

# Lightbits Software-Defined Storage on Supermicro SuperServers

Lightbits' software-defined (SDS), disaggregated and high-performance storage can be deployed on Supermicro SuperServers over standard ethernet networks using TCP/IP protocol, requiring zero modification to applications.

While software-defined storage is desirable for its ability to lower cost by utilizing standard servers and components, a "do it yourself" approach is not for everyone.

For the ultimate in scalability, performance and convenience, this ready-to-deploy solution delivers composable NVMe® over TCP-based block storage with built-in Intelligent Flash Management that increases flash endurance by 20X. It's an ideal platform for applications running on-premises, in private and edge clouds in containerized or virtual environments.

## DEPLOYING WITH CONFIDENCE

Lightbits offers rich data services such as flexible cluster size and configuration, high availability and data protection, management and monitoring, data services including thin provisioning, QoS, encryption, compression and others.

A Lightbits cluster consisting of four 1U SuperServers SSG-121E-NE316R with 3-replicas redundancy enabled can serve up to 17.8 Million IOPS of 4K random reads and up to 3.9 Million IOPS of random writes, up to 135.5GB/s of read bandwidth and up to 33GB/s of write bandwidth.

## LIGHTBITS ON A SUPERMICRO SUPERSERVER

### Unmodified Software on Clients

- Standard NVMeoF w/multipathing (ANA)
- Clients can connect to multiple clusters

### Clustered/Failover Storage Solution

- Distributed cluster management with fast failover and no single point of failure
- Cluster size: 3-16 servers
- 64K Volumes per cluster

### Lightbits Cluster Performance

- up to 72 Million 4K Random Read IOPS
- up to 24 Million 4K Random Write IOPS
- up to 541 GB/s Read Bandwidth
- up to 198 GB/s Write Bandwidth

### Lightbits Cluster Capacity (15.36TB drives)

- 4.68PB Effective Capacity (2x replication, Elastic RAID, 2:1 compression)

### Lightbits Cluster Latency with 2x Replication

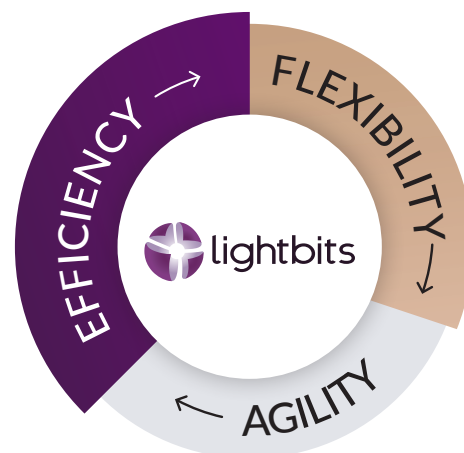
- 160µs average latency 4K Random Read @1.27M IOPS per server
- 493µs average latency 4K Random Write @433K IOPS per server

### Storage Services

- QoS
- Thin provisioning
- Compression
- Elastic RAID for drive failure protection
- Volume replication (1x, 2x or 3x) per volume

### Node Management

- Replication and failover handling
- Failure handling using NVMe/TCP multipath
- Non-disruptive cluster upgrades (for 2x and 3x replicated volumes)



Lightbits SDS platform with Intelligent Flash Management enables efficiency, simplicity and agility for the modern datacenter.



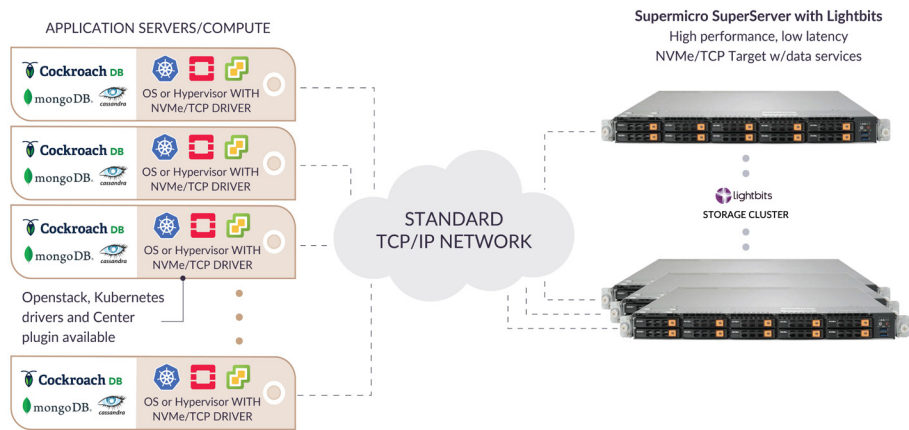
### Application Environment Support

- Kubernetes via CSI
- Openstack via Cinder
- VMware support
- Bare Metal

### Management

- RESTful API
- CLI support for scripts and monitoring
- Prometheus Metrics and Alerts
- Pre-configured Grafana dashboards

SUPERSERVER LIGHTBITS CLUSTER TOPOLOGY



Cloud Native Applications deployment utilizing a Superserver SuperServer with Lightbits NVMe/TCP storage targets

SUPERMICRO AND LIGHTBITS BENEFITS

Composable:  
Simple Scaling and  
Deployments

Fast Application  
Deployment and  
Load Balancing

Improved  
Utilization  
and TCO

SUPERMICRO AND LIGHTBITS APPLICATIONS

Visual Effects  
and Video  
Processing

Latency and  
Performance Sensitive  
Databases

Latency Sensitive  
High Transaction  
Workloads

Cloud  
Services IaaS,  
PaaS, SaaS



	BASIC DENSITY	BASIC CAPACITY	PERFORMANCE & CAPACITY	DENSITY	DENSITY & CAPACITY
Server SKU	SYS-221BT-HNR	SSG-121E-NE316R		SYS-221BT-DNTR	
Form Factor	2U 4Node	1U 1Node		2U 2Node	
Raw Capacity Per node/per chassis	92/368 TB	122 ~ 245 TB	492 TB	184/368 TB	245/490 TB
CPU Per node/per chassis	Intel SPR 6438Y 2/8	Intel SPR 6438Y 2	Intel SPR 6438Y 2	Intel SPR 6438Y 2/4	Intel SPR 6438Y 2/4
Memory Per node/per chassis	32GB DDR5 16/64	32GB DDR5 16	32GB DDR5 16~32	32GB DDR5 16/32	64GB DDR5 16/32
NVMe Drives Per node/per chassis	15.36TB 6/24	15.36TB 8~16	30.72TB 16	15.36TB 12/24	30.72TB 12/24
Networking Per node/per chassis	2p 200GbE 1/4	2p 200GbE 1	2p 200GbE 2	2p 200GbE 1/2	2p 200GbE 1/2
Performance Per node	4K R: 2614K IOPs 4K W: 1710K IOPs 128K R: 20 GB/s 128K W: 15 GB/s	4K R: 2679K IOPs 4K W: 1649K IOPs 128K R: 20 GB/s 128K W: 14 GB/s	4K R: 4461K IOPs 4K W: 2935K IOPs 128K R: 34 GB/s 128K W: 25 GB/s	4K R: 2614K IOPs 4K W: 1710K IOPs 128K R: 20 GB/s 128K W: 15 GB/s	4K R: 2614K IOPs 4K W: 1710K IOPs 128K R: 20 GB/s 128K W: 15 GB/s

\* A Lightbits cluster requires a minimum of 3 nodes.

To learn more, please visit our website, [www.lightbitslabs.com](http://www.lightbitslabs.com) To contact our team, email us at [info@lightbitslabs.com](mailto:info@lightbitslabs.com)