



FastPipe 10 Gigabit Ethernet Data Transport

FASTPIPE™ 10GbE ADAPTER

Features

- On-chip implementation: low host CPU overhead
- Server OS runs drivers of remotely connected device through FastPipe adapters
- Works with any PCIe 2.0 x 8 slot
- Enable remote backplanes
- VLAN partitioning enables dynamic significant resource
- 1 Server, 1 root complex; numerous, reconfigurable IOs for scalable throughput and device quantity
- Low latency enables fast access to bulk IO

NETHRA® FastPipe 10 Gigabit Ethernet Adapter:

Extend PCIe 2.0 bus over 10 Gigabit Ethernet Layer 2 fiber and move PCIe switching functions into the cloud. The adapter ensures highly reliable data transport delivered with low-latency, low overhead, high throughput, and extended operational flexibility. Former multi-hop, backplane configurations become single-hop cloud-based transactions with negligible latency.

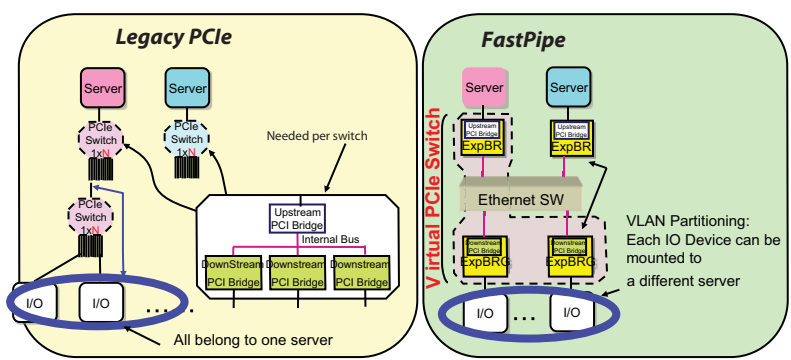
Remove clutter from the wiring closet while moving multiple storage protocols such as FC, iSCSI and Infiniband onto a unified L2 Ethernet interconnect using standard, off-the-shelf Ethernet switch technology! Built-in link failover and available software hooks mean elegant, robust HA systems. With constant packet monitoring, link failover means no interruption in data transmission, no dropped packets. Failed links are rerouted; multipath support reroutes data from congested paths, all with no down time.

About ExpEther

The FastPipe Adapter technology is derived from NEC® ExpEther™ Fast Fabric Switching Technology. With this fabric technology PCIe-attached devices are secured from other servers for quick, easy redeployment – no more expensive per-server PCIe switch backplanes!

Applications

Use for moving visual data, movies, and 3D applications with computing, networking, and storage requirements for advanced rendering, enhanced special effects, and visuals. Share storage across multiple servers connected with a Layer 2 switch.



Flattening the PCI Express Tree Structure Across the Ethernet Cloud

Nethra's FastPipe gives extended operational flexibility with highly reliable data transport and low latency, overhead, and high throughput. Enable video capture technology with better, more effective cameras with faster digital recording and post-capture movie processing up to distribution and display. Design more robust compute sensor-storage designs with vision-enabled systems in myriad platforms in imaging and video applications. Consolidate networks in a datacenter while leveraging Nethra's storage technology to suit changing needs.

Nethra delivers this with an impressive portfolio of image processing, video CODEC and analytics, multi-core parallel processing, storage control, protocol tunneling, and failover mechanism IP. Acquired interface IP for HDMI, HD-SDI, 10G, PCIe, and others enables Nethra to work with you to define, develop, and deploy leading-edge technologies.

Specifications

Physical Interfaces

- Bus Interface: PCIe x 8 Gen 2; PCIe 2.0 Standard;
- Fiber Interface: 10 Gb Ethernet, 2 ports, SFP+ optical transceiver. 2 GBps approximate throughput limit from fiber
- Size: Full height PCIe edge connector card.

Physical Support

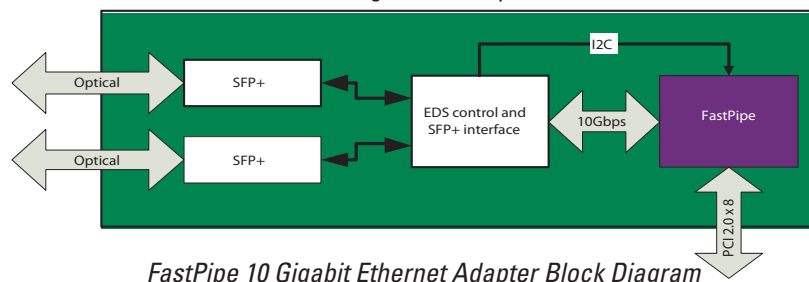
- PCIe Compatibility: Gen 2 bridging device
- Ethernet Compatibility: L2 Ethernet, Standard Frames, 802.1 ax (trunking); 802.3ae, 802.1P/Q, 802 3x, 802.3ad, VLAN support

OS Support

- Linux (2.6+)
- Windows Server 2008 and Server 2008 Clustering
- Windows 7 64 bit
- Mac OSX: 10.5+ and 10.5+ Server

Drivers

- Point-to-point Connection
 - Install remote IO device on host - no additional software burden
- Connection via Ethernet Switch, VLAN group ID
- Connection via Ethernet Switch multiple VLAN group IDs
 - Configure via Embedded Web Server or configuration utility



FastPipe 10 Gigabit Ethernet Adapter Block Diagram

Environmental

- Power Consumption
 - ASIC Board: < 15 W
 - FPGA Board: < 30 W
- Temperature
 - Operating: 0 °C / 32° F to 50 °C / 122° F (dry bulb)
 - Non-operating: -43 °C / -40° F to 73 °C / 163° F (dry bulb)
- Humidity: Operating: 5% to 93%, Non-operating: 5% to 95%

RAS (Reliability, Accessibility, Serviceability)

- Multipath
 - Built-in Ethernet level multipath capability for optimal path and failover
 - Uses both fiber pairs
 - "In-flight" and subsequent IO completed on remaining link in case of link failure
- Fiber (Ethernet) Link Failover
 - "In-flight" and subsequent IO completed on remaining link in case of link failure
- Congestion Detection and Management
 - Built into hardware, no CPU overhead
- Hot Plug Detection
 - Device addition and removal recognition; manages interrupts to host as part of standard PCIe-compliant signalling
- Performs Power-on Self Test (POST)
- Pass Through: Peripherals communicate transparently to host
- Error checking via Embedded Web Server

Support

- Tailored to custom needs OEM Customer support only

Approvals

- Agency
 - FCC, VCCI, CE in standard chassis
 - Meets US, Japan, and EU requirements
- Environmental: RoHS
- Safety: UL, CSA, TUV

Performance

- 8 Logical flows, <350 ns chip latency
- Bandwidth: 2.0 GBps

Interoperability

- PCIe Gen 2 endpoints and switches at remote site
- PCIe Gen 2 RCs at host side
- Standard Layer 2 Ethernet Switches

Management

- Embedded Web Server provides VLAN management, status

Application Restrictions

- Applications run locally on a server can be run with remote IO device
- IO device type and quantity constrained only by host OS capabilities

Ordering Information

- P/N GB10X2R10, Rev 1.0
 - Available January 2010
 - Mictor connectors included for logic analyzer
- P/N GB10X2R11, Rev 1.1
 - Available March 2010
 - Without Mictor connectors

CORPORATE

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