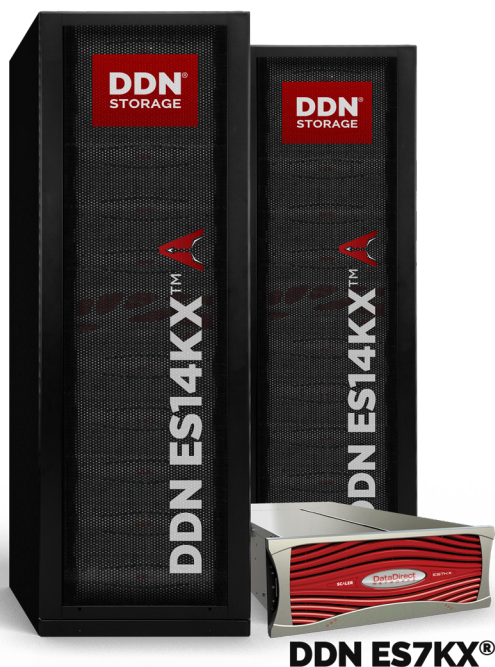![DDN Storage logo]

![SCALER APPLIANCES logo]

EXASCALER PRODUCT FAMILY

The World's Most Advanced Lustre Solution
1/2TB/s Rack • 9PB/Rack • #1 Lustre Vendor • Unique End2End Data

DDN ES7KX®

Data-intensive workflows in research, government, energy and earth sciences are driving analytics and modeling to extreme levels of fidelity in areas like materials modeling, ignition, brain mapping, climate studies, forecasting and more.

Exponential growth in data inputs is required to fuel every significant step taken to close the gap between a model and the physical world. This data growth profile puts storage infrastructure squarely in the critical path – driving requirements for extreme, dependable performance that scales.

Developed to overcome the toughest storage and data management challenges in extreme, data-intensive environments, DDN EXAScaler® appliances scale up and/or out, leveraging a SSD-accelerated, hyper-converged, parallel architecture to deliver industry-leading performance and efficiency for HPC Big Data workflows.

EXTREME PERFORMANCE AND SCALE, NEW TECHNOLOGIES & OPEN SOURCE

Researchers are the most demanding user community in HPC. To boost research productivity, advanced high performance sites are moving to centralized storage models. A centralized storage approach allows them to provide data access speeds to feed more concurrent projects at higher data rates, incorporate best-of-breed open source and new technology wherever possible, and improve cost-effectiveness and management overhead. A primary requirement when building a centralized storage infrastructure is the ability to grow and support site-wide data needs, even over multiple clusters or generations of clusters.

SCIENTIFIC YIELD	**FRICTIONLESS SCALE**
CONTROL COSTS	**EVOLVE QUICKLY**

PRODUCE SCIENTIFIC INSIGHTS FASTER

Things that don't matter at 1PB,
REALLY matter at 10PB...100PB

DDN EXAScaler - THE INDUSTRY'S MOST ADVANCED LUSTRE APPLIANCE

DDN builds on the experience of over a decade of Lustre* development, system design, implementation and support to deliver the EXAScaler line of Lustre appliances. EXAScaler combines the industry's most powerful storage architecture with DDN Enterprise Lustre Distribution, DDN integration tools, system monitoring tools and deep bench of Lustre experts across engineering, pre-sales and support. The result is the industry's fastest, most advanced Lustre appliance, proven in the most demanding environments in HPC.

CEA, the French Atomic Energy and Alternative Energies Commission leverages their DDN Lustre environment to deliver significant and cost-effective application and storage performance acceleration while maximizing use of data center space.

Wroclaw Centre for Networking and Supercomputing (WCSS) uses their DDN Lustre environment to reduce compute times for a community of over 1,000 researchers in fields including quantum chemistry, theoretical physics, life sciences, geo-sciences and cryptography.

British Antarctic Survey (BAS) worked with DDN to design and install a Lustre storage solution that improved data ingest, analysis and collaboration globally with up to 1.5PB of storage capacity to predict future climate change, and permits 10x boost in capacity within a reduced footprint.

Texas Advanced Computing Center (TACC) at the University of Austin Several world class Cray, Dell and HP systems at TACC connect 10s of thousands of cores to Petabytes of scratch and site-wide DDN storage.

Most Scalable
Start < 100TB
Scale Up to 18PB / Device
>2.5x bigger / device vs. competition

Densest
9PB / Rack
2x greater density vs. competition

Most Experience
10+ years of Lustre development and support
#1 Lustre Supplier

Fastest
½TB/s / Rack
>4x faster vs. competition

Designed for Flash
All SSD
Hybrid

Exascale-Ready
Petascale capability
Integrates With Exascale Flash

EXAScaler DELIVERS FEATURES AND FUNCTIONALITY YOU CAN'T GET ANYWHERE ELSE

Embedded / Converged — Lower TCO with converged storage and network and improve latency with converged filesystem

Installation / Configuration Tools — Simplify the move to Lustre with data migration, installation and configuration tools

Read Caching hinting — SFX® read cache extends system-level caching to SSD tier including read, read-after-write and application hinting

Spindle to File Management — DirectMon® configuration and monitoring solution simplifies admin of the entire appliance from drives to file system

Single Name Space — A Single End2End application and end user view of data regardless of whether it resides on flash, or HDD – in file or object storage – local or remote

Directory Level Quotas — Flexibility in project level quotas

Data on Metadata — Improved small file performance

Improved Client Performance — Improved client performance for both small and large I/O

Lustre Monitoring — Fine-grained file system monitoring with Lustre Jobstat

- HIGH PERFORMANCE LINUX PARALLEL FILE SYSTEM CLIENTS — FDR InfiniBand / 40GbE
- SSD CACHE
- UNIFIED STORAGE: SSD, HDD, CLOUD*
- LUSTRE FILE SYSTEM
- CENTRALIZED MANAGEMENT SOLUTION
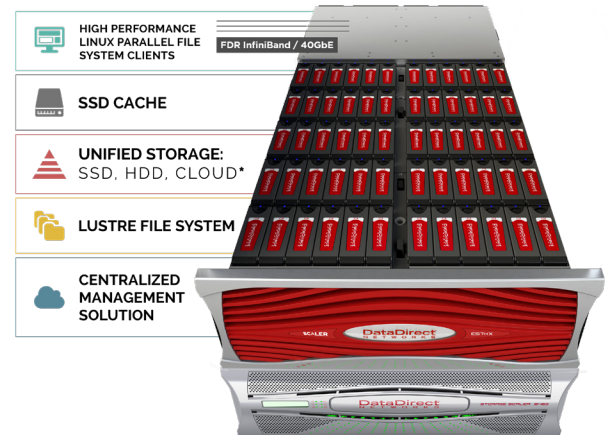
TECHNICAL SPECIFICATIONS

	ES7KX®	ES14KX®
PROTOCOLS	Linux and Windows Parallel FS Clients	
LUSTRE	IEEL 2.4 based on Lustre 2.5 IEEL 3.0 based on Lustre 2.7*	
PERFORMANCE	Up to 20GB/s per Base Enclosure	Up to 50GB/s per Base Enclosure
METADATA	DDN supports embedded metadata server, or external scale-out metadata server using Lustre DNE	
STORAGE HOST PORTS	4x 10/40 GbE 4x InfiniBand FDR	8x InfiniBand EDR/FDR 8x 10/40/100GbE 4x Intel® Omni-Path
DRIVE SUPPORT	SSD, Performance SAS and Capacity SAS/SATA drives, 3.5" 60 in base unit, 396 with expansion enclosures	Supported Drive Types: NL SAS or SSD Supported Drive Sizes: LFF 3.5" and SFF 2.5": 72 in base unit, 1752 with expansion enclosures
FILE SERVERS PER BASE ENCLOSURE	2 OSSs	4 OSSs
SUPPORTED RAID LEVELS	RAID 1/5/6	
REPLICATION	Asynchronous using WOS Bridge	
DATA AND SYSTEM MANAGEMENT	Quotas (users and groups) Optional DirectMon Centralized configuration and monitoring solution Optional EXAScaler Bridge Migrates data across EXAScaler and WOS® Object storage for active archive & cloud collaboration Optional DDN® DataMigrator for automatic data migration form any file system to any storage device Optional DDN ArchiveDirector™ for Policy-based tiered storage and data migration with mirroring, replication, encryption	
CUSTOM CONFIGURATIONS	Custom configurations of EXAScaler are available with external OSSs	

FOR MORE INFORMATION VISIT: www.ddn.com/products/lustre-file-system-exascaler/

ABOUT DDN®

DataDirect Networks (DDN) is the world's leading big data storage supplier to data-intensive, global organizations. For more than 19 years, DDN has designed, developed, deployed and optimized systems, software and solutions that enable enterprises, service providers, universities and government agencies to generate more value and to accelerate time to insight from their data and information, on premise and in the cloud. Organizations leverage the power of DDN technology and the deep technical expertise of its team to capture, store, process, analyze, collaborate and distribute data, information and content at largest scale in the most efficient, reliable and cost effective manner. DDN customers include many of the world's leading financial services firms and banks, healthcare and life science organizations, manufacturing and energy companies, government and research facilities, and web and cloud service providers. For more information, visit our website www.ddn.com or call 1-800-837-2298.

DDN® STORAGE

BOTTOM LINE RESULTS.
ACCELERATED.

SALES@DDN.COM | **+1.800.837.2298**

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