



# SUPERBLADE 4U ENCLOSURES



USER'S MANUAL

Revision 2.0c

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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:  
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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 4U Enclosures provide power, cooling, management and network functions for multiple blade servers. They can house up to 14 one or two socket blades.

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

**Remote Management** – The Chassis Management Module (CMM) manages the enclosure and individual blades. Chapter 5 and a separate CMM manual provide instruction.

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

**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.

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

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

The following safety models associated with the SuperBlade 4U enclosure have been certified as compliant with UL or CSA: B414-22.

## 1.2 Models and Features

The enclosure houses up to 14 SuperBlade servers with one or two sockets. The maximum may vary depending on the CPU wattages. The enclosure also requires one CMM.

### Models

| 4U Enclosure Capabilities |                           |   |
|---------------------------|---------------------------|---|
| Model                     | Power Supplies            | Switch Options                                      |
| SBE-414J-422              | Four 2200W                | Two Ethernet switches with 1G/10G/25G speed support |
| SBE-414E-422              | Four 2200W                |   |
| SBE-414E-222              | Two 2200W (plus two fans) | Two Ethernet switches with 1G/10G speed support     |
| SBE-414E-220D             | Four 2000W DC             |   |



## Front View



Figure 1-1. SBE-414E Front View

| Front Features    |  |
|-------------------|--|
| Feature           | Description  |
| Status Indicators | Green: All blades, switch modules, CMM, power supplies, and fans are operating normally.<br>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  |

## Rear View

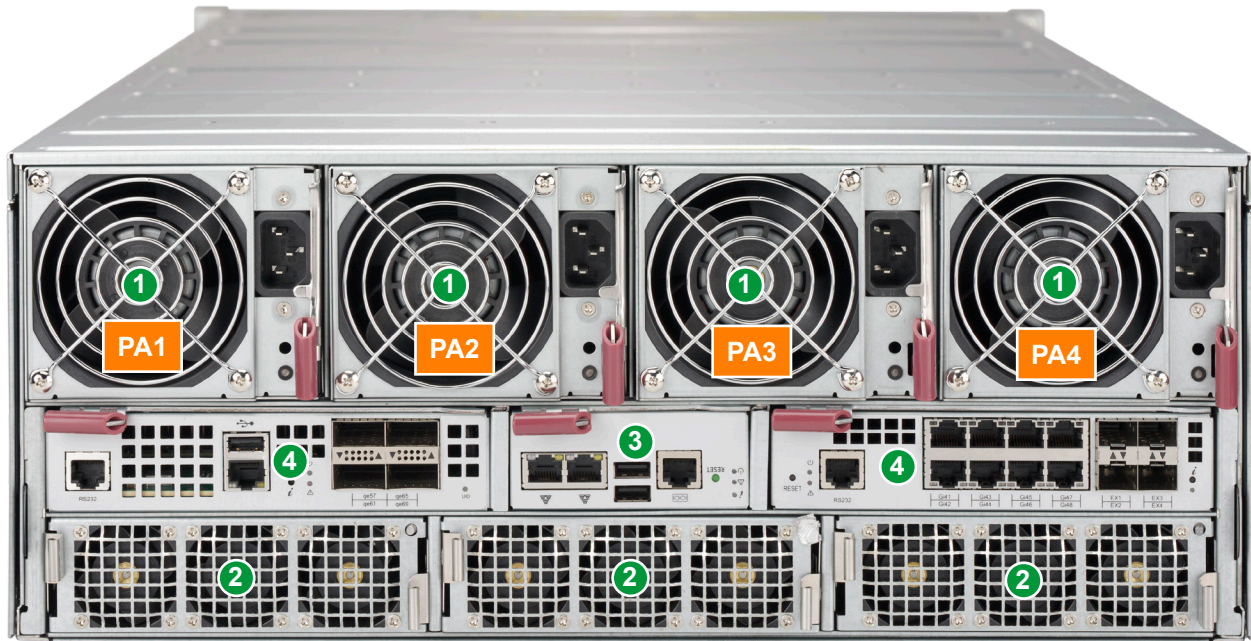


Figure 1-2. SBE-414E-422 Rear View

| Rear Features |   |
|---------------|---|
| Feature       | Description   |
| 1             | Four power supply modules with fans; for models with only two power supply modules, the outside two positions are filled with non-power supply fans |
| 2             | Nine auxiliary fans in three modules  |
| 3             | Chassis Management Module (CMM)   |
| 4             | Two switch modules  |

## 1.3 Switches

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

| Switch Modules |  |
|----------------|--|
| Model          | Description  |
| SBM-25G-100    | Marvell BobCat3 98CX8410 25GbE Low Latency Switch<br>20x 25G Ethernet downlink (backward compatible to 20x10G), 4x 100G/40G Ethernet uplinks, each can split into 4x 25G or 4x 10G uplinks with optional fan-out cables<br>1x Gigabit Ethernet uplink<br>one console port                |
| MBM-GEM-001*   | Intel FM5224 GbE Low Latency Switch<br>56x 2.5Gbps internal ports, 1Gbps RJ45, 2x 40Gbps QSFP or 8x 10Gbps SFP+ uplinks<br>one USB port, one Console port  |
| MBM-GEM-004    | Broadcom Switch<br>40x 1Gbps internal ports; 4x 10Gbps (SFP+) and 8x 1Gbps (RJ45) External Uplink Ports<br>VLAN, STP, 802.1AX, 802.1AB, 10GbE, one console port  |
| MBM-XEM-001*   | Intel FM6348 10GbE Low Latency Switch<br>4x 40Gbps QSFP uplinks, 56x 10Gbps or 1Gbps downlinks, one console port, one USB port   |
| MBM-XEM-002    | Broadcom Low Latency Switch<br>56x 10Gbps Internal Ports; 2x 40Gbps (QSFP+) and 4x 10 Gbps (SFP+) External Uplink<br>Ports VLAN, STP, 802.1AX, 802.1AB, one console port, one USB port   |
| MBM-XEM-002+   | Broadcom Low Latency Switch<br>56x 10Gbps Internal Ports; 2x 40Gbps (QSFP+) and 4x 10 Gbps (SFP+) External Uplink<br>Ports VLAN, STP, 802.1AX, 802.1AB, one console port, one USB port   |
| MBM-XEM-100    | Marvel BobCat3 Low Latency Switch<br>56x 10Gbps Internal Ports; 4x 100Gbps/40Gbps (QSFP28) and 1x 1Gbps (RJ45) External<br>Uplink Ports VLAN, STP, 802.1AX, 802.1AB, one console port  |
| SBM-25G-P10    | Supermicro Pass-thru Switch<br>20x 25G/10G Ethernet downlinks, 5x 100G Ethernet uplinks (each can split into 4x 25G or<br>4x 10G uplinks with optional fan-out cables) or 5x 40G Ethernet uplinks (each can split into<br>4x 10G uplinks with optional fan-out cables)<br>1 Console port |

\*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                | 414E | 414J |
| 25G Ethernet<br>SBM-25G-100  | na   | 2    |
| 1G Ethernet<br>MBM-GEM-001*  | 2    | 2    |
| 1G Ethernet<br>MBM-GEM-004   | 2    | 2    |
| 10G Ethernet<br>MBM-XEM-001* | 2    | 2    |
| 10G Ethernet<br>MBM-XEM-002  | 2    | 2    |
| 10G Ethernet<br>MBM-XEM-002+ | 2    | 2    |
| 10G Ethernet<br>MBM-XEM-100  | 2    | 2    |
| 25G Path-Thru<br>SBM-25G-P10 | 2    | 2    |

\*EOL

## Chapter 2

# Installation into a Rack

## 2.1 Overview

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

## 2.2 Unpacking the System

Inspect the box in which the enclosure was shipped, and note if it was damaged. If so, 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.
- 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 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.).



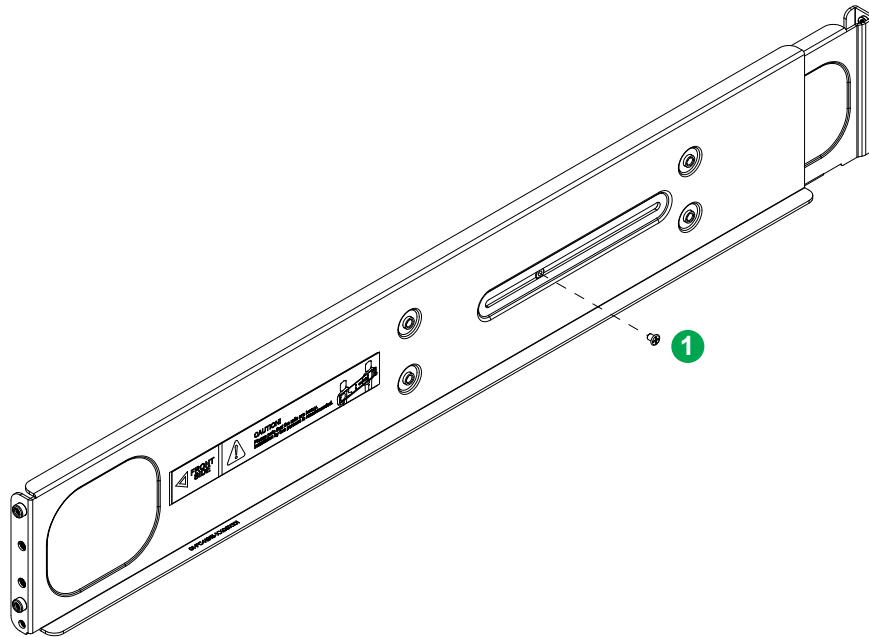
**Warning!** To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- 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.



## 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)

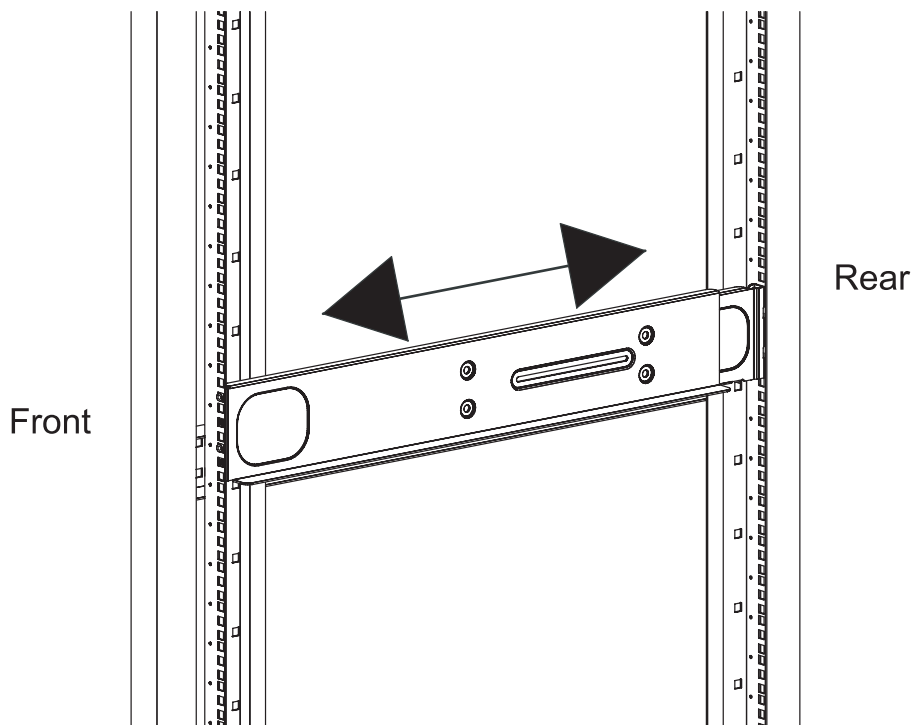
When installing the enclosure, remove all blades, power supplies, switches and management modules. Install these modules after the enclosure is mounted.

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.

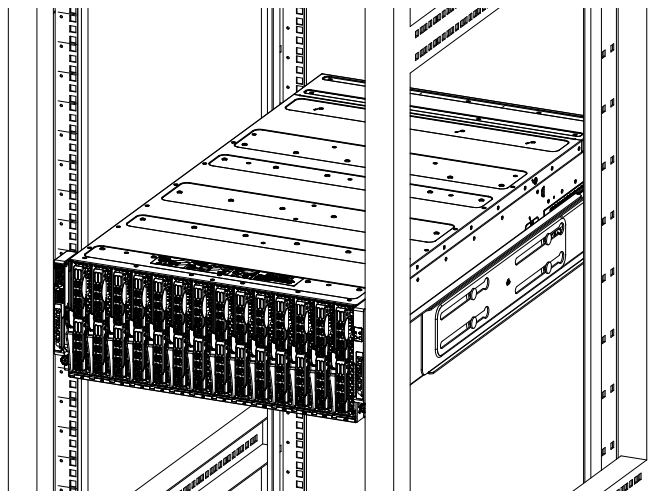
1. For each rail, sections are screwed together to keep them immobile during shipping. Release these screws just enough to allow the rails to slide apart.
2. Slide the rails apart far enough to match the depth of the rack. Note the arrow on the rail, which indicates the end that attaches to the front 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 .





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

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 2-4. Enclosure Installed**

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



**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.

## 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.

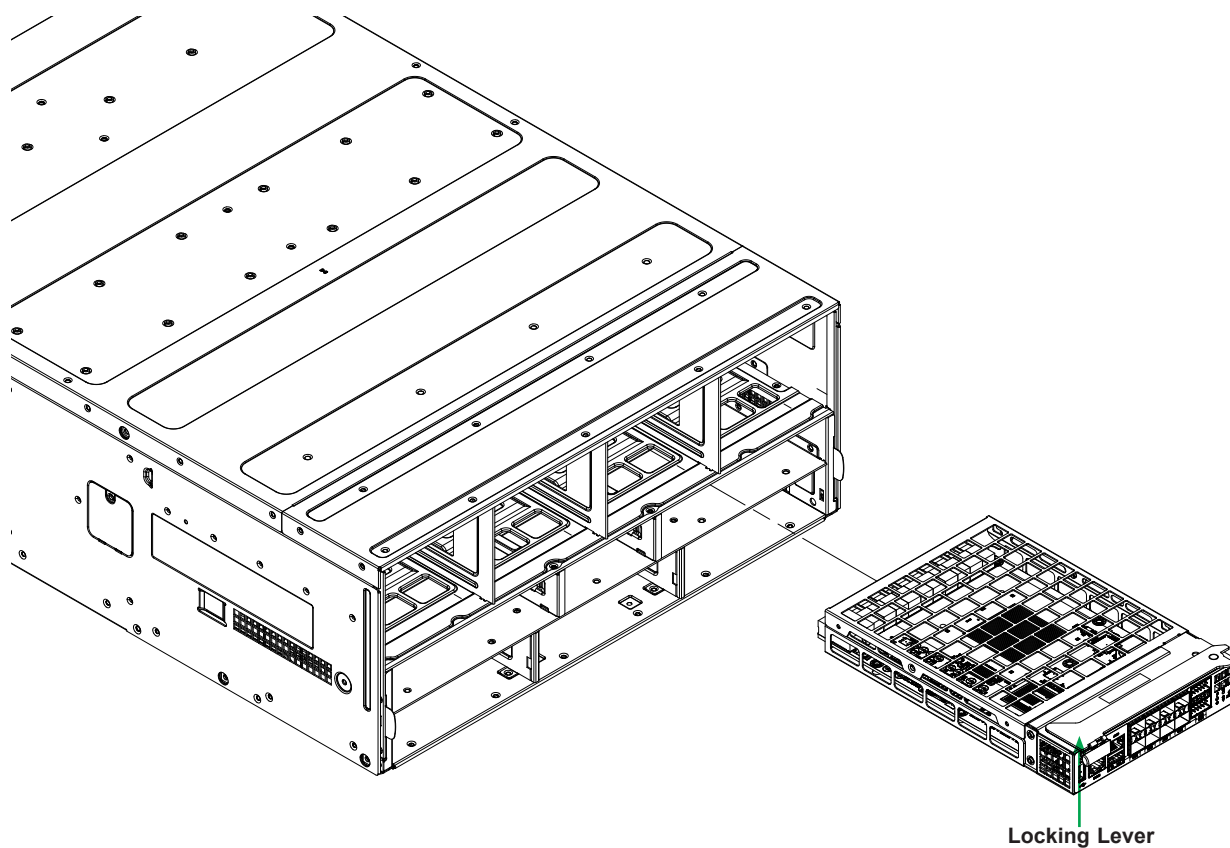


Figure 3-1. Installing a Switch

## 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.

Blades can be hot-plugged into the enclosure.

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



Figure 3-1. Installing a Blade into the Enclosure

### 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 SuperBlade system and check the packing list for damaged or missing components.
2. Mount the 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 ([Chapter 5](#)) 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.

## 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-2K21A-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.

Only the recommended power cord or an equivalent 14 gauge cord should be used. Typical C13/C14 cords are only 16 Gauge wiring and pose a fire hazard if substituted.

For details on the required power cord for your country, see the Supermicro web site at:

[www.supermicro.com/products/superblade/powersupply/powercord.cfm](http://www.supermicro.com/products/superblade/powersupply/powercord.cfm)

## 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.

If using fan-only modules (non-power) or BBPs, insert them in the two outside slots.

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.

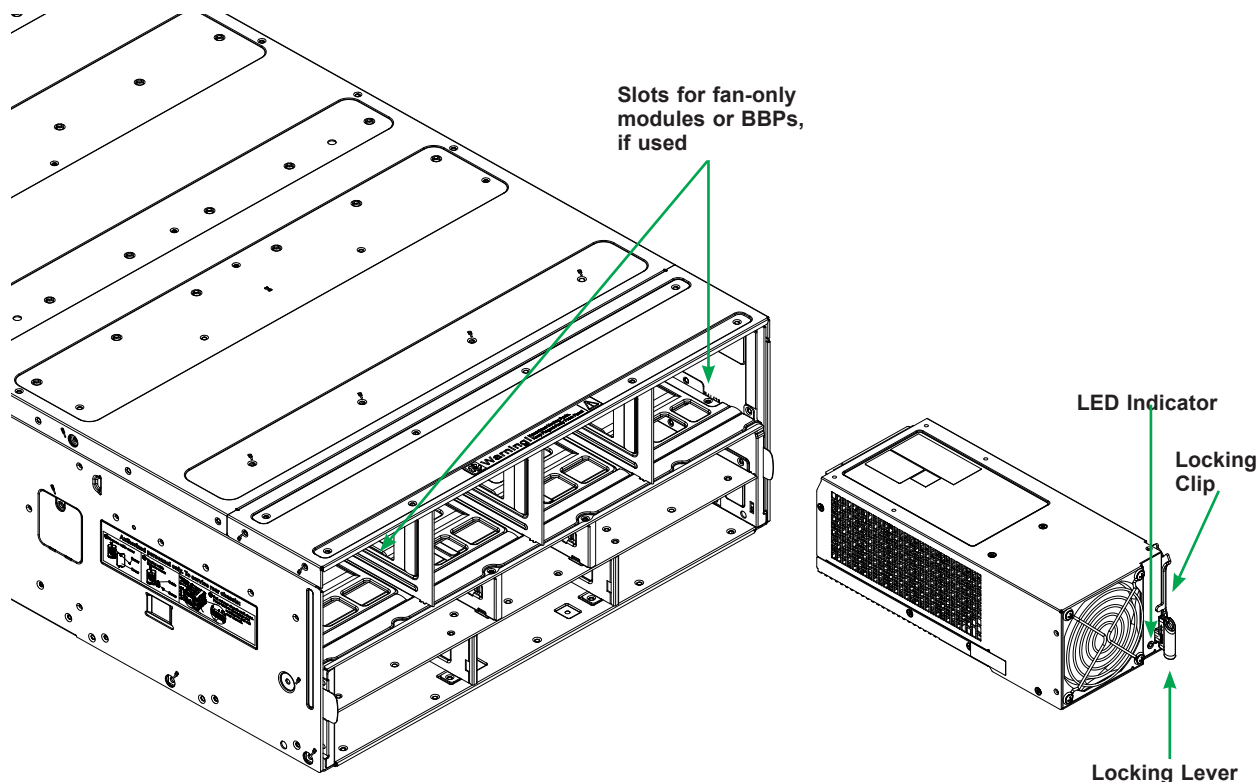


Figure 4-2. Installing a Power Supply Module

## 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

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.

## 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 nine smaller (4cm) fans in three modules of three fans each. To remove a fan module, pinch the two outside clips and pull.

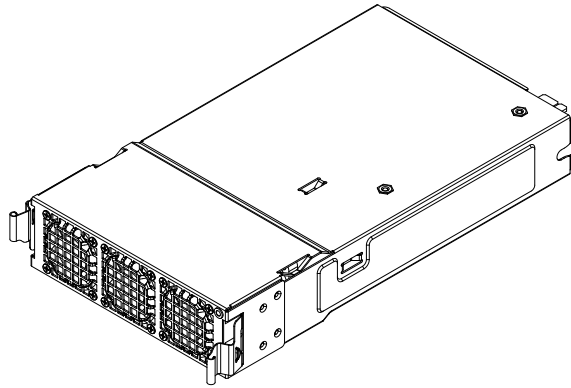


Figure 4-3. Auxiliary Fan Module

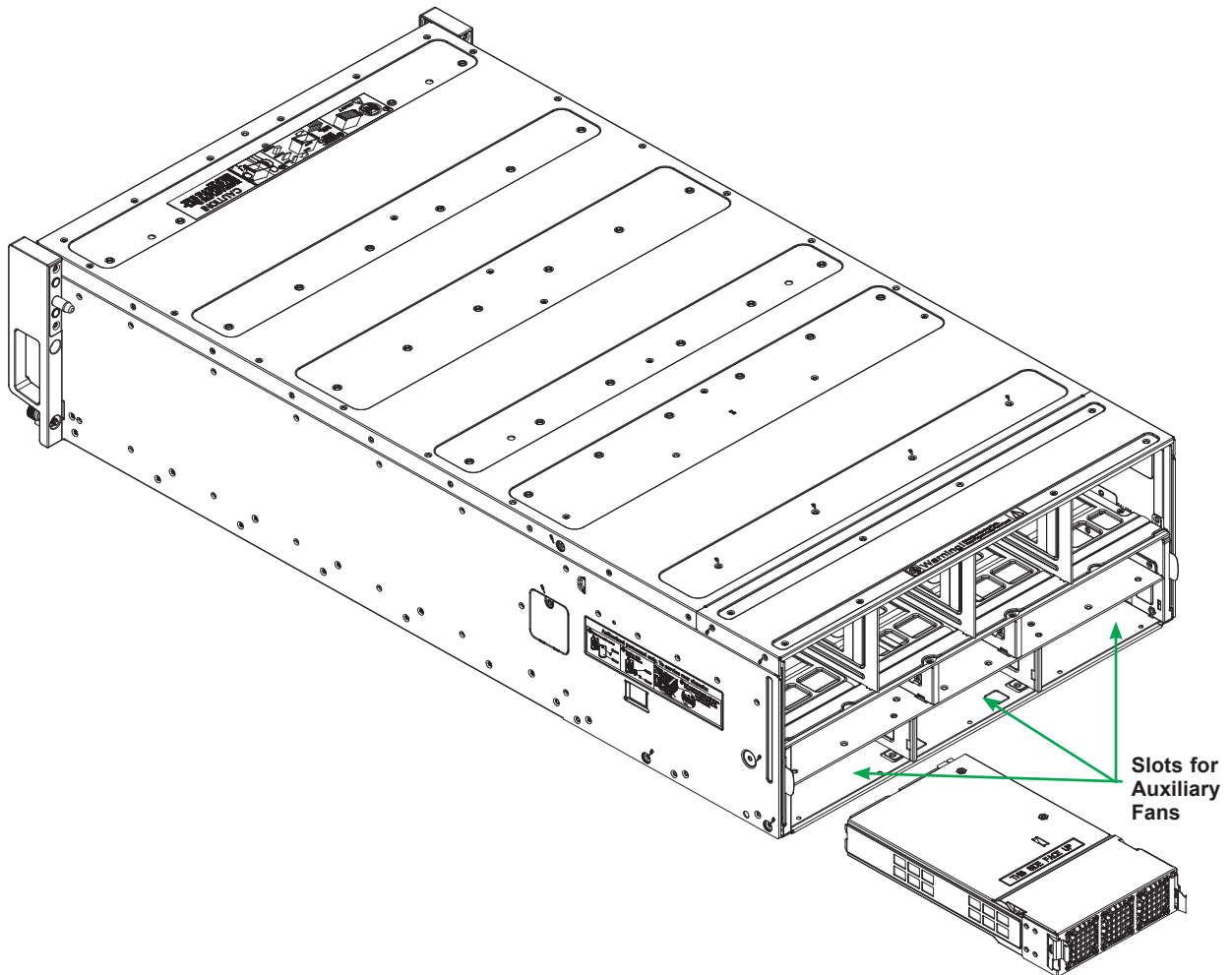


Figure 4-4. Installing Auxiliary Fans

## 4.6 Power Supply Specifications

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

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

| PWS-1K20B-BR BBP (EOL)                                       |  |
|--|--|
| Feature  | Description  |
| 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<br>(typical conditions with<br>four BBPs) | Load 1000W: 180 seconds<br>Load 2000W: 120 seconds<br>Load 3000W: 60 seconds<br>Load 4000W: 35 seconds<br>Load 4800W: 35 seconds |
| Cell Chemistry   | Lithium-Ion  |
| Cooling  | Internal 80 x 80-mm cooling fan  |
| Operating Temperature  | 5°C - 50°C   |

## Chapter 5

# 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. The standard CMM modules are MBM-CMM-FIO(-V).

### 5.1 Features

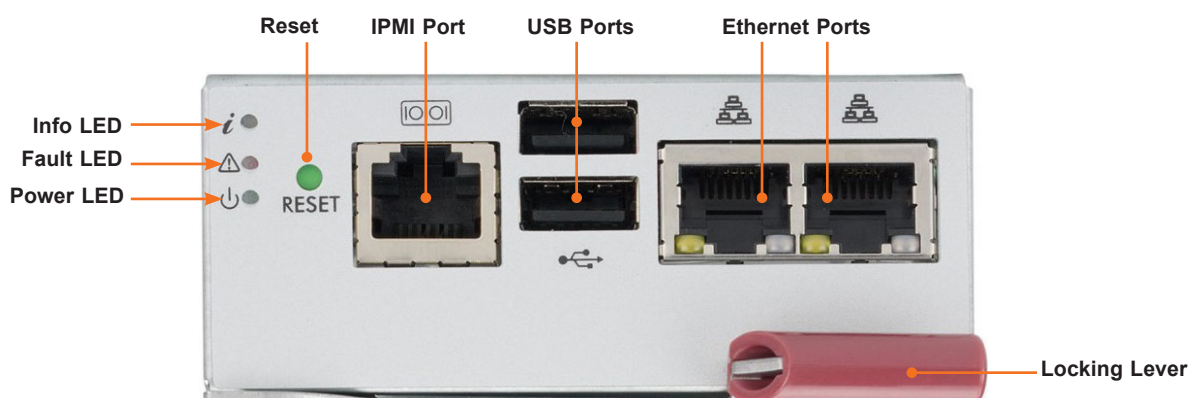


Figure 5-1. MBM-CMM-FIO Module Interface

| MBM-CMM-FIO               |   |
|---------------------------|---|
| Feature                   | Description   |
| Management Capabilities   | Can manage up to 14 blade units, network modules and eight power supplies   |
| Ports                     | Two Ethernet ports, one IPMI dedicated LAN and two USB ports (for debug only)   |
| Basic Functions Supported | Remote KVM, remote storage, Serial-over-LAN (SOL), blade monitoring and control, switch, PWS, monitor, thermal, redundancy in some enclosure models |
| System Management         | System management interface provided via dedicated LAN, switch, PWS, monitor, thermal, and redundancy in some enclosure models                      |
| Power Consumption         | Approximately 20W   |
| Operating System          | Firmware (upgradeable)  |

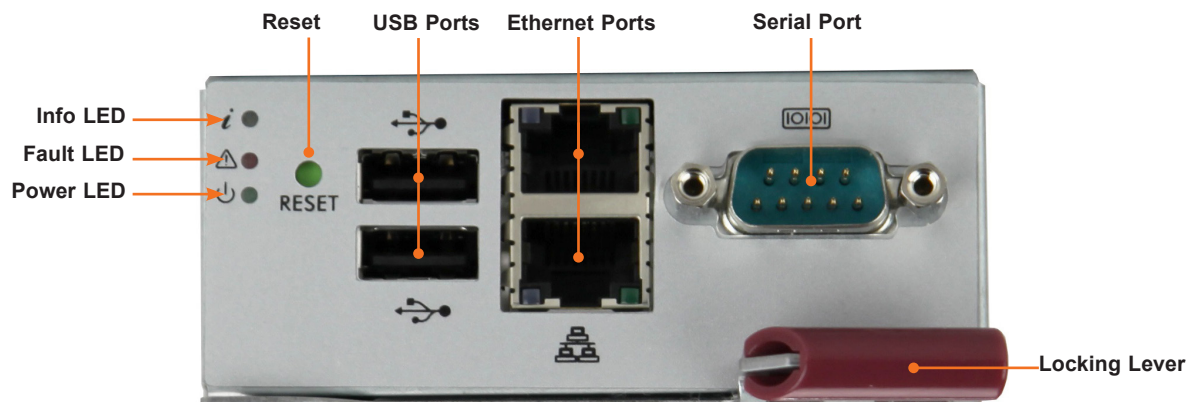


Figure 5-2. MBM-CMM-001 Module Interface (EOL)

| MBM-CMM-001 (EOL)         |   |
|---------------------------|---|
| Feature                   | Description   |
| Management Capabilities   | Can manage up to 14 blade units, network modules and four power supplies  |
| Ports                     | Two Ethernet ports, one serial port and two USB ports (for debug only)  |
| Basic Functions Supported | Remote KVM, remote storage, Serial-over-LAN (SOL), blade monitoring and control, switch, PWS, monitor, thermal, redundancy in some enclosure models |
| System Management         | System management interface provided via dedicated LAN, switch, PWS, monitor, thermal, and redundancy in some enclosure models                      |
| Power Consumption         | Approximately 20W   |
| Operating System          | Firmware (upgradeable)  |

| LED Status Indicators |                                |  |
|-----------------------|--------------------------------|--|
| LED                   | Color, Status                  | Description                                    |
| Power                 | Green                          | Power on                                       |
| Fault                 | Red                            | Fatal error, including power supply or thermal |
| Information           | Blue, solid                    | UID activated                                  |
|                       | Blue, blinking faster than 1Hz | Firmware updating                              |
|                       | Blue, blinking 1Hz             | Indicator for active Master CMM                |

## 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

A blade system must have at least one CMM. It may have two for redundancy. This is offered only on specific enclosure models where the backplane is capable of supporting two CMMs. 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. CMM modules can only be installed in the upper or lower right module bays.

### *Determining Master/Slave Modules Status*

When a blade system has two CMM modules, they are assigned a master/slave status. This is done automatically with the default primary CMM specified for each enclosure.

If the master CMM is powered down or reset by the user, the second (slave) CMM module will then immediately be assigned as the master. The slave uses the previous master IP config in case of failover.

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

**Note:** The Slave CMM keeps the same log/status as the Master CMM and uses the previous master IP config.

## 5.2 Installation

Use this procedure to install the CMM module to the SuperBlade enclosure. Make sure the cover to the module has been installed before proceeding. Follow the anti-static precautions.

### *Installing the Module*

1. Remove the dummy cover from the bay in which you want to place the module.
2. Place the module locking lever in the open position.
3. Slide the module into the module bay until it stops.
4. Push the locking lever to the closed position.

After the module has been installed and the handle locked, it will turn on and a POST test will run to verify it is working properly.

**Removing the Module:**

1. Pull out the release handle to the open position.
2. Pull the module out of the bay.
3. Replace immediately with another module or with a dummy module cover to maintain airflow integrity.

## 5.3 Configuring the CMM

To access and configure the CMM, first configure the IP settings of the CMM depending on your network environment. The below procedure for this configuration just serves as a reference for getting the CMM setup. If your system has Linux OS, please follow similar instructions to get the CMM setup.

The CMM access topology is as follows:

**DHCP Access:** Connect a network cable to the CMM module.

- The system should boot into the default Fail Over mode. The DHCP mode will appear on the CLI mode screen.
- If the system failover and CLI is not active, it will proceed to the default IP access.
- If the CMM cannot enter the default IP, then an RJ45/USB cable can be connected from the CMM RJ45 Ethernet LAN Port to the Desktop Host using the USB Port in Serial Port mode with a speed set at 115200. The DHCP IP can be manually set at the same subnet-mask for gateway access at 192.168.100.100.

**Default IP Access:**

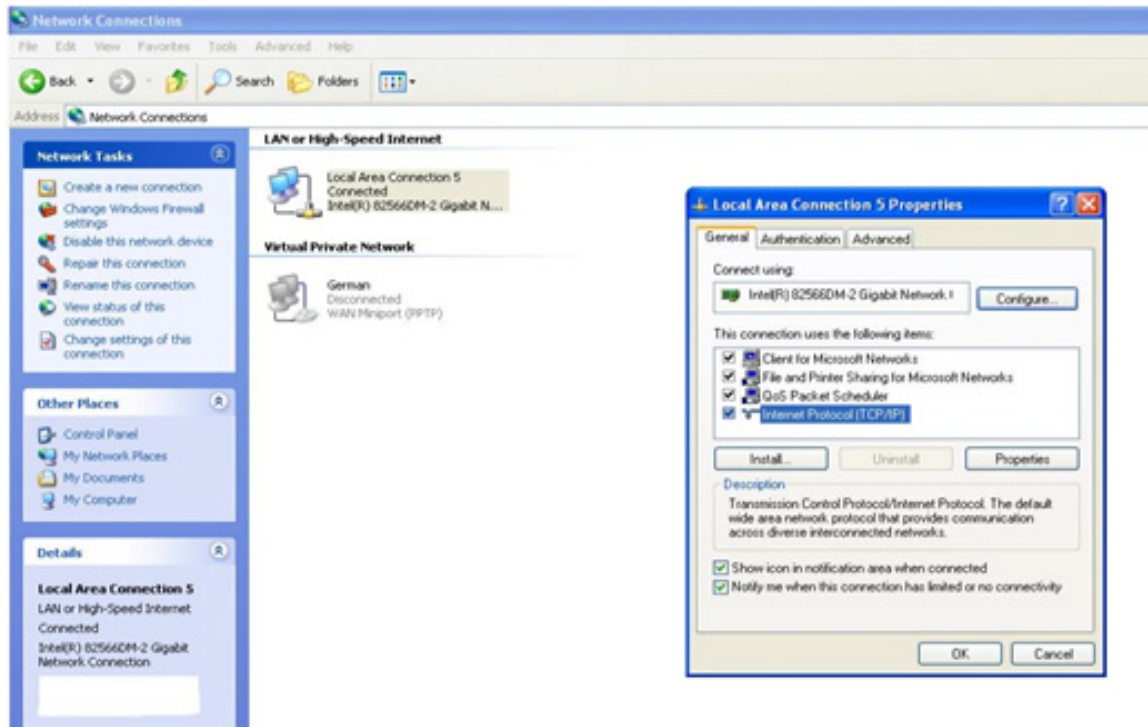
The requirements are a computer with an RJ45 port and an ethernet cable.

1. Connect network cable to the network port at CMM. The default IP of the CMM is `https://192.168.100.100`.
2. Configure the connected computer to the same address range, such as `https://192.168.100.101`. The default mode is the Fail Over mode. If the DHCP fails, then the CMM will automatically default to the IP address of the CMM.



## Configuring the CMM in Windows OS:

1. Go to **Start > Control Panel > Network Connections**.
2. Right-click on **LAN** to **View Properties**.
3. On the **General** tab page, choose “Internet Protocol (TCP/IP)” and click **Properties**.



**Figure 5-3. Configuring CMM, Choose Protocol**

4. Manually configure the IP address of the computer system to be in the same address range as the CMM (see Figure 5-4).

Example:

IP address: https://192.168.100.101

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.100.1

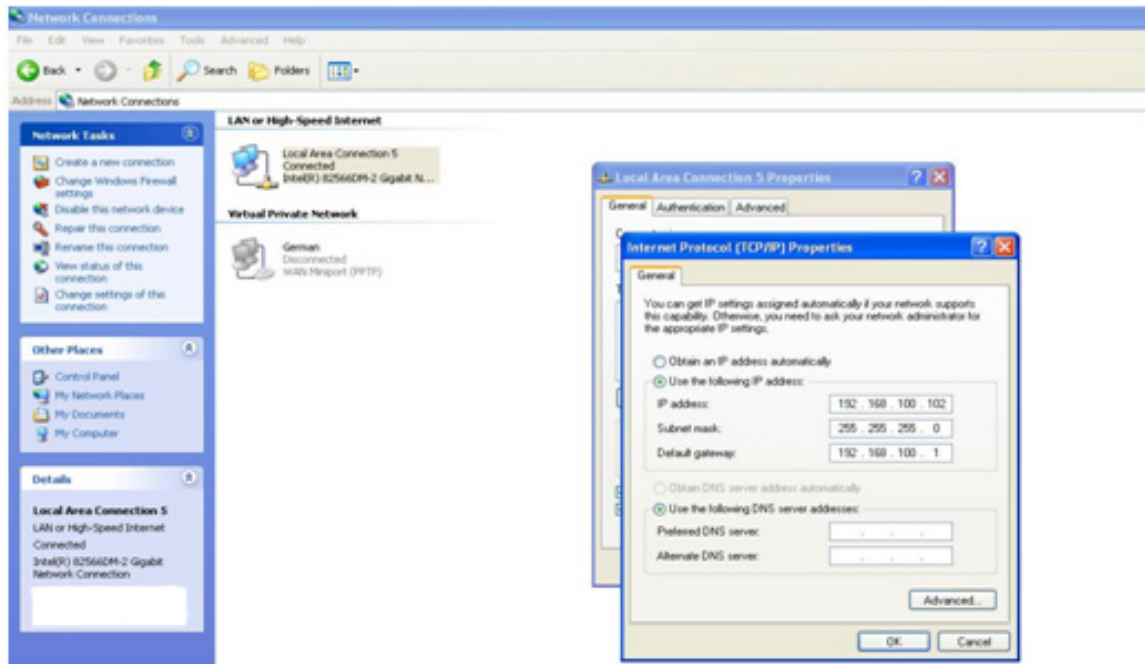


Figure 5-4. Configuring CMM, Choose Protocol

Once the IP address for the computer system is configured, the CMM can be accessed through the web browser by entering the default IP address 192.168.100.100 of the CMM into the browser's address bar.

Now, the IP address, subnet mask and default gateway of the CMM can be changed according to the network environment. Refer to the Web-based Management Utility User's Manual for more information.

**CMM Network**

This page you can view and modify the network settings. Select whether to obtain an IP address automatically or manually configure one.

MAC Address:

Hostname:

Obtain an IP address automatically (use DHCP mode)  
 Use the following IP address (use Static mode)  
 Use the following IP address when DHCP fails (use Static mode when DHCP fails)

**IPv4 Setting**

IP Address:

Subnet Mask:

Gateway:

DNS Server IP:

**IPv4 Setting when DHCP fails**

IP Address:

Subnet Mask:

Figure 5-5. Configuring CMM, Changing Settings

**Caution:** Do not change any other setting, unless you are familiar with it.

**Note:** The above screens are examples for purposes of demonstrating this procedure. The screens you actually view may or may not appear the same as those shown above.

## 5.4 CMM Functions

The following sections describe local functions and remote functions of the CMM. With only minor exceptions, all of the remote functions can be performed by one of three mechanisms: web-based access to the CMM module, access to the CMM using *IPMIview*, a client tool implemented in Java, or via *IPMITool* commands (DOS commands or shell scripted commands).

When the web based browser is used, the CMM acts as a web server, requiring a higher bandwidth connection to the CMM. If there are any bandwidth constraints, IPMI will provide a superior experience. Additionally, since graphical updates are provided by client-side Java, IPMIview can also be a superior user experience.

*IPMITool*, on the other hand, can provide the ability to issue similar or identical commands to many SuperBlade enclosures/CMM to manage all of them in a similar way.

### Remote KVM over IP

Remote KVM over IP is independent from local KVM (although local KVM can operate in parallel with Remote KVM). Remote KVM encrypts all communication between the remote user and the CMM.

**To Use:** Remote KVM over IP is initiated with the management software (IPMI View or Web-based utility). Attach the LAN cable to the LAN port on the CMM module then refer to "Web-based Management Utility" on page 4-13 to login and use either utility.

### Remote Storage (Virtual Media)

The Remote Storage function allows the user to connect to a remote storage device (such as a floppy, hard disk, or USB storage device) and access the device as if it were local. This can be used not only to read and write to remote storage devices but to load an operating system from a remote drive.

### Serial Over LAN (SOL)

Serial Over LAN allows you to redirect the input and output of a serial port via IPMI in order to manage blade modules from a remote location.

**To Use:** Serial Over LAN can be activated via the Web-based Management utility. See the Web-based Management Utility User's Manual for the procedure to initiate SOL.

## Monitoring Functions

Used in conjunction with IPMI or the Web-based Management utility, the CMM module can monitor and provide information on the hardware health of the blade modules and the system as a whole. In addition to the monitoring functions, you can remotely power on, power off or reboot a system.

Health information includes:

- Temperature levels
- Fan speeds
- Voltage levels
- Power status

## Power Consumption Management

The CMM module firmware can also control all power on/off activity in the whole blade system. This is done by using the Power button, onboard BMC or from any other use of remote management software.

Once a blade module is installed in the enclosure the installed CMM immediately receives information on the rated Max Power Consumption value of the new blade module. The CMM then calculates whether there is enough power for this new blade module by comparing the Max Power Consumption value of the new blade module with the calculated Remaining Power value of the system.

If there is enough power, the CMM will power on the blade. However if there is not enough power in the blade system, then the new blade module is not powered on and the front panel LED on the enclosure will blink.

After the blade is powered on, the CMM then collects the actual power consumption of this individual blade and updates the calculated Remaining Power value for the system.

The CMM also reserves power for all the networking and chassis management modules installed on the system.

**Caution:** One CMM module must be running to control the power systems and prevent overloading.

## 5.5 Reset Button

To reset, push the reset button for one minute until the blue led flashes (quick flash), then release the button. The CMM is reset to default values:

IP Address -> 192.168.100.100

Gateway Address -> 0.0.0.0

Subnet Mask -> 255.255.255.0

## 5.6 USB Ports

The USB ports are only used for debugging purposes and not for communication with your system.

## 5.7 Firmware

The firmware for the CMM switch resides in the module. This firmware can be updated with the web-based management utility.

Within the utility, go to the **Maintenance > Update Firmware** screen. Here you can enter the name of the firmware you want to update or click **Browse** to select the firmware file. Finish by clicking the **Upload** button.

**Note:** This process is not reversible once the firmware is updated, so proceed with caution. It might take a few minutes to complete this procedure.

## 5.8 Web-based Management Utility

System management may be performed with either of three software packages: *IPMIview*, *SMCIPMITool* or a Web-based Management Utility. Any of these utilities are designed to provide an administrator with a comprehensive set of functions and monitored data to keep tabs on the system and perform management activities.

The Web-based Management Utility is a web-based interface that consolidates and simplifies system management for Supermicro SuperBlade systems. The Web-based Management Utility aggregates and displays data from the CMM module.

The Web-based Management Utility provides the following key management features:

- Enables IT administrators to view in-depth hardware configuration and status information using a single intuitive interface.
- Provides an OS-independent, remote graphical console.
- Allows remote users to map local media (floppy, removable disks and hard drives) or ISO images on a shared network drive to a blade server.

### Supported Browsers

The following browsers have been tested for use with the Web-based Management Utility. It is recommended that you use the most current revision of the browser you choose. The minimum browser revisions supported by the Web-based Management Utility are shown below:

Internet Explorer 7

Firefox 2.0.0.7

Netscape 9.03b

## Network Connection/Login

To log into the Web-based Management Utility:

1. Launch a web browser.
2. In the address field of the browser, enter the IP address that you assigned to the system and hit the <Enter> key.
3. When the browser makes contact with the CMM, enter your user name and password, then click **Login**. The Web-based Management Utility Home Page will then display as shown below.

**Note:** Supermicro ships standard products with a unique password for the BMC ADMIN user. This password can be found on a label on the motherboard. For more information, please refer to our website at [https://www.supermicro.com/en/support/BMC\\_Unique\\_Password](https://www.supermicro.com/en/support/BMC_Unique_Password) and [https://www.supermicro.com/support/BMC\\_Unique\\_Password\\_Guide.pdf](https://www.supermicro.com/support/BMC_Unique_Password_Guide.pdf) for further information.

## Address Defaults

The CMM default addresses are:

IP Address – Reset to <https://192.168.100.100>

Gateway Address – Reset to 0.0.0.0

Subnet Mask – Reset to 255.255.255.0

The address can be changed using the Web-based Management Utility.

## Home Page

The screenshot displays the CMM Web-based Management Utility interface. At the top, there is a navigation bar with tabs for Power Off, Power On, Power Cycle, Power Reset, Graceful Shutdown, AC Cycle, PwrFail Policy, Pwr Capping, ACllost Policy, and Refresh. Below this, the main content area is divided into two sections: Blade Status and Node Status and Control.

**Blade Status:** A table listing blades from Blade A1 to Blade B10. Each row includes a checkbox, the blade name, model, and power status (On/Off). Blades A2, A3, and A4 are shown as 'On'.

**Node Status and Control:** A detailed view for 'Blade A2 Node 1'. It includes a 'Hide >>>' button and several tabs: Summary, Sensor Reading, Network Config, Event Log, System Event Log, FRU Information, Date & Time, and Power. The main area contains a table of system parameters and their current values, along with control buttons.

|                   |   |   |
|-------------------|---|---|
| Location:         | Blade A2 Node 1                                 |   |
| Board Model:      | B11DPT  |   |
| Product Model:    |   |   |
| Blade Max Pwr:    | 544   |   |
| Blade Curr Power: | 86  |   |
| Error:            | Normal  |   |
| Post Code:        | 00  |   |
| BMC Version:      | 3.24  |   |
| CPLD Version:     | 02.b3.97  |   |
| BMC IP Addr:      | <a href="https://172.31.38.95">172.31.38.95</a> | BMC Reset   BMC Reset To Default                            |
| KVM:              | Not Launched                                    | KVM Launch  |
| VM:               |   | VM Launch   |
| SOL:              |   | SOL Launch  |
| Blade UID:        | Off   | UID Off   UID On  |
| Name:             |   | Save Name   |
| PwrFail Policy:   | Throttle  | Save PwrFail Policy   |
| Pwr Status:       | On  | Power Off   Power On   Reset   Power Cycle   Graceful Shutd |

Figure 5-6. Configuring CMM, Web-based Utility



## Chapter 6

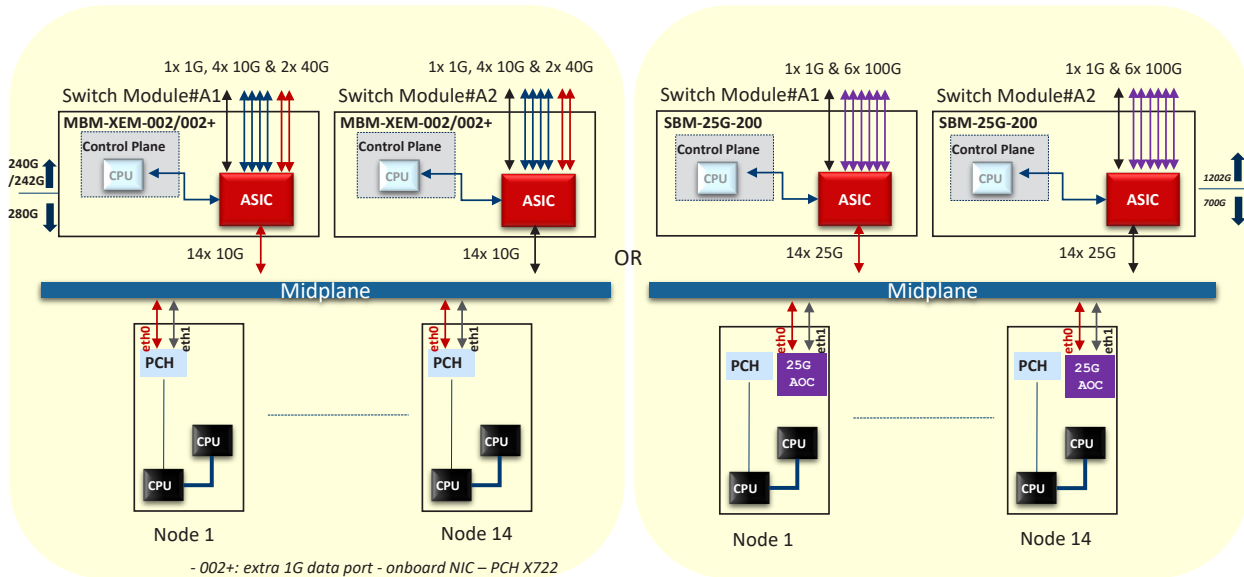
### Data Plane

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

#### 6.1 414J Enclosure



## SuperBlade Switch Data Plane – 2x Switch (414J)



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

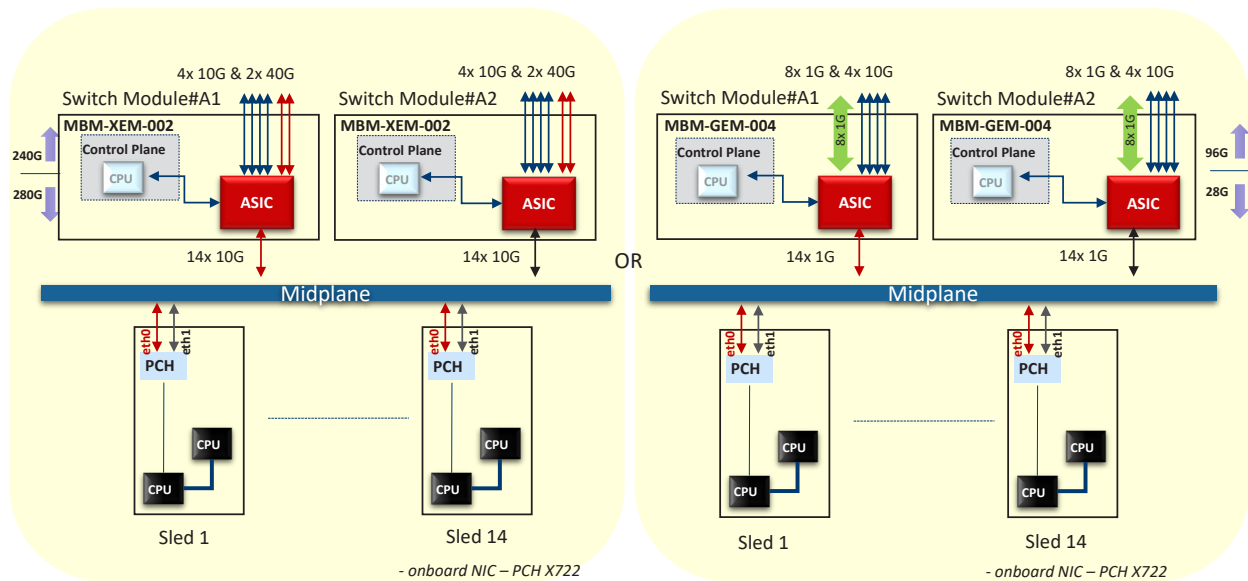
| Port Mapping to Switch or Pass-Thru Module |             |      |
|--|-------------|------|
| NIC Port Label                             | Arrow Color | Slot |
| eth0                                       | Red         | A1   |
| eth1                                       | Black       | A2   |



## 6.2 414E Enclosure



### SuperBlade Switch Data Plane – 2x Switch (614E/414E)



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

| Port Mapping to Switch or Pass-Thru Module |             |      |
|--|-------------|------|
| NIC Port Label                             | Arrow Color | Slot |
| eth0                                       | Red         | A1   |
| eth1                                       | Black       | A2   |

## 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 النقااِة لو عُ وقع اَي حادث  
 استخدم رقن الب اِى 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.

اقرأ 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-250VDC, 20A

هذا المنتج يعتمد على معدات الحماية مه 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 انداخييت 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，背板上有危險的電壓或能量，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

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**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 adapters. Using any other cables and adapters 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 מיי למשח מילבכ

!הרהזא

ךרוצל ומאתוה וא ושכרנ רשא AC מיימאתמו 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 נינאווקב מאזתלאלא אג דדרתמלא ראיטלא תאלוחמו אילברמלא אילי. וא לטע יפ בבסטטי דץ אירחא תאלוחמו תאלבאלא יא מאדחטסא. מילסלא סבאלאו לטומוא מץ ח. CSA וא UL לביק נמ אדמאמלא תאלבאלא מאדחטסא תאדעמלא אילברמלא אזהאלל אלאסלא נונאק רזחיי Supermicro לביק נמ אדדחמלא אילינעמלא תאגתנמלא רייג אירחא תאדעמ יא אג (UL/CSA) אלאע למחתי אילאו

### 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)

7" x 17.6" x 32" in. (178 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

CISPR 24/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.