Synology®

Datasheet

Parallel Active Station

PAS7700

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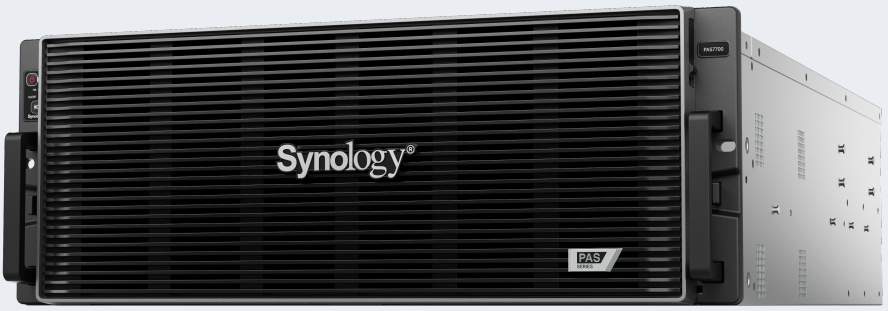


High-Performance Block and File Storage for Enterprises

The Synology PAS7700 is a 48-bay NVMe storage platform engineered for enterprise workloads that require continuous availability, extremely high performance, and scalability without service interruption. Utilizing an active-active architecture, it supports block and file protocols, petabyte-scale expansion, non-disruptive system upgrades, and support for Synology's productivity suite and data management applications.

- **Enterprise-Grade Reliability**
  Active-active architecture supporting non-disruptive system, software, and firmware updates
- **Unrivaled Performance**
  Up to 2,000,000 random read IOPS[1] for latency-sensitive workloads
- **High-Performance Protocols**
  Support for NVMe-oF and direct-to-GPU I/O
- **Petabyte Scalability**
  As many as 216 drives and 1.65 PB raw storage[2] with Synology PAX224 expansion units[3]
- **Long-Term Support**
  Backed by Synology's 5-year limited warranty[4]

High-Performance Block and File Storage

The PAS7700 is designed to be an exceptionally capable storage solution, ideal for driving the workloads large organizations depend on. Performance hardware engineering and advanced software support work in tandem to deliver outstanding block and file performance for massively accelerated data processing, real-time analytics, and latency-sensitive applications.

- Up to **2,000,000 4K random read/write IOPS**[1] enables rapid transaction processing, real-time analytics, and high-speed VM storage
- Dual **active-active controllers** featuring the **AMD EPYC CPU** and **up to 1 TB of memory** per controller help enable responsive file and block services at scale
- **Four 10GbE ports** plus optional **100GbE NICs** and **HBAs**[5] deliver high-bandwidth connectivity for demanding applications and high-volume concurrent access
- Supports 48 × 2.5” Synology NVMe SSD drives, **expandable to 216 drives** for **1.65 PB of raw storage** with seven Synology PAX224 expansion units[3]
- Direct-to-host expansion unit architecture ensures superior bandwidth and reliability when scaling

Always Available Data Services

The PAS7700 combines robust hardware with advanced software to ensure maximum uptime, consistent service availability, and fast recovery from disruptions. Designed to support the most demanding environments, it helps IT teams avoid downtime, respond swiftly to issues, and keep critical services running.

- Supports **high availability** and **load balancing** for data and application services via an **active-active system architecture** capable of near-instantaneous failover
- Software-defined **network failover groups** make configuring TCP/IP failover fast, simple and highly effective
- **Application updates**, **SSD firmware updates**, and **operating system upgrades** can be applied without disruption to application or data services

Advanced Security and Compliance

The PAS7700 streamlines security and simplifies meeting compliance requirements using the new DSM Enterprise operating system. It gives IT teams the tools they need to safeguard against unauthorized access, streamline audits, and maintain control over data lifecycle policies.

- **Self-Encrypting Drives** (SED) help protect against physical data breaches
- **Adaptive Multi-Factor Authentication**, support for **SSO clients**, robust VLAN support, and dedicated management interfaces help strictly control data access
- **WORM-powered immutable snapshots** and **WriteOnce shared folders** help mitigate the risk of data loss from ransomware, other cyber threats, and accidental deletion

Integrated Storage for Kubernetes

The PAS7700 integrates seamlessly with Kubernetes through Synology's CSI-compliant driver, enabling volume snapshots via the Kubernetes API. Combined with support for SMB, NFS, NVMe, and iSCSI protocols, this ensures that IT teams can efficiently manage persistent storage for containerized environments, delivering high performance, flexibility, and reliability.

Efficient Management and Workflows

The PAS7700 combines intelligent software features with intuitive hardware design to simplify deployment, management, service, and upgrades. IT teams and administrators work more efficiently, reduce complexity, and keep systems running at peak performance.

Dedicated management ports support out-of-band (OOB) management for secure, comprehensive remote administration

Simple volume provisioning and fast, straightforward scalability streamline evolving data needs

Advanced, flexible RAID options, including RAID-TP, for enhanced data protection and optimized performance

Up to a 5:1 data reduction ratio[6] leveraging advanced storage technology maximizes storage capacities and total system value

Backed by Synology's 5-Year Limited Warranty

Plan with confidence. Synology's 5-year limited warranty[4] delivers long-term assurance with hardware replacement and premium technical support — so your infrastructure stays protected, and your team stays focused.

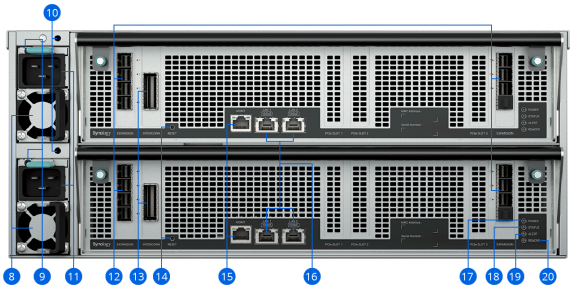
Notes:

1. Performance figures obtained through internal testing by Synology. Actual performance may vary depending on the testing environment, usage, and configuration.
2. Raw capacity calculated using 7.68 TB drives. Usable storage capacity varies according to drives used and storage volume configurations.
3. Synology PAX224 expansion units sold separately.
4. The warranty period starts from the date of purchase as stated on the original purchase receipt. Visit https://www.synology.com/company/legal/warranty for more information.
5. Fibre Channel host bus adapters and additional network interface cards sold separately. See our compatibility list for compatible HBAs and NICs.
6. Data reduction estimates obtained through internal testing by Synology, based on a consolidated virtual server environment that achieved a 5:1 data reduction ratio. Synology measured a data reduction ratio of 5:1 using a consolidated virtual server environment. Actual data reduction ratios will vary according to data types, volume, and system configurations.

Hardware Overview

Front

Rear



No.	Name	No.	Name
1.	Power Button and Indicator	11.	Power ports
2.	High Availability Status Indicator	12.	Expansion port
3.	Alert Indicator	13.	Interconnection ports
4.	Mute Button	14.	Reset button
5.	Drive Status Indicators	15.	Management ports
6.	Drive Trays	16.	10GBase-T LAN ports
7.	Rail Kit Release Tabs	17.	Power indicators
8.	PSU Fans	18.	Status indicators
9.	PSU Indicators	19.	Alert indicators
10.	Mounting holes	20.	Remove indicators

Technical Specifications

Hardware

Controller	
Number of Controller Module	2

CPU	
CPU Model	AMD EPYC 7443P
CPU Quantity	1 (per controller)
CPU Cores	24-core
CPU Architecture	64-bit
CPU Frequency	2.85 (base) / 4.0 (turbo) GHz
Hardware Encryption Engine	v

Memory	
System Memory	64 GB DDR4 ECC RDIMM (per controller)
Memory Module Pre-installed	64 GB (64 GB x 1) (per controller)
Total Memory Slots	16 (per controller)
Maximum Memory Capacity	1024 GB (64 GB x 16) (per controller)
Notes	• Synology may revise pre-installed memory module specifications in response to component lifecycle and supply conditions. All revised components undergo the same rigorous validation to ensure equivalent compatibility, stability, and performance. • Please select Synology memory modules for optimum compatibility and reliability. Synology will not provide complete product warranty or technical support if non-Synology memory modules are used for memory expansion.

Storage	
Drive Bays	48
Maximum Drive Bays with Expansion Unit	216 (PAX224 × 7)
Drive Type (See all supported drives)	2.5” U.3 NVMe SSD
Hot Swappable Drive	v
Notes	Synology only guarantees full functionality, reliability, and performance for Synology drives listed on the compatibility list. The use of non-validated components may limit certain functionality and result in data loss and system instability.

External Ports	
RJ-45 1GbE LAN Port	1 (per controller)
RJ-45 10GbE LAN Port	2 (per controller)
Out-of-Band Management LAN Port	yes (per controller)
Expansion Port	7 (per controller)
Expansion Port Type	Mini-SAS HD

PCIe	
PCIe Expansion	• 1 x Gen4 ×16 slot (x16link) • 2 x Gen4 ×8 slot (x8link) (per controller)

Appearance	
Form Factor (RU)	4U
Size (Height x Width x Depth)	175.8 mm x 480.5 mm x 771 mm
Weight	38.2 kg
Rack Installation Support	4-post 19" rack (Synology Rail Kit - RKS-02)

Others	
System Fan	60 mm x 60 mm x 5 pcs
Power Supply Unit / Adapter	2700W watts
Redundant Power Supply	v
AC Input Power Voltage	200V to 240V AC
Power Frequency	50/60 Hz, Single Phase
Power Consumption	1253.76 watts (Typical) 1460.64 watts (Full Loading)

Temperature	
Operating Temperature	0°C to 35°C (32°F to 95°F)
Storage Temperature	-20°C to 60°C (-5°F to 140°F)
Operating Humidity	8% to 80% RH
Storage Humidity	5% to 95% RH
Maximum Operating Altitude	5000 m

DSM Enterprise Specification

Storage Management	
Maximum Single Volume Size	• 200 TB (32 GB memory required) • 1 PB (64 GB memory required, for RAID 6 and RAID TP groups only)
Maximum Internal Volume Number	32
SSD TRIM	v
Supported RAID Type	• RAID 5 • RAID 6 • RAID TP

File System	
Internal Drives	• Btrfs

File Services	
File Protocol	• SMB • NFS
Maximum Number of SMB Connections (FSCT-Based)	12,800
Windows Access Control List (ACL) Integration	v
NFS Kerberos Authentication	v

Account & Shared Folder	
Maximum Local User Accounts	16,000
Maximum Local Groups	512
Maximum Shared Folder	512

General Specifications	
Supported Protocols	SMB1 (CIFS), SMB2, SMB3, NFSv3, NFSv4, NFSv4.1, NFS Kerberized sessions, iSCSI, Fibre Channel, NVMe-FC, NVMe-TCP
Supported Browsers	• Chrome • Firefox • Edge • Safari
Supported Language	English, Deutsch, Français, Italiano, Español, Dansk, Norsk, Svenska, Nederlands, Русский, Polski, Magyar, Português do Brasil, Português Europeu, Türkçe, Český, ภาษาไทย, 日本語, 한국어, 繁體中文, 简体中文

Packages and Applications

SAN Manager	
Maximum iSCSI Target Number	256
Maximum NVMe-oF Subsystem Number	256
Maximum LUN	512
Maximum Namespace	512
Maximum vVols	1024
QoS (Quality of Service)	v
LUN Clone/Snapshot, Windows ODX	v

Snapshot Replication	
Maximum Snapshots per Shared Folder	1,024
Maximum Snapshots per LUN	256
Maximum of Snapshots per Namespace	256
Maximum Snapshots per System	65,536
Maximum Replication Tasks per System	256

Hyper Backup	
Folder and Package Backup	v
LUN Backup	v
Namespace Backup	v

Environment & Packaging

Environment safety
RoHS Compliant

Packaging Content

- Main Unit X 1
- Accessory Pack X 1
- CDFP cable X 1
- C19 to C20 power cord x 2

Optional Accessories

- 25GbE Network Interface Card: E25G30-F2
- 10GbE Network Interface Card: E10G30-F2/E10G30-T2
- Rail Kit Sliding: RKS-02
- DDR4 ECC RDIMM: D4ER02-64G
- Expansion Units: PAX224

Warranty

5 Years

Notes	The warranty period starts from the purchase date as stated on your purchase receipt. (Learn more)