Hewlett Packard Enterprise

Data sheet

HPE MSA 2040 Storage

The latest MSA array features two high-performance controllers with support for the industry's latest Fibre Channel, iSCSI, and SAS host interfaces. The MSA 2040 delivers mid-market features to entry SAN customers wanting to utilize the latest spinning or solid state drive technologies. Simple to deploy and simple to manage.

Changing storage requirements have raised the bar for entry shared storage arrays. The MSA 2040 uniquely addresses HPE ProLiant and BladeSystem server customers' shared storage and data protection needs, reducing total cost of ownership while dramatically increasing performance and availability utilizing technologies such as SSDs, Self-Encrypted Drives (SEDs), and a host on advanced data services previously only available on mid-range and enterprise disk arrays.

The HPE MSA 2040 Storage arrays are positioned to provide an excellent value for customers needing increased performance to support initiatives such as consolidation and virtualization. The MSA 2040 delivers this performance by leveraging a new, fourth generation, controller architecture with more processing resources, 4GB data cache and 2GB system memory per controller and four host ports per controller standard. The controller architecture delivers incredible performance and allows users to extract full benefits from the latest storage technologies such as SSDs.

Product key benefits

Simple: Flexible architecture. Easy to setup. Easy to manage

- Choice of 8 Gb/16 Gb FC, 1GbE/10GbE iSCSI, and 6 Gb/12 Gb SAS to match the configuration needs of your SAN infrastructure.
- Deploy single or dual controllers depending on high-availability and budgetary requirements.
- Select large or small form factor disk enclosures with choice of high-performance SSDs, SEDs, Enterprise-class SAS or SAS Midline drives based on application, performance, and budgetary requirements. Drive types may be mixed in any enclosure.
- Integrated setup and management tools for MSA are easy to manage for ProLiant/ BladeSystem IT managers.

Fast: The MSA 2040 set new standards for $/IOPS in entry SAN, up to 4X today's competition

- High-performance controller architecture delivering up to 4X the performance of today's other entry-level SAN arrays.
- MSA 2040 4-port controller architecture with 4 GB cache supporting the latest FC, iSCSI & SAS interfaces translates into better application response times and the ability to support more virtualized workloads.
- SSD support with integrated lifecycle management and new virtualized data services to help unlock flash capabilities in your environment. Utilizing the latest SSDs, you will see improved application performance and reduces operating costs by reducing foot prints and power consumption.

Future proof: 2X the bandwidth and the MSA 2040 was the first entry SAN with 16 Gb FC and 12 Gb SAS

- Converged SAN Controller ports are upgradeable by SFPs to 8 Gb/16 Gb FC, and/or 1GbE/10GbE iSCSI. The MSA 2040 SAS controller supports 6 Gb or 12 Gb SAS facilitating ultra-high performance with or without required dedicated SAN infrastructure.
- 4th generation of MSA's unique Data-in-Place upgrades provides unmatched investment protection during generational upgrades within the MSA family. This eliminates painful data migrations required by our competitors.

Virtualization features

The 4th generation of MSA provides support for a powerful set of data services enabled with a new virtualized array system architecture. Existing MSA 2040 customers have access to these new features via a firmware upgrade. Features supported in virtualization firmware are:

- Thin Provisioning. This feature allows storage allocation of physical storage resources only once they are consumed by an application.
- SSD Read Cache. Improves random read performance by allowing an SSD to be utilized as an extension of the MSA 2040 controller cache.
- Automated Tiering (with Performance[1] and Archive Tiering). Utilizing a real-time I/O engine to intelligently position data on the most appropriate "tier" of storage. For customers leveraging MSA's Performance tiering capacities[1], users will see improved application response times on both read and write activities for frequently accessed data and better utilization of storage resources through the ability to move data which has not been accessed for long periods of time off to more cost effective Midline SAS HDDs (Archive Tiering).
- Virtual Tier Affinity. This features prioritizes application workloads. This feature is an enhancement to the Automated Tiering feature. This feature is available with GL220 firmware or newer.
- Virtualized Snapshot services. Created specifically for MSA's virtualized storage architecture, the MSA 2040 will be able to utilize Redirect-on-Write technology to provide better snapshot performance and the ability to create more complex snapshots with simplified snapshot management.
- New Web User Interface. The new virtualized array architecture also comes with a powerful, embedded Storage Management Utility which will make setup and management of the MSA 2040 and these new features a breeze. Users familiar with MSA's previous Web UI will have the option to continue on or take advantage of the new UI.
- Wide Striping. By leveraging virtualized storage "pools," MSA 2040 users can leverage wide striping technology to simplify volume expansion and to facilitate full utilization of all resources allocated to a specific volume.

For more information on MSA software, visit **hp.com/go/MSA**

[1] Paid Option

Technical specifications

	HPE MSA 2040 Storage
Drive description	Up to 199 SFF SAS/MDL SAS/SSD/SED or 96 LFF SAS/MDL SAS/SED Maximum including base array and expansion, depending on model
Drive type	Please refer to QuickSpecs for detailed information on supported hard drives: **h18004.www1.hp.com/products/quickspecs/14603_div/14603_div.pdf**
Capacity	Supported 768 TB maximum including expansion, depending on model
Storage expansion options	HPE MSA 2040 3.5-inch LFF disk enclosure or D2700 2.5-inch SFF disk enclosure MSA 2040 supports up to 7 disk enclosures
Storage host interface	4-Port SAN Controller: 8 Gb/16 Gb Fibre Channel and/or 1GbE/10GbE iSCSI 4-Port SAS Controller: 6 Gb/12 Gb SAS (autoswitching)
Storage controllers	MSA 2040 SAN Controller MSA 2040 SAS Controller
SAN backup support	Yes
Systems Insight Manager support	Yes
ENERGY STAR® Compliance	Yes **Note** MSA 2040 ENERGY STAR Certification is listed on the EPA website—**Link**
Compatible operating systems	Microsoft® Windows Server® 2012 Microsoft Windows® 2008 Microsoft Windows Hyper-V HP-UX Red Hat® Linux SUSE Linux VMware® ESXi 5.x VMware ESXi 6.x Detailed information available at: **hp.com/storage/spock**
Clustering support	Windows, Linux®, HP-UX
Form factor	2U base array, 2U LFF or SFF disk enclosures
Warranty (parts-labor-onsite)	3-0-0

MSA Software and Data Services

HPE MSA Snapshot Software

HPE MSA Snapshot Software services enable increased data protection by creating recovery points for your data, taking a "picture" of your data at a specific point in time. Snapshots are then maintained even as data continues to change. In the event of a failure, you can recover to any previous snapshot. Snapshots are a great complement to tape or disk backup strategy.

MSA Snapshot functionality is controller-based so no host resources are used. MSA 2040 Copy Services utilize Copy-on-Write capabilities when operating on Linear Volumes and Redirect-on-Write capabilities when operating on virtualized volumes. The MSA 2040 ships standard with 64 Snapshots enabled. An optional 512 Snapshot Software License is available[1].

HPE Volume Copy Software

HPE MSA Volume Copy Software makes a physical copy of the data to another set of disks within the same array. One of the benefits of Snapshot and Volume Copy software is the ability to mount a Snap or Volume Copy to another server for backup, application testing, or data mining. HPE Volume Copy Software is controller based, meaning no host resources are used. MSA 2040 arrays ship standard with Volume Copy. Volume copy works for both linear and virtual storage with GL220 firmware or newer. Pre-GL220 firmware, volume copy only works with linear storage.

HPE MSA Array Remote Snap Software

Built on asynchronous replication technology that provides remote replication on the HPE MSA 1040/2040 and HPE P2000 G3 Arrays (FC, Combo FC/iSCSI, or iSCSI models), this optional software is based on MSA's core Snapshot technology. It supports both Ethernet (iSCSI) and Fibre Channel interconnects and provides flexible remote data protection options between two MSA arrays enabling local and/or remote recovery. Remote Snapshots only function with linear volumes. For more information, please visit: **hp.com/go/RemoteSnap**

MSA 2040 Performance Tiering Upgrade

MSA 2040's Automated Tiering engine is capable of providing "Performance Tiering" functionality as well as "Archive Tiering" functionality. The Performance Tiering functionality operates to move data between an Enterprise SAS HDD tier and an SSD Tier based on real-time access trends placed on the array. Archive Tiering is a standard feature with the virtualized firmware architecture. It operates to move data between and Enterprise SAS HDDs and Midline SAS HDDs based on real-time I/O patterns.

HPE StoreEasy File Services

An HPE StoreEasy 3000 Gateway can add file, print, iSCSI, and management hosting services to an MSA 2040 array. For more information, visit **hp.com/go/StoreEasy**

HPE Factory Express provides customization and deployment services along with your storage and server purchases. You can customize hardware to your exact specifications in the factory—helping speed deployment. **hp.com/go/factoryexpress**

Gain the skills you need with ExpertOne training and certification. With HPE Converged Storage training, you will accelerate your technology transition, improve operational performance, and get the best return on your HPE investment. Our training is available when and where you need it, through flexible delivery options and a global training capability. **hp.com/learn/storage**

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HPE Technology Services

Expert HPE storage consultants and service professionals sit down with you and your team to map your storage needs. Not only can we help you accelerate implementation and reduce deployment risk, but we can also help you realize the full value of your storage purchases as you transform storage for the New Style of IT.

Advice, transform, and integrate
Navigate through the complexities of storage, backup, archive, disaster recovery, and Big Data with advisory, transformation, and integration consulting.

Deploy and implement
Access expertise to support deployment, operations, relocation, sanitization, and disposal, plus improvement-focused education.

Operate and support
Find the level of personalized, proactive, and simplified support right for your business.

Note

Specific service availability varies by product

HPE Foundation Care
System-level IT hardware and software support delivers flexible coverage window and response time for more choice and simplicity.

HPE Proactive Care
Combined reactive and proactive services provide easy-to-purchase, cost-efficient system-level support coupled with personalized expert advice and products connected to HPE to help prevent problems and reduce downtime.

HPE Proactive Care Advanced builds and incorporates on Proactive Care and also gives customers personalized technical and operational advice from an assigned, local Account Support Manager for personalized technical collaboration, flexible access to specialist skills to help optimize business critical IT, and enhanced Critical Incident Management to help so the business is not affected if there is a system or device outage.

Resources

QuickSpecs

HPE Datacenter Care
Get the support you need to deploy, operate, and evolve your data center environment to be hybrid-cloud ready with single-point-of-accountability for HPE and others' product.

Get connected and get back to business—HPE Storage Technology Services provide the path to get your HPE Storage solutions and your business connected to HPE. Once connected, our experts are able to scan your system and run health checks, then use that data to create personalized reports and recommendations for actions to take to prevent problems and downtime.

For more information, visit **hp.com/services/storage**

Learn more at
hp.com/go/msa

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