

PCI-X 2.0: High Performance, Backward Compatible PCI for the Future



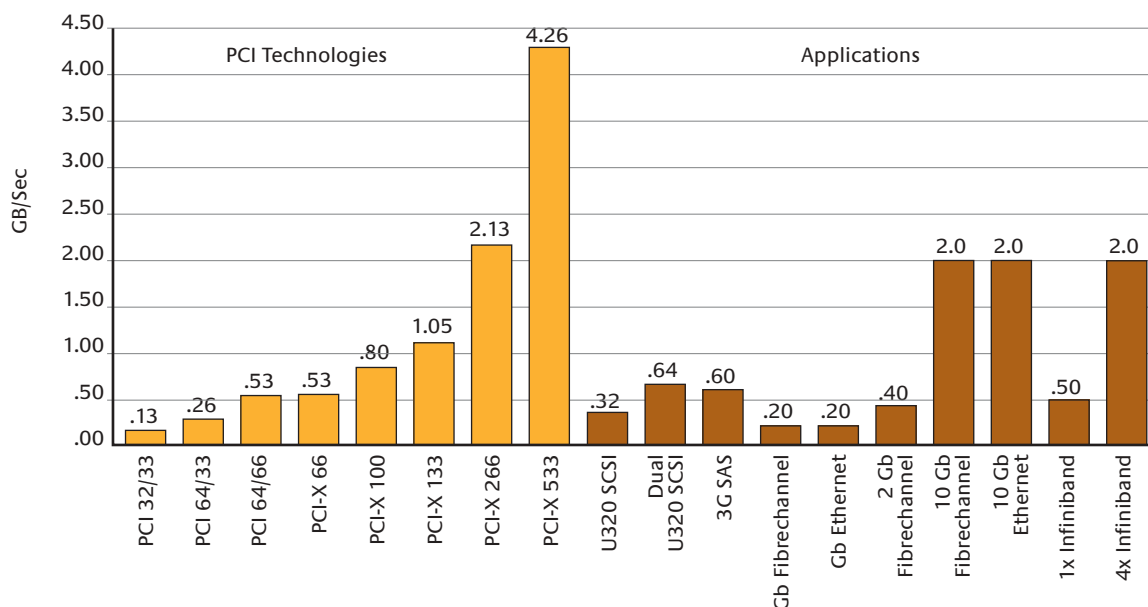
PCI-X 2.0

The PCI architecture has proven to be successful beyond all expectations. It is everywhere, and the wide variety of available systems and adapter cards attests to the utility and vitality of this standard. Its success is built upon its commitment to backward compatibility of cards, slots, and software. To further increase performance, while maintaining backward compatibility, the PCI-X standard was created. It has become the standard I/O interface for high-bandwidth applications.

However, new high-performance applications are beginning to emerge that demand even more bandwidth from this backward-compatible bus standard. Emerging server-class I/O technologies such as 10 Gigabit Ethernet, 10 Gigabit FibreChannel, and InfiniBand, require I/O bandwidths beyond those available with PCI-X 66 and PCI-X 133. To meet this demand, the PCI-X 2.0 standard has been developed, which introduces two new speeds: PCI-X 266 and PCI-X 533.

New Applications Require PCI-X 2.0 Bandwidths

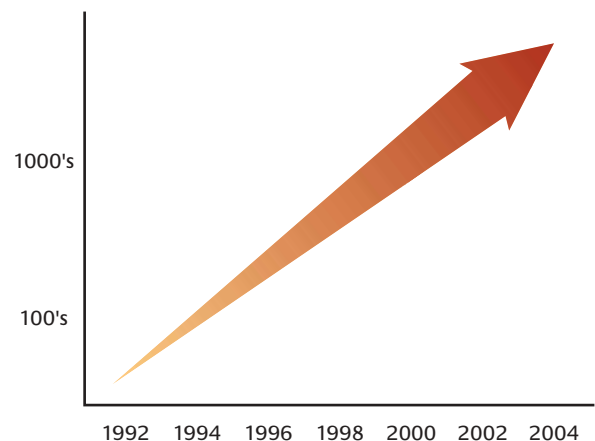
PCI-X 266 and PCI-X 533 have more than enough bandwidth to support all applications.



PCI-X 2.0 Compatible Products

The market transition to PCI-X 266 and PCI-X 533 is easy because there are so many previous-generation PCI and PCI-X adapter cards already available. Numerous PCI, PCI-X 66, and PCI-X 133 adapter cards are available today that can be utilized by every PCI-X 266 and PCI-X 533 slot. In addition, new PCI-X 266 and PCI-X 533 adapter cards have ready homes in any of the millions of 3.3V PCI, PCI-X 66, and PCI-X 133 slots in existing systems.

Products that are compatible with PCI-X 2.0



PCI-X Momentum

Industry support for PCI-X 266 and PCI-X 533 continues to grow. Major OEMs, major chipset vendors, and major adapter card vendors are all planning to use these new PCI-X speeds for next-generation, high-bandwidth local I/O. The list of companies that have announced support for PCI-X 266 and PCI-X 533 can be found on the PCI-SIG website: www.pcisig.com/specifications/pcix_20/developers. The list will be updated as companies supporting the new PCI-X speeds continues to grow.

Resource for PCI-X 2.0 Developers

The infrastructure and enabling support for PCI-X 266 and PCI-X 533 is well established, and new companies are constantly announcing additional support. Elements such as bridges, testers, clocks, support chips, IP, test suites, chipsets, design tools, IO buffers, training, etc. are all broadly supported. To satisfy the demand for information about these PCI-X products, development tools, and support services, the PCI-SIG has established a webpage to bring partners together.

This page is intended to be a central resource for the entire high-speed PCI-X community. Companies that are looking for partners to support them in their development can look to this page for complementary products. Likewise, companies with products and services to support the development and launch of PCI-X 266 and PCI-X 533 products can make themselves known via this webpage. The list of companies with products that support PCI-X 266 and PCI-X 533 can be found on the PCI-SIG website: www.pcisig.com/specifications/pcix_20/developers

PCI-SIG Resources

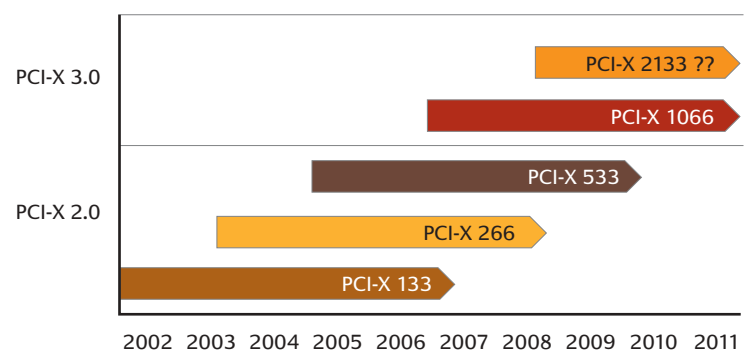
Specifications: The PCI-X 2.0 specification is available online to PCI-SIG members and can be downloaded from www.pcisig.com/specifications/pcix_20/

Technical Support: Free technical support is available to PCI-SIG members. Send your technical questions about PCI-X 2.0 to techsupp@pcisig.com

Additional Information: Additional information about PCI-X 2.0 is available online. White papers, presentations, lists of frequently asked questions, and other information can be found online at www.pcisig.com/specifications/pcix_20/

Future PCI-X Development

Beyond PCI-X 266 and PCI-X 533, the PCI-SIG has already begun to investigate the requirements for PCI-X 1066 as the backward-compatible follow-on to the PCI-X 2.0 specifications. The PCI-X 1066 development will enable 1066 mega-transfers per second translating into sustainable push-rate bandwidth of more than 8.5 gigabytes per second, to enable future devices that operate at 40 Gigabit speeds.



PCI-X 2.0

The PCI-X 2.0 specification is a new, higher speed version of the conventional PCI standard that supports signaling speeds up to 533 MHz. Revision 1.0 of the PCI-X specification defined PCI-X 66 and PCI-X 133 devices that transferred data up to 133 MHz, or over 1 gigabyte per second for a 64-bit device. The present revision adds two new speed grades: PCI-X 266 and PCI-X 533, offering up to 4.3 gigabytes per second of bandwidth.

PCI-X 2.0 technology is built on the same architecture, protocols, signals, and connectors as conventional PCI. It reuses many of the design elements from the conventional PCI and PCI-X 1.0 standard. It also maintains hardware and software compatibility with previous generations of PCI and PCI-X, which allows new PCI-X 2.0 designs to immediately connect with hundreds of PCI and PCI-X products that are currently available.

PCI-X 2.0 also introduces enhanced system reliability. Error checking and correcting (ECC) support has been added both for the header and payload, providing automatic single-bit error correction and double-bit error detection. These new updates keep pace with upcoming advances in high-bandwidth business-critical applications such as Fibre Channel, RAID, Ethernet, InfiniBand™ Architecture, SCSI, and iSCSI.

For more than ten years, the PCI-SIG has been developing the world's most popular bus technology. The PCI-X 2.0 266 MHz and 533 MHz standards lay the groundwork for the next decade, and further backwards-compatible extensions, such as PCI-X 1066, are planned beyond the PCI-X 2.0 standard.

PCI-SIG

The PCI-SIG is the Special Interest Group that owns and manages PCI specifications as open industry standards. The organization defines and implements new industry standard I/O (Input/Output) specifications as the industry's local I/O needs evolve. The PCI Special Interest Group was formed in 1992, and the organization became a nonprofit corporation, officially named "PCI-SIG" in the year 2000. Currently, more than 860 industry-leading companies are active PCI-SIG members.



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