

NVMe/TCP Storage Server

LightOS® and LightField™ on Dell PowerEdge

Applications are increasingly data-driven, processing higher volumes of data at low latency. To meet the challenge of providing enhanced services, cloud providers must continually innovate. Lightbits Labs delivers the flexibility, simplicity, and efficiency of hyperscale storage to private clouds by disaggregating storage and compute over standard networks.

Lightbits pioneered NVMe/TCP to make cloud-native storage easy to deploy at scale, while delivering performance that is indistinguishable from direct-attached SSDs. This solution enables database applications (e.g., MySQL, MongoDB, Cassandra) as well as analytic workloads to provide the best experience to the customers consuming the data, without having to make any changes to the network infrastructure or application servers. Lightbits' solution is tightly integrated with OpenStack and Kubernetes management and orchestration systems.

LightOS Software-Defined Storage unlocks the potential of a disaggregated high-performance NVMe solution to maximize resource utilization and flexibility. LightOS provides rich storage services such as data reduction, thin provisioning for best utilization of SSD capacity, and replication and erasure coding protection from SSD and server failures to ensure service and data availability. Using the LightField hardware accelerator, LightOS can improve network processing, IOPS, and reduce latency.



LightField is a PCIe storage acceleration add-in-card (AIC) that enhances the performance, efficiency, and utilization of storage resources. LightField integrates seamlessly with LightOS and provides a highly efficient hardware-based inline data-path design that improves system throughput, SSD utilization, and endurance.

Lightbits has worked closely with Dell Technologies OEM | Embedded & Edge Solutions and Dell EMC Extreme Scale Infrastructure (ESI) teams to validate and integrate the LightField acceleration card technology with the OEM PowerEdge R740xd XL Server.

The complete integrated solution can be purchased directly from Lightbits Labs. It is also qualified and available for large scale data center customers through Dell Technologies with targeted availability.

Dell PowerEdge System Configuration

Platform	Chassis up to 24 x 2.5" HDD/SSD including 24 NVMe Drives (max), 2 Lightbits Extenders, 2CPU - DSS RESTRICTED Dell SKU: 321-BFFC
CPU	Intel Xeon 5120 @2.2GHz or 6154 @3.0GHz
SSD Storage	Up to 192TB with 8TB NVMe SSDs
Connectivity	Dual Mellanox ConnectX-5 EN Single-Port 100GbE
Protocol	NVMe™/TCP

Key Features

Ethernet-Based Target-Only Solution

- Ethernet-based NVMe/TCP front-end interface
- Compatible with standard TCP/IP networks and standard clients

Fault-Tolerant

- LightOS clustering support provides highly available NVMe storage service
- Elastic Erasure Coding (EC) isolates SSD failures and ensures continued services
- When there is any failure, data is protected and service is uninterrupted

Scalable Capacity

- Capacity scales up with SSD density
- Support for up to 24 SSDs in 2U (192 TB raw capacity with 8TB SSDs)

High Performance

- Optimized for low latency and high IOPS, with end-to-end NVMe
- 200 Gbps bandwidth SSD storage
- Up to 5M IOPS (4K random)

Wire-Speed Storage Level Services

- Designed for multi-tenancy workloads deployment
- Thin provisioning for best utilization of the storage resources
- Data compression and decompression
- Encryption and decryption

Cloud Management Optimized

- CLI support for operations using script automation and monitoring
- RESTful API provides a standard HTTPS-based interface for data center management system

Simple and Flexible

- Ethernet-based connectivity
- Flexibility enabled by simply connecting an Ethernet cable

About Lightbits Labs™

Lightbits Labs, founded in 2016, is reinventing modern cloud infrastructure on a global scale. The company's mission is to reinvent the way storage and networking are conducted in cloud data centers. As trailblazers in this field, its solutions are successfully being used in industry-leading cloud data centers around the world. With strategic investors including Dell Technologies Capital, Cisco Investments, and Micron, Lightbits Labs is disaggregating storage and compute to improve clients' infrastructure flexibility and efficiency at scale.

 www.lightbitslabs.com

 info@lightbitslabs.com

US Office

1830 The Alameda,
San Jose, CA 95126, USA

Israel Offices

17 Atir Yeda Street,
Kfar Saba, Israel 4464313

3 Habankim Street,
Haifa, Israel 3326115

The information in this document and any document referenced herein is provided for informational purposes only, is provided as is and with all faults and cannot be understood as substituting for customized service and information that might be developed by Lightbits Labs Ltd for a particular user based upon that user's particular environment. Reliance upon this document and any document referenced herein is at the user's own risk.

The software is provided "As is", without warranty of any kind, express or implied, including but not limited to the warranties of merchantability, fitness for a particular purpose and non-infringement. In no event shall the contributors or copyright holders be liable for any claim, damages or other liability, whether in an action of contract, tort or otherwise, arising from, out of or in connection with the software or the use or other dealings with the software. Unauthorized copying or distributing of included software files, via any medium is strictly prohibited.

COPYRIGHT (C) 2019 LIGHTBITS LABS LTD. - ALL RIGHTS RESERVED