

# FlashArray//m

Business and IT Transformation in 3U

## Transform IT.

Who knew that moving to all-flash storage could help reduce the cost of IT? FlashArray//m makes server and workload investments more productive, while lowering storage spend by up to 50%. Dramatically reduce the complexity of storage to make IT more agile and efficient, accelerating your journey to the cloud.

## Transform Your Business.

Make your organization faster by accelerating applications, increasing revenue, driving higher productivity out of staff and systems, and creating a sustainable advantage. FlashArray//m's performance can also make your business smarter by unleashing the power of real-time analytics, driving customer loyalty, and creating new, innovative customer experiences that simply weren't possible with disk.

...All by Transforming Your Storage with FlashArray//m.



## All-Flash Storage for Every Workload.

FlashArray//m enables you to transform your data center, cloud, or entire business with an affordable all-flash array capable of consolidating and accelerating all your key applications.

### Mini Size

Reduce power, space and complexity by 90%

- 3U base chassis with 15-120+ TBs usable
- ~1kW of power
- 6 cables

### Modular Scale

Scale FlashArray//m inside and outside of the chassis for generations

- Expandable to ~1/2 PB usable via expansion shelves
- Upgrade controllers and drives to expand performance and/or capacity

### Mighty Performance

Transform your datacenter, cloud, or entire business

- Up to 300,000 32K IOPS
- Up to 9 GB/s bandwidth
- <1ms average latency

### Meaningful Simplicity

Appliance-like deployment with worry-free operations

- Plug-and-go deployment that takes minutes, not days
- Non-disruptive upgrades and hot-swap everything
- Less parts = more reliability

## Modular Upgradability for Generations

The FlashArray//m expands upon the FlashArray's modular, stateless architecture, designed to enable expandability and upgradability for generations. The FlashArray//m leverages a chassis-based design with customizable modules, enabling both capacity and performance to be independently improved over time with advances in compute and flash, to meet your business' needs today and tomorrow.



### FlashArray//m Chassis

The //m chassis leverages internal PCIe networking for controller HA, as well as both PCIe/NVMe and 16Gb SAS for flash and NV-RAM module connectivity. The result is ultra-fast connections that enable hot-plug and HA of every module.



### Flash Modules

Dual-drive flash modules pack two independent SSDs in each slot, doubling the performance and density. Drive modules are redundantly connected to both controllers, and can be replaced without performance impact.



### NV-RAM Module

NV-DDR4 non-volatile cache modules, are used to protect writes from power loss during I/O processing. Two or four redundant modules are networked with hot-swap PCIe/NVMe for the highest performance.



### Expansion Shelves

FlashArray//m can expand outside the FlashArray//m Chassis with 16Gb SAS networking. 12TB or 24TB expansion shelves are available, with 1-4 shelves connected per chassis.



### Controller Modules

The FlashArray//m features three controller options, to allow different tiers of performance and capacity. New controllers are shipped roughly annually, and can be replaced or upgraded without performance impact.



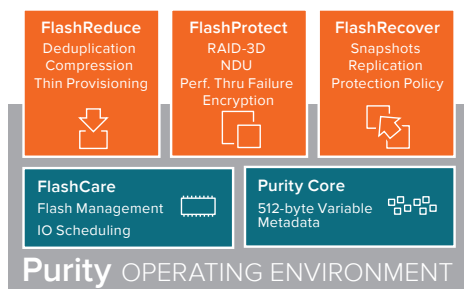
### I/O Modules

The FlashArray//m has onboard SAS, replication, and management ports, and host-based IO ports can be configured to meet a variety of needs. 6 slots per chassis, configurable with 6 or 12 Gb/s FC, or 10 Gb/s Ethernet iSCSI.

Powered by the

## Purity Operating Environment

Purity implements advanced data reduction, storage management and flash management features, and all features of Purity are included in the base cost of the FlashArray//m.



### Best Data Reduction Available

FlashReduce implements five forms of inline and post-process data reduction to offer the most complete data reduction in the industry. Data reduction operates at a 512-byte aligned variable block size, to enable effective reduction across a wide range of mixed workloads without tuning.

### Storage Software Built for Flash

The FlashCare technology virtualizes the entire pool of flash within the FlashArray, and allows Purity to both extend the life and ensure the maximum performance of consumer-grade MLC flash.

### Granular and Adaptive

Purity Core is based upon a 512-byte variable block size metadata layer. This fine-grain metadata enables all of Purity's data and flash management services to operate at the highest efficiency.

### Highly Available and Resilient

FlashProtect implements high availability, dual-parity RAID-3D, non-disruptive upgrades, and encryption, all of which are designed to deliver full performance to the FlashArray during any failure or maintenance event.

### Backup and Disaster Recovery Built In

FlashRecover combines space-saving snapshots, replication, and protection policies into an end-to-end data protection and recovery solution that protects data against loss locally and globally. All FlashProtect services are fully-integrated in the FlashArray and leverage the native data reduction capabilities.

## Cloud-Based Management and Support



### Pure1 Manage

By combining local web-based management with cloud-based monitoring, Pure1 Manage allows you to manage your FlashArray wherever you are – with just a web browser.

### Pure1 Support

FlashArray//m is constantly cloud-connected, enabling Pure Storage to deliver the most proactive support experience possible. Highly trained staff combined with big data analytics help resolve problems before they start.

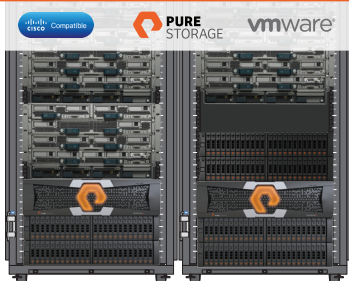
### Pure1 Connect

A rich set of APIs, plugin-Is, application connectors, and automation toolkits enable you to connect FlashArray//m to all your data center and cloud monitoring, management, and orchestration tools.

### Pure1 Collaborate

Extend your development and support experience online, leveraging the Pure1 Collaborate community to get peer-based support, and to share tips, tricks, and scripts.





## Consolidate Applications with Pre-Validated Solutions

The FlashArray//m is tested and validated with a wide range of data center infrastructure and applications to enable seamless deployment and multi-workload consolidation in your data center. Deployments can be further accelerated with FlashStack CI – end-to-end converged infrastructure powered by flash and supported by our partners.

### Business Applications



### Virtualization and Cloud Infrastructure



### Desktop Virtualization

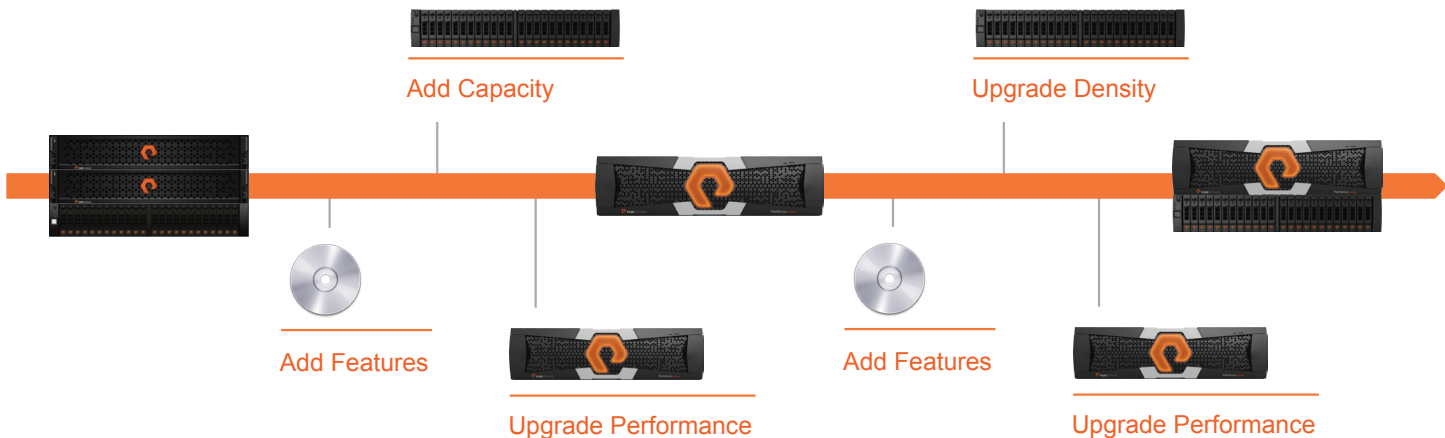


### Data Center Infrastructure

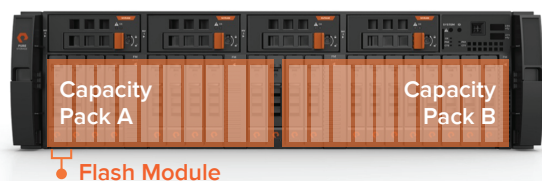


## Experience Evergreen Storage
















Tired of the 3-5 year array replacement merry-go-round? The move to FlashArray//m can be your last data migration. Purchase and deploy storage once and once only – then expand capacity and performance incrementally in conjunction with your business needs and without downtime. Pure Storage’s vision for Evergreen Storage is delivered by a combination of the FlashArray’s stateless, modular architecture and the ForeverFlash business model, enabling you to extend the lifecycle of storage from 3-5 years to a decade or more.



## Capacity Configuration Options



Capacity packs are available to accommodate deployments ranging from single application to entire datacenter consolidation. Expand capacity online within or outside the base chassis with the flexibility to mix and match flash module capacities over generations.

Usable TB (up to)	Capacity Packs Raw Space	Flash Module Raw Space	Expand up to 400TBs Outside the Chassis
15TB		512 GB Modules x 10	 36TB usable or  72TB usable Up to 4 expansion shelves / array
30TB	  or 	512 GB Modules x 20 1 TB Modules x 10	
45TB	 	1 TB Modules x 10   512 GB Modules x 10	
60TB	  or 	1 TB Modules x 20 2 TB Modules x 10	
90TB	 	2 TB Modules x 10   1 TB Modules x 10	
120TB	 	2 TB Modules x 20	

## Controller Specifications

	//m20	//m50	//m70
<b>Capacity</b>	<ul style="list-style-type: none"> <li>Up to 120+ TBs effective capacity*</li> <li>5 – 40TBs raw capacity (base chassis)</li> </ul>	<ul style="list-style-type: none"> <li>Up to 250+ TBs effective capacity*</li> <li>30 – 88TBs raw capacity (w/shelves)</li> </ul>	<ul style="list-style-type: none"> <li>Up to 400+ TBs effective capacity*</li> <li>44 – 136TBs raw capacity (w/shelves)</li> </ul>
<b>Performance</b>	<ul style="list-style-type: none"> <li>Up to 150,000 32K IOPS**</li> <li>&lt;1ms average latency</li> <li>Up to 5 GB/s bandwidth</li> </ul>	<ul style="list-style-type: none"> <li>Up to 220,000 32K IOPS**</li> <li>&lt;1ms average latency</li> <li>Up to 7 GB/s bandwidth</li> </ul>	<ul style="list-style-type: none"> <li>Up to 300,000 32K IOPS**</li> <li>&lt;1ms average latency</li> <li>Up to 9 GB/s bandwidth</li> </ul>
<b>Connectivity</b>	<ul style="list-style-type: none"> <li>8 Gb/s Fibre Channel</li> <li>10 Gb/s Ethernet iSCSI</li> <li>Management and Replication ports</li> </ul>	<ul style="list-style-type: none"> <li>16 Gb/s Fibre Channel</li> <li>10 Gb/s Ethernet iSCSI</li> <li>Management and Replication ports</li> </ul>	<ul style="list-style-type: none"> <li>16 Gb/s Fibre Channel</li> <li>10 Gb/s Ethernet iSCSI</li> <li>Management and Replication ports</li> </ul>
<b>Physical</b>	<ul style="list-style-type: none"> <li>3U</li> <li>742 Watts (nominal draw)</li> <li>110 lbs (49.9 kg) fully loaded</li> <li>5.12" x 18.94" x 29.72" FlashArray//m chassis</li> </ul>	<ul style="list-style-type: none"> <li>3U – 7U</li> <li>1007 - 1447 Watts (nominal draw)</li> <li>110 lbs (49.9 kg) fully loaded + 44 lbs per expansion shelf</li> <li>5.12" x 18.94" x 29.72" FlashArray//m chassis</li> </ul>	<ul style="list-style-type: none"> <li>5U – 11U</li> <li>1439 – 2099 Watts (nominal draw)</li> <li>110 lbs (49.9 kg) fully loaded + 44 lbs per expansion shelf</li> <li>5.12" x 18.94" x 29.72" FlashArray//m chassis</li> </ul>

Note: All specifications are preliminarily, and subject to finalization before the FlashArray//m GA.

\* Effective capacity assumes HA, RAID, and metadata overhead, GB-to-GiB conversion, and includes the benefit of data reduction with always-on inline deduplication, compression, and pattern removal. Average data reduction is calculated at 5-to-1, below the global average of the FlashArray user base.

\*\* Why does Pure Storage quote 32K, not 4K IOPS? The industry commonly markets 4K IOPS benchmarks to make inflate performance numbers, but real-world environments are dominated by IO sizes of 32K or larger. FlashArray//m adapts automatically to 512B-32KB IO for superior performance, scalability, and data reduction.