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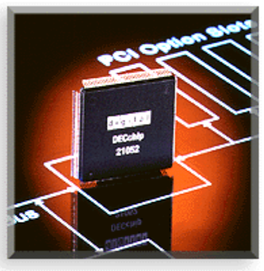
# 21052 PCI-to-PCI Bridge

PCI-to-PCI BRIDGES



The DECchip 21052 PCI-to-PCI Bridge (21052) is a low-cost, high-performance bridge that expands the electrical capacity of PCI systems (for example, Alpha, Pentium, x86, and PowerPC). The 21052 allows motherboard designers to add more PCI devices or more PCI option card slots than a single PCI bus can support. Option card designers can use the 21052 to implement multiple-device PCI option cards. The 21052 can also isolate traffic between devices on one PCI bus from devices on other PCI buses. This is a major benefit to system performance in some applications such as multimedia. An evaluation and development board (21A52-01) is available to develop software for the 21052 and evaluate its functionality.

**IMPORTANT**: For more technical product and sales information, link to Sales, Support & Documentation.

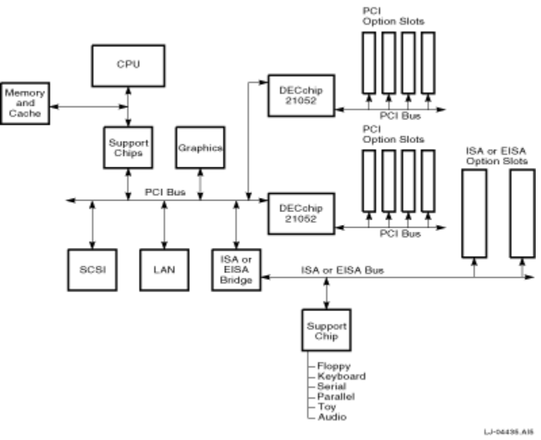
**Features**

- Implements Revision 2.0 PCI-com-pliant drivers
- Supports two 32-bit PCI buses
- Operates at maximum frequency of 33 MHz
- Provides concurrent primary and secondary bus operation
- Conditionally forwards the following transactions:
  - All memory read and write transactions in either direction
  - I/O read and write transactions in either direction
  - Configuration read and write transactions in the downstream direction
  - Configuration write transactions to special cycles in either direction
- Provides memory transaction filtering through two programmable memory address regions -- one prefetchable and one non-prefetchable
- Provides I/O transaction filtering through one programmable memory I/O address region
- Provides ISA-awareness for I/O transaction filtering
- Supports forwarding of video graphics adapter (VGA) memory and I/O addresses, and snooping of VGA palette I/O writes
- Provides master latency timers and target wait timers that limit the amount of latency on either bus
- Provides up to eight dwords (32 bytes) of write posting in both directions for memory write transactions
- Provides read prefetching for memory read transactions
- Provides dual-address transaction forwarding in the upstream direction
- Supports five secondary bus clock outputs
- Provides programmable rotating arbiter supporting up to four secondary bus masters
  - Can be disabled through the **s_cfn_l input pin**
- Supports **perr** and **serr** signals with error-checking functionality
- Provides concurrent resource lock operation
- Propagates locks across the bridge

**DECchip 21052 PCI-to-PCI Bridge on the System Board**

The 21052 allows the PCI bus to expand its electrical capacity by allowing additional PCI devices and PCI option card slots.

**Figure 1 DECchip 21052 PCI-to-PCI Bridge on the System Board**




**DECchip 21052 PCI-to-PCI Bridge on Option Cards**

The 21052 allows the PCI bus to support multiple components on option cards. Option cards are restricted to a single connection per PCI signal in the *PCI Local Bus Specification.*

**Figure 2 DECchip 21052 PCI-to-PCI Bridge on Option Cards**

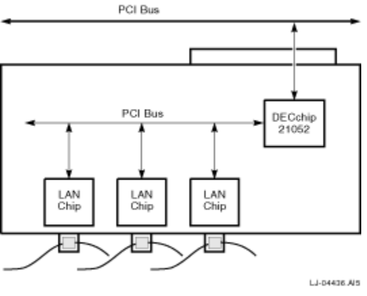



**Figure 3 DECchip 21052 Characteristics table**

| DECchip 21052 Characteristics | |
|---|---|
| **Characteristic** | **Specification** |
| Power supply | Vss 0.0 V, Vdd 3.3 V ± 10% |
| Operating temperature | Tj maximum = 100°C |
| Storage temperature range | –55°C to 125°C |
| Power dissipation @ Vdd = 3.3 V and Frequency = 33 MHz | 1.0 W maximum |
| Package | 160-pin PQFP |

**Ordering Information**

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Order Number          Product
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21052-AB              PCI-to-PCI Bridge
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