

# Tsi384™ Evaluation Board Product Brief

## Board Features

- Single x4 lane, 1 Gbps PCIe® extended height riser card
- Fully compliant with *PCI Express Specification (Revision 1.1)*
- Three 64-bit, PCI-X slots (up to 133 MHz); or three 64-bit PCI slots (up to 66 MHz)
- Serial EEPROM that can be programmed with optimized settings for the Tsi384
- PCI power supported through system or external ATX supply
- Optional on-board PCIe reference clock
- Optional on-board PCI bus clock
- Manual and auto-detect PCI bus clock frequency
- Over current protection
- Optional PCI bus arbiter CPLD

## Board Benefits

- Evaluate features and functionalities of the Tsi384
- Test and tune performance of the
- Tsi384 in desired application
- Prototype hardware development before finalizing application design

## Board Overview

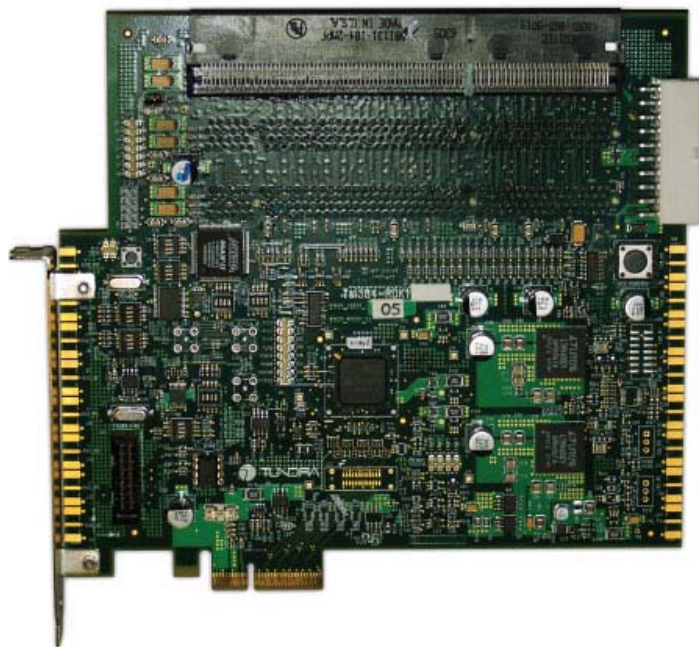
The IDT Tsi384 evaluation board is ideal for evaluating and prototyping the Tsi384 PCIe-to-PCI bridge. The Tsi384 evaluation board is an extended height x4 PCIe card that is designed to fit into a standard PCIe slot on a PC motherboard, or interconnect with other cards equipped with a standard PCIe connector.

The evaluation board uses the Tsi384 to bridge between x4 PCIe on the card edge to three 64-bit PCI/X slots on the board.

Developers can plug PCI-X adapter cards or 3.3V/Universal PCI adapter cards into any or all of the three slots. The evaluation board can adapt the cards to PCIe allowing developers to test the design's behavior on PCI or PCI-X cards when bridging to PCIe. For example, a PC card developer can take an existing PCI adapter card and use the evaluation board to quickly prototype a new design with a PCIe interface.

To evaluate the feature set of the Tsi384, IDT also offers an easy-to-use Microsoft Windows based tool called "TsiView." This tool provides read and write access to an IDT "Tsi38x" PCIe device's register settings. In addition, it can be used to program an on-board, serial EEPROM device with register settings that have been optimized by TsiView.

## Tsi384 Evaluation Board



## Tsi384 Overview

The Tsi384 is a high-performance bridge that connects a x4 lane PCIe interface to the PCI and PCI-X bus standards.

The device's PCIe Interface is compliant with the PCI Express Specification (Revision 1.1). Its 64-bit PCI/X Interface can operate up to 66-MHz PCI and 133-MHz PCI-X. The Tsi384 offers designers extensive flexibility by supporting three types of addressing modes: transparent, opaque, and non-transparent.

## Tsi384 Key Features

### General

- PCI Express to PCI bridge
- Compliant with *PCI Express Specification (Revision 1.1)*
- Transparent, Non-transparent and Opaque modes
- Efficient queuing and buffering for low latency and high throughput

### PCIe

- Configurable as 1, 2, or 4 lanes
- 512-byte maximum payload
- Advanced error reporting capability
- Supports Lane Reversal and Lane Polarity Inversion
- End-to-end CRC check and generation

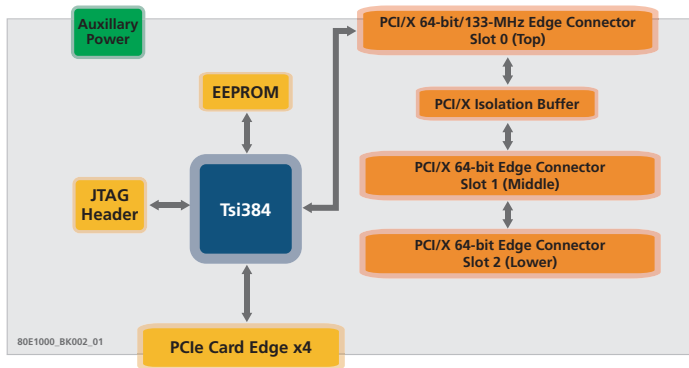
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- Up to four outstanding memory reads
- Hot Plug support

### PCI/X

- 32/64-bit addressing
- 32/64-bit data
- PCI-X operates at 50, 66, 100, and 133 MHz
- PCI operation at 25, 33, 50, and 66 MHz
- Up to eight outstanding memory reads
- 4K read completion buffer
- Four external PCI masters supported through internal arbiter
- 3.3V PCI/X I/Os

### Tsi384 Evaluation Board — Block Diagram



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