![Sun Microsystems logo]

Sun Storage J4200/J4400 Array Site Preparation Guide

Adobe PostScript™

Contents

Tables

Preface

The *Sun Storage J4200/J4400 Array Site Preparation Guide* describes facilities and system requirements for installing the Sun Storage J4200/J4400 array. Follow the guidelines as outlined in this document when planning your installation.

Before You Read This Book

Before you begin to install the Sun Storage J4200/J4400 Array, you must have already read the regulatory and safety requirements described in this book:

■ *Sun StorageTek Regulatory and Safety Compliance Manual (96272, Rev. A)*

How This Book Is Organized

Chapter 1 describes the requirements for preparing the customer site for installation of the Sun Storage J4200/J4400 array.

Chapter 2 describes the physical, environmental, and electrical requirements for the Sun Storage cabinets.

Chapter 3 describes the physical, environmental, and electrical requirements for the Sun Storage J4200/J4400 array.

Appendix A provides worksheets to help you gather the information you need to complete the installation.

Using UNIX Commands

This document might not contain information on basic UNIX® commands and procedures such as shutting down the system, booting the system, and configuring devices. Refer to the following for this information:

- Software documentation that you received with your system
- Solaris™ Operating System documentation, which is at

  http://docs.sun.com

Shell Prompts

Shell	Prompt
C shell	*machine-name*%
C shell superuser	*machine-name*#
Bourne shell and Korn shell	$
Bourne shell and Korn shell superuser	#

Typographic Conventions

Typeface*	Meaning	Examples
AaBbCc123	The names of commands, files, and directories; on-screen computer output.	Edit your `.login` file. Use `ls -a` to list all files. `% You have mail.`
AaBbCc123	What you type, when contrasted with on-screen computer output.	`% `**`su`** `Password:`
AaBbCc123	Book titles, new words or terms, words to be emphasized. Replace command-line variables with real names or values.	Read Chapter 6 in the *User's Guide*. These are called *class* options. You *must* be superuser to do this. To delete a file, type `rm` *filename*.

* The settings on your browser might differ from these settings.

Related Documentation

Application	Title	Part Number
Regulatory and safety information	*Sun StorageTek Regulatory and Safety Compliance Manual*	96272, Revision A
Multilanguage safety information	*Important Safety Information for Sun Hardware Systems*	816-7190-*nn*
Site planning information	*Sun Storage J4200/J4400 Array Site Preparation Guide*	820-3219-*nn*
Installation at a glance	*Sun Storage J4200 Array Setup Poster*	820-3221-*nn*
Installation at a glance	*Sun Storage J4400 Array Setup Poster*	820-4691-*nn*
Complete details of the hardware components, rail and tray installation, and cabling.	*Sun Storage J4200/J4400 Array Hardware Installation Guide*	820-3218-*nn*
Late-breaking information not included in the information set	*Sun Storage J4200/J4400 Array Release Notes*	820-3222-*nn*
Installation and use of the management software using a GUI	*Sun StorageTek Common Array Manager User Guide for the J4000 Array Family*	820-3765-*nn*
Installation and use of the management software using a CLI	*Sun StorageTek Common Array Manager CLI Guide for the J4000 Array Family*	820-4419-*nn*
General operation and troubleshooting	*Sun Storage J4200/J4400 Array System Overview*	820-3223-*nn*
Disk drive replacement procedures	*Sun Storage J4200/J4400 Array Disk Drive Replacement Guide*	820-3225-*nn*
SIM board replacement procedures	*Sun Storage J4200 Array SIM Board Replacement Guide*	820-3226-*nn*
SIM board replacement procedures	*Sun Storage J4400 Array SIM Board Replacement Guide*	820-4600-*nn*
Power supply replacement procedures	*Sun Storage J4200 Array Power Supply Replacement Guide*	820-3227-*nn*
Fan replacement procedures	*Sun Storage J4200 Array Fan Replacement Guide*	820-3229-*nn*

Application	Title	Part Number
Power supply and fan replacement procedures	*Sun Storage J4400 Array Power Supply/Fan Replacement Guide*	820-3228-*nn*
Chassis replacement procedures	*Sun Storage J4200 Chassis Replacement Guide*	820-4413-*nn*
Chassis replacement procedures	*Sun Storage J4400 Chassis Replacement Guide*	820-4601-*nn*
Rail kit installation procedures	*Sun Storage J4200/J4400 Array Rail Kit Installation Guide*	820-3764-*nn*

Accessing Sun Documentation

You can view, print, or purchase a broad selection of Sun documentation, including localized versions, at:

http://www.sun.com/documentation

Third-Party Web Sites

Sun is not responsible for the availability of third-party web sites mentioned in this document. Sun does not endorse and is not responsible or liable for any content, advertising, products, or other materials that are available on or through such sites or resources. Sun will not be responsible or liable for any actual or alleged damage or loss caused by or in connection with the use of or reliance on any such content, goods, or services that are available on or through such sites or resources.

Contacting Sun Technical Support

If you have technical questions about this product that are not answered in this document, go to:

http://www.sun.com/service/contacting

Sun Welcomes Your Comments

Sun is interested in improving its documentation and welcomes your comments and suggestions. You can submit your comments by going to:

http://www.sun.com/hwdocs/feedback

Please include the title and part number of your document with your feedback:

Sun Storage J4200/J4400 Array Site Preparation Guide, part number 820-3219-10

Planning for the Installation

This chapter describes the requirements for preparing the customer site for installation of the Sun Storage J4200/J4400 array. It contains the following sections:

- "Customer Obligations" on page 1
- "Safety Information" on page 1
- "Site Wiring and Power Requirements" on page 3

Customer Obligations

The customer is obliged to inform Sun Microsystems, Inc. of any and all ordinances and regulations that might affect the installation. The customer is responsible for meeting all government codes and regulations concerning facilities. The customer is also required to do the following:

- Comply with all local, national, and international codes covered in this specification. The subjects covered include fire and safety, building, and electrical codes.
- Document and inform Sun Microsystems, Inc. of any deviations from this specification.

Safety Information

Install the Sun Storage J4200/J4400 array in accordance with the local safety codes and regulations at the facility site. Make sure that you read the safety precautions in the *Sun StorageTek Regulatory and Safety Compliance Manual*.

The following sections contain additional safety information for the local facility:

Note – Do not make mechanical or electrical modifications to the equipment. Sun Microsystems, Inc. is not responsible for regulatory compliance of a modified Sun product.

Handling Precautions

Caution – A fully populated cabinet can weigh in excess of 1500 pounds (682 kg). Ensure that all surfaces this system will move over can withstand this load.

The cabinet is equipped with wheels so you can move it. Use enough personnel when moving the cabinet, especially on sloped loading docks and ramps, to gain access to a raised computer room floor. Move the cabinet slowly and deliberately, and make sure that the floor is free from foreign objects and cables that the cabinet could roll over.

Caution – To avoid injury, wear protective footwear when moving a system.

Secure Installation Requirements

To minimize personnel injury in the event of a seismic occurrence, you must securely fasten the cabinet to a rigid structure extending from the floor to the ceiling, or from the walls, of the room in which the cabinet is located.

Install the cabinet on a level surface. At each corner, on the base of the cabinet, are adjustable nonskid pads. Extend these pads when the cabinet is installed to prevent the cabinet from rolling. Do not use these pads to level the cabinet.

Placement of a Sun Product

Allow enough room surrounding the cabinet for access to the cabinet and arrays for maintenance.

Caution – Do not block or cover the openings of your Sun product. Never place a Sun product near a radiator or heat register. Failure to follow these guidelines can cause overheating and affect the reliability of your Sun product.

Air cools the system cabinets from front to back. Air enters at the front, circulates, and is expelled at the back of the cabinet. The front and back door clearances provide sufficient space for cooling. See Chapter 2 for specific clearance specifications.

Site Wiring and Power Requirements

The AC power distribution boxes cabinets use common industrial wiring. Consider the following information when preparing the cabinet installation site:

- **AC power source** – The AC power source must provide the correct voltage, current, and frequency specified on the module model and serial number label.
- **Earth ground** – Site wiring must include an earth ground connection to the AC power source.
- **Circuit overloading** – Power circuits and associated circuit breakers must provide sufficient power and overload protection. To prevent possible damage to the AC power distribution boxes and other components in a cabinet, use an external, independent power source that is isolated from large switching loads (such as air conditioning motors, elevator motors, and factory loads).
- **Module power distribution** – All units attached to the two power strips inside a cabinet must be auto-ranging between 180 and 264 VAC, 47-63 Hz.
- **Power interruptions** – A cabinet and modules will withstand the following applied voltage interruptions (with or without an integrated uninterruptible power supply [UPS]):
  - **Input transient** – 0V for 1 cycle with no interruption
  - **Duration** – 70 percent of nominal for 0.5 seconds and 0V for 5 seconds, recoverable with user intervention
- **Power failures** – If a total power failure occurs, when power is restored the modules within a cabinet automatically perform a power-up recovery.

Cabinet and Rack Specifications

This chapter describes the physical, environmental, and electrical requirements for the cabinets in which the Sun Storage J4200/J4400 array can be installed. This chapter contains information for the following Sun cabinets:

To ensure safe and proper operation of the system, and ease of maintenance, make sure that all of these requirements have been met before beginning the installation of the cabinet.

Sun StorEdge Expansion Cabinet

This section describes the physical, electrical, and environmental requirements for the Sun StorEdge Expansion cabinet.

The floor area at the installation site must provide enough stability to support the weight of the cabinet and installed trays, sufficient space for installation and servicing of the cabinet and components, and sufficient ventilation to provide a free flow of air to the cabinet.

Physical Specifications

TABLE 2-1 provides the physical dimensions of the Sun StorEdge expansion cabinet.

TABLE 2-1   Sun StorEdge Expansion Cabinet Dimensions

Height	Width	Depth	Empty Weight
73.5 in.	24 in.	36.5 in.	350 pounds
187 cm	61 cm	93 cm	159 kg

Clearance and Service

TABLE 2-2 lists cabinet clearance and service access requirements.

TABLE 2-2   Clearance and Service Access

Location	With Service Access	Without Service Access
Front	48 in.	24 in.
	122 cm	61 cm
Rear	36 in.	24 in.
	92 cm	61 cm
Left	36 in.	2 in.
	92 cm	5.1 cm
Right	36 in	0
	92 cm	0

Weight

The total weight of a populated Sun StorEdge Expansion cabinet depends on the number and type of modules installed in the cabinet. TABLE 2-3 lists the weight of an empty cabinet and the maximum weight of each J4200 component, and TABLE 2-4 lists the weight of an empty cabinet and the maximum weight of each J4400 component. Use these weights to estimate the total weight of your system, based on the number of modules installed in the cabinet. Record the total weight in an easy-to-find place to reference when checking flooring load or elevator weight restrictions.

TABLE 2-3   Sun StorEdge Expansion Cabinet and J4200 Component Weights

Component	Quantity		Weight (each)		Total Component Weight (lbs or kg)
Cabinet	1	X	350 lbs* (159 kg)	=	350 lbs or 159 kg
J4200 Tray		X	20.04 lbs (9.09 kg)	=	
SIM Board		X	2.66 lbs (1.21 kg)	=	
Power Module		X	4.87 lbs (2.21 kg)	=	
Fan Module		X	0.94 lbs (0.43 kg)	=	
SAS Drive		X	1.88 lbs (0.854 kg)	=	
SATA Drive		X	1.83 lbs (0.833 kg)	=	
			Total Weight	=	

* Weight of an empty cabinet and two power sequencers.

TABLE 2-4   Sun StorEdge Expansion Cabinet and J4400 Component Weights

Component	Quantity		Weight (each)		Total Component Weight (lbs or kg)
Cabinet	1	X	350 lbs* (159 kg)	=	350 lbs or 159 kg
J4400 Tray		X	31.28 lbs (14.19 kg)	=	
SIM Board		X	3.81 lbs (1.73 kg)	=	
Power Module		X	9.54 lbs (4.33 kg)	=	
SAS Drive		X	1.88 lbs (0.854 kg)	=	
SATA Drive		X	1.83 lbs (0.833 kg)	=	
			Total Weight	=	

* Weight of an empty cabinet and two power sequencers.

Environmental Requirements

This section describes the environmental conditions that are prerequisite to installing the cabinet.

Environmental Specifications

TABLE 2-5 lists operating and nonoperating temperature, relative humidity, and altitude ranges for the Sun StorEdge Expansion cabinet.

TABLE 2-5   Cabinet Environmental Specifications

Specification	Operating	Nonoperating
Temperature	41° F to 95° F (5° C to 35° C)	-40° F to 150.8° F (-40° C to 66° C)
Relative Humidity (RH)	10% to 90% noncondensing	93% noncondensing
Altitude	9,840 feet (3000 m)	39,370 feet (12,000 m)
Shock (from any axis X, Y, or Z)	3.0 g for maximum duration of 11 ms, half-sine	1.0-in. roll-off freefall, front-to-back rolling directions
Vibration (from any axis X, Y, or Z)	0.15 g on z-axis; 0.10 g on x- and y-axes; 5 to 500 Hz sinusoidal	0.5 g on z-axis; 0.25 g on x- and y-axes; 5 to 500 Hz sinusoidal

Airflow and Heat Dissipation

Cabinet airflow is from front to back. Allow at least 30 inches in front of the cabinet, and at least 24 inches behind the cabinet, for service clearance, proper ventilation, and heat dissipation.

Power Requirements

The AC power sources must provide the correct voltage, current, and frequency specified on the model and serial number label. The module can run without interruption within the limits shown in TABLE 2-6.

TABLE 2-6   Sun StorEdge Expansion Cabinet AC Power Requirements

Parameter	Requirements
AC voltage rating	200 to 240 VAC
AC voltage range	180 to 264 VAC
Frequency range	50 to 60 Hz
Current at 240 VAC	24A
Power consumption	5.4 kW

Sun Fire Cabinet

This section describes the physical, electrical, and environmental requirements for the Sun Fire 6800 cabinet.

The floor area at the installation site must provide enough stability to support the weight of the cabinet and installed trays, sufficient space for installation and servicing of the cabinet and components, and sufficient ventilation to provide a free flow of air to the cabinet.

Physical Specifications

TABLE 2-7 provides the physical dimensions of the Sun Fire cabinet.

TABLE 2-7   Sun Fire Cabinet Dimensions

Height	Width	Depth	Empty Weight
75 in.	24 in.	53 in.	325 pounds
190.5 cm	61 cm	134.6 cm	147 kg

Clearance and Service

Sun Fire cabinets can be placed next to each other, without space between them, since there are no side clearance requirements during operation. However, if access is desired for removal of side panels, allow approximately 2 feet (60 centimeters) of space on each side.

TABLE 2-8 lists cabinet clearance and service access requirements.

TABLE 2-8   Clearance and Service Access

Location	With Service Access
Front	48 in.
	122 cm
Rear	36 in.
	92 cm

Weight

The total weight of a populated Sun Fire cabinet depends on the number and type of modules installed in the cabinet. TABLE 2-9 lists the weight of an empty cabinet and the maximum weight of each J4200 component, and TABLE 2-10 lists the weight of an empty cabinet and the maximum weight of each J4400 component. Use these weights to estimate the total weight of your system, based on the number of modules installed in the cabinet. Record the total weight in an easy-to-find place to reference when checking flooring load or elevator weight restrictions.

TABLE 2-9   Sun Fire Cabinet and J4200 Component Weights

Component	Quantity		Weight (each)		Total Component Weight (lbs or kgs)
Cabinet	1	X	325 lbs[*] (141 kg)	=	325 lbs or 141 kg
J4200 Tray		X	20.04 lbs (9.09 kg)	=	
SIM Board		X	2.66 lbs (1.21 kg)	=	
Power Module		X	4.87 lbs (2.21 kg)	=	
Fan Module		X	0.94 lbs ((0.43 kg)	=	
SAS Drive		X	1.88 lbs (0.854 kg)	=	
SATA Drive		X	1.83 lbs (0.833 kg)	=	
			Total Weight	=	

* Weight of an empty cabinet and two power sequencers.

TABLE 2-10 Sun Fire Cabinet and J4400 Component Weights

Component	Quantity		Weight (each)		Total Component Weight (lbs or kg)
Cabinet	1	X	325 lbs* (141 kg)	=	325 lbs or 141 kg
J4400 Tray		X	31.28 lbs (14.19 kg)	=	
SIM Board		X	3.81 lbs (1.73 kg)	=	
Power Module		X	9.54 lbs (4.33 kg)	=	
SAS Drive		X	1.88 lbs (0.854 kg)	=	
SATA Drive		X	1.83 lbs (0.833 kg)	=	
			Total Weight	=	

* Weight of an empty cabinet and two power sequencers.

Environmental Requirements

This section describes the environmental conditions that are prerequisite to installing the cabinet.

Temperature, Humidity, and Altitude

TABLE 2-11 lists operating and nonoperating relative humidity, and altitude ranges for the Sun Fire cabinet. The table also provides the optimum operating condition in the recommended operating environment. Operating computer equipment for extended periods of time at or near the temperature or humidity extremes is known to significantly increase the failure rate of hardware components.

TABLE 2-11 Cabinet Temperature, Humidity, and Altitude

Specification	Optimal	Operating	Nonoperating
Temperature	70°F to 73.5°F (21° C to 23° C)	41° F to 95° F (5° C to 35° C)	-40° F to 140° F (-20° C to 60° C)
Relative Humidity (RH)	45% to 50% noncondensing	20% to 80% noncondensing	5% to 95% noncondensing
Altitude	0 to 9,840 feet (0 to 3 km)	0 to 9,840 feet (0 to 3 km)	0 to 39,370 feet (0 to 12 km)

Airflow and Heat Dissipation

The air intake screens act as electro-magnetic interference (EMI) and radio frequency interference (RFI) filters, stopping both EMI and RFI emissions from the system. These screens are honeycomb screens, which also collect and trap dust and debris particles.

The Sun Fire cabinet's air intake screens require periodic inspection and cleaning. To prevent restricted airflow and possible equipment failure, inspect the air intake screens for debris and trapped particles every three months of operation. Consider the level of debris on the screens and surrounding area in the decision as to when to remove and clean the air intake screens.

Power Requirements

The AC power sources must provide the correct voltage, current, and frequency specified on the module model and serial number label. The module can run without interruption within the limits shown in TABLE 2-12.

TABLE 2-12   Sun Fire Cabinet AC Power Requirements

Parameter	Requirements
AC voltage range	200 to 240 VAC
Current maximum	34A at 208 VAC
Current frequency range	47 to 63 Hz
Input power rating	6,460 W
Volt-ampere rating	6,800 VA
BTU rating	22,030 BUT/hr
Power factor	0.95 (with Sun Products)
Connector type	4 - NEMA L6-30P for 200–240 VAC[*] (North American)
	4 - 32A, single-phase IEC (309, for 200–240 VAC[1] International)
Receptacle type	4 - NEMA L6-30R for 200–240 VAC[\] (North American)

[*] One power cord for each RTS installed. Minimum required is two and maximum is four.

[\] One receptacle type for each power cord installed.

Sun Rack 900/1000 Cabinets

This section describes the physical, electrical, and environmental requirements for the Sun Rack 900/1000 cabinets.

The floor area at the installation site must provide enough stability to support the weight of the cabinet and installed trays, sufficient space for installation and servicing of the cabinet and components, and sufficient ventilation to provide a free flow of air to the cabinet.

Physical Specifications

TABLE 2-13 provides the physical dimensions and weight of the Sun Rack 900/1000 cabinets.

TABLE 2-13   Sun Rack 900/1000 Cabinet Dimensions and Weight

Model	Height	Width	Depth	Empty Weight
Sun Rack 900-38	74 in. (188 cm)	23.5 in. (59.7 cm)	35.4 in. (900 mm)	360 pounds (163.3 kg)
Sun Rack 900-36N	74 in. (188 cm)	23.5 in. (59.7 cm)	35.4 in. (900 mm)	380 pounds (172.7 kg)
Sun Rack 1000-38	74 in. (188 cm)	23.5 in. (59.7 cm)	39.4 in. (1000 mm)	360 pounds (163.3 kg)

Weight

The total weight of a populated Sun Rack 900/1000 cabinet depends on the number and type of modules installed in the cabinet. TABLE 2-14 lists the weight of an empty cabinet and the maximum weight of each J4200 component, and TABLE 2-15 lists the weight of an empty cabinet and the maximum weight of each J4400 component. Use these weights to estimate the total weight of your system, based on the number of modules installed in the cabinet. Record the total weight in an easy-to-find place to reference when checking flooring load or elevator weight restrictions

.

TABLE 2-14 Sun Rack 900/1000 Cabinet and J4200 Component Weights

Component	Quantity		Weight (each)		Weight (lbs or kg)
Cabinet	1	X	360 lbs[*] (163.3 kg) or 380 lbs (172.7 kg)	=	
J4200 Tray		X	20.04 lbs (9.09 kg)	=	
SIM Board		X	2.66 lbs (1.21 kg)	=	
Power Module		X	4.87 lbs (2.21 kg)	=	
Fan Module		X	0.94 lbs (0.43 kg)	=	
SAS Drive		X	1.88 lbs (0.854 kg)	=	
SATA Drives		X	2.29 lbs (1.04 kg)	=	
			Total Weight	=	

* Weight of an empty cabinet and two power sequencers.

TABLE 2-15 Sun Rack 900/1000 Cabinet and J4400 Component Weights

Component	Quantity		Weight (each)		Total Component Weight (lbs or kg)
Cabinet	1	X	360 lbs[*] (163.3 kg) or 380 lbs (172.7 kg)	=	
J4400 Tray		X	31.28 lbs (14.19 kg)	=	
SIM Board		X	3.81 lbs (1.73 kg)	=	
Power Module		X	9.54 lbs (4.33 kg)	=	
SAS Drive		X	1.88 lbs (0.854 kg)	=	
SATA Drive		X	1.83 lbs (0.833 kg)	=	
			Total Weight	=	

* Weight of an empty cabinet and two power sequencers.

Environmental Requirements

This section describes the environmental conditions that are prerequisite to installing the cabinet.

Temperature, Humidity, and Altitude

TABLE 2-16 lists operating and nonoperating temperature, relative humidity, and altitude ranges for the Sun Rack 900/1000 cabinets.

TABLE 2-16   Cabinet Temperature, Humidity, and Altitude

Specification	Operating	Nonoperating
Temperature	41° F to 95° F (5° C to 35° C)	-40° F to 150.8° F (-40° C to 66° C)
Relative Humidity (RH)	20% to 80% noncondensing	5% to 95% noncondensing
Altitude	0 to 9,840 feet (0 to 3 km)	0 to 39,370 feet (0 to 12 km)

Airflow and Heat Dissipation

Cabinet airflow is from front to back. Allow at least 30 inches in front of the cabinet, and at least 24 inches behind the cabinet, for service clearance, proper ventilation, and heat dissipation.

Power Requirements

The AC power sources must provide the correct voltage, current, and frequency specified on the model and serial number label. The module can run without interruption within the limits shown in TABLE 2-17.

TABLE 2-17   Cabinet AC Power Requirements

Parameter	Requirements
Nominal voltages	200 to 240 VAC
Operating voltage	180 to 240 VAC
Frequency range	47 to 63 Hz
Current	32A (2X 16A) maximum

TABLE 2-17 Cabinet AC Power Requirements *(Continued)*

Parameter	Requirements
AC power plug	NEMA L6-20P (North American) IEC 309 16A 3 Position (International)
AC power receptacle	NEMA L6-20R (North American) IEC 309 16A 3 Position (International)
Power cords required	4

Sun Storage J4200/J4400 Specifications

This chapter describes the physical, environmental, and electrical requirements for the Sun Storage J4200/J4400 arrays. Where information for both arrays is the same, a single table is used. This chapter contains the following sections:

- "Dimension and Weight Specifications" on page 17
- "Environmental Requirements" on page 18
- "Electrical Requirements" on page 21

Dimension and Weight Specifications

The floor space at the installation site must be strong enough to support the combined weight of the cabinet, controller trays, expansion trays, and associated equipment. The site also requires sufficient space for installation, operation, and servicing the arrays and sufficient ventilation to provide a free flow of air to the unit.

The total weight of an expansion tray depends on the number of drives installed.

TABLE 3-1 provides the physical dimensions and weight of the J4200 and the J4400 arrays.

TABLE 3-1   Dimensions and Weight (with rails)

Height	Width	Depth	Weight (Fully Populated)
J4200			
3.44 in.	17.52 in.	24.05 in.	59.61 lb.
8.74 cm	44.5 cm	61.1 cm	27.04 kg

TABLE 3-1   Dimensions and Weight (with rails)

Height	Width	Depth	Weight (Fully Populated)
J4400			
6.88 in.	17.5 in.	23.4 in.	103.20 lbs
17.48 cm	44.5 cm	59.4 cm	46.81 kg

Environmental Requirements

This section describes the environmental conditions that are prerequisite to installing the unit, and heat conditions that are generated by normal operation of the unit.

Table 3-2 lists the temperature specifications in which the J4200 array is designed to operate, and Table 3-3 lists the temperature specifications in which the J4400 array is designed to operate.

TABLE 3-2   J4200 Temperature

Parameter	Specification
Operating range	35° F to 95° F (0° C to 35° C)
Maximum rate of change	18° F (10° C) per hour
Storage range	-40° F to 149° F (–40° C to 65° C)
Maximum rate of change	27° F (15° C) per hour
Transit range	–40° F to 149° F (–40° C to 65° C)
Maximum rate of change	27° F (15° C) per hour
Heat output[1]	352.8 Watts (1204 BTU/hour)

TABLE 3-3   J4400 Temperature

Operating range	35° F to 95° F (0° C to 35° C)
Maximum rate of change	18° F (10° C) per hour
Storage range	-40° F to 149° F (–40° C to 65° C)
Maximum rate of change	27° F (15° C) per hour
Transit range	–40° F to 149° F (–40° C to 65° C)
Maximum rate of change	27° F (15° C) per hour
Heat output[2]	662 Watts (2123 BTU/hour)

[1] Based on a configuration of two power supplies, two SIMs, two fan modules, and 12 drives.

[2] Based on a configuration of two power supplies, two SIMs, and 24 drives.

Humidity

Table 3-4 lists the relative humidity of the J4200/J4400 array.

TABLE 3-4   J4200/J4400 Relative Humidity (noncondensing)

Parameter	Specification
Operating range	20% to 80%
Nonoperating range	20% to 95%
Storage range	20% to 95%
Transit range	20% to 95%
Maximum dew point	26° C (79° F)
Maximum gradient	10% per hour

Altitude

Table 3-5 lists the altitude specifications for the J4200/J4400 array.

TABLE 3-5   J4200/J4400 Altitude

Environment	Specification
Operating	0 to 9,843 feet (3,000 meters)
Non-operating	0 to 39,370 feet (12,000 meters)

Vibration and Shock

Table 3-6 lists the vibration and shock specifications for the J4200 array, and Table 3-7 lists the vibration and shock specifications for the J4400 array.

TABLE 3-6   J4200 Shock and Vibration

Condition	Parameter	Specification
Vibration	Operating	0.25 G (peak), 3 to 200 Hz sweep @ 1/2 octave per minute, bottom side tested only
	Nonoperating (unpacked)	10 Hz to 250 Hz, 1.54 GRMS random vibration, 15 minutes, 3 axes
	Transit and storage (packed)	2 Hz to 200 Hz, 0.8 GRMS random vibration, 30 minutes, 6 axes
Shock	Operating (no damage)	31-G +/-5%, with pulse duration of 2.6 ms or less half-sine, bottom side tested only
	Nonoperating	71-G +/-5%, with pulse duration of 2.0 ms or less half-sine, all six sides tested
	Transit (packed)	Height 24.015 in. (610 mm), six sides, two corners, six edges

TABLE 3-7   J4400 Shock and Vibration

Condition	Parameter	Specification
Vibration	Operating	0.25 G (peak), 3 to 200 Hz sweep @ 1/2 octave per minute, bottom side tested only
	Nonoperating (unpacked)	10 Hz to 250 Hz, 1.54 GRMS random vibration, 15 minutes, 3 axes
	Transit and storage (packed)	2 Hz to 200 Hz, 0.8 GRMS random vibration, 30 minutes, 6 axes
Shock	Operating (no damage)	31-G +/-5%, with pulse duration of 2.6 ms or less half-sine, bottom side tested only
	Nonoperating	71-G +/-5%, with pulse duration of 2.0 ms or less half-sine, all six sides tested
	Transit (packed)	Height 17.992 in. (457 mm), six sides, two corners, six edges

Electrical Requirements

This section provides information regarding site power and wiring, module AC power requirements, and power cord routing instructions.

Site Wiring and Power

The tray uses wide-ranging redundant power supplies that automatically accommodate voltages to the AC power source. The power supplies operate within the range of 100 VAC to 240 VAC, at a minimum frequency of 47 Hz and a maximum frequency of 63 Hz. The power supplies meet standard voltage requirements for both domestic (inside USA) and international (outside USA) operation. They use standard industrial wiring with line-to-neutral or line-to-line power connections.

Power Input

The AC power sources must provide the correct voltage, current, and frequency specified on the tray model and serial number label. The tray can run without interruption within the limits shown in TABLE 3-8 and TABLE 3-9.

TABLE 3-8   J4200 Tray AC Power Requirements

Condition	Specification
AC power	9 A maximum operating (100 VAC to 127 VAC range), 47 to 63 Hz
	4.5 A maximum operating (200 VAC to 240 VAC range), 47 to 63 Hz
Maximum operating current	1.51 A maximum operating @ 240 VAC (198 VAC to 264 VAC range), 50 to 60 Hz

.

TABLE 3-9   J4400 Tray AC Power Requirements

Condition	Specification
AC power	10 A maximum operating @ (100 VAC to 127 VAC range), 47 to 63 Hz
Maximum operating current	27.4 A maximum operating @ 240 VAC (198 VAC to 264 VAC range), 50 to 60 Hz

Power Cords and Receptacles

All trays are shipped with two AC power cords that are appropriate for use in a typical outlet in the destination country.

Each power cord connects one of the power supplies in a tray to an independent external power source, such as those provided in the supported Sun cabinet, a wall receptacle, or uninterruptible power supply (UPS).

Configuration Worksheets

Use the worksheets in this appendix to help you collect the information you need to perform the installation. TABLE A-1 lists the information you need to collect to configure the array.

TABLE A-1 Sun Storage J4200/J4400 Configuration Worksheet

SIM 0 SAS address:	
SIM 1 SAS address:	
Management host IP address:	
Network mask:	
Name server domain name:	
IP address of the domain name server (DNS):	
Gateway IP address:	
Email notification address:	

TABLE A-2 lists the information you need to collect for each data host connected to the Sun Storage J4200/J4400.

TABLE A-2 Sun Storage J4200/J4400 Data Host Information

Host name:	
Vendor:	
Model:	
Operating system:	
Patch/Service pack:	
Number of HBAs:	
HBA World Wide Name (WWN):	
HBA model:	
HBA driver:	