



# HPE NonStop storage I/O adapter, Storage CLIM

## Boost storage capacity with high availability and efficiency

### **HPE Integrity NonStop systems**

deploy a storage subsystem based upon I/O controllers called Cluster I/O Modules (CLIMs) for access to disk and tape storage. The Storage CLIM is at the heart of the NonStop storage subsystem for HPE Integrity NonStop platforms. Standard Serial Attached SCSI (SAS) provides the technology and interconnect across the NonStop storage subsystem. The Storage CLIM also supports HPE XP storage arrays, and virtual and physical tape drives via Fibre Channel interconnect. In addition, Storage CLIM can connect to the HPE NonStop Virtualized BackBox over Internet Small Computer Systems Interface (iSCSI).

AC-powered versions of the Storage CLIM are available for the AC-powered HPE Integrity NonStop X and HPE Integrity NonStop i systems. Storage CLIM is also offered in DC-powered and Network Equipment-Building System (NEBS) level-3 Compatible models for the DC-powered HPE Integrity NonStop X and HPE Integrity NonStop i systems.

The NonStop storage subsystem consists of two or more Storage CLIMs, SAS and Fibre Channel Host Bus Adapters (HBAs), two or more SAS disk enclosures, SAS small form factor (SFF) hard disk drives, SAS SFF solid state drives (SSDs), and associated cables. Each SAS disk enclosure can support up to 25 SFF drives in a combination of HDDs and SSDs.<sup>1</sup>

The NonStop storage subsystem, which is based upon the Storage CLIM, is compatible with previous generations of NonStop storage solutions in that there is no change to applications. Applications do not need to change from previous versions. The NonStop Operating System software routes I/O calls, communicates across the system interconnect, and links to the storage devices that are connected to the Storage CLIM.

### **Key features and benefits**

- Provides storage capacity at a lower cost per gigabyte
  - Supports HPE SAS HDDs and SSDs
  - Provides a variety of storage options
  - Supports HPE XP storage arrays
  - Supports FC and SAS attached virtual and physical tape drives
- Delivers higher performance for your I/O
  - Supports InfiniBand or ServerNet III connection
- Delivers higher availability
  - With dual RAID 1 OS boot disks, the Storage CLIM continues to run if one fails; the failed disk can be replaced online.
- Keeps your business-critical applications running
  - Designed for fault tolerance

<sup>1</sup> Some limitations apply when installing SSDs; check with your local NonStop representative for details



- Protects your NonStop investments
  - Requires no change to applications
- Reduces your operations costs and improves operations control
  - Supported by improved Open System Management (OSM)

### **Coexistence and compatibility**

The Storage CLIM can coexist with or replace the existing I/O Adapter Module Enclosure (IOAME) storage capability for HPE Integrity NonStop i BladeSystem that use IOAME. The Storage CLIM does not support Fibre Channel Disk Module (FCDM) disk enclosures.

### **Encryption**

The Storage CLIM supports encryption of drives via the Volume Level Encryption (VLE) software option. All storage devices connected through the Storage CLIM can make use of VLE including HDDs, SSDs, and HPE XP storage arrays.

### **Configuration and packaging**

The number of Storage CLIMs that can be supported on different NonStop platforms depends on the particular system and sometimes how many other CLIMs are also on that system. It also could depend on the system fabric connectivity rules and configuration limitations. Consult with your local NonStop field representative for exact configuration guidelines for the NonStop platform that you are interested in.

### **Compatibility with RVUs**

The software to support the CLIMs is available starting with different Release Version Updates (RVUs) depending on the target NonStop platform on which the CLIM will be deployed. The software to support the Storage CLIM on different platforms is available on the relevant L-series and J-series RVU vehicles of the NonStop Operating System. Refer to the manual for your NonStop platform to determine which RVU supports the latest Storage CLIM.

### **Disk partitioning**

The Storage CLIM supports a feature known as disk partitioning. This is where a physical drive can be divided into multiple logical volumes (aka partitions). An SSD can be partitioned into eight partitions (an HDD into four partitions). Each drive partition also gets its own DP2 cache. So that in the case of an SSD, a physical drive can now have up to eight DP2 caches associated with it. Depending on your particular requirements, an SSD with disk partitioning could provide many benefits including performance and a smaller footprint to ensure fault tolerance; drives with partitioning should be mirrored the same as drives without partitioning.

### **Manageability**

OSM provides the management command and control similar to prior NonStop systems. With OSM, the NonStop software seamlessly interfaces to the Storage CLIM subsystem enabling you to manage Storage CLIMs as you have managed disk adapters in prior systems.

In today's world, businesses rely upon dependable, secure storage, and real-time retrieval of information, especially for business-critical applications. That is why the fault-tolerant NonStop systems use standard SAS storage to improve response time and provide transactional integrity.



## Technical specifications

(applies to all versions of the Storage CLIM, except where stated)

Specifications	Description
Hardware	HPE ProLiant DL380 Gen10 with one Intel® Xeon® processor
Form factor	2U
Weight	33 lb (15 kg)
Maximum watts RMS	AC power: 190W/DC power: 270W
Power factor (maximum is 1.0)	0.98
Dimensions (h x w x d)	3.44 x 17.54 x 26.75 in.
Number of power plugs	2
Power supply plug type	AC power: IEC-320-C14/DC power: Lug Terminal
NonStop system types supported	HPE Integrity NonStop X and HPE Integrity NonStop i systems
Release vehicle	<ul style="list-style-type: none"> <li>L18.08 for HPE Integrity NonStop X NS7 systems. Storage CLIMs are supported on prior RVUs L17.02 or later with SPRs and the appropriate CLIM installation software.</li> <li>L18.08 for HPE Integrity NonStop X NS3 systems. Storage CLIMs are supported on prior RVU L17.02 with SPRs and the appropriate CLIM installation software.</li> <li>J06.22 for HPE Integrity NonStop i systems: Storage CLIMs are supported on prior RVUs J06.20 or later with SPRs.</li> </ul>

### Data sanitization

The Storage CLIM supports data sanitization for the OS booth and enclosed SAS drives. Data sanitization is the process of overwriting data on a disk drive in such a way that it is beyond the reach of ordinary and most laboratory methods. HPE NonStop Data Sanitization meets the Department of Defense standard for data sanitization as described in DoD 522.22-M and provides many other options for sanitizing a disk. This feature is provided without additional charge as part of the OSM product.

### Customer technical training

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HPE Pointnext leverages our strength in infrastructure, partner ecosystems, and the end-to-end lifecycle experience, to accelerate powerful, scalable IT solutions to provide you the assistance for faster time to value. HPE Pointnext provides a comprehensive portfolio including Advisory and Transformational, Professional, and Operational Services to help accelerate your digital transformation.

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**HPE Datacenter Care:** This is our most comprehensive support solution tailored to meet your specific data center support requirements. It offers a wide choice of proactive and reactive service levels to cover requirements ranging from the most basic to the most business-critical environments.

**HPE Datacenter Care Service** is designed to scale to any size and type of data center environment while providing a single point of contact for all your support needs for Hewlett Packard Enterprise as well as selected multivendor products.

**HPE Critical Service:** This high-performance reactive and proactive support is designed to help minimize downtime. It offers an assigned support team, which includes an account support manager (ASM). This service offers access to the HPE Global NonStop Solution Center, 24x7 hardware and software support, 6-hour call-to-repair commitment, enhanced parts inventory, and accelerated escalation management.

**HPE Proactive 24:** It provides proactive and reactive support delivered under the direction of an ASM. It offers 24x7 hardware support with 4-hour on-site response, 24x7 software support with a 2-hour response, and flexible call submittal.

**HPE Foundation Care:** This provides support for HPE servers, storage, networking hardware, and software to meet your availability requirements with a variety of coverage levels and response times.

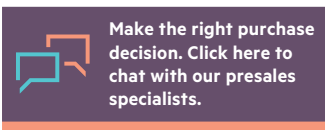
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