

PCI4510 and PCI4520

Integrated CardBus and 1394 (FireWire®) Controllers



The PCI4510 and PCI4520 controllers integrate CardBus and 1394 (FireWire) functionality into single devices to save components, board space, routing and manufacturing costs for corporate and consumer notebook PCs as well as legacy-free and small form-factor desktop PCs.

The PCI4510 and PCI4520 controllers provide full CardBus and 1394a functionality in a single, small-footprint package. The devices integrate CardBus controllers (single-slot for the PCI4510; dual-slot for the PCI4520), an 1394a OHCI 1.1 link layer controller and a two-port, 400-Mbps 1394a physical layer.

The PCI4510/PCI4520 controllers are designed for low power consumption, with core logic operating at 1.8 V and I/O functions at 3.3 V. Universal PCI interfaces are compatible with both 3.3-V and 5-V signaling environments, providing flexibility in design.

The internal data path logic allows the host to access 8-, 16-, and 32-bit cards using full 32-bit

PCI cycles for maximum performance. Independent buffering and pipeline architecture provides an unsurpassed performance level with sustained bursting. The PCI4510/PCI4520 can be programmed to accept posted writes to improve bus utilization and all card signals are internally buffered to allow hot insertion and removal without external buffering.

The devices provide several low-power modes, which enables the host power system to further reduce power consumption. Additionally, an advanced CMOS process achieves low power consumption and allows the PCI4510/PCI4520 devices to operate at PCI clock rates up to 33 MHz.

Packaging options for the PCI4510/PCI4520 include the industry's smallest ball grid array (MicroStar™ BGA) for increased savings in board space. Both of the new controllers reduce component count and allow designers to route fewer traces by implementing only one PCI bus for the support of both CardBus and FireWire.

Typical Applications

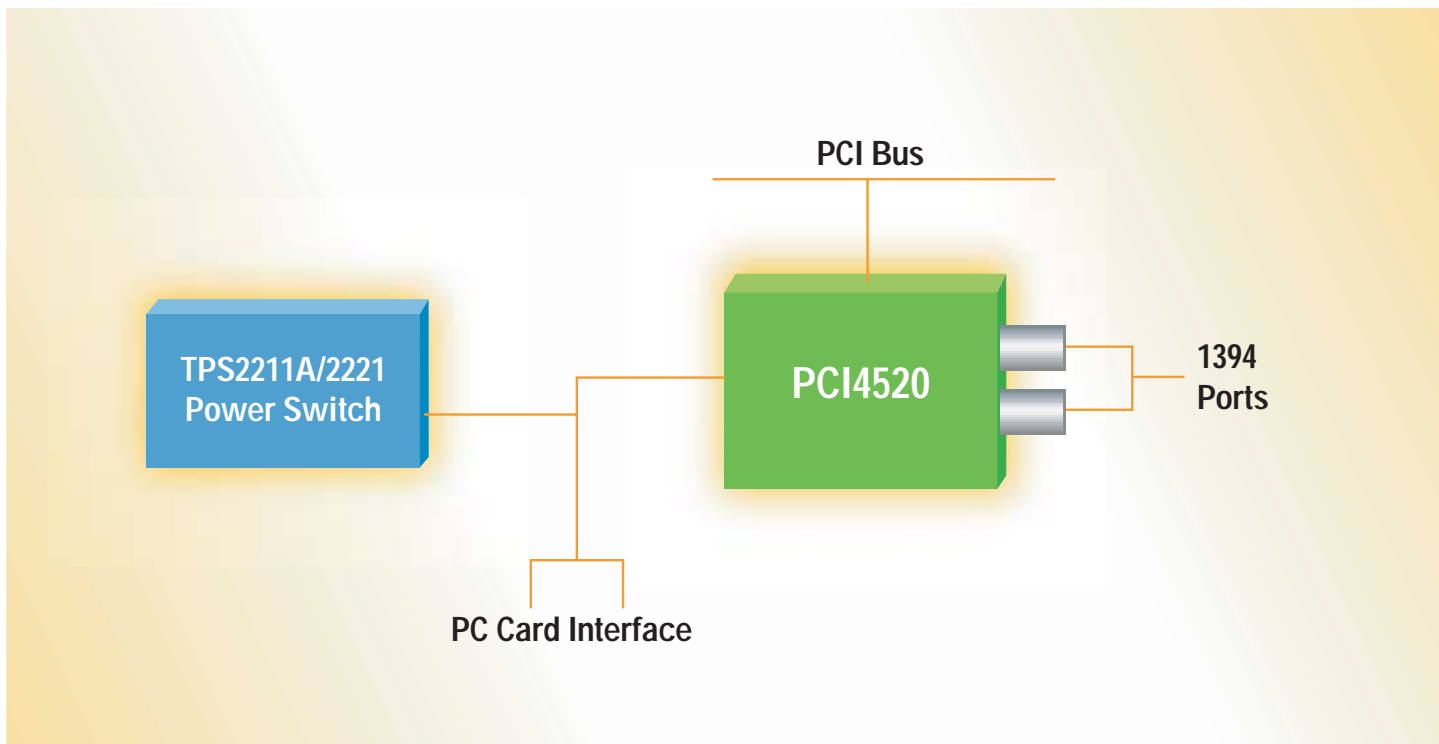
- Corporate and consumer notebook PCs
- Legacy-free PCs
- Small form-factor desktop PCs

Features:

- PC Card Standard 8.0-compliant
- PCI Bus Power Management Interface Spec 1.1-compliant
- Advanced Configuration and Power Interface Spec 2.0-compliant
- PCI Local Bus Spec R. 2.2-compliant
- No PCMCIA card and socket service software changes required to move systems from existing CardBus socket controller to the PCI4510/20
- 1.8-V core logic and 3.3-V I/O cells with internal voltage regulator to generate 1.8-V core V_{CC}
- Universal PCI interface compatible with 3.3-V and 5-V PCI signaling environments
- PC card or CardBus with hot insertion and removal
- 132-Mbps burst transfers to maximize data throughput on both the PCI bus and the CardBus
- PCI4510: 209-ball (GHK) MicroStar™ BGA and a 208-lead (PDT) low-profile quad flatpack (LQFP)
- PCI4520: 257-ball (GHK) MicroStar BGA

PCI4520 Design

The PCI interface includes all address/data and control signals for the PCI protocol.



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