Sun Fire™ T1000 Server Site Planning Guide

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Sun Fire T1000 Server Site Planning Guide

This guide provides the specifications and site requirements you need when planning the installation of the Sun Fire™ T1000 server.

For safety and compliance information, refer to the *Sun Fire T1000 Server Safety and Compliance Manual* and the *Important Safety Information for Sun Hardware Systems* document that came with your system.

This guide contains the following sections:

Physical Dimensions

These are the physical specifications for the Sun Fire T1000 server.

Description	U.S.	Metric
Width	16.8 in.	425 mm
Depth	19.0 in.	483 mm
Height	1.75 in., 1 rack unit	43 mm
Weight (without PCI card and rackmounts)	20 lb	9.1 kg
Weight (with slide rails)	24 lbs	10.9 kg

Clearance for Service Access

These are the minimum clearances needed for service.

Description	Specification
Clearance, front of system	36 in (91 cm)
Clearance, rear of system	36 in (91 cm)

Environmental Specifications

These are the environmental specifications for the Sun Fire T1000 server.

Description	Specification
Operating Temperature (at sea level)	41 to 95°F, 5 to 35°C
Operating Humidity	10 to 90% noncondensing
Storage Temperature	–40 to 158°F, –40 to 70°C
Non-operating Humidity	93% RH noncondensing, 100°F (38°C) Max Wet Bulb
Operating Altitude	0 to 10,000 ft (3,048 meters)

Power Source Requirements

The Sun Fire T1000 server has an autoranging power supply.

Description	Specification
Operating input voltage range	100 to 240 VAC, 50-60 Hz (Input voltage tolerance ± 10%)

Description	Specification
Maximum operating input current	2.2 A at 100 to 120 VAC
	1.1 A at 200 to 240 VAC
Typical operating input power	180 W
Maximum operating input power	220 W
Typical heat dissipation	614 BTU/hr.
Maximum heat dissipation	750 BTU/hr.

Agency Compliance Specifications

The Sun Fire T1000 server complies with the following specifications.

Category	Relevant Standards
Safety	UL/CSA-60950-1, EN60950-1, IEC60950-1 CB Scheme with all country deviations, IEC825-1, 2, CFR21 part 1040, CNS14336, GB4943
RFI/EMI	EN55022 Class A 47 CFR 15B Class A ICES-003 Class A VCCI Class A AS/NZ 3548 Class A CNS 13438 Class A KSC 5858 Class A GB9254 Class A EN61000-3-2 GB17625.1 EN61000-3-3
Immunity	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
Telecommuncations	EN300-386
Regulatory Markings (pending)	CE, FCC, ICES-003, C-tick, VCCI, GOST-R, BSMI, MIC, UL/cUL, UL/S-mark, CCC

Acoustic Noise Emissions

These are the acoustic noise emissions of a Sun Fire T1000 server.

Description	Mode	Specification
Sound power level, LWAd (1B=10dB)	Operating acoustic noise	7.7 B
	Idling acoustic noise	7.7 B
Sound pressure level, LpAm (bystander positions)	Operating acoustic noise	66 dB
	Idling acoustic noise	66 dB

Declared noise emissions are in accordance with ISO 9296 standards.

General Site Preparation Notes

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

To avoid overheating, *do not* direct warmed air:

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

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

The server has been tested to meet all functional requirements when operating in the operating environmental limits presented in "Environmental Specifications" on page 2. Operating computer equipment in extremes of temperature or humidity increases the failure rate of hardware components. To minimize the chance of component failure, use the server within the optimal temperature and humidity ranges.

Ambient Temperature

An ambient temperature range of 69.8°F (21°C) to 73.4°F (23°C) is optimal for system 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.

Ambient Relative Humidity

Ambient relative humidity levels between 45% and 50% 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%, and becomes critical when levels drop below 30%.

Airflow Considerations

■ Ensure unobstructed airflow through the chassis.

■ Inlet air enters at the front of the server and exits from the back.

■ Ventilation openings such as cabinet doors, for both the inlet and exhaust of the server should provide a minimum open area of 33.3 in.^{2} (215 cm^2) each. This equates to a 60% open area perforation pattern across the front and rear area of the server (17.5 in. x 3.2 in.; 445 mm x 81 mm). The impact of other open area characteristics that are more restrictive should be evaluated by the user.

■ Front and rear clearance of the server should allow a minimum of 0.2 in. (5 mm) at the front of the system and 3.1 in. (80 mm) at the rear of the server when mounted. These clearance values are based on the inlet and exhaust impedance (available open area) and assume a uniform distribution of the open area across the inlet and exhaust areas. Clearance values greater than these might 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 and should be evaluated by the user. The server placement is particularly important for high temperature NEBS environments where the server inlet ambient temperature is 131°F (55°C).

- Care should be taken to prevent recirculation of exhaust air within a rack or cabinet.
- Cables should be managed to minimize interfering with the server exhaust vent.
- Air temperature rise through the system is approximately 59°F (15°C).