



Sun StorEdge™ 6130 Array Site Preparation Guide

Sun Microsystems, Inc.
www.sun.com

Part No. 819-0033-10
October 2004

Submit comments about this document at: <http://www.sun.com/hwdocs/feedback>

Copyright © 2004 Sun Microsystems, Inc., 4150 Network Circle, Santa Clara, California 95054, U.S.A. All rights reserved.

THIS PRODUCT CONTAINS CONFIDENTIAL INFORMATION AND TRADE SECRETS OF SUN MICROSYSTEMS, INC. USE, DISCLOSURE OR REPRODUCTION IS PROHIBITED WITHOUT THE PRIOR EXPRESS WRITTEN PERMISSION OF SUN MICROSYSTEMS, INC.

Use is subject to license terms.

This distribution may include materials developed by third parties.

Sun, Sun Microsystems, the Sun logo, Java, Jiro, Netra, Solaris, Sun StorEdge and Sun™ ONE are trademarks or registered trademarks of Sun Microsystems, Inc. in the U.S. and other countries.

Products covered by and information contained in this service manual are controlled by U.S. Export Control laws and may be subject to the export or import laws in other countries. Nuclear, missile, chemical biological weapons or nuclear maritime end uses or end users, whether direct or indirect, are strictly prohibited. Export or reexport to countries subject to U.S. embargo or to entities identified on U.S. export exclusion lists, including, but not limited to, the denied persons and specially designated nationals lists is strictly prohibited.

Use of any spare or replacement CPUs is limited to repair or one-for-one replacement of CPUs in products exported in compliance with U.S. export laws. Use of CPUs as product upgrades unless authorized by the U.S. Government is strictly prohibited.

DOCUMENTATION IS PROVIDED "AS IS" AND ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT, ARE DISCLAIMED, EXCEPT TO THE EXTENT THAT SUCH DISCLAIMERS ARE HELD TO BE LEGALLY INVALID.

Copyright © 2004 Sun Microsystems, Inc., 4150 Network Circle, Santa Clara, California 95054, Etats-Unis. Tous droits réservés.

CE PRODUIT CONTIENT DES INFORMATIONS CONFIDENTIELLES ET DES SECRETS COMMERCIAUX DE SUN MICROSYSTEMS, INC. SON UTILISATION, SA DIVULGATION ET SA REPRODUCTION SONT INTERDITES SANS L'AUTORISATION EXPRESSE, ECRITE ET PREALABLE DE SUN MICROSYSTEMS, INC.

L'utilisation est soumise aux termes de la Licence.

Cette distribution peut comprendre des composants développés par des tierces parties.

Sun, Sun Microsystems, le logo Sun, Java, Jiro, Netra, Solaris, Sun StorEdge et Sun™ ONE sont des marques de fabrique ou des marques déposées de Sun Microsystems, Inc. aux Etats-Unis et dans d'autres pays.

Ce produit est soumis à la législation américaine en matière de contrôle des exportations et peut être soumis à la réglementation en vigueur dans d'autres pays dans le domaine des exportations et importations. Les utilisations, ou utilisateurs finaux, pour des armes nucléaires, des missiles, des armes biologiques et chimiques ou du nucléaire maritime, directement ou indirectement, sont strictement interdites. Les exportations ou reexportations vers les pays sous embargo américain, ou vers des entités figurant sur les listes d'exclusion d'exportation américaines, y compris, mais de manière non exhaustive, la liste de personnes qui font objet d'un ordre de ne pas participer, d'une façon directe ou indirecte, aux exportations des produits ou des services qui sont régis par la législation américaine en matière de contrôle des exportations et la liste de ressortissants spécifiquement désignés, sont rigoureusement interdites.

L'utilisation de pièces détachées ou d'unités centrales de remplacement est limitée aux réparations ou à l'échange standard d'unités centrales pour les produits exportés, conformément à la législation américaine en matière d'exportation. Sauf autorisation par les autorités des Etats-Unis, l'utilisation d'unités centrales pour procéder à des mises à jour de produits est rigoureusement interdite.

LA DOCUMENTATION EST FOURNIE "EN L'ETAT" ET TOUTES AUTRES CONDITIONS, DECLARATIONS ET GARANTIES EXPRESSES OU TACITES SONT FORMELLEMENT EXCLUES, DANS LA MESURE AUTORISEE PAR LA LOI APPLICABLE, Y COMPRIS NOTAMMENT TOUTE GARANTIE IMPLICITE RELATIVE A LA QUALITE MARCHANDE, A L'APTITUDE A UNE UTILISATION PARTICULIERE OU A L'ABSENCE DE CONTREFACON.



Contents

Preface vii

1. Planning for the Installation 1

Customer Obligations 1

Safety Information 1

 Handling Precautions 2

 Secure Installation Requirements 2

 Placement of a Sun Product 2

Site Wiring and Power Requirements 3

2. Cabinet and Rack Specifications 5

Sun StorEdge Expansion Cabinet 5

 Physical Specifications 6

 Clearance and Service 6

 Weight 6

 Environmental Requirements 7

 Environmental Specifications 7

 Airflow and Heat Dissipation 8

 Power Requirements 8

Sun Fire Cabinet 8

Physical Specifications	9
Clearance and Service	9
Weight	9
Environmental Requirements	10
Temperature, Humidity, and Altitude	11
Airflow and Heat Dissipation	11
Power Requirements	12
Sun Rack 900/1000 Cabinets	12
Physical Specifications	13
Weight	13
Environmental Requirements	14
Temperature, Humidity, and Altitude	14
Airflow and Heat Dissipation	14
Power Requirements	14
3. Sun StorEdge 6130 Array Specifications	17
Physical Requirements	17
Dimensions	18
Weight	18
Environmental Requirements	18
Electrical Requirements	19
Site Wiring and Power	19
Power Input	20
Power Cords and Receptacles	20
Standards and Compliance	21
A. Configuration Worksheets	23

Tables

TABLE 2-1	Sun StorEdge Expansion Cabinet Dimensions	6
TABLE 2-2	Clearance and Service Access	6
TABLE 2-3	Sun StorEdge Expansion Cabinet and Component Weights	7
TABLE 2-4	Cabinet Environmental Specifications	7
TABLE 2-5	Sun StorEdge Expansion Cabinet AC Power Requirements	8
TABLE 2-6	Sun Fire Cabinet Dimensions	9
TABLE 2-7	Clearance and Service Access	9
TABLE 2-8	Sun Fire Cabinet and Component Weights	10
TABLE 2-9	Cabinet Temperature, Humidity, and Altitude	11
TABLE 2-10	Sun Fire Cabinet AC Power Requirements	12
TABLE 2-11	Sun Rack 900/1000 Cabinet Dimensions and Weight	13
TABLE 2-12	Sun Rack 900/1000 Cabinet and Component Weights	13
TABLE 2-13	Cabinet Temperature, Humidity, and Altitude	14
TABLE 2-14	Cabinet AC Power Requirements	14
TABLE 3-1	Array Module Dimensions	18
TABLE 3-2	Operating Environmental Conditions	18
TABLE 3-3	Nonoperating Environmental Conditions	19
TABLE 3-4	Module AC Power Requirements	20
TABLE 3-5	Standards and Compliance Specifications	21

TABLE A-1	Sun StorEdge 6130 Array Configuration Worksheet	24
TABLE A-2	Sun StorEdge 6130 Array Data Host Information	25

Preface

The *Sun StorEdge™ 6130 Array Site Preparation Guide* describes facilities and system requirements for installing the Sun StorEdge™ 6130 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 StorEdge 6130 array, you must have already read the regulatory and safety requirements described in this book:

- *Sun StorEdge 6130 Array Regulatory and Safety Compliance Manual*

How This Book Is Organized

Chapter 1 describes the requirements for preparing the customer site for installation of the Sun StorEdge 6130 array.

Chapter 2 describes the physical, environmental, and electrical requirements for the cabinets in which the Sun StorEdge 6130 array can be installed.

Chapter 3 describes the physical, environmental, and electrical requirements for the Sun StorEdge 6130 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	<i>machine-name%</i>
C shell superuser	<i>machine-name#</i>
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 <code>.login</code> file. Use <code>ls -a</code> to list all files. <code>% You have mail.</code>
AaBbCc123	What you type, when contrasted with on-screen computer output.	<code>% su</code> Password:
<i>AaBbCc123</i>	Book titles, new words or terms, words to be emphasized. Replace command-line variables with real names or values.	Read Chapter 6 in the <i>User's Guide</i> . These are called <i>class</i> options. You <i>must</i> be superuser to do this. To delete a file, type <code>rm filename</code> .

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

Related Documentation

Title	Part Number
<i>Sun StorEdge 6130 Array Regulatory and Safety Compliance Manual</i>	819-0035-nn
<i>Sun StorEdge 6130 Array Release Notes</i>	819-0034-nn
<i>Sun StorEdge 6130 Array Getting Started Guide</i>	819-0032-nn
<i>Sun StorEdge Expansion Cabinet Installation and Service Manual</i>	805-3067-nn
<i>Sun Rack Installation Guide</i>	816-6386-nn
<i>Sun Fire Cabinet Installation and Reference Manual</i>	806-2942-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 StorEdge 6130 Array Site Preparation Guide, part number 819-0033-10

Planning for the Installation

This chapter describes the requirements for preparing the customer site for installation of the Sun StorEdge 6130 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 StorEdge 6130 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 StorEdge 6130 Array Regulatory and Safety Compliance Manual*. The following sections contain additional safety information for the local facility:

- [“Handling Precautions” on page 2](#)
- [“Secure Installation Requirements” on page 2](#)
- [“Placement of a Sun Product” on page 2](#)

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 that 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 to allow 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 in the cabinet 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 the 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 accessory outlets inside that cabinet must be auto-ranging between 180 and 264 VAC, 50-60 Hz.
- **Power interruptions** – The cabinet and modules will withstand the following applied voltage interruptions (with or without an integrated uninterruptible power supply [UPS]):
 - **Input transient** – 50% of nominal voltage
 - **Duration** – one-half cycle
 - **Maximum frequency** – once every ten seconds
- **Power failures** – If a total power failure occurs, the modules within the cabinet will automatically perform a power-up recovery without operator intervention after power is restored.

Cabinet and Rack Specifications

This chapter describes the physical, environmental, and electrical requirements for the cabinets in which the Sun StorEdge 6130 array can be installed. This chapter contains information for the following Sun cabinets:

- [“Sun StorEdge Expansion Cabinet” on page 5](#)
- [“Sun Fire Cabinet” on page 8](#)
- [“Sun Rack 900/1000 Cabinets” on page 12](#)

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 modules, 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	51 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 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 Component Weights

Component	Quantity	Weight (each)	Total Component Weight (lbs or kg)
Cabinet	1	X 350 lbs* (159 kg)	= 350 lbs or 159 kg
Controller Module		X 62.9 lbs† (28.6 kg)	=
FC Drive		X 2.29 lbs (1.04 kg)	=
Expansion Module		X 62.9 lbs‡ (28.6 kg)	=
FC Drive		X 2.29 lbs (1.04 kg)	=
SATA Drive		X 2.29 lbs (1.04 kg)	=
Total Weight			=

* Weight of an empty cabinet and two power sequencers.
† Weight of a depopulated (no disk drives) controller module.
‡ Weight of a depopulated (no disk drives) expansion module.

Environmental Requirements

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

Environmental Specifications

[TABLE 2-4](#) lists operating and nonoperating temperature, relative humidity, and altitude ranges for the Sun StorEdge Expansion cabinet.

TABLE 2-4 Cabinet Environmental Specifications

Specification	Operating	Nonoperating
Temperature	41° F to 95° F (5° C to 35° C)	-40° F to -76° F (-40°C to -60° C)
Relative Humidity (RH)	10% to 90% noncondensing	93% noncondensing

TABLE 2-4 Cabinet Environmental Specifications *(Continued)*

Specification	Operating	Nonoperating
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 module model and serial number label. The module can run without interruption within the limits shown in [TABLE 2-5](#).

TABLE 2-5 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 modules, 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 2-6](#) provides the physical dimensions of the Sun Fire cabinet.

TABLE 2-6 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 2-7](#) lists cabinet clearance and service access requirements.

TABLE 2-7 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 2-8](#) lists the weight of an empty cabinet and the maximum weight of each 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 2-8 Sun Fire Cabinet and Component Weights

Component	Quantity	Weight (each)	Total Component Weight (lbs or kgs)
Cabinet	1	X 325 lbs* (147 kg)	= 375 lbs or 147 kg
Controller Module		X 62.9 lbs† (28.6 kg)	=
FC Drive		X 2.29 lbs (1.04 kg)	=
Expansion Module		X 62.9 lbs‡ (28.6 kg)	=
Controller Module		X 62.9 lbs (28.6 kg)	=
FC Drives		X 2.29 lbs (1.04 kg)	=
Expansion Module		X 62.9 lbs (28.6 kg)	=
FC Drives		X 2.29 lbs (1.04 kg)	=
SATA Drives		X 2.29 lbs (1.04 kg)	=
Total Weight			=

* Weight of an empty cabinet.

† Weight of depopulated (no disk drives) controller module.

‡ Weight of depopulated (no disk drives) expansion module.

Environmental Requirements

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

Temperature, Humidity, and Altitude

TABLE 2-9 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 2-9 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)	-4°F to 140°F (-20°C to -60°C)
Relative Humidity (RH)	45% to 50%	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 2-10](#).

TABLE 2-10 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 modules, 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 2-11 provides the physical dimensions and weight of the Sun Rack 900/1000 cabinets.

TABLE 2-11 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 2-12 lists the weight of an empty cabinet and the maximum weight of each 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 2-12 Sun Rack 900/1000 Cabinet and Component Weights

Component	Quantity		Weight (each)	Weight (lbs or kg)
Cabinet	1	X	360 lbs* (163.3 kg) or 380 lbs (172.7 kg)	=
Controller Module		X	62.9 lbs† (28.6 kg)	=
FC Drive		X	2.29 lbs (1.04 kg)	=
Expansion Module		X	62.9 lbs‡ (28.6 kg)	=
FC Drives		X	2.29 lbs (1.04 kg)	=
SATA Drives		X	2.29 lbs (1.04 kg)	=
Total Weight				=

* Weight of an empty cabinet and two power sequencers.

† Weight of depopulated (no disk drives) controller module.

‡ Weight of depopulated (no disk drives) expansion module.

Environmental Requirements

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

Temperature, Humidity, and Altitude

[TABLE 2-13](#) lists operating and nonoperating temperature, relative humidity, and altitude ranges for the Sun Rack 900/1000 cabinets.

TABLE 2-13 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 module model and serial number label. The module can run without interruption within the limits shown in [TABLE 2-14](#).

TABLE 2-14 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 2-14 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 StorEdge 6130 Array Specifications

This chapter describes the physical, environmental, and electrical requirements for the Sun StorEdge 6130 array. It contains the following sections:

- [“Physical Requirements” on page 17](#)
- [“Environmental Requirements” on page 18](#)
- [“Electrical Requirements” on page 19](#)
- [“Standards and Compliance” on page 21](#)

Physical Requirements

The floor space at the installation site must be strong enough to support the combined weight of the cabinet, controller modules, expansion modules, 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.

Dimensions

[TABLE 3-1](#) provides the physical dimensions and weight of the array modules.

TABLE 3-1 Array Module Dimensions

Height	Width	Depth	Weight
5.21 in.	17.6 in.	22.1 in.	95 pounds
13.2 cm	44.5 cm	56.1 cm	43 kg

Weight

The total weight of a controller module or expansion module depends on the number of drives installed.

The maximum weight of a fully populated controller or expansion module is 95.0 pounds (43 kilograms).

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 environmental conditions in which the module is designed to operate.

TABLE 3-2 Operating Environmental Conditions

Condition	Range
Temperature	5° C to 40° C (41° F to 104° F)
Relative Humidity	10% to 90% noncondensing
Altitude	100 feet (30.5 meters) below sea level to 9,840 feet (3,000 meters)
Shock	5 G, 11 msec half sinewave
Vibration	0.20 G, 5 to 500 Hz sinusoidal
Heat output	390 Watts (1331 BTU/hour)

TABLE 3-3 lists the nonoperating environmental conditions of the module.

TABLE 3-3 Nonoperating Environmental Conditions

Condition	Range
Temperature (Storage)	-10° C to 50° C (-14° F to 120° F)
Temperature (Transit)	-40° C to 60° C (-40° F to 140° F)
Humidity (Storage)	10% to 90%, maximum dew point is 26° C (79° F), 10% per hour gradient
Humidity (Transit)	5% to 95%, maximum dew point is 26° C (79° F), 10% per hour gradient
Altitude	100 feet (30.5 meters) below sea level to 40,000 feet (12,000 meters)
Shock	30 G, 11 msec half sinewave in the side/side and up/down directions 5 G, 11 msec half sinewave in the front/back direction

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 module uses wide-ranging redundant power supplies that automatically accommodate voltages to the AC power source. The power supplies operate within the range of 90 VAC to 264 VAC, at a minimum frequency of 50 Hz and a maximum frequency of 60 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 module model and serial number label. The module can run without interruption within the limits shown in [TABLE 3-4](#).

TABLE 3-4 Module AC Power Requirements

Condition	Specification
AC Power (CU)	2.9 A maximum operating @ 100 VAC (90 VAC - 136 VAC Range), 50/60 Hz
	1.5 A maximum operating @ 240 VAC (198 VAC - 264 VAC Range), 50/60 Hz
AC Power (EXP)	3.2 A maximum operating @ 100 VAC (90 VAC - 136 VAC Range), 50/60 Hz
Maximum Operating Current	1.4 A maximum operating @ 240 VAC (198 VAC - 264 VAC Range), 50/60 Hz

Power Cords and Receptacles

All modules 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 module to an independent external power source, such as a wall receptacle or uninterruptible power supply (UPS).

Standards and Compliance

TABLE 3-5 lists the standards and compliance specifications that the module meets or exceeds.

TABLE 3-5 Standards and Compliance Specifications

Feature	Specification
Safety and Emissions	IEC 60950, EN 60950, UL 60950, UL 1950, FCC Part 15 (47CRF15B), CISPR 22 (EN55022 - RF Radiated and Conducted Emissions), IEC 61000-3-2, IEC 61000-3-3
Immunity	CISPR 24 (EN55024), IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11

Configuration Worksheets

Use the worksheets in this appendix to help you collect the information that you will need to perform the installation. Two worksheets are provided:

- [“Sun StorEdge 6130 Array Configuration Worksheet” on page 24](#)
- [“Sun StorEdge 6130 Array Data Host Information” on page 25](#)

TABLE A-1 lists the information you need to collect for array configuration.

TABLE A-1 Sun StorEdge 6130 Array Configuration Worksheet

Controller A MAC address:	
Controller B MAC address:	
Controller A IP address:	
Controller B IP 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 StorEdge 6130 array.

TABLE A-2 Sun StorEdge 6130 Array Data Host Information

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

