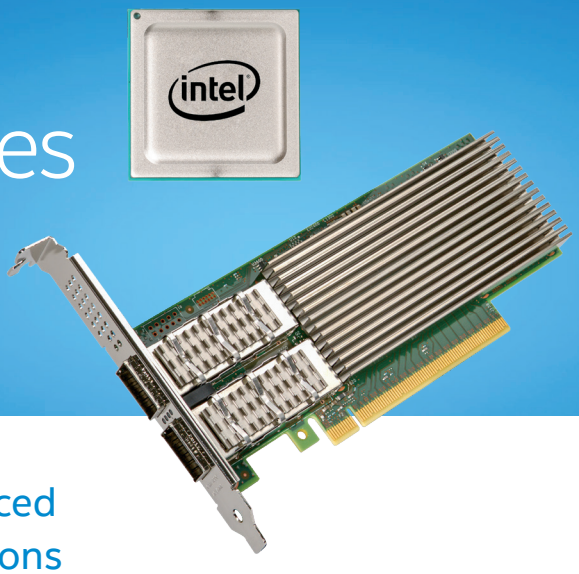
PRODUCT PREVIEW

Move Data Faster with Intel® Ethernet 800 Series



Next-generation Intel® Ethernet Series for advanced Cloud, Communications and Enterprise applications

Key Features

- Supports 100/50/25/10/1GbE
- Application Device Queues (ADQ) increase application predictability, reduce application latency and improve throughput
- Dynamic Device Personalization (DDP) enables programmable pipeline to improve efficiency, performance and enable new services
- Support for iWARP* and RoCEv2* RDMA for fast processing of latency sensitive workloads

Available Q3' 2019

Product Preview

The growth of artificial intelligence (AI), data analytics, and Network Function Virtualization (NFV) are driving the need to move more, store more and process more data. IDC is estimating 175ZB of new data being created in the year 2025, sustaining a 25 percent compound annual growth rate from 2018[1].

New and enhanced technologies in the Intel® Ethernet 800 Series address a variety of workloads used in Cloud, Communications, and Enterprise market segments, to deliver:

- Increased application response time predictability
- Improved throughput and reduced latency
- Programmable pipeline for improved packet efficiency
- Flexibility to deploy either RoCEv2 or iWARP RDMA protocols

The Intel® Ethernet 800 Series builds on more than 35 years of continuous Intel® Ethernet innovation to deliver significant capabilities that move data faster.

Intel® Ethernet 800 Series key technologies:

Deliver greater consistency in meeting service level agreements (SLAs) with Application Device Queues (ADQ)

As modern data centers scale, a key challenge is to provide scalable, predictable application-level performance. ADQ technology improves performance scalability and predictability for key workloads by dedicating specific queues to key workloads. ADQ enables application-specific data steering, signaling, and rate limiting using an optimized application thread to device data path.

ADQ delivers a greater than 50 percent increase in application response time predictability, over 45 percent lower latency, and more than 30 percent improved throughput for open source Redis* using ADQ vs without ADQ[2].

Improve packet processing efficiency with enhanced Dynamic Device Personalization (DDP)

The introduction of the fully programmable pipeline on the Intel Ethernet 800 Series, enhances DDP functionality by improving the number of protocols that can be added in a DDP profile package. By contrast, DDP support on the 700 Series was introduced with a few protocols that could be added to the default set defined in the firmware. The 800 Series firmware loads an enhanced DDP profile with many workload-specific protocols at driver initialization for greater flexibility. When multiple 800 Series adapters are present in a system, the pipeline on each adapter can be programmed independently with different DDP profile packages without reloading NVM firmware image.

The Default DDP profile provides baseline support for well-known protocols and queuing configurations, including tunneling protocol support as defined by IETF NVO3 specifications such as VXLAN, GENEVE, VXLAN-GRE and NVGRE.

Built as a superset of the Default DDP profile, the enhanced DDP profiles will provide segment specific protocols and configuration options. These profiles can be loaded on specific devices in a system to provide additional capabilities when and where they are needed. These packages will be developed over the life of the product enabling new protocols as they are defined.

The enhancement of the DDP capabilities for the Intel Ethernet 800 Series further improves the abilities for workload optimizations especially in the NFV and network edge segments.

Fast processing of latency-sensitive workloads with support for both iWARP and RoCEv2 RDMA

RDMA (Remote Direct Memory Access) is a host-offload, host-bypass technology that enables direct memory-to-memory data communication between applications over a network. RDMA provides high-throughput and low-latency performance for modern high-speed Ethernet by eliminating three major sources of networking overhead: TCP/IP stack process, memory copies, and application context switches. Support for RDMA speeds processing of latency sensitive workloads, such as hyper-converged storage, to provide fast data access.

The Intel® Ethernet 800 Series supports both RoCEv2 and iWARP and provides the flexibility to deploy either protocol based on the workload requirements or customer needs.

1. IDC Whitepaper - https://www.seagate.com/files/www-content/our-story/trends/files/idc-seagate-dataage-whitepaper.pdf
2. Performance results are based on Intel internal testing as of February 2019, and may not reflect all publicly available security updates. See configuration disclosure for details. No product or component can be absolutely secure. Tests performed using Redis Open Source on 2nd Generation Intel® Xeon® Scalable processors and Intel® Ethernet 800 Series 100GbE on Linux* 4.19.18 kernel. For complete configuration information see the Performance Testing Application Device Queues (ADQ) with Redis Solution Brief (http://www.intel.com/content/www/us/en/architecture-and-technology/ethernet/application-device-queues-with-redis-brief.html).

Printed in USA 0319/ED/123E Please Recycle ♻