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Netra st D130
Rack−Optimized Thin Storage

Just the Facts

(SunWIN token# 122816)

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Netra™ st D130 Thin Storage Positioning

Introduction

The Netra™ st D130 thin storage is a rackable, thin storage product that is 1 rack unit (1 U) high, with multiple rackmounting options. The Netra st D130 can house up to three 18 GB or three 36 GB SCSI disk drives. This product is designed to be an affordable, rackmountable, incremental storage option. Its 1U form factor enables companies to maximize rack density, thereby minimizing the use of valuable vertical space. Telecommunications companies (telecoms) and service providers (SPs) in particular are beginning to measure the cost of each rack unit of space. Products which occupy less space are essentially less expensive to maintain and operate. Potential applications include hot−swap disks for rackmount servers, hot−swap boot disks, hot−swap mirroring of systems and data disks for rackmount servers, and incremental storage.

Telcordia NEBS Level 3 certified, the Netra st D130 thin storage is designed to meet the needs of telecoms and SPs. The unit ships with a number of NEBS features that certify the fire proof and fire resistant enclosure to withstand Zone 4 earthquakes, operate within compliant levels of EMI and ESD, and to operate in environments with non−ambient temperature, high humidity, and airborne contaminants. To support deployment in the telecom/SP environments, rackmount support is standard. There is a choice of AC or –48V/–60V DC power.

Product Family Placement

The Netra st D130 thin storage is part of the Netra storage product line which includes the Netra st A1000/D1000 storage arrays. The Netra st D130 thin storage is a low−profile, rackmounted, low−cost thin storage that provides incremental storage for Netra and other Sun™ servers.

Storage/Serviceability Features

- Up to three hot−swap 18 or 36 GB disks
- High performance 10 k rpm disks
- UltraSCSI single−ended connect to host
- Dual SCSI connectors
- Status LEDs on front and back of unit, activity LEDs for each disk
- Simplified field replaceable units (FRUs)
- Auto termination
- Up to two enclosures per SCSI chain
- Dual host support on Sun Cluster
- Labeling area for customer identification

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Carrier−Grade Features Designed for Telecom Environment

- Telcordia NEBS Level 3 certified
- Choice of AC or DC power
- Standard 19" rackmount ready, with rackmount options for 23", 24", and 600 mm
- Fixed mount for front, front/back, center mounting
- Sliding rail mount for easy servicing/replacement
- Dual cooling fans
- Isolated ground chassis (DC version)

Key Messages

The Netra st D130 thin storage was designed from the start as rackable, thin storage for the service provider Enterprise and telecom environments. Three hot−swappable disks help enable customers to add storage incrementally.

- Hot swap, incremental storage for Netra and Sun Enterprise™ servers and cluster applications
- 1 rack unit high, 18−inch depth, rackmount−ready enclosure
- Up to three hot−swappable, 18 GB or 36 GB, 10 k rpm high performance disk drives (JBOD)
- UltraSCSI, single−ended, direct connect to standard port on Sun servers
- Status LEDs for FRUs
- Remote monitoring software for Sun server hosts
- NEBS Level 3 ruggedized
- Choice of AC or –48 V DC power
- Rack options for 19−inch, 23−inch, 24−inch and 600−mm standard enterprise and telecom racks
- Carrier−grade serviceability features
- Quick deployment, easy maintenance, high MTBF

Availability

18 GB and 36 GB disk drives are now available in both AC− and DC−powered versions

Target Users

The Netra st D130 thin storage is designed to be used by system administrators, system architects, and telecom system designers. The Netra st D130 thin storage can be mounted in various rack configurations, takes up a minimum amount of space, and provides incremental storage at a competitive price.

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Target Markets

Below are the industries and key features to highlight that are appropriate for the Netra st D130 thin storage.

Industry/Customer	Key Features to Highlight
• Service Provider • Data center	• 1 U form factor • Rackmountable • Up to three hot−swap disks • High performance 10 k rpm disks • Dual SCSI connectors, up to two enclosures per SCSI chain • Status LEDs on front and back of unit, activity LEDs for each disk drive • Simplified field replaceable units (FRUs) • Dual host support on Sun Cluster • Labeling area for customer identification • Designed to provide continued operation in high humidity, 0–50°C, earthquake Zone 4 • Choice of AC or DC power
• Telecom • OEM/Network Equipment Builders • Central Office	• 1 U form factor • Telcordia NEBS Level 3 certified • Choice of AC or DC power • Rackmountable • Dual cooling fans • Up to three hot−swappable disk drives • Isolated ground chassis (DC version)

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Selling Highlights

Market Value Proposition

The Netra st D130 thin storage provides the following solutions to the Enterprise and telecom markets:

- Ruggedized, rack−optimized thin storage in space−constrained environments
- Incremental storage for Netra and workgroup servers
- Hot swappable, redundant boot disks for Netra, workgroup, and Enterprise servers
- High availability applications (mirroring, clustering)

Applications

The Netra st D130 thin storage is targeted at the following applications:

- Low−cost incremental storage
- Boot device for Enterprise servers
- Cluster applications with the Netra T1 server and Netra st D130 thin storage
- Hot swappable, redundant system disks for Netra and other Sun servers
- Ruggedized storage for service providers and telecom
- Mirroring—by using two Netra st D130 thin storage units and mirroring software on the host, build redundant system and data disks with no single point of failure
- Web hosting server storage applications
- Web−caching server storage applications

Compatibility

The Netra st D130 thin storage is compatible with the following platforms:

- Netra t 1400/1405
- Netra t 1120/1125
- Netra T1
- Netra ct 400/800
- Enterprise 220R
- Enterprise 280R
- Enterprise 420R
- Enterprise 3500 – 6500
- Enterprise 10000 (target June, 2001)

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Enabling Technology

Technology Overview

The Netra st D130 thin storage provides up to 109 GB of storage (218 GB when daisy chained) incrementally, allowing users to add the amount of storage needed when it is needed. The hot−swappable, high performance disk drives can be connected directly to the UltraSCSI port standard on Sun servers or to UltraSCSI host adaptors.

Clustering

Clustering configurations with Netra T1, Netra t 1120/1125 servers, and Netra t 1400/1405 servers provides a high performance, high availability, low profile system at a competitive price with no single point of failure.

Carrier−Grade Features

- NEBS certification and ETSI compliance
- AC or DC power
- Dual cooling fans
- Status LEDs in front and back
- Telcordia NEBS Level 3 certified
- Ruggedized to operate in earthquake Zone 4 locations
- Continuous operation in 50°C for up to 96 hours
- Stringent EMI emission control
- Flame resistant, fire proof, metal enclosure
- Self−contained system design minimizes operational interference to other systems in the same rack
- Isolated ground option for DC power

Form Factor

- Rackable thin storage, 1 U (1.75" high)
- Depth (18.6") of the Netra st D130 thin storage enables it to fit easily into industry−standard racks without hanging out of the back, allowing easy access to rear cables

Daisy Chaining

- Dual connectors enable daisy chaining of two enclosures, supporting up to 108 GB per SCSI chain or dual hosting in applications such as Sun Cluster
- Switch on back of chassis to select SCSI IDs 2, 3, 4 or 10, 11, 12

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Refer to the section “Netra st D130 Daisy Chain Configuration” on page 17 for more details about daisy chaining.

Data Storage Capabilities

- Up to three hot−swappable, 18 GB or 36 GB, 10 k rpm disk drives
- UltraSCSI, single−ended connection to standard SCSI port on Sun servers and to host adaptors
- Dual SCSI connectors
- Auto termination
- Connect up to two enclosures per SCSI chain
- Two−position switch allows quick selection of SCSI IDs 2, 3, 4 or 10, 11, 12
- Supports standard SCA hot−swappable disk drive with spud brackets

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Overview

The Sun Netra st D130 thin storage is a rackable thin storage with a 1 U form factor. Its carrier−grade features make it ideally suited to the telecom and service provider markets, where space is at a premium and system uptime is critical. The internal architecture of the Netra st D130 thin storage is relatively simple, supporting up to 108 GB of storage (when daisy chained), with greater capacities to come as disk capacities grow.

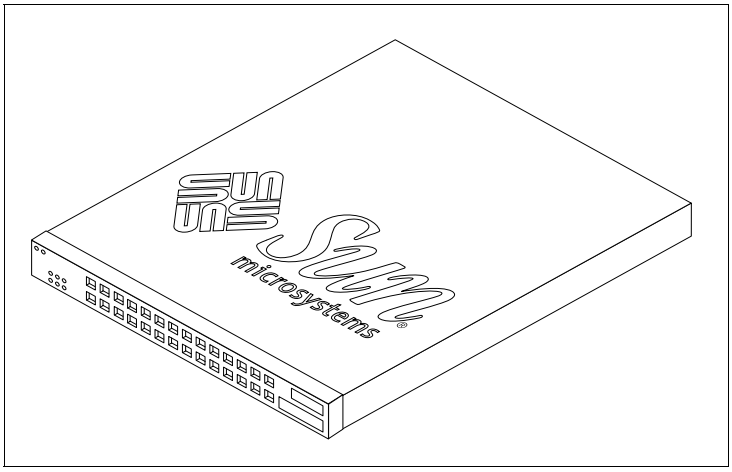


Figure 1. The Netra st D130 Thin Storage

Netra st D130 Thin Storage Features and Benefits

Features	Benefits
• 1 U form factor	• Efficient use of valuable vertical rack space • Helps reduce overall operating and maintenance costs
• Multiple rackmount options	• Easily fits into customer 19", 23", 24", and 600 mm racks
• High performance UltraSCSI 18 GB 10 k rpm drives	• Excellent performance, interchangeability with other Netra products (except the Netra ft 1800)
• Front accessible, hot−swappable drives	• Allows minor configuration changes without service interruption
• Storage Subsystem Manager (SSM 1.0) and LED fault lights front and rear, activity LED for each drive	• Enables simple status monitoring of each drive bay, recognition of faulty unit from front and rear, thereby increasing ease of serviceability
• Dual SCSI connectors	• Enables clustering configurations, daisy chaining of up to two enclosures

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Features	Benefits
• Dual cooling fans	• Two cooling fans with high MTBF ratings help reduce the risk of device faults
• Telcordia NEBS Level 3 certification	• Certified to withstand Zone 4 earthquakes; operates in non−ambient climates and within stringent EMI and ESD levels; fire proof and fire resistant enclosure
• AC or –48 V DC power options	• Works with customer's power system enabling easy installation and operation
• Simplified field replaceable units (FRUs)	• Only two FRUs–enclosure and disks–for easy servicing
• Competitive pricing	• Enables storage expansion in affordable increments
• Recessed labeling area in front bezel	• Enables customer to easily label and identify units
• Auto termination	• No termination plugs needed

System Architecture

- AC or DC power supply
- Dual cooling fans
- Dual SCSI connectors with single−ended interface to host

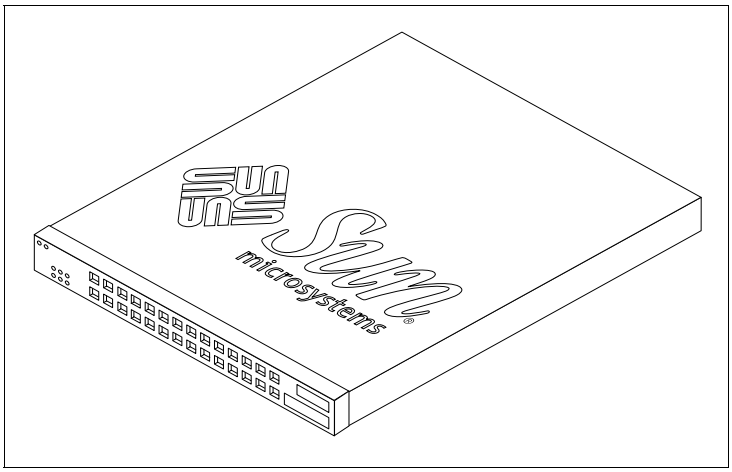


Figure 2. Netra st D130 Thin Storage Enclosure

Disk Tray Key Facts

- Each Netra st D130 disk tray holds a maximum of three, low profile, 3.5−inch, hot−pluggable disk modules.
- All drives are mounted in a spud bracket for easy installation and removal from the tray.
- High performance, 10 k rpm, 18 or 36 GB drives.

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- The drives use SCA−2 connectors in which the ground leads make first contact for hot−pluggable support. This enables electrical hot plugging. The cable−free drives plug directly into the backplanes to provide higher reliability.

Enclosure Service

Enclosure services provide and/or accept configuration and maintenance information. Information about the Netra st D130 thin storage is obtained through physical inspection of the unit or through software (downloadable from the Web; refer to http://nsp.eng for details).

The following components generate or receive enclosure status or control information:

- Power supply (local only)
- Cooling fans (local only)
- Disk drives

Front Panel Indicators

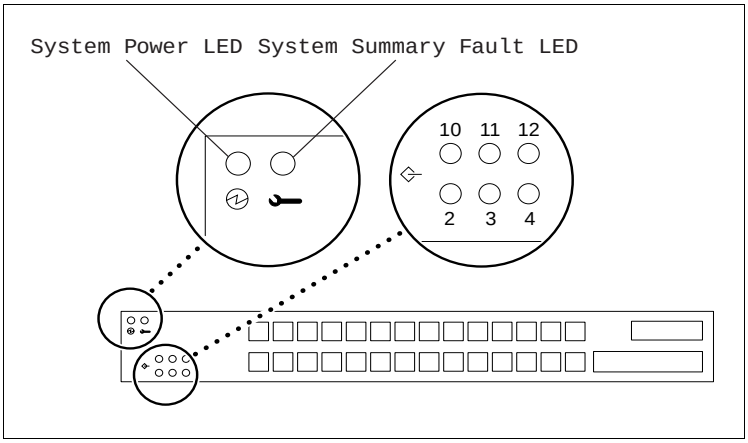


Figure 3. Front Panel System Power/Fault Indicators

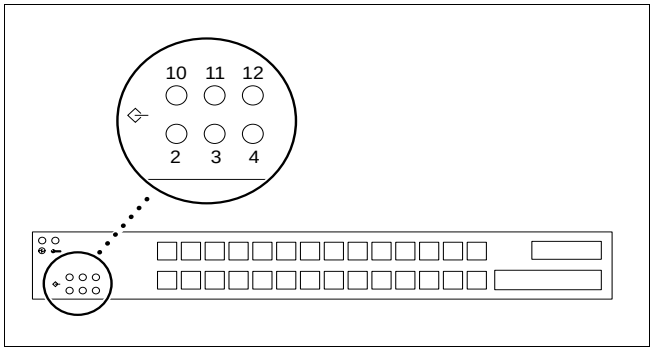


Figure 4. Front Panel Disk Drive LEDs

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Rear Panel Indicators and Switches

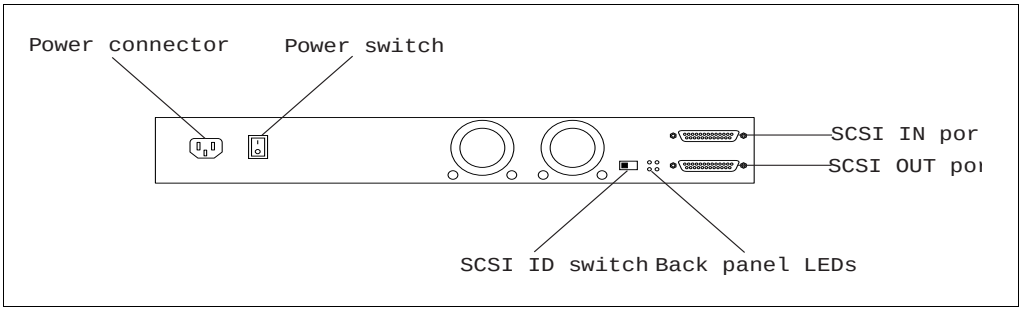


Figure 5. Rear View

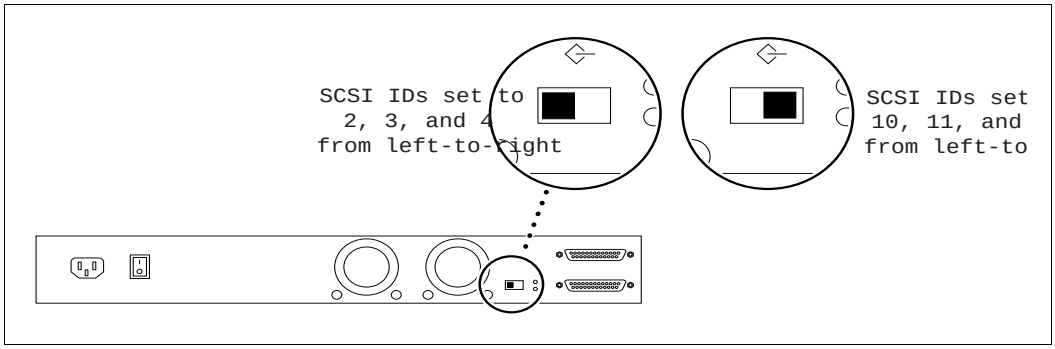


Figure 6. SCSI ID Switch

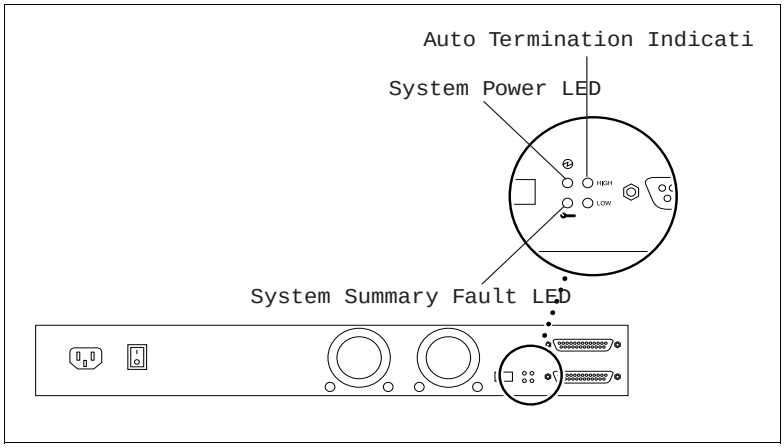


Figure 7. Rear Panel LEDs

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Netra st D130 Thin Storage DC Version

Figure 8 shows the back of the DC version of the Netra st D130 thin storage chassis. Note that there are two DC connectors. DC connectors are available as an X−option and come in sets of 10. Two connectors are typically needed per Netra st D130 thin storage. These connectors can be used for other DC−powered products in the Netra product family of servers, storage, and peripherals.

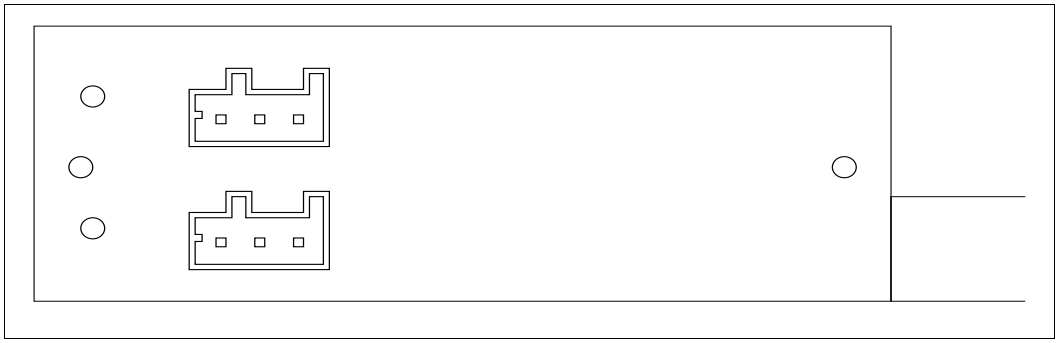


Figure 8. Rear of DC Unit

Figure 9 shows a DC connector and the placement of the input power cables. For more information about setting up the DC connectors, refer to the DC Connector Product Notes.

***Note**: Customers need to ensure that there is sufficient power to run the added servers, storage, and peripherals.*

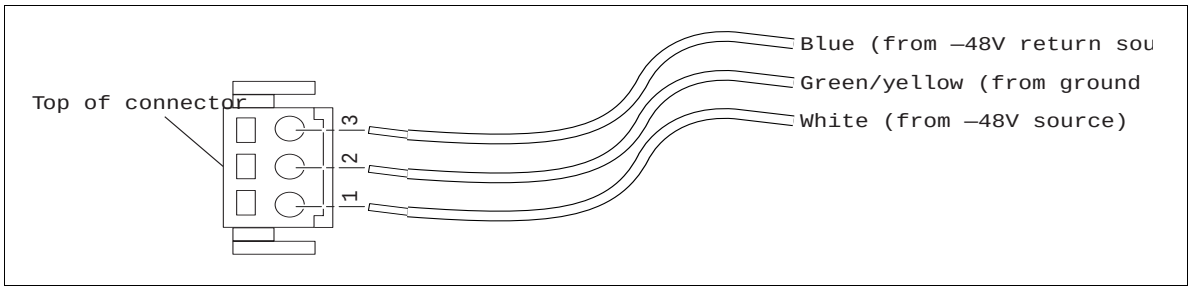


Figure 9. DC input power cables

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Reliability, Availability, and Serviceability (RAS)

Reliability

- NEBS Level 3 ruggedness: metal enclosure, can withstand Zone 4 earthquakes and non−ambient temperatures and operate within stringent EMI and ESD levels
- Extremely reliable fans and power supply with high MTBF ratings

Availability

- Can be used for high availability mirroring applications
- Can be used for high availability clustering applications

Serviceability

- Status LEDs in the front and back of the Netra st D130 thin storage indicate power and enclosure operating status
- Activity LEDs for each disk drive
- Uses standard SCSI driver available on Sun host adaptors
- Server software provides drive statistics and adds functionality, for example, enables remote users to determine whether individual drives are working
- Two field replaceable units (FRUs)–enclosure and drives
- Recessed labeling area on the front of the Netra st D130 bezel prevents label from accidentally coming off and allows customers to identify various units

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Electrical Requirements

AC Source Site Requirements

Electrical Element	Requirement
Voltage	100 V AC to 240 V AC (nominal)
Frequency	47–63 Hz
Max. operating current	4.0 amps
Max. surge current	100 amp peaks

Overcurrent protection devices must be provided as part of each host equipment rack.

- Circuit breakers are located between the AC source and the Netra st D130 storage enclosure.
- Circuit breakers must not trip when presented with inrush current of 100 amps lasting 5 ms.

The power can be disconnected for servicing in any of the following ways:

- Disconnect the connector from the power module at the rear of the enclosure.
- Turn off the circuit breakers in the rack where the enclosure is mounted.
- Disconnect the main plug from the AC source.

DC Source Site Requirements

Electrical Element	Requirement
Voltage	–48 V DC
Max. operating current	4.0 amps
Max. input surge current	20 amp peaks

Note: *The DC power supply range is –40 V DC to –75 V DC, 5 amps max. operating current.*

- Electrically isolated from any AC source.
- Reliably connected to the earth (the battery room positive bus is connected to ground).
- Capable of providing up to 200 watts of power per feed pair.
- Overcurrent protection devices must be provided as part of each equipment rack.
- Circuit breakers must be located between the DC power source and the Netra st D130 storage enclosure. Two 10−amp, double−pole, fast trip, DC−rated circuit breakers for each power supply.

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Chassis Dimension and Weight

	U.S.	Metric
Height	1.73 in (1 rack unit–1U)	4.4 cm
Width	17.17 in.	43.6 cm
Depth (with front bezel)	18.58 in.	47.2 cm
Weight (without drives)	13 lbs	5.9 kg
Weight (fully loaded)	18 lbs	8.16 kg
Shipping Weight (product and packing)	20 lbs	9.5 kg

Environment

The Netra st D130 thin storage is designed to meet the following requirements:

Environmental Specifications

Climate Control	Location	Minimum to Maximum Range
Temperature (dry bulb)	Operating	0°C to 40°C (32°F to 104°F)
	Storage	–25°C to 65°C (–13°F to 149°F)
	Transit	–25°C to 65°C (–13°F to 149°F)
Short term (96 consecutive hrs)	Operating	–5°C to 55°C (23°F to 131°F)
	Non−operating	–40°C to 70°C (–40°F to 158°F)
Temperature derating (max)	Operating	3.3°C per 1000m (1.7°F per 1000 ft) above sea level
Relative humidity (non−condensing)	Operating	5% to 90%
Short term (96 consecutive hrs)	Storage	5% to 95%
	Transit	5% to 95%
	Operating	5% to 90%
	Non−operating	5% to 95%
Altitude (based on drives)	Operating	0m to 3,000m (0 ft to 10,000 ft) above sea level
	Storage	0m to 12,000m (0 ft to 40,000 ft) above sea level
	Transit	0m to 12,000m (0 ft to 40,000 ft) above sea level
Heat dissipation (maximum)	Operating	150 watts, 512 BTU per hour
Sound power	Operating	6.0B, in accordance with ISO 9296
	Idle	6.0B, in accordance with ISO 9296
Earthquake	Location	NEBS requirements for earthquake Zone 4

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Regulations

The Netra st D130 thin storage meets or exceeds the following requirements:

Safety	UL 1950, CSA C22.2−No. 950, EN 60650 (73/23/EEC), IEC 950
Emissions	CFR Title 47, FCC Part 15, EN 55022 (89/336/EEC)
Immunity	EMC Directive (89/336/EEC), EN50082−1
Telecom environment	Telcordia: GR−63−CORE, NEBS GR−1089−CORE, TR−NWT−000295
Compliance • Telcordia • Safety • EMC	 • SR 3580 NEBS Level 3 certified • cULus Mark, TüVGS Mark, CE Mark • CE Mark (93/68/EEC), FCC authorized Class A

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Requirements and Configuration

System Requirements

The Netra st D130 thin storage requires a Netra T1, Netra t 1120/1125, Netra t 1400/1405, ct 400/800 servers, Enterprise 220R, 420R, 3500–6500 or other Sun servers with an on−board UltraSCSI SE interface or UltraSCSI SE host adapter.

System Configuration

Standard Components Shipped With Netra st D130 Thin Storage

The following pieces of hardware come as indicated with every Netra st D130 thin storage:

- One AC power cord (AC−version only)
- Four DC plug connectors (DC−version only)
- Appropriate country cable
- UltraSCSI cables
- 19" rackmount kit

Netra st D130 Thin Storage Configuration Guidelines

The Netra st D130 thin storage is supported by the following host platforms.

<table>
<tr><th>Netra st D130 Thin Storage DC−powered Version</th><th>Netra st D130 Thin Storage AC−powered Version</th></tr>
<tr><td rowspan="3">Telecom Servers
• Netra T1 Model 100
• Netra t 1120 (Solaris™ 2.6, Solaris 7, Solaris 8 Operating Environments)
• Netra t 1400
• Netra ct 400/800</td><td>Netra Servers
• Netra t1 Model 105
• Netra T1 AC200
• Netra t 1125
• Netra t 1405</td></tr>
<tr><td>Enterprise Servers
(Solaris 2.6, Solaris 7, Solaris 8 Operating Environments)
• Sun Enterprise 3500
• Sun Enterprise 4500
• Sun Enterprise 5500
• Sun Enterprise 6500
• Sun Enterprise 10000 (target June, 2001)</td></tr>
<tr><td>Workgroup Servers
• Sun Enterprise 220R
• Sun Enterprise 280R
• Sun Enterprise 420R</td></tr>
</table>

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Supported Host Configurations

The Netra st D130 thin storage is supported by the following configurations:

- Single host
- Daisy chain (two enclosure maximum)
- Sun Cluster 2.2

Refer also to the *Netra st D130 Installation and Maintenance Manual*. This guide contains detailed information about correct SCSI cabling for the Netra st D130 thin storage.

Netra st D130 Thin Storage Basic Configuration

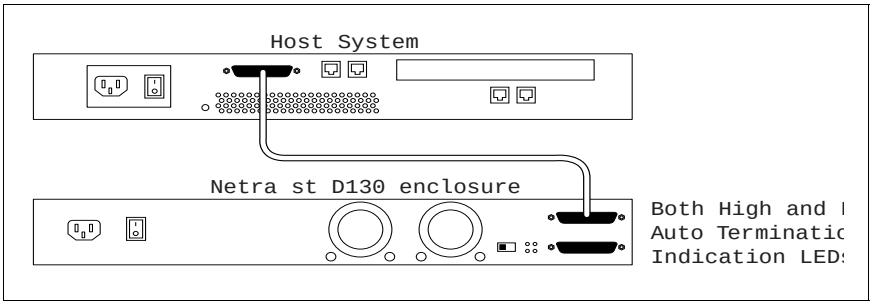


Figure 10. Basic Configuration

Refer to the *Netra st D130 Installation and Maintenance Manual* for detailed information.

Netra st D130 Daisy Chain Configuration

The Netra st D130 thin storage can be daisy chained as follows.

Server	Number	Cable Length
Netra T1 on−board SCSI	2	0.5 m right angle or 0.8 m straight
Netra t 1120/1125 on−board SCSI	1	0.8 m
Netra t 1400/1405 on−board SCSI	1	0.8 m
Enterprise 220R, Enterprise 280R, Enterprise 420R on−board SCSI	1	0.8 m
SCSI port on 10/100 Base T F/W Ultra SCSI PCI adapter (X1032A)	2	2.0 m (use 0.5m to daisy chain the second unit)
Each SCSI port on dual SE SCSI card (X6540A)	2	0.8 m
SCSI Port on SunSwift 100 Base T F/N SCSI SBus adapter (x1018A	2	2.0 m (use 0.5 to daisy chain the second unit)

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Figure 11 illustrates two Netra st D130 thin storage units daisy chained.

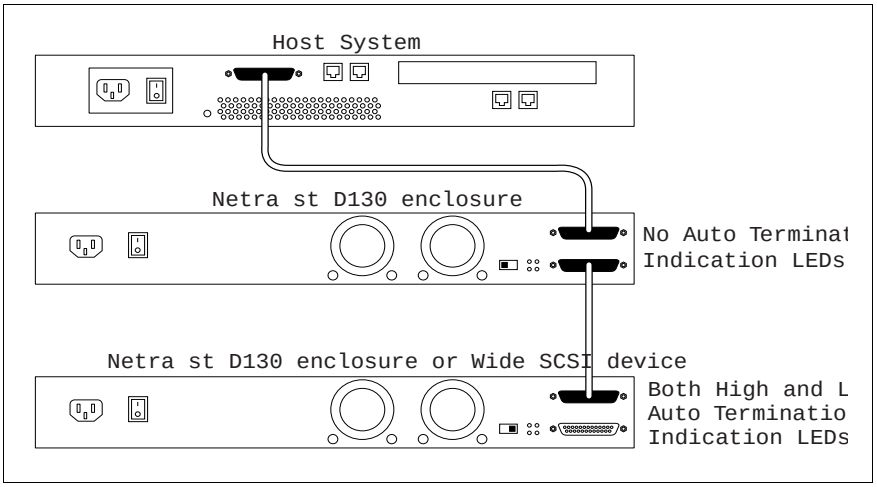


Figure 11. Daisy Chain

Refer to the *Netra st D130 Installation and Maintenance Manual* for detailed information.

Licensing/Usage

N/A

Interconnect

- UltraSCSI single−ended

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MTBF

The MTBF is very high, greater than 150,000 hours (less than 0.1 predicted service actions per unit per year).

Standards/Conformance

- UltraSCSI single ended
- Telcordia NEBS

Software

The Netra st D130 thin storage operates with Solaris 2.6 Operating Environment or higher.

Other Late Breaking News

For other late breaking news for the Netra st D130 thin storage, go to:

`http://www.sun.com/netra`

Internationalization

The Netra st D130 documentation is available in English. Go to the following Web site to get internationalization documentation:

`http://www.sun.com/netra`

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Ordering Information

The following are some sample base models for the Netra st D130 thin storage:

Order Number	Title and Description
NS−XDSKD130−36GAC	Netra st D130 thin storage, AC Rackable thin storage for telecoms and service providers with: • 19" rackmount ready, 1 U ¥ 17.6" ¥ 18.6" • Telcordia NEBS Level 3 certification • 2 UltraSCSI 18 GB 10 k rpm drives (hot−swappable) • Dual cooling fans
NS−XDSKD130−36GDC	Netra st D130 thin storage, DC Rackable thin storage for telecoms and service providers with: • 19" rackmount ready, 1 U ¥ 17.6" ¥ 18.6" • Telcordia NEBS Level 3 certification • 2 UltraSCSI 18 GB 10 k rpm drives (hot−swappable) • Dual cooling fans
UG−XDSKD130−36GAC	UniPack/MultiPack trade−in upgrade

Other Base Models

Order number	Option Description
NS−XDSKD130−18GAC	1 UltraSCSI 18GB 10 k rpm, hot−swap drive (AC)
NS−XDSKD130−54GAC	3 UltraSCSI 18GB 10 k rpm, hot−swap drives (AC)
NS−XDSKD130−54GDC	3 UltraSCSI 18GB 10 k rpm, hot−swap drives (DC)
NS−XDSKD130−72GAC	2 UltraSCSI 36GB 10 k rpm, hot−swap drives (AC)
NS−XDSKD130−54GDC	2 UltraSCSI 36GB 10 k rpm, hot−swap drives (DC)

Options

The Netra st D130 thin storage supports the following options:

Order number	Option Description
X5239A	18 GB 10 k rpm 1" UltraSCSI drive, x−option
X5244A	36 GB 10 k rpm 1” UltraSCSI drive, x−option
X1032A	PCI 100BaseT and UltraSCSI SE card (fresh choice)
X6540A	PCI dual UltraSCSI SE card
X5239A	18 GB 10,000 rpm 1" UltraSCSI SE disk drive

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Order number	Option Description
X6919A	19" rackmount kit—includes both fixed mount brackets and rail mount kit
X6966A	23" rackmount kit—includes both fixed mount brackets and rail mount kit
X6967A	24" rackmount kit—includes both fixed mount brackets and rail mount kit
X6968A	600 mm rackmount kit—includes both fixed mount brackets and rail mount kit
X1139A	2−meter Ultra SCSI−3/SCSI−3 cable
X959A	2−meter SCSI−3/VHDC cable with right−angled connector, right
X6917A	0.36−meter SCSI−3 cable with right−angled connector
X6918A	Replacement front bezel
X949A	Wago DC connector set, contains 10 extra DC connectors
X1134A	0.8 meter Ultra SCSI−3/SCSI−3 cable

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Upgrade Paths

An upgrade path is available to upgrade from MultiPacks deployed in rackmount situations to the Netra st D130 thin storage.

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Service and Support

The SunSpectrum[SM] program is an innovative and flexible service offering that allows customers to choose the level of service best suited to their needs, ranging from mission−critical support for maximum solution availability to backup assistance for self−support customers. The SunSpectrum program provides a simple pricing structure in which a single fee covers support for an entire system, including related hardware and peripherals, the Solaris[TM] Operating Environment software, and telephone support for Sun[TM] software packages. The majority of Sun's customers today take advantage of the SunSpectrum program, underscoring the value that it represents. Customers should check with their local Sun Enterprise[TM] Services representatives for program and feature availability in their areas.

FEATURE	SUNSPECTRUM PLATINUM[SM] Mission−critical Support	SUNSPECTRUM GOLD[SM] Business−critical Support	SUNSPECTRUM SILVER[SM] Systems Support	SUNSPECTRUM BRONZE[SM] Self Support
Systems Features				
Systems approach coverage	Yes	Yes	Yes	Yes
System availability guarantee	Customized	No	No	No
Account Support Features				
Service account management team	Yes	No	No	No
Personal technical account support	Yes	Yes	No	No
Account support plan	Yes	Yes	No	No
Software release planning	Yes	No	No	No
On−site account reviews	Monthly	Semiannual	No	No
Site activity log	Yes	Yes	No	No
Coverage / Response Time				
Standard telephone coverage hours	7 day/24 hour	7 day/24 hour	8 a.m.–8 p.m., Monday–Friday	8 a.m.–8 p.m., Monday–Friday
Standard on−site coverage hours	7 day/24 hour	8 a.m.–8 p.m., Monday–Friday	8 a.m.–8 p.m., Monday–Friday	N/A
7−day/24−hour telephone coverage	Yes	Yes	Option	No
7−day/24−hour on−site coverage	Yes	Option	Option	N/A
Customer−defined priority setting	Yes	Yes	Yes	No

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FEATURE	SUNSPECTRUM PLATINUM℠ Mission−critical Support	SUNSPECTRUM GOLD℠ Business−critical Support	SUNSPECTRUM SILVER℠ Systems Support	SUNSPECTRUM BRONZE℠ Self Support
• Urgent (phone/on−site)	Live transfer/2 hour	Live transfer/4 hour	Live transfer/4 hour	4 hour/N/A
• Serious (phone/on−site)	Live transfer/4 hour	2 hour/next day	2 hour/next day	4 hour/N/A
• Not critical (phone/on−site)	Live transfer/ customer convenience	4 hour/customer convenience	4 hour/customer convenience	4 hour/N/A
Additional contacts	Option	Option	Option	Option
Enhanced Support Features				
Mission−critical support team	Yes	Yes	No	No
Sun Vendor Integration Program (SunVIP℠)	Yes	Yes	No	No
Software patch management assistance	Yes	No	No	No
Field change order (FCO) management assistance	Yes	No	No	No
Remote Systems Diagnostics				
Remote dial−in analysis	Yes	Yes	Yes	Yes
Remote systems monitoring	Yes	Yes	No	No
Remote predictive failure reporting	Yes	Yes	No	No
Software Enhancements and Maintenance Releases				
Solaris enhancement releases	Yes	Yes	Yes	Yes
Patches and maintenance releases	Yes	Yes	Yes	Yes
Sun unbundled software enhancements	Option	Option	Option	Option
Internet and CD−ROM Support Tools				
SunSolve™ software license	Yes	Yes	Yes	Yes
SunSolve EarlyNotifier℠ Service	Yes	Yes	Yes	Yes

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Warranty

The warranty on the hardware is one year, 15−day factory return. All UltraSCSI drives have a five−year warranty.

Education

Support Readiness Training

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Glossary

1 rack unit (1 U)	One rack unit as defined by the Electronic Industries Alliances (EIA). A vertical measurement equal to 1.75 inches.
AC	Alternating current.
ATM	Asynchronous transfer mode. ATM is a network technology that supports realtime voice, video, and data. ATM is used as a backbone technology by major enterprises and ISPs.
Carrier grade	Rackmountable systems with features including remote alarm capabilities, front−back cooling, front accessibility of media, rear cabling, and rugged NEBS−compliant packaging.
Cluster	Multiple server/storage configuration using software that enables failover protection should any drive fail.
Commodity server	A server that is replaced when it fails, instead of being repaired.
Density	Number of units in a given amount of space.
Differential SCSI	A type of SCSI signaling used when devices are spread across a room. Total cable length is approximately 80 feet (24.4 m). Differential devices cost more than single−ended devices.
Ethernet 10/100BASE−T	The most widely used LAN access method defined by the IEEE 802.3 standard; uses standard RJ−45 connectors and telephone wire. 100BASET is also referred to as Fast Ethernet.
EMI	Electromagnetic interference
ESD	Electrostatic discharge
ETSI	European Telecommunications Standards Institute; a non−profit membership organization dedicated to standardizing telecommunications throughout Europe.
FC−AL	Fibre channel arbitrated loop. A topology for Fibre Channel in which all devices are linked together in a loop.
field replaceable units (FRUs)	A feature that allow one unit to be exchanged with another to minimize mean time to repair
Hot−swappable	A feature that allows an administrator to remove a drive without affecting software integrity.
Infrastructure services	Services that an SP runs to provide revenue services to clients. Examples include: firewalls, DNS, log processing, authentication, mail−relay, distributed SNMP, and low−end cache server.
I/O	Input/output. Transferring data between the CPU and any peripherals.
ISP	Internet service provider.
JBOD	Just a bunch of disks; a group of hard disks that are not set up in a RAID configuration.
LVD SCSI	Low voltage differential; a type of SCSI signaling that supports cable lengths of up to 39.4 feet (12 m). LVD SCSI uses data low and data high lines to increase transmissions distance. LVD is less costly than differential because transceivers are built into the controller chips. LVD also requires less power. Sun does not support LVD in servers or host adaptors. Netra st D130 thin storage is compatible with third−party LVD host adaptors, although Sun does not formally support it.

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MTBF	Mean time between failures. The average time a component works without failure. The larger the number, the longer the component will continue to operate.
MTTR	Mean time to repair. The average time it takes to repair a component.
NEBS	Network Equipment Building Standard. A stringent standard for durability, grounding cables, and hardware interfaces specified by Telcordia Technologies (formerly Bellcore) for equipment used in Telecom central offices.
RAID	Redundant Array of Independent Disks
Revenue services	Services for which an SP can collect payment from clients. Examples include: low−end Web server, low−end hosting server, and application server.
SCSI	Small computer systems interface. Pronounced “scuzzy.” A hardware interface that allows the connection of up to 15 peripheral devices to a single bus.
service provider (SP)	An organization that provides access to the Internet and offers a range of services which include e−mail, Web site hosting, corporate firewalls, and virtual private networks.
Sun Cluster	A Sun high availability software product that, when combined with redundant hardware, provides failover protection and helps eliminate possible points of failure.
Thin storage	Storage devices of two rack units (2 U) height or less.
UltraSCSI single−ended	A SCSI interface that transfers 20 Mbytes/sec for 8−bit versions and 40 Mbytes/sec for 16−bit versions. The maximum cable length is 9.8 feet (3 m) for up to four devices and 4.9 feet (1.5 m) for five or more. Typically, up to 15 peripheral devices can be connected to a single bus.

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Materials Abstract

Collateral	Description	Purpose	Distribution	Token # or COMAC order #
Sales Tools				
Sun Netra st D130 Just the Facts	Reference guide for the Netra st D130	Sales Tool	SunWin	xxxxx
Presentation	Customer presentation	Sales Tool	SunWin	xxxxx
Sun Intros	Sun Introduction with pricing and Q&A	Sales Tool	SunWin	
Posters				
Netra st D130	Big Storage Little Package	Sales Tool	SunWin	109821
Product Literature				
Sun Netra st D130 Datasheet	2−page color datasheet	Sales Tool	Field distribution	107749
Sun Netra st D130 PocketFacts	Tri−fold quick reference card	Sales Tool	SunWin	109683
External Web Sites	http://www.sun.com/netra			
Internal Web Sites	http://nsp.eng			

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Competitive Information

	Sun Netra st D130	HP DS 2100	HP Rack−n−Stack	Integrix RD10	Penguin 2U System
Profile	1 U	1 U	2 U	2 U	2 U
Carrier Grade Features	✓	—	—	—	—
NEBS/ETSI	✓	—	—	—	—
AC or DC	✓	—	—	—	—
Key Features	• Hot−swap disks • Dual fans • Host−based RAID	• Hot−swap disks	• Swap entire drive/power/ fan units	• Hot−swap disks • Hardware RAID	• Hot swap disks, fans • Hardware RAID
Number of Disks	3	4	2	6	2

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