

# PCI 6152

## Connectivity

### PCI 6152 (PCI 6152-xx33BC)

- 32-bit, 33MHz Synchronous operation
- 5V signal tolerance
- 15mm x 15mm TBGA
- Transparent Bridge Function
- PCI Bus Types
- Support for 4 Bus Masters

### PCI 6152 (PCI 6152-xx66BC)

- AGP 2X Port Compatible
- 32-bit, 66MHz Synchronous operation
- 5V signal tolerance
- 15mm x 15mm TBGA
- Transparent Bridge Function
- PCI Bus Types
- Support for 4 Bus Masters

### PCI 6152 (PCI 6152-xx33PC)

- 32-bit, 33MHz Synchronous operation
- 5V signal tolerance
- 160-pin PQFP
- Transparent Bridge Function
- PCI Bus Types
- Support for 4 Bus Masters

## FastLane™ PCI-to-PCI Bridge Chips

### The FastLane™ PCI 6152 is a family of three very low power 32-bit PCI-to-PCI Bridges

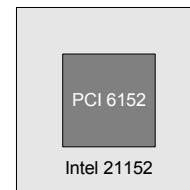
PLX's FastLane PCI 6152 family is specially designed for applications that require high performance 32-bit PCI bus expansion. Add-in card designers can use the FastLane PCI 6152 to expand PCI connection capacity beyond the limitation of a single PCI device. Designers can use the FastLane PCI 6152 to build multi-device PCI cards such as RAID controllers and other multimedia applications.

The FastLane PCI 6152 is optimized for the following applications:

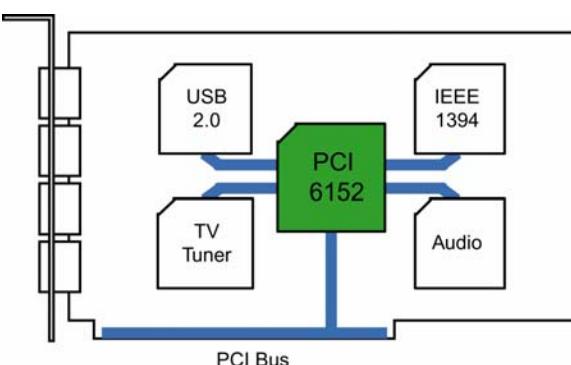
- PCI Latency Sensitive Systems
- PCI-Retry Penalty Sensitive Systems
- PCI Slave Access intensive bridging functions
- High Performance and low cost PCI-to-PCI bridging functions
- Low Power and PCI ClockRun support

## Performance

- Smallest PCI-to-PCI package in the world, plus Intel 21152 pin compatible package version
- **No-Retry™** architecture for high PCI-to-PCI bridging efficiency
- 4 pairs of REQ/GNT signals support up to 8 bus masters directly on secondary bus
- EEPROM support for extra register control
- Vital Product Data (VPD)
- 4 general purpose IO interface
- Proven PME D3 wakeup power management



**Size Comparison**  
PCI 6152 is 78%  
Smaller than  
Intel 21152



## Product Ordering Information

| Part Number     | Description                                   |
|-----------------|---|
| PCI 6152-xx33BC | PCI 6152—33MHz, PCI-to-PCI Bridge Chip (TBGA) |
| PCI 6152-xx66BC | PCI 6152—66MHz, PCI-to-PCI Bridge Chip (TBGA) |
| PCI 6152-xx33PC | PCI 6152—33MHz, PCI-to-PCI Bridge Chip (PQFP) |

Please visit the PLX Web site at <http://wwwplxtech.com> or contact PLX sales at 408-774-9060 for more information.

## PCI 6152 Key Features

- ◆ PCI Bridging - Up to 66MHz
- ◆ 3.3V signaling, including 5V input signal tolerance
- ◆ 300mW Power Consumption
- ◆ 15 x 15 mm Tiny BGA Package
- ◆ 32 x 32 mm PQFP Package
- ◆ Pin Compatible with Intel 21152

## Other Features

- ◆ Supports delayed transactions for PCI configuration, I/O and memory read commands
- ◆ Hot Swap Friendly
- ◆ Zero wait state burst
- ◆ Provides memory write data buffering in both directions
- ◆ Provides concurrent primary and secondary bus operation to isolate traffic
- ◆ Provides separate arbitration support for individual secondary port
- ◆ Programmable 2-level arbiter
- ◆ Enhanced address decoding
- ◆ 32-bit I/O and memory address decoding
- ◆ Three-stating of I/O during power up and power down



## Application:

### **Multi-Head PCI Graphics Card**

## PLX Product:

### **PCI 6152 – 32-bit PCI-to-PCI Bridge**

## Key Benefit:

### **Allows low voltage ASICs to interface to 5V PCI systems**

## **Multi-head graphics card ASIC only supports 3.3V signaling**



Multi-head graphics cards allow a single PC to spread content out over several monitors. Today's multi-head graphics card ASICs use low-voltage fine geometry technologies such as 0.18 or 0.13 micron CMOS. These processes don't usually support 5V signaling. This logic level incompatibility prevents the

graphics card from directly connecting to the 5V legacy PCI slots which are commonly found in low cost PCs.

## **A *FastLane* PCI to PCI Bridge solves the problem**

The simple addition of the *FastLane*™ PCI 6152 will quickly solve this problem. The PCI 6152 from PLX is the leading solution for high performance 32-bit PCI

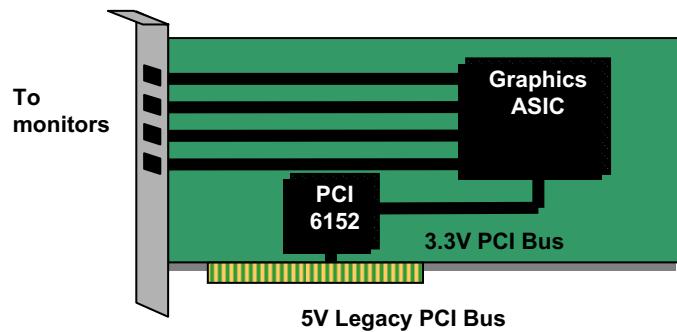
multiple head graphics cards. In the card below, the PCI 6152 provides a universal logic level signaling allowing this dual-head graphics card to operate in both 3.3V and 5V PCI environments.

Graphics engine ASICs typically support only 3.3V signaling; adding the PCI 6152 enables the card to work with both 3.3V and 5V logic levels, creating a broader market for these cards.



## Why Choose a PLX PCI 6152?

The addition of the PCI 6152 requires just over two square centimeters of additional board real estate to convert the 3.3V ASIC interface to a 5V legacy PCI connection. In addition, the bridge only draws 300 milliwatts of additional power. The small footprint, low power consumption and low cost of the PCI 6152 make this the ideal bridge for the job. The figure below shows how easy it is to make the connection.



## PCI 6152: Shipping NOW!

The PCI 6152 is in production today and samples are in stock at PLX in all six package flavors. There are two packages available in both lead-free ROHS compliant versions as well as the traditional leaded packages, with 33MHz and 66MHz versions as well. The PQFP version is only available in the 33MHz version.

| Part Number       | Package                             | Speed  |
|-------------------|-------------------------------------|--------|
| PCI 6152-CC33PC   | Standard Leaded PQFP Package        | 33 MHz |
| PCI 6152-CC33PC G | Lead-Free ROHS Green PQFP Packaging | 33 MHz |
| PCI 6152-CC66BC   | Standard Leaded TBGA Package        | 66 MHz |
| PCI 6152-CC66BC F | Lead-Free ROHS TBGA Package         | 66 MHz |
| PCI 6152-CC66BC   | Standard Leaded TBGA Package        | 66 MHz |
| PCI 6152-CC66BC F | Lead-Free ROHS TBGA Packaging       | 66 MHz |

## Key Advantages of using PLX

PLX is the industry's leading supplier of PCI-to-PCI Bridges. The company is focused on I/O interconnect design and support. Below is a table showcasing the PCI-to-PCI bridges that are available today:

| FastLane Bridges | Bus/Speed | Key Feature        |
|------------------|-----------|--------------------|
| PCI 6140         | 32 /33    | Lowest cost        |
| PCI 6152         | 32/66     | Smallest footprint |
| PCI 6150         | 32/66     | Asynchronous       |
| PCI 6154         | 64/66     | Asynchronous       |
| PCI 6254         | 64/66     | Non-Transparent    |
| PCI 6466         | 64/66     | I-temp             |
| PCI 6520         | 64/133    | PCI-X              |
| PCI 6540         | 64/133    | Non-Transparent    |

## Design Tools & Documentation:

On PLX Public ToolBox:

<http://www.plxtech.com/products/fastlane/pci6152.asp>

- ♦ Data Book, Product Brief, IBIS Models, HSPICE Models, BSDL Files

### Contact Information

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