BTI 7000 Series

Product Brochure

BTI 7000

bti systems

the network you need.

the network **you** need.

The optical network edge—where services connect users—must scale rapidly to address increased demands from residential, wireless, and business customers. Wired homes are now a multimedia hub for IPTV, HD video on demand, social networking, and internet-based research and information gathering. Wireless smart devices extend the reach of our on-demand, online, video-oriented, and connected lifestyles. Businesses leverage consolidated data centers and on-demand services for communications to a distributed workforce, securing business-critical information, and collaborating with partners and suppliers.

The BTI 7000 Series addresses the increasing demand for packet services, greater optical capacity, dynamic networking, and management simplicity in service-provider and enterprise networks. Expanding the capacity of a single fiber pair up to 400 Gbps, BTI's Intelligent Service Edge solutions enable high-capacity wavelength and packet-based delivery of video, storage, wired data, wireless data and voice, and media where and when it's needed.

the simplicity **you** want

A focus on fundamental principles is key to addressing requirements for next-generation, service-oriented networking. "Big Iron" metro network platforms are costly to acquire and operate, are complex, and don't fit effectively into service delivery networks addressing residential, wireless, and business customers. BTI Systems' design approach converges packet service delivery with high-capacity optical networking in a new class of small form-factor, low-power systems, with a focus on delivering significant operational value.

The BTI 7000 Series packet optical capabilities enable solutions that address a diverse range of applications within metro access, metro, and regional network environments. BTI Systems solutions provide the means for network operators to migrate easily to packet networking, leverage existing fiber infrastructure more effectively, and increase network capacity on demand and affordably.

Multiservice platforms to address diverse applications & requirements
Layer 0/1/2 integration for efficient packet optical networking
Modular and scalable approach for optimized network capacity
Service-oriented with extensive performance visibility and high availability
Operational value: high density, low power, and outside plant capable

Platforms & Modules

BTI 7000 Series platforms are carrier-grade, robust networking platforms designed to be deployed in a variety of networking environments. BTI 7000 Series platforms support the entire portfolio of client service modules and optical network building blocks.

BTI 7060 Dimensions: 2RU | Service Slots: 6 | AC and DC Power Options | Expansion Shelf Architecture Option

BTI 7030 Dimensions: 1RU | Service Slots: 2 | AC and DC Power Options | Ultra-Compact Service On-Ramp

BTI 7020 Dimensions: 1RU | Service Slots: 2 | No Power Requirement | Supports Passive Network Building Blocks

packetVX

packetVX modules integrate a fully featured Carrier Ethernet switch into the BTI 7000 Series, delivering Layer 0/1/2 capabilities from one platform. packetVX modules provide both high-density Gigabit Ethernet (GbE) aggregation and high-capacity 10GbE, OTN-enabled, XFP-based optics for simplified WAN interconnect.

Muxponders

Multiprotocol Muxponders (MXPs) provide subwavelength service aggregation for a comprehensive mix of data, storage, TDM, and video protocols. G.709 OTN and SONET/SDH wavelength encapsulation strategies and innovative ring functionality converge distributed add/drop multiplexing with the WDM layer and provide rapid protection switching.

Transponders

Multiprotocol Transponders (TPRs) provide high-capacity connectivity for client protocols between 100 Mbps to 4 Gbps, and at 10 Gbps rates commonly used in today's service provider and enterprise networks. The dual transponder architecture—two transponders in one (DTPR)—provides high-density extension of two independent client services or WAN protection of a single client service. DTPRs can be leveraged as a service on-ramp or a regenerator in reach extension applications.

Network Multiplexers

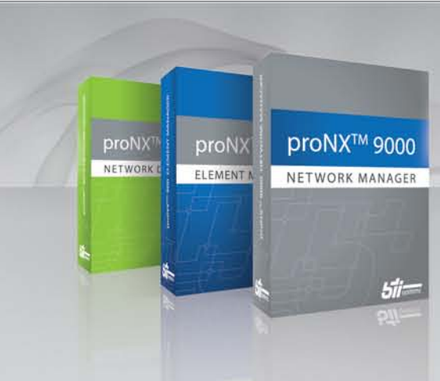
Network Multiplexing filters provide both Coarse Wavelength Division Multiplexing (CWDM) and Dense WDM (DWDM) support to efficiently and cost effectively multiply the capacity of existing fiber infrastructures. Network multiplexing modules act as integrated components within the BTI 7000 Series to scale networks with WDM virtual fiber and address a wide variety of network capacity and site wavelength add/drop requirements

Reach Extension

Reach Extension portfolio of optical amplifiers and dispersion compensation modules is designed to extend optical signals by compensating for complex effects such as power loss, Optical Signal-to-Noise Ratio (OSNR), degradation, and chromatic dispersion. These optical network building blocks extend DWDM service connectivity without the need to electrically regenerate signals, and enable the BTI 7000 Series to address large metro and regional network applications.

Network Adaptation

Network adaptation modules enable the BTI 7000 Series to address any physical infrastructure—optical network building blocks are available to integrate legacy network solutions at 1310nm/1550nm, deliver hybrid CWDM/DWDM network solutions, and offer high-capacity single fiber bidirectional networking.



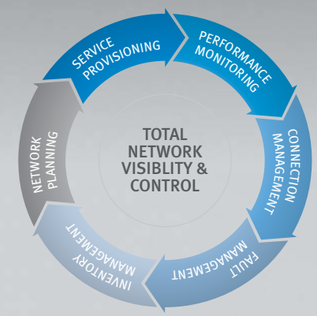
Delivering the **Complete** Management Solution

The BTI proNX™ Management Suite provides a modular and scalable management solution for your network and integrates seamlessly into any operating environment, providing maximum flexibility and ease-of-use.

proNX™ 9000 Network Manager
FCAPS | Network View | Service Management | OSS Integration

proNX™ 900 Node Controller
FCAPS | Element Management | Local Craft

proNX™ 9010 Network Designer
Strategic Network & Service Planning | Link Engineering



Next-Generation Packet Optical Networking

The BTI 7000 Series delivers comprehensive networking capabilities—from packet and optical service on-ramp to network reach extension—in the industry's most compact, modular, and easy-to-use packet optical network system. The BTI 7000 Series can be tailored to address your specific network requirements and keep pace with future service growth. It is the foundation for the network **you** need.

SWITCH Leverage Carrier Ethernet packet service modules to provide rapid provisioning and delivery of Ethernet connectivity without the need for a separate switching service layer.

AGGREGATE Utilize subwavelength service aggregation to make efficient use of WDM network infrastructure. Innovative distributed add/drop functionality provides extremely flexible optical service delivery capabilities.

CONNECT Provide high-capacity connectivity with software programmable SFP/XFP interfaces and integrated optional network protection; scale easily from 1 wavelength up to a 400 Gbps system.

EXTEND Leverage SONET/SDH or ITU-T G.709 OTN line mapping strategies to provide flexible service extension, simplified network interoperability, enhanced reach, and in-band management.

CONVERGE Expand fiber plant capacity and converge separate, application-specific networks with 10 Gbps-capable CWDM (16 λ) or DWDM (40 λ) virtual fiber; eliminate reactionary, capacity-driven network overlays.

Service-Oriented **Carrier Ethernet**

Simplified Network Interoperability

Virtual Fiber

Modular & Flexible Deployment Capabilities

Service-Oriented Carrier Ethernet

Carrier Ethernet provides increased service scalability and clear demarcation between customer and provider networks. Combining a diverse range of traffic and service management functions with standardized User Network Interfaces (UNIs) enables implementation of differentiated service levels using prioritization, policing, shaping, and flow control mechanisms. Standardized OAM features include end-to-end service management, remote failure indication, remote loopback, link-monitoring functionality, and service performance monitoring capabilities.

Simplified Network Interoperability

G.709 Optical Transport Network (OTN) and SONET/SDH line mapping strategies enable efficient multiplexing, provisioning, and switching of packet-oriented, high-bandwidth services as well as the opportunity to interoperate with deployed SONET and SDH network systems.

OTN offers improved network performance, rapid protection switching, and an in-band network communications channel. Integrated G.975 Forward Error Correction (FEC) identifies and corrects transmission errors, improving throughput and reach of optical signals. Rapid 50ms protection switching provides high availability for mission--critical connectivity, and a General Communications Channel (GCC) provides an in-band strategy for network management, remote software upgrades, and inventory and alarm communications.

SONET/SDH wavelength encapsulation is offered at 2.5G (OC-48/STM-16) and 10G (OC-192/STM-64) rates. Encapsulation enables BTI Systems networks to seamlessly interoperate with established SONET/SDH networks, simplifying deployment into existing network infrastructures. SONET UPSR and SDH SNCP ring-based networking protection provides 50ms protection switching and enables ADM-like distributed add/drop networking for BTI 7000 Series muxponder modules.

Virtual Fiber

Wavelength Division Multiplexing (WDM) expands the capacity of physical infrastructure and is the foundation for today's next-generation, service-oriented networks.

BTI's CWDM wavelength plan addresses low-to-moderate-capacity requirements and offers 16 wavelengths with 10Gbps capabilities. BTI's DWDM solutions offers high-capacity with 40 10Gbps-capable wavelengths. WDM solutions can be implemented with as little as one service wavelength Day One and scaled to full system capacity (400 Gbps) as requirements grow.

Modular & Flexible Deployment Capabilities

BTI 7000 Series platforms are carrier-grade and robust, and are designed to be deployed in a variety of networking environments. Three platform options plus an expansion architecture offer customized service density and AC/DC power options, and are certified for the extreme temperature and humidity of outside plant operations.

Platforms				Modular Packet Optical Networking
Name	Service Slots	Size	Power	Mounting
BTI 7060	6	2 Rack Units (RU)	DC/AC	19", ETSI, 23"
BTI 7030	2	1 Rack Units (RU)	DC/AC	19", ETSI, 23"
BTI 7020	2	1 Rack Units (RU)	Passive	19", ETSI, 23"
BTI 7060 Expansion Shelf Architecture	Up to 24	Up to 8 RU	DC/AC	19", ETSI, 23"
packetVX				**Integrated Packet Service Module**
		GbE Ports	10GbE Ports	Support Interfaces
packetVX 24/4	PVX 24/4	20 (SFP) + 4 (RJ45)	4 (XFP)	10/100/1000bT 100FX, 1000-SX/LX/ZX
packetVX 24/2	PVX 24/2	20 (SFP) + 4 (RJ45)	2 (XFP)	
packetVX 12/2	PVX 12/2	10 (SFP) + 2 (RJ45)	2 (XFP)	
Muxponders				**Efficient Wavelength Aggregation**
		Client Ports	Line Ports	Client Support
10-port Multiprotocol Muxponder	10-port MXP	10 (SFP)	2 (XFP) - 10G λ	GbE, SAN, SONET/SDH
8-port Multiprotocol Muxponder	8-port MXP	8 (SFP)	2 (SFP) - 2.5G λ	GbE, SAN, SONET/SDH, Video
2-port GbE Muxponder	2-port GbE MXP	2 (SFP) + 2 RJ45	2 (SFP) - 2.5G λ	GbE, 100bT
Transponders				**High Capacity Dedicated Connectivity**
		Client Ports	Line Ports	Client Support
Dual 10G Multiprotocol Transponder	10G DTPR	2 (XFP)	2 (XFP) - 10G λ	10GbE, SAN, SONET/SDH, OTN
10G Multiprotocol Transponder	10G TPR	1 (XFP)	1 (XFP) - 10G λ	10GbE, SAN, SONET/SDH, OTN
Dual 10G Multiprotocol Transponder Lite	10G DTPR-L	2 (XFP)	2 (XFP) - 10G λ	10GbE, SAN, SONET/SDH
Dual 4G Multiprotocol Transponder	4G DTPR	2 (SFP)	2 (SFP) - 4G λ	GbE, SAN
Dual 2.5G Multiprotocol Transponder	2.5G DTPR	2 (SFP)	2 (SFP) - 2.5G λ	GbE, SAN, SONET/SDH
Dual 1G Multiprotocol Transponder	1G DTPR	2 (SFP)	2 (SFP) - 1G λ	GbE, SAN, SONET/SDH, Video
Network Multiplexing				**Scalable & Efficient Virtual Fiber**
		Wavelengths	Spacing	System Capacity
Coarse Wavelength Division Multiplexing	CWDM	16	100GHz	100G (8x10G λ + 8x2.5G λ)
Dense Wavelength Division Multiplexing	DWDM	40	100GHz	400G (40x10G λ)
Reach Extension				**Extended Service Footprint Enabler**
Amplifier Portfolio	Booster amplifier	Line amplifier	Line amplifier / Mid-Stage Access	Pre-amplifier
Dispersion Compensation Modules	Fiber Bragg Grating (FBG)	Dispersion Compensating Fiber (DCF)		
Network Adaptation				**Physical Infrastructure Adaptation**
Splitters/Combiners/Filters	CWDM/DWDM splitter/combiner	1310/DWDM splitter/combiner	1310/CWDM splitter/combiner	Bidirectional Single Fiber DWDM

Corporate Headquarters 50 Northside Road, Ottawa, Canada, K2H 5Z6
European Headquarters Montgomery House, 29-33 Montgomery Street, Belfast, UK, BT1 4NX
Regional Offices Boston (United States) and Shanghai (China)

www.btisystems.com | info@btisystems.com | sales@btisystems.com | 866.626.9154 | 613.248.9154

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