

# BREAKTHROUGH PERFORMANCE AND PRICE-PERFORMANCE WITH CORNELIS™ OMNI-PATH EXPRESS™

Cornelis Networks is a technology leader delivering purpose-built, scale-out fabrics accelerating high performance computing, high performance data analytics, and artificial intelligence workloads.

The company's solutions have long enabled customers to efficiently address their most challenging problems, and the company's next offering is no exception.

Modern applications are continuously evolving to take maximum advantage of the ever-increasing processing power being made available to them, and this in turn is putting extreme pressure on the fabric interconnecting them. Cost-effectively optimizing key network performance aspects, including latency, message rate, CPU utilization, and collectives execution, requires the appropriate partitioning of functionality among the various software, firmware, and hardware elements. While a suboptimal functionality balance can sometimes yield impressive results on artificial benchmarks, such implementations can be less than useless when it comes to what really matters – real-world application performance.

To identify the right balance, the OpenFabrics Alliance, after years of painstaking research into the needs of modern applications, launched the OpenFabrics Interfaces (OFI) initiative with the goal of delivering a framework that effectively exports fabric communications services to applications through its collection of interfaces, libraries, and services. Libfabric, designed with performance and scalability requirements in mind, is the OFI library component that defines and exports the user-space API. The success of the OFI initiative is evident in the porting of an extensive set of additional technologies, including artificial intelligence frameworks, object storage systems, and an array of processors and accelerators, as well as the adoption by a key set of industry players.

Cornelis Omni-Path Express, the successor to the company's current product line, delivers highly optimized support for the OFI framework, leading to multiple dramatic end-user benefits. The most notable of these benefits include the lowest best-case and tail latency and highest message rate and collectives performance, all at the industry's lowest CPU utilization. This key addition to the company's offerings brings with it support for multiple major industry-driven initiatives, including PGAS programming models, artificial intelligence frameworks, and object storage systems. Since new industry initiatives are expected to continue to first target OFI, the company is well positioned to rapidly deliver new features to our customers.

Cornelis Omni-Path Express, available later this year, cost-effectively delivers the industry's best network performance at the lowest processor utilization through the optimized partitioning of network functions. Enabled by a hardware infrastructure well-matched to the needs of OFI, this new solution provides end users a wide spectrum of optimized features, including multiple MPI implementations, PGAS-enabling protocols and run-times, artificial intelligence frameworks, and object storage systems, all validated against cutting edge processor and accelerator technologies. Application environments sensitive to any facets of interconnect performance will benefit, and the company's aggressive interconnect pricing structure multiplies the performance-per-dollar impact of Cornelis Omni-Path Express.

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<https://www.hpcwire.com/2021/06/07/breakthrough-performance-and-price-performance-with-cornelis-omni-path-express/>

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