Lenovo ThinkServer sd350

Ultradense 2U four-node platform for distributed enterprise and hyperconverged workloads

n400 Enclosure rear view

High-Density Solution

In this era of the "software-defined" data center, customers are looking for platforms with greater density and easier scalability, along with better economics. Density, to get as much compute power per square foot as possible; scalability to accommodate the tsunami of data created every day; better economics because budgets have been flat forever. Enter the 2U four-node system (2U4N).

2U4N systems have gained popularity in a variety of data centers, from large enterprises to service providers, because their small footprint and inherent density make them ideal for building solution-based appliances at a low cost. They are also a great fit for distributed enterprises with remote offices because of their compact size and ease of serviceability. The combination of the Lenovo ThinkServer sd350 and n400 Enclosure is built to deliver these types of solutions.

Optimized for distributed enterprise, hyperconverged and infrastructure solutions, the sd350, using today's fastest Intel processors, offers the optimal amount of memory and storage to deliver high performance and scalability at a low cost.

Slim Enclosure

This dense offering fits four hot-pluggable sd350 servers into an n400 enclosure that takes up only 2U (0.5U per server) and includes room for plenty of internal storage. The overall design makes the solution extremely affordable, with a low total cost of ownership (TCO).

Balanced Performance

Incorporating the latest technologies, the sd350 offers the new Intel® Xeon® E5-2600 processors v4 series (up to 135W, 20 cores), up to 512GB RDIMM memory, and a choice of solid state drives (SSDs) and 15,000rpm hard disk drives, for blazingly fast performance.

Fast processing demands fast I/O, so the sd350 also provides three PCIe 3.0 adapter slots, two USB 3.0 ports, and support for 10 Gigabit Ethernet (GbE). One dual-port 10GbE controller per server equals 80Gbps total throughput per 2U of rack space. Fourteen Data Rate (FDR) 40Gb InfiniBand (ConnectX-3) is also supported.

Storage Optimization

The n400 enclosure supports up to 24 2.5-inch HDDs or SSDs (6 drives per sd350), which you can mix as needed. There is plenty of flexibility in HDD performance and capacity per n400 enclosure with up to 48TB of internal near-line 7,200rpm SATA, 24TB of 7,200rpm SAS, 28.8TB of 10,000rpm SAS, or 14.4TB of 15,000rpm SAS HDDs.

With support for up to 11.5TB of enterprise standard SATA SSDs, or 9.6TB of enterprise SAS SSDs as well, storage flexibility and performance skyrockets. Standard software RAID 0/1/10/5, and optional hardware RAID 0/1/10 support increases the reliability/availability of your storage.

n400 Enclosure front view

Low TCO

Four servers in only 2U provide the density and ease of servicing of blade servers, but at a much lower cost because it fits right into an existing rack, unlike blade servers which require a chassis. Also, you can use standard networking architecture such as Lenovo RackSwitches. The sd350 also provides the flexibility to use your preferred operating systems and hypervisors, including multiple versions of Windows 2012 (including Hyper-V), SUSE Linux Enterprise Server, Red Hat Enterprise Linux and VMware.

A number of standard and optional hardware and software features help reduce operating costs:

- Two hot-swap redundant power supplies and five redundant fans, combined with the RAID support minimize costly workload downtime.
- Support for standard System x options (memory, storage, and adapters) enables you to leverage existing parts inventories.
- Lenovo XClarity Administrator systems management software support (planned for the first half of 2016) to help to reduce management costs.
- In addition to increasing bandwidth and performance, 1.2V DDR4 memory consumes 35 percent less energy than even 1.35V DDR3L DIMMs. High-efficiency Energy Star 2.0-compliant power supplies reduce energy costs even further.
- 512GB of RDIMM memory (in 16 DIMM slots), fast processors, and internal storage provide everything you need for public/private Clouds and many other enterprise workloads in half the rack space of 1U servers.

Specifications – ThinkServer sd350

Form Factor/Height	0.5U (inside the n400)
Processor	Intel® Xeon® Processor E5-2600 v4 series
Number of Processors	2 (up to 135W)
Cache	Up to 50MB L3
Memory	Up to 512GB (16 x 8GB/16GB/32GB 2400MHz RDIMMs)
Chassis Support	n400 Enclosure
Expansion Slots	3 PCIe 3.0
Network Interface	1GbE NIC standard (plus 1GbE port for remote management); 10GbE NIC optional
RAID Support	SW RAID 0/1/10/5 standard; optional HW RAID 0/1/10
Systems Management	Lenovo XClarity management SW; dedicated IPMI 2.0 port for remote (out-of-band) management; xCAT, Lenovo ThinkServer Tools; AMI BIOS; BMC code stack
Operating Systems Supported	Windows Server 2012 Standard / Datacenter / Hypervisor Hyper-V / R2 Standard / R2 Datacenter Hypervisor; SUSE Linux Enterprise Server (SLES) 11 64-bit SP4 / SLES 11 64-bit with Xen SP4 / SLES 12 U1 64-bit / SLES 12 U1 64-bit with Xen; Red Hat Enterprise Linux (RHEL) 6.7 (64-bit) with KVM / RHEL 7.2 (64-bit) with KVM; VMware ESXi 5.5 U3 / 6.0 Update 1
Limited Warranty	1-year parts and labor

Specifications – n400 Enclosure

Form Factor/Height	2U
Max. sd350 Servers per n400 Enclosure	4
Drive Bays	Up to 24 (6 per server)
Maximum Internal Storage (2.5-inch)	48TB 7,200rpm NL SATA HDDs; 28.8TB 10,000rpm SAS HDDs; 14.4TB 15,000rpm SAS HDDs; 11.5TB enterprise standard SATA SSDs; 9.6TB enterprise SAS SSDs
Power Supplies	1 + 1 hot-swap/redundant 1200W or 1600W Platinum level high-efficiency power supply unit
Cooling	5 non-hot-swap/redundant fans
Hot-Swap Components	sd350 servers, power supply units
Controller	1 to manage fans and power supply units
Limited Warranty	1 year parts and labor

Options

Intel Xeon Processor E5-2698 v4 20C 2.2GHZ 50MB Cache 2400MHz 135W	32GB RDIMM 2Rx4 8Gb 1.20V PC4-19200 2400MHz	400GB 12G SAS 2.5-inch MLC G3HS Enterprise SSD
00YD501	**00WF323**	**00FN389**
Additional Intel Xeon E5 CPU for better performance and throughput	More memory for greater performance	Expanded storage capacity and extremely high IOPS for read-intensive operations

Why Lenovo

Lenovo is a $46 billion global Fortune 500 company and a leader in providing innovative consumer, commercial, and enterprise technology. Lenovo enterprise systems deliver industry-leading performance, reliability, and security in virtualized and cloud environments for analytics, database, virtual desktop, infrastructure, and web workloads. Lenovo also offers simplified and extensible systems management tools so you can manage your infrastructure on your own terms. Consistently ranked #1 in reliability and customer satisfaction, the Lenovo enterprise server, storage, and networking portfolio provides the hardware for businesses that never stand still.

For More Information

To learn more about the Lenovo ThinkServer sd350 Server and ThinkServer n400 Enclosure, contact your Lenovo Business Partner or visit: **lenovo.com**/systems/servers

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