



## Highlights

- >> **IP Tunnel Router (RFC 2003)**  
Provides a Gateway Between Private Networks through the Public Network
- >> **Supports Private Host/Public Host Communication Using NAT (Network Address Translation)**
- >> **Near Wire-Speed Throughput**
- >> **PTMC Form Factor, Two-Port Gigabit Ethernet Packet Processor Engine for Use with Selected PICMG® 2.16 Switches**
- >> **Completely Manageable through the Switch Carrier's CLI and SNMP Agents**
- >> **Multiple IP in IP Tunnels (up to 512) Can Be Supported Simultaneously**
- >> **Multiple Gb Interface Options**  
• Fiber SC or 1000 BASE-T copper
- >> **Power-on Diagnostics and Continuous Software Monitoring**
- >> **Less than 17W of Power on 5V and 3.3V Combined**

Performance Technologies' FlexTunnel™ module for embedded switches provides a powerful tool for implementing and extending new packet-based networking and communications systems. It is the first embedded Ethernet solution that can support Gb switching within a single PICMG® 2.16 chassis slot with wire-speed IP in IP packet tunnels. FlexTunnel enhances overall system performance by keeping the switch processor from becoming overburdened by this compute intensive task, while at the same time saving crucial chassis space.

The FlexTunnel module makes it easy to connect a number of remote, private networks like those found within a system built of distributed chassis using the public network. By encapsulating private network IP packets in public packets, the module can create a transparent link between distant locations. Most importantly, it performs its role without interfering with fundamental switching operations that are key to system performance in today's switched backplane equipment. The FlexTunnel module has been specifically designed to make embedded system integration tasks easier, so your products can get to market sooner.

The FlexTunnel module allows any host within a chassis-based system to privately communicate with a remote system by easily using the public Internet. Once the end points of the tunneled network are established, private packets are encapsulated and routed to the public address of the distant nodes over the public network. At the far end, the outer packet is stripped away and the private packet is routed to the target host within the distant, private network.

Network managers can freely use these IP in IP tunnels to connect to other tunneling gateways, tying together the distributed pieces of a larger system. Coupled with Performance Technologies' leading switch management software and potent scripting language, the FlexTunnel module can be completely configured through the switch carrier's CLI or SNMP clients. This permits easy set up and tear down of individual IP in IP tunnels to accommodate changes in system/network topology, client setups, network events and SNMP traps/events.



# FlexTunnel™

## IP Tunnel Routing Module for Embedded Ethernet Switches

### Ordering Information

#### >> Fiber Transceiver Options

- PT-FlexTunnel-11774  
1000 BASE-SX short wavelength 850 nm laser, multi-mode fiber
- PT-FlexTunnel-11775  
1000 BASE-LX long wavelength 1300 nm laser, 5Km, single mode

#### >> Twisted Pair Version

- PT-FlexTunnel-11776  
1000 BASE-T supports IEEE 802.3ab full duplex Gigabit Ethernet interface via an RJ-45 front panel for CAT 5 cable

#### >> Intra-Switch Version

- PT-FlexTunnel-11777  
Intra-switch version links its 2Gb ports to the switch carrier with no external interface

#### >> [Contact sales@pt.com](mailto:sales@pt.com) for product availability

### Contact Information

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Two FlexTunnel modules can be configured to maximize network uptime by using the scripting language on the base switches so that the FlexTunnel modules back each other up. If the active module fails, the backup module can be programmed to take over operations using the same public IP address. Since little state information needs to be shared between these tunnel gateways, redundant connections can be quickly established and maintained.

The FlexTunnel module protects investments for the long term with easy FTP/TFTP updates to platform flash memory, greatly simplifying or eliminating the need for dedicated on-site network

### Specifications

#### Base Configuration

- (1) 1000 Base T or 1000 Base SX or 1000 Base LX front panel port

#### Packet Processing/Filtering

- 85% wire-speed with 64 byte packets; 100% wire-speed at 128 byte packets
- Simultaneous IP in IP encapsulation/tunneling and NAT services

#### TFTP/FTP Clients

- Allows easy firmware upgrades and configuration upload and downloads

#### LED Indicators

- Link/activity, online, reset, fault, S1/S2

#### Power-up Diagnostics and Online Integrity Checks

- CLI or SNMP-invoked real-time diagnostics for Non-Stop Networking™

#### Standards Supported

- RFC 1631 - IP NAT
- RFC 1812 - Compliant route processing
- RFC 2003 - IP in IP encapsulation
- RFC 3022 - Traditional NAT
- PICMG 2.15 R1 PCI Telephony Mezzanine Card (PTMC)
- IEEE 802.3ac tagged packet
- IEEE 802.3-2000 1000 Base-T
- IEEE 802.3x Flow Control

#### Management

- RFC 1157 SNMP v1, v2c, v3
- RFC 1213 MIB II
- RFC 1757 RMON groups 1, 2, 3, 9
- PTI enterprise MIB
- CLI via out-of-band RS-232 and Telnet
- Scriptable CLI management interface

#### Power Requirements

- 17W

#### Optical Transceivers

- Fiber versions support a single port fiber optical interface compliant with IEEE-802.3z.
- Duplex SC fiber receptacle
- Class 1 FDA and IEC laser safety-compliant

#### Environment

- Operating temperature: 32°-135°F (0°-55°C)
- Relative humidity: 10-90%, non condensing

#### Agency Certifications

- UL 60950
- CSA-C22.2 No. 950 93
- FCC Class A (part 15, subpart J)
- CE
- ETSI EN 300 386
- NEBS Level 3-friendly

#### MTBF

- >380,000 hrs per Bellcore TR-NWT-000332 Issue 5 @ 30°C