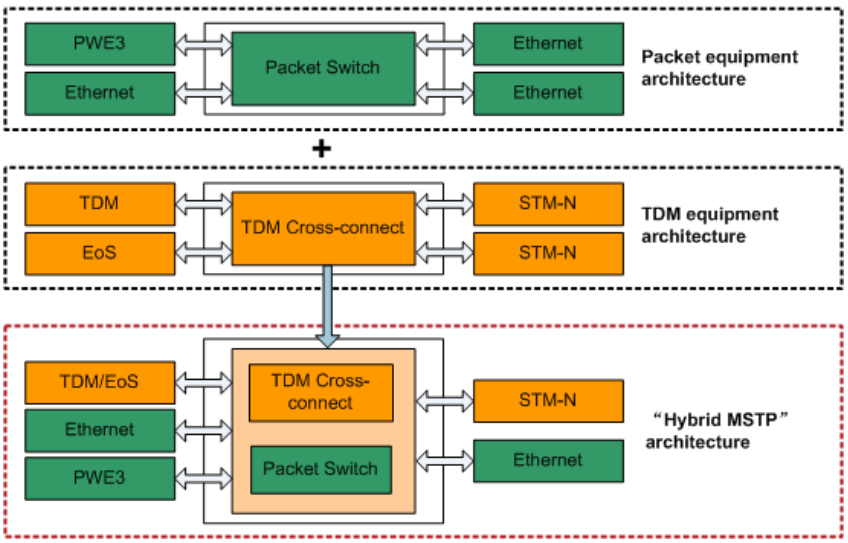
- A maximum power consumption of 300 W, a typical power consumption of only 132.6 W in Hybrid mode, and a typical power consumption of 148.7 W in time division multiplexing (TDM) mode

- Dimensions (H x W x D) of 88 mm x 442 mm x 220 mm

★ Universal Switching Architecture and Multi-service Transmission

The OptiX OSN 550 has a universal switching architecture. The OptiX OSN 550 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 550



The OptiX OSN 550 can process and transport PDH, SDH, ATM, Ethernet, MPLS, and MPLS-TP services.

In the PTN domain, the OptiX OSN 550 performs highly efficient statistical multiplexing for data services to reduce the transport expenditure per bit. In the TDM domain, the OptiX OSN 550 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 550**
Dimensions (H x W x D)		88 mm x 442 mm x 220 mm
Number of valid slots		DC power-supply chassis: 6 (excluding the slots for system control, switching, and time boards)/8 (including the slots for system control, switching, and time boards) AC power-supply chassis: 4 (excluding the slots for system control, switching, and time boards)/6 (including the slots for system control, switching, and time boards)
Equipment capacity	**Packet**	64 Gbit/s
	TDM	20 Gbit/s higher order cross-connections and 5 Gbit/s lower order cross-connections
Service type supported		SDH, PDH, PCM, ATM/IMA, CES, Ethernet and others
Network topology		Point-to-point, chain, star, ring, ring with chain, intersecting rings, tangent rings
Backup and protection	**Network-level protection (packet)**	Tunnel 1:1 APS, PW 1:1 APS/FPS, packet linear MSP, LPT, LAG, MSTP, MRPS, ML-PPP, 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, DLAG, and LAG

	Device-level protection	Tributary protection switching (TPS) for E1/T1 services 1+1 protection for the power supply board 1+1 protection for the system control, switching, and timing board Fan protection (The failure in a single fan does not affect the operation of the other fans.)
Maintenance	**MPLS OAM**	CV, FFD, BDI, FDI, Ping, Traceroute
	MPLS-TP OAM	Continuity check (CC), RDI, alarm indication signal (AIS), loopback (LB), linktrace (LT), loss measurement (LM) (only PW-based single-ended LM), LCK (The LCK for PWs and bidirectional tunnels is supported), TST (packet loss test only), PW CSF, and two-way delay measurement (DM)
	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**	SDH Synchronization Clocks Synchronous Ethernet Clock IEEE 1588v2 IEEE 1588 ACR CES ACR
	TDM	SDH Synchronization Clocks Synchronous Ethernet Clock

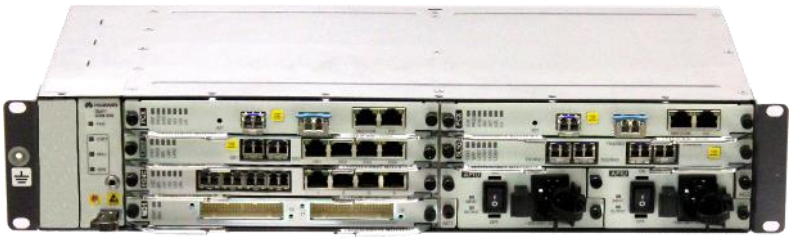
DCN	**Outband DCN**	HWECC, IP over DCC, OSI over DCC
	Inband DCN	HWECC, IP
TP-Assist		• Service configuration: supports end-to-end service configuration and automatic deployment of alarm management. • Service commissioning: supports the one-click service connectivity test, one-click service performance 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), on a wall or desk, in an outdoor cabinet, or in an open rack
Equipment running environment	**Subrack temperature**	• Long-time operation: -5°C to +55°C • Extended operation: -5°C to +65°C
	Subrack humidity (relatively)	• Long-time operation: 5-85% • Short-time operation: 5-95%
Reliability specifications	**System availability**	0.999996848
	Annual average repair rate	< 1.5%

	Mean time to resolution (MTTR)	1h
	Mean time between failures (MTBF)	36.22 years

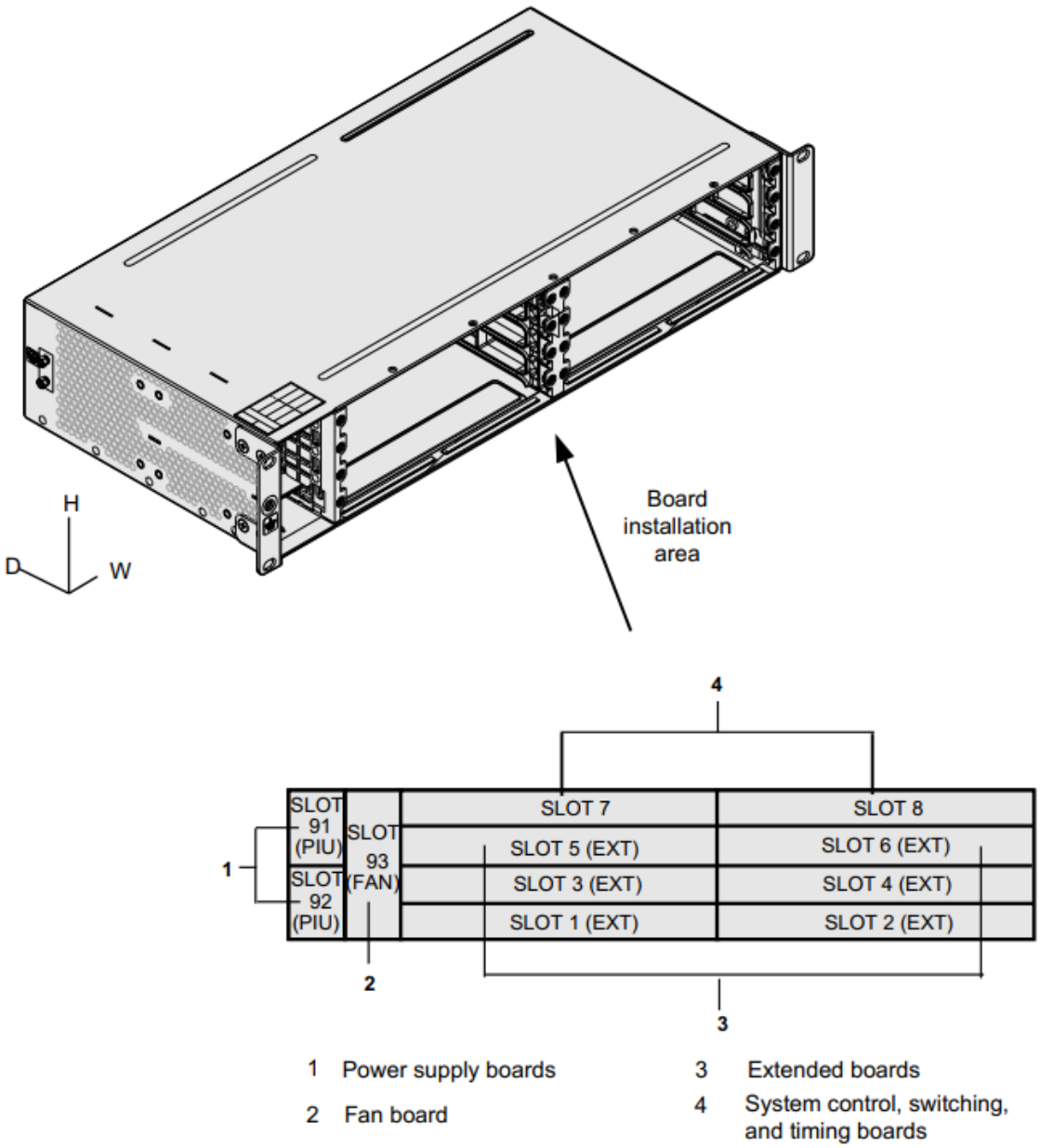
Hardware Description

The OptiX OSN 550 is a 2U chassis. It can be deployed in a variety of scenarios and on several different types of cabinets and surfaces.

Chassis Structure



Chassis Structure and Board Area



NOTE:

An OptiX OSN 550 NE can automatically save its NE ID, extended ID, IP address, and subnet mask to its backplane. After a new system control, switching, and timing board replaces an original one, the NE automatically uses the saved information. Therefore, you do not need to set the NE ID, extended ID, IP address, or subnet mask for the substitute board.

Installation Mode

The equipment can be deployed in a variety of scenarios and on several different types of cabinets and surfaces. such as in a cabinet (including ETSI and 19-inch cabinets), on a wall or desk, in an outdoor cabinet, or in an open rack.

Boards Description

There are various boards for Huawei OptiX OSN 550.

Table 2. Slot layout in an OptiX OSN 550 NE.

<table>
<tr><td rowspan="4">Slot 91 (PIU)</td><td rowspan="4">Slot 93 (FAN)</td><td>Slot 7 (System control, switching, and timing boards)</td><td>Slot 8 (System control, switching, and timing boards)</td></tr>
<tr><td>Slot 5 (EXT)</td><td>Slot 6 (EXT)</td></tr>
<tr><td rowspan="2">Slot 92 (PIU)</td><td>Slot 3 (EXT)</td><td>Slot 4 (EXT)</td></tr>
<tr><td>Slot 1 (EXT)</td><td>Slot 2 (EXT)</td></tr>
</table>

Table 3. System control, switching, and timing board (Hybrid).

Board Acronym	Board Name
TNM1PCXLX	The cross-connect, timing, system control, and line board supports: - A packet switching capacity of 64 Gbit/s - A higher order cross-connect capacity of 20 Gbit/s and a lower order cross-connect capacity of 5 Gbit/s - One 10GE port and one STM-N port - System control and communication
TNM1PCXX	The cross-connect, timing, system control, and line board supports: - A packet switching capacity of 64 Gbit/s - A higher order cross-connect capacity of 20 Gbit/s and a lower order cross-connect capacity of 5 Gbit/s

	- One 10GE port - System control and communication
TNM1PCXLG	The cross-connect, timing, system control, and line board supports: - A packet switching capacity of 46 Gbit/s - A higher order cross-connect capacity of 20 Gbit/s and a lower order cross-connect capacity of 5 Gbit/s - One GE port and one STM-N port - System control and communication
TNM1PCXGA	The cross-connect, timing, system control, and line board supports: - A packet switching capacity of 30 Gbit/s - A higher order cross-connect capacity of 20 Gbit/s and a lower order cross-connect capacity of 5 Gbit/s - One GE port - System control and communication
TNM1PCXGB	The cross-connect, timing, system control, and line board supports: - A packet switching capacity of 46 Gbit/s - A higher order cross-connect capacity of 20 Gbit/s and a lower order cross-connect capacity of 5 Gbit/s - One GE port - System control and communication

Table 4. System control, switching, and timing board (TDM).

Board Acronym	Board Name
TNM1CXL1	The cross-connect, timing, system control, and line board supports:

TNM1CXL16 **TNM1CXL16**	- A higher order cross-connect capacity of 20 Gbit/s and a lower order cross-connect capacity of 5 Gbit/s - System control and communication

Table 5. Packet processing board.

Board Acronym	Board Name
TNM1MD1	32xSmart E1 service processing board
TNM1EM6T	6xRJ45 FE/GE processing board
TNM1EM6F	4xRJ45 and 2xSFP FE/GE processing board
TNM1EG4C	4xGE (SFP/RJ45) processing board
TNM1EG8	8xGE processing board
TNM1EF8F	8xFE processing board
TNM1EX1	1x10GE processing board
TNM1CQ1	4xChannelized STM-1 service processing board

Table 6. SDH board.

Board Acronym	Board Name
TNH2SL1D	2xSTM-1 processing board
TNH2SL1Q	4xSTM-1 processing board
TNH2SL4D	2xSTM-4 processing board

Table 7. PDH board.

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

Table 8. EoS board.

Board Acronym	Board Name
TNH2EFS8	8xFE switching and processing board
TNH3EFS8	8xFE switching and processing board
TNH2EGT1	1xGE transparent transmission board
TNM1EGS4	4xGE switching and processing board

Table 9. 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 10. WDM board.

Board Acronym	Board Name
TNM1DMD2	2-port optical add/drop multiplexing board
TNM1DMD1S	Bidirectional Single Channel Optical Add/drop Multiplexing Board with OSC
TNM1DMD2S	Bidirectional Double Channel Optical Add/drop Multiplexing Board with OSC

Table 11. Optical amplifier board.

Board Acronym	Board Name
TNF2OBU	TNF2OBU

Table 12. Auxiliary board.

Board Acronym	Board Name
TNM1AUX	Auxiliary interface board
TNM1FAN	Fan board

Table 13. Power supply board.

Board Acronym	Board Name
UPM	Auxiliary interface board
TND1PIU	Power supply board
TNF1APIU	Power supply board

Basic Ordering Information

Table 14. Ordering information of Huawei OptiX OSN 550 chassis.

Model	Description
Huawei Optix OSN 550	Huawei OptiX OSN 550, a dual-domain (time division multiplexing [TDM] and packet domains) device

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Sources

https://support.huawei.com/enterprise/en/transmission-network/optix-osn-550-pid-6000318