



# SUPERBLADE 8U ENCLOSURES



## USER'S MANUAL

Revision 2.1

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Manual Revision 2.1 Release

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# Preface

## About this Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of the enclosure. Installation and maintenance should be performed by experienced technicians only.

Please refer to the specifications page on our website for updates on supported memory, processors and operating systems ([www.supermicro.com](http://www.supermicro.com)).

## Notes

For your system to work properly, please follow the links below to download all necessary drivers/utilities and the user's manual for your server.

- Supermicro product manuals: [www.supermicro.com/support/manuals/](http://www.supermicro.com/support/manuals/)
- Product safety info: [www.supermicro.com/about/policies/safety\\_information.cfm](http://www.supermicro.com/about/policies/safety_information.cfm)

If you have any questions, please contact our support team at:  
[support@supermicro.com](mailto:support@supermicro.com)

This manual may be periodically updated without notice. Please check the Supermicro website for possible updates to the manual revision level.

## Warnings

Special attention should be given to the following symbols used in this manual.



**Warning!** Indicates important information given to prevent equipment/property damage or personal injury.



**Warning!** Indicates high voltage may be encountered when performing a procedure.

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# Chapter 1

## Introduction

### 1.1 Overview

The Supermicro SuperBlade 8U Enclosures provide power, cooling, management and network functions for multiple blade servers. They can house up to 20 half-height blades, 10 double-width half-height blades, 10 full-height blades, or a combination.

In this manual, “blade” or “blade unit” refers to a single blade server. “Blade system” refers to the enclosure, blades units, and various management and networking modules. “Modules” refer to management, switch, network, or other specialized components.

#### Design Features

**Status Indicators** – Two LEDs on the front of the enclosure provide power status and fault status.

**Operating Systems** – Microsoft Windows, VM Ware and Linux operating systems are supported by the SuperBlade servers. Different operating systems can run on different blades within the same enclosure.

**Remote Management** – The Chassis Management Module (CMM) manages the enclosure and individual blades. A separate CMM manual provides instruction.

**Efficient Power** – Power supply modules are designed to operate up to 96% efficiency to limit energy consumption and heat.

#### ***Safety Models***

The following safety models associated with the SuperBlade 8U enclosure have been certified as compliant with UL or CSA: B820-222, L820-22.

## 1.2 Models and Features

The blades may be full-height (8U) with four sockets, or half-height (4U) with one or two sockets. The enclosure supports up to 20 half-height, 10 double-width, half-height, 10 full-height, or a combination. The maximum may vary depending on the CPU wattages.

### Models

8U Enclosure Capabilities				
Model	Power Supplies	Manage Options	Blades	Switch Options
SBE-820H2-830	Eight 3000W	One CMM	20 half-height, 10 double-width, 10 full-height, or a mixture	One 200G HDR IB, two Ethernet switches with 1G/10G/25G speed support
SBE-820H2-630	Six 3000W			
SBE-820H-822	Eight 2200W	One CMM	20 half-height or 10 full-height or a mixture	One 200G HDR IB switch, two Ethernet switches with 1G/10G/25G speed support
SBE-820H-622	Six 2200W			
SBE-820C-822	Eight 2200W	One CMM	20 half-height or 10 full-height or a mixture	One 100G EDR IB or OPA switch, two Ethernet switches with 1G/10G/25G speed support
SBE-820C-622	Six 2200W (plus two fans)			
SBE-820C-422	Four 2200W (plus four fans)			
SBE-820J2-830	Eight 3000W	One or two CMMs	20 half-height, 10 double-width, 10 full-height, or a mixture	Up to four Ethernet switch slots (hot-plug) with 1G/10G/25G speed support
SBE-820J2-630	Six 3000W			
SBE-820J-822	Eight 2200W	One or two CMMs	20 half-height or 10 full-height or a mixture	Up to four Ethernet switch slots (hot-plug) with 1G/10G/25G speed support
SBE-820J-622	Six 2200W (plus two fans)			
SBE-820J-422	Four 2200W (plus four fans)			
SBE-820J-820D	Eight 2000W DC			
SBE-820L-822	Eight 2200W	One CMM	20 half-height or 10 full-height or a mixture	Up to two Ethernet switch slots (hot-plug) with 1G/10G speed support
SBE-820L-622	Six 2200W (plus two fans)			
SBE-820L-422	Four 2200W (plus four fans)			

The enclosures also feature an extra management and COM port on the left handle. This allows a system connection in the front of the enclosure for management and troubleshooting purposes.



## Front View

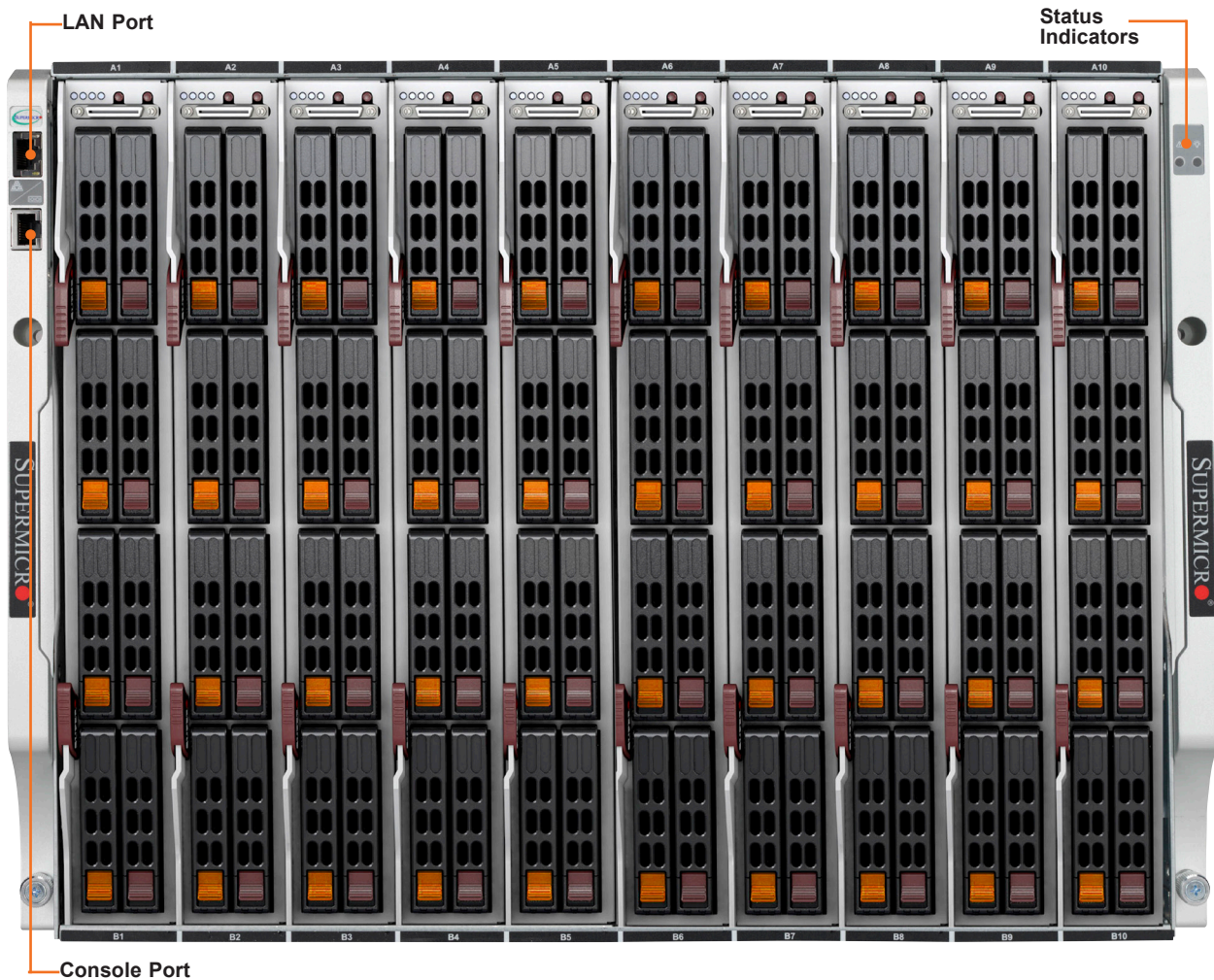


Figure 1-1. SBE-820C Front View, Ten Full-Height Blades with NVMe

Front Features	
Feature	Description
Status Indicators	Green: All blades, switch modules, CMM, power supplies, and fans are operating normally. Red: Critical warning—some components or modules are not operating normally.
LAN Port	Management of network port for the blade system
Console Port	Serial console port for the CMM

If the master CMM fails, the front LAN port and Console port are connected to the slave CMM.



Figure 1-2. SBE-820J2 Front View, Ten Half-Height, Double-Width Blades

## Rear View

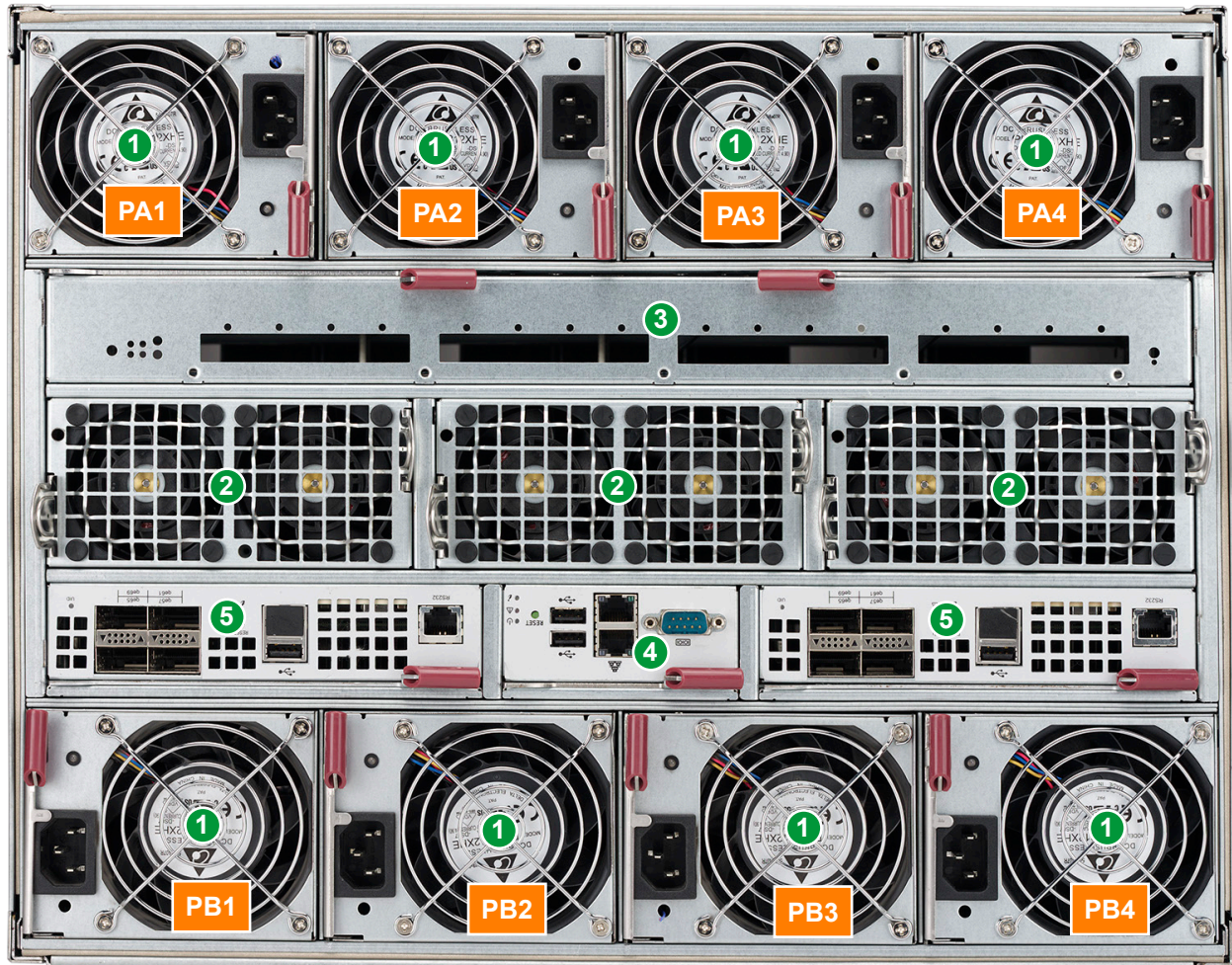


Figure 1-3. SBE-820C-822 Rear View

Rear Features	
Feature	Description
1	Eight power supply modules with fans
2	Three pairs of auxiliary fans
3	High speed networking slot for IB 100G or OPA 100G switch module
4	Chassis Management Module (CMM)
5	Ethernet switch slots for 1G/10G/25G speed support

## 1.3 Chassis Management Module

The Chassis Management Module (CMM) is a "command" module that communicates with the blade units, the power supplies and the blade switches. Used in conjunction with the Web Interface or IPMI View management software, the CMM provides administrator control over individual blade units, power supplies, cooling fans and networking switches and monitors onboard temperatures, power status, voltage levels and fan speeds. It is a required module in a blade system.

### Capabilities

The CMM provides a dedicated, local and remote KVM (keyboard/video/mouse) connection over an out of band TCP/IP Ethernet network during any server state (functioning, blue-screen, powered down, BIOS and so on). It also supports Virtual Media (VM) redirection for CD, floppy and USB mass storage devices and configures such information as the switch IP addresses.

### Module Redundancy

Some enclosure models offer the option of installing two CMM modules to allow redundancy. Since the CMM uses its own processor, all monitoring and control functions are carried out regardless of the operation or power status of the blade units.



Figure 1-4. MBM-CMM-6 Module Interface

## 1.4 Switches

Several switch module and pass-thru module options facilitate networking.

Switch Modules	
Model	Description
SBM-IBH-E3616	Infiniband Switch 20x 100G EDR InfiniBand downlinks, 16x 100G EDR InfiniBand uplinks, 7.2Tbps, Cable: 100G QSFP28 copper cable
SBM-OPA-C4020*	Omni-Path Switch 20x 100G EDR InfiniBand downlinks, 24x 100G EDR, InfiniBand uplinks, 1USB Port, 9.6Tbps, Cable: 100G QSFP28 optical/copper cable
SBM-25G-200	Broadcom TD3 Ultra Low Latency Switch 40x 25Gbps Internal Ports (SuperBlade)/56x 25Gbps Internal Ports (MicroBlade); 6x 100Gbps/40Gbps (QSFP28) and 1x 1Gbps (RJ45) External Uplink Ports VLAN, STP, 820.1AX, 802.1AB, one console port
SBM-25G-100	Marvell BobCat3 98CX8410 25GbE Low Latency Switch 20x 25G Ethernet downlinks, 4x 100G/40G Ethernet uplinks (each can split to 4x 25G uplinks w/ optional fan-out cables, 1x Gigabit Ethernet uplink, 1 console port Cable: 100G/40G QSFP28 optical/cooper cable, Gigabit Ethernet cooper RJ-45 Transceiver: 100G/40G-SR4, 850nm, MMF
SBM-IBS-H4020	Infiniband Switch 20x HDR 200G Ports with QSFP56, 16 Tbps Switch Bandwidth
MBM-GEM-001*	Intel FM5224 GbE Low Latency Switch 56x 2.5Gbps internal ports, 1Gbps RJ45, 2x 40Gbps QSFP or 8x 10Gbps SFP+ uplinks one USB port, one Console port
MBM-GEM-004	Broadcom Switch 40x 1Gbps internal ports; 4x 10Gbps (SFP+) and 8x 1Gbps (RJ45) External Uplink Ports VLAN, STP, 802.1AX, 02.1AB10GbE, one console port
MBM-XEM-001*	Intel FM6348 10GbE Low Latency Switch 4x 40Gbps QSFP uplinks, 56x 10Gbps or 1Gbps downlinks, one console port, one USB port
MBM-XEM-002	Broadcom Low Latency Switch 56x 10Gbps Internal Ports; 2x 40Gbps (QSFP+) and 4x 10 Gbps (SFP+) External Uplink Ports VLAN, STP, 802.1AX, 802.1AB, one console port, one USB port
MBM-XEM-002+	Broadcom Low Latency Switch 56x 10Gbps Internal Ports; 2x 40Gbps (QSFP+) and 4x 10 Gbps (SFP+) External Uplink Ports VLAN, STP, 802.1AX, 802.1AB, one console port, one USB port
MBM-XEM-100	Marvel BobCat3 Low Latency Switch 56x 10Gbps Internal Ports; 4x 100Gbps/40Gbps (QSFP28) and 1x 1Gbps (RJ45) External Uplink Ports VLAN, STP, 802.1AX, 802.1AB, one console port
SBM-25G-P10	Supermicro Pass-thru Switch

\*EOL

See also the [SuperBlade Switch Support Matrix](#).

These modules are further described in a separate manual.

## Switches Supported in each Enclosure Model

Switch Modules per Enclosure						
Switch Module	820H	820H2	820C	820J	820J2	820L
200G Infiniband SBM-IBS-H4020	1	1				
100G Infiniband SBM-IBH-E3616			1			
100G Omni-Path SBM-OPA-C4020*			1			
25G Ethernet SBM-25G-200	2	2	2	4	4	
1G Ethernet MBM-GEM-001*	2	2	2	4	4	2
1G Ethernet MBM-GEM-004	2	2	2	4	4	2
10G Ethernet MBM-XEM-001*	2	2	2	4	4	2
10G Ethernet MBM-XEM-002	2	2	2	4	4	2
10G Ethernet MBM-XEM-002+	2	2	2	4	4	2
10G Ethernet MBM-XEM-100	2	2	2	4	4	2
25G Path-Thru SBM-25G-P10				4	4	

\*EOL

# Chapter 2

## Rack Installation

### 2.1 Overview

This chapter provides advice and instructions for mounting your system in a rack.

**Caution:** Electrostatic Discharge (ESD) can damage electronic components. To prevent such damage to PCBs (printed circuit boards), it is important to use a grounded wrist strap, handle all PCBs by their edges and keep them in anti-static bags when not in use.

### 2.2 Unpacking the System

Inspect the box in which the system was shipped, and note if it was damaged. If any equipment appears damaged, file a claim with the carrier.

Decide on a suitable location for the rack unit that will hold the server. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. It will also require a grounded AC power outlet nearby. Be sure to read the precautions and considerations noted in [Appendix A](#).

### 2.3 Preparing for Setup

The box in which the system was shipped should include the rackmount hardware needed to install it into the rack. Please read this section in its entirety before you begin the installation.

#### Choosing a Setup Location

- The system should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated.
- Leave enough clearance in front of the rack so that you can open the front door completely (~25 inches) and approximately 30 inches of clearance in the back of the rack to allow sufficient space for airflow and access when servicing.
- This product should be installed only in a Restricted Access Location (dedicated equipment rooms, service closets, etc.).
- This product is not suitable for use with visual display workplace devices according to §2 of the German Ordinance for Work with Visual Display Units.

## Rack Precautions

- Ensure that the leveling jacks on the bottom of the rack are extended to the floor so that the full weight of the rack rests on them.
- In single rack installations, stabilizers should be attached to the rack. In multiple rack installations, the racks should be coupled together.
- Always make sure the rack is stable before extending a server or other component from the rack.
- You should extend only one server or component at a time - extending two or more simultaneously may cause the rack to become unstable.

## Enclosure Precautions

- Review the electrical and general safety precautions in [Appendix A](#).
- Determine the placement of each component in the rack *before* you install the rails.
- Install the heaviest server components at the bottom of the rack first and then work your way up.
- Use a regulating uninterruptible power supply (UPS) to protect the server from power surges and voltage spikes and to keep your system operating in case of a power failure.
- Allow any drives and power supply modules to cool before touching them.
- When not servicing, always keep the front door of the rack and all covers/panels on the servers closed to maintain proper cooling.

## Rack Mounting Considerations

### *Ambient Operating Temperature*

If installed in a closed or multi-unit rack assembly, the ambient operating temperature of the rack environment may be greater than the room's ambient temperature. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature (TMRA).

### *Airflow*

Equipment should be mounted into a rack so that the amount of airflow required for safe operation is not compromised.

### *Mechanical Loading*



Equipment should be mounted into a rack so that a hazardous condition does not arise due to uneven mechanical loading.

### ***Circuit Overloading***

Consideration should be given to the connection of the equipment to the power supply circuitry and the effect that any possible overloading of circuits might have on overcurrent protection and power supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

### ***Reliable Ground***

A reliable ground must be maintained at all times. To ensure this, the rack itself should be grounded. Particular attention should be given to power supply connections other than the direct connections to the branch circuit (i.e. the use of power strips, etc.).

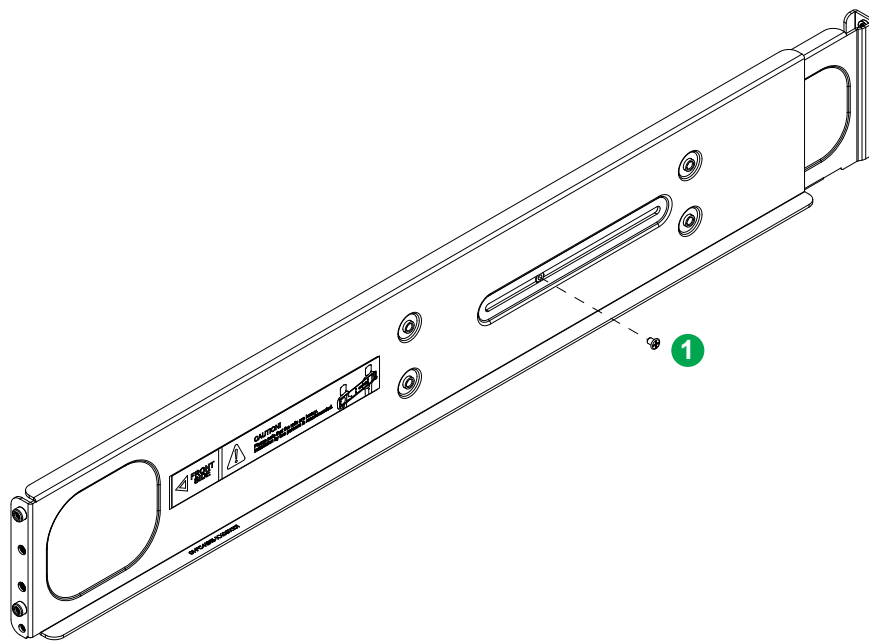


To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.
- Slide rail mounted equipment is not to be used as a shelf or a work space.
- **Stability hazard.** The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before you slide the unit out for servicing. Failure to stabilize the rack can cause the rack to tip over.

## 2.4 Installing the Enclosure

There are a variety of rack units on the market, which may require a slightly different assembly procedure. Also see the instructions that came with the rails. This rail set fits a rack between 28.5 and 33.7 inch depth.



**Figure 2-1. Rack Rails**  
(Left Rail Assembly Shown)

When installing the enclosure, remove all blades, power supplies, switches and management modules. Install these modules after the enclosure is mounted.

If desired, use the template to mark the position that the enclosure will occupy on the rack.

The chassis comes with two sets of rack rails, one set for the right side of the chassis and one for the left.

1. For each rail, sections are screwed together to keep them immobile during shipping. Release these screws just enough to allow the rails to slide apart.
2. Slide the rails apart far enough to match the depth of the rack. Note the arrow on the rail, which indicates the end that attaches to the front of the rack. Position each rail and secure the front to the front post of the rack with two flathead screws. Then secure the back of each rail to the rear of the rack with two flathead screws .
3. Lift the enclosure and slide it into the rack. Use two roundhead screws on each side of the server to lock it into place.

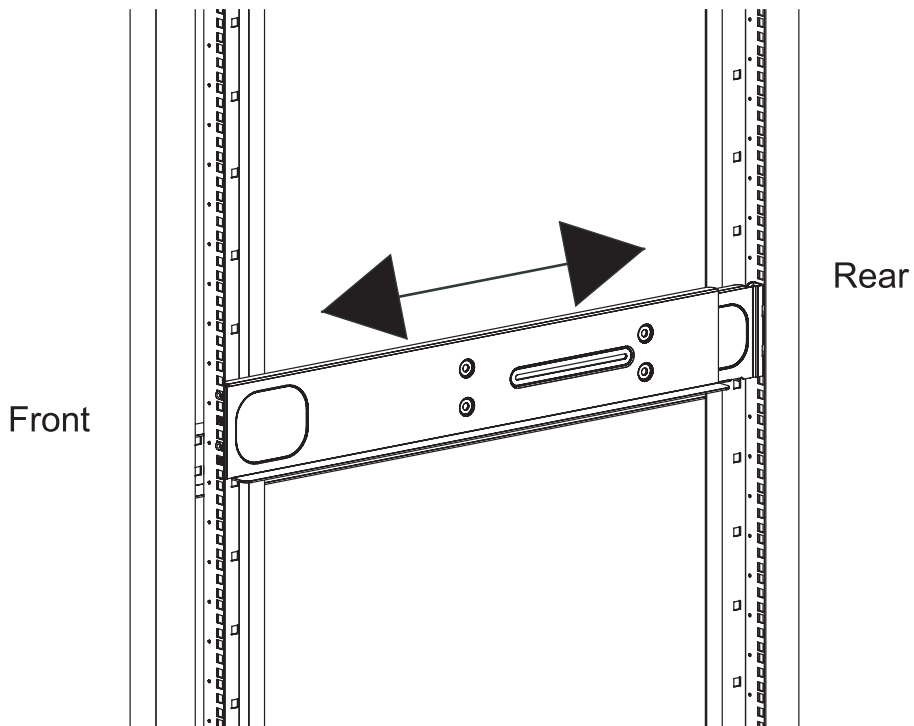


Figure 2-2. Securing the Left Rail to the Rack

Note: The figure is for illustrative purposes only. Always install enclosures at the bottom of the rack first.

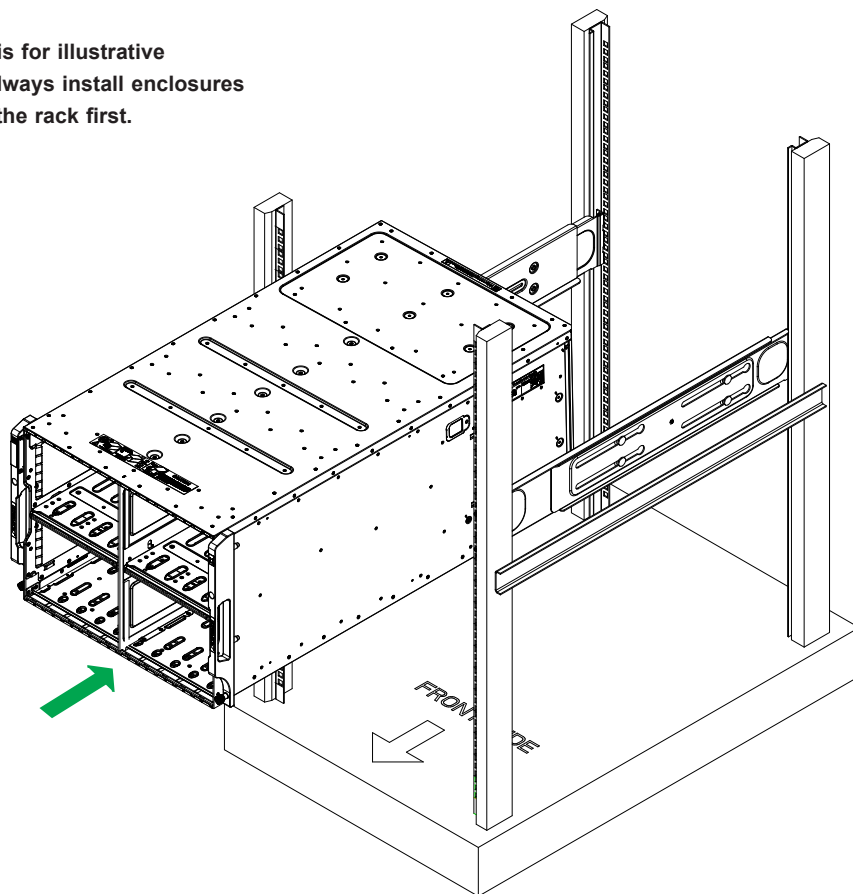


Figure 2-3. Installing the Server into the Rack

## Chapter 3

# Maintenance and Component Installation

This chapter provides instructions on installing and replacing main system components. To prevent compatibility issues, only use components that match the specifications and/or part numbers given.

### 3.1 Removing Power

Use the following procedure to ensure that power has been removed from the system. This step is necessary when removing or installing non-hot-swap components, such as the only CMM in an enclosure.

1. Use the operating systems to power down all blades.
2. Disconnect all the power cords from the power strip or outlet.
3. Disconnect the power cords from the power supply modules.

## 3.2 Installing Components

Install:

- Power Supply Modules (details in Chapter 4)
- Fans
- CMM
- Switches or pass-thru modules
- Blade servers

In all cases, slide the component into the enclosure, then secure with the locking lever.

**Note:** All module bays must be populated either with a module or a dummy module cover to maintain proper airflow.

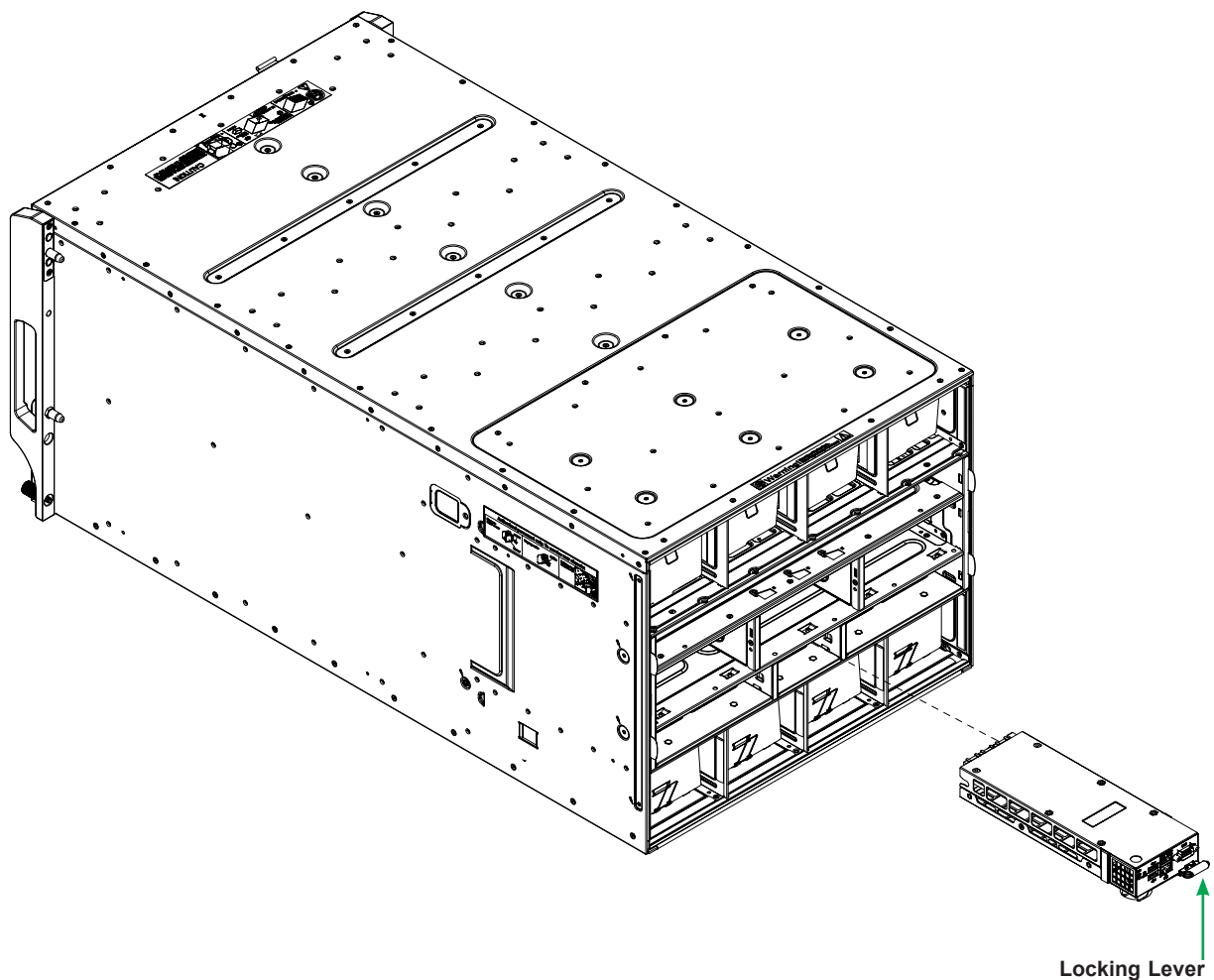


Figure 3-1. Installing a CMM

## Installing a Blade Unit into the Enclosure

See the manual for your SuperBlade server for full details on its installation and configuration.

1. Fully open the locking lever on the blade and slowly push it into its bay.
2. When the blade is seated in the bay, push the locking lever into its locked position, making sure the notches in both handles catch the lip of the enclosure.

SuperBlade modules can be hot-plugged into the enclosure.

Use caution when inserting a blade into the enclosure, and do not damage the power connector.

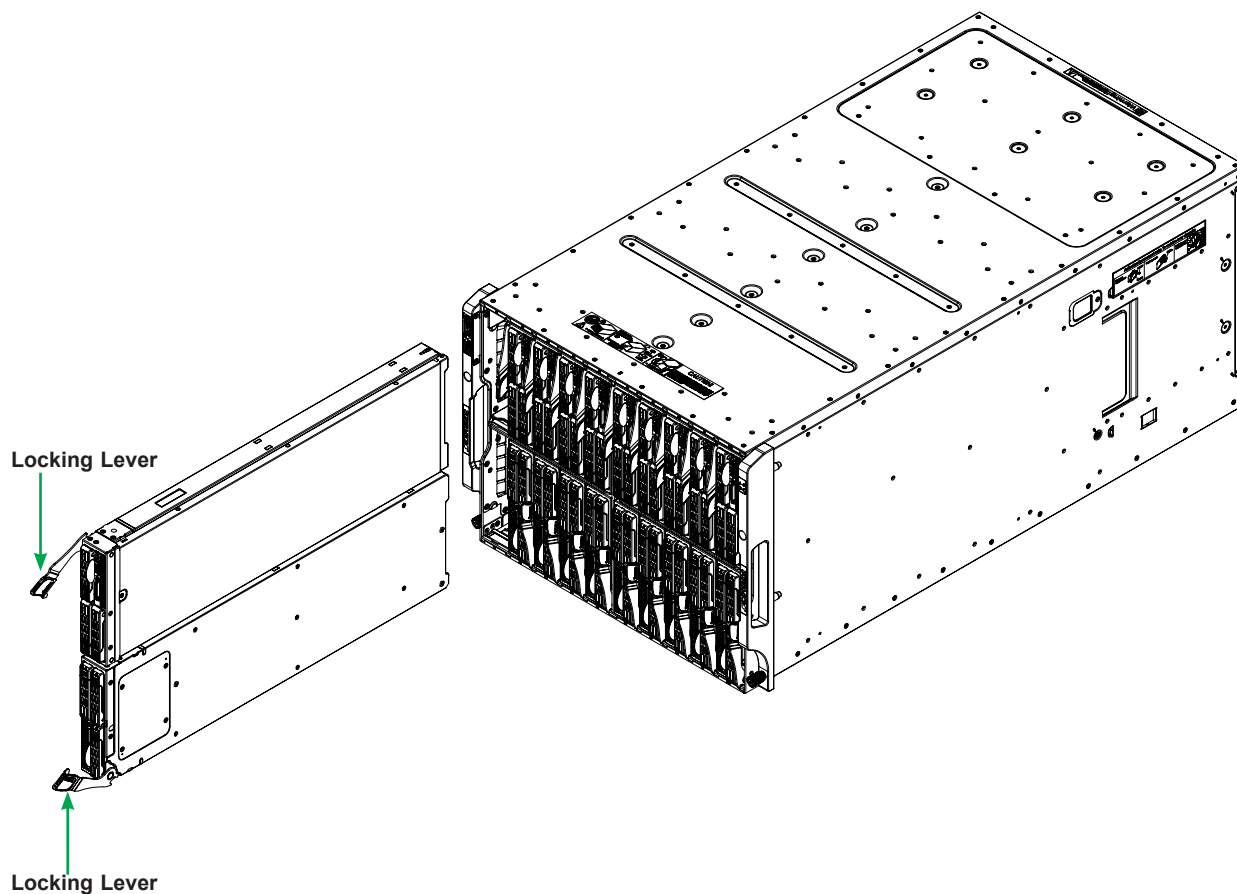


Figure 3-2. Installing a Full-height Blade into the Enclosure

### *Installing Double-Width Blades*



**Figure 3-3. Installing Ten Half-Height, Double-Width Blades**

When installing double-width blades, use an orientation similar to this.

## Installing the Dummy Blade Adapter

If you have blade slots in the enclosure that are not filled by blade servers, they must be filled by dummy blades. An 8U opening can be filled by two 4U dummies using an adapter.

### *Combining Two 4U Dummies Using an Adapter*

1. Align the adapter on top of a dummy
2. Push the adapter toward the front until it clicks into place.

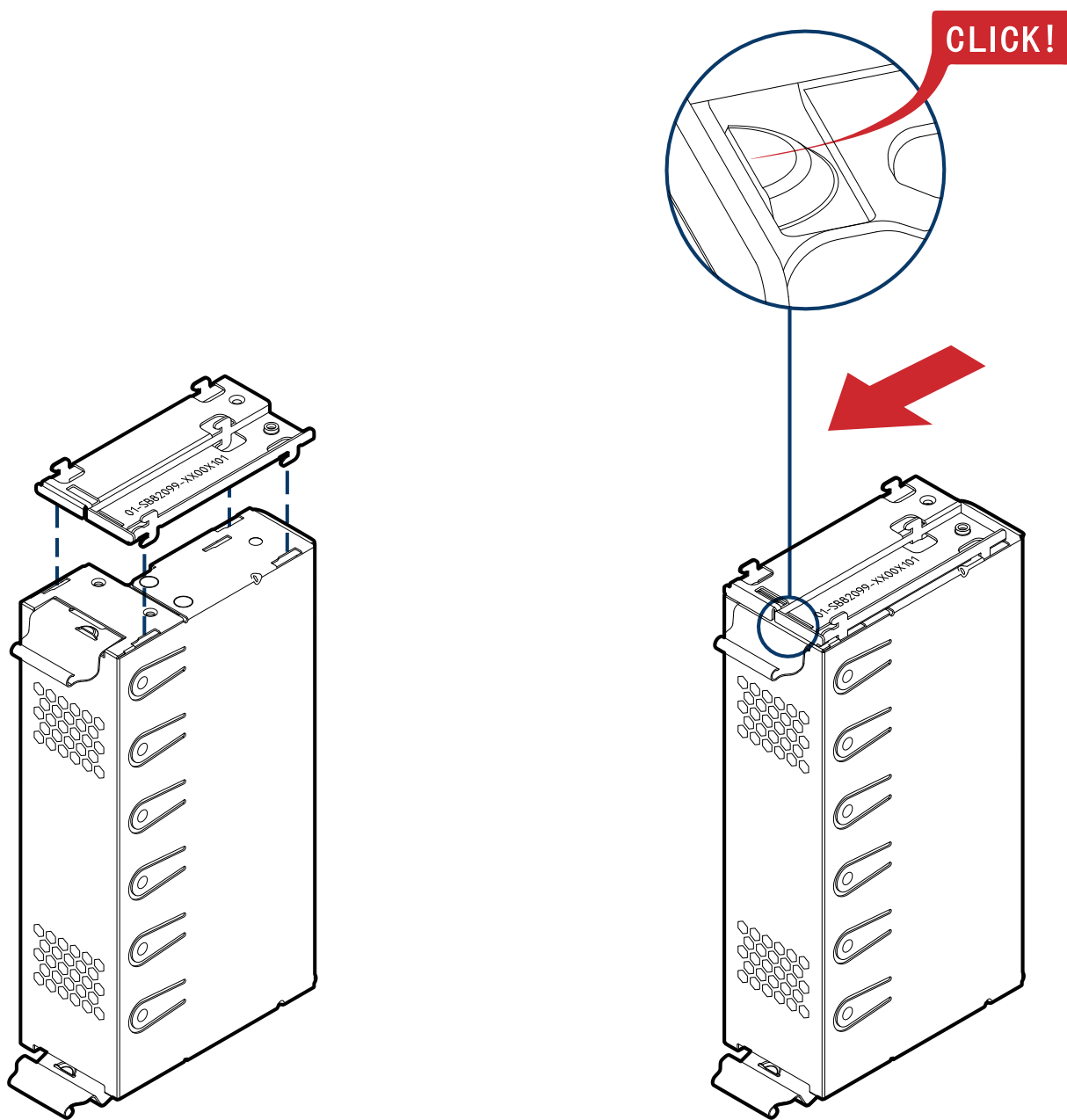


Figure 3-4. Aligning and Attaching the Adapter



3. Align the second dummy slots with the adapter.
4. Push the second dummy toward the back until it clicks into place.

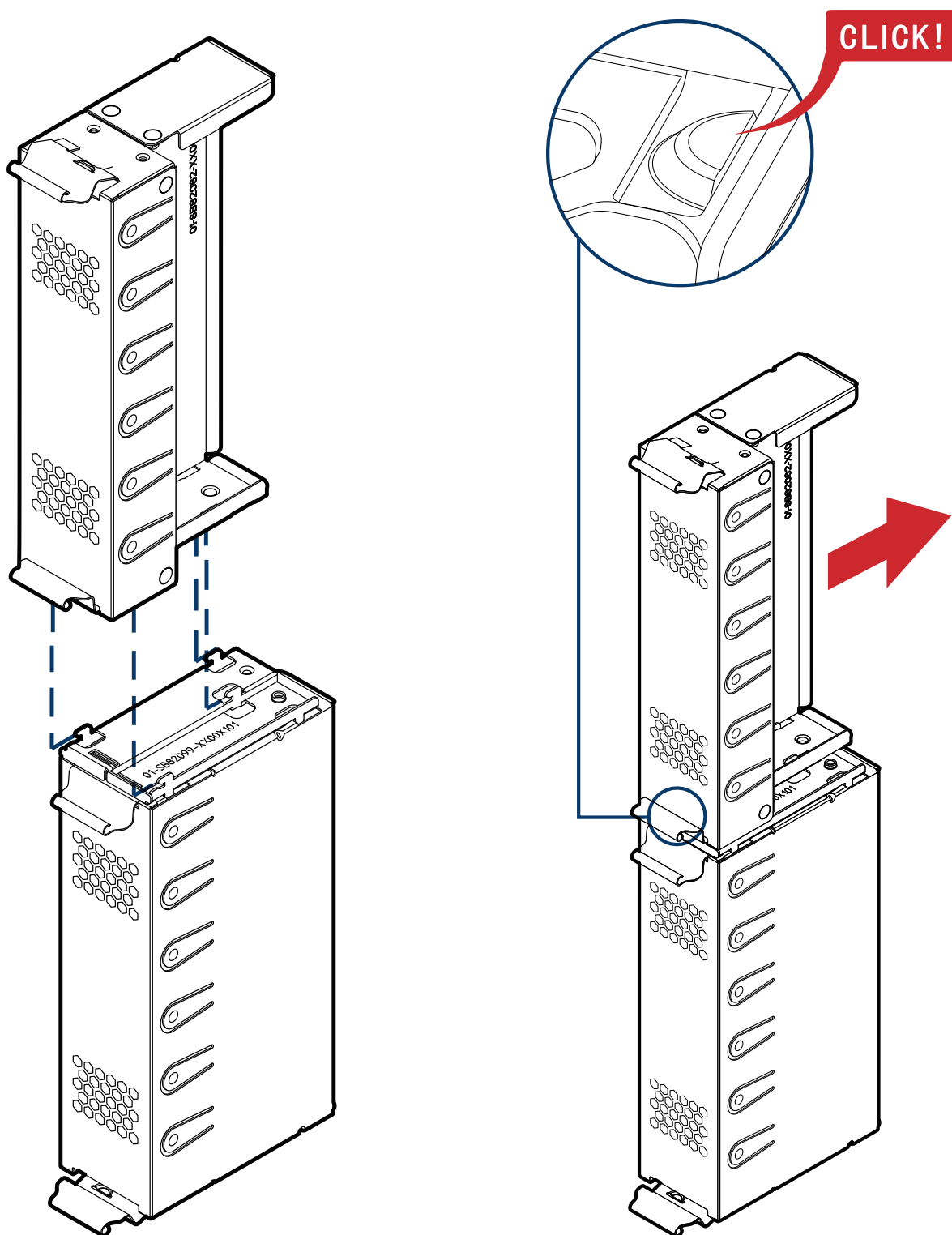


Figure 3-5. Aligning and Attaching the Second Dummy

5. Install two screws to lock the assembly together.

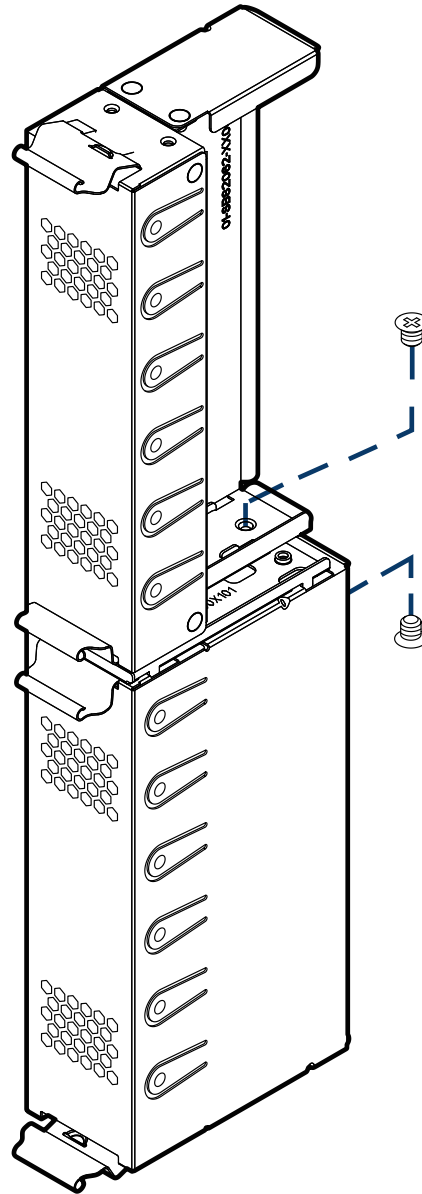


Figure 3-6. Installing Screws

### 3.3 Software Mode Selection

Using the Web-based Management Utility, you can specify your SuperBlade system to use a different mode for quieter operation and lower fan speed. This is done by selecting a mode in the CMM Operation Mode section of the CMM Status screen. This screen allows you to specify your system to run in either Office Blade Mode (for quieter operation) or Enterprise Mode (for normal operation). See the CMM manual for more details.

### 3.4 Quick Start Setup

This section is a brief description of how to get your SuperBlade system up and running.

1. Unpack the components of your system and check the packing list for damaged or missing components.
2. Mount the SuperBlade enclosure in your server rack. ([Chapter 2](#))
3. Install the power supply modules into the rear of the enclosure. ([Chapter 4](#)).
4. Install the CMM module and any other modules into the rear of the enclosure.
5. Install networking modules, such as [switches](#).
6. Prepare each blade server with memory, storage drives, add-on cards, etc. Install them into the enclosure. (See Blade User's Manual)
7. Connect the power cords for your enclosure power supply and plug them into your power source *only* after you have installed and secured all system components.
8. Power up your system. Check all to be sure all components are operating normally.
9. Install an operating system for each blade module.

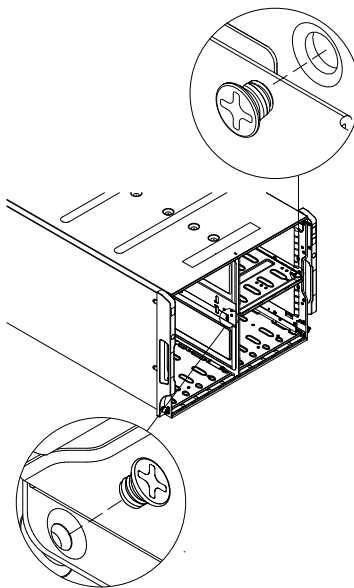
### 3.5 Removing or Installing a Horizontal Divider

The 8U enclosure supports 4U height blades by means of horizontal midplate dividers. These dividers can be removed or added as needed.

#### ***Removing the Divider***

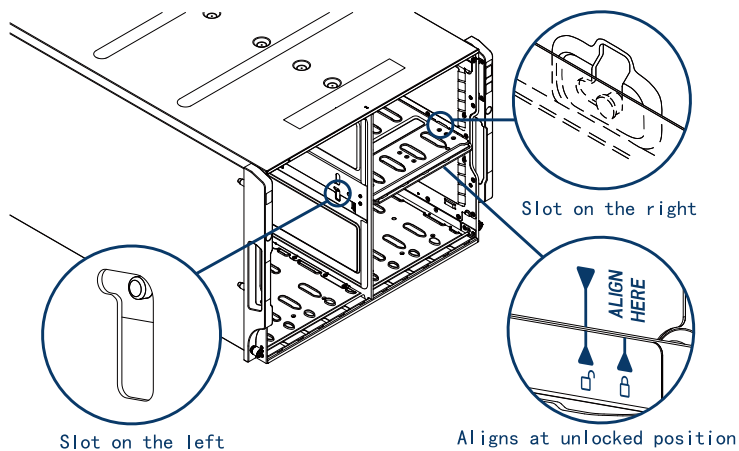
All involved blades must be removed. The right-side divider is shown as an example.

1. Unscrew the two locking screws.



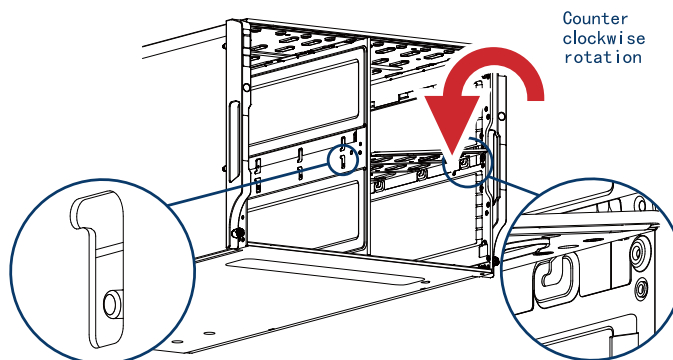
**Figure 3-7. Removing Divider Locking Screws**

2. Pull the divider plate out a small distance, approximately a centimeter.



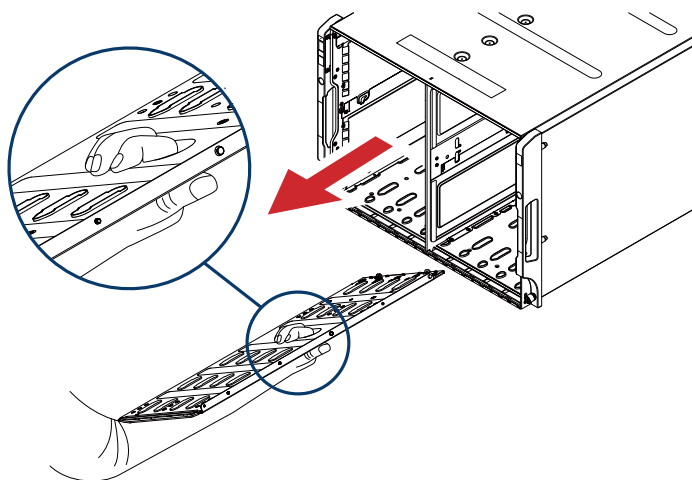
**Figure 3-8. Pulling Out the Divider**

3. Grab and rotate the divider counter-clockwise.



**Figure 3-9. Rotating the Divider**

4. Remove the divider from the enclosure.



**Figure 3-10. Removing the Divider**

To install a divider, do the reverse procedure. When rotating the divider into position (similar to Step 3), be sure to engage the divider posts into the slots on the enclosure walls, as shown in Step 2..

## Chapter 4

### Power and Cooling

The SuperBlade enclosure integrates a power supply and a cooling fan into a single module. The fan can operate independently from the power supply, so that if the power supply fails, the fan continues to provide cooling for the system. The Chassis Management Module (CMM) monitors the status of the power supplies and the power information for the enclosure.



Figure 4-1. Example Power and Fan Module (PWS-3K01A-BR)

#### 4.1 Module Description

An LED status indicator is located near the locking lever.

Status Indicator	
Color	Description
Red	Power module failure
Amber	Possible module failure or the AC power cord unplugged
Green	Module operating normally

#### Power Cord

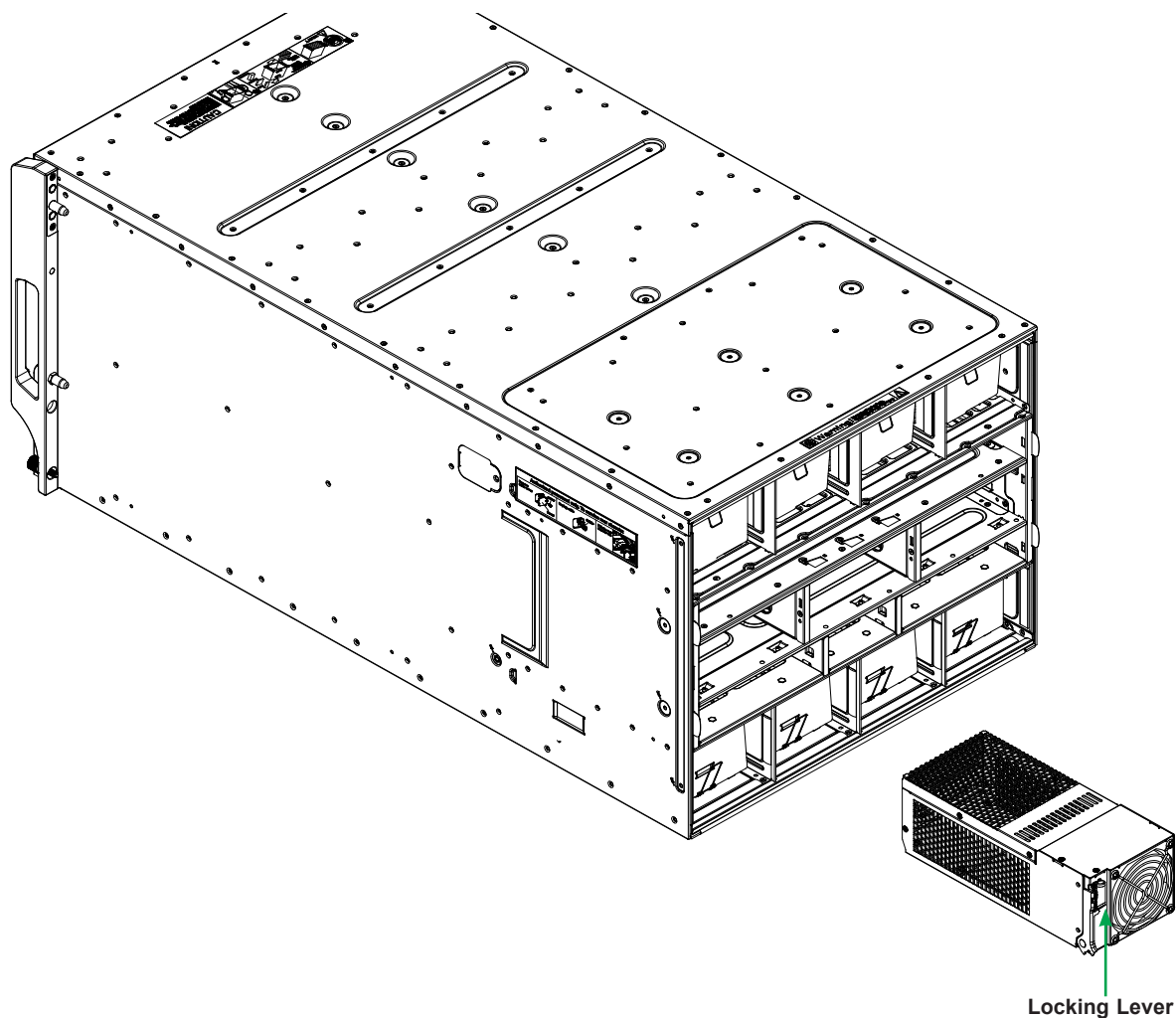
A plastic locking clip partially covering the socket was designed to prevent the power supply module from being removed with the power cord still connected.

Use only the recommended power cord or an equivalent 12 gauge cord with connectors C19 to C20 that supports 20A 250V (5K Watts).

## 4.2 Installing a Power Supply

To prevent compatibility issues, only use components that match the specifications or part numbers.

1. Insert the power module into the empty power bay. Be sure that the orientation is correct. Match the pictures of the chassis front in Chapter 1. If you inadvertently put a power supply upside down, it can be very difficult to remove.
2. Push unit all the way in until it is firmly seated.
3. Push the locking handle into the closed position until it clicks into position.
4. Move the locking clip away from the socket and reconnect the power cord.



**Figure 4-2. Installing a Power Supply Module**

## Removing a Power Supply

1. Remove the power cord from the power supply unit.
2. Release the locking clip to unlock the power supply module.
3. Pull out the locking handle and remove the unit. To release the handle, squeeze the two metal plates of the handle with your thumb and fingers, and then pull the module out.

## 4.3 Power Supply Failure

If a power module or a fan in a power module fails, the system management software will provide an alert. Replace the power module with another identical one. Note that if a power supply fails, its fans will continue to operate. For this reason, a failed power supply should remain installed in the enclosure until a replacement unit is ready.

### Redundant Power Supplies

(Note that Supermicro no longer supports the BBP module) Each blade enclosure can hold multiple power supplies. Installing all possible power supplies may provide you with redundant power, depending upon the number of blades in the enclosure, the model and power level of the power supplies installed and the power load from modules in your system. The configuration for power redundancy is created using the IPMIView application tool for the system.

For purposes of denoting the amount of redundancy, a server system has  $N$  main power supplies to support the whole system.  $N+n$  denotes " $n$ " the number of redundant power supplies. For example,  $N+1$  describes a system with one power supply for redundancy.

For example, suppose a 10-blade system has four 2000 Watt power supply units (PSU), for a total power supply of 8000 Watts. The maximum power usage of each blade is 375 Watts for a total power demand of 3750 Watts to run the whole system. So in this example there are effectively two redundant power supplies ( $N+2$ ) over what is needed to power the blades in the system.

- If one or two PSU fail, then 6000W or 4000W, respectively, are available. The CMM will detect the remaining power left for the whole system. And because the total blade power usage is only 3750 Watts, every blade can still work properly.
- If three PSUs fail, then the remaining 2000 Watts available cannot support the whole system. Therefore the CMM will start to shut down or throttle down the load in order to keep blades running based upon the priority settings that were made for each blade using the IPMIView application until the load is enough to power the remaining blade modules.



In the IPMIView tool you can set the priority (default CPU power usage) of each blade first before any PSU fails (0%→shut down, 50%→throttling, 100%→Running).

## 4.4 Power Management

The Chassis Management Module assumes the maximum power case for each blade prior to applying power. If the system power is not sufficient, the CMM will not allow that unit to power up. After a blade is powered up, the blade BIOS calculates the actual power load required by that blade based upon the installed devices and informs the CMM of its requirements. The CMM then recalculates the remaining power for additional blades.

### Backup Battery Power (EOL)

(Note that Supermicro no longer supports BBP.) Backup battery power (BBP) modules, like all rechargeable batteries, eventually their capacity and performance decline as they age. Regular maintenance of charge and discharge cycles is recommended to maintain the effectiveness of the BBP batteries. At least one charge and discharge cycle for every 30 days is recommended. The BBP maintenance scheduler can be enabled and configured through the CMM.

When the BBP function is disabled through the CMM, the battery will discharge until the minimum energy state is reached. While the battery function is disabled, regular BBP maintenance cannot be performed since the battery energy remains at the lowest state and will not re-charge. As a result, the battery capacity and performance will decline at a faster pace, and/or cause the battery to no longer operate. The battery will remain the minimum charge until the BBP function is again re-enabled through CMM. The user should use the disabling BBP function with caution knowing that the possible outcome of degraded battery performance or not operational battery.

The discharge duration can be extended by adding additional BPP modules.

## 4.5 Cooling

Power supply modules include a system fan. If some bays in an enclosure are not filled with power supply modules, the can house similar sized fan modules. If a power supply fails, its fan will continue to operate to provide continuous cooling. For this reason, a failed power supply should remain installed in the enclosure until a replacement unit is ready.

For overheating problems, check that:

- There are no obstructions, such as poorly routed cables.
- All fans are operating normally.
- The ambient room temperature is not too warm—refer to Appendix B, Environmental Specifications for the maximum operating temperature.

Also, either of the blade management software utilities can increase the fan speed and maximize system cooling.

### Auxiliary Fans

In addition to the primary fans, the enclosure includes six smaller (4cm) fans in three modules of two fans each. To remove a fan module, release the locking lever and pull.

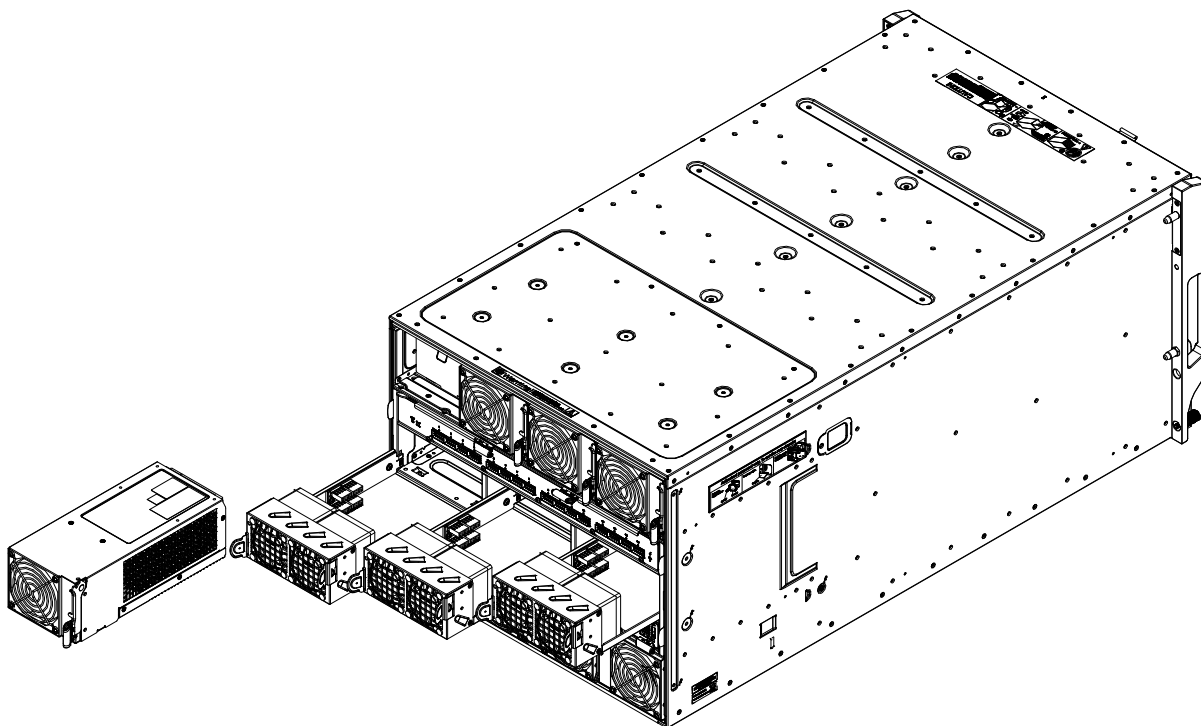


Figure 4-3. Installing Fans

## 4.6 Power Supply Specifications

PWS-3K01A-BR	
Feature	Description
Total Output Power	2880W +12V, 240A, +12Vsb, 3A 3000W +12V, 250A, +12Vsb, 3A
Input	AC 2880W: 200–207Vac, 16–15.7A, 50–60Hz AC 2880W: 207.1–240Vac, 16–14.5A, 50–60Hz DC 2880W: 240Vdc, 15A (China only)
Form Factor	SuperBlade
Dimensions	245.3 x 106.5 x 84-mm
Battery Cell Capacity	68W/hr
Redundant	N+1, N+N
I <sup>2</sup> C Remote Monitoring	FRU/Smart Battery I <sup>2</sup> C
Efficiency	96% at 230Vac, 50% loading
Cooling	Internal 80 x 80-mm cooling fan
Operating Temperature	0°C–60°C

PWS-2K21A-BR	
Feature	Description
Maximum Output	2200W
Type	Hot-swap Redundant Module (N+1)
Dimensions (WxLxH)	106.5 x 245.3 x 84 mm
Input Rated Voltage/ Current	100-127Vac input: 100A 200-220Vac input: 150A 220-230Vac input: 165A 230-240Vac Input: 174A 200-240Vac Input: 183.3A (UL/cUL Only)
Rated Frequency	50-60HZ
Maximum Power	UL & cUL (North America): 200-220V: 2090W 220-240V: 2200W Rest of the world: 100-127V: 1200W 200-220V: 1800W 220-230V: 1980W 230-240V: 2090W
Efficiency Certification	80Plus Platinum, 96%
+12V Output	1200/1800/1980/2090/2200: 100A/150A/165A/174A/183.3A
+12Vsb DC Output	2A
Operating Conditions	Operating Temp: 0° to 50° C (up to 5000m) Non-operating Temp: -40° to 75° (up to 15200m) Humidity (Non-Condensing): 80% Operating, 95% Non-operating

<b>PWS-2K02D-BR (EOL)</b>	
<b>Feature</b>	<b>Description</b>
Maximum Output	2000W
Type	Hot-swap Redundant
Dimensions (WxLxH)	106.5 x 283.3 x 84 mm
Input Rated Voltage/ Current	-40 to -44Vdc: 133.3A -44 to -66Vdc: 166.7A
Efficiency Certification	92%+
+12V Output	-40 to -44Vdc input: 1600W -44 to -66Vdc input: 2000W
+12Vsb DC Output	4.2A
Operating Conditions	Operating Temp: 0° to 50° C Humidity (Non-Condensing): 80% Operating, 95% Non-operating

<b>PWS-1K20B-BR BBP (EOL)</b>	
<b>Feature</b>	<b>Description</b>
Total Output Power	1200W
Input	11.2 to 12.9VDC
Output	12V, 12VSB
Form Factor	SuperBlade
Dimensions	245.3 x 106.5 x 84-mm
Battery Cell Capacity	68W/hr
Redundant	N+1, N+N
I <sup>2</sup> C Remote Monitoring	FRU/Smart Battery I2C
+12V Output	100A
12VSB Output	2.5A
Efficiency	Online mode battery power consumption less than 5W
Discharge Duration (typical conditions with four BBPs)	Load 1000W: 180 seconds Load 2000W: 120 seconds Load 3000W: 60 seconds Load 4000W: 35 seconds Load 4800W: 35 seconds
Cell Chemistry	Lithium-Ion
Cooling	Internal 80 x 80-mm cooling fan
Operating Temperature	5°C - 50°C

## Chapter 5

### Data Plane

This chapter describes network data routing from blades through midplanes, switches and enclosures. Blade models are shown as examples.

#### 5.1 820L Enclosure

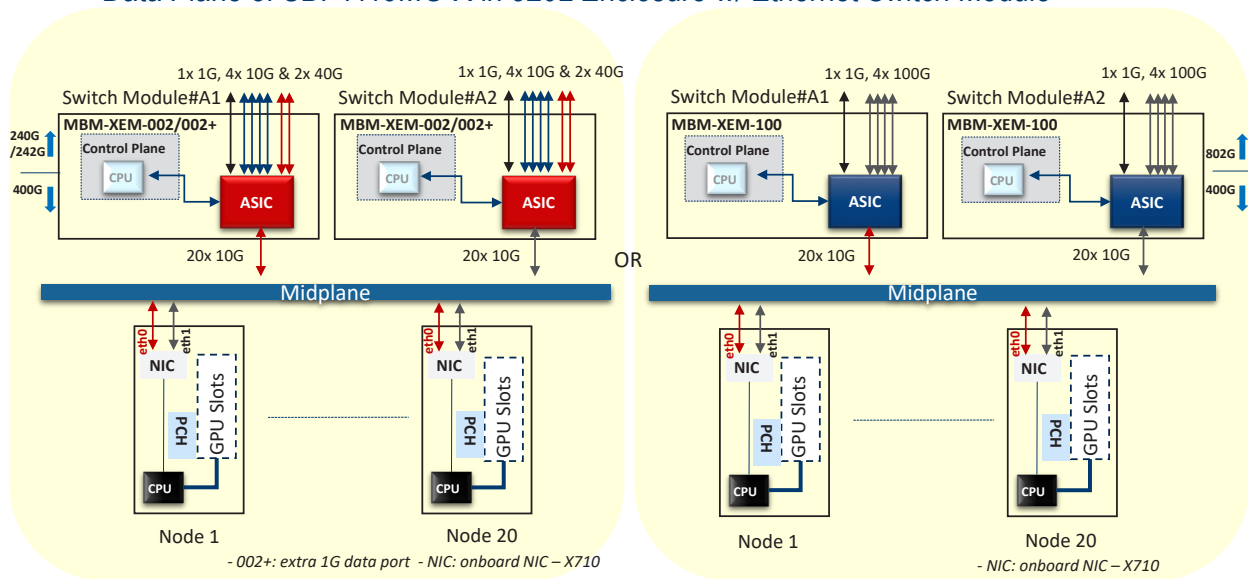


Figure 5-1. 820L Rear View

## With Ethernet Switches

These two diagrams show data routes from the blade NIC through dual Ethernet switches. The diagram on the left shows MBM-XEM-002 and -002+ switches, and the diagram on the right shows MBM-XEM-100 switches.

### Data Plane of SBI-4119MG-X in 820L Enclosure w/ Ethernet Switch Module



In the diagram, the arrow colors illustrate which NIC port connects to which switch.

Port Mapping to Switch		
NIC Port Label	Arrow Color	Slot
eth0	Red	A1
eth1	Black	A2

## 5.2 820J/820J2 Enclosure

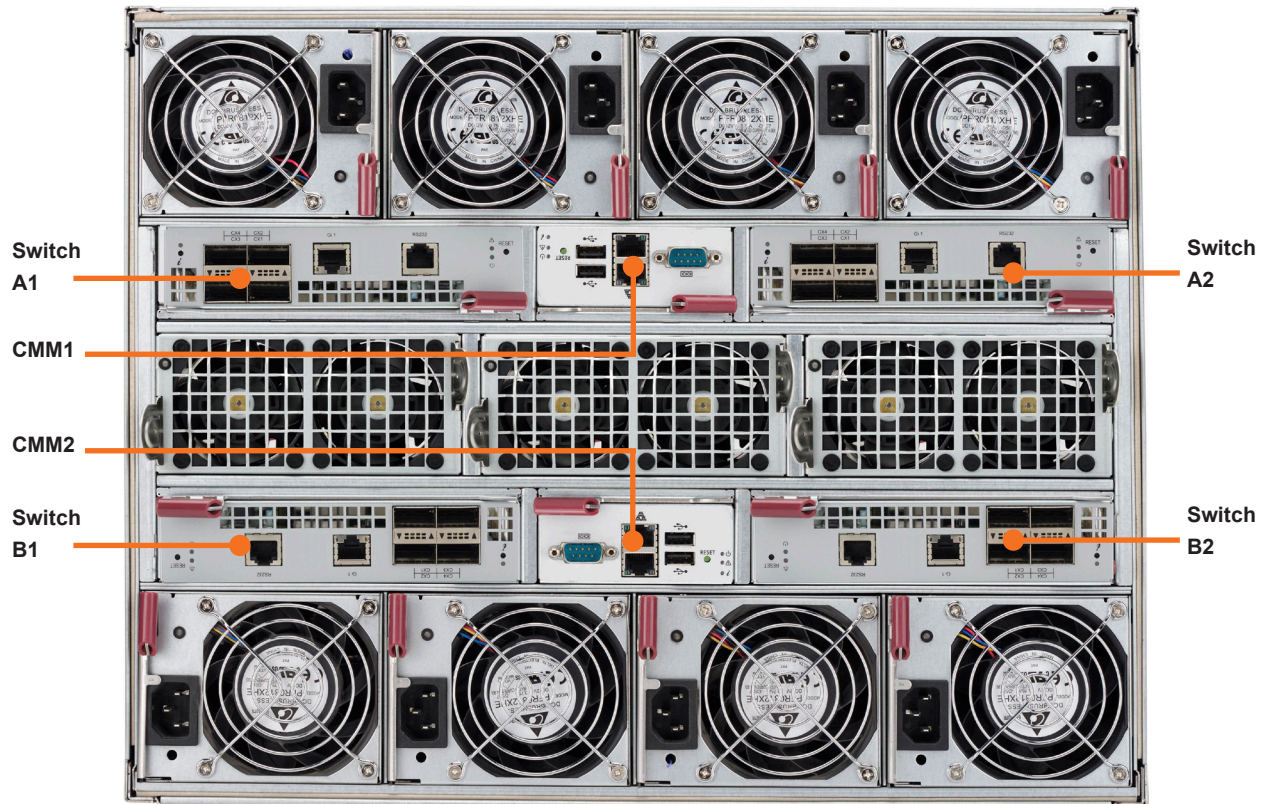
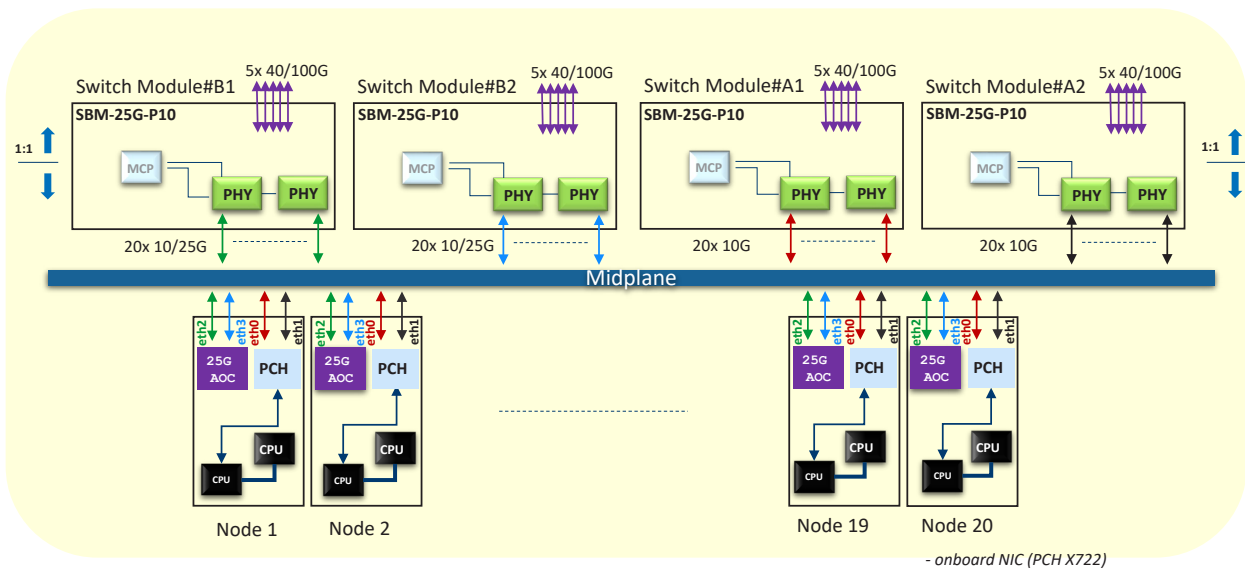


Figure 5-2. 820J/820J2 Rear View



## With Pass-Thru Modules

### Data Plane of SBI-4219P in 820J(J2) Enclosure with 4 Pass-Thru Modules



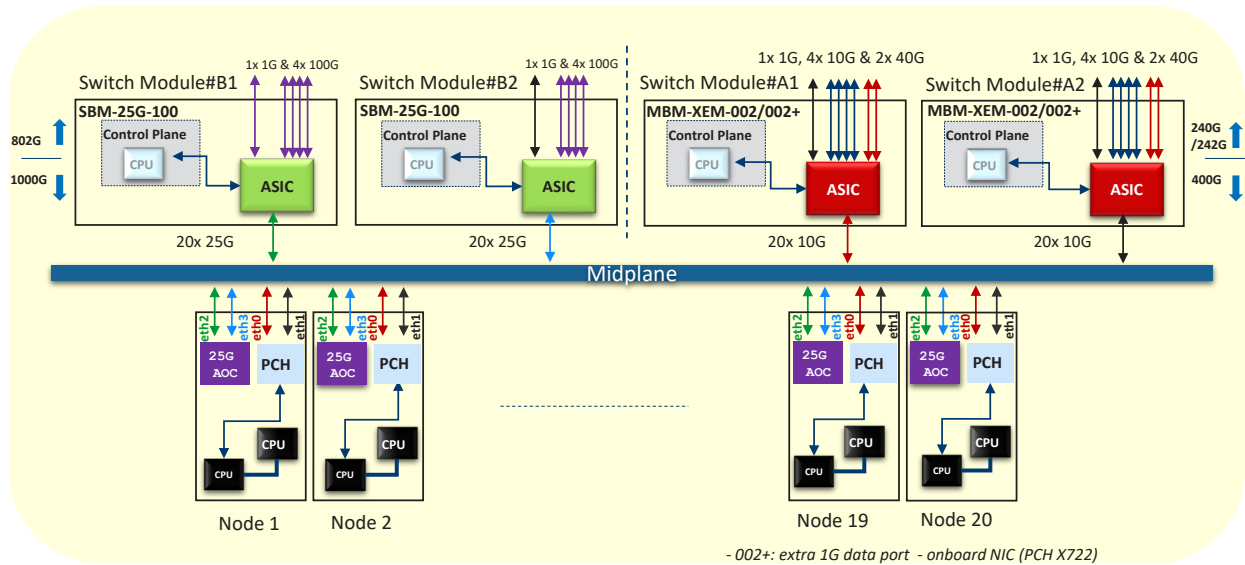
In the diagram, the arrow colors illustrate which NIC port connects to which Pass-Thru module.

Port Mapping to Switch or Pass-Thru Module		
NIC Port Label	Arrow Color	Slot
eth0	Red	A1
eth1	Black	A2
eth2	Green	B1
eth3	Blue	B2

For full port mapping details, see the [SBM-25G-P10 manual](#).

## With Ethernet Switches

### Data Plane of SBI-4219P in 820J(J2) Enclosure with 4 Ethernet Switches

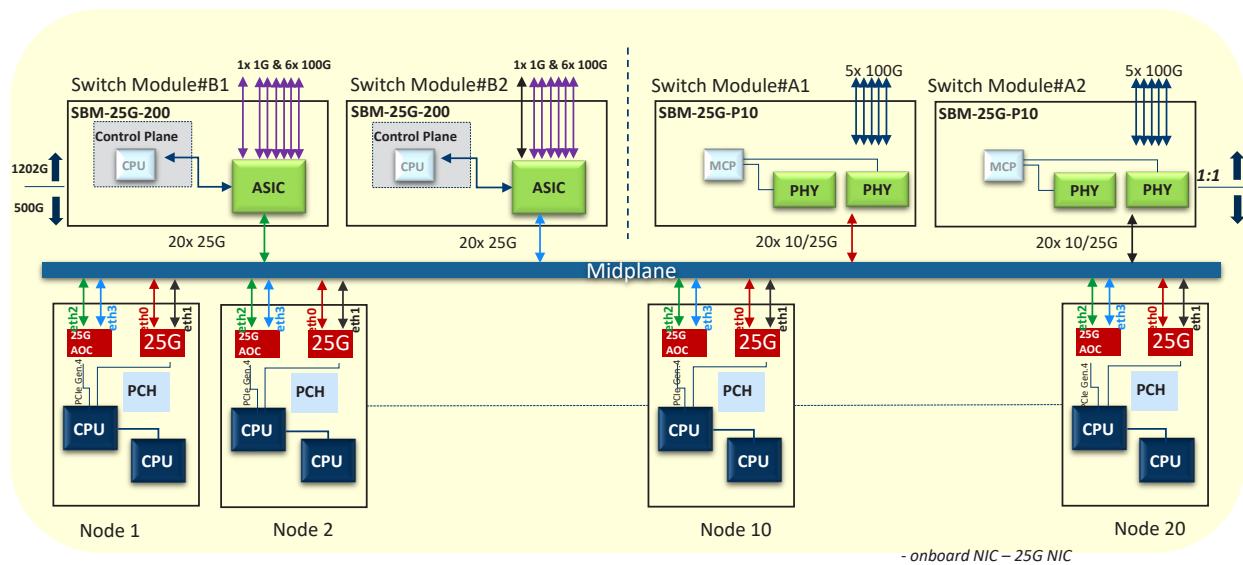


In the diagram, the arrow colors illustrate which NIC port connects to which switch.

Port Mapping to Switch		
NIC Port Label	Arrow Color	Slot
eth0	Red	A1
eth1	Black	A2
eth2	Green	B1
eth3	Blue	B2

## Intel Blade With Ethernet Switch and Pass-Thru Module

Data Plane of SBI-420P in 820J(J2) Enclosure with 2 Pass-Thru Modules



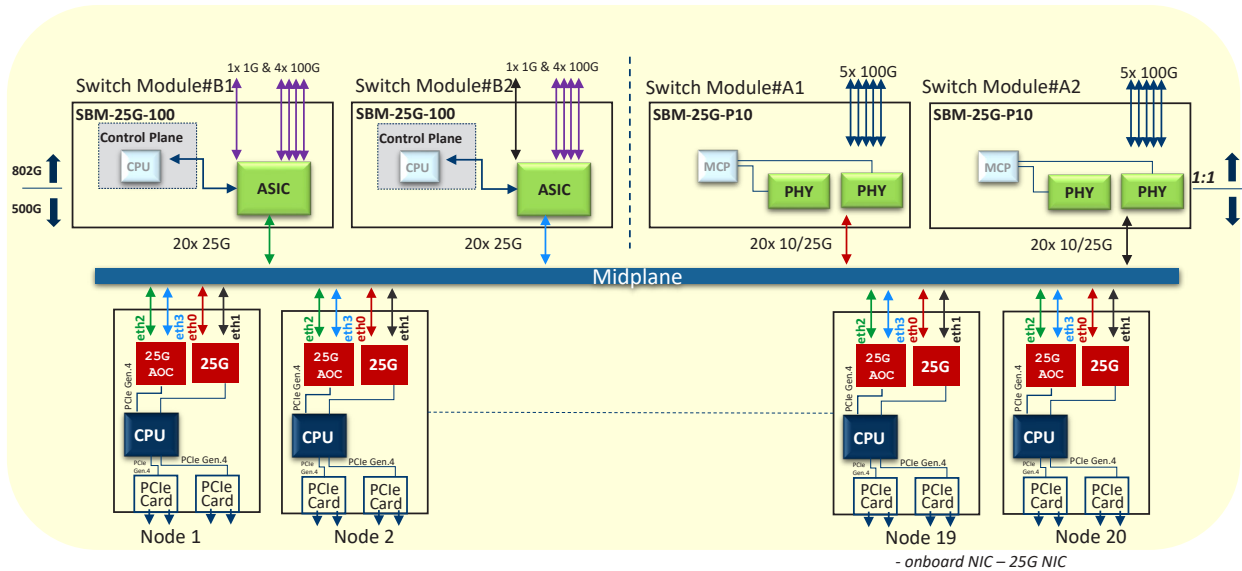
In the diagram, the arrow colors illustrate which NIC port connects to which module.

Port Mapping to Switch or Pass-Thru Module		
NIC Port Label	Arrow Color	Slot
eth0	Red	A1
eth1	Black	A2
eth2	Green	B1
eth3	Blue	B2

For full port mapping details, see the [SBM-25G-P10 manual](#).

## AMD Blade With Ethernet Switch and Pass-Through Module

Data Plane of SBA-4119SG in 820J(J2) Enclosure with Ethernet Switch and Pass-Through Modules



In the diagram, the arrow colors illustrate which NIC port connects to which module.

Port Mapping to Switch or Pass-Through Module		
NIC Port Label	Arrow Color	Slot
eth0	Red	A1
eth1	Black	A2
eth2	Green	B1
eth3	Blue	B2

For full port mapping details, see the [SBM-25G-P10 manual](#).

### 5.3 820C Enclosure

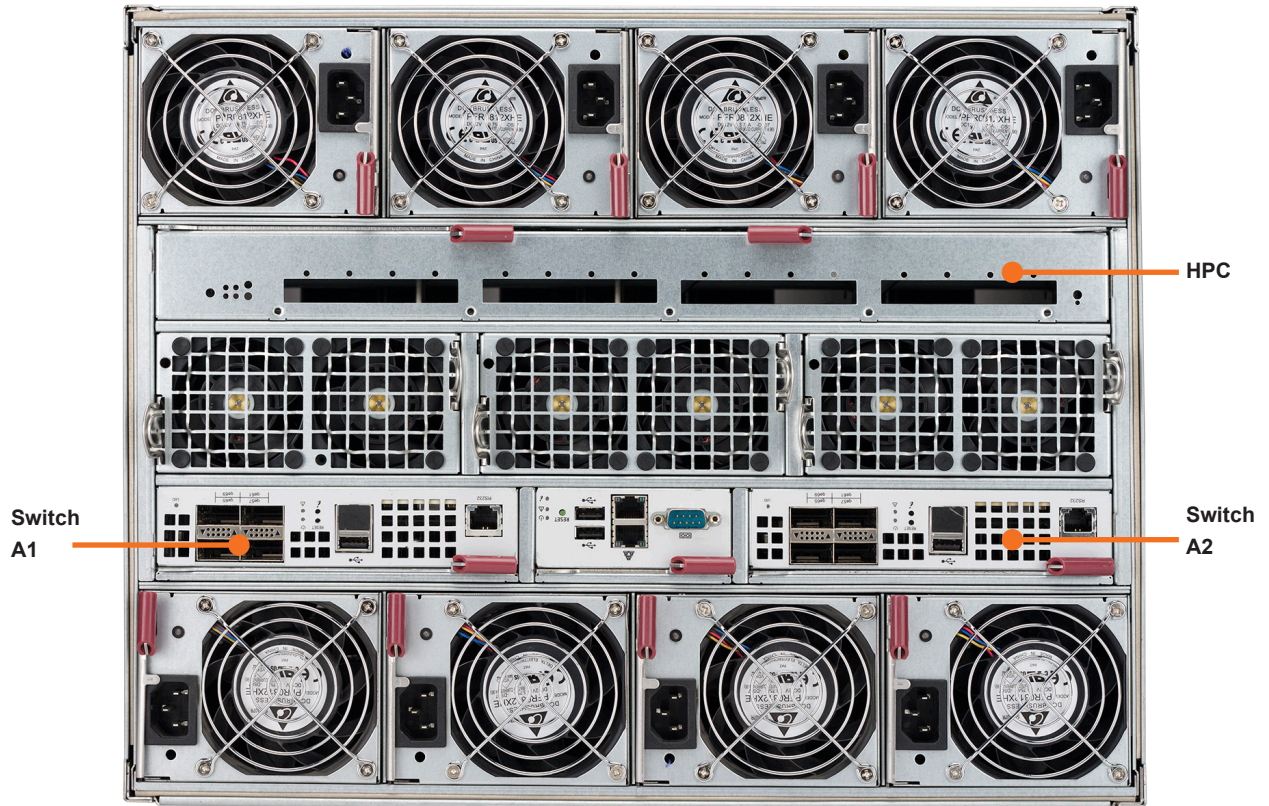
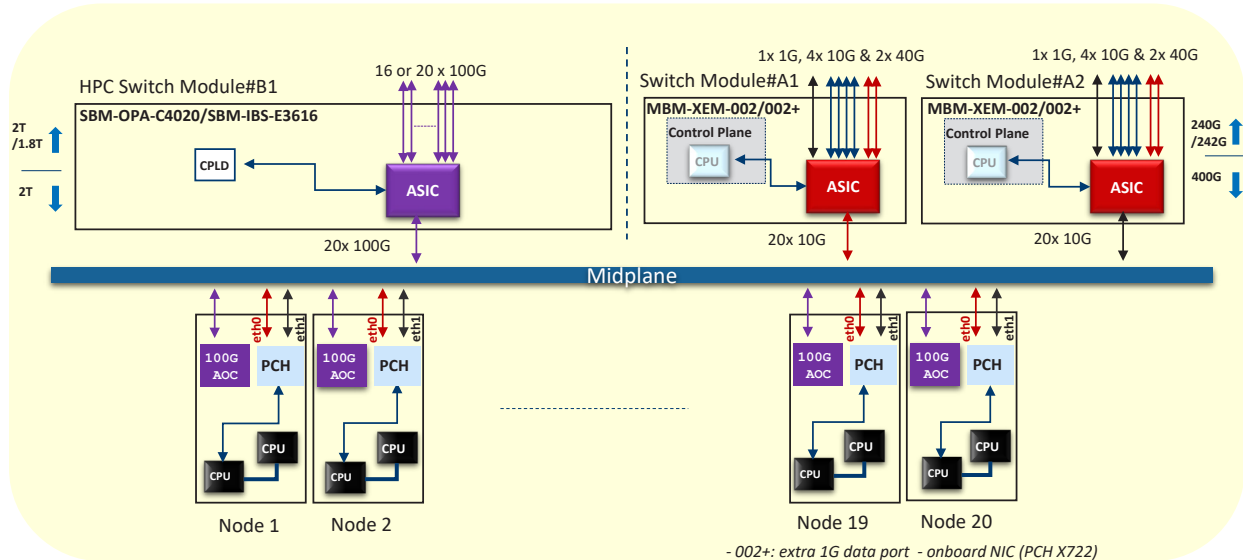


Figure 5-3. 820C Rear View

## Intel Blade with IB Switch and Ethernet Switches

The diagram shows data routes from the blade NICs and add-on cards to the dual Ethernet switches and the HPC Omni-Path/InfiniBand switch (OPA/IBS).

### Data Plane of SBI-4129P in 820C Enclosure w/ IB and Eth. Switch Module



In the diagram, the arrow colors illustrate which NIC port connects to which module.

Port Mapping to Switch		
NIC Port Label	Arrow Color	Slot
eth0	Red	A1
eth1	Black	A2
100G Add-on card	Purple	B1

## 5.4 820H/820H2 Enclosure

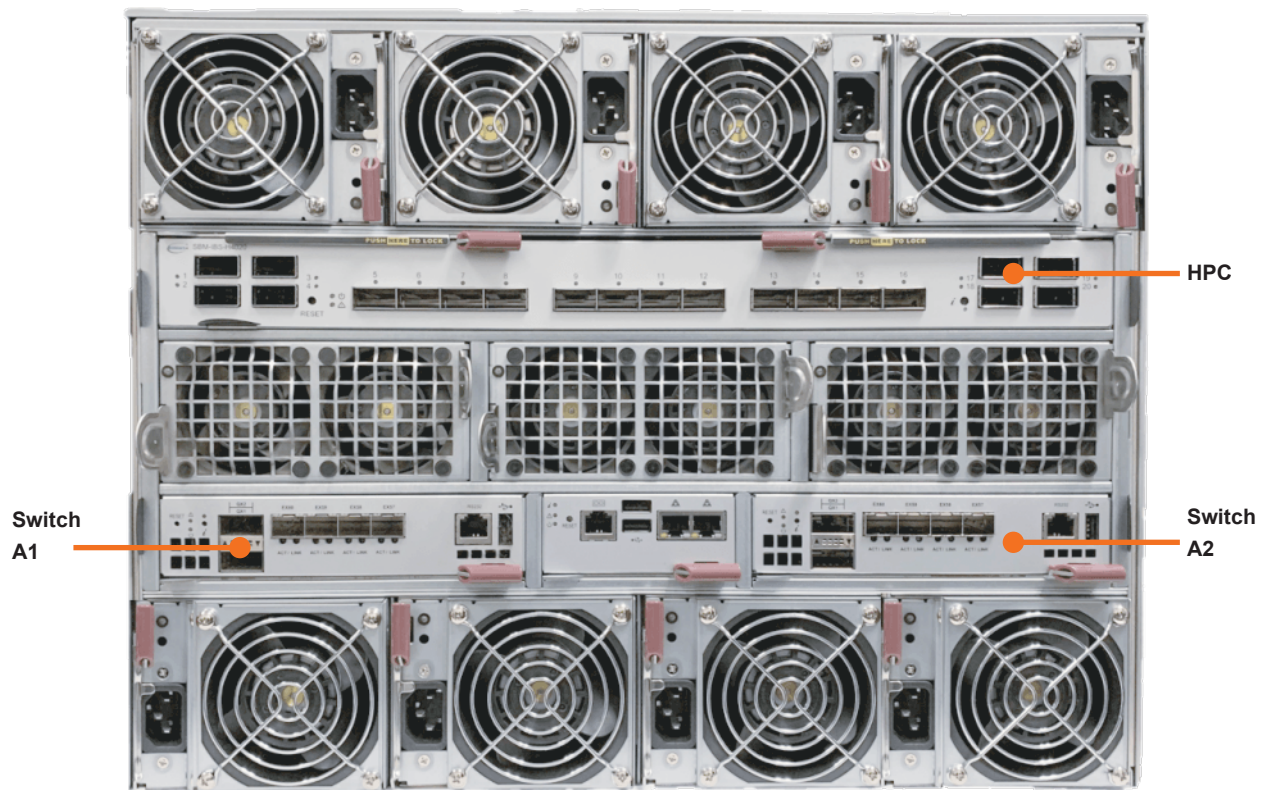
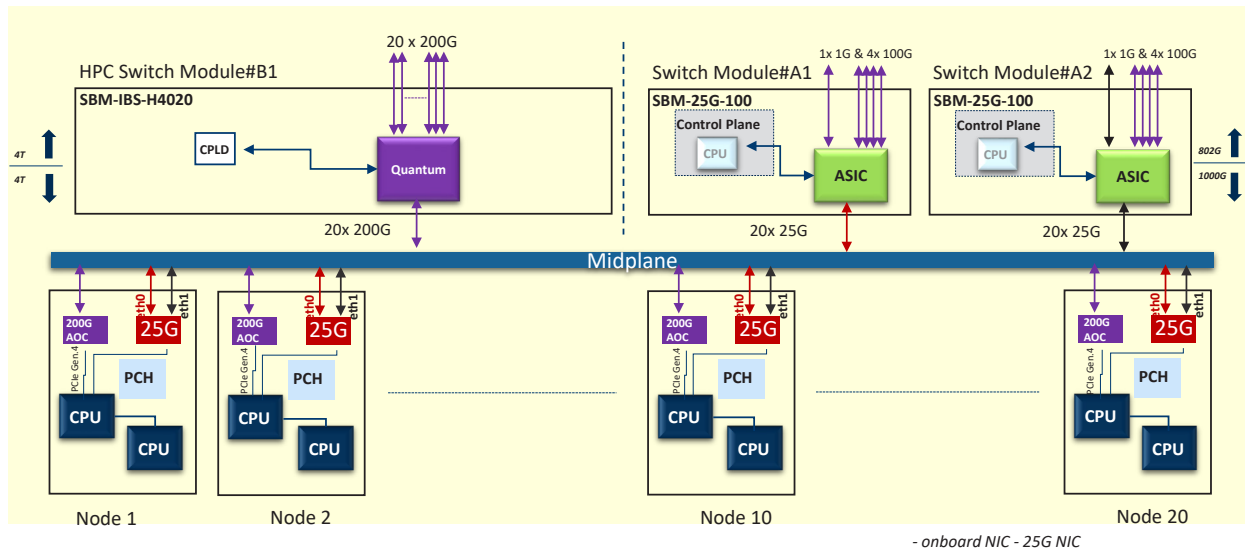


Figure 5-4. 820H/820H2 Rear View

## Intel Blade with IB Switch and Ethernet Switch

The diagram show data routes from the blade NIC and add-on card through dual Ethernet switches and the HPC switch (IBS).

Data Plane of SBI-420P in 820H(H2) Enclosure with IB and Ethernet Switch



In the diagram, the arrow colors illustrate which NIC port connects to which module.

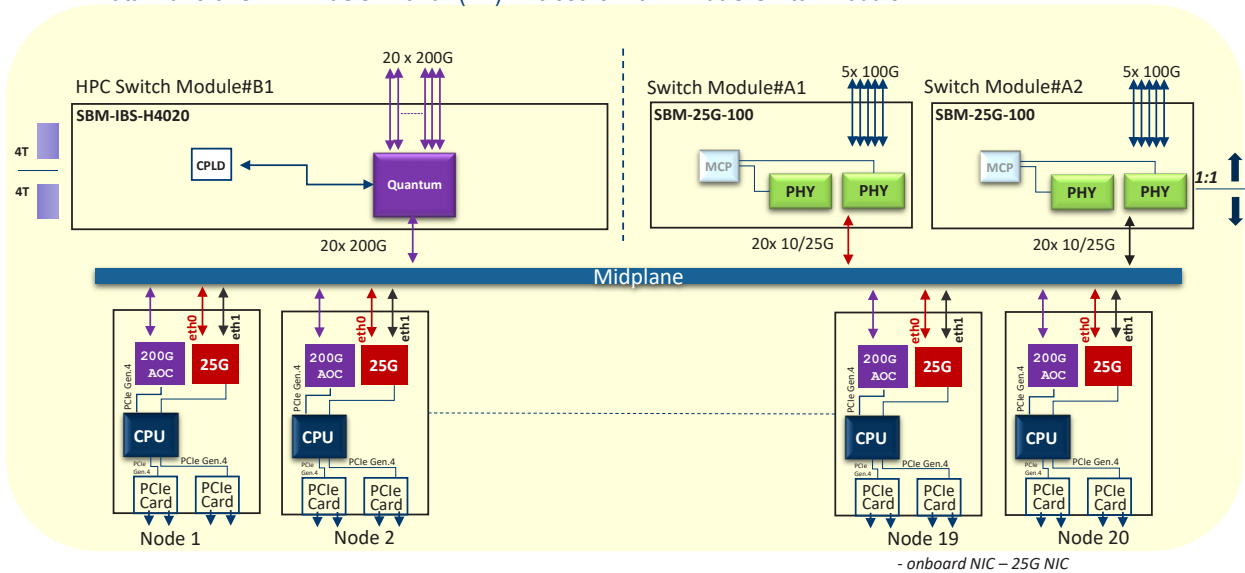
Port Mapping to Switch		
NIC Port Label	Arrow Color	Slot
eth0	Red	A1
eth1	Black	A2
200G Add-on card	Purple	B1



## AMD Blade with IB Switch

The diagram shows data routes from the blade NIC and add-on cards to the HPC Infiniband switch (IBS).

Data Plane of SBA-4119SG in 820H(H2) Enclosure with IB 200G Switch Module



In the diagram, the arrow colors illustrate which NIC port connects to which module.

Port Mapping to Switch		
NIC Port Label	Arrow Color	Slot
eth0	Red	A1
eth1	Black	A2
200G Add-on card	Purple	B1

For full port mapping details, see the [SBM-25G-100 manual](#).

## Appendix A

# Standardized Warning Statements for AC Systems

### About Standardized Warning Statements

The following statements are industry standard warnings, provided to warn the user of situations which have the potential for bodily injury. Should you have questions or experience difficulty, contact Supermicro's Technical Support department for assistance. Only certified technicians should attempt to install or configure components.

Read this appendix in its entirety before installing or configuring components in the Supermicro chassis.

These warnings may also be found on our website at [www.supermicro.com/about/policies/safety\\_information.cfm](http://www.supermicro.com/about/policies/safety_information.cfm).

### Warning Definition



**Warning!** This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents.

#### 警告の定義

この警告サインは危険を意味します。

人身事故につながる可能性がありますので、いずれの機器でも動作させる前に、電気回路に含まれる危険性に注意して、標準的な事故防止策に精通して下さい。

此警告符号代表危險。

您正处于可能受到严重伤害的工作环境中。在您使用设备开始工作之前，必须充分意识到触电的危险，并熟练掌握防止事故发生的标准工作程序。请根据每项警告结尾的声明号码找到此设备的安全性警告说明的翻译文本。

此警告符號代表危險。

您正處於可能身體可能會受損傷的工作環境中。在您使用任何設備之前，請注意觸電的危險，並且要熟悉預防事故發生的標準工作程序。請依照每一注意事項後的號碼找到相關的翻譯說明內容。

## Warnung

### WICHTIGE SICHERHEITSHINWEISE

Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu Verletzungen führen kann. Machen Sie sich vor der Arbeit mit Geräten mit den Gefahren elektrischer Schaltungen und den üblichen Verfahren zur Vorbeugung vor Unfällen vertraut. Suchen Sie mit der am Ende jeder Warnung angegebenen Anweisungsnummer nach der jeweiligen Übersetzung in den übersetzten Sicherheitshinweisen, die zusammen mit diesem Gerät ausgeliefert wurden.

BEWAHREN SIE DIESE HINWEISE GUT AUF.

### INSTRUCCIONES IMPORTANTES DE SEGURIDAD

Este símbolo de aviso indica peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considere los riesgos de la corriente eléctrica y familiarícese con los procedimientos estándar de prevención de accidentes. Al final de cada advertencia encontrará el número que le ayudará a encontrar el texto traducido en el apartado de traducciones que acompaña a este dispositivo.

GUARDE ESTAS INSTRUCCIONES.

### IMPORTANTES INFORMATIONS DE SÉCURITÉ

Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant entraîner des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers liés aux circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents. Pour prendre connaissance des traductions des avertissements figurant dans les consignes de sécurité traduites qui accompagnent cet appareil, référez-vous au numéro de l'instruction situé à la fin de chaque avertissement.

CONSERVEZ CES INFORMATIONS.

## תקנון הזהרות אזהרה

הזהרות הבאות הן אזהרות על פי תקני התעשייה, על מנת להזהיר את המשתמש מפני חבלה פיזית אפשרית. במידה ויש שאלות או היתקלות בבעיה כלשהי, יש ליצור קשר עם מחלקת תמיכה טכנית של סופרמיקרו. טכנאים מוסמכים בלבד רשאים להתקין או להגדיר את הרכיבים. יש לקרוא את הנספח במלואו לפני התקנת או הגדרת הרכיבים במארזי סופרמיקרו.

اَكْ ف حالة وُكِي اَي تتسبب ف اصابة جسدهُ هذا الزهز عُ خطر! تحذُرُ .  
 قبل اَي تعول على اَي هعدات، كي على علن بالوخاطز ال اُجوة عي الذوائر  
 الكهزبائِة  
 وكي على دراةُ بالووارسات النقاىِة لو عُ وقع اَي حادث  
 استخدم رقن الب اى الو صُص ف هاةُ كل تحذُرُ للعشر تزجوتها

안전을 위한 주의사항

경고!

이 경고 기호는 위험이 있음을 알려 줍니다. 작업자의 신체에 부상을 야기 할 수 있는 상태에 있게 됩니다. 모든 장비에 대한 작업을 수행하기 전에 전기회로와 관련된 위험요소들을 확인하시고 사전에 사고를 방지할 수 있도록 표준 작업절차를 준수해 주시기 바랍니다.

해당 번역문을 찾기 위해 각 경고의 마지막 부분에 제공된 경고문 번호를 참조하십시오

## BELANGRIJKE VEILIGHEIDSINSTRUCTIES

Dit waarschuwings symbool betekent gevaar. U verkeert in een situatie die lichamelijk letsel kan veroorzaken. Voordat u aan enige apparatuur gaat werken, dient u zich bewust te zijn van de bij een elektrische installatie betrokken risico's en dient u op de hoogte te zijn van de standaard procedures om ongelukken te voorkomen. Gebruik de nummers aan het eind van elke waarschuwing om deze te herleiden naar de desbetreffende locatie.

BEWAAR DEZE INSTRUCTIES

## Installation Instructions



**Warning!** Read the installation instructions before connecting the system to the power source.

設置手順書

システムを電源に接続する前に、設置手順書をお読み下さい。

警告

将此系统连接电源前,请先阅读安装说明。

警告

將系統與電源連接前，請先閱讀安裝說明。

**Warnung**

Vor dem Anschließen des Systems an die Stromquelle die Installationsanweisungen lesen.

**¡Advertencia!**

Lea las instrucciones de instalación antes de conectar el sistema a la red de alimentación.

**Attention**

Avant de brancher le système sur la source d'alimentation, consulter les directives d'installation.

יש לקרוא את הוראות התקנה לפני חיבור המערכת למקור מתח.

اقر إرشادات التركيب قبل توصيل النظام إلى مصدر للطاقة

시스템을 전원에 연결하기 전에 설치 안내를 읽어주십시오.

**Waarschuwing**

Raadpleeg de installatie-instructies voordat u het systeem op de voedingsbron aansluit.

**Circuit Breaker**

**Warning!** This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: 250 V, 20 A.

**サーキット・ブレーカー**

この製品は、短絡(過電流)保護装置がある建物での設置を前提としています。

保護装置の定格が250 V、20 Aを超えないことを確認下さい。

**警告**

此产品的短路(过载电流)保护由建筑物的供电系统提供,确保短路保护设备的额定电流不大于250V,20A。

**警告**

此產品的短路(過載電流)保護由建築物的供電系統提供,確保短路保護設備的額定電流不大於250V,20A。

**Warnung**

Dieses Produkt ist darauf angewiesen, dass im Gebäude ein Kurzschluss- bzw. Überstromschutz installiert ist. Stellen Sie sicher, dass der Nennwert der Schutzvorrichtung nicht mehr als: 250 V, 20 A beträgt.

**¡Advertencia!**

Este equipo utiliza el sistema de protección contra cortocircuitos (o sobrecorrientes) del edificio. Asegúrese de que el dispositivo de protección no sea superior a: 250 V, 20 A.

**Attention**

Pour ce qui est de la protection contre les courts-circuits (surtension), ce produit dépend de l'installation électrique du local. Vérifiez que le courant nominal du dispositif de protection n'est pas supérieur à :250 V, 20 A.

מוצר זה מסתמך על הגנה המותקנת במבנים למניעת קצר חשמלי. יש לוודא כי המכשיר המגן מפני הקצר החשמלי הוא לא יותר מ-20A, 250VDC.

هذا المنتج يعتمد على معدات الحماية من الدوائر القصيرة التي تم تثبيتها في المبنى  
تأكد من أن تقييم الجهاز الوقائي ليس أكثر من : 20A, 250V

**경고!**

이 제품은 전원의 단락(과전류)방지에 대해서 전적으로 건물의 관련 설비에 의존합니다. 보호장치의 정격이 반드시 250V(볼트), 20A(암페어)를 초과하지 않도록 해야 합니다.

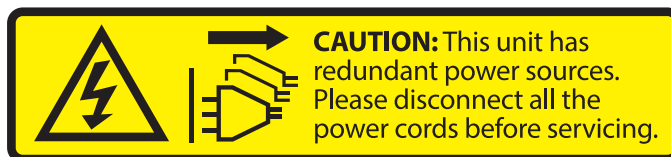
**Waarschuwing**

Dit product is afhankelijk van de kortsluitbeveiliging (overspanning) van uw elektrische installatie. Controleer of het beveiligde apparaat niet groter gedimensioneerd is dan 250V, 20A.

## Power Disconnection Warning



**Warning!** The system must be disconnected from all sources of power and the power cord removed from the power supply module(s) before accessing the chassis interior to install or remove system components.



### 電源切斷の警告

システムコンポーネントの取り付けまたは取り外しのために、シャーシ内部にアクセスするには、システムの電源はすべてのソースから切斷され、電源コードは電源モジュールから取り外す必要があります。

### 警告

在你打开机箱并安装或移除内部器件前,必须将系统完全断电,并移除电源线。

### 警告

在您打開機殼安裝或移除內部元件前，必須將系統完全斷電，並移除電源線。

### Warnung

Das System muss von allen Quellen der Energie und vom Netzanschlusskabel getrennt sein, das von den Spg.Versorgungsteilmodulen entfernt wird, bevor es auf den Chassisinnenraum zurückgreift, um Systemsbestandteile anzubringen oder zu entfernen.

### ¡Advertencia!

El sistema debe ser disconnected de todas las fuentes de energía y del cable eléctrico quitado de los módulos de fuente de alimentación antes de tener acceso el interior del chasis para instalar o para quitar componentes de sistema.

### Attention

Le système doit être débranché de toutes les sources de puissance ainsi que de son cordon d'alimentation secteur avant d'accéder à l'intérieur du chasis pour installer ou enlever des composants de système.

אזהרה מפני ניתוק חשמלי

!אזהרה!

יש לנתק את המערכת מכל מקורות החשמל ויש להסיר את כבל החשמלי מהספק לפני גישה לחלק הפנימי של המארז לצורך התקנת או הסרת רכיבים.

يجب فصل انظاؤ من جميع مصادر انطاقت وإزانت سهك انكهرباء من وحدة امداد انطاقت قيم

انصل إلى امنطاقت انداخهيت نههيكم نتشيج أو إزانت مكناث الجهاز

경고!

시스템에 부품들을 장착하거나 제거하기 위해서는 새시 내부에 접근하기 전에 반드시 전원 공급장치로부터 연결되어있는 모든 전원과 전기코드를 분리해주어야 합니다.

Waarschuwing

Voordat u toegang neemt tot het binnenwerk van de behuizing voor het installeren of verwijderen van systeem onderdelen, dient u alle spanningsbronnen en alle stroomkabels aangesloten op de voeding(en) van de behuizing te verwijderen

## Equipment Installation



**Warning!** Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

機器の設置

トレーニングを受け認定された人だけがこの装置の設置、交換、またはサービスを許可されていません。

警告

只有经过培训且具有资格的人员才能进行此设备的安装、更换和维修。

警告

只有經過受訓且具資格人員才可安裝、更換與維修此設備。

Warnung

Das Installieren, Ersetzen oder Bedienen dieser Ausrüstung sollte nur geschultem, qualifiziertem Personal gestattet werden.



¡Advertencia!

Solamente el personal calificado debe instalar, reemplazar o utilizar este equipo.

Attention

Il est vivement recommandé de confier l'installation, le remplacement et la maintenance de ces équipements à des personnels qualifiés et expérimentés.

אזהרה!

צוות מוסמך בלבד רשאי להתקין, להחליף את הציוד או לתת שירות עבור הציוד.

والمدربيه لتزكيب واستبدال أو خدمة هذا الجهاز يجب أن يسمح فقط للمظفيه المؤهليه

경고!

훈련을 받고 공인된 기술자만이 이 장비의 설치, 교체 또는 서비스를 수행할 수 있습니다.

Waarschuwing

Deze apparatuur mag alleen worden geïnstalleerd, vervangen of hersteld door geschoold en gekwalificeerd personeel.

## Restricted Area



**Warning!** This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security. (This warning does not apply to workstations).

アクセス制限区域

このユニットは、アクセス制限区域に設置されることを想定しています。

アクセス制限区域は、特別なツール、鍵と錠前、その他のセキュリティの手段を用いてのみ出入りが可能です。

警告

此部件应安装在限制进出的场所，限制进出的场所指只能通过使用特殊工具、锁和钥匙或其它安全手段进出的场所。

警告

此装置仅限安装於進出管制區域，進出管制區域係指僅能以特殊工具、鎖頭及鑰匙或其他安全方式才能進入的區域。

**Warnung**

Diese Einheit ist zur Installation in Bereichen mit beschränktem Zutritt vorgesehen. Der Zutritt zu derartigen Bereichen ist nur mit einem Spezialwerkzeug, Schloss und Schlüssel oder einer sonstigen Sicherheitsvorkehrung möglich.

**¡Advertencia!**

Esta unidad ha sido diseñada para instalación en áreas de acceso restringido. Sólo puede obtenerse acceso a una de estas áreas mediante la utilización de una herramienta especial, cerradura con llave u otro medio de seguridad.

**Attention**

Cet appareil doit être installée dans des zones d'accès réservés. L'accès à une zone d'accès réservé n'est possible qu'en utilisant un outil spécial, un mécanisme de verrouillage et une clé, ou tout autre moyen de sécurité.

אזור עם גישה מוגבלת

אזהרה!

יש להתקין את היחידה באזורים שיש בהם הגבלת גישה. הגישה ניתנת בעזרת 'כלי אבטחה בלבד' (מפתח, מנעול וכד.).

تخصيص هذه انحدة نترك بها ف مناطق محظورة تم .

،ممكن اننصل إن منطقت محظورة فقط من خلال استخذاو أداة خاصت أو أ وس هُت أخري نلالأمما ققم ومفتاح

**경고!**

이 장치는 접근이 제한된 구역에 설치하도록 되어있습니다. 특수도구, 잠금 장치 및 키, 또는 기타 보안 수단을 통해서만 접근 제한 구역에 들어갈 수 있습니다.

**Waarschuwing**

Dit apparaat is bedoeld voor installatie in gebieden met een beperkte toegang. Toegang tot dergelijke gebieden kunnen alleen verkregen worden door gebruik te maken van speciaal gereedschap, slot en sleutel of andere veiligheidsmaatregelen.

## Battery Handling



**Warning!** There is the danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions

### 電池の取り扱い

電池交換が正しく行われなかった場合、破裂の危険性があります。交換する電池はメーカーが推奨する型、または同等のものを使用下さい。使用済電池は製造元の指示に従って処分して下さい。

### 警告

電池更換不當會有爆炸危險。請只使用同類電池或制造商推薦的功能相當的電池更換原有電池。請按製造商的說明處理廢舊電池。

### 警告

電池更換不當會有爆炸危險。請使用製造商建議之相同或功能相當的電池更換原有電池。請按照製造商的說明指示處理廢棄舊電池。

### Warnung

Bei Einsetzen einer falschen Batterie besteht Explosionsgefahr. Ersetzen Sie die Batterie nur durch den gleichen oder vom Hersteller empfohlenen Batterietyp. Entsorgen Sie die benutzten Batterien nach den Anweisungen des Herstellers.

### Attention

Danger d'explosion si la pile n'est pas remplacée correctement. Ne la remplacer que par une pile de type semblable ou équivalent, recommandée par le fabricant. Jeter les piles usagées conformément aux instructions du fabricant.

### ¡Advertencia!

Existe peligro de explosión si la batería se reemplaza de manera incorrecta. Reemplazar la batería exclusivamente con el mismo tipo o el equivalente recomendado por el fabricante. Desechar las baterías gastadas según las instrucciones del fabricante.

אזהרה!

קיימת סכנת פיצוץ של הסוללה במידה והוחלפה בדרך לא תקינה. יש להחליף את הסוללה בסוג התואם מחברת יצרן מומלצת. סילוק הסוללות המשומשות יש לבצע לפי הוראות היצרן.

هناك خطر من انفجار في حالة اسبدال البطارية بطريقة غير صحيحة فعلى  
اسبدال البطارية  
فقط بنفس النوع أو ما يعادلها مما أوصت به الشركة المصنعة  
جخلص من البطاريات المسحومة وفقا لعمليات الشركة الصانعة

경고!

배터리가 올바르게 교체되지 않으면 폭발의 위험이 있습니다. 기존 배터리와 동일하거나 제조사에서 권장하는 동등한 종류의 배터리로만 교체해야 합니다. 제조사의 안내에 따라 사용된 배터리를 처리하여 주십시오.

Waarschuwing

Er is ontplofingsgevaar indien de batterij verkeerd vervangen wordt. Vervang de batterij slechts met hetzelfde of een equivalent type die door de fabrikant aanbevolen wordt. Gebruikte batterijen dienen overeenkomstig fabrieksvoorschriften afgevoerd te worden.

## Redundant Power Supplies



**Warning!** This unit might have more than one power supply connection. All connections must be removed to de-energize the unit.

冗長電源装置

このユニットは複数の電源装置が接続されている場合があります。

ユニットの電源を切るためには、すべての接続を取り外さなければなりません。

警告

此部件连接的电源可能不止一个，必须将所有电源断开才能停止给该部件供电。

警告

此装置连接的电源可能不只一个，必须切断所有电源才能停止对该装置的供电。

Warnung

Dieses Gerät kann mehr als eine Stromzufuhr haben. Um sicherzustellen, dass der Einheit kein Strom zugeführt wird, müssen alle Verbindungen entfernt werden.

## ¡Advertencia!

Puede que esta unidad tenga más de una conexión para fuentes de alimentación. Para cortar por completo el suministro de energía, deben desconectarse todas las conexiones.

## Attention

Cette unité peut avoir plus d'une connexion d'alimentation. Pour supprimer toute tension et tout courant électrique de l'unité, toutes les connexions d'alimentation doivent être débranchées.

אם קיים יותר מספק אחד

אזהרה!

ליחידה יש יותר מחיבור אחד של ספק. יש להסיר את כל החיבורים על מנת לרוקן את היחידה.

قد يكون لهذا الجهاز عدة اتصالات بوحدات امداد الطاقة .  
يجب إزالة كافة الاتصالات لعسل الوحدة عن الكهرباء

## 경고!

이 장치에는 한 개 이상의 전원 공급 단자가 연결되어 있을 수 있습니다. 이 장치에 전원을 차단하기 위해서는 모든 연결 단자를 제거해야만 합니다.

## Waarschuwing

Deze eenheid kan meer dan één stroomtoevoeraansluiting bevatten. Alle aansluitingen dienen verwijderd te worden om het apparaat stroomloos te maken.

## Backplane Voltage



**Warning!** Hazardous voltage or energy is present on the backplane when the system is operating. Use caution when servicing.

バックプレーンの電圧

システムの稼働中は危険な電圧または電力が、バックプレーン上にかかっています。

修理する際には注意ください。

警告

当系统正在进行时，背板上有很危险的电压或能量，进行维修时务必小心。

警告

當系統正在進行時，背板上危險的電壓或能量，進行維修時務必小心。

Warnung

Wenn das System in Betrieb ist, treten auf der Rückwandplatine gefährliche Spannungen oder Energien auf. Vorsicht bei der Wartung.

¡Advertencia!

Cuando el sistema está en funcionamiento, el voltaje del plano trasero es peligroso. Tenga cuidado cuando lo revise.

Attention

Lorsque le système est en fonctionnement, des tensions électriques circulent sur le fond de panier. Prendre des précautions lors de la maintenance.

מתח בפנל האחורי

אזהרה!

קיימת סכנת מתח בפנל האחורי בזמן תפעול המערכת. יש להיזהר במהלך

העבודה.

هناك خطر من التيار الكهربائي أو الطاقة المتجددة على اللوحة  
عندما يكون النظام يعمل كه حذرا عند خدمة هذا الجهاز

경고!

시스템이 동작 중일 때 후면판 (Backplane)에는 위험한 전압이나 에너지가 발생 합니다.  
서비스 작업 시 주의하십시오.

Waarschuwing

Een gevaarlijke spanning of energie is aanwezig op de backplane wanneer het systeem in gebruik is. Voorzichtigheid is geboden tijdens het onderhoud.

## Comply with Local and National Electrical Codes



**Warning!** Installation of the equipment must comply with local and national electrical codes.

地方および国の電気規格に準拠

機器の取り付けはその地方および国の電気規格に準拠する必要があります。

警告

设备安装必须符合本地与本国电气法规。

警告

設備安裝必須符合本地與本國電氣法規。

Warnung

Die Installation der Geräte muss den Sicherheitsstandards entsprechen.

¡Advertencia!

La instalación del equipo debe cumplir con las normas de electricidad locales y nacionales.

Attention

L'équipement doit être installé conformément aux normes électriques nationales et locales.

תיאום חוקי החשמל הארצי  
אזהרה!  
התקנת הציוד חייבת להיות תואמת לחוקי החשמל המקומיים והארציים.

تركيب المعدات الكهربائية يجب أن يمتثل للقوايه المحلية والبطية المتعلقة  
بالكهرباء

경고!

현 지역 및 국가의 전기 규정에 따라 장비를 설치해야 합니다.

Waarschuwing

Bij installatie van de apparatuur moet worden voldaan aan de lokale en nationale elektriciteitsvoorschriften.

## Product Disposal



**Warning!** Ultimate disposal of this product should be handled according to all national laws and regulations.

製品の廃棄

この製品を廃棄処分する場合、国の関係する全ての法律・条例に従い処理する必要があります。

警告

本产品的废弃处理应根据所有国家的法律和规章进行。

警告

本產品的廢棄處理應根據所有國家的法律和規章進行。

Warnung

Die Entsorgung dieses Produkts sollte gemäß allen Bestimmungen und Gesetzen des Landes erfolgen.

¡Advertencia!

Al deshacerse por completo de este producto debe seguir todas las leyes y reglamentos nacionales.



## Attention

La mise au rebut ou le recyclage de ce produit sont généralement soumis à des lois et/ou directives de respect de l'environnement. Renseignez-vous auprès de l'organisme compétent.

סילוק המוצר

אזהרה!

סילוק סופי של מוצר זה חייב להיות בהתאם להנחיות וחוקי המדינה.

التخلص النهائي من هذا المنتج ينبغي التعامل معه وفقا لجميع القوانين واللوائح الوطنية عند

## 경고!

이 제품은 해당 국가의 관련 법규 및 규정에 따라 폐기되어야 합니다.

## Waarschuwing

De uiteindelijke verwijdering van dit product dient te geschieden in overeenstemming met alle nationale wetten en reglementen.

## Hot Swap Fan Warning



**Warning!** Hazardous moving parts. Keep away from moving fan blades. The fans might still be turning when you remove the fan assembly from the chassis. Keep fingers, screwdrivers, and other objects away from the openings in the fan assembly's housing.

## ファン・ホットスワップの警告

警告!回転部品に注意。運転中は回転部(羽根)に触れないでください。シャーシから冷却ファン装置を取り外した際、ファンがまだ回転している可能性があります。ファンの開口部に、指、ドライバー、およびその他のものを近づけないで下さい。

## 警告!

警告! 危險的可移動性零件。請務必與轉動的风扇叶片保持距離。當您從機架移除風扇裝置，風扇可能仍在轉動。小心不要將手指、螺絲起子和其他物品太靠近風扇

## 警告

危險的可移動性零件。請務必與轉動的风扇叶片保持距離。當您從機架移除風扇裝置，風扇可能仍在轉動。小心不要將手指、螺絲起子和其他物品太靠近風扇。

**Warnung**

Gefährlich Bewegende Teile. Von den bewegenden Lüfterblätter fern halten. Die Lüfter drehen sich u. U. noch, wenn die Lüfterbaugruppe aus dem Chassis genommen wird. Halten Sie Finger, Schraubendreher und andere Gegenstände von den Öffnungen des Lüftergehäuses entfernt.

**¡Advertencia!**

Riesgo de piezas móviles. Mantener alejado de las aspas del ventilador. Los ventiladores podran dar vuelta cuando usted quite el montaje del ventilador del chasis. Mantenga los dedos, los destornilladores y todos los objetos lejos de las aberturas del ventilador

**Attention**

Pieces mobiles dangereuses. Se tenir a l'écart des lames du ventilateur Il est possible que les ventilateurs soient toujours en rotation lorsque vous retirerez le bloc ventilateur du châssis. Prenez garde à ce que doigts, tournevis et autres objets soient éloignés du logement du bloc ventilateur.

**אזהרה!**

חלקים נעים מסוכנים. התרחק מלהבי המאוורר בפעולה כאשר מסירים את חלקי המאוורר מהמארז, יתכן והמאווררים עדיין עובדים. יש להרחיק למרחק בטוח את האצבעות וכלי עבודה שונים מהפתחים בתוך המאוורר

تحذير! أجزاء متحركة خطيرة. ابتعد عن شفرات المروحة المتحركة. من الممكن أن المراوح لا تزال تدور عند إزالة كتلة المروحة من الهيكل يجب إبقاء الأصابع ومفكات البراغي وغيرها من الأشياء بعيدا عن الفتحات في كتلة المروحة

**경고!**

움직이는 위험한 부품. 회전하는 송풍 날개에 접근하지 마세요. 새시로부터 팬 조립품을 제거할 때 팬은 여전히 회전하고 있을 수 있습니다. 팬 조립품 외관의 열려있는 부분들로부터 손가락 및 스크류드라이버, 다른 물체들이 가까이 하지 않도록 배치해 주십시오.

**Waarschuwing**

Gevaarlijk bewegende onderdelen. Houd voldoende afstand tot de bewegende ventilatorbladen. Het is mogelijk dat de ventilator nog draait tijdens het verwijderen van het ventilatorsamenstel uit het chassis. Houd uw vingers, schroevendraaiers en eventuele andere voorwerpen uit de buurt van de openingen in de ventilatorbehuizing.

## Power Cable and AC Adapter



**Warning!** When installing the product, use the provided or designated connection cables, power cables and AC adaptors. Using any other cables and adaptors could cause a malfunction or a fire. Electrical Appliance and Material Safety Law prohibits the use of UL or CSA -certified cables (that have UL/CSA shown on the cord) for any other electrical devices than products designated by Supermicro only.

### 電源コードとACアダプター

製品を設置する場合、提供または指定および購入された接続ケーブル、電源コードとACアダプターを、該当する地域の条例や安全基準に適合するコードサイズやプラグと共に使用下さい。他のケーブルやアダプタを使用すると故障や火災の原因になることがあります。

電気用品安全法は、ULまたはCSA認定のケーブル(UL/CSAマークがコードに表記)を Supermicro が指定する製品以外に使用することを禁止しています。

### 警告

安装此产品时,请使用本身提供的或指定的或采购的连接线,电源线和电源适配器。包含遵照当地法规和安全要求的合规的电源线尺寸和插头。使用其它线材或适配器可能会引起故障或火灾。除了Supermicro所指定的产品,电气用品和材料安全法律规定禁止使用未经UL或CSA认证的线材。(线材上会显示UL/CSA符号)。

### 警告

安裝此產品時,請使用本身提供的或指定的或採購的連接線,電源線和電源適配器。包含遵照當地法規和安全要求的合規的電源線尺寸和插頭。使用其它線材或適配器可能會引起故障或火災。除了Supermicro所指定的產品,電氣用品和材料安全法律規定禁止使用未經UL或CSA認證的線材。(線材上會顯示UL/CSA符號)。

### Warnung

Nutzen Sie beim Installieren des Produkts ausschließlich die von uns zur Verfügung gestellten Verbindungskabeln, Stromkabeln und/oder Adapter, die Ihre örtlichen Sicherheitsstandards einhalten. Der Gebrauch von anderen Kabeln und Adapter können Fehlfunktionen oder Feuer verursachen. Die Richtlinien untersagen das Nutzen von UL oder CAS zertifizierten Kabeln (mit UL/CSA gekennzeichnet), an Geräten oder Produkten die nicht mit Supermicro gekennzeichnet sind.

## ¡Advertencia!

Cuando instale el producto, utilice la conexión provista o designada o procure cables, Cables de alimentación y adaptadores de CA que cumplan con los códigos locales y los requisitos de seguridad, incluyendo el tamaño adecuado del cable y el enchufe. El uso de otros cables y adaptadores podría causar un mal funcionamiento o un incendio. La Ley de Seguridad de Aparatos Eléctricos y de Materiales prohíbe El uso de cables certificados por UL o CSA (que tienen el certificado UL / CSA en el código) para cualquier otros dispositivos eléctricos que los productos designados únicamente por Supermicro.

## Attention

Lors de l'installation du produit, utilisez les cables de connection fournis ou désigné ou achetez des cables, cables de puissance et adaptateurs respectant les normes locales et les conditions de securite y compris les tailles de cables et les prises electriques appropries. L'utilisation d'autres cables et adaptateurs peut provoquer un dysfonctionnement ou un incendie. Appareils électroménagers et la Loi sur la Sécurité Matériel interdit l'utilisation de câbles certifiés- UL ou CSA (qui ont UL ou CSA indiqué sur le code) pour tous les autres appareils électriques sauf les produits désignés par Supermicro seulement.

AC ימאתמו מיילמשח מילבכ

!הרהזא

ךרוצל ומאתוה וא ושכרנ רשא AC מימאתמו מיקפס, מילבכב שמתשהל שי, רצומה תא מיניקתמ רשאכ לכב שומיש . עקתהו לבכה לש הנוכח הדימ ללוכ, תוימוקמה תוחיטבה תושירדל ומאתוה רשאו, הנקתהה למשחה ירישכמב שומישה יקוחל מאתהב. ילמשח רצק וא הלקתל מורגל לולע, רחא גוסמ מאתמ וא לבכ לש דוק מהילע עיפומ רשאכ) UL-ב או CSA-ב -ב מיכמומה מילבכב שמתשהל רוסיא מייק, תוחיטבה יקוחו דבלב Supermicro י"ע מאתוה רשא רצומב קר אלא, רחא ילמשח רצומ לכ רובע (UL/CSA)

תאלבאלא אארשב מץ וא אדדחמלא וא ארפוטמלא תאליטוטלא מאדחטסאב מץ, אגתנמלא בייקרת דנע לכלז יפ אמב אילחמלא אלאסלא תאבלטתמו נינאוץב מאזתלאלא אמ דדרתמלא ראיטלא תאלוחמו אילברמלא קיירח וא לטע יפ בבסטטי דץ ירשא תאלוחמו תאלבאלא יא מאדחטסא. מילסלא סבאלאו לטומוא מץ ח CSA וא UL לביק נמ אדמאמלא תאלבאלא מאדחטסא תאדמלא אילברמלא אזהאלל אלאסלא נונאק רזחי Supermicro לביק נמ אדדחמלא אילחמלא תאגתנמלא רייג ירשא תאדמא יא אמ (UL/CSA) אלאמלא לטחתיטלאו

### 전원 케이블 및 AC 어댑터

경고! 제품을 설치할 때 현지 코드 및 적절한 굵기의 코드와 플러그를 포함한 안전 요구 사항을 준수하여 제공되거나 지정된 연결 혹은 구매 케이블, 전원 케이블 및 AC 어댑터를 사용하십시오.

다른 케이블이나 어댑터를 사용하면 오작동이나 화재가 발생할 수 있습니다. 전기 용품 안전법은 UL 또는 CSA 인증 케이블 (코드에 UL / CSA가 표시된 케이블)을 Supermicro 가 지정한 제품 이외의 전기 장치에 사용하는 것을 금지합니다.

### Stroomkabel en AC-Adapter

Waarschuwing! Bij het aansluiten van het Product uitsluitend gebruik maken van de geleverde Kabels of een andere geschikte aan te schaffen Aansluitmethode, deze moet altijd voldoen aan de lokale voorschriften en veiligheidsnormen, inclusief de juiste kabeldikte en stekker. Het gebruik van niet geschikte Kabels en/of Adapters kan een storing of brand veroorzaken. Wetgeving voor Elektrische apparatuur en Materiaalveiligheid verbied het gebruik van UL of CSA -gecertificeerde Kabels (met UL/CSA in de code) voor elke andere toepassing dan de door Supermicro hiervoor beoogde Producten.

# Appendix B

## System Specifications

### Dimensions (HxWxD)

14" x 17.6" x 32" in. (356 x 447 x 813 mm)

### Address Defaults

CMM: IP Address: <https://192.168.100.100>, Gateway Address: 0.0.0.0, Subnet Mask: 255.255.255.0

GbE Switch: IP Address: <https://192.168.100.102>, Gateway Address: 192.168.100.1, Subnet Mask: 255.255.255.0

### Operating Environment

Operating Temperature: 0° to 50° C up to 5000m

Non-operating Temperature: -40° to 75° C up to 15200m

Operating Relative Humidity: 8% to 80% (non-condensing)

Non-operating Relative Humidity: 5% to 95% (non-condensing)

### Regulatory Compliance

FCC, ICES, CE, UKCA, VCCI, RCM, NRTL, CB

### Applied Directives Standards

EMC/EMI: 2014/30/EU (EMC Directive)

Electromagnetic Compatibility Regulations 2016

FCC Part 15 Subpart B

ICES-003

VCCI-CISPR 32

AS/NZS CISPR 32

BS/EN55032

BS/EN55035

CISPR32

CISPR 35

BS/EN 61000-3-2

BS/EN 61000-3-3

BS/EN 61000-4-2

BS/EN 61000-4-3

BS/EN 61000-4-4

BS/EN 61000-4-5

BS/EN 61000-4-6

BS/EN 61000-4-8

BS/EN 61000-4-11

Green Environment:

2011/65/EU (RoHS Directive)

EC 1907/2006 (REACH)

2012/19/EU (WEEE Directive)

Product Safety: 2014/35/EU (LVD Directive)

Electrical Equipment (Safety) Regulations 2016

UL/CSA 62368-1 (USA and Canada)

IEC/EN 62368-1

### Perchlorate Warning

California Best Management Practices Regulations for Perchlorate Materials: This Perchlorate warning applies only to products containing CR (Manganese Dioxide) Lithium coin cells. "Perchlorate Material-special handling may apply. See [www.dtsc.ca.gov/hazardouswaste/perchlorate](http://www.dtsc.ca.gov/hazardouswaste/perchlorate)"

## **General Data Center Environmental Specifications**

### Particulate contamination specifications

Air filtration: Data centers must be kept clean to Class 8 of ISO 14644-1 (ISO 2015). The air entering the data center should be filtered with a MERV 11 filter or better. The air within the data center should be continuously filtered with a MERV 8 filter or better.

Conductive dust: Air should be free fo conductive dust, zinc whiskers, or other conductive particles.

Corrosive dust: Air should be free of corrosive dust.

### Gaseous\* contamination specifications

Copper coupon corrosion rate: <300 Å/month per class G1 as defined by ANSI.ISA71.04-2013, reference by ASHRAE TC 9.9

Silver coupon corrosion rate: <200 Å/month per class G1 as defined by ANSI.ISA71.04-2013, reference by ASHRAE TC 9.9

\*If testing with silver or copper coupons results in values less that 200 Å/month or 300 Å/month, respectively, then operating up to 70% relative humidity (RH) is acceptable. If the testing shows corrosion levels exceed these limits, then catalyst-type pollutants are probably present and RH should be driven to 50% or lower.