



Scalable storage systems for any requirement



The NASdeluxe NDL-4000R/L systems are available in different versions.

Features

- iSCSI/NFS failover for high-availability with two systems
- Expandable with JBODs via SAS expansion port
- Modular expandable with further I/O cards
- Snapshot functionality
- High data protection through RAID level 6
- Optional Active-Active iSCSI/NFS cluster
- Certification of Open-E DSS V7 software for VMware vSphere 6.x and Citrix
- Supports Hyper-V cluster

The NASdeluxe NDL-4000R/L systems are unified storage systems, which can be used individually or in a cluster. For servers they offer block-based storage via iSCSI or Fibre Channel, for clients file-based storage via NAS and/or CIFS/SMB.

The Open-E DSS V7 software offers the possibility to operate an iSCSI and NFS cluster with failover in Active-Active mode. Thus the performance of both cluster nodes is available.

The systems are based on Supermicro X10 boards. These boards offer, with two CPU sockets for the new Intel Xeon E5-2600v4 processors with up to 22 cores and up to six PCIe 3.0 slots, sufficient space for expansion.

One slot is used for the Areca ARC-1883 12 Gbps SAS RAID controller, its cache can be protected against data loss with flash memory and a BBU or capacitor. Other configurations are also possible.

2 x 10 Gbps Ethernet host ports, up to 5 x USB 3.0, up to 6 x USB 2.0 and IPMI are already onboard. The HDDs are connected entirely with SAS for maximum performance.

For the first time 3DS RAM is used. They offer clock speeds up to 2400 MHz and allow larger RAM capacities.

All iSCSI/NAS systems of the NDL-4000R/L series are equipped with the Open-E DSS V7 OS system. This has a central user interface with wizards simplifying the installation process.

The NDL-4000R/L systems are available in versions with up to 72 drive bays per enclosure. Depending on the application, fast SAS- or high-capacity SATA-HDDs or SSDs can be used simultaneously.

The NASdeluxe iSCSI/NAS systems are suited for all major operating systems.



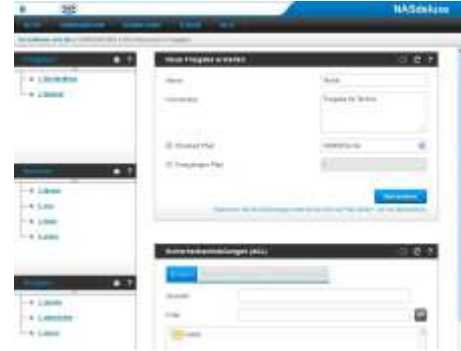
NDL-4000R/L iSCSI/NAS systems

Operating system Open-E DSS V7

Functionality (excerpt)	WORM, data replication, snapshots, clustering; automatic iSCSI and NFS failover (also Active-Active); Volume replication; Hyper-V cluster support
Hardware monitoring	System management via LAN connection
Certification	VMware and Citrix
Client operating system	Independent from client operating system

The NASdeluxe NDL-4000R/L can not only be used individually as a stable unified storage systems, but also as a cluster with two systems.

The NDL-4000R/L systems provide cost-effective solutions for high-availability requirements, replication via Ethernet, iSCSI/NFS Active-Active failover and more:



Open-E DSSV7 GUI of the NASdeluxe NDL-4000R/L

High-availability

With Open-E DSS V7 a synchronous volume replication for iSCSI/NAS/FC via Ethernet connection is possible. Asynchronous volume replication via WAN is also possible. The systems can be used in different ways depending on the functionality desired: Storage virtualization, high-availability iSCSI/NFS cluster with automatic failover,

integration of NAS or asynchronous replication via WAN. The systems support the protocols NFS, CIFS and AFP. A scheduling program helps run time-controlled tasks.

Replication via Ethernet

The synchronization between two Open-E DSS V7 servers is realized via LAN connection. The connection can be realized with copper cables or fiber optic cables. With a 10 Gbps Ethernet connection up to 500 MB/s throughput can be achieved – with faster NICs much more. To achieve further performance improvements, Ethernet interfaces can be grouped through bonding or multipathing. With the help of data replication, an Open-E system can be at the same

time the target and source for changes to files and folders. This enables the simultaneous monitoring of multiple servers. For users of NAS shares, whether CIFS or NFS, the multi-provisioned data is completely transparent.

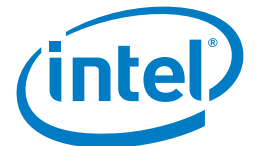
iSCSI/NFS Active-Active failover

With the "Active-Active iSCSI/NFS failover" add-on feature for Open-E DSS V7, the performance of your storage systems can be doubled and the sequential read and write performance can be increased about 100 %. In addition, the switching time is reduced about the half, compared to an Active-Passive iSCSI/NFS failover. These improvements are achieved by the load balancing of the Active-Active cluster, which allows all storage resources to be used optimally.

Without single point of failure, the read-, write- and replication-data stream can be balanced across both nodes. If a node fails, the other node automatically takes over and all the applications continue to run without interruption. This makes Open-E DSS V7 perfect for demanding virtualized environments, database applications or video surveillance systems.

Hardware NASdeluxe NDL-4000R/L

Mainboard	Supermicro X10 dual socket, VGA onboard (D-Sub)
CPU	one (1) or two (2) x Intel Xeon E5-2600v4 processors
RAM memory	32 GB DDR4 registered ECC with 2400 MHz (up to 1 TB)
LAN	two (2) x 10 GbE onboard
Additional cards	Ethernet, Fibre Channel, SAS
PCIe slots	up to three (3) x PCIe 3.0 x16, up to three (3) x PCIe 3.0 x8 (at operation from two (2) processors)
USB ports	up to five (5) x USB 3.0 and up to six (6) x USB 2.0
SATA ports	up to ten (10) x SATA 6 Gbps
Management	Remote-Management through IPMI module; Web-Browser based, graphical user interface (GUI) with SSL encryption for maximum safety
RAID-controller	6/12 Gbps SAS
Controller-microprocessor	Dual Core with at least 1.2 GHz (depending on model)
Controller-cache	2 GB (depending on model); Flash memory with optional BBU or CAP
RAID level	0, 1, 1E, 3, 5, 6, 10, 30, 50, 60 (depending on model)
Disk interface	6 and 12 Gbps SAS/SATA (depending on model)
Expansion	6 and 12 Gbps SAS expansion port for JBODs (depending on model)
Warranty	3 years (optional 5 years); optional replacement- and on-site-service



Motherboard NASdeluxe NDL-4000R/L system

Enclosure variations of the NASdeluxe NDL-4000R/L models

iSCSI/NAS system	NDL-4708T/L
JBOD	-
HDDs (max.), hot-swappable	8 x 3.5 LFF
Drive bays front / rear	8 x / -
Dimensions: (WxHxD)/mm	178 x 437 x 648; Tower
Rails	optional
PSUs, redundant	800 W (2 x)
Weight (without HDDs)	18 kg
DVD-ROM	optional



Most of the NASdeluxe NDL-4000R/L rackmount models offer an option to include an additional double tray enclosure with 2x 2.5 SFF drive bays



All rackmount systems include mounting rails

iSCSI/NAS system	NDL-4810R/L	NDL-4708R/L	NDL-4712R/L	NDL-4716R/L
JBOD	-	-	NDL-4012R/J	NDL-4016R/J
HDDs (max.), hot-swappable	10 x 2.5 SFF	8 x 3.5 LFF	12 x 3.5 LFF	16 x 3.5 LFF
Drive bays front / rear	10 x / -	8 x / -	12 x / -	16 x / -
additional HDDs rear	-	-	opt. 2x 2.5 SFF	opt. 2x 2.5 SFF
Dimensions: (WxHxD)/mm	437 x 43 x 597; 1 U	437 x 89 x 648; 2 U	437 x 89 x 648; 2 U	437 x 132 x 647; 3 U
PSUs, redundant	750 W (2 x)	740 W (2 x)	920 W (2 x)	1000 W (2 x)
Weight (without HDDs)	11,6 kg	18 kg	21 kg	25 kg
DVD-ROM	-	optional	-	optional

	U.2 NVMe		U.2 NVMe	
iSCSI/NAS system	NDL-4824R/L	NDL-4224R/L	NDL-4736R/L	NDL-4872R/L
JBOD	NDL-4224R/J	NDL-4024R/J	NDL-4045R/J	NDL-4288R/J
HDDs (max.), hot-swappable	24 x 2.5 SFF	24 x 3.5 LFF	36/45 ¹ x 3.5 LFF	72/88 ¹ x 2.5 SFF
Drive bays front / rear	24 x / -	24 x / -	24 x / 12 x; 21 ¹ x	48x / 24 x; 40 ¹ x
additional HDDs rear	opt. 2 x 2.5 SFF	opt. 2 x 2.5 SFF	opt. 2 x 2.5 SFF	opt. 2 x 2.5 SFF
Dimensions: (WxHxD)/mm	437 x 89 x 630; 2 U	437 x 178 x 673; 4 U	437 x 178 x 699; 4 U	437 x 178 x 699; 4 U
PSUs, redundant	1200 W (2 x)	1200 W (2 x)	1200 W (2 x)	1280 W (2 x)
Weight (without HDDs)	21 kg	25,5 kg	27,4 kg	27,4 kg
DVD-ROM	-	-	-	-

¹ = These JBODs have more HDD bays at the back as NASdeluxe iSCSI/NAS systems
² = NDL-4824R/L and NDL-4736R/L: Up to 4 x U.2 NVMe drives can be used

