



PCI Special Interest Group Frequently Asked Questions

PCI-SIG General Information

Q: Who controls the development and enhancement of the PCI bus specification?

A: The PCI-SIG is the industry organization that is chartered with maintenance of the PCI bus specification. Formed in June 1992, the PCI-SIG effectively places ownership and management of the PCI specifications in the hands of the developer community. The PCI-SIG works to support new requirements to the specification while maintaining backward compatibility for all PCI revisions and addenda. The PCI-SIG works on behalf of the entire industry, not specific vendor interests.

Q: Who leads the PCI-SIG?

A: The PCI-SIG is led by a board of directors whose current members are AMD, Compaq, Hewlett-Packard, IBM, Intel, Microsoft, Phoenix Technologies, ServerWorks and Texas Instruments. The board of directors elects a chair to act as chief spokesperson. Roger Tiple of Compaq is the chair of the PCI-SIG.

Q: Is the PCI-SIG primarily a U.S. organization?

A: The PCI-SIG is a global organization bringing benefits and technical support to companies through Europe, Japan, Asia and North America. The SIG engages in workshops and seminars for its international members in order to keep the global developer audience up to date on PCI technology. The PCI-SIG currently has more than 900 member companies.

Q: What are the benefits of PCI-SIG membership?

A: PCI-SIG membership is an important element in developing PCI products. Only SIG members are allowed to participate in compliance workshops and technology seminars, they receive free technical support and automated updates on ECNs, and they are proactively informed of ongoing news of the PCI-SIG and the development of PCI products and specifications.

Q: All of the recent technology releases from the PCI-SIG are built to 3.3V. What is happening with 5.0V?

A: The PCI-SIG believes that migrating to 3.3V signaling is keeping pace with the industry's migration to 3.3 volt technologies and the need for higher performance within the system. Both high-end and mobile environments currently implement 3.3V signaling (no 5.0V) and this trend will soon migrate to the workstation and desktop level (3.3V signaling will replace 5.0V signaling when the newer technologies can no longer support 5.0V signaling).

Q: How does a customer know whether or not a product is compliant with the current specification?

A: Developers of PCI products are bound by an honor code to ensure that their products are compliant to the most current version of the PCI specification. A list of compliant products, known as The Integrator's List, is available to members only at the PCI-SIG's Web site at www.pcisig.com.

Q: What is a "Universal" Card?

A: The Universal Card provides a means for vendors to address both 3.3 volt and 5.0 volt signaling issues. With the most recent releases of PCI-X, Mini PCI and Low-Profile PCI, all of which use 3.3 volt signaling, the SIG is aiding the industry in ensuring that new enhancements are properly addressing technology trends within the PC industry.

Q: How do ECNs affect the base specification?

A: ECNs are improvements to the specification that are officially approved by the SIG yet don't demand a full-scale revision to the specification. All approved ECNs are considered part of the current specification

and must be implemented to maintain compliance. For a list of the most current ECNs, please visit the PCI-SIG Web site at www.pcisig.com.

Q: Is CompactPCI a PCI-SIG specification?

A: No. While CompactPCI is based on the PCI bus specification, it is a separately managed specification by PICMG (PCI Industrial Computer Manufacturers Group). More information can be found at www.picmg.com.

Q: Where can I obtain PCI-SIG specifications?

A: All specifications are available and can be ordered from the PCI-SIG Web site www.pcisig.com or by calling (800) 433-5177 (U.S.) or (503) 222-6190 (international).

Q: How do I get technical support for PCI specifications?

A: Technical support for PCI-SIG specifications is one of the many benefits of membership. QuestTech is providing technical support and may be reached at techsupp@pcisig.com.

PCI-X

Q: What is PCI-X?

A: PCI-X is a high-performance enhancement to the conventional PCI specification v2.2 that delivers more bandwidth and bus performance to address the increased I/O requirements for high-bandwidth applications such as Gigabit Ethernet, Fibre Channel and Ultra 3 SCSI. PCI-X, at 133 MHz and 64-bits, will enable data throughput of over 1 Gbyte/sec.

Q: Why is there a need for a faster version of PCI?

A: New and future enterprise server applications, such as Gigabit Ethernet, Ultra3 SCSI and Fibre Channel, need high I/O bandwidth. PCI-X builds upon current PCI technology and ensures investment protection while providing higher performance of the PCI architecture for current and future application needs.

Q: Where will PCI-X be implemented when it is available?

A: PCI-X addresses current I/O needs of high-bandwidth applications with initial implementation in servers and workstations, and eventual migration to the desktop environment.

Q: What is the status of PCI-X with the PCI-SIG?

A: PCI-X 1.0a is available to PCI-SIG members for immediate download at www.pcisig.com.

Q: Does PCI-X only increase the speed of PCI?

A: No, PCI-X not only doubles the maximum clock frequency from 66 MHz to 133 MHz, but it also provides new features such as split transactions and transaction-byte counts that improve the efficiency of the bus and devices.

Q: Does PCI-X support 5.0 volts?

A: A PCI-X add-in card can be 5.0 volt tolerant through the use of a Universal Card. All high-speed PCI add-in card slots, including PCI-X and 66 MHz conventional PCI, are keyed for 3.3V I/O. It should be noted that 5V power is present on all PCI connectors, even connectors keyed for 3.3V I/O operation.

Q: When will the SIG be testing for PCI-X compliance?

A: PCI-X testing is currently included in the compliance workshops. For more information about compliance workshops, visit the PCI-SIG Web site at www.pcisig.com.

Q: When will PCI-X products be available?

A: Many industry leaders including Compaq, FuturePlus Systems and Catalyst have already introduced PCI-X products to the market, and we expect a significant rollout to continue as 2001 progresses.

Q: What is the SIG's position on the current situation with switched-fabric I/O architectures?

A: The PCI-SIG believes that switched-fabric I/O architectures will co-exist with PCI-X. PCI-X is the natural evolution of PCI technology and was developed to address the increased I/O performance requirements for today's high-bandwidth applications in the server and workstation markets while ensuring investment protection of the existing installed base of PCI-based systems and software.

Q: How does the recent Rapid IO initiative compete with the PCI local bus technology?

A: Rapid IO is mainly targeted at the embedded market, where it will compete with CompactPCI. The PCI-SIG does not currently see Rapid IO as a competitive initiative.

PCI Hot Plug

Q: Why did the SIG re-activate the Hot-Plug workgroup?

A: The original release of PCI Hot-Plug was intended to provide a specification that would allow broad industry implementation and offer a great deal of latitude in the design of hot-plug controllers. The workgroup is being re-activated in order to develop a single-standard programming model for a hot-plug controller. The PCI Hot-Plug specification 1.1 and PCI standard Hot-Plug controller will be approved by the board at the July 25-26 board meeting.

Q: Will a standard definition of a Hot-Plug controller eliminate the need for IHVs to provide drivers for their add-in cards?

A: No, IHVs will still need to supply drivers associated with their proprietary add-in cards. The standard definition of the Hot-Plug controller only affects systems vendors.

Q: Is PCI Hot-Plug technology currently supported by operating system vendors?

A: Yes. Today, each system OEM supplies a driver for the PCI Hot-Plug controller.

Q: Are current Hot-Plug-based implementations interoperable?

A: Yes. Hardware platforms, operating systems, and add-in cards from different vendors all work together to provide the total PCI Hot-Plug solution. Under the present revision of the specification, the platform vendor supplies a device driver for the hot-plug controller of each platform. A standard programming model would allow a single device driver to run on multiple platforms. This does not impact interoperability, but conserves development cost.

Q: Is Hot Swap the same as Hot-Plug?

A: No, Hot Swap is CompactPCI's equivalent to Hot-Plug, which addresses capabilities of the base PCI specification. CompactPCI is managed by PICMG and more information can be found at www.picmg.org.

Low-Profile PCI

Q: What is Low-Profile PCI?

A: Low-Profile PCI is a new PCI card standard for space-constrained system designs. The new form factors maintain the same electricals, protocols, PC signals and software drivers as standard PCI v2.2 expansion cards. They are also mechanically similar; however, Low-Profile PCI is an additional form factor that defines a shorter raw card and new mounting bracket for card retention. The Low-Profile PCI definition

is an engineering change notice (ECN) to the conventional PCI specification, Revision 2.2. It will include a new section in the mechanical chapter to define the Low-Profile PCI raw card and mounting bracket.

Q: What is the difference between Low-Profile PCI and Mini PCI?

A: Low-Profile PCI and Mini PCI are two different initiatives that address different market needs. Low-Profile PCI will allow greater flexibility in desktop and server designs, and in some cases eliminate the need for riser cards. Mini PCI was developed specifically for integrated communications peripherals such as modems and network interface cards (NICs) in a mobile environment. Mini PCI provides flexibility for OEM/system integrators and is not intended for end-user installation.

Q: If Mini PCI is smaller than Low-Profile PCI, then why not use Mini PCI rather than define a new standard?

A: The smaller card dimensions for Mini PCI require more compact and higher density components than Low-Profile PCI. Mini PCI is a standard for integrated peripherals that targets small form-factor products such as notebook PCs, docking stations and printers. In addition to the small size, Mini PCI requires a new interface to the board and system. Low-Profile PCI leverages existing adapter-card designs. Many cards are already short in height to save cost and optimize PCB panel sizes. In many cases, the bracket drives the height of the card assembly and therefore, the height of the system design.

Q: How tall will the Low-Profile cards be compared to standard PCI adapter cards?

A: Low-Profile PCI should fit into systems as low as 3.350" [85 mm] without the use of riser cards.

Q: Are there various card lengths defined for Low-Profile PCI similar to short and long cards for standard PCI?

A: Low-Profile PCI has two card lengths defined for 32-bit cards, MD1 and MD2. The purpose of MD1 and MD2 is to establish size limits for system designers. MD1 is the shortest card offering and poses the greatest challenge to adapter-card vendors. However, MD1 cards also allow for the smallest system design. Systems which are designed to support both MD1 and MD2 card lengths will have the greatest flexibility in supporting all Low-Profile PCI compliant cards.

Q: Will Low-Profile PCI fit into current brackets?

A: Low-Profile PCI will be backward compatible for existing brackets; however, the ECN will also define a new bracket that will not be compatible with standard PCI cards.

Q: Is Low-Profile PCI going to support 5.0 volt signaling?

A: To reflect the PCI-SIG's market recommendation of moving to 3.3 volt signaling as quickly as possible, Low-Profile PCI will only support 3.3 volt signaling.

Q: What is the status of Low-Profile PCI?

A: The Low-Profile PCI ECN was officially approved and released by the steering committee on February 11, 2000. The Low-Profile ECN, along with all other ECNs to the v2.2 PCI bus specification, are currently available at the PCI-SIG Web site, www.pcisig.com, for free download to the industry.

Q: When will Low-Profile PCI products be available?

A: Compliant Low-Profile PCI products are currently on the market. Q-Logic is presently producing Low-Profile PCI products. Accton Technologies is also currently producing two products that support Low-Profile PCI, the EN1207D series 10/100 Fast Ethernet Adapter and the EN1207F series 10/100 Fast Ethernet Adapter.

Low-Profile has been rolled into the testing and certification at compliance workshops to allow vendors to bring compliant products to market.

Mini PCI

Q: What is Mini PCI?

A: Mini PCI is a standard for integrated peripherals, with emphasis on communications, that targets smaller products such as notebook PCs, docking stations, printers, sealed-case PCs (NetPCs or NCs), and set-top boxes. Mini PCI defines a small card (as small as 2.75" by 1.81" by .22") that is functionally equivalent to a standard PCI expansion card. Mini PCI was developed specifically for integrated communications peripherals such as modems and NICs. The Mini PCI card maintains the essential electricals, protocols, PC signals and software drivers as standard PCI v2.2 expansion cards.

Q: What is the need for Mini PCI?

A: The performance characteristics of the PCI bus specification, demonstrated in desktop and server systems, make PCI cards desirable in a wide range of systems. Coming from the state of having scores of custom or proprietary PCI daughter cards, the need for a standard is underscored. The standard form factors will simplify designs, reduce costs and increase the number of implementation options. Mini PCI can also be used in smaller systems in which standard PCI and small PCI v1.5a expansion cards cannot be used due to mechanical system-design constraints.

Q. Who benefits from the new Mini PCI specification?

A: OEMs, IHVs and their customers benefit from Mini PCI through a standard form factor for integrated communications peripherals. Particularly in the mobile space, this translates into greater flexibility of manufacturing and purchase options, reduced cost of ownership, and quicker time to market of technology.

Q: What is the status of the Mini PCI specification and when will it be available?

A: Mini PCI version 1.0 was approved by the PCI-SIG board of directors and officially released in 4Q '99. PCI-SIG members can download the specification at www.pcisig.com.

Q: When will vendors be able to test for compliance to the Mini PCI specification?

A: Mini PCI is PCI v2.2 with a different form factor. A Mini PCI device can be mounted on a PCI card and interoperability can be checked at a compliance workshop (the physical dimensions will not be checked.)

Q: When will Mini PCI products be available?

A: Mini PCI products are currently available and more will continue to be produced in the future. Companies such as Accton Technologies are choosing to support all three Mini PCI specification types with their EN2242 series Mini-PCI Fast Ethernet Adapter (support type 1B, 2B, 3A and 3B) and EN2242A series Mini-PCI Fast Ethernet Adapter (support type 1B and 3A/3B).

Conventional PCI v2.2

Q: What is the difference between version 2.1 and version 2.2 of the PCI bus specification?

A: Version 2.2 is an evolutionary release of the PCI specification that includes edits to provide better readability and the incorporation of Engineering Change Notices (ECNs) developed since the release of v2.1. The recently released v2.2 of the PCI bus specification remains the industry standard for I/O applications and is the current standard for PCI, to which vendors should be developing products. For a complete list of changes, please view the "*Differences between PCI spec revisions 2.1 and 2.2*" document at www.pcisig.com.

Q: When will the next compliance workshop be held to test for 2.2 compliance?

A: For a schedule of compliance workshops and their locations, please visit the SIG Web site at www.pcisig.com