

### FEATURES

- Contains four 89HP0508P Repeaters that compensates for PCB trace attenuation and ISI jitter
- 16-lane PCIe adapter card with full PCIe protocol support
- Configurable via USB or I<sup>2</sup>C interfaces using IDT Windows GUI
- EEPROM supports automatic download of configuration data to all four P0508P repeaters
- Enables individual channel configurations of ten parameters including: receiver equalization and threshold voltage, transmit swing and de-emphasis, etc.
- LEDs indicate active lanes
- Switches allow disabling individual lanes
- Multiple power connection options
- Card format: 7.5" x 4.75", non-standard size. Use requires an open chassis
- Works with passive trace cards to extend FR4 traces, also available from IDT (6", 12", 24").

### Benefits

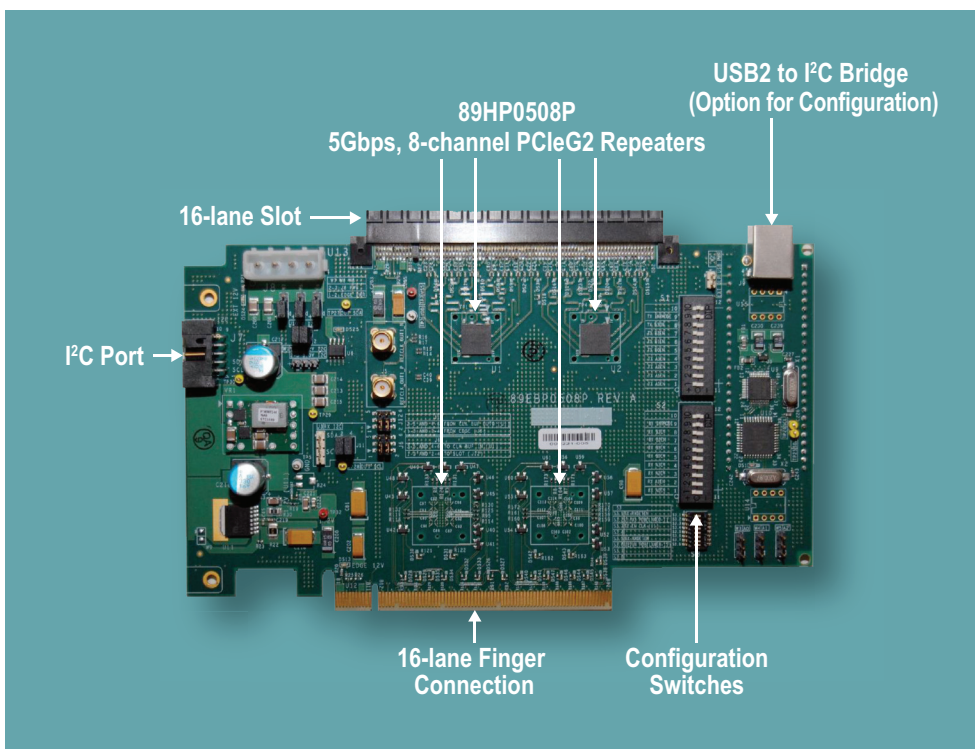
- Quick, convenient evaluation of IDT's 89HP0508P repeater operation
- Extends trace length by increasing signal eye opening in terms of voltage and timing margins
- Minimizes BER, improving system performance and reliability
- Can speed design time and reduce risk by eliminating signal integrity issues

### Kit Contents

- 1- 89HP0508P 16-lane, PCIe 2.1 Repeater Evaluation Board
- 1- CD with Windows GUI software and design documentation
- 1- 89HP0508P Evaluation Board User's Guide document
- Order Number: 89KTP0508P

### System Requirements

- PC or Server with x16-lane PCIe slot
- Desktop or notebook PC with Windows NT, Win7 or Vista to use IDT configuration GUI
- USB cable to connect PC for GUI
- Target add-in cards for system tests



### Device Overview

The 89HP0508P Repeater Evaluation Board is designed to enable quick in-system testing of IDT's 8-channel, 5Gbps, PCIe 2.1 Repeater IC product.

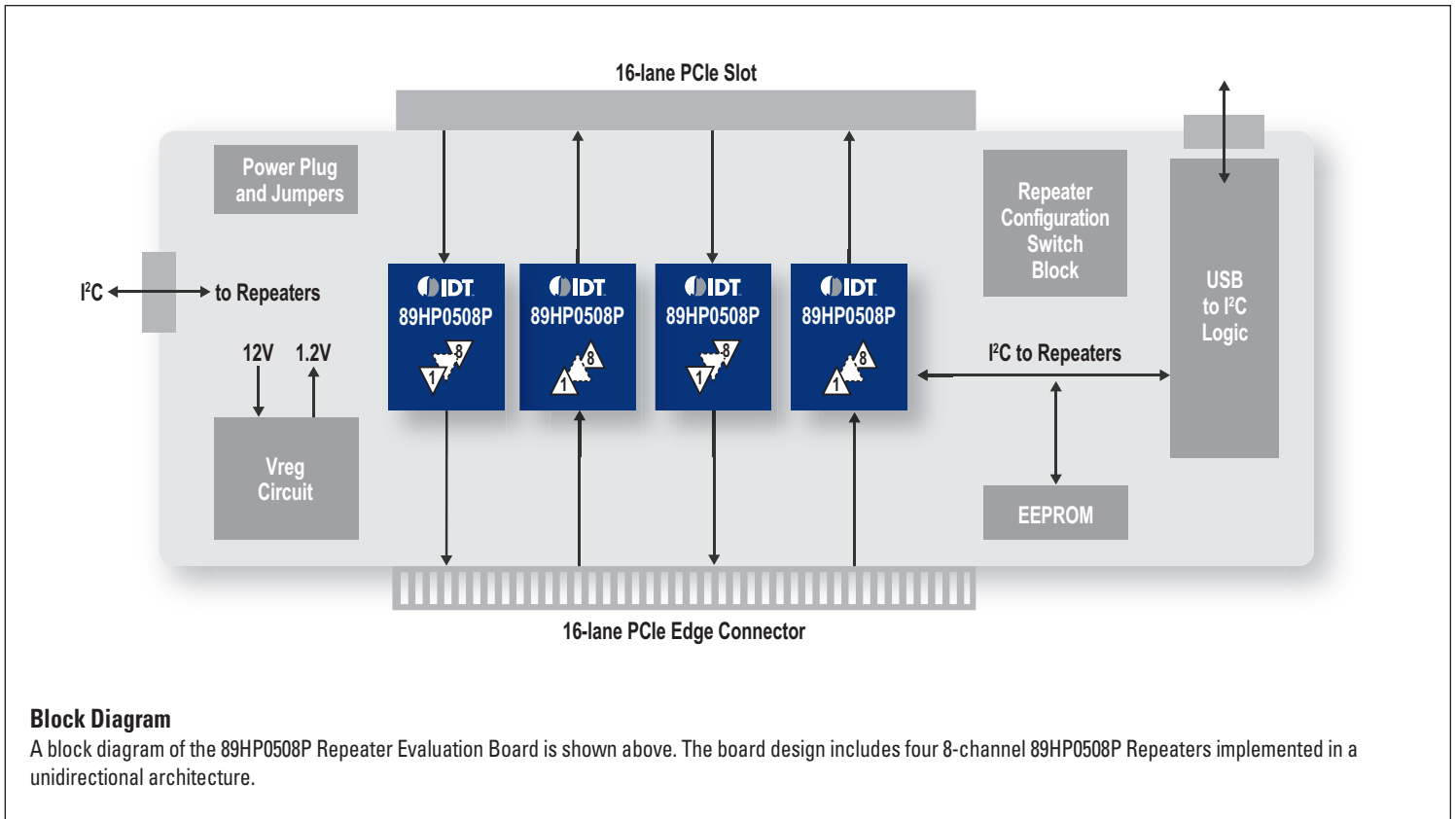
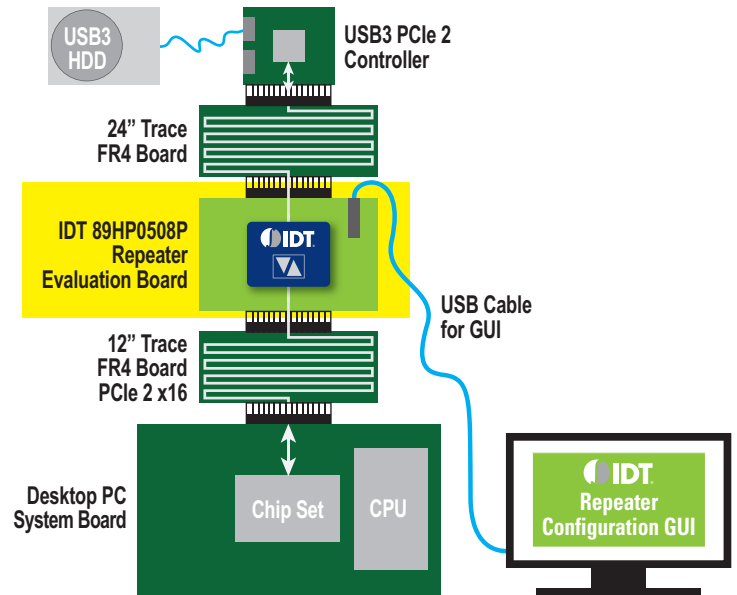
The Board features a full 16-lane connection from host through the repeater to an end-point device installed in the PCIe slot. Any width adapter card, from a 1-lane SATA card to a 16-lane graphics accelerator, can be plugged into the top-edge PCIe slot. There is a USB to I<sup>2</sup>C bridge circuit which allows convenient connection to a PC for accessing the Repeaters via IDT's Repeater Configuration Utility (GUI). An I<sup>2</sup>C connection is also provided for the same control capability when using an external USB to I<sup>2</sup>C adapter and IDT's Repeater GUI. The receiver, transmitter, and other device configuration parameters can be adjusted to provide optimum operating margins by using the GUI.

The Eval Board is used by inserting it into a desktop PC or server, and then plugging an end point card (SATA, Ethernet, USB3, etc.) into the 16-lane slot on top, as shown in the example diagram and photo on the following page. Passive trace cards can be used to extend the data signal to emulate a planned system design. Note that the resulting card stack will require an open chassis test environment. IDT's Technical Applications Support team can provide configuration information for different channel lengths and system architectures.



### Example Use

This simple example shows the 89HP0508P Evaluation Board used to extend 5Gbps signals across a 24-inch passive trace card to a USB3 controller and over another 12-inch extender card between the host system.



### Block Diagram

A block diagram of the 89HP0508P Repeater Evaluation Board is shown above. The board design includes four 8-channel 89HP0508P Repeaters implemented in a unidirectional architecture.

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