



## **PRESS RELEASE**

### **CONTACT:**

**Kelsey Anderson**

CXL PR

+1 503.619.2683

[press@computeexpresslink.org](mailto:press@computeexpresslink.org)

## **Key Industry Players Converge to Advance CXL, a New High-Speed CPU Interconnect for Breakthrough Data Center Performance**

### **Key Highlights:**

- *Alibaba, Cisco, Dell EMC, Facebook, Google, Hewlett Packard Enterprise, Huawei, Intel Corporation and Microsoft team up on the new Compute Express Link (CXL) technology to accelerate rapidly growing data workloads such as Artificial Intelligence and Machine Learning, rich media services, High-Performance Computing and Cloud applications.*
- *CXL Specification 1.0 ratified to address growing high-performance CPU-to-Device, interconnect needs and provide improved memory coherency for higher performance of data-intensive applications.*
- *The new open standard will help foster an open accelerator ecosystem for high performance, heterogeneous computing. Interested member companies and institutions are encouraged to join.*

**Beaverton, OR, USA** – March 11, 2019 – Alibaba, Cisco, Dell EMC, Facebook, Google, Hewlett Packard Enterprise, Huawei, Intel Corporation and Microsoft today announced the formation of a new industry standard group dedicated to advancing Compute Express Link (CXL), a new high-speed CPU-to-Device and CPU-to-Memory interconnect designed to accelerate next-generation data center performance. The group of companies also ratified the CXL Specification 1.0, an open industry standard that delivers breakthrough performance for emerging usage models while supporting an open ecosystem for data center accelerators and other high-speed enhancements.

### **CXL Specification 1.0 Available Now**

The CXL Specification 1.0 enables a high-speed, efficient interconnect between the CPU and platform enhancements and workload accelerators, such as GPUs, FPGAs and other purpose-built accelerator solutions. The technology is built upon the well-established PCI Express® (PCIe®) infrastructure, leveraging the PCIe 5.0 physical and electrical interface to provide advanced protocol in three key areas:

1. I/O Protocol
2. Memory Protocol, initially allowing a host to share memory with an accelerator
3. Coherency Interface

CXL technology maintains memory coherency between the CPU memory space and memory on attached devices, which allows resource sharing for higher performance, reduced software stack complexity, and lower overall system cost. This permits users to simply focus on target workloads as opposed to the redundant memory management hardware in their accelerators. CXL was designed to be an industry open standard interface for high-speed communications, as accelerators are increasingly used to complement CPUs in support of emerging applications such as Artificial Intelligence and Machine Learning. The specification is available to companies that join the CXL Consortium.

### ***Join CXL Industry Leaders***

The founding promoter companies represent a wide-range of industry expertise and include leading Cloud Service Providers, Communications OEMs and System OEMs. The group is in the process of incorporation as an open standard body. Furthermore, efforts are now underway to create innovative usages that leverage CXL technology as well as develop CXL Specification 2.0 to further the standard's technical features and capabilities. For information on how to get involved, contact [admin@computeexpresslink.org](mailto:admin@computeexpresslink.org).

### **About Compute Express Link**

Compute Express Link (CXL) is a high-speed CPU interconnect technology that accelerates next generation data center performance. Alibaba, Cisco, Dell EMC, Facebook, Google, Hewlett Packard Enterprise, Huawei, Intel Corporation and Microsoft are forming an open industry standard group to develop technical specifications that facilitate breakthrough performance for emerging usage models while supporting an open ecosystem for data center accelerators and other high-speed enhancements. For more information on the CXL Consortium, please visit [www.computeexpresslink.org](http://www.computeexpresslink.org).

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## **CXL Promoter Statements of Support**

### **Alibaba**

"Alibaba is glad to support the global development and collaboration of the CXL ecosystem. As a technology innovator on cloud infrastructure and computing, we hope to drive the development of CXL together with other industry leading players, delivering more tangible benefits to our customers and the community at large."

*Qiang Liu, Senior Director, Alibaba Infrastructure Service, Alibaba Group*

### **Dell EMC**

"Dell EMC is delighted to be part of the CXL Consortium and its all-star cast of promoter companies. We are encouraged to see the true openness of CXL, and look forward to more industry players joining this effort. The synergy between CXL and Gen-Z is clear, and both will be important components in supporting Dell EMC's kinetic infrastructure and this data era."

*Robert Hormuth, Vice President & Fellow, Chief Technology Officer, Server & Infrastructure Systems, Dell EMC*

## **Facebook**

"Facebook is excited to join CXL as a founding member to enable and foster a standards-based open accelerator ecosystem for efficient and advanced next generation systems."  
*Vijay Rao, Director of Technology and Strategy, Facebook*

## **Google**

"Google supports the open Compute Express Link collaboration. Our customers will benefit from the rich ecosystem that CXL will enable for accelerators, memory, and storage technologies."  
*Rob Sprinkle, Technical Lead, Platforms Infrastructure, Google LLC*

## **HPE**

"At HPE we believe that being able to compose compute resources over open interfaces is critical if our industry is to keep pace with the demands of a data and AI-driven future. We applaud Intel for opening up the interface to the processor. CXL will help customers utilize accelerators more efficiently and dovetails well with the open Gen-Z memory-semantic interconnect standard to aid in building fully-composable, workload-optimized systems."  
*Mark Potter, HPE CTO and Director of Hewlett Packard Labs*

## **Huawei**

"Being a leading provider in the industry, Huawei will play an important role in the contribution of technology specification. Huawei's intelligent computing products which incorporates Huawei's chip, acceleration components and intelligent management together with innovative optimized system design, can deliver end-to-end solutions which significantly improves the rollout and system efficiency of data centers."  
*Zhang Xiaohua, GM of Huawei's Intelligent Computing BU*

## **Intel**

"CXL is an important milestone for data-centric computing, and will be a foundational standard for an open, dynamic accelerator ecosystem. Like USB and PCI Express, which Intel also co-founded, we can look forward to a new wave of industry innovation and customer value delivered through the CXL standard."  
*Jim Pappas, Director of Technology Initiatives, Intel Corporation*

## **Microsoft**

"Microsoft is joining the CXL consortium to drive the development of new industry bus standards to enable future generations of cloud servers. Microsoft strongly believes in industry collaboration to drive breakthrough innovation. We look forward to combining efforts of the consortium with our own accelerated hardware achievements to advance emerging workloads from deep learning to high performance computing for the benefit of our customers."  
*Dr. Leendert van Doorn, Distinguished Engineer, Azure, Microsoft*

## **Industry Statement of Support**

### **Gen-Z Consortium**

"As a Consortium founded to encourage an open ecosystem for the next-generation memory and compute architectures, Gen-Z welcomes Compute Express Link (CXL) to the industry and we look forward to opportunities for future collaboration between our organizations."  
*Kurtis Bowman, President, Gen-Z Consortium*