

PAC Storage PS Product Line NAS 2022 Performance



**Purpose-built
for Data Storage
ROI**

PAC Storage PS Product Line in 2022 has software and hardware updates improving NAS performance throughput and features of the signature PAC Storage line.

PS offers high-performance enterprise solutions across most applications with its unprecedented advantages in performance, flexibility, and high expandability. For throughput, these systems can reach high read and write speeds even under high workloads.

Hardware

The PAC PS Line can be configured with 2U-12 Bay, 2U-25 Bay, 3U-16 Bay, 4U-24 Bay, 4U-60 Bay.



The PS Line comes with impressive storage capacity: these models can support up to 896 hard drives, providing raw capacity up to 14PB.

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Hardware & Software

The PS Line offers up to 2 sets of modular host boards to fulfill the requirements of numerous applications or architecture transformation.



Additional port connectivity including 25GbE and 40GbE, 16Gb FC, 32Gb FC



Proprietary Non-Volatile Cache Protection

Provides reliable super capacitor backup with flash module to ensure data safety

Rear view

PS NVMe 25 Bay



PS 12 Bay



PS 16 Bay



PS 24 Bay

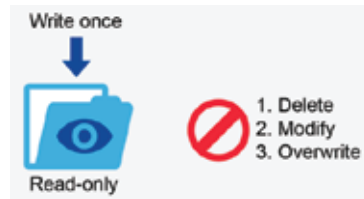


PS 60 Bay



RAID Protection prevents data loss from a disk failure.

Disk protection: RAID5, RAID6



WORM (Write Once Read Many)

For following the regulation, protect transaction record/ confidential files be deleted/modified by accident for several years.



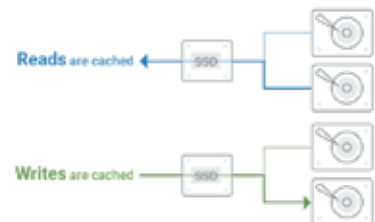
Web-based Centralized Management. Easy GUI to simplify installation and maintenance.



Auto-Tiering and Flexible Pools with SSDs and HDDs to give you tailored speed & capacity options



Cloud-integrated solution for data caching, tiering, and backup



SSD Cache
Cache metadata & random IO, Support read and write cache and Write cache RAID protection

PS Line Performance as a NAS: File Level

Performance stats vary based on a variety of elements including types of drives utilized, applications, RAM, connectivity, protocols, etc. The benchmarks noted will give you insight and we recommend discussing your requirements during the sales process.

NAS Settings:

Read Ahead: 16M
 Jumbo Frame Enabled
 Disk timeout: 320ms
 NAS Read Ahead: 2M
 Others: default settings

RAID Settings

Disk protection level: RAID 6
 RAID stripe size:
 HDD: 1024KB
 SSD: 128KB
 AV optimization: Multiple Streaming
 Read-head option for media editing: Disabled (Auto)
 FBM module is required

Workstation Configurations

Windows Client
 CPU: Dual E-2620v4
 Memory: DDR4 64GB
 Operating system: Windows 2019 Datacenter version
 GPU: NVIDIA Quadro RTX 5000
 Network interface controller: 10GbE (MTU =9216)
 Adobe Premiere Pro version: 2020, 14.2.0 (Build 47)

Video Playback Topology

10 Windows clients

Video Playback Performance-Single Controller System running as a NAS (file-level)

Model	Number of NL-SAS HDDs	Number of SSDs	Number of NVMe Drives	4K ProRes Streams* ²		4K DPX 12bit Streams* ³	
				Count	Throughput	Count	Throughput
PS 3000 Gen2	24	0	0	11	2,200 MB/s	1	850 MB/s
PS 4000 Gen2	24	0	0	14	2,800 MB/s	3	2,550 MB/s
PS 4000 All Flash Gen2	0	24	0	20	4,000 MB/s	3	2,550 MB/s
PS 4000 NVMe	0	0	12	23	4,600 MB/s	5	4,250 MB/s

Video Playback Performance-Redundant Active-Active Controller System with single namespace running as a NAS (may include expansions chassis)

Model	Number of NL-SAS HDDs	Number of SSDs	Number of NVMe Drives	4K ProRes Streams* ¹		4K DPX 12bit Streams* ²	
				Count	Throughput	Count	Throughput
PS 3000 Gen2	48	0	0	19	3,800 MB/s	1	850 MB/s
PS 4000 Gen2	48	0	0	25	5,000 MB/s	4	3,400 MB/s
PS 4000 All Flash Gen2	0	48	0	37	7,400 MB/s	6	5,100 MB/s
PS 4000 NVMe	0	0	24	42	8,400 MB/s	10	8,500 MB/s

*1: Codec & Frame Rate: ProRes 422HQ 3840 x 2160 @60 fps (Bitrate: 200MB/s).

*2: Codec & Frame Rate: 3840x2160@24p (Bitrate: 850MB/s).

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Performance Tests

Video Playback Performance– Quantity 2 Redundant (Active-Active) Controller systems (total 4 controllers) with single namespace running as a NAS (may include expansions chassis)

Model	Number of NL-SAS HDDs	Number of SSDs	Number of NVMe Drives	4K ProRes Streams* ¹		4K DPX 12bit Streams* ²	
				Count	Throughput	Count	Throughput
PS 3000 Gen2	96	0	0	39	7,800 MB/s	2	1,700 MB/s
PS 4000 Gen2	96	0	0	50	10,000 MB/s	6	5,100 MB/s
PS 4000 All Flash Gen2	0	96	0	72	14,400 MB/s	12	10,200 MB/s
PS 4000 NVMe	0	0	48	82	16,400 MB/s	20	17,000 MB/s

*1: Codec & Frame Rate: ProRes 422HQ 3840 x 2160 @60 fps (Bitrate: 200MB/s).

*2: Codec & Frame Rate: 3840x2160@24p (Bitrate: 850MB/s).

Video Playback Performance– Quantity 4 Redundant (Active-Active) Controller systems (total 8 controllers) with single namespace running as a NAS (may include expansions chassis)

Model	Number of NL-SAS HDDs	Number of SSDs	Number of NVMe Drives	4K ProRes Streams* ¹		4K DPX 12bit Streams* ²	
				Count	Throughput	Count	Throughput
PS 3000 Gen2	192	0	0	79	15,800 MB/s	4	3,400 MB/s
PS 4000 Gen2	192	0	0	100	20,000 MB/s	12	10,200 MB/s
PS 4000 All Flash Gen2	0	192	0	144	28,800 MB/s	24	20,400 MB/s
PS 4000 NVMe	0	0	96	165	33,000 MB/s	40	34,000 MB/s

*1: Codec & Frame Rate: ProRes 422HQ 3840 x 2160 @60 fps (Bitrate: 200MB/s).

*2: Codec & Frame Rate: 3840x2160@24p (Bitrate: 850MB/s).

PS NVMe U.2 Performance:

PS NVMe can reach speeds up to 20 GB/s Read and 10 GB/s Write speed + 1 Million IOPS. This 25 Bay, 8 Core dual-controller system can also utilize auto-tiering with NL expansions beneath it. More detailed application performance numbers coming soon.

Warranty & Support

High Level US Engineer Support
Comes with 3 Year Warranty with advanced replacement & unlimited phone support
Support available up to 10 Years

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