**NEWS RELEASE**

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# PCI Express™ Design Enablement Efforts Accelerate Initial Product Testing in Early 2003

## *Wide Array of PCI Express Silicon Building Blocks in Development as Broad-Based Implementations Pick Up Steam Across the Industry*

**PORTLAND, Ore, November 19, 2002** – The PCI-SIG, the Special Interest Group responsible for PCI Express, PCI, and PCI-X industry-standard I/O technologies, announced today that its PCI Express design enablement efforts have gained significant momentum for development of silicon building blocks supporting the PCI Express architecture. These enablement efforts have led to a rapidly expanding developer network, availability of bus functional models, tangible progress in I/O cell designs, demonstrated IP cores, available connectors, and test and analysis equipment. As a result, many PCI-SIG members are well underway in delivering initial silicon, including I/O and core logic components as well as other system building blocks, as they gear up for early product testing in 2003.

Following this groundswell of support for PCI Express architecture and the impressive progress of leading silicon suppliers, PCI-SIG efforts will now shift from enablement to compliance and interoperability of PCI Express products.

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*"The PCI-SIG is pleased with the impressive progress in the design of PCI Express silicon and related products by our members," said Tony Pierce, PCI-SIG chairman. "We are committed to providing the best-in-class enabling, compliance and interoperability programs for our growing membership in the computing and communications industries and are eagerly anticipating the successful introduction of PCI Express products in the near future."*

*"PCI Express is being implemented in a broad range of applications in multiple market segments," said Al Yanes, president of the PCI-SIG. "We welcome the efforts of our leading members in enabling and promoting this vital technology of the PCI-SIG and urge our other members to do the same consistent with their business needs."*

**Continued Momentum, Continued Specification Development**

The PCI-SIG is continuing development of the PCI Express specifications in a number of key areas:

- A PCI Express-to-PCI/PCI-X bridge specification is currently in the final phase of development and is expected to be released for membership review in the fourth quarter of 2002.
- The Mini PCI Express Electromechanical specification, an alternate for the existing Mini PCI form factor specification, is being completed for membership review and is expected to be finalized for publication in the first quarter of 2003.
- A Server Module specification is in the early phase of development in the PCI-SIG, and there are plans to collaborate with other industry organizations on the definitions of a Client Module specification and other module form factor specifications suitable for the next generation of carrier grade communications equipment and related applications.

These module specifications are targeted for release during 2003 with products expected in early to mid 2004. The modular applications and expansion units based on these specifications will leverage, among other features, the inherent hot-plug and native RAS (Reliability, Availability, Scalability) potential of the PCI Express architecture.

**Industry Support for PCI Express**

The growing chorus of industry support is a testimony to the impressive progress in the design and implementation of a wide variety of products based on the PCI Express architecture, and it is a substantial benefit of the PCI-SIG's enablement efforts for its growing base of members worldwide.

*"Agilent Technologies is excited to be a key enabler of PCI Express by supplying tools to validate designs from the physical layer to the highest levels of the PCI Express protocol," said Ron Nersesian, Vice President and General Manager of Agilent Technologies Design Validation Product Generation Unit. "As a leader in supporting PCI validation, Agilent is committed to continuing that leadership with PCI Express. We are particularly pleased to have delivered PCI Express packet analysis on our new 16753A series logic analyzer to customers validating 1st silicon. Our new Infiniuum 6 GHz oscilloscopes, 7 GHz InfiniiMax differential probes, PCI Express validation software, and 81133A serial pattern generators demonstrate that same commitment for physical layer test."*

*"ATI supports PCI Express as the next step in delivering the bandwidth and features required for exciting, new graphics applications," said Rick Bergman, Senior Vice President, Marketing & General Manager, Desktop Business, ATI Technologies Inc. "As a PCI Express validation partner, we are currently working to incorporate PCI Express support into upcoming graphics architectures."*

*"As a leading provider of PCI and PCI-X enabled servers, workstations and personal computers, Dell views PCI Express as the ideal future I/O interconnect, providing customers with the high performance connection necessary to support graphics, network, storage and other high bandwidth I/O devices," said Kevin Kettler, chief technology officer for Dell. "Many of our customers understand that PCI Express enables them to take full advantage of the performance increases we're seeing in standards-based server and client platforms. Dell is committed to the development and adoption of PCI Express solutions for our client and enterprise server platforms."*

*"PCI Express is an excellent fit for our storage networking host bus adapters in terms of performance and scalability," said Mike Smith, Executive Vice President of Worldwide Marketing, Emulex. "As a founding member of the Arapahoe Working Group, Emulex has been involved in the creation of the PCI Express specification from the beginning. PCI Express is a critical next step in the evolution of server I/O, and provides a seamless migration path from the existing PCI architecture."*

*"As a leading PC supplier, HP is excited about the growing momentum for PCI Express," says Dick Grote, vice president of research and development, HP's consumer PC business. "HP firmly embraces open industry forums and standards and looks forward to solving customer problems with new technologies."*

*"IBM is excited about the PCI Express architecture because of its compatibility with the past and its high-bandwidth options for the future," said Peter Hortensius, Vice President of Development, IBM Personal Computing Division. "IBM embraces open industry standards and provides innovation on top of them, and PCI Express presents outstanding opportunities for solving real customer problems."*

*"Intel is committed to provide industry enabling across multiple market segments to support innovative and interoperable PCI Express-based products. In less than two months, the Intel Developer Network for PCI Express Architecture has enlisted the enthusiastic support of over 131 companies serving the computing and communications industries," said Louis Burns, Vice President and Co-General Manager, Intel Desktop Platforms Group. "Intel continues to be on track with silicon building blocks currently in development by its enterprise, desktop, mobile and communications business groups. We look forward to working with the members of the PCI-SIG on interoperable and value-added products that will once again energize the technology market."*

*"LSI Logic leveraged its vast PHY layer and serial protocol experience to provide inputs to the PCI Express standard specification," said Dave Jones, Vice President and General Manager, Storage and Computing ASIC Division, LSI Logic Corporation. "Our PCI Express product benefits from five generations of SERDES technology, better known as the LSI Logic GigaBlaze™ transceiver core, which has been widely deployed in the storage market space. In addition, LSI Logic is reducing customer development efforts by providing PCI Express protocol layer IP. Our achievements in multi-gigabit serial interfaces and LSI Logic's new PCI Express product line are ensuring that our customers succeed while reducing time to market."*

*"InfiniBand™ is delivering usable bandwidth to clustered database and high performance computing applications and this, in turn, is driving demand for server chipsets able to provide additional throughput," said Kevin Deierling, vice president of product marketing for Mellanox Technologies, Inc. "PCI Express is an excellent local interface to provide high bandwidth access to the CPU and memory subsystem and enable InfiniBand devices to bring this usable bandwidth out of the box."*

*"Microsoft is delighted to see the solid progress of the PC ecosystem in adopting the PCI Express architecture and remains committed to support this important technology," said Tom Phillips, General Manager, Windows Hardware Experience Group, Microsoft Corp. "The inherent advances in PCI Express technology offer the entire industry opportunities to architect exciting and innovative products that will get end-users and IT eager to acquire the next generation of leading-edge high-tech products."*

*"NEC Electronics America sees very positive and continuing progress of PCI Express technology in the industry," said Kugao Ouchi, director, Broadband LSI Technology Strategic Business Unit, NEC Electronics America, Inc. "Our PCI Express-compliant IP cores will further enable deployment of the technology in ASIC designs. NEC Electronics' ASIC customers can leverage these industry leading PCI Express macro cores in designs for the network server, desktop and laptop PC markets, greatly accelerating their time to market for PCI Express-enabled products."*

*"PCI Express will significantly increase the available bandwidth to the graphics processor making an entirely new set of cinematic effects possible," said Dan Vivoli, vice president of marketing at NVIDIA. "From the start, NVIDIA has been a key contributor to the PCI Express architecture, as both developer and supporter and we continue to remain excited about the possibilities that PCI Express enables for next-generation hardware and visual applications."*

*"As a key developer for PCI Express and a member of the Intel Developer Network, PLX views the architecture as an essential standard I/O interconnect for next-generation server, storage and communication systems," said Larry Chisvin, vice president of marketing at PLX. "PLX currently is developing the fundamental building blocks for PCI Express, including bridging and switching devices incorporating the highly flexible, reliable, serial I/O features of the architecture. These devices are being designed to deliver unprecedented performance, reliability and scalability features to a wide variety of computing and networking products."*

*"QLogic announced plans to develop products for PCI Express last September," said Frank Berry, vice president of marketing, QLogic Corp. "This technology is highly complementary to the PCI local bus as the industry moves to serve computing models including 10GHz CPUs and 10 Gigabit/sec SANs."*

*"As a worldwide leader in high-speed computer I/O technologies, including PCI, Cardbus, and 1394, TI is dedicated and well positioned to extend our leadership by supplying products that designers need to meet their design goals and reduce time to market for computers based on PCI Express technology," said Kevin Main, TI Connectivity Solutions Systems Engineer and PCI-SIG board member.*

*"Wavecrest announces the availability of a software module for the SIA 3000 that provides complete jitter and signal integrity analysis of PCI Express products," said Dennis Leisz, President and CEO, Wavecrest Corporation. "The software package can test devices and systems for compliance, can provide excellent debug and characterization analysis for both Timing and Voltage noise and is a cost effective data analysis software module."*

*"Utilizing the RocketIO™ 3.125Gbps serial transceivers in the Virtex-II Pro™ Platform FPGAs to create the world's first PCI Express product, Xilinx has enabled instant deployment and validation of the PCI Express technology," said Mark Aaldering, senior director of IP Solutions Division at Xilinx. "We are pleased to see the industry momentum behind this technology and believe that PCI Express will significantly lower system cost while improving performance."*

**Benefits of PCI-SIG Membership**

All PCI-SIG members can participate in the review of the PCI Express specifications before they are released to the industry. If you are interested in becoming a member, please visit the PCI-SIG web site at www.pcisig.com. PCI-SIG members develop and maintain these specifications and are also actively involved in defining compliance criteria and checklists as well as other technical enabling collateral.

**About the 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 800 industry-leading companies are active PCI-SIG members. The PCI-SIG's current directors are employed by the following PCI-SIG member companies: Adaptec, AMD, HP, IBM, Intel, Microsoft, Phoenix Technologies, ServerWorks and Texas Instruments. For more information about the PCI-SIG, and PCI-SIG membership benefits, contact the PCI-SIG by phone, at (800) 433-5177 (within the United States), or by fax at (503) 297-1090, or visit the PCI-SIG web site at: www.pcisig.com



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