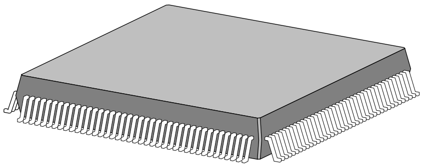
Digital Semiconductor

DECchip 21052 PCI-to-PCI Bridge

Product Brief

May 1995



Description

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.

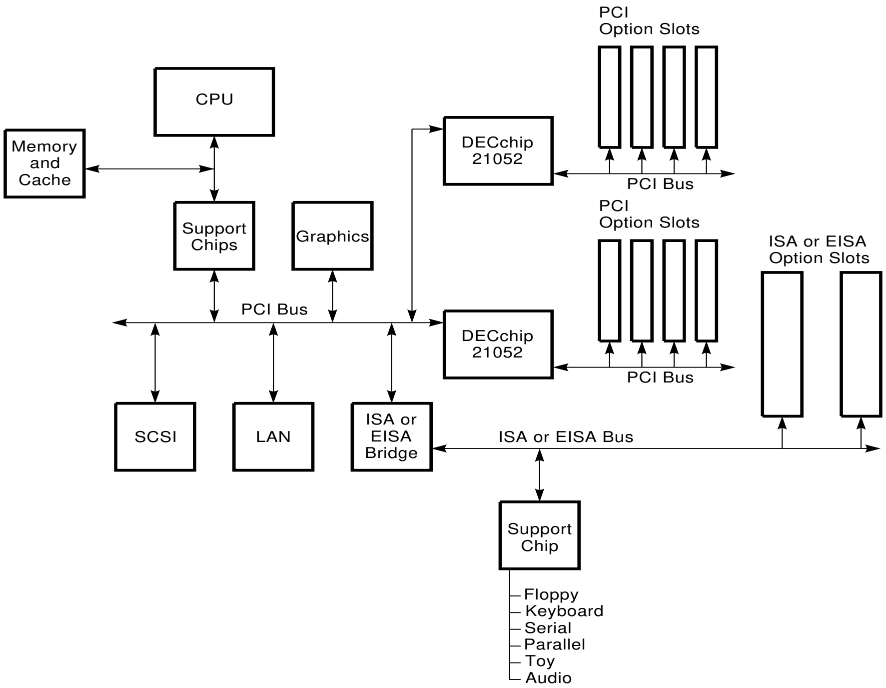
An evaluation and development board (21A52-01) is available to develop software for the 21052 and evaluate its functionality.

Features

- Implements Revision 2.0 PCI-compliant 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.



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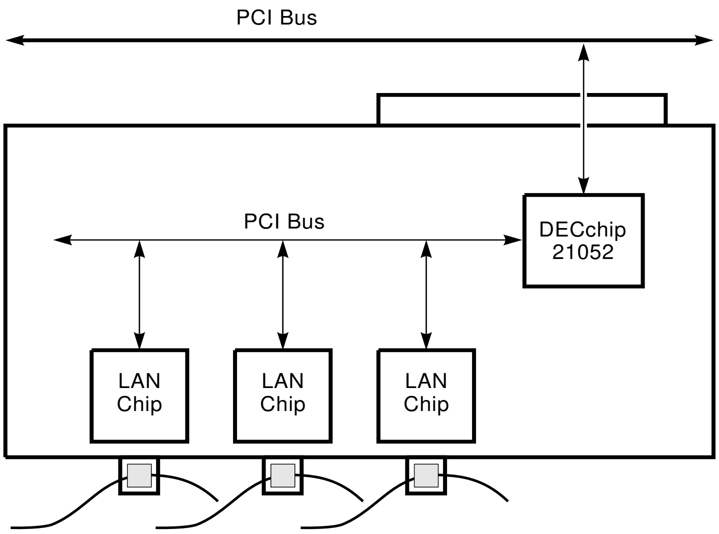
DECchip 21052 PCI-to-PCI Bridge on Option Cards

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*.



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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

For More Information

To learn more about the availability of the DECchip 21052 PCI-to-PCI Bridge or the 21A52-01 Evaluation Board, contact your local semiconductor distributor. To learn more about Digital Semiconductor's product portfolio, contact the Digital Semiconductor Information Line:

1-800-332-2717
1-800-332-2515 (TTY)

Outside North America, call:

+1-508-568-6868

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