DATASHEET

NETAPP AFF A-SERIES

Powerful. Intelligent. Secure.

Unified data storage built for the AI era

Welcome to the future of intelligent data infrastructure.

NetApp AFF A-Series systems easily power your most demanding workloads – from the mission-critical apps that run your business today to the AI and GenAI workloads that will unlock innovation and productivity in the future. With the advanced data management, industry-leading ransomware protection, and cloud integration that GenAI and other modern workloads demand, only NetApp delivers true unified storage architected for the next generation.

The NetApp AFF A-Series storage family, powered by NetApp ONTAP data management software, delivers the same NetApp simplicity and reliability that tens of thousands of organizations of every size, in every industry, around the globe, have trusted for years. It's the same technology that the top three public clouds rely on to drive all your apps and data across hybrid cloud. No more silos, no more storage complexity. Just powerful, intelligent, secure storage to seamlessly accelerate your business.

Transform to meet the needs of business today

Data-driven organizations require an agile and efficient hybrid IT infrastructure to meet the demand for fast, secure, and continuous access to distributed data across hybrid cloud. NetApp's intelligent data infrastructure delivers the industry's richest suite of data services across hybrid multicloud, enabling teams to seamlessly consume the services they require, on premises or in the cloud.

NetApp technologies, including the AFF A-Series, are anchored in unified data storage, which enables businesses to run any data type, and any app workload, across their premises and cloud with a single OS, ONTAP. A unified management experience provides ease of use and efficiency, eliminating infrastructure silos and data bottlenecks and delivering unmatched simplicity at scale.

Emerging workloads, such as AI and GenAI, data analytics, and deep learning, demand extreme performance. AFF A-Series systems deliver industry-leading speed, massive scalability, and best-in-class integration with public clouds, NVIDIA, and the MLOps ecosystem to help you accelerate, manage, and protect your next-generation apps across hybrid cloud.

Tens of thousands of organizations of every size, in every industry, rely on AFF systems to:

- Accelerate and consolidate every workload (VMware, database, AI, and more) with unmatched performance, efficiency, and scale.
- Drive transformation with a future-proof intelligent data infrastructure that seamlessly manages, protects, and mobilizes data across hybrid cloud.
- Protect business-critical data against internal and external threats with real-time ransomware detection, guaranteed recovery, and seamless business continuity.

Turbocharge every workload without trade-offs

NetApp AFF A-Series systems deliver industry-leading performance, verified by SPC-1 and SPEC SFS industry benchmarks. These systems are ideal for everything from VMware environments, to highly transactional applications (such as Oracle, Microsoft SQL Server, and MongoDB databases), to the most data-intensive AI training, tuning, inferencing, and RAG workloads.

With the power of front-end NVMe/FC and NVMe/TCP host connectivity combined with back-end NVMe-attached SSDs, the high-end AFF A1K modular system delivers up to 40M IOPS and 1TB/s throughput in a single cluster through a unified, scale-out architecture.

The AFF A90 system also delivers high-end performance, in an integrated form factor that's especially well-suited for AI (including GenAI), EDA, and media/entertainment workloads. It also enables in-chassis nondisruptive upgrades.

The integrated midrange AFF A70 system puts outstanding performance and flexibility (more I/O on network connection) within your budget.

The mid-range AFF A250 and the entry-level AFF A150 all-flash storage systems offer high performance at an aggressive price point.

With the new AFF A70, AFF A90, and AFF A1K systems, you'll never need to choose between performance and efficiency. You'll have always-on improved data compression and no performance impact, thanks to Quick Assist Technology (Intel® QAT®). The systems allow you to achieve exceptional storage efficiency while delivering the consistent high performance needed for mission-critical workloads. In addition, the new systems come with faster front-end 200Gb Ethernet and 64Gb FC networking connectivity.

KEY BENEFITS

Powerful

- Turbocharge every workload – VMware, database, AI – with up to 40M IOPs, with up to 1TB/s throughput, and massive scale.
- Enable unmatched power and consolidation for all your workloads with hyper-efficient, unified storage that supports block, file, and object.
- Accelerate without trade-offs through consistent performance, adaptive quality of services (AQoS), and proven 99.9999% data availability.

Intelligent

- Transform with an AI-ready ecosystem built on data-driven intelligence, future-proof infrastructure, and deep integrations with NVIDIA and the MLOps ecosystem.
- Seamlessly manage, protect, and mobilize data, at the lowest cost, across hybrid cloud with a single storage OS and the industry's richest data services suite.
- Simplify and automate hybrid operations with AIOps, efficient AI model versioning, and intuitive hybrid multicloud control delivered by NetApp® BlueXP™.

Secure

- Protect valuable data from cyberthreats with built-in, artificial intelligence and machine learning based real-time ransomware detection designed for industry-first 99%+ accuracy, SIEM/XDR integrations, and guaranteed recovery with end-to-end orchestration.
- Trust in the only hardened enterprise storage that's validated to store top-secret data.
- Prevent app disruptions, even during site failures, with integrated business continuity.

All AFF A-Series systems offer advanced reliability, availability, and serviceability to keep your critical data always available. They also provide comprehensive data management and data protection capabilities for your enterprise applications with industry-leading ONTAP software.

Leverage unmatched consolidation and scale
Consolidate all your workloads on AFF A-Series systems, which can:

- Deliver up to 2x performance compared to previous generation systems, with latency as low as 100µs.
- Support any data type, any app workload, across hybrid cloud.
- Provide consistent performance, adaptive quality of service, and proven 99.9999% data availability to safeguard SLAs even in multi-workload and multitenant environments.
- Scale non-disruptively to 702PB effective capacity in a cluster.
- Improve the speed and productivity of collaborative teams across multiple locations and increase data throughput for read-intensive applications with NetApp FlexCache® software.

Enable your AI workloads

AI holds the promise of new levels of innovation and productivity – and AFF A-Series systems are the ideal storage solution to power your AI initiatives and other data-intensive workloads. AFF A-Series gives enterprises five critical AI-capabilities:

- Unify data across hybrid cloud and efficiently and securely serve data science teams.
- Deliver abundant levels of performance, efficiency, and scalability to power every segment of the AI data pipeline, up to and including AI as a service model training tasks in enterprises.
- Streamline AI workflows with model interpretability, simple versioning, and clear visibility into data lineage.
- Leverage seamless, proven data management across hybrid multicloud to enable hybrid cloud workloads.
- Securely serve proprietary unstructured datasets to large foundational models to leverage GenAI that's enhanced with the context of your data.

NetApp will warrant Snapshot data recovery in the event of a ransomware attack. If you can't recover your data copies with help from NetApp or partner assistance, NetApp will offer compensation.

Learn more

With AFF A-Series systems, you can add AI workloads to your existing ecosystem as needed and without creating new silos or complexity.

Keep important data available, protected, and secure

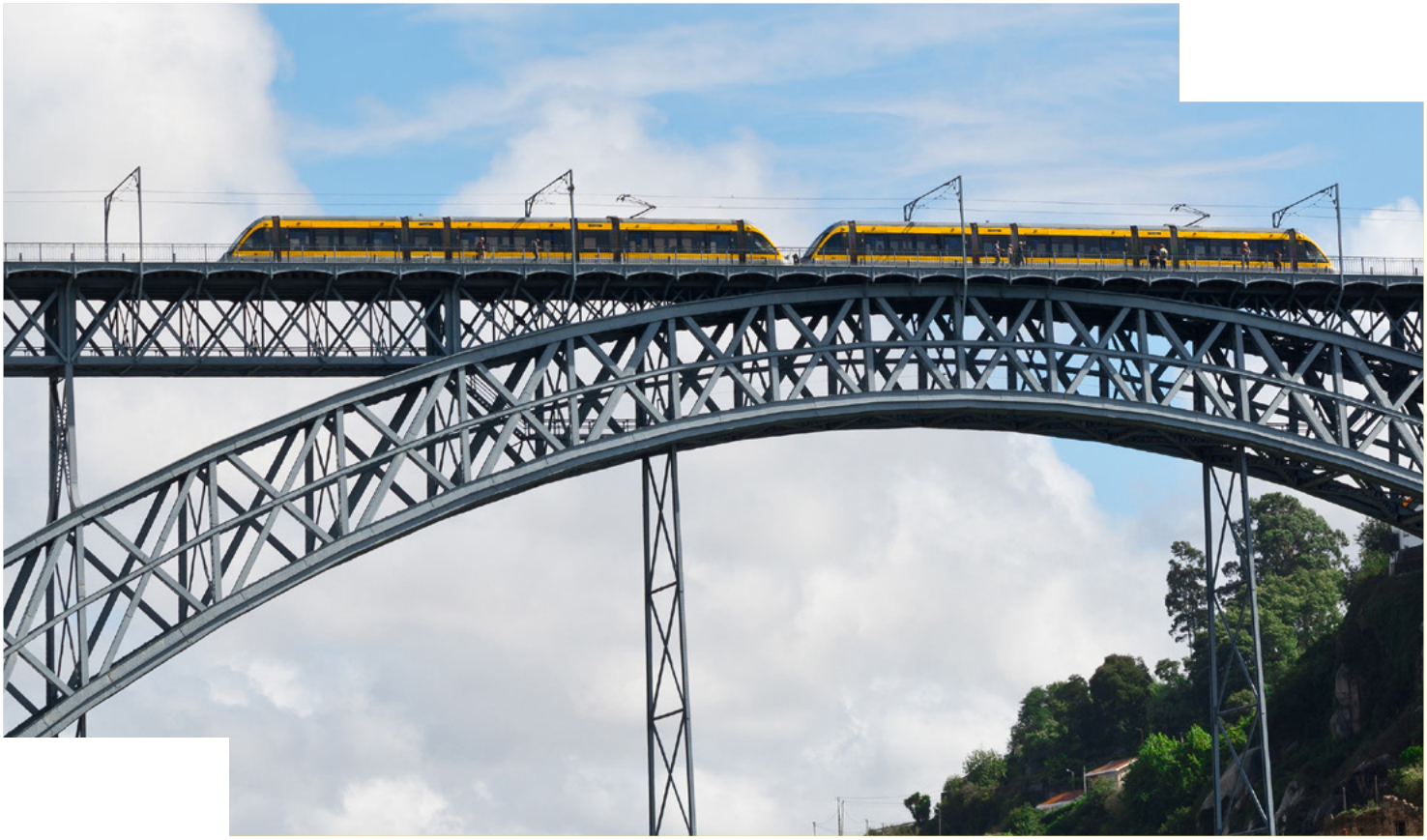
For data-driven enterprises, the business impact of data loss can be dramatic — and costly. Organizations must protect their valuable data from ransomware and other external cyberattacks, and from internal threats, to keep their data available, eliminate disruptions, and quickly recover from failures.

AFF systems are the only hardened enterprise storage validated to store top-secret data. They deliver a comprehensive suite of integrated and application-consistent data protections, including:

- Robust protection through automatic blocking of malicious file types, multifactor authentication, immutable tamperproof NetApp Snapshot™ copies, and end-to-end encryption.
- Real-time autonomous ransomware detection, enhanced by embedded machine learning models, designed for industry-first 99%+ accuracy
- SIEM/XDR integrations.
- Guaranteed recovery with end-to-end orchestration via NetApp's Ransomware Recovery Guarantee and ransomware assurance service
- Integrated active-active business continuity.
- Cyber vault capability that combines advanced encryption, immutable backups, and air-gapped storage.
- Application-consistent data protection and clone management with NetApp SnapCenter®
- Replication to any NetApp AFF or FAS system on the premises or in the cloud with NetApp SnapMirror® technology.

NetApp is the only storage vendor that can give you this level of comprehensive, automated protection and guaranteed recovery.

Integrate business continuity and get fast disaster recovery
With AFF, you can maintain constant data availability with zero data loss and zero downtime in the event of disruption or disaster. NetApp MetroCluster software replicates your data synchronously to a separate location to protect your entire system. If something goes wrong at one site, your applications automatically and instantaneously switch to the other site. For a more tailored approach, choose NetApp SnapMirror active sync to cost-efficiently replicate the most critical data while taking advantage of the increased performance, greater flexibility, and enhanced load-balancing capability that come with the symmetric active-active architecture.



With NetApp's comprehensive security solutions, you can achieve FIPS 140-2 compliance (Level 1 and Level 2) with self-encrypting drives. And you can meet governance, risk, and compliance requirements with security features such as secure purge, logging and auditing monitors, and write once, read many (WORM) file locking.

Increase operational efficiency for your business

With NetApp ONTAP advanced data management, you can lower IT costs by simplifying operations, consolidating workloads, and lowering overhead.

NetApp AFF A-Systems offer broad support of application ecosystems and deep integration for enterprise applications, virtual desktop infrastructure, databases, server virtualization, and the MLOps ecosystem. Infrastructure management tools simplify and automate common storage tasks:

- Easily provision and rebalance workloads in minutes with one-click automation and self-service.
- Upgrade your OS and firmware with a single-click.
- Import LUNs from third-party storage arrays directly into an AFF system to seamlessly migrate data.

In addition, the NetApp BlueXP Digital Advisor enables you to optimize your NetApp systems with predictive analytics and proactive support.

Flexibly consume storage resources
NetApp AFF A-Series systems are unified data storage built for the AI era. This intelligent data infrastructure enables you to architect for the future while powering all of your workloads today.

Like the rest of the NetApp portfolio, the new AFF A-Series systems are available via traditional capex or as a service with NetApp Keystone®. Gain financial flexibility as you modernize, and better align IT expenditure to business needs.

Get more business value with services
Whether you're planning your next-generation data center, need specialized know-how for a major storage deployment, or want to optimize the operational efficiency of your existing infrastructure, NetApp Professional Services and NetApp Certified Partners can help.

NetApp Storage Lifecycle Program

Eliminate the headache of tech refreshes with the Storage Lifecycle Program: Get a new controller every 3 years with support-managed updates included, or move to the cloud, whichever best meets your needs.

Learn more

Table 1) AFF A-Series technical specifications

	AFF A1K	AFF A90	AFF A70	AFF A900	AFF A800	AFF A400	AFF A250	AFF A150
Maximum scale-out	2–24 nodes (12 HA pairs)	2–24 nodes (12 HA pairs)	2–24 nodes (12 HA pairs)	2–24 nodes (12 HA pairs)	2–24 nodes (12 HA pairs)	2–24 nodes (12 HA pairs)	2–24 nodes (12 HA pairs)	2–24 nodes (12 HA pairs)
Maximum SSDs	2880	2880	2880	5760	2880	5760	576	864
Maximum effective capacity[1]	185PB	185PB	185PB	702.7PB	185PB	702.7PB	35.2PB	26PB
Controller chassis form factor	2X2U	4U; 48 internal SSD slots	4U; 48 internal SSD slots	8U	4U; 48 internal SSD slots	4U	2U; 24 internal SSD slots	2U; 24 internal SSD slots
Power consumption (median)	2718W[2] (with NS224)	1950W[2]	1232W[2]	2450[2] (with NS224)	1463W	890W (with DS224C) 1240W (with NS224)	491W	300W[2]
PCIe expansion slots	18	18	18	20	8	10	4	n/a
FC target ports (64Gb autoranging)	48	56	56	n/a	n/a	n/a	n/a	n/a
FC target ports (32Gb autoranging)	48	56	56	64	32	24	16	n/a
FC target ports (16Gb autoranging)	48	56	56	64	32	32 (with FC mezzanine card)	n/a	n/a
FCoE target ports, U TA2	n/a	n/a	n/a	64	n/a	n/a	n/a	8
200GbE ports (100GbE/40GbE autoranging)	24	24	24	n/a	n/a	n/a	n/a	n/a
100GbE ports (40GbE autoranging)	36	36	36	32	20	16	8[3]	n/a
25GbE ports (10GbE autoranging)	48	56	56	64	16	16	16	n/a
10GbE ports	48	56	56	64	32	32	n/a	4
10GBASE-T (1GbE autoranging)	48	56	56	64	n/a	16	4	4
12Gb/6Gb SAS ports	n/a	n/a	n/a	64	n/a	32	4	4
Storage networking supported	NFSv4/RDM, NVMe/TCP, NVMe/FC, FC, iSCSI, NFS, pNFS, CIFS/SMB, Amazon S3	NFSv4/ RDMA, NVMe/TCP, NVMe/FC, FC, iSCSI, NFS, pNFS, CIFS/SMB, Amazon S3	NFSv4/ RDMA, NVMe/TCP, NVMe/FC, FC, iSCSI, NFS, pNFS, CIFS/SMB, Amazon S3	NVMe/TCP, NVMe/FC, FC, iSCSI, NFS, pNFS, CIFS/SMB, Amazon S3	NFSv4/ RDMA, NVMe/TCP, NVMe/FC, FC, iSCSI, NFS, pNFS, CIFS/SMB, Amazon S3	NFSv4/ RDMA, NVMe/TCP, NVMe/FC, FC, iSCSI, NFS, pNFS, CIFS/SMB, Amazon S3	NVMe/TCP, NVMe/FC, FC, iSCSI, NFS, pNFS, CIFS/SMB, Amazon S3	NVMe/TCP, FC, iSCSI, NFS, pNFS, CIFS/SMB, Amazon S3
OS version	ONTAP 9.15.1 RC1 or later	ONTAP 9.15.1 RC1 or later	ONTAP 9.15.1 RC1 or later	ONTAP 9.10.1 RC2 or later	ONTAP 9.7 RC1 or later	ONTAP 9.7 RC1 or later	ONTAP 9.8 RC1 or later	ONTAP 9.12.1P1 or later
Shelves and media	NS224 (2U, 24 drives, SFF NVMe)	NS224 (2U, 24 drives, SFF NVMe)	NS224 (2U, 24 drives, SFF NVMe)	NS224 (2U, 24 drives, SFF NVMe); DS224C (2U, 24 drives, 2.5" SFF); DS2246 (2U, 24 drives, 2.5", SFF)	NS224 (2U, 24 drives, SFF NVMe); DS224C (2U, 24 drives, 2.5" SFF); DS2246 (2U, 24 drives, 2.5", SFF)	NS224 (2U, 24 drives, SFF NVMe); DS224C (2U, 24 drives, 2.5" SFF); DS2246 (2U, 24 drives, 2.5", SFF)	NS224 (2U, 24 drives, SFF NVMe); DS224C (2U, 24 drives, 2.5" SFF)	DS224C (2U, 24 drives, 2.5" SFF)
Host/client OS supported	Windows Server, Linux, Oracle Solaris, AIX, HP-UX, macOS, VMware, ESX							

[1] Effective capacity based on 5:1 storage efficiency ratios with the maximum number of SSDs installed; space savings will vary dependent on workload and use cases.

[2] Estimate under typical conditions - awaiting field data for new product.

[3] The AFF A250 supports 8, 100GbE ports for ONTAP 9.13.1 or later, and 4 ports for earlier ONTAP releases.

Table 2) AFF A-Series software

Data access protocols	• FC, iSCSI, NVMe/FC, NVMe/TCP, FCoE, NFS, SMB, Amazon S3
High availability	• Active-active controller architecture • Nondisruptive maintenance, upgrade, and scale-out clustering • Multisite resiliency for continuous data access
Storage efficiency	• Inline data compression, deduplication, and compaction • Space-efficient LUN, file, and volume cloning • Automatic data tiering
Data management	• Intuitive onboard GUI, REST APIs, and automation integration • AI-informed predictive analytics and corrective action • QoS workload control • Easy provisioning and data management from market-leading host operating systems, hypervisors, and application software • Multisite copy caching for improved read and write performance over distance
Scalable NAS	• Large-scale single namespace management with local and remote caching
Data protection	• Application-consistent snapshot copies and restore capabilities • Integrated remote backup and disaster recovery • Synchronous zero-data-loss replication • Symmetric active-active multi-site replication for business continuity
Security and compliance	• Automatic ransomware protection • Multifactor administrative access, multi-admin verification, dynamic authorization framework • Secure multitenant shared storage • Tamper-proof snapshots with SnapLock • In-flight and data-at-rest encryption • Regulatory-compliant data retention
Cloud integration	• Seamlessly tier, back up, replicate, and cache data to private and public clouds

Contact Us

About NetApp

NetApp is the intelligent data infrastructure company, combining unified data storage, integrated data services, and CloudOps solutions to turn a world of disruption into opportunity for every customer. NetApp creates silo-free infrastructure, harnessing observability and AI to enable the industry's best data management. As the only enterprise-grade storage service natively embedded in the world's biggest clouds, our data storage delivers seamless flexibility. In addition, our data services create a data advantage through superior cyber resilience, governance, and application agility. Our CloudOps solutions provide continuous optimization of performance and efficiency through observability and AI. No matter the data type, workload, or environment, with NetApp you can transform your data infrastructure to realize your business possibilities.

NetApp