

BTI7800 Packet Optical Transport Systems



Product Overview

The growth in bandwidth-intensive applications, coupled with the migration from local compute/storage models to cloud-based services, is driving a need for more efficient converged network infrastructure solutions, enabling improved network utilization, simplified large-scale operations, and lower cost per Gbps.

The BTI7800 line of packet optical transport systems supports large scale 10 Gbps, 100 Gbps, and 200 Gbps wavelength capacities in an open SDN platform. Leveraging a rich set of optical capabilities, including coherent modules with integrated ROADMs, the BTI7800 line helps network operators increase network capacity, reduce space/power/cooling costs, improve network utilization, and simplify the deployment of high-value services.

Product Description

The Juniper Networks® BTI7800 line of packet optical transport systems leverages a modular, flexible, pay-as-you-grow architecture. At the heart of the BTI7800 are flexible Universal Forwarding Modules (UFMs), each capable of switching up to 400 Gbps. UFMs can be equipped with 10 Gbps, 100 Gbps, and 200 Gbps interfaces providing the flexibility to support a wide range of muxponder and transponder connectivity. Optimized for metro and regional networks, the BTI7800 devices support a broad range of interfaces, including 10 Gbps, 100 Gbps, 200 Gbps, OTU2, OTU4, and OC-192/STM-64.

The BTI7800 line is managed by the Juniper Networks proNX software, an SDN-architected, high-performance network management and control platform with open APIs, Web GUI interfaces, and software-enabled networking.

Architecture and Key Components

The BTI7800 Packet Optical Transport Systems integrate simple, plug-and-play reconfigurable optical add-drop multiplexer (ROADM) technology to increase the capacity of existing networks or roll out new 100 Gbps or 200 Gbps networks. A variety of blade options, including ROADM, optional amplifiers, and pluggable pre-amplifiers, satisfy diverse capacity, span and reach requirements, while optimizing equipment expenses. The system automatically discovers all network nodes and modules, and automatically establishes intra-node and extra-node connections, eliminating manually intensive and error-prone configuration tasks to streamline operations.

Features and Benefits

- **Leading density, space, and power:** Designed for massive capacity in a compact footprint, the BTI7800 architecture supports up to 5.6 Tbps of wavelength capacity in a 14 U chassis, with 10/100/200 Gbps scale (2x200 Gbps per slot client and line-side connectivity) to 16.8 Tbps in a single rack.
- **Diverse capacity, span and reach capabilities:** The BTI7800 integrates ROADM-on-a-blade, improving deployment flexibility and economics.
- **Open management and control:** Open SDN-architected proNX software and associated applications enable new levels of programmability, automation, and control, simplifying and accelerating service delivery.
- **Investment protection and migration path to applications integration:** The BTI7800 modular architecture supports the addition of future interfaces and applications.



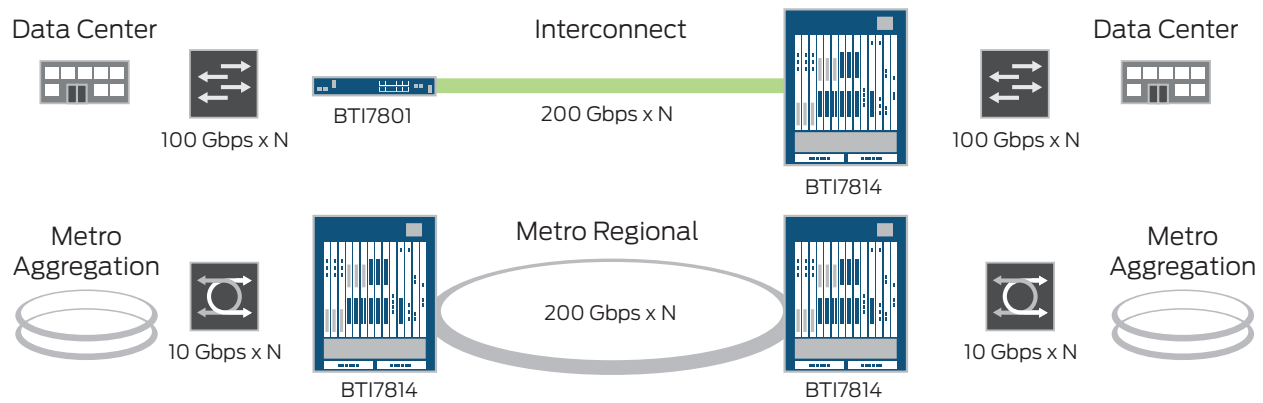


Figure 1: BTI7800 flexible, scalable deployment options

Platform Options

	BTI7814	BTI7802	BTI7801
Rack units	14	3	1
Module slots	14	2	1
Capacities	5.6 Tbps	800 Gbps	400 Gbps
10GbE capacity	560	80	40
100GbE capacity	56	8	4
Multichassis	Yes	Yes	Hardware-ready
Dimensions (HxWxD)	24.5 x 17.9 x 22.0 in (62.2 x 43.0 x 56.0 cm)	5.2 x 17.5 x 12.0 in (13.3 x 44.4 x 30.5 cm)	1.75 x 17.4 x 24.2 in (4.4 x 44.0 x 61.5 cm)
Power consumption	-48V DC, 100A (max) AC power options available Power per 10GbE = 7 W (typical)	-48VDC, 20A (max) AC power options available Power per 10GbE = 9 W (typical)	-48VDC, 15A (max) AC power options available Power per 10 Gbps = 10 W (typical)
Normal operating temperature range	0°C to 40°C	0° to 40°C	0° to 32°C
Environmental and safety certifications	Telecordia NEBs Level 3, Earthquake Zone 4, GR-63-CORE, GR-78-CORE, FCC Part 15 Class A, GR-1089-CORE, IEC/UL/CSA 60950, IEC 60825	Telecordia NEBs Level 3, Earthquake Zone 4, GR-63-CORE, GR-78-CORE, FCC Part 15 Class A, GR-1089-CORE, IEC/UL/CSA 60950, IEC 60825	Telcordia GR-3160 Generic Requirements for data center Equipment and Spaces, FCC Part 15 Class A, IEC/UL/CSA 60950, IEC 60825

Specifications

Universal Forwarding Module (UFM) Configuration Options

Each chassis option supports a number of common UFM configuration options:

- UFM Type 3: Supports two BIC slots
- UFM Type 6: Supports 10 quad small form-factor pluggable transceiver (QSFP) ports

	BTI7801	BTI7802	BTI7814
UFM3	✓	✓	✓
UFM6	✓	✓	✓
RDM2	–	✓	✓
AMP1	–	✓	✓
AMPL	–	✓	✓
WPS4	✓	✓	✓

Protocol Support

- 10 Gbps LAN/WAN, OC-192, STM-64, OTU2
- 100 Gbps, OTU4
- 200 Gbps, OTU4

Optical Layer Supported Span Loss

- ROADM-on-a-blade/ILA module only: 23 db
- ROADM-on-a-blade/ILA module with pluggable pre-amp: 32 db

Pluggable Optics

- Small form-factor pluggable plus transceiver (SFP+), 850 nm
- SFP+, 1310 nm
- SFP+, dense wavelength-division multiplexing (DWDM)
- C form-factor pluggable transceiver (CFP), 100GBASE-SR10
- CFP, 100 Gbps Coherent
- CFP, 100GBASE-LR4
- QSFP+, 40x10G, LR

Management

- CLI, SNMP, and NETCONF/YANG

Line Side Protection

- Optical protection switch
- Wavelength protection switch (WSP4)

400G Coherent MSA XCVR (2x200G)

Transmitter Specifications

Parameter	Min.	Max.	Unit
Frequency range	191.35	196.1	THz
Laser frequency stability	-1.8	1.8	GHz
Output power range	1.5	—	dBm
Transmitter optical signal-to-noise ratio (OSNR) (in-band)	36	—	dB/0.1nm
Optical return loss tolerance	27	—	dB

Receive Specifications

Frequency range	191.35	196.1	THz
Input power range	-18	0	dBm
OSNR tolerance	—	19.5	dB
Polarization mode dispersion (PMD) tolerance	15	—	ps
Polarization dependent loss (PDL) tolerance	3	—	dB
Dispersion tolerance	-30,000	30,000	ps/nm
Optical return loss from receiver	27	—	dB

Coherent Optics—CFP

Transmitter Specifications

Parameter	Min.	Max.	Unit
Frequency range	191.35	196.1	THz
Laser frequency stability	-1.8	1.8	GHz
Output power range	-15	1	dBm
Transmitter optical signal-to-noise ratio (OSNR) (in-band)	27	—	dB/0.1nm
Optical return loss tolerance	27	—	dB

Receive Specifications

Frequency range	191.35	196.1	THz
Input power range	-18*	0	dBm
OSNR tolerance	17.1	—	dB
Polarization mode dispersion (PMD) tolerance	—	15	ps
Polarization dependent loss (PDL) tolerance	—	3	dB
Dispersion tolerance	-22,000	22,000	ps/nm
Optical return loss from receiver	27	—	dB

* -21 dBm in unamplified systems

Ordering Information

For ordering information, please consult the Juniper Networks price list or contact your local Juniper sales representative.

About Juniper Networks

Juniper Networks challenges the status quo with products, solutions and services that transform the economics of networking. Our team co-innovates with customers and partners to deliver automated, scalable and secure networks with agility, performance and value. Additional information can be found at [Juniper Networks](#) or connect with Juniper on [Twitter](#) and [Facebook](#).

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