

Multiprotocol Transponders

BTI 7000 Series



BTI 7000 Series Multiprotocol Transponders (TPRs) provide high capacity reach extension and connectivity for client protocols between 100 Mbps to 2.5Gbps, and at 4 Gbps and 10 Gbps rates used in today's service provider and enterprise networks. BTI's dual transponder (DTPR)—two transponder-in-one—architecture offers high density extension of two independent client services or resilient protection of a single client service and can be leveraged as a WAN service on-ramp or regenerator module in reach extension applications.

Transponder Functionality

Transponders act as reach extension and demarcation modules, interfacing the BTI 7000 Series Wavelength Division Multiplexing (WDM) network to subtending networking equipment. The primary focus of transponders is wavelength translation, where optical client services are received, processed, and retransmitted on a different wavelength carrier within the WDM frequency domain to increase capacity. Transponders provide dedicated wavelength services for both service provider and enterprise networks; services are mapped to WDM wavelengths on a one-to-one basis.

Features

Multiprotocol Support

Provides dedicated wavelength transport for a comprehensive mix of data, storage, TDM, and video protocols including Ethernet (100FX, GbE, and 10GbE), Fibre Channel (1G, 2G, 4G, 10G) and FICON (1G, 2G), SONET (OC-3/12/48/192), and SDH (STM-1/4/16/64)

Service Oriented Performance Monitoring

Physical layer, SONET/SDH, Ethernet, and G.709 OTN (OTU2) performance metrics are available. This allows for efficient network monitoring and enhanced Operations, Administration and Maintenance (OAM) capabilities and assurance of Service Level Agreements (SLAs) at all layers of the network.

Integrated WAN Protection and High Density

Dual transponders (DTPRs) provide sub-50ms 1+1 facility network protection for a single client service as a software-selectable alternate to high density, unprotected, independent transport of two client services.

Benefits

- Provide high capacity, dedicated WAN connectivity for a broad range of protocols
- Dynamic optical connectivity with SFP/XFP versatility and software programmable ports
- Select high density (two-transponder-in-one) or integrated WAN protection
- Leverage in-band management, protection, and reach extension with G.709 OTN (@ 10G)
- Comprehensive portfolio with 1 Gbps, 2.5 Gbps, 4 Gbps, and 10 Gbps line wavelength offerings

OTN-Enabled Networking (10G Modules)

G.709 Optical Transport Network (OTN) provides extended reach and improved connection throughput with Forward Error Correction (FEC) and enhanced FEC, and offers an in-band communications channel.

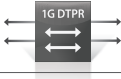

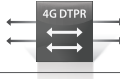
SFP/XFP Versatility

All modules support Small Form-Factor pluggable (SFP), 10G XFP, and 10G tunable XFP optics. Configured through software, BTI DTPRs can address any protocol mix and transport aggregated services over any supported ITU-T WDM wavelength within the BTI 7000 Series' Coarse WDM (CWDM) and Dense WDM (DWDM) wavelength plans.


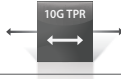
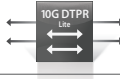
Numerous Wavelength Regeneration Options

DTPRs can perform one or more of the following regeneration options: 2R (protocol flexibility and low cost), 3R (protocol flexibility with retiming), and 4R (reframing plus performance management information).

Transponders

		1G DTPR	2.5G DTPR	4G DTPR
				
Client Interface Ports:		2 SFP	2 SFP	2 SFP
Client protocols:				
Gigabit Ethernet	1 Gbps	■	■	■
Fibre Channel 1G / FICON	1 Gbps	■	■	■
Fibre Channel 2G / FICON 2G	2 Gbps		■	■
Fibre Channel 4G	4 Gbps			■
OC-3 / STM-1	155 Mbps	■	■	
OC-12 / STM-4	622 Mbps	■	■	
OC-48 / STM-16	2.5 Gbps		■	
ESCON	200 Mbps	■		
SD SDI (SMPTE 259M)	270 Mbps	■		
SD SDI (SMPTE 344M)	540 Mbps	■		
Line Interface Ports:		2 SFP	2 SFP	2 SFP
Line rates:		1 Gbps	2.5 Gbps	4 Gbps
Line Mapping:	Transparent	■	■	■
Wavelengths Supported:	850nm / 1310nm / 1550nm	■	■	■
	CWDM / DWDM	16 λ / 40 λ	16 λ / 40 λ	16 λ / 40 λ
Line Side Protection:	Unprotected (wavelengths supported)	2	2	2
	Protected (wavelengths supported)	1	1	1
Transmission Testing:	Client & Line Side Loopbacks	■	■	■
Performance Monitoring:	15-minute and 24-hour intervals	Physical	Physical and Layer 1	Physical, Layer 1, FC, and Ethernet
Storage Extension Certification:	Brocade Data Center Ready	■	■	■
MEF Certification	MEF 9 EPL	■	■	■
Environmental:		-20°C to 65°C	-20°C to 65°C	-5°C to 55°C
Module Variants:		BP1A41BA (WT) BP1A42BA (WR)	BP1A42AA (WR) BP1A43AA (WM)	BT7A41CA

10G Transponders

		10G DTPR	10G TPR	10G DTPR-L
				
Client Interface Ports:		2 XFP	1 XFP	2 XFP
Client protocols:				
10GbE (LAN PHY)	10.3 Gbps	■	■	■
10GbE (WAN PHY)	9.9 Gbps	■	■	■
Fibre Channel 10G	10.5 Gbps	■	■	■
OC-192 / STM-64	9.9 Gbps	■	■	■
G.709 OTN OTU2	10.7 Gbps	■	■	
Line Interface Ports:		2 XFP	1 XFP	2 XFP
Line rates:		10 Gbps	10 Gbps	10 Gbps
Line Mapping:	Transparent	■	■	■
	Transparent (OTU2)	■	■	
	Section Regen	■	■	
Wavelengths Supported:	850nm / 1310nm / 1550nm	■	■	■
	CWDM / DWDM	8 λ / 40 λ	8 λ / 40 λ	8 λ / 40 λ
Line Side Protection:	Unprotected (wavelengths supported)	2	1	2
	Protected (wavelengths supported)	1		1
Reach Extension:	Standard FEC	■	■	
	Enhanced FEC	■	■	
In-Band Management:	G.709 OTN GCC	■	■	
Performance Monitoring:	15-minute and 24-hour intervals	Physical layer, SONET/SDH, Ethernet, G.709 OTN (OTU2)	Physical layer, SONET/SDH, Ethernet, G.709 OTN (OTU2)	Physical layer
Storage Extension Certification:	Brocade Data Center Ready	■	■	■
MEF Certification	MEF 9 EPL	■	■	■
Environmental:		-5°C to 55°C	-5°C to 55°C	-5°C to 55°C
Module Variants:		BT7A49AA	BT7A49AB	BT7A49AC