

Product Brief

NoLoad[®] SmartSSD[®]

Overview

The NoLoad SmartSSD Computational Storage Drive (CSD) integrates NoLoad Computational Storage technology with the Samsung SmartSSD in a 2.5-inch (U.2) form factor. This solution provides persistent data storage and computational services.



The NoLoad SmartSSD Transparent Compression solution requires no application changes, ties directly into any File System and achieves line-rate compression while using 70% less CPU.

Eideticom's NoLoad[®] SmartSSD supports a range of Computational Accelerators for both Storage and Compute applications, namely:

- **Storage Accelerators:** Compression, Encryption, Erasure Coding, Deduplication
- **Compute Accelerators:** Data Analytics & Video Codecs

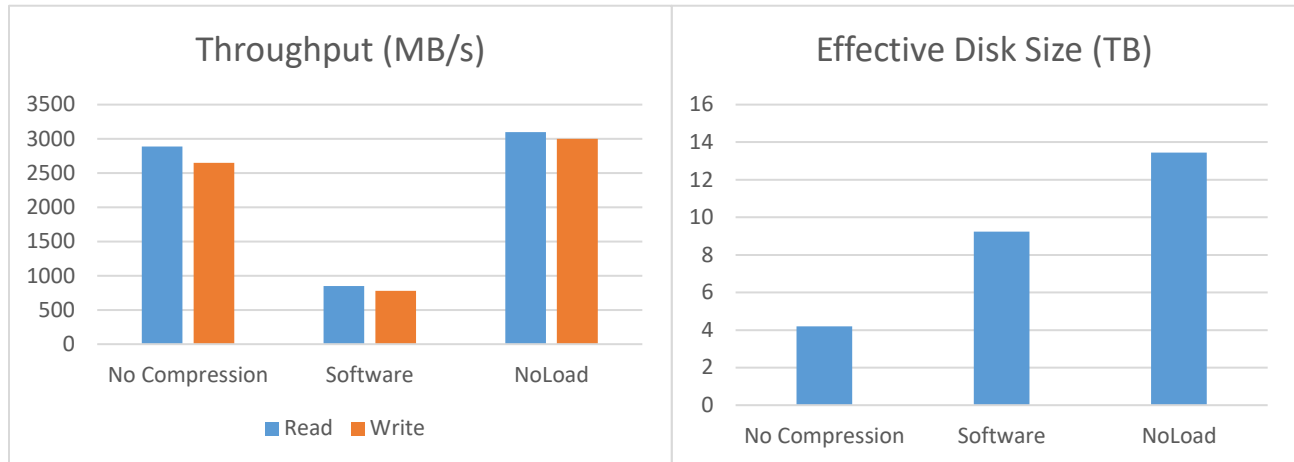
The NoLoad SmartSSD Transparent Compression solution leverages the NoLoad software framework that was developed to allow applications such as Databases (Hadoop, RocksDB, Cassandra and MySQL) to offload critical storage tasks. This offloading leads to improved performance, efficiency, and reduced costs for the storage system.

NoLoad's NVMe compliant interface provides seamless integration and has been validated on Intel, AMD, ARM and IBM Power CPUs.

Capabilities

- Single port, PCIe Gen3x4
- 2.5-inch (U.2) form-factor
- 4 TB Raw Storage Capacity, Up to 24 TB storage capacity with Compression
- Field programmable reconfigurable acceleration via Xilinx FPGA technology
- NVMe 1.3 Compliant (validated by UNH) including CMB support (all modes)
 - NVMe MI

End Solutions – Transparent Compression



Bottomline: The NoLoad SmartSSD provides significant Storage Capacity advantages (lower \$/TB) and CPU utilization, while also achieving better than Line-Rate Throughput¹

Cost-Benefit Analysis

- **Storage Capacity Costs:** NoLoad Compression reduces the effective \$/TB of the system by increasing the amount of data that can be stored on the NoLoad SmartSSD.
- **Storage Lifetime Costs:** NoLoad’s higher Compression Ratio (CR) extends the lifetime of the NoLoad SmartSSD, since for a given compression input throughput it reduces the Drive Writes Per Day (DWPD).
- **Throughput Performance Costs:** NoLoad compression is 3-6 more CPU efficient than software-based lz4-1 compression and over 100 times more CPU efficient than gzip-9 compression. This enables fewer servers to be deployed in the final system.
- **Power Consumption:** NoLoad compression is dramatically more CPU efficient than software-based compression (lz4-1 and gzip-9), allowing a given CPU to run cooler and consume less power since less cores are fully loaded (60% Lower Power per server).
- **NoLoad Transparent Compression:** Zero application changes and transparent to applications with no userspace modifications required. Ties directly into existing production filesystems with the ability to layer on more computation over time i.e. encryption, analytics, etc.

¹ Example above is for a Hadoop TeraGen dataset