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## **PCI-SIG® Fast Tracks Evolution to 32GT/s with PCI Express 5.0 Architecture**

*PCIe 5.0 Revision 0.3 specification now available to members*

**PCI-SIG Developers Conference 2017, Santa Clara, CA. – June 7, 2017 - PCI-SIG®**, the organization responsible for the widely adopted **PCI Express®** (PCIe®) industry-standard input/output (I/O) technology, today announced 32GT/s as the next progression in speed for the PCIe 5.0 architecture, targeting high-performance applications such as artificial intelligence, machine learning, gaming, visual computing, storage and networking. Slated for completion in 2019, the specification development is well underway with Revision 0.3 already available to PCI-SIG member companies.

“In our 25-year history, PCI-SIG has maintained its commitment to our rigorous specification development process, while delivering specifications that are in lock-step with industry requirements for high-performance I/O,” said Al Yanes, PCI-SIG Chairman and President. “PCIe 5.0 technology is the next evolution that will set the standard for speed, and we are confident that its 32GT/s bandwidth will surpass industry needs.”

The preceding PCIe 4.0 specification is designed with key functional enhancements that future-proof the PCIe architecture design, thereby accelerating future specification development. This undertaking, along with improved silicon design processes, serves as the foundation for the PCIe 5.0 specification.

For high-end networking like 400Gb Ethernet solutions and dual 200Gb/s InfiniBand, the PCIe 5.0 architecture operates at full duplex and provides up to 128GB/s in bandwidth. The higher bandwidth will serve accelerator and GPU attachments, as well as constricted form factor applications needing to increase channel width.

“With the onset of Big Data, high-performance applications and the arrival of next generation non-volatile memories, storage devices have a voracious appetite for increasing performance,” said Amber Huffman, President of NVM Express, Inc. “We are pleased to see the PCI-SIG continue to evolve this interface technology to enable NVMe SSDs for the enterprise and data center to leverage the scalability of the PCIe architecture, both in higher bandwidth and lower latency.”

### **About PCI-SIG**

PCI-SIG is the consortium that owns and manages PCI specifications as open industry standards. The organization defines industry standard I/O (input/output) specifications consistent with the needs of its members. Currently, PCI-SIG is comprised of over 700 industry-leading member companies. To join PCI-SIG, and for a list of the Board of Directors, visit [www.pcisig.com](http://www.pcisig.com).

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## Supporting Quotes for PCIe 5.0 Specification

### Amphenol

"Amphenol has seen tremendous success of the early PCIe generations and the ramping up of PCIe 4.0 technology. With PCIe 5.0 technology going to 32Gb/s, matching or bettering some of the other server/storage architectures, Amphenol expects PCIe 5.0 technology to be very successful in solving user application issues."

~Greg McSorely, Technical Business Development Manager, [Amphenol](#)

### Cadence

"PCI-SIG's announcement of PCI Express 5.0 specification development at 32GT/s is a significant and welcome step to address next-generation datacenter requirements for higher speeds and fewer bottlenecks. As a pioneer and leader in PCI Express, Cadence is actively looking toward the next generation and committed to delivering complete, high-quality PHY and controller IP for PCI Express 5.0 along with verification IP and tools that enable our customers to get to market faster with a high-performance solution while reducing their cost of development. We've been a member of the PCI-SIG for nearly 15 years and are in discussions with leading customers interested in implementing PCI Express 5.0."

~Babu Mandava, Senior Vice President and General Manager of the IP Group, [Cadence](#)

### Diodes Incorporated

"Diodes Incorporated is the leading supplier of PCI Express products including signal conditioning, timing, signal and packet switches for over a decade. Huge growth in cloud computing is demanding higher performance storage and networking infrastructure, hence driving the need for faster peripheral connectivity. We are pleased that the PCI-SIG is working to standardize on PCIe 5.0 specification at 32GT/s for the high speed connectivity."

~Kay Annamalai, Senior Director of Marketing, [Diodes Incorporated](#)

### Granite River Labs

"Each new generation of PCI Express brings an increase in compliance test intricacy, new waveform acquisition and analysis requirements and more parameters to set and measure. GRL's engineering services and comprehensive test automation portfolio helps customers easily adopt and integrate PCIe 5.0 technology into their designs with greater flexibility and reliability. This enables a more robust product and faster time to market."

~Johnson Tan, CEO and Co-Founder, [Granite River Labs](#)

### Mellanox

"The ability to move and analyze growing amounts of data is critical for research, for products development and for achieving a competitive advantage. PCIe 5.0 technology, doubling the data throughput compared to PCIe 4.0 technology, combined with the data throughput roadmap of InfiniBand and Ethernet, will enable the data center ecosystem to leverage industry standard solutions to achieve maximum return on investment for future compute and storage platforms."

~Gilad Shainer, Vice President, Marketing, [Mellanox Technologies](#)

### Mentor

"Mentor, a Siemens Business, is pleased to support the development of PCIe 5.0 technology. Our networking, storage, and enterprise customers are successfully using the Questa® Verification IP Library to design and verify leading edge products. We look forward to working with our customers and partners to extend our Enterprise Verification Platform™ with support of PCIe at 32GT/s in both Questa VIP and Veloce® VIP."

~Adam Rose, Product Manager, Verification IP, [Mentor](#)

### **Mobiveil**

"Once again, PCI-SIG is poised to deliver a well-thought-out standard to support higher bandwidth beyond the PCI Express 4.0 specification. Its value to the industry cannot be overstated, especially with the huge demand for bandwidth for networking and storage at cloud-centric data centers."

~Ravi Thummarukudy, Chief Executive Officer, [Mobiveil](#)

### **NVIDIA**

"As GPU accelerators increase in performance, so does the need to supply them with data more efficiently. With an expected bandwidth that's twice that of its predecessor, the new PCIe 5.0 standard will deliver the kind of speed necessary to further support advances in AI, machine learning, gaming, robotics, autonomous driving, virtual reality and more. NVIDIA looks forward to continued collaboration with our industry peers on the PCI-SIG Board of Directors and work groups to develop and complete the PCIe 5.0 specification."

~Michael Diamond, Senior Director of Strategic Partnerships, [NVIDIA](#)

### **NXP**

"NXP® is looking forward to the development of the 32GT/s PCIe 5.0 specification. This helps I/O speeds keep up with requirements in the high-performance storage and networking industries."

~Ho Wai Wong-Lam, Vice President Strategy for the Security and Connectivity Business, [NXP](#)

### **One Stop Systems, Inc.**

"PCI-SIG has consistently done an amazing job of driving PCI Express technology to stay at the leading edge of performance. The PCIe 5.0 specification at 32GT/S is no exception. One Stop Systems utilizes PCI Express to design and manufacture ultra-dense high performance computing (HPC) systems for deep learning, oil and gas exploration, financial trading, defense and other applications requiring the fastest and most efficient data processing. Our customers tackle some of the world's most complex and challenging problems using the latest techniques in artificial intelligence and predictive analytics. We will deploy PCI Express 5.0 technology as a first adopter to ensure our customers always have access to the absolute highest performance possible."

~Steve Cooper, Chief Executive Officer, [One Stop Systems](#)

### **PLDA**

"Over the past 10 months, PCIe 4.0 adoption by PLDA customers from the servers, networking and storage industry has massively started. The PCIe 5.0 announcement timing is great and will enable PLDA and its customers to start working together and defining the next generation products roadmap."

~Arnaud Schleich, Chief Executive Officer, [PLDA](#)

### **Synopsys**

"The PCI Express 5.0 specification increases the data rate from 16GT/s to 32GT/s, aligning with the evolution of data-intensive applications in cloud computing, networking and storage. As the leading provider of PCI Express interface and verification IP that have been used in more than 1,500 customer tapeouts, and as an active member of the PCI-SIG for more than a decade, Synopsys is well-positioned to enable the next wave of designs that will incorporate the 32Gbps PCI Express 5.0 standard."

~John Koeter, Vice President of Marketing for IP, [Synopsys](#)

### **Tektronix**

"With network equipment, next generation graphics processors and solid-state disks all becoming significantly faster, we anticipate that the industry will quickly embrace the PCIe 5.0 specification and the move to 32GT/s. From a test and measurement perspective, Tektronix is

well prepared to support this evolution with the industry's only complete transmitter and receiver test solution that is PCIe 5.0 technology capable today, including 70 GHz real-time oscilloscopes, high-performance BERTs and software analysis tools specific to PCIe. We offer full compliance test and link training debugging tools for the PCIe 4.0 architecture and are already well down the road toward delivering a comprehensive PCIe 5.0 solution.”  
~*Brian Reich, General Manager, [Tektronix](#)*