# 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 flexible client interfaces (Ethernet and TDM), 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, 40 Gbps, 100 Gbps, 200 Gbps, OTU2, OTU4, OC-192/STM-64, and 8G/10G Fibre Channel.

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 seamlessly integrate with Juniper Networks TCX1000 Programmable ROADM to increase the capacity of existing networks or roll out new 100 Gbps or 200 Gbps networks. A variety of blade options, including amplifiers, muxponders, and transponders, 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 easily integrates with the TCX1000 Programmable ROADM, 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.
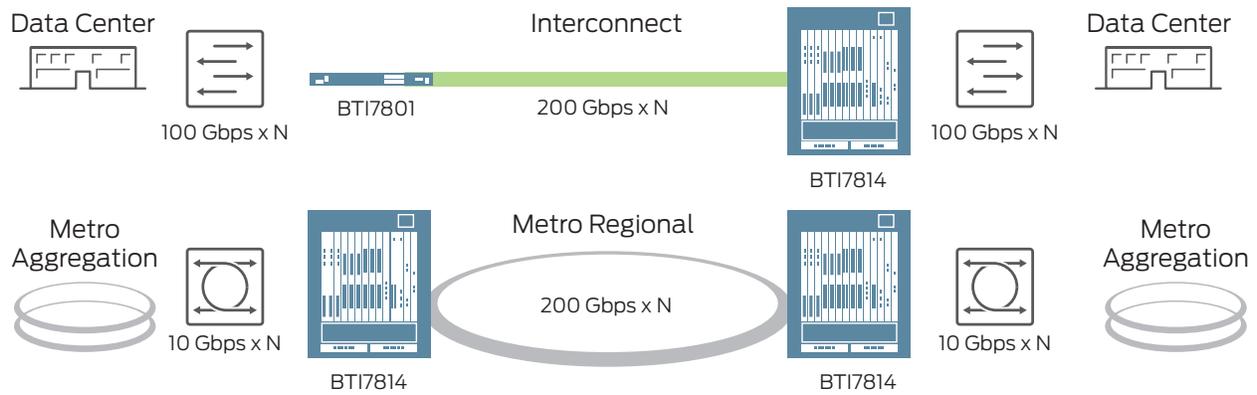
Figure 1: BTI7800 flexible, scalable deployment options

## 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 | 0ºC to 40ºC | 0º to 40ºC | 0º to 32ºC |
| 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 | ✓ | ✓ | ✓ |
| AMP1 | – | ✓ | ✓ |
| WPS4 | ✓ | ✓ | ✓ |

### Protocol Support

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

### 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+, 4x10G, LR
- QSFP+, 4x10G, SR
- QSFP+, 40GBASE-SR4
- QSFP+, 40GBASE-LR4

## 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

| Parameter | Min. | Max. | Unit |
|---|---|---|---|
| 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

| Parameter | Min. | Max. | Unit |
|---|---|---|---|
| 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.

Corporate and Sales Headquarters

Juniper Networks, Inc.

1133 Innovation Way

Sunnyvale, CA 94089 USA

Phone: 888.JUNIPER (888.586.4737)

or +1.408.745.2000

Fax: +1.408.745.2100

www.juniper.net

APAC and EMEA Headquarters

Juniper Networks International B.V.

Boeing Avenue 240

1119 PZ Schiphol-Rijk

Amsterdam, The Netherlands

Phone: +31.0.207.125.700

Fax: +31.0.207.125.701

EXPLORE JUNIPER
Get the App.

JUNIPER 1ON1

Download on the App Store

ANDROID APP ON Google Play

JUNIPER
NETWORKS