



Cluster Platform 15K/9960 System

Site Planning Guide

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Declaration of Conformity

Compliance Model Number: 2080
Product Name: Cluster Platform 15K/9960 System

EMC

European Union

This equipment complies with the following requirements of the EMC Directive 89/336/EEC:

EN55022:1995/CISPR22:1997		Class A
EN550024:1998	EN61000-4-2	4 kV (Direct), 8 kV (Air)
	EN61000-4-3	3 V/m
	EN61000-4-4	1.0 kV Power Lines, 0.5 kV Signal Lines
	EN61000-4-5	1 kV Line-Line, 2 kV Line-Gnd Power Lines
	EN61000-4-6	3 V
	EN61000-4-8	3 A/m
	EN61000-4-11	Pass
EN61000-3-2:1995		Pass
EN61000-3-3:1995		Pass

Safety

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EN60950:1992, 2nd Edition, Amendments 1,2,3,4,11	TÜV Product Service Certificate No. Z1A 01 07 17641 013
IEC 950:1991, 2nd Edition, Amendments 1,2,3,4	
Evaluated to all CB Countries	CB Scheme Certificate No. CB 01 07 17641 014

Preface

This Site Planning Guide provides site preparation guidelines and checklists for you to use and complete prior to installing the Cluster Platform 15K/9960 system. This document details information necessary to locate and plan a controlled environment for your new system.

How This Book Is Organized

Chapter 1 contains an illustration of the installation process.

Chapter 2 contains information about the physical specifications of the system.

Chapter 3 contains information about the environmental requirements for the system.

Chapter 4 contains information about the facility power and grounding requirements for the system.

Chapter 5 contains information about the network configuration.

Chapter 6 provides site planning checklists.

Using UNIX Commands

This document does not contain information on basic UNIX® commands and procedures.

See one or more of the following for this information:

- *Solaris Handbook for Sun Peripherals*
- AnswerBook2™ online documentation for the Solaris™ software environment
- Other software documentation that you received with your platform

Typographic Conventions

Typeface or Symbol	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. % You have mail.
AaBbCc123	What you type, when contrasted with on-screen computer output	% su Password:
<i>AaBbCc123</i>	Book titles, new words or terms, words to be emphasized	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.
	Command-line variable; replace with a real name or value	To delete a file, type <code>rm filename</code> .

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	#

Related Documentation

Before you attempt to install the Cluster Platform 15K/9960 system, you must read the following documents so that you are familiar with the installation process.

Note – Before you attempt to install the Cluster Platform 15K/9960 system, you must read the Late-Breaking News document. You should also obtain the latest version of all of Cluster Platform 15K/9960 system documents, which are available at:

http://www.sun.com/products-n-solutions/hardware/docs/Integrated_Platforms/index.html

Application	Title	Part Number
Installation	<i>Cluster Platform 15K/9960 System Read Me First</i>	816-3542
	<i>Cluster Platform 15K/9960 System Getting Started</i>	816-3579
	<i>Cluster Platform 15K/9960 System Installation Guide</i>	816-3538

Application	Title	Part Number
	<i>Sun Fire 15K System Unpacking Guide</i>	806-3508
	<i>Sun Fire 15K System Hardware Installation and De-Installation Guide</i>	806-3511
Late-Breaking News	<i>Cluster Platform 15K/9960 System Late-Breaking News</i>	816-3540

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Site-Preparation Process

The Cluster Platform 15K/9960 system has various physical and environmental requirements. Review the site preparation process flow diagram shown in FIGURE 1-1 as you begin to evaluate the needed requirements.

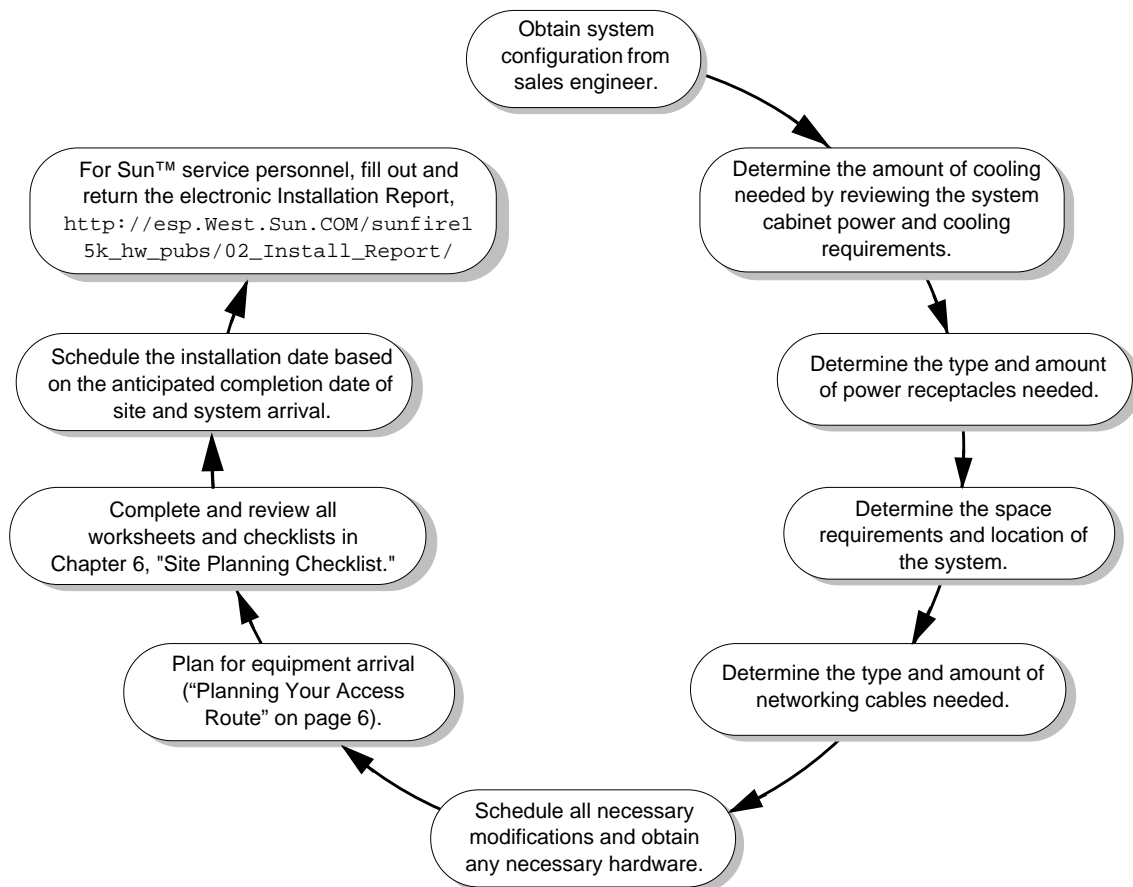


FIGURE 1-1 Site Preparation Process

Physical Specifications

This chapter contains the physical specifications for the Cluster Platform 15K/9960 system.

System Components

The Cluster Platform 15K/9960 system consists of a two-node Sun Fire™ 15K domain cluster (each cluster domain is part of a separate Sun Fire 15K server) that has access to one Sun StorEdge™ 9960 shared storage system. The Cluster Platform 15K/9960 system includes the following components:

- Two Sun Fire 15K servers
- One Sun StorEdge 9960 storage cabinet and one controller cabinet (minimum configuration)
- One Sun StorEdge expansion cabinet
- One terminal concentrator (in the expansion cabinet)
- One management server (in the expansion cabinet)
- One administration hub (in the expansion cabinet)
- Four Sun StorEdge S1 arrays (in the expansion cabinet)

FIGURE 2-1 shows the cabinet configuration for the Cluster Platform 15K/9960 system.

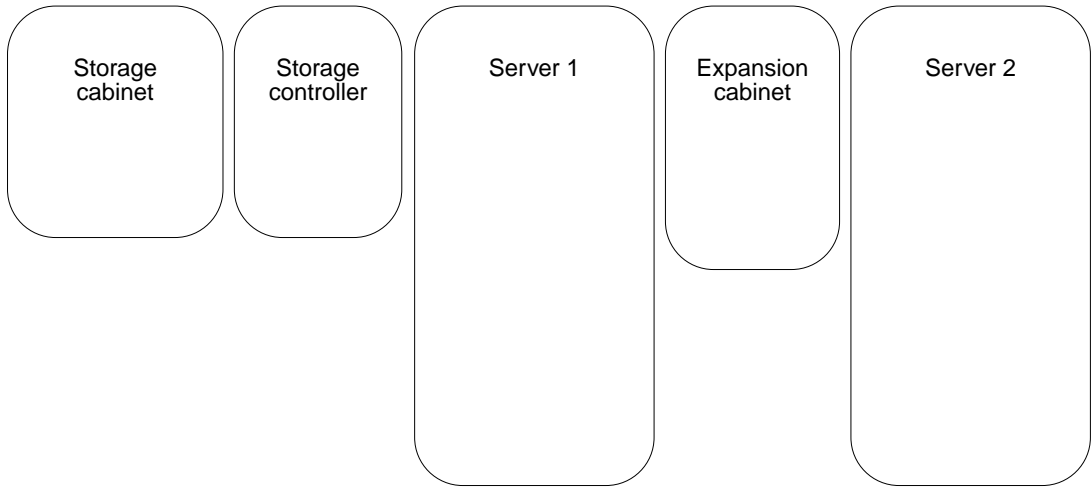


FIGURE 2-1 Cluster Platform 15K/9960 System Cabinet Configuration

TABLE 2-1 lists the physical specifications for the Cluster Platform 15K/9960 system.

TABLE 2-1 Physical Specifications for the Cluster Platform 15K/9960 System

Characteristic	Specification
Storage cabinet	
Height	70.5 in.
Width	29.5 in.
Depth	31.5 in.
Weight	908 lbs.

TABLE 2-1 Physical Specifications for the Cluster Platform 15K/9960 System (Continued)

Characteristic	Specification
Storage controller	
Height	70.5 in.
Width	23.6 in.
Depth	31.5 in.
Weight	1058 lbs.
Server 1 and 2 (each)	
Height	75.5 in.
Width	33.3 in.
Depth	66.2 in.
Weight	1883.2 lbs.
Expansion cabinet	
Height	73.5 in.
Width	24 in.
Depth	36.5 in.
Weight	450 lbs.

For detailed physical specifications of the expansion cabinet, refer to the *Sun StorEdge Expansion Cabinet Installation and Service Manual*. For detailed physical specifications of the Sun Fire 15K server, refer to the *Sun Fire 15K Site Planning Guide*. For detailed physical specifications of the Sun StorEdge 9960 storage system, refer to the *Hitachi Freedom Storage Lighting 9900 User and Reference Guide*.

Raised Floor Installations

A raised floor system provides a convenient way to duct cooling air and to route power and communication cabling. Sun strongly suggests that the system be installed on a raised floor to ensure that optimal cooling is available to the system. The computer room floor must be able to support the weight of the system cabinets.

Place perforated floor panels or floor grilles near or directly under the base of the system. Suggested locations for perforated floor panels or floor grilles are shown in “Computer Room Layout” on page 11. Use the floor layout diagram of the proposed location for the system to determine the exact area required for your system. Ensure the cabinets are positioned so that all casters and leveling feet are on solid raised-floor tiles.

Sun suggests a minimum raised floor height of 24–36 in. (61.0–91.5 cm).

Non-Raised Floor Installation

If you are not installing your system on a raised floor, ensure the cooling requirements specified in TABLE 3-1 can be met. Use cable covers to protect personnel from injury and protect cables from damage.

Note – If the cooling to the system is inadequate, automatic system shutdown can result.

Planning Your Access Route

For best performance, locate the system cabinets over perforated floor tiles as indicated in “Computer Room Layout” on page 11.



Caution – To prevent damage to system cabinets and injury to personnel, a 60-in. pallet jack can only be used at the narrow end of the pallet and a forklift can only be used at the wide side of the pallet.

If your existing loading dock meets height or ramp requirements for a standard freight carrier truck, you can use a standard 60-inch pallet jack (at narrow end of pallet) to unload the system cabinets. If not, use a standard forklift (at wide side of pallet) or other means to unload the system, or request the system to be shipped in a truck with a lift gate. A standard forklift has a maximum outside tine dimension of 27 in. (68.6 cm) and a minimum inside tine dimension of 15 in. (38.1 cm).

Sun suggests that you leave each system component in its shipping crate until it reaches its unpacking destination. If the system component does not fit through the planned access route, it can be partially disassembled after the unit has been removed from the crate.

The entire access route to your computer room should be free of raised patterns that can cause vibration. In addition, the strength of the perforated tiles should be verified. It is common to see damaged floor tiles in delivery paths because of the repeated rolling loads. It is suggested that the entire raised-floor delivery path be protected with material such as heavy particle board or another material of similar strength.

Note – Any path in the access route must not have an incline more than 10 degrees.

Environmental Requirements

The design of your environmental control system (such as computer room air-conditioning units) must ensure that intake air to the system meets the requirements specified in this chapter. Air enters the individual cabinets through the access panels and through air intakes that are located underneath the cabinets. The heated air is exhausted out of the top of the cabinets. Overheating can occur if warm air is directed underneath the cabinets or toward the access panels. TABLE 3-1 provides the environmental requirements for the Cluster Platform 15K/9960 system.

If the system components are significantly colder [40 °F (4 °C) or colder] than the environment in which you will install them, leave the system components in their shipping crates (at its final destination) for 24 hours to prevent thermal shock and condensation.

TABLE 3-1 Environmental Requirements

Environmental Factor	Operating	Non-operating	Suggested Operating Range
Temperature	50–90 °F (16–32 °C) Temperature ramp rate not to exceed 50 °F (10 °C) per hour, humidity ramp rate not to exceed 30% relative humidity per hour.	14–109 °F (-10 °C–43 °C) Temperature ramp rate not to exceed 59 °F (15 °C) per hour, humidity ramp rate not to exceed 20% relative humidity per hour.	72 °F (22 °C) or acceptable range of 70–75 °F (21–24 °C)
Humidity	20%–80% (noncondensing) 79 °F (26 °C) max wet bulb	8%–90% (noncondensing) 81 °F (27 °C) max wet bulb	45% or acceptable range of 35–55%
Altitude	up to 10,000 ft. (3,047 m)	up to 40,000 ft. (12,188 m)	

The suggested ambient temperature range of 70 degrees F to 74 degrees F (21 degrees C to 23 degrees C) is optimal for reliability and operator comfort levels. Most computer equipment can operate within a wide temperature range, but a level near 72 degrees F (22 degrees C) is desirable because it is easier to maintain safe associated relative humidity levels at this temperature. Operating in this temperature range provides a safety buffer just in case the environmental support

systems go down for a period of time. Though individual standards vary slightly, 70 degrees F to 74 degrees F (21 degrees C to 23 degrees C) should be used as an optimal temperature choice.

The suggested ambient relative humidity levels between 45% and 50% are the most suitable for safe data processing operations. Under certain circumstances, most processing equipment can operate within a fairly wide environmental range (20% to 80%), but the optimal goal should be between 45% to 50% for several reasons:

- The optimal range helps protect computer systems from corrosive problems associated with high humidity levels.
- It provides the greatest operating time buffer in the event of environmental control system failure.
- This range helps avoid failures or temporary malfunctions caused by intermittent interference from static discharges that occur when relative humidity is too low.

Electrostatic discharge (ESD) is easily generated and less easily dissipated in areas where the relative humidity is below 35%, and becomes critical when levels drop below 30%. The 5% relative humidity range may seem unreasonably tight when compared to the guidelines used in typical office environments or other loosely controlled areas, but it is not so difficult to maintain in a data center because of the high efficiency vapor barrier and low rate of air changes normally present.

Basic Power and Cooling Requirements

TABLE 3-2 contains the power and air conditioning information for the Cluster Platform 15K/9960 system.

TABLE 3-2 Cluster Platform 15K/9960 System Power and Cooling Requirement

Component	Power (Watts)	Air Conditioning (Btu/Hr)
Server cabinet 1	24,000	81,116
Server cabinet 2	24,000	81,116
Storage array cabinet	6436	11,669
Storage controller cabinet	4169	7916

The dynamics of the Cluster Platform 15K/9960 system power dissipation depends on application and configuration.

Computer Room Layout

The location of the Cluster Platform 15K/9960 system on perforated floor tiles, and the number of tiles available to provide cooling air in a typical computer room raised floor environment, is critical to the overall cooling performance.

Each tile needs to be capable of delivering 600 cubic feet per minute (cfm) cooling air at 0.07 inches of water. Review the floor plan layout in FIGURE 3-1 for planning your solid and perforated tile floor configuration.

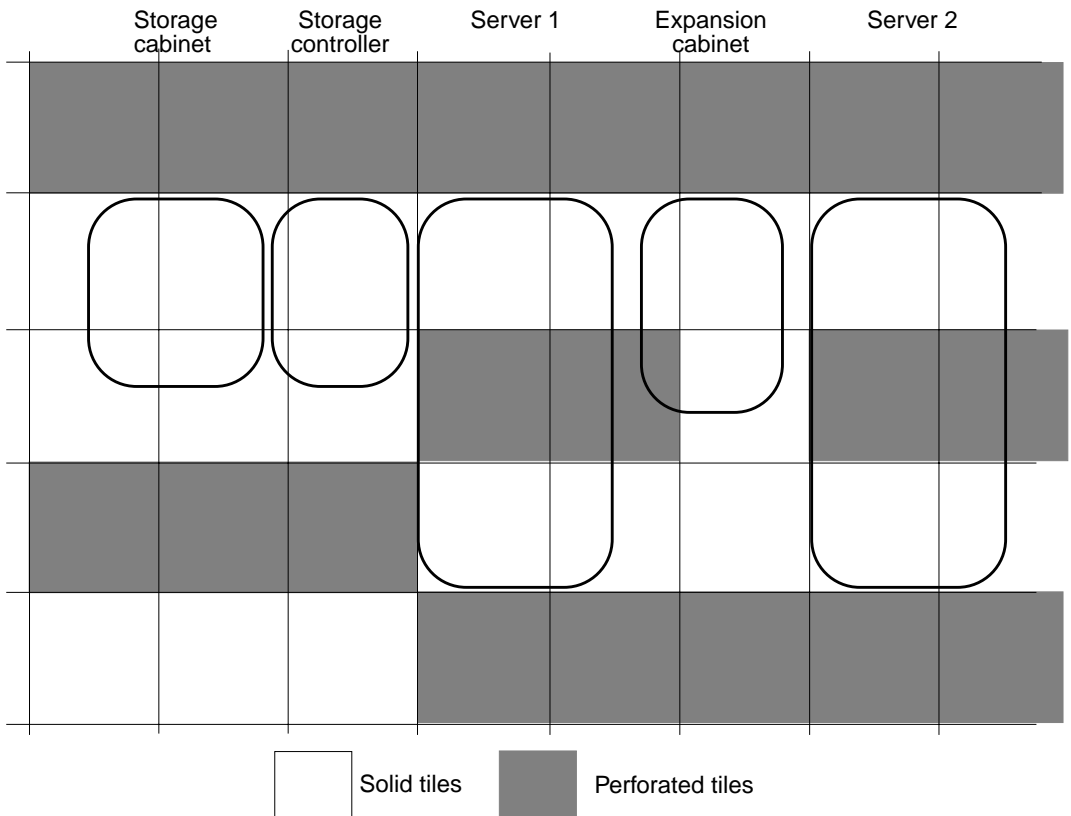


FIGURE 3-1 Solid and Perforated Tile Floor Plan

Note – Casters and leveling feet, located at the corners of each cabinet, are to be positioned only on solid floor tiles.

Facility Power and Grounding Requirements

This chapter contains the requirements for the facility power and the grounding requirements for the Cluster Platform 15K/9960 system.

Facility Power Requirements

To prevent catastrophic failures, the design of your power system must ensure that adequate power is provided to your Cluster Platform 15K/9960 system. Sun suggests that all power circuits supplying power to the Cluster Platform 15K/9960 system be derived from dedicated electrical distribution panels. Electrical work and installations must comply with applicable local, state, or national electrical codes.



Caution – System earth fault protection relies on the building circuit.

Sun makes every effort to minimize the effects of power failures and interruptions to the hardware. The Cluster Platform 15K/9960 system has dual, redundant, current-sharing power supply inputs and is designed to make use of two independent power sources. However, if the computer equipment is subjected to repeated power interruptions and fluctuations, it is susceptible to a higher component failure rate than it would be with a stable power source. You must provide a stable power source, such as an uninterruptible power system (UPS), to reduce the possibility of component failures.

TABLE 4-1 lists the electrical specifications for the Cluster Platform 15K/9960 system. For the power connections for the expansion cabinet, refer to the *Sun StorEdge Expansion Cabinet Installation and Service Manual*. For the power connections for the

Sun Fire 15K servers, refer to the *Sun Fire 15K Site Planning Guide*. For the power connections for the Sun StorEdge 9960 storage system, refer to the *Hitachi Freedom Storage Lighting 9900 User and Reference Guide*.

TABLE 4-1 Facility Power Requirements for the Cluster Nodes

Electrical Service	Specification
Voltage	200–240 VAC, single phase
Frequency	47–63 Hz
Circuit breaker: North America and Japan	30 circuits at 30A
Circuit breaker: International	30 circuits at 32A
Current drawn	23760 VA (max load)
Power cords (15 ft. maximum)	30
Receptacle: North America and Japan	NEMA L6-30R or equivalent
Receptacle: International P/N 180-1944-01	IEC 309, single phase, 32A

Note – The system is acceptable for use on TN [neutral connected to earth (terra), protective conductor connected to neutral]; and IT [neutral connected to earth (impedance), protective conductor connected to earth (terra)] power systems.

TABLE 4-2 Facility Power Requirements for the Storage Array

Electrical Service	Specification
Voltage at 60 Hz	200, 208, 230 VAC, three phase
Voltage at 50 Hz	200, 220, 230, 240 VAC, three phase
Voltage at 50 Hz	380, 400, 415 VAC, three phase
Frequency	47–63 Hz
Circuit breaker: North America and Japan	2 circuits at 30A
Circuit breaker: International	2 circuits at 32A
Current drawn (controller)	2410 VA (max load)
Current drawn (disk array)	3720 VA (max load)
Power cords (15 ft. maximum)	2
Receptacle: North America and Japan	R&S 3754

Cabinet Grounding Requirements

The Cluster Platform 15K/9960 achieves earth ground through the power cords. For this reason, a grounding cable is not provided with the system. The power cords have three prongs: two for current and one for ground. At the AC input module, the ground prong, and system chassis are connected. Final chassis ground is achieved when the power cord is connected to a receptacle, where the ground prong contacts the power receptacle. For successful grounding, you must provide properly grounded power receptacles so that the power distribution unit (PDU) ground is earth ground.

A ground cable can be affixed to the system. While not required, the additional ground point allows leakage current to dissipate more efficiently. It is important to note that power cords are grounded through the receptacle and the ground cable must reference a common earth ground. Otherwise, a difference in ground potential can be introduced.



Caution – If you are unsure of the facility PDU receptacle grounding, **do not install** a ground cable until a proper PDU receptacle grounding has been confirmed. If a difference in ground potential is apparent, **corrective action must be taken**.

▼ To Properly Ground the Cluster Platform 15K/9960 System

1. **Ensure that you have properly grounded PDUs in the data center.**
The PDU must be earth ground.
2. **Ensure that all grounding points (raised floors and power receptacles) reference PDU ground.**

Note – You must procure the grounding cable. A grounding cable is not shipped with the system.

3. Attach the ground cable to the system.

For the grounding locations for the expansion cabinet, refer to the *Sun StorEdge Expansion Cabinet Installation and Service Manual*. For the grounding location for the Sun Fire 15K server, refer to the *Sun Fire 15K Site Planning Guide*. For the grounding location for the Sun StorEdge 9960 storage system, refer to the *Hitachi Freedom Storage Lighting 9900 User and Reference Guide*.

The ground cable attaching area may be a painted surface. Ensure metal-to-metal solid contact is made for this installation.

Network Planning

This chapter contains information about the cabling connections for the Cluster Platform 15K/9960 system. It also includes system setup tables that you must complete before you attempt to install the system.

Network Connections

The Cluster Platform 15K/9960 system requires 10/100BASE-TX Ethernet connections on the customer network for each Sun Fire 15K server.

Each cluster node uses a Sun Quad FastEthernet™ interface (qfe0) to connect to the public network. Port qfe4 is reserved as the network adapter failover (NAFO) interface for qfe0 on both cluster domain nodes. A qualified service technician must configure network failover (NAFO) interfaces using the `pnmset(1M)` command.

Note – Interfaces qfe2, qfe3, qfe5, qfe6, and qfe7 are available to expand network services. The qfe1 interface is reserved for the internal administration network.

Public Networks

The public network uses a 10/100BASE-T network hub to provide access to the domains. The hub is customer supplied. FIGURE 5-1 shows the layout of the public network.

Note – In the following diagram, the external public hub can be a switch or a hub.

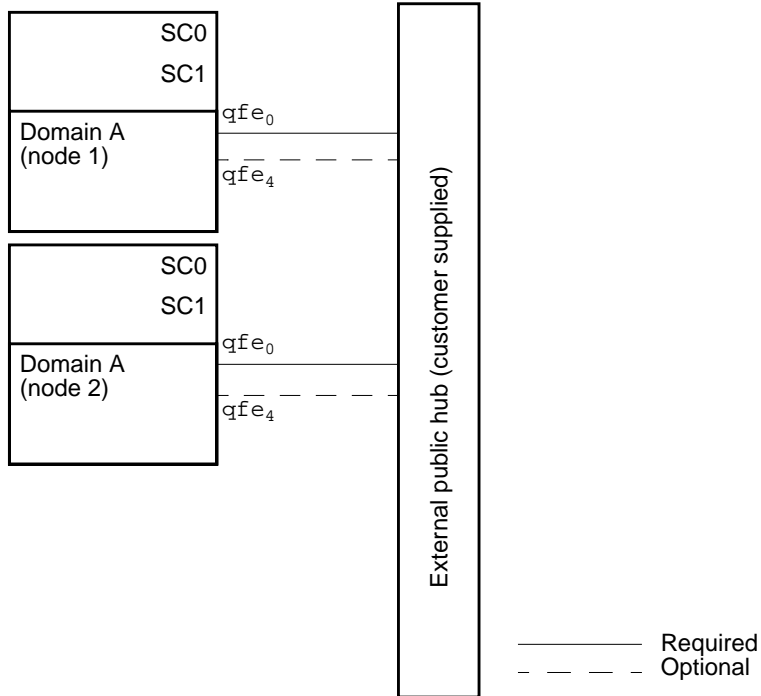


FIGURE 5-1 Public Network

Administration Networks

The administration networks use a 10/100BASE-T network hub to provide access to the system controllers, domains (nodes), the shared storage, and the customer Intranet. FIGURE 5-2 shows the layout of the administration networks.

Note – In the following diagram, the external public hub can be a switch or a hub.

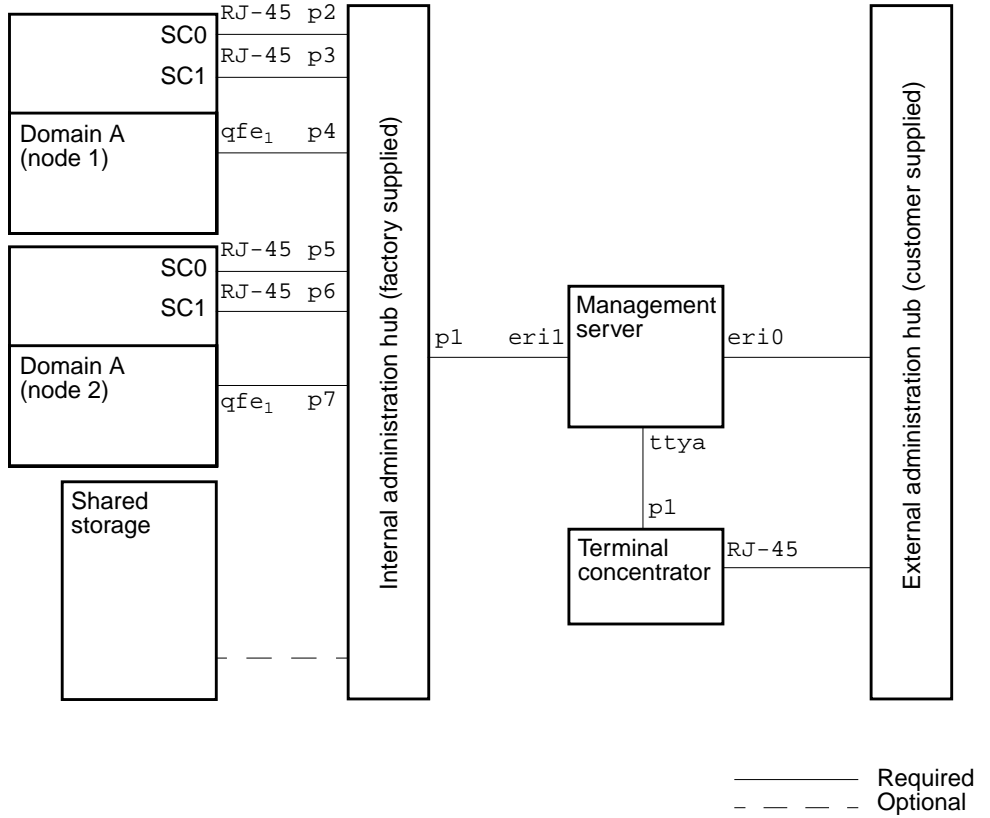


FIGURE 5-2 Administration Networks

Storage Connections

The storage connections enable the domains to have access to the shared storage and to the boot disks in the expansion cabinet. FIGURE 5-3 shows the layout of the storage connections.

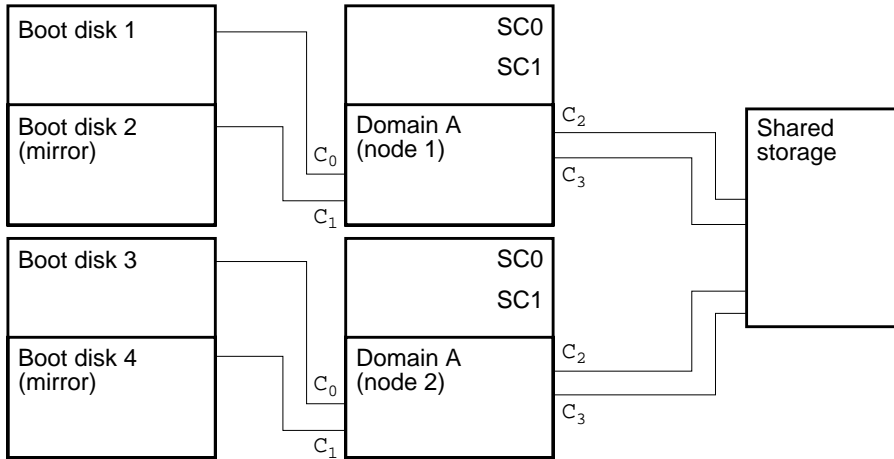


FIGURE 5-3 Storage Connections

Serial Connections

The serial connections enable the terminal concentrator to have access to the system controllers. FIGURE 5-4 shows the layout of the serial connections.

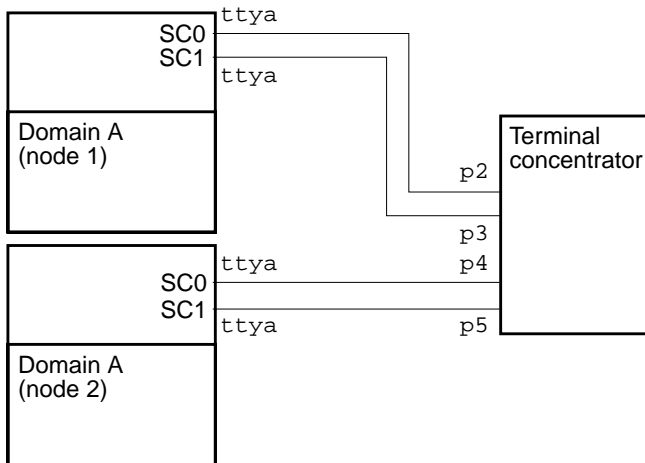


FIGURE 5-4 Serial Connections

System Setup Tables

Host names, networks, internet protocol (IP) addresses, and subnet masks for the Cluster Platform 15K/9960 system are required.

Sun Fire 15K System Controller Setup

Configuration of the system controllers and the installation of the operating system on the domains will also require host names, IP addresses, and subnet masks. Multiple user communities may also be involved. The tables that follow are designed to help organize this information before the installation.

Platform Name

The Sun Fire 15K server requires a platform name. The platform name, globally unique within the network, is a logical name given to an entire system and does not correspond to any host on the network. These names get set when you configure the system controllers. Use TABLE 5-1 to record the platform name for your records.

TABLE 5-1 Cluster Platform 15K/9960 System Platform Names

Sun Fire 15K Server	Platform Name
Server 1	
Server 2	

Domains

Host names and IP addresses are also required for the domain connections to a user community. Use TABLE 5-2 to record the domain settings. These values are set when you configure the system controllers.

TABLE 5-2 Domain Community, Host Name, and IP Addresses

Interface	User Community	Host Name	IP Address
Domain A (server 1)	domainA		
Domain A (server 2)	domainA		

Internal Networks

The subnets for the internal networks are fixed. Because I1, which is the domain to system controller management network (that is, MAN), and I2, which is the system controller to system controller management network, are not routed, the IP networks can be taken from the IP private pool. These networks should be set up using automatic assignment of host names and IP addresses. The networks should be unique within the customer network.

TABLE 5-3 IP Networks Subnet Masks for Internal Networks

Network	IP Network	Subnet Mask
Server 1, I1		255.255.255.224
Server 1, I2		255.255.255.252
Server 2, I1		255.255.255.224
Server 2, I2		255.255.255.252

External Networks

Enter the IP network address and subnet mask in TABLE 5-4. The subnet mask must be unique within the network. The system controller can connect only to one user community. These addresses are set when you configure the system controllers.

TABLE 5-4 IP Networks Subnet Masks for External Networks

User Community Network	IP Network	Subnet Mask
Community A (server 1 and server 2)		

System Controller

IP addresses are required for every interface on the system controller (SC) that is cabled to a user community. Both SCs have one built-in Ethernet port (labeled "Ethernet") cabled, and the other port ("Ext Ethernet") is not used in this configuration.

The following table contains the user community and IP address for the SCs. These settings are set when you configure the system controllers.

TABLE 5-5 Community Host Name IP Addresses for the System Controllers

Cx Network		
Interface	User Community	IP Address
Server 1, system controller 0, Ethernet		
Server 2, system controller 0, Ethernet		
Server 1, system controller 1, Ethernet		
Server 2, system controller 1, Ethernet		

Additionally, a logical interface is required for the SCs for each user community. Logical interfaces are only present on the main SC. SC pathgroup-specific IP addresses are also required when using an HA configuration (refer to the *Sun Fire 15K Site Planning Guide* for more information). Use the following table contains to record the logical interfaces. These interfaces are set when you configure the SCs.

TABLE 5-6 Host Name IP Addresses for the SC Logical Interface

User Community	Logical Host Name	Logical IP Address	SC0 Pathgroup IP Address	SC1 Pathgroup IP Address
Server 1, User Community A				
Server 2, User Community A				

Note – The logical and pathgroup-specific IP address for a community must use the same IP network and subnet as the physical NIC(s) in that community.

Terminal Concentrator Setup

You will need to provide the name, IP address, subnet mask, and broadcast address for the terminal concentrator. Use the following table to record the values.

TABLE 5-7 Terminal Concentrator Settings

Setting	Value
Name	
IP address	
Subnet mask	
Broadcast address	
Gateway default router	

Management Server Setup

You will need to provide the following values during the management server configuration. Use the following table to record the values.

TABLE 5-8 Management Server Settings

Setting	Value
IP address	
Cluster name	
Internal administration network IP address	
Internal administration network netmask	
External administration network IP address	

Node 1 Settings

You will need to provide the following values for node 1 during the management server configuration. Use the following table to record the values.

TABLE 5-9 Node 1 Settings

Setting	Value
Domain name	
IP address	
Administration network IP address	
Ethernet address	
Netmask address for the public network	
Default router IP address for the public network	
SC0 name	
SC0 IP address	
SC1 name	
SC1 IP address	

Node 2 Settings

You will need to provide the following values for node 2 during the management server configuration. Use the following table to record the values.

TABLE 5-10 Node 2 Settings

Setting	Value
Domain name	
IP address	
Administration network IP address	
Ethernet address	
SC0 name	

TABLE 5-10 Node 2 Settings (*Continued*)

Setting	Value
SC0 IP address	
SC1 name	
SC1 IP address	

Cluster Interconnect

You will need to provide the following values for the cluster interconnect during the management server configuration. Use the following table to record the values.

TABLE 5-11 Cluster Interconnect Settings

Setting	Value
IP address	
Ethernet address	

Site Planning Checklists

Prior to the system installation, confirm that the following requirements have been met.

Miscellaneous

- Have system administrators and operators been enrolled in the necessary Sun Microsystems training course, ES-421, Sun Fire 15K Server Administration?
- Is a security clearance required for this site? If so, has local Sun Microsystems Enterprise Services Management been notified of the required security level?
Note: Clearances can take months to obtain, so timely notification is important.
- Was the *Cluster Platform 15K/9960 System Site Planning Guide* provided to all pertinent members of the customer staff including the facility planning and operations team for review during the site planning process?

Environmental Requirements

- Does the computer room environment meet the Sun Microsystems specifications for temperature and humidity listed in TABLE 3-1?
- Confirm there is sufficient unused temperature capacity supporting the computer area to handle the increase in load from this system. Redundant capacity should not be considered. See TABLE 3-1.
- Verify that the correct number of circuit breaker pole positions are available to connect the systems properly.
- Determine the source of power for the system. Are the sources of power consistent with the intended power connection configurations?
- Is the computer room voltage between 200–240 VAC?
- Have sufficient power receptacles been ordered for the system? See TABLE 4-1.
- Ensure the power receptacles are within 14 ft (427 cm cable length) of the system location.
- Are the circuit breakers for the system properly installed and labeled?

Physical Specifications

- Has the system location been established?
- Does the equipment floor layout meet the equipment maintenance access requirements? See “Computer Room Layout” on page 11.
- Confirm the equipment is positioned so that the minimum distance from the discharge of a heat-rejecting device meets the suggestions in TABLE 3-1.
- Are the floor cutouts for the system in place?
- Are suggested perforated floor panels in place? See “Computer Room Layout” on page 11.
- Confirm the raised-floor system and the raised-floor tiles are rated for the loads imposed by the system.
- Is the system positioned to correspond to the precise edge of raised-floor tile locations? **Casters and leveling feet must be on solid raised-floor tiles.**
- Have you had a structural engineer evaluate the building structure for the anticipated weight of the system?

Network Planning

- Have the Ethernet connections in Chapter 5 been considered for the customer network?
- Have all networking cables been ordered to arrive prior to installation?
- Have all network connections for each configured network controller been ordered?
- Have all IP addresses for each configured network controller been assigned?
- Are the Ethernet connections available to the public network?

Planning Your Access Route

- Has a 60-inch pallet jack been obtained for transporting the system cabinet on the pallet? (Refer to the *Sun Fire 15K System Unpacking Guide*, part number 806-3508.)
- Has an access route to the final system location been identified?
- Does the access route satisfy the access requirements outlined in “Planning Your Access Route” on page 6?
- Have provisions been made to cover irregular or engraved floor patterns along the access route to reduce vibration?
- Have personnel been allocated to unload the system during delivery? (Refer to the *Sun Fire 15K System Unpacking Guide*, part number 806-3508.)
- Does the loading dock meet the standard freight-carrier truck requirements? Trucks can be between 48 ft (14.6 meters) and 61 ft (18.6 meters) long, 8.5 ft (2.6 meters) wide, and 14 ft (4.3 meters) high.
- If the loading dock does not meet the standard freight-carrier truck requirements, has a forklift been allocated for delivery? (Refer to the *Sun Fire 15K System Unpacking Guide*, part number 806-3508.)
- Has a truck with a lift gate that can accommodate the crated system been requested through the Sales Desk Service Liaison (cs-10k@oregon.west)? See “Planning Your Access Route” on page 6 of this Site Planning Guide for physical specifications.
- Does the access route meet the floor-loading requirements for the system?

- Do the pallet-jack fork dimensions meet requirements for the shipping crate? See “Planning Your Access Route” on page 6.
 - Are the elevator and elevator door dimensions adequate? See Chapter 2.
 - Is the elevator weight capacity adequate? See Chapter 2.
 - Does each ramp incline, in the access route, have an incline that is less than 10 degrees? Refer to the *Sun Fire 15K System Unpacking Guide*. This is less than a 12-inch rise in ten feet.
 - Has a crate unloading area next to the raised floor been identified?
 - Have provisions been made to protect the raised floor along the delivery path?
 - Is each door opening along the delivery path wide and tall enough to accommodate the system?
-

Installation Schedule

- Has an installation date been determined? Date: _____
- Who is the customer contact for shipment?

Name: _____

Phone: _____

Regulatory Compliance Statements

Your Sun product is marked to indicate its compliance class:

- Federal Communications Commission (FCC) — USA
- Industry Canada Equipment Standard for Digital Equipment (ICES-003) - Canada
- Voluntary Control Council for Interference (VCCI) — Japan
- Bureau of Standards Metrology and Inspection (BSMI) — Taiwan
- Please read the appropriate section that corresponds to the marking on your Sun product before attempting to install the product.

FCC Class A Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Note – This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Shielded Cables

Connections between the workstation and peripherals must be made using shielded cables to comply with FCC radio frequency emission limits. Networking connections can be made using unshielded twisted-pair (UTP) cables.

Modifications

Any modifications made to this device that are not approved by Sun Microsystems, Inc. may void the authority granted to the user by the FCC to operate this equipment.

ICES-003 Class A Notice - Avis NMB-003, Classe A

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Safety Agency Compliance Statements

Read this section before beginning any procedure. The following text provides safety precautions to follow when installing a Sun Microsystems product.

Safety Precautions

For your protection, observe the following safety precautions when setting up your equipment:

- Follow all cautions and instructions marked on the equipment.
- Ensure that the voltage and frequency of your power source match the voltage and frequency inscribed on the equipment's electrical rating label.
- Never push objects of any kind through openings in the equipment. Dangerous voltages may be present. Conductive foreign objects could produce a short circuit that could cause fire, electric shock, or damage to your equipment.

Symbols

The following symbols may appear in this book:



Caution – There is risk of personal injury and equipment damage. Follow the instructions.



Caution – Hot surface. Avoid contact. Surfaces are hot and may cause personal injury if touched.



Caution – Hazardous voltages are present. To reduce the risk of electric shock and danger to personal health, follow the instructions.



On – Applies AC power to the system.

Depending on the type of power switch your device has, one of the following symbols may be used:



Off - Removes AC power from the system.



Standby – The On/Standby switch is in the standby position.

Modifications to Equipment

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

Placement of a Sun Product



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.



Caution – Noise level during normal operating condition is below 70Db(A). Noise level during over temperature condition may be above 70Db(A). Limit exposure during this temporary condition.

SELV Compliance

Safety status of I/O connections comply to SELV requirements.

Power Cord Connection



Caution – Sun products are designed to work with a line-to-neutral or line-to-line connection. To reduce the risk of electric shock, do not plug Sun products into any other type of power system. Contact your facilities manager or a qualified electrician if you are not sure what type of power is supplied to your building.



Caution – Not all power cords have the same current ratings. Household extension cords do not have overload protection and are not meant for use with computer systems. Do not use household extension cords with your Sun product.



Caution – Your Sun product is shipped with a grounding type (three-wire) power cord. To reduce the risk of electric shock, always plug the cord into a grounded power outlet.

The following caution applies only to devices with a Standby power switch:



Caution – The power switch of this product functions as a standby type device only. The power cord serves as the primary disconnect device for the system. Be sure to plug the power cord into a grounded power outlet that is nearby the system and is readily accessible. Do not connect the power cord when the power supply has been removed from the system chassis.

Lithium Battery



Caution – On Sun SC CPU boards, there is a lithium battery molded into the real-time clock, SGS No. MK48T59Y, MK48TXXB-XX, MK48T18-XXXPCZ, M48T59W-XXXPCZ, or MK48T08. Batteries are not customer replaceable parts. They may explode if mishandled. Do not dispose of the battery in fire. Do not disassemble it or attempt to recharge it.

Laser Compliance Notice

Sun products that use laser technology comply with Class 1 laser requirements.

Class 1 Laser Product
Luokan 1 Laserlaite
Klasse 1 Laser Apparat
Laser Klasse 1

CD ROM/DVD ROM



Caution – Use of controls, adjustments, or the performance of procedures other than those specified herein may result in hazardous radiation exposure.

Einhaltung sicherheitsbehördlicher Vorschriften

Auf dieser Seite werden Sicherheitsrichtlinien beschrieben, die bei der Installation von Sun-Produkten zu beachten sind.

Sicherheitsvorkehrungen

Treffen Sie zu Ihrem eigenen Schutz die folgenden Sicherheitsvorkehrungen, wenn Sie Ihr Gerät installieren:

- Beachten Sie alle auf den Geräten angebrachten Warnhinweise und Anweisungen.
- Vergewissern Sie sich, daß Spannung und Frequenz Ihrer Stromquelle mit der Spannung und Frequenz übereinstimmen, die auf dem Etikett mit den elektrischen Nennwerten des Geräts angegeben sind.
- Stecken Sie auf keinen Fall irgendwelche Gegenstände in Öffnungen in den Geräten. Leitfähige Gegenstände könnten aufgrund der möglicherweise vorliegenden gefährlichen Spannungen einen Kurzschluß verursachen, der einen Brand, Stromschlag oder Geräteschaden herbeiführen kann.

Symbole

Die Symbole in diesem Handbuch haben folgende Bedeutung:



Achtung – Gefahr von Verletzung und Geräteschaden. Befolgen Sie die Anweisungen.



Achtung – Hohe Temperatur. Nicht berühren, da Verletzungsgefahr durch heiße Oberfläche besteht.



Achtung – Gefährliche Spannungen. Anweisungen befolgen, um Stromschläge und Verletzungen zu vermeiden.



Ein – Setzt das System unter Wechselstrom.

Je nach Netzschaltertyp an Ihrem Gerät kann eines der folgenden Symbole benutzt werden:



Aus – Unterbricht die Wechselstromzufuhr zum Gerät.



Wartezustand (Stand-by-Position) - Der Ein-/Wartezustand-Schalter steht auf Wartezustand. Änderungen an Sun-Geräten.

Nehmen Sie keine mechanischen oder elektrischen Änderungen an den Geräten vor. Sun Microsystems, übernimmt bei einem Sun-Produkt, das geändert wurde, keine Verantwortung für die Einhaltung behördlicher Vorschriften

Aufstellung von Sun-Geräten



Achtung – Um den zuverlässigen Betrieb Ihres Sun-Geräts zu gewährleisten und es vor Überhitzung zu schützen, dürfen die Öffnungen im Gerät nicht blockiert oder verdeckt werden. Sun-Produkte sollten niemals in der Nähe von Heizkörpern oder Heizluftklappen aufgestellt werden.



Achtung – Unter normalen Betriebsbedingungen liegt der Geräuschpegel unter 70 Db(A). Bei erhöhten Temperaturen kann der Geräuschpegel bei über 70 Db(A) liegen. Minimieren Sie eine Überhitzung des Gerätes.

Einhaltung der SELV-Richtlinien

Die Sicherung der I/O-Verbindungen entspricht den Anforderungen der SELV-Spezifikation.

Anschluß des Netzkabels



Achtung – Sun-Produkte sind für die Verwendung mit einer Leiter-zu-Neutral- oder einer Leiter-zu-Leiter-Verbindung vorgesehen. Um die Stromschlaggefahr zu reduzieren, schließen Sie Sun-Produkte nicht an andere Stromquellen an. Ihr Betriebsleiter oder ein qualifizierter Elektriker kann Ihnen die Daten zur Stromversorgung in Ihrem Gebäude geben.



Achtung – Nicht alle Netzkabel haben die gleichen Nennwerte. Herkömmliche, im Haushalt verwendete Verlängerungskabel besitzen keinen Überlastungsschutz und sind daher für Computersysteme nicht geeignet.



Achtung – Ihr Sun-Gerät wird mit einem dreidadrigen Netzkabel für geerdete Netzsteckdosen geliefert. Um die Gefahr eines Stromschlags zu reduzieren, schließen Sie das Kabel nur an eine fachgerecht verlegte, geerdete Steckdose an.

Die folgende Warnung gilt nur für Geräte mit Wartezustand-Netzschalter:



Achtung – Der Ein/Aus-Schalter dieses Geräts schaltet nur auf Wartezustand (Stand-By-Modus). Um die Stromzufuhr zum Gerät vollständig zu unterbrechen, müssen Sie das Netzkabel von der Steckdose abziehen. Schließen Sie den Stecker des Netzkabels an eine in der Nähe befindliche, frei zugängliche, geerdete Netzsteckdose an. Schließen Sie das Netzkabel nicht an, wenn das Netzteil aus der Systemeinheit entfernt wurde.

Lithiumbatterie



Achtung – SC CPU-Karten von Sun verfügen über eine Echtzeituhr mit integrierter Lithiumbatterie (Teile-Nr. MK48T59Y, MK48TXXB-XX, MK48T18-XXXPCZ, M48T59W-XXXPCZ, oder MK48T08). Diese Batterie darf nur von einem qualifizierten Servicetechniker ausgetauscht werden, da sie bei falscher Handhabung explodieren kann. Werfen Sie die Batterie nicht ins Feuer. Versuchen Sie auf keinen Fall, die Batterie auszubauen oder wiederaufzuladen.

Einhaltung der Richtlinien für Laser

Sun-Produkte, die mit Laser-Technologie arbeiten, entsprechen den Anforderungen der Laser Klasse 1.

Class 1 Laser Product
Luokan 1 Laserlaite
Klasse 1 Laser Apparat
Laser Klasse 1

CD ROM/DVD ROM



Warnung – Die Verwendung von anderen Steuerungen und Einstellungen oder die Durchführung von Prozeduren, die von den hier beschriebenen abweichen, können gefährliche Strahlungen zur Folge haben.

Conformité aux normes de sécurité

Ce texte traite des mesures de sécurité qu'il convient de prendre pour l'installation d'un produit Sun Microsystems.

Mesures de sécurité

Pour votre protection, veuillez prendre les précautions suivantes pendant l'installation du matériel :

- Suivre tous les avertissements et toutes les instructions inscrites sur le matériel.
- Vérifier que la tension et la fréquence de la source d'alimentation électrique correspondent à la tension et à la fréquence indiquées sur l'étiquette de classification de l'appareil.
- Ne jamais introduire d'objets quels qu'ils soient dans une des ouvertures de l'appareil. Vous pourriez vous trouver en présence de hautes tensions dangereuses. Tout objet conducteur introduit de la sorte pourrait produire un court-circuit qui entraînerait des flammes, des risques d'électrocution ou des dégâts matériels.

Symboles

Vous trouverez ci-dessous la signification des différents symboles utilisés :



Attention: – risques de blessures corporelles et de dégâts matériels. Veuillez suivre les instructions.



Attention: – surface à température élevée. Evitez le contact. La température des surfaces est élevée et leur contact peut provoquer des blessures corporelles.



Attention: – présence de tensions dangereuses. Pour éviter les risques d'électrocution et de danger pour la santé physique, veuillez suivre les instructions.



MARCHE – Votre système est sous tension (courant alternatif).

Un des symboles suivants sera peut-être utilisé en fonction du type d'interrupteur de votre système:



ARRET - Votre système est hors tension (courant alternatif).



VEILLEUSE – L'interrupteur Marche/Veilleuse est en position « Veilleuse ».

Modification du matériel

Ne pas apporter de modification mécanique ou électrique au matériel. Sun Microsystems n'est pas responsable de la conformité réglementaire d'un produit Sun qui a été modifié.

Positionnement d'un produit Sun



Attention: – pour assurer le bon fonctionnement de votre produit Sun et pour l'empêcher de surchauffer, il convient de ne pas obstruer ni recouvrir les ouvertures prévues dans l'appareil. Un produit Sun ne doit jamais être placé à proximité d'un radiateur ou d'une source de chaleur.



Attention: – Pendant le fonctionnement normal, le niveau de bruit est inférieur à 70 Db (A). Pendant l'utilisation à des températures élevées, il peut être supérieur à 70 Db (A). Limitez l'utilisation pendant ces conditions temporaires.

Conformité SELV

Sécurité : les raccordements E/S sont conformes aux normes SELV.

Connexion du cordon d'alimentation



Attention: – Les produits Sun sont conçus pour fonctionner avec une connexion ligne à neutre ou ligne à ligne. Pour écarter les risques d'électrocution, ne pas brancher de produit Sun dans un autre type d'alimentation secteur. En cas de doute quant au type d'alimentation électrique du local, veuillez vous adresser au directeur de l'exploitation ou à un électricien qualifié.



Attention: – tous les cordons d'alimentation n'ont pas forcément la même puissance nominale en matière de courant. Les rallonges d'usage domestique n'offrent pas de protection contre les surcharges et ne sont pas prévues pour les systèmes d'ordinateurs. Ne pas utiliser de rallonge d'usage domestique avec votre produit Sun.



Attention: – votre produit Sun a été livré équipé d'un cordon d'alimentation à trois fils (avec prise de terre). Pour écarter tout risque d'électrocution, branchez toujours ce cordon dans une prise mise à la terre.

L'avertissement suivant s'applique uniquement aux systèmes équipés d'un interrupteur VEILLEUSE:



Attention: – le commutateur d'alimentation de ce produit fonctionne comme un dispositif de mise en veille uniquement. C'est la prise d'alimentation qui sert à mettre le produit hors tension. Veillez donc à installer le produit à proximité d'une prise murale facilement accessible. Ne connectez pas la prise d'alimentation lorsque le châssis du système n'est plus alimenté.

Batterie au lithium



Attention: – sur les cartes SC CPU Sun, une batterie au lithium (référence MK48T59Y, MK48TXXB-XX, MK48T18-XXXPCZ, M48T59W-XXXPCZ, ou MK48T08.) a été moulée dans l'horloge temps réel SGS. Les batteries ne sont pas des pièces remplaçables par le client. Elles risquent d'exploser en cas de mauvais traitement. Ne pas jeter la batterie au feu. Ne pas la démonter ni tenter de la recharger.

Conformité aux certifications Laser

Les produits Sun qui font appel aux technologies lasers sont conformes aux normes de la classe 1 en la matière.

Class 1 Laser Product
Luokan 1 Laserlaite
Klasse 1 Laser Apparat
Laser Klasse 1

CD ROM/DVD ROM



Attention: – L'utilisation de contrôles, de réglages ou de performances de procédures autre que celle spécifiée dans le présent document peut provoquer une exposition à des radiations dangereuses.

Normativas de seguridad

El siguiente texto incluye las medidas de seguridad que se deben seguir cuando se instale algún producto de Sun Microsystems.

Precauciones de seguridad

Para su protección observe las siguientes medidas de seguridad cuando manipule su equipo:

- Siga todas los avisos e instrucciones marcados en el equipo.
- Asegúrese de que el voltaje y la frecuencia de la red eléctrica concuerdan con las descritas en las etiquetas de especificaciones eléctricas del equipo.
- No introduzca nunca objetos de ningún tipo a través de los orificios del equipo. Pueden haber voltajes peligrosos. Los objetos extraños conductores de la electricidad pueden producir cortocircuitos que provoquen un incendio, descargas eléctricas o daños en el equipo.

Símbolos

En este libro aparecen los siguientes símbolos:



Precaución – Existe el riesgo de lesiones personales y daños al equipo. Siga las instrucciones.



Precaución – Superficie caliente. Evite el contacto. Las superficies están calientes y pueden causar daños personales si se tocan.



Precaución – Voltaje peligroso presente. Para reducir el riesgo de descarga y daños para la salud siga las instrucciones.



Encendido – Aplica la alimentación de CA al sistema.

Según el tipo de interruptor de encendido que su equipo tenga, es posible que se utilice uno de los siguientes símbolos:



Apagado - Elimina la alimentación de CA del sistema.



En espera – El interruptor de Encendido/En espera se ha colocado en la posición de En espera.

Modificaciones en el equipo

No realice modificaciones de tipo mecánico o eléctrico en el equipo. Sun Microsystems no se hace responsable del cumplimiento de las normativas de seguridad en los equipos Sun modificados.

Ubicación de un producto Sun



Precaución – Para asegurar la fiabilidad de funcionamiento de su producto Sun y para protegerlo de sobrecalentamientos no deben obstruirse o taparse las rejillas del equipo. Los productos Sun nunca deben situarse cerca de radiadores o de fuentes de calor.



Precaución – El nivel de ruido en circunstancias normales de funcionamiento está por debajo de 70 Db (A). El nivel de ruido en circunstancias de temperatura excesiva podría estar por encima de 70 Db (A). En dichas circunstancias temporales limite la exposición.

Cumplimiento de la normativa SELV

El estado de la seguridad de las conexiones de entrada/salida cumple los requisitos de la normativa SELV.

Conexión del cable de alimentación eléctrica



Precaución – Los productos Sun están diseñados para funcionar con una conexión línea a neutra o línea a línea. Para reducir el riesgo de descarga eléctrica, no conecte los productos Sun a otro tipo de sistema de alimentación eléctrica. Póngase en contacto con el responsable de mantenimiento o con un electricista cualificado si no está seguro del sistema de alimentación eléctrica del que se dispone en su edificio.



Precaución – No todos los cables de alimentación eléctrica tienen la misma capacidad. Los cables de tipo doméstico no están provistos de protecciones contra sobrecargas y por tanto no son apropiados para su uso con computadores. No utilice alargadores de tipo doméstico para conectar sus productos Sun.



Precaución – Con el producto Sun se proporciona un cable de alimentación con toma de tierra. Para reducir el riesgo de descargas eléctricas conéctelo siempre a un enchufe con toma de tierra.

La siguiente advertencia se aplica solamente a equipos con un interruptor de encendido que tenga una posición "En espera":



Precaución – El interruptor de encendido de este producto funciona exclusivamente como un dispositivo de puesta en espera. El enchufe de la fuente de alimentación está diseñado para ser el elemento primario de desconexión del equipo. El equipo debe instalarse cerca del enchufe de forma que este último pueda ser fácil y rápidamente accesible. No conecte el cable de alimentación cuando se ha retirado la fuente de alimentación del chasis del sistema.

Batería de litio



Precaución – En las placas de SC CPU Sun hay una batería de litio insertada en el reloj de tiempo real, tipo SGS Núm. MK48T59Y, MK48TXXB-XX, MK48T18-XXXPCZ, M48T59W-XXXPCZ, o MK48T08. Las baterías no son elementos reemplazables por el propio cliente. Pueden explotar si se manipulan de forma errónea. No arroje las baterías al fuego. No las abra o intente recargarlas.

Aviso de cumplimiento con requisitos de láser

Los productos Sun que utilizan la tecnología de láser cumplen con los requisitos de láser de Clase 1.

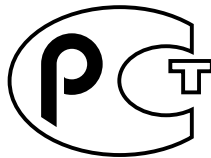
Class 1 Laser Product
Luokan 1 Laserlaite
Klasse 1 Laser Apparat
Laser Klasse 1

CD ROM/DVD ROM



Precaución – El manejo de los controles, los ajustes o la ejecución de procedimientos distintos a los aquí especificados pueden exponer al usuario a radiaciones peligrosas.

GOST-R Certification Mark



Nordic Lithium Battery Cautions

Norge



ADVARSEL – Litiumbatteri — Eksplosjonsfare. Ved utskifting benyttes kun batteri som anbefalt av apparatfabrikanten. Brukt batteri returneres apparatleverandøren.

Sverige



WARNING – Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

Danmark



ADVARSEL! – Litiumbatteri — Explosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.

Suomi



VAROITUS – Paristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.
