

PLX PCIe Gen 2 switches

◆ Standards Compliant

- PCI Express Base Specification r2.0 (backwards compatible with PCIe r1.0a/r1.1)
- PCI Power Management Spec. r1.2
- Microsoft Vista Compliant
- Supports Access Control Services
- Dynamic link-width control
- Dynamic SerDes speed control

◆ High Performance

- **performancePAK™**
 - Read Pacing (bandwidth throttling)
 - Dual Cast
 - Dynamic Buffer/FC Credit Pool
- Non-blocking switch fabric
- Full line rate on all ports
- 2KB Max Payload Size

◆ Flexible Configuration

- Ports configurable as x1, x2, x4, x8, x16
- Registers configurable with strapping pins, EEPROM, I²C, or host software
- Lane and polarity reversal
- Compatible with PCIe 1.0a PM

◆ Dual-Host & Fail-Over Support

- Configurable Non-Transparent port
- Moveable upstream port
- Crosslink port capability

◆ Quality of Service (QoS)

- Eight traffic classes per port
- Weighted round-robin source port arbitration

◆ Reliability, Availability, and Serviceability

- **visionPAK™**
 - Per Port Performance Monitoring (Per port payload & header counters)
 - SerDes Eye Capture
 - PCI Express Packet Generator
 - Error Injection and Loopback
- 3 Hot-Plug Ports with native HP Signals
- All ports Hot-Plug capable through I²C (Hot-Plug Controller on every port)
- ECRC and Poison bit support
- Data Path parity, RAM Error Correction
- INTA# and FATAL_ERR# signals
- Advanced Error Reporting
- Per port error diagnostics
- JTAG AC/DC boundary scan

Application:

PCI Express Packet Generator

PLX Product:

PLX ExpressLane Gen 2 PCI Express Switch (PEX 86xx)

Key Benefit:

Transform PLX RDK into a Packet Generator

PCI Express Packet Generator

A key component when designing for the PCI Express protocol that is often overlooked is the PCIe analyzer. This vital piece of equipment allows engineers to examine and investigate the actual data passing through the PCIe bus or generate specific traffic patterns to validate how a device or Root Complex will react to a specific traffic pattern. There is no endpoint available in the market today which can fully saturate a PCIe Gen 2 (5.0 GT/s) link other than a PCIe analyzer. Unfortunately, the hefty price tag associated with the analyzer is often the reason why design engineers go without such an integral necessity.



PLX's PCIe Gen 2 ExpressLane™ Switches (PEX 86xx) double as Packet Generators



The PEX 8624, PEX 8632, and PEX 8648 Gen 2 switch hardware **Reference Design Kits (RDKs)** offered by PLX are used to help engineers bring up designs quickly. However, these RDKs can also be configured into a PCIe Packet Generator. Although the limited capabilities of a Packet Generator can not completely replace a PCIe analyzer, the basic need to saturate a PCIe Gen 2 link is one of the many features of a PLX Gen 2 RDK. This Packet Generator proves to help engineers be more effective and time efficient when no PCIe analyzer is readily available.

Any size, 4 bytes up to 2048 bytes, Memory Read and/or Memory Write TLP can be constructed. Engineers have the flexibility to specify a Memory Write sequence or have the software randomly generate data to be written. Also, the data could potentially be an incremental pattern if need be. Another option available is to interject any amount of clock delay in-between each TLP. Memory Reads and Memory Writes can be intertwined depending on the user defined sequence of events.

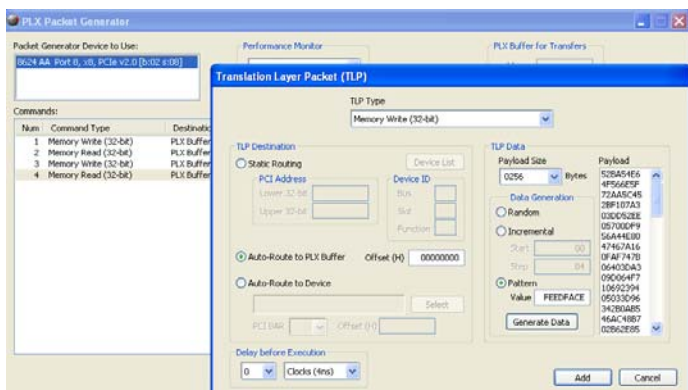


Figure 1. Screen Capture of the Packet Generator GUI

A PLX RDK has multiple uses other than being a development tool for designs based off of a PLX switch. An RDK assists product development past the design stage.

Other features such as *Performance Monitor* and *SerDes eye measurement*, along with the Packet Generator help engineers save money by using less expensive tools and re-use RDKs across multiple projects.

Key Advantage of using PLX

PLX is the industry's leading supplier of PCIe switches and bridges. The company is focused on the design and support of silicon in PCIe systems. Today, PLX offers 27 PCIe switches and bridges! More information on these products can be found at plxtech.com/gen2. The following table showcases the announced Gen 2 switches that are currently available by PLX.

PLX Gen 2 switches today

PCIe Switches	Lanes	Ports	Availability
PEX 8648	48	12	Shipping Today!
PEX 8632	32	12	Shipping Today!
PEX 8624	24	6	Shipping Today!
PEX 8618	16	16	Shipping Today!
PEX 8616	16	4	Shipping Today!
PEX 8614	12	12	Shipping Today!
PEX 8612	12	3	Shipping Today!
PEX 8608	8	8	Shipping Today!
PEX 8606	6	6	Shipping Today!
PEX 8604	4	4	Shipping Today!

Design Tools & Documentation:

On the PLX WWW Toolbox: plxtech.com/gen2

- ◆ Product Briefs
- ◆ Data Books
- ◆ Design Notes & White Papers
- ◆ Rapid Development Kit (RDK) Schematics
- ◆ Rapid Development Kit (RDK) Gerber Files
- ◆ Rapid Development Kit (RDK) Reference Manual
- ◆ Software Development Kit (SDK)
- ◆ HSPICE Models and BSDL Files
- ◆ OrCAD Library

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8624/32/48-PCIe_PacketGenerator-3EGC0-1.0