Sun Server X3-2L
(formerly Sun Fire X4270 M3)

Site Planning Guide

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Using This Documentation

This document provides specifications and site requirements for planning the installation of the Sun Server X3-2L.

Note – The Sun Server X3-2L was formerly named the Sun Fire X4270 M3 server. This former name might still appear in the software. The new product name does not indicate any change in system features or functionality.

This document is written for technicians, system administrators, authorized service providers, and users who have an understanding of server systems

This section describes product information, documentation and feedback, and support and accessibility information.

- "About This Documentation" on page v
- "Related Documentation" on page vi
- "Feedback" on page vi
- "Support and Accessibility" on page vi

About This Documentation

This documentation set is available in both PDF and HTML formats. The information is presented in topic-based organization (similar to online help) and therefore does not include chapters, appendices, or section numbering.

A PDF version that includes all information on a particular subject (such as hardware installation or product notes) can be generated by clicking the PDF button in the upper left corner of the HTML page.

Related Documentation

Documentation	Link
All Oracle documentation	http://www.oracle.com/documentation
Sun Server X3-2L	http://www.oracle.com/pls/topic/lookup?ctx=SunServerX3-2L
Oracle Integrated Lights Out Manager (ILOM) 3.1	http://www.oracle.com/pls/topic/lookup?ctx=ilom31
Oracle Hardware Management Pack 2.2	http://www.oracle.com/pls/topic/lookup?ctx=ohmp

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Learn about Oracle's commitment to accessibility	http://www.oracle.com/us/corporate/accessibility/index.html

Preparing the Site for Installation

Note – The Sun Server X3-2L was formerly named the Sun Fire X4270 M3 server. This former name might still appear in the software. The new product name does not indicate any change in system features or functionality.

These sections provide the specifications and site requirements for planning the installation of the Sun Server X3-2L.

Note – For safety and compliance information, refer to the online *Sun Server X3-2L Safety and Compliance Guide*, and to the *Important Safety Information for Sun Hardware Systems* that came with your server.

Description	Links
Review the server's specifications.	"Server Specifications" on page 1
Prepare the facility for server installation.	"Preparing the Facility" on page 5

Related Information

- *Sun Server X3-2L Installation Guide,* "About the Installation Procedure" on page 1
- *Sun Server X3-2L Safety and Compliance Guide*

Server Specifications

Review the following server specifications before preparing the facility for installation.

- "Physical Specifications" on page 2
- "Environmental Specifications" on page 2

- "Minimum Clearance for Service Access" on page 3
- "Power Source Requirements" on page 3
- "Agency Compliance Specifications" on page 4

Physical Specifications

Dimension	Server Dimensions	Measurements
Width	Server chassis	17.5 in. (445 mm)
Depth	Maximum overall	29 in. (737 mm)
Height	2 rack unit (2U) nominal	3.45 in. (87.6 mm)
Weight	Server chassis	70 lbs (31.75 kg)

Related Information

- "Minimum Clearance for Service Access" on page 3
- *Sun Server X3-2L Installation Guide,* "Rack Requirements" on page 24

Environmental Specifications

Specification	Operating	Nonoperating
Ambient temperature (Does not apply to removable media)	41˚F to 95˚F (5˚C to 35˚C) up to 2,953 feet (900 meters) Optimal: 69.8˚F to 73.4˚F (21˚C to 23˚C) **Note -** Maximum ambient operating temperature is derated by 1 degree C for every 300 meters elevation beyond 900 meters, up to a maximum altitude of 3,000 meters elevation.	–40˚F to 158˚F (–40˚C to 70˚C)

Specification	Operating	Nonoperating
Relative humidity	10% to 90% noncondensing, short term 25˚F to 113˚F (–5˚C to 55˚C)	Up to 93% noncondensing 100.4˚F (37.7˚C) maximum wet bulb
Altitude	Up to 9,840 feet (3,000 meters) maximum ambient temperature is derated by 1˚ C per 300 meters above 900 meters. **Note -** In China markets, regulations may limit installations to a maximum altitude of 6,562 feet (2,000 meters).	Maximum 39,370 feet (12,000 meters)
Acoustic Noise	• Maximum condition: 7.61 Bels A weighted • Idle condition: 5.65 Bels A weighted	Not applicable

Related Information

- "Operating Environment Requirements" on page 6
- "Airflow Considerations" on page 7
- *Sun Server X3-2L Installation Guide,* "Installation Prerequisites" on page 24

Minimum Clearance for Service Access

Description	Specification
Clearance, front of server	48.5 inches (123.2 cm)
Clearance, rear of server	36 inches (91 cm)

Related Information

- "Physical Specifications" on page 2
- *Sun Server X3-2L Installation Guide,* "Installing the Server Into a Rack" on page 23

Power Source Requirements

The server uses AC power. The values in the following table are the power supply specifications.

Note – The power dissipation numbers listed in the following table are the maximum rated power numbers for the power supply used in the system. The numbers are not a rating of the actual power consumption of the system. For up-to-date information about the power consumption, go to the Oracle web site and navigate to the product page: `http://www.oracle.com`

Parameter	AC Requirement
Voltage (nominal)	100 to 127/200 to 240 VAC
Input current (maximum)	12 A–8.5 A @ 100–127 V~ 5.7 A @ 200–240 V~
Frequency (nominal)	50/60 Hz (47 to 63 Hz range)

Related Information

- "Electrical Power" on page 6
- *Sun Server X3-2L Installation Guide,* "About Server Features and Components" on page 5

Agency Compliance Specifications

The server complies with the following specifications.

Category	Relevant Standards
Safety	UL/CSA-60950-1, 2nd Edition, 2007-03-27 EN60950-1:2006 +A11:2009 +A1:2010 +A12:2011 IEC60950-1:2005 +A1:2009 CB Scheme with all country deviations CNS14336-1 GB4943
Ergonomics	EK1-ITB-2000
EMI	EN55022:2006 +A1:2007/CISPR22:2008 Class A 47 CFR 15B Class A ICES-003 Class A VCCI Class A AS/NZ 3548 Class A CNS 13438 Class A GB9254 Class A EN61000-3-2 GB17625.1 EN61000-3-3
Immunity	EN55024:2010 IEC 61000-4-2 Electrostatic discharge IEC 61000-4-3 RF E-field immunity IEC 61000-4-4 Electrical Fast Transient/Burst IEC 61000-4-5 Surge IEC 61000-4-6 RF-Conducted immunity IEC 61000-4-8 Power frequency magnetic field immunity IEC 61000-4-11 Voltage dips, short interruptions
Regulatory markings	CE, FCC, ICES-003, C-tick, VCCI, GOST-R, BSMI, KCC, UL/cUL, UL/S-mark, CCC

Related Information

- *Sun Server X3-2L Safety and Compliance Manual*

Preparing the Facility

Follow these requirements and considerations when preparing the facility for the server.

- "Operating Environment Requirements" on page 6
- "Electrical Power" on page 6
- "Optimal Ambient Temperature" on page 7
- "Optimal Ambient Relative Humidity" on page 7
- "Airflow Considerations" on page 7
- "Heat Dissipation Calculation" on page 8

Related Information

- "Server Specifications" on page 1
- *Sun Server X3-2L Installation Guide,* "About the Installation Procedure" on page 1

Operating Environment Requirements

Your environmental control system must provide intake air for the server that complies with the limits specified in "Environmental Specifications" on page 2.

To avoid overheating, *do not* direct warm air toward these areas of the server:

- The front air intake of the server
- The server access panels

Note – When you receive your server, place it in the environment in which you will install it. Leave the server in its shipping crate at its final destination for 24 hours. This resting period prevents thermal shock and condensation.

Operating computer equipment in extreme temperatures or humidity conditions increases the failure rate of hardware components. To minimize the chance of component failure, use the server within the optimal temperature and humidity ranges.

Related Information

- "Environmental Specifications" on page 2

Electrical Power

Connect each power supply to a separate circuit if possible. This redundancy enables the server to remain operational if one of the circuits fails. Consult your local electrical codes for any additional requirements.

Related Information

- "Power Source Requirements" on page 3

Optimal Ambient Temperature

An ambient temperature range of 69.8˚F (21˚C) to 73.4˚F (23˚C) is optimal for server reliability. At 71.6˚F (22˚C) it is easy to maintain safe relative humidity levels. Operating in this temperature range provides a buffer if the environmental support systems fail.

Related Information

- "Operating Environment Requirements" on page 6

Optimal Ambient Relative Humidity

Ambient relative humidity levels between 45 percent and 50 percent are the most suitable for data processing operations in order to:

- Prevent corrosion
- Provide an operating time buffer in the event of environmental control system failure
- Help avoid failures caused by the 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 percent. ESD risk becomes critical when levels drop below 30 percent.

Related Information

- "Operating Environment Requirements" on page 6

Airflow Considerations

Optimize airflow and cooling by reviewing the following list of considerations.

- Ensure unobstructed airflow through the chassis. The server uses internal blowers that can achieve a total airflow of 160 CFM in normal operating conditions.
- Ensure that inlet air enters at the front of the server and exits from the back.

- Ensure that ventilation openings such as cabinet doors, for both the inlet and exhaust of the server, provide a minimum open area of 35.5 inches^2 (231 cm^2) each. This size is equivalent to a 60 percent open area perforation pattern across the front and rear area of a server that measures 17.4 inches x 3.4 inches (442 mm x 87.1 mm). You must evaluate the impact of other open area characteristics that are more restrictive.
- Ensure that front and rear clearance of the server allows a minimum of 0.2 inches (5 mm) at the front of the server and 3.15 inches (80 mm) at the rear of the server when mounted. These clearance values are based on the inlet and exhaust impedance (available open area) stated earlier and assume a uniform distribution of the open area across the inlet and exhaust areas. These values also improve cooling performance.

Note – The combination of inlet and exhaust restrictions such as cabinet doors and the spacing of the server from the doors can affect the cooling performance of the server. You must evaluate these restrictions. Server placement is particularly important for high-temperature environments.

- Take care to prevent recirculation of exhaust air within a rack or cabinet.
- Manage cables to minimize interference with the server exhaust vent.
- Ensure that air temperature rise through the server is no greater than 68˚F (20˚C).

Related Information

- "Operating Environment Requirements" on page 6
- "Optimal Ambient Temperature" on page 7
- "Optimal Ambient Relative Humidity" on page 7

Heat Dissipation Calculation

To calculate the heat generated by a server so that you can estimate the heat your cooling system must dissipate, convert the figure for the server's power requirement from watts to BTU/hr. A general formula for doing this is to multiply the average operating power requirement figure in watts by 3.412.

Related Information

- "Operating Environment Requirements" on page 6
- "Optimal Ambient Temperature" on page 7
- "Optimal Ambient Relative Humidity" on page 7
- "Airflow Considerations" on page 7