

Acceleron Unified Storage® C-Series



Acceleron Unified Storage (AUS) is a unified storage arrays are designed with enterprise features and reliability at an entry-level cost. This Software Defined Storage solution well suited for wide range of applications. It is suitable for Enterprises looking for flexible storage options. Available in two models, the Acceleron AUS C100 provide unified file and block storage and are available in single hybrid or all-flash configurations. The Acceleron AUS C-Series offers excellent reliability and affordability for small and medium IT environments. **AUS C100-IB** model support Infini-band interface and block protocols over IB

The Acceleron AUS C-Series fits a wide range of applications from file and media storage to business continuity, video surveillance, and many others. The Acceleron AUS C-Series provides data integrity, reliability, and ease-of management for business. The Acceleron AUS C-Series is a dedicated & optimized solution for both file and block support as an appliance using ZFS file system. The Acceleron AUS C-Series appliance has built-in and fully integrated controllers, storage arrays, OS, NAS & SAN

UNLIMITED SNAPSHOTS AND REPLICATION

Most storage appliances require additional licenses for advanced features – but not Acceleron AUS. Unlimited file version retention, restoration, and replication are some of these features. Data is automatically protected locally against unintentional alteration, such as ransomware or malware, with minimal storage consumption. Data can be replicated locally, remotely, or to the cloud for backups or disaster recovery. It supports configurable snapshots for block level and file level data with both create & restore functionality.

FLASH ASSISTED PERFORMANCE

Acceleron AUS gives Solid-state performance by caching read and write. Acceleron AUS leverages ZFS to merge multi-layer DRAM and flash cache with high-density spinning disks: system RAM and SSDs are used to cache reads and writes while HDDs store the data.

STORAGE OPTIMIZATION

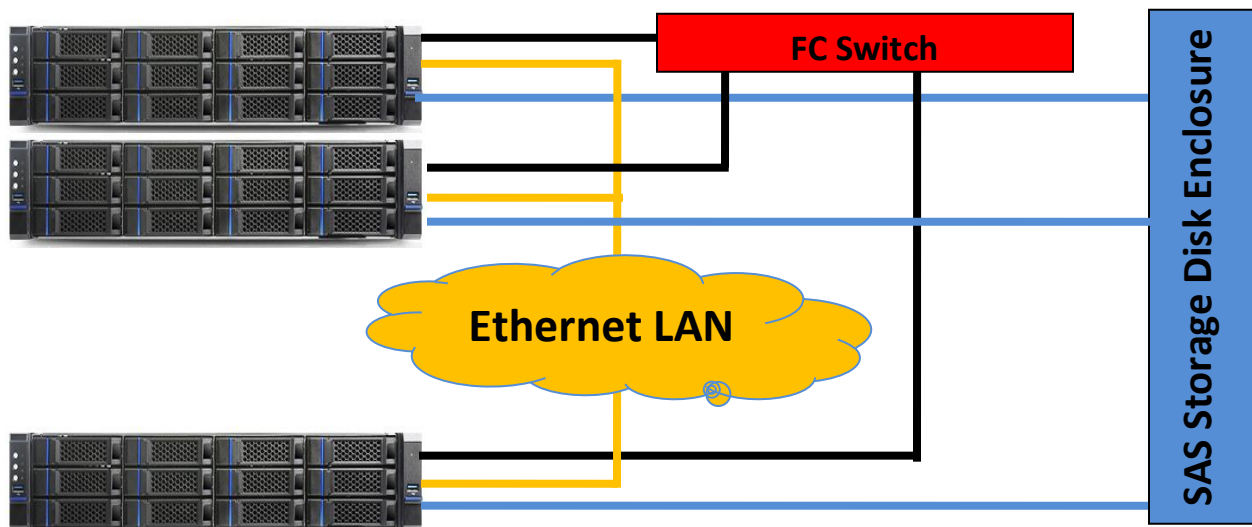
Acceleron AUS C-series is a dedicated appliance specially optimized OS for NAS and SAN. Acceleron AUS maximizes storage efficiency and performance by offering compression, deduplication, and thin provisioning at no extra cost. Before data is stored, Acceleron AUS dynamically detects and compresses what it can and skips over any data too inefficient to be worthwhile.

Acceleron AUS Data Protection

Acceleron AUS C-Series has automatic and scheduled multi-layer data integrity checks ensure data consistency, while unlimited snapshots and clones make it is easy to implement a disaster protection strategy and to instantly roll back to a previous point-in-time. At the same time, a scheduled self-healing mechanism fixes malfunctions and automatically restores full data redundancy in the system. Even when a disk fails, the software-based spare function offers one disk to several RAID arrays, saving you money on extra hardware without compromising data safety

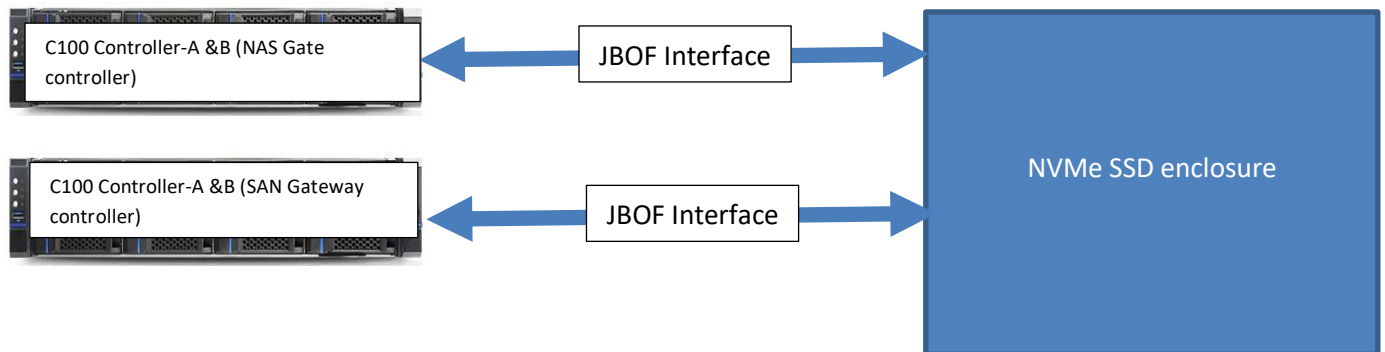
Optimized for Data Centre

The Acceleron AUS C-Series is optimized for the modern data center, ready for compute-intensive applications that involve big data, BlockChain, AI, intensive virtualization workloads and higher-density server configurations. It helps customers a web based management of storage infrastructures and maintaining continuous operations during updates or refreshes. It supports various configurable options such as Intel Scalable CPU power, Fibre Channel connections, networks running, 10, 25, 40, 50 or 100 Gb Ethernet while developing solutions specialized for datacenter.



Acceleron AUS Scalability

Acceleron AUS C-Series will let you experience unlimited flexibility and minimize downtime. Acceleron AUS C-Series uses a 128-bit file system that includes unlimited snapshots for easy backup, unlimited clones for easy duplication, unlimited capacity with volume sizes up to one Zetabyte, as well as unlimited amount of disks which can be increased on the fly without effort by using thin provisioning and file systems can have the capability to grow online. There are no limitations and you may easily control the total cost of ownership and expand your storage infrastructure as data grow. AUS C-Series supports more than 1000 active concurrent file sessions. AUS C-Series can scale out using SAS interface and JBOF NVMe-oF interface. Additional disk enclosure can be connected using SAS interface incase of SAS/NL-SAS HDD, SAS SSD storage. Whereas JBOF will be used to expand storage with NVMe disks.



High Availability

Acceleron AUS C-Series has high available internal configuration with No Single Point of Failure(NSPoF) architecture and redundancy features at all levels, controllers, hot swap power supplies, PDUs, cache, links between subsystems etc. Acceleron AUS C-Series provides equivalent RAID protection mechanism for RAID levels 0/1/10, 4/5/6. Acceleron AUS C-Series support different RAID groups within one storage system. There are dual storage and file redundant controllers in active active mode with automatic fail over to each other in case of failure. There are separate NAS Gateway and SAN Gateway controllers available for enterprise storage looking for 99.9999% HA for SAN functions. The same controller pair should provide all the required functionality of NAS and AUS for AUS C-100 an enterprise class storage array that guarantees 99.999% high availability. AUS C100 supports iSCSI and FC protocols takeover without any appreciable delay, (less than a second). For block protocols like iSCSI and FC the failover will be less than a second. Whereas for NAS protocols like NFS, SMB, CIFS. Etc. the failover will be more than 30 seconds and without any data loss.

Storage Array Capacity Expansion

Acceleron AUS C-Series has a two controllers and it is called its base units and the base unit, expansion disk enclosures and disks are interconnected with multiple SAS-2 backend links with failover. From both the controllers SAS cables links will be connected to external expansion disk enclosure and within disk enclosure enterprise class and dual-ported disks are connected. The base unit and disk expansion units are seamlessly connected in RAID configurations. RAID groups and LUNs are spanned across the enclosures. Acceleron AUS C-Series storage supports configuring volumes/ LUNs across all the disks. Acceleron AUS C-Series storage supports more than 500 dual-ported disk drives without any replacement or upgrade of controllers with 5 external disk enclosures.

Read and Write Cache Operations

Acceleron AUS C-Series has support caching data read and write operations, write cache has RAID 1 (mirror) protection. Both controllers should have the same cache configuration and for read cache, it is RAM is used whereas write cache is implemented with NVMe or SAS SSD disks. Acceleron AUS C-Series supports cache memory from 128GB to 1TB DDR4 RAM.

Disk Type Support

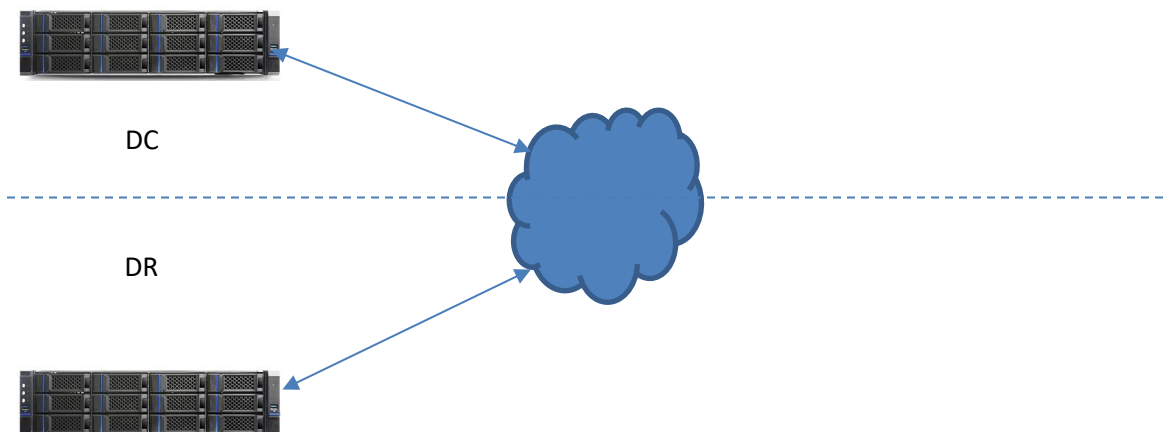
Acceleron AUS C-Series supports SSD, SAS & SATA/ NL-SAS disks and enclosures within same storage system. Acceleron AUS C-Series supports configurable hot spare support. User will be able to configure the homogeneous disks as hot spare for a storage disk cluster. Acceleron AUS C-Series support Global hot spare and it can be assigned to any disk cluster. There is a provision to define/ configure the required RAID levels, RAID groups, data & parity disks and global hot spare disks allocation.

Access Client Systems and Protocol Support

Acceleron AUS C-Series supports heterogeneous client operating systems on both block and file which include all popular flavors of Windows, Linux and virtualization hypervisors (VMware, Xen, Hyper-V, etc.). Acceleron AUS C-Series can be configured with NFS, CIFS, FC and iSCSI protocols. It provides multiple levels of access control including role-based security and auditing and also support Active Directory and LDAP integration. It also provides user/group/directory based file system quotas with access controls, It supports concurrent access using NFS/ SMB/ FTP on each file system.

Local and Remote Replication Support

Acceleron AUS C-Series supports The on- & off-site Data Protection feature allows users to back up and restore crucial company data in case of an unexpected disaster due to a combination of several technologies. This backup-focused feature enables creating consistent snapshots and asynchronous snapshot replication to local and/or remote destinations. The replication tasks can be set according to the specific user requirements thanks to advanced retention plans. On- and Off-site Data Protection is very flexible, as it covers a wide range of disaster recovery plans without the need to use additional third party tools.



Auto-Tiering Support

Acceleron AUS C-Series supports cache tiering feature which implements auto-tiering feature, during setup user can specify different Tiering options to setup a volume based on the type of storage available in the storage box. It helps the administrator to setup a dynamic and automatic placement/ movement of data across the right disk storage tiers based on defined policies configured during initial configuration.

Storage Management

Acceleron AUS C-Series has management software (Web GUI, CLI) for configuring, managing & administering block & file storage and associated functionalities including deployment, automation,

LAN Management

Acceleron AUS C-Series give dedicated management Ethernet port for management for the storage. It supports Ethernet Trunking and link aggregation for both management and Datapath Ethernet interfaces.

ACCELERON AUS Software Specifications	
Storage Architecture	<ul style="list-style-type: none"> • HDD + Optional R/W Cache • SSD + NVMe R/W Cache
Storage Operating System	<ul style="list-style-type: none"> • Dedicated Storage System and Linux OS (debian) optimized for SAN and NAS.
Storage Technology	<ul style="list-style-type: none"> • SATA • SAS • NL-SAS • SSD • NVMe
Read Cache Technology	<ul style="list-style-type: none"> • SAS SSD, NV-DIMM
Enterprise File System	<ul style="list-style-type: none"> • OpenZFS – File System or XFS or ext3 (Supported for AUS C100-IB model only) • Block File System
Data Management	<ul style="list-style-type: none"> • Snapshots • Replication • Rollback • Clones • Encryption • Mirroring • Wide Stripping • RAIDZ1/Z2/Z3 or RAID levels: 0, 1, 5, 6, 7.3, 10, N+M, 50, 60, and 70 (Supported for AUS C100-IB model only)
Data Reduction	<ul style="list-style-type: none"> • Thin Provisioning • Compression • Clones • De-duplication
Access Protocol	<ul style="list-style-type: none"> • SMB • CIFS • NFS • iSCSI Target • FC Initiator and Target • NVMe-oF • FTP • Secure FTP • HTTP • NFS over RDMA (Supported for AUS C100-IB model only) • SRP Target (Supported for AUS C100-IB model only)

Application Integration	<ul style="list-style-type: none"> • Application Plugins
Software Compatibility	<ul style="list-style-type: none"> • Clients: Microsoft Windows, Linux, RHEL, UNIX, Mac OS 8.0-10.5.8, X
Administration	<ul style="list-style-type: none"> • Unlimited number of users, groups, NICs or HDDs • English, German and Japanese language • Tuning Tools for advanced administrators • Remote Access Console • Automated update and rollback to previous OS version • Task and Schedule Manager • Command Line Interface (CLI) and WebGUI • Save and restore • settings Connection status and session management
Network management	<ul style="list-style-type: none"> • DHCP Client • Teaming / Bonding (including Adapter Fault Tolerance) • Proxy Settings • Jumbo Frames • Static Routing Manager • IPv6 Support
Storage management	<ul style="list-style-type: none"> • Software and Hardware iSCSI Initiator • Software RAID 0, 1, 4, 5, 6, 10 • Fibre Channel HBA support (initiator and target mode) • Multiple snapshots (multiple active snapshots - one LV at a time) • Logical Volumes and Groups • Online Logical Volume Expansion • Online RAID Capacity Expansion • Support for Automatic Session Reassignment (ASR) for FC and iSCSI protocols
Storage management/replications	<ul style="list-style-type: none"> • Synchronous Volume Replication over LAN • Asynchronous Data (file) Replication over LAN and WAN • Dynamically managed re-sync bandwidth of Volume Replication
Monitoring	<ul style="list-style-type: none"> • Hardware monitoring • S.M.A.R.T - monitoring system for hard disc drive failures • SnMP v2, v3 • Performance for IOPS, throughput, latency • Able to monitor controllers, disk pools, NFS shares, drives.
Specific NAS functionality	<ul style="list-style-type: none"> • Active-Active NFS Failover (separate Feature Pack) • Windows Active Directory / Primary Domain Controller • Support for Network Information Service (NIS) Internal and external LDAP User and Group Quota Control Antivirus
Data integrity and availability	<ul style="list-style-type: none"> • ZFS 256-bit block level checksums • Mirror (eq. RAID 10), RAID-Z1, -Z2, (eq. RAID 5, 6), -Z3 • On- and Off-site Data Protection

	<ul style="list-style-type: none"> • Active-Active or Active-Passive dual node HA Cluster for iSCSI, FC and NFS, SMB (CIFS) , vVols • Self-healing against silent data corruption • Disk Multipathing • Hot Spare Disk configuration • Anti-ransomware solution is based on consistent snapshots, taken and stored according to the customizable retention plans. Snapshots are read-only, so they cannot be encrypted if a ransomware attack occurs. • WORM support for selected directory
Data optimization	<ul style="list-style-type: none"> • RAM, SSD and HDD hybrid pool • Tiered Caching • Unlimited Snapshots • Unlimited Clones (writable Snapshots) • Thin Provisioning • Over Provisioning • Inline Data Deduplication • Inline Compression
Management	<ul style="list-style-type: none"> • WebGUI, Console UI, CLI • SNMP and REST API • E-mail notification Roll-back to previous configuration • Remote Diagnostics from CLI
Examples of supported HA configurations	<ul style="list-style-type: none"> • Cluster in a Box (CiB) • Common Storage • Cluster over SAS Cluster over SAS with internal SAS expander • Cluster with multiple Disk Enclosures over SAS or FC • (Stretched) Metro Cluster over Ethernet And more...
Network based backup	<ul style="list-style-type: none"> • NDMP Protocol support
LUN support	<ul style="list-style-type: none"> • Support more than 10000 LUNS • Support online LUN expansion
Replication	<ul style="list-style-type: none"> • Sync & Async Replication for both block and file protocols • 3-DC Zero Data Loss support using replication architecture
Firmware Upgrade	<ul style="list-style-type: none"> • Non-disruptive online and offline firmware upgrade support for C100 controller and Disk controllers(HBA)
IOPS	<ul style="list-style-type: none"> • NLSAS Storage with 1.6TB SAS SSD based cache configuration, C100 achieves more than 70K IOPS@8K block size • NVMe Storage based C100 achieves Maximum 6GBps Aggregate band with multiple volumes • IOPS and throughput varies based on hardware configuration. Refer BOM for these parameters for certain configuration
Predictive analysis	<ul style="list-style-type: none"> • Smart based predictive analysis to detect the drive failure and subsequent data cloning support.
QOS	<ul style="list-style-type: none"> • QoS feature to limit the amount of IO (IOPS)

	<ul style="list-style-type: none"> It also bandwidth (MB/s) a particular application can drive on the array.
Encryption	<ul style="list-style-type: none"> SED based supported

ACCELERON AUS Hardware Specifications	
Form factor	<ul style="list-style-type: none"> 2U/4U, 19" rack mount Dimensions (WxDxH) – 438 x 658 x 174 (mm)
Processor subsystem	<ul style="list-style-type: none"> Single /Dual Controller (configured at purchase) One node failure tolerance 2 x Intel Xeon Processor upto 165W From 128GB to 1TB RAM Support Intel® Optane™ DC Persistent memory Intel® C621 chipset
Max Physical Storage	<ul style="list-style-type: none"> NLSAS HDD 384TB in 2U or 640TB in 4U NMVe SSD 154TB in 2U or 308TB in 4U SAS HDD 57.6TB in 2U or 114 TB in 4U SAS SSD 364TB in 2U or 640TB in 4U It can scale more than 4PB with additional disk enclosures
Read Cache Size	<ul style="list-style-type: none"> 480GB Intel® Optane™ NVMe
Front Control	<ul style="list-style-type: none"> Power button System reset button
Front I/O Ports	<ul style="list-style-type: none"> 2 x USB 3.0
Visual Indicators	<ul style="list-style-type: none"> Power UID LAN activity HDD status
Rear Panel	<ul style="list-style-type: none"> 10 x10Gbps Network interfaces (BaseT/SFP+) -Auto negotiating 1/10Gbps Ethernet Interfaces 2 x100Gbps Infiniband (Supported for AUS C100-IB model only) 4 x40Gbps /4 x100 Gbps Network interfaces 4 x 10Gbps iSCSI SFP+ ports 4 x 1Gbps Base-T for management ports 1 x IPMI interface (10/100/1000 Base-T) 1 x VGA 1 x DB-9 (serial port)
Fibre Channel	<ul style="list-style-type: none"> 16 x 16/32 Gbps FC ports. Auto negotiating 8/16Gbps FC interface

SAS Interface	<ul style="list-style-type: none"> External SAS Interface for Additional Disk Enclosure
JBOF (NVMe-oF)	<ul style="list-style-type: none"> External JBOF interface for additional Disk Enclosure connection
Hardware Encryption	<ul style="list-style-type: none"> Supports Disk drive based encryption such as FP140-2 certified disks, SEDs etc
Drive bays	<ul style="list-style-type: none"> 2U 24 x 3.5" SAS/SATA or 24 x 2.5" SATA/SAS disks (configured at purchase) Expanded using with external Disk enclosures, expand upto 500 x 3.5" SAS/SATA or 500 x 2.5" SAS/SATA disks disks (configured at purchase) In all Flash or Hybrid storage combination, 24 x NMVE U.2 drives will be populated in 2U Enclosure (configured at purchase)
Power	<ul style="list-style-type: none"> 2 (1+1) CRPS (80+ Platinum), 200-240V, 50Hz AC Supply
Cooling	<ul style="list-style-type: none"> 80 x 25/38mm internal fans
Temperature	<ul style="list-style-type: none"> Operating: 10°C to 35°C (50°F to 95°F) Non-operating: -40°C to 70°C (-40°F to 158°F)
Weight	<ul style="list-style-type: none"> 15Kg
Operating System	<ul style="list-style-type: none"> Linux
Warranty	<ul style="list-style-type: none"> 1/2/3/5 years options are available



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