# SuperServer®
7088B-TR4FT

USER'S MANUAL

Revision 1.0

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Manual Revision 1.0

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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 SuperServer 7088B-TR4FT. Installation and maintenance should be performed by experienced technicians only.

Please refer to the 7088B-TR4FT server specifications page on our website for updates on supported memory, processors and operating systems (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: http://www.supermicro.com/support/manuals/

- Product drivers and utilities: ftp://ftp.supermicro.com

- Product safety info: http://www.supermicro.com/about/policies/safety_information.cfm

If you have any questions, please contact our support team at:
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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

This chapter provides a brief outline of the functions and features of the 7088B-TR4FT. The 7088B-TR4FT is an 7U 8-way server based on the X10OBi board family and the SC718TQC-R4800 chassis.

In additon to the chassis, several important parts that are included with the system are listed below.

Main Parts List		
Description	**Part Number**	**Quantity**
Heatsink (passive)	SNK-P0047PS	8
SIOM 4-port 10GBase-T, X550-AT2 in PCH module	AOC-MTG-I4TM-P	1
SAS/SATA Backplane in Storage Module	BPN-SAS3-718TQ	2
Storage Board in Storage Module (HDD board)	AOM-X10OBi-HDD	2
PCH/BMC Board in PCH Module (PCH Board)	AOM-X10OBi-PCH	1
PCI-E Slot Board in PCIE Module (PCIE Board)	AOM-X10OBi-PCIE	5
CPU/MEM Board in CPU Module (CPU Board)	AOM-X10OBi-CPU	8
Midplane in Enclosure	BPN-X10OBi	1
Front Control Board in Storage Module	MCP-280-KVM1	2

1.2 Unpacking the System

Inspect the box the SuperServer 7088B-TR4FT was shipped in and note if it was damaged in any way. If any equipment appears damaged, please file a damage claim with the carrier who delivered it.

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 B.

1.3 System Specifications

The following table provides you with an overview of the main features and specifications of the 7088B-TR4FT. Please refer to Appendix C for additional specifications.

System Specifications
Motherboard
CPU Board
Chassis
SC718TQC-R4800
CPU
Intel® EX Xeon E7-8800 v3/v4 series
Socket Type
FCLGA2011
Memory
192 DIMM slots (24 per CPU module) to support up to 24 TB of ECC DDR4-2400/2133/1866/1600/1333 3DS LRDIMM memory (1866 MHz is max. speed)
Chipset
Intel C602J chipset
Expansion Slots
PCI-E Modules: Five FHHL* PCI Express 3.0 x8 cards in x16 slots (in hot-plug modules, requires OS support) CPU Modules: Eight FHFL* PCI Express 3.0 x16 cards with riser card installed *FHHL = full-height, half-length FHFL = full-height, full-length
Hard Drives
Chassis Storage Modules (2): Default setup is two hot-swap 2.5" SATA HDDs with optional RAID cards. Total capacity is twelve hot-swap 2.5" HDDs and six 3.5" or twenty 2.5" fixed HDDs
Power
Five 1600W Titanium Level power supplies
Form Factor
7U rackmount
Dimensions
(WxHxD) 17.63 x 12.2 x 28.87 in. / 310 x 448 x 733 cm

1.4 Server Chassis Features

Control Panel/CPU Module Indicators

The switches and LEDs located on the control panel are described below.
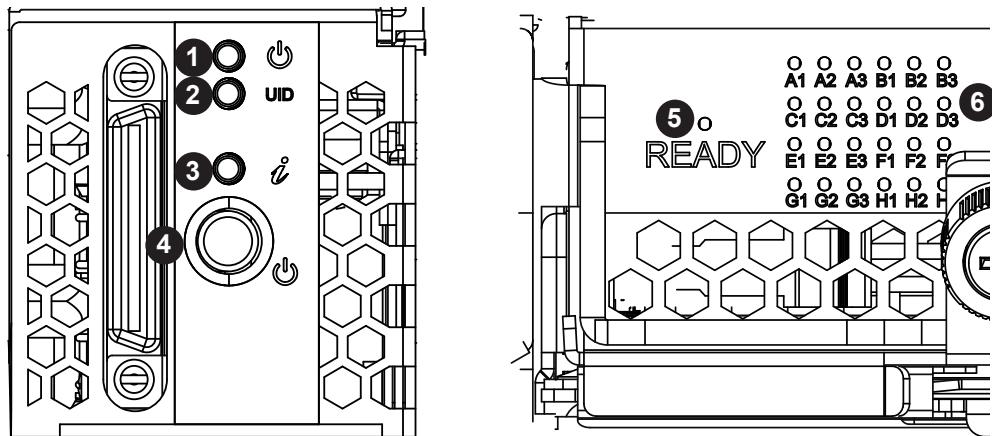
Figure 1-1. Control Panel

Control Panel/CPU Module Indicators		
Item	**Feature**	**Description**
1	Power LED	Indicates power is being supplied to the system power supply. This LED is green when the system is operating and amber when in standby mode.
2	UID LED	Unit Identifier LED. This LED is solid blue when local UID has been activated and blinking blue when activated remotely.
3	Information LED	See table below.
4	Power Button	Used to apply or remove power to the system. Turning off system power with this button removes the main power but maintains standby power. To perform most maintenance tasks, you should also unplug the AC power cords before servicing.
5	CPU Module Connection LED	When illuminated, this green LED indicates a CPU module is properly installed and functioning.
6	Memory Error LEDs	This array of LEDs is provided to indicate a memory slot on the CPU board that has failed. If illuminated red, the designations (A1, A2, etc.) correspond to the failed slot on the CPU board.

Information LED	
Status	**Description**
Continuously on and red	An overheat condition has occured. (This may be caused by cable congestion.)
Blinking red (1Hz or 1/sec.)	Fan failure, check for an inoperative fan.
Blinking red (.25Hz or 4/sec.)	Indicates a power supply module has failed.

Front Features

The SC718TQC-R4800 is a 7U chassis. See the illustration below for the features included on the front of the chassis.
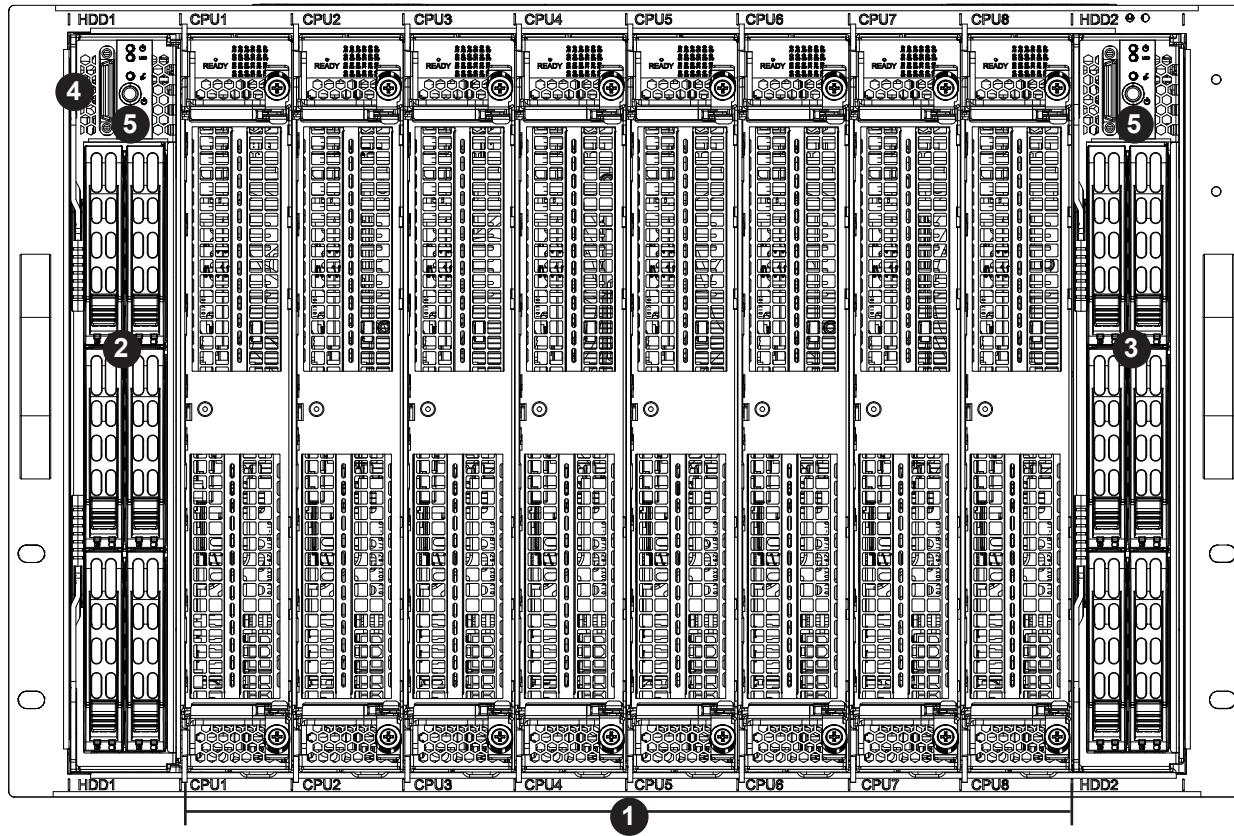
Figure 1-2. Chassis Front View

Front Chassis Features		
Item	**Feature**	**Description**
1	CPU Modules	Eight CPU modules (designated CPU1-CPU8)
2	Primary Storage Module	Storage module for 6x 2.5" hot-swap HDDs and optional fixed HDDs
3	Secondary Storage Module	Storage module for 6x 2.5" hot-swap HDDs and optional fixed HDDs
4	I/O Ports	I/O panel with VGA, COM and 2x USB ports in KVM port (through primary storage module only)
5	Control Panel	Control panel with LEDs and buttons (see preceding page)

Rear Features

The illustration below shows the features included on the rear of the chassis.
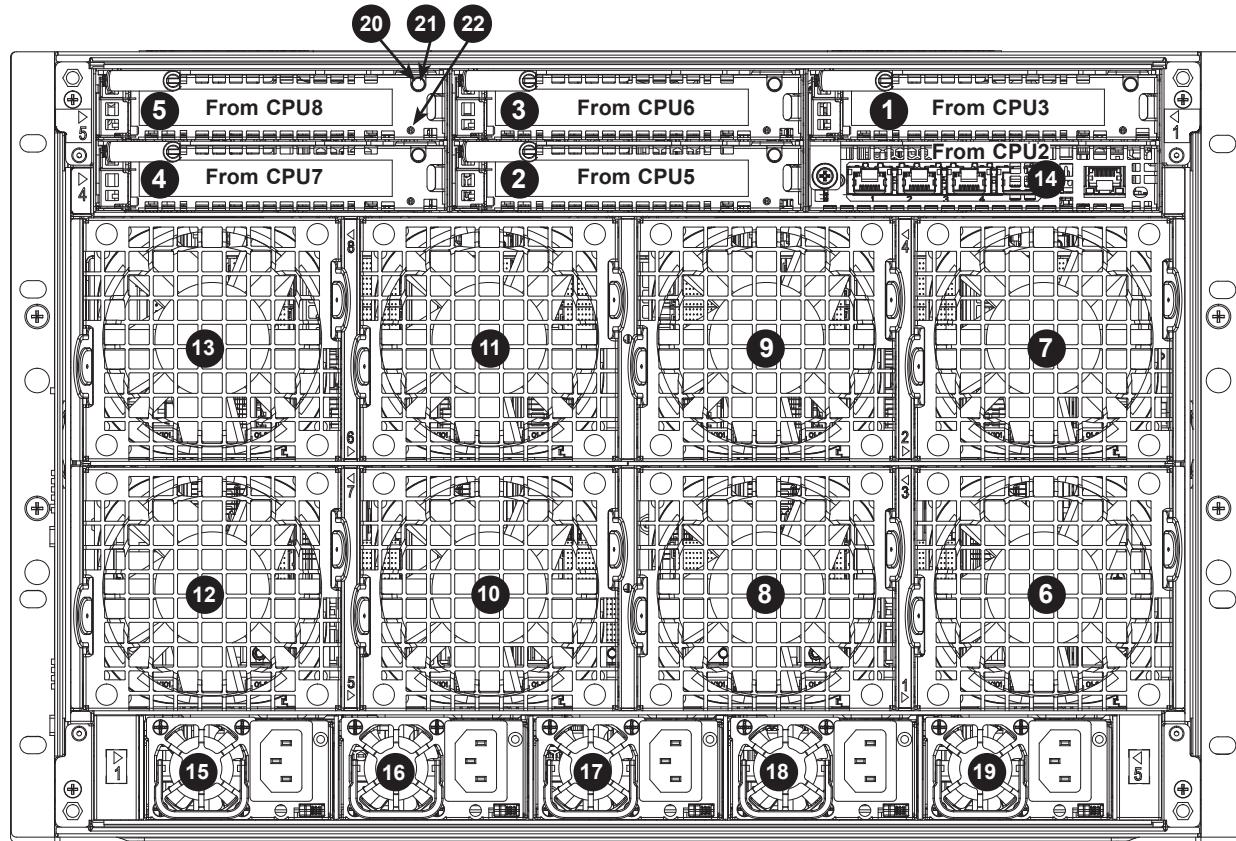
Figure 1-3. Chassis Rear View

Rear Chassis Features		
Item	**Feature**	**Description**
1-5	PCIE Modules	Hot-plug* PCIE modules 1 through 5 (#1 = PCIE module 1, etc.)
6-13	Hot-swap Fans	9-cm counter-rotating fans (#6 = FAN1, etc.)
14	Rear I/O Module	SIOM module: 4x 10G LAN ports and 1x IPMI port
15-19	Power Supplies	5x Titanium Level 1600W power supplies (#15 = PS1, etc.)
20	Attention Button	Used to remove or apply power to the PCIE module
21	PCIE Power LED	Green LED indicating power is present on the PCIE module.
22	Attention LED	Amber LED indicating an operational problem on the PCIE module.

*Must be supported by the OS.

Note: the numbers embedded in Figure 1-3 refer to the logical number of the individual modules (e.g. Fan7, Power Supply1, etc.).

1.5 CPU Board Layout

Below is a layout of the CPU Board with connector locations shown. See the table below for descriptions.
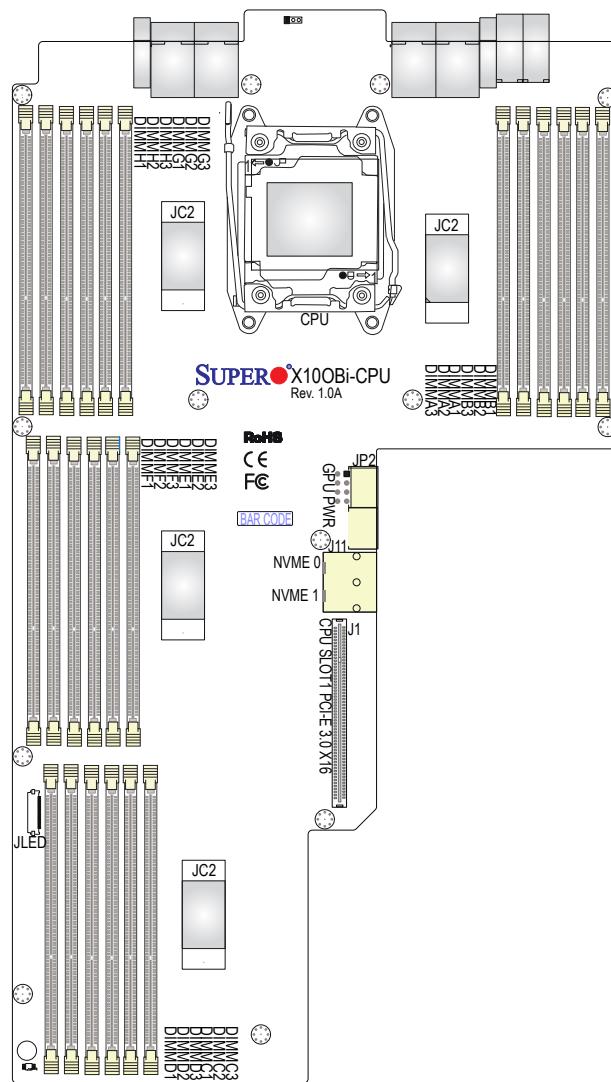
Figure 1-4. CPU Board Layout

CPU Board Quick Reference Table

Connector	Description
GPU PWR	Power connectors for GPU or (optional) NVMe module
NVMe Connectors	Connectors for NVMe0 and NVMe1 ports
PCI-E Slot	PCI-E 3.0 x16 slot (supported by the CPU)

1.6 PCH Board Layout

Below is a layout of the PCH Board with connector locations shown. See the table on the following page for descriptions. For more detailed descriptions and pinout information, refer to Chapter 4.
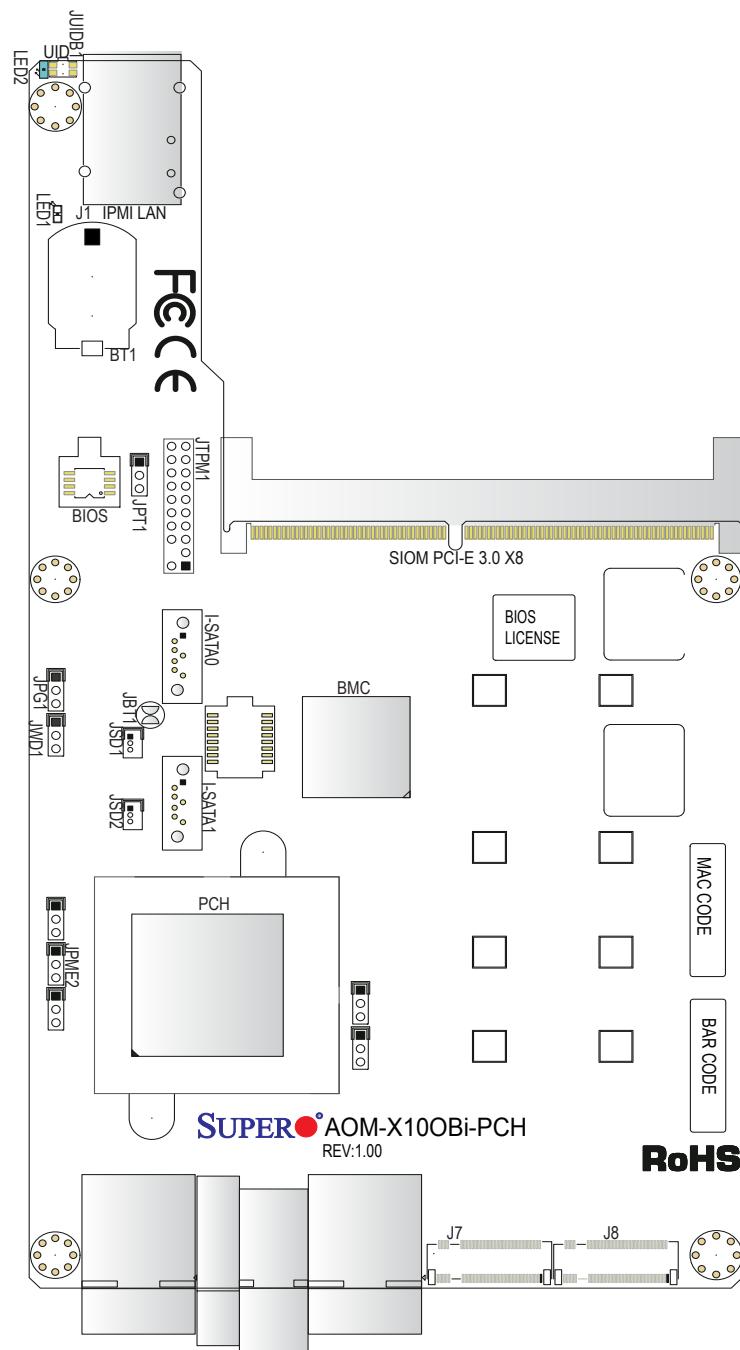
Figure 1-5. PCH Board Layout

PCH Board Quick Reference Table

Jumper	Description	Default Setting
JBT1	CMOS Clear	Open (Normal)
JPG1	VGA Enable/Disable	Pins 1-2 (Enabled)
JPME2	Manufacturing Mode	Pins 1-2 (Normal)
JPT	TPM (Trusted Platform Module) Enable/Disable	Pins 1-2 (Enabled)
JWD1	Watch Dog Timer	Pins 1-2 (Reset)

LED	Description	Status
LED1	BMC Hearbeat LED	Blinking Green: BMC Normal
LED2	Unit Identifier LED	Solid Blue: Unit Identified

Connector	Description
BT1	Onboard Battery
IPMI LAN	Dedicated IPMI LAN Port
I-SATA0 ~ I-SATA1	SATA 3.0 Ports (SATA DOM supported by Intel PCH)
J7	M.2 Connector for SATA 2.0 or PCI-E 2.0 x2 support
J8	M.2 Connector for SATA 2.0 support
JSD1	Power Connector for I-SATA Devices
JSD2	Power Connector for I-SATA Devices
JTPM	TPM/Port 80 Header
JUIDB1	UID (Unit Identification) Button
SIOM	PCI-E 3.0 x8 I/O Module for PCI-E 3.0 Add-on Card (Supermicro proprietary)

1.7 PCIE Board Layout

Below is a layout of the PCIE Board with connector locations shown. See the table below for descriptions. For more detailed descriptions and pinout information, refer to Chapter 4.

Top Side
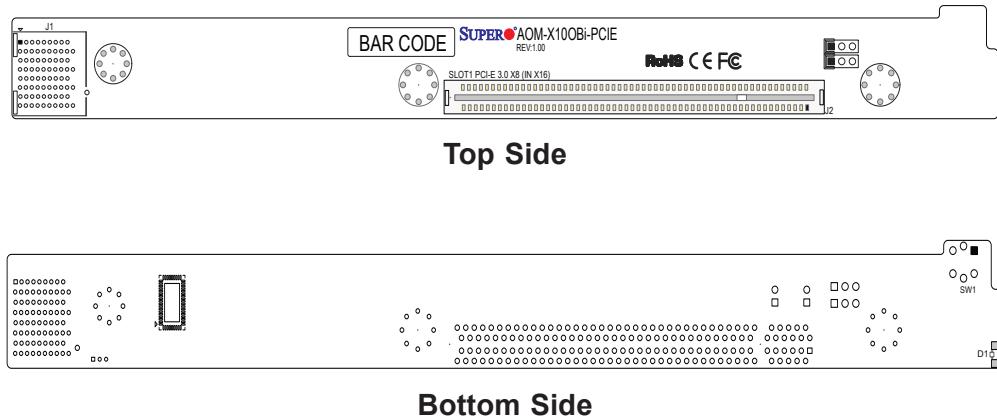
Bottom Side

Figure 1-6. PCIE Board Layout

PCIE Board Quick Reference Table

Connector	Description
J2 (Top Side)	PCI-E 3.0 x8 (in x16 slot with x8 signaling only)
D1 (Bottom Side)	Hot Plug Attention LED (Amber)
SW1 (Bottom Side)	Hot Plug Attention Button and Power LED (Blue)

1.8 HDD Board Layout

Below is a layout of the HDD Board with connector locations shown. See the table below for descriptions. For more detailed descriptions and pinout information, refer to Chapter 4.
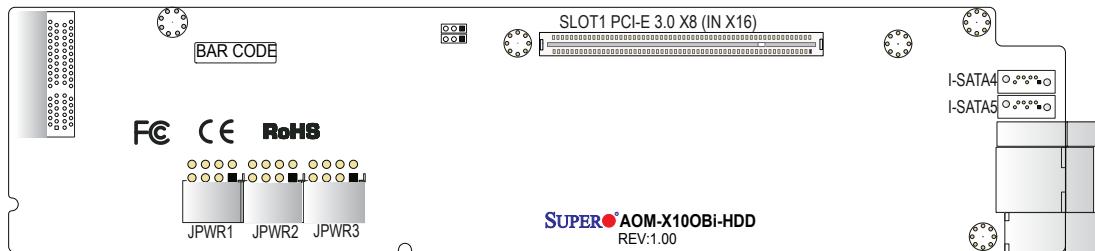
Figure 1-7. HDD Board Layout

HDD Board Quick Reference Table

Connector	Description
JPWR1	8-pin Power Connector1 (for HDDs)
JPWR2	8-pin Power Connector2 (for HDDs)
JPWR3	8-pin Power Connector3 (for HDDs)
I-SATA4	SATA 2.0 Port4 (supported by Intel PCH, for primary storage module only)
I-SATA5	SATA 2.0 Port5 (supported by Intel PCH, for primary storage module only)

1.9 Enclosure Midplane Layout

The following pages show layouts of the Enclosure Midplane with connector locations shown. See the accompanying tables for descriptions. For more detailed descriptions and pinout information, refer to Chapter 4.
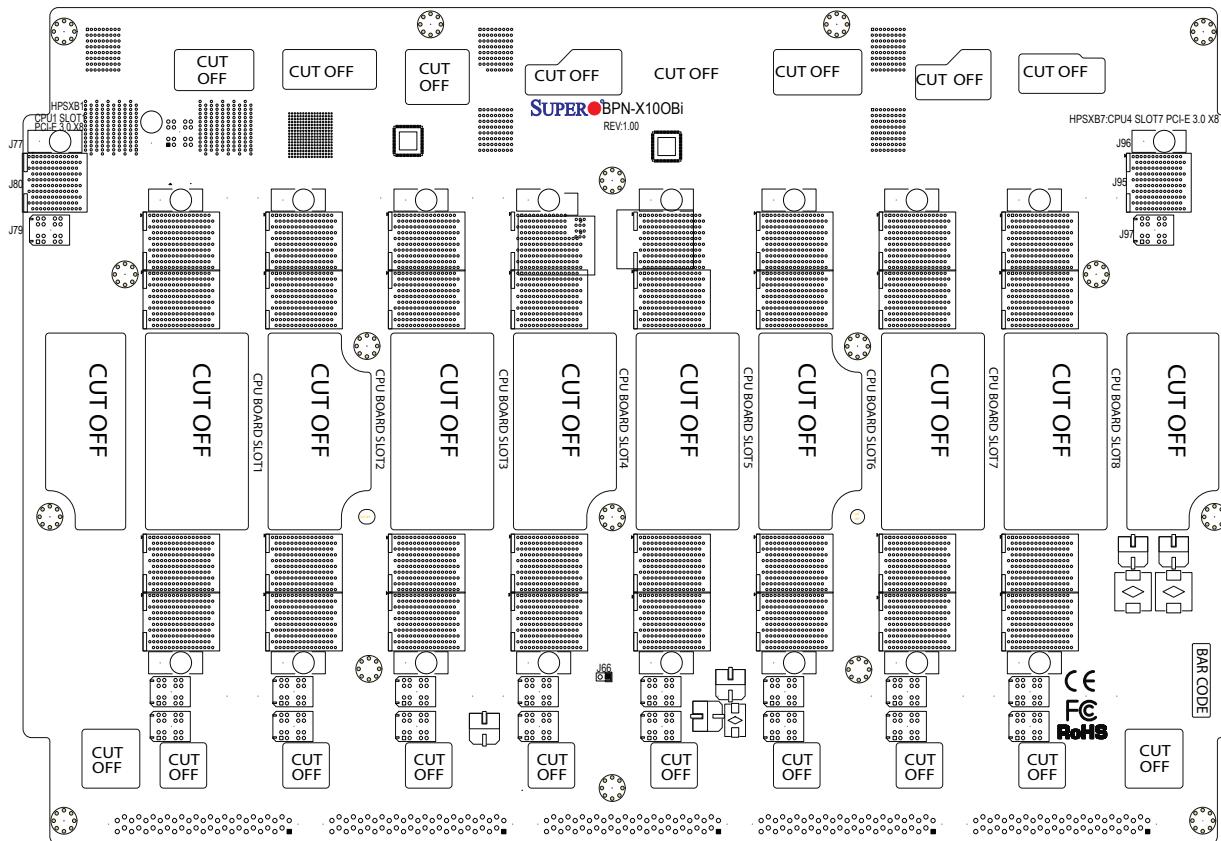
Figure 1-8. Enclosure Midplane Layout: Front Side

Enclosure Midplane Quick Reference Table (Front Side)

Connector	Description
CPU Board Slot 1	CPU Board Slot for 1st CPU Module
CPU Board Slot 2	CPU Board Slot for 2nd CPU Module
CPU Board Slot 3	CPU Board Slot for 3rd CPU Module
CPU Board Slot 4	CPU Board Slot for 4th CPU Module
CPU Board Slot 5	CPU Board Slot for 5th CPU Module
CPU Board Slot 6	CPU Board Slot for 6th CPU Module
CPU Board Slot 7	CPU Board Slot for 7th CPU Module
CPU Board Slot 8	CPU Board Slot for 8th CPU Module
J77/J80/J79/HPSXB1	HDD Board Slot with PCI-E 3.0 x8 (CPU1, slot 1) for Primary Storage Module
J96/J95/J97/HPSXB7	HDD Board Slot with PCI-E 3.0 x8 (CPU4, slot 7) for Secondary Storage Module
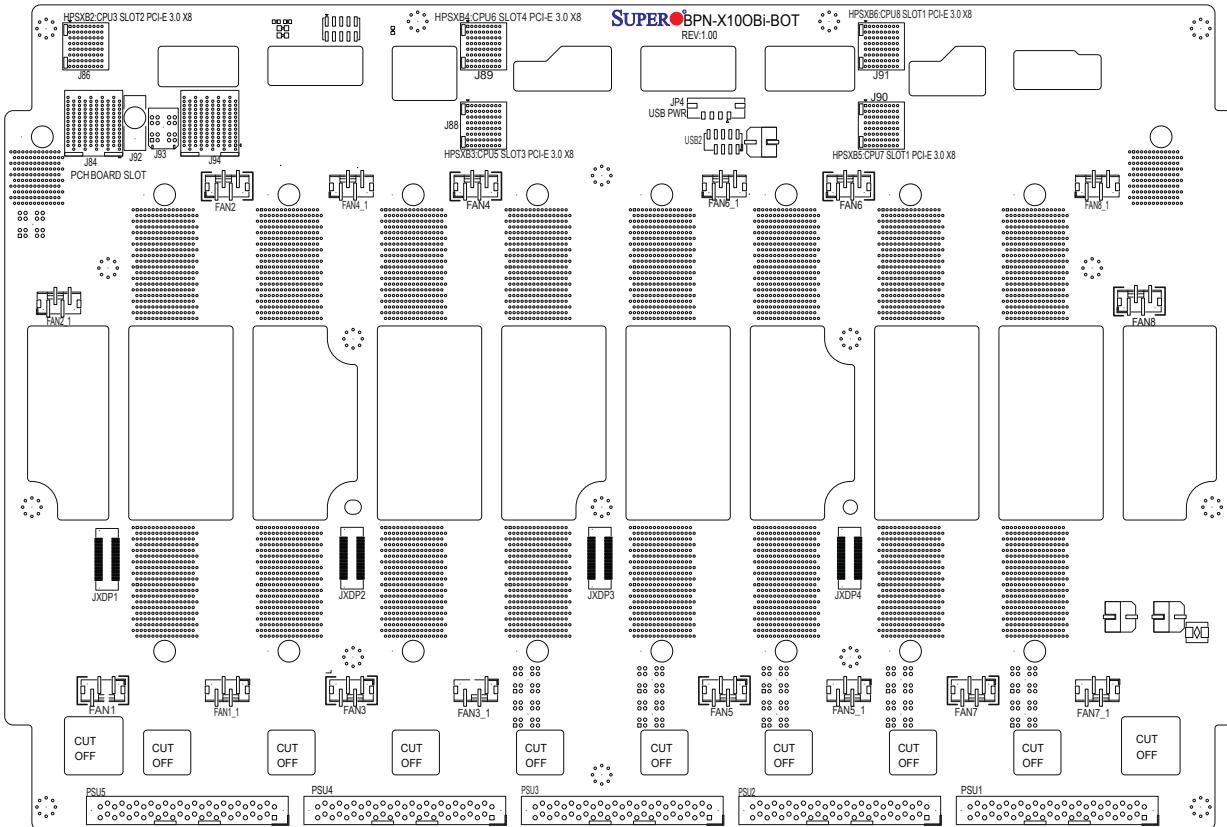
Figure 1-9. Enclosure Midplane Layout: Rear Side

Enclosure Midplane Quick Reference Table (Rear Side)

Connector	Description
FAN1 through FAN8	Fan Headers
J84/J92/J93/J94	PCH Board Slots for PCH Module
J86	HPSXB2 (PCI-E 3.0 x8): for 1st PCIE Module (CPU3, Slot2)
J88	HPSXB3 (PCI-E 3.0 x8): for 2nd PCIE Module (CPU5, Slot3)
J89	HPSXB4 (PCI-E 3.0 x8): for 3rd PCIE Module (CPU6, Slot4)
J90	HPSXB5 (PCI-E 3.0 x8): for 4th PCIE Module (CPU7, Slot5)
J91	HPSXB6 (PCI-E 3.0 x8): for 5th PCIE Module (CPU8, Slot6)
JP4	Power Connector for Slim USB DVD
JUSB1	USB 2.0 Header for Slim USB DVD
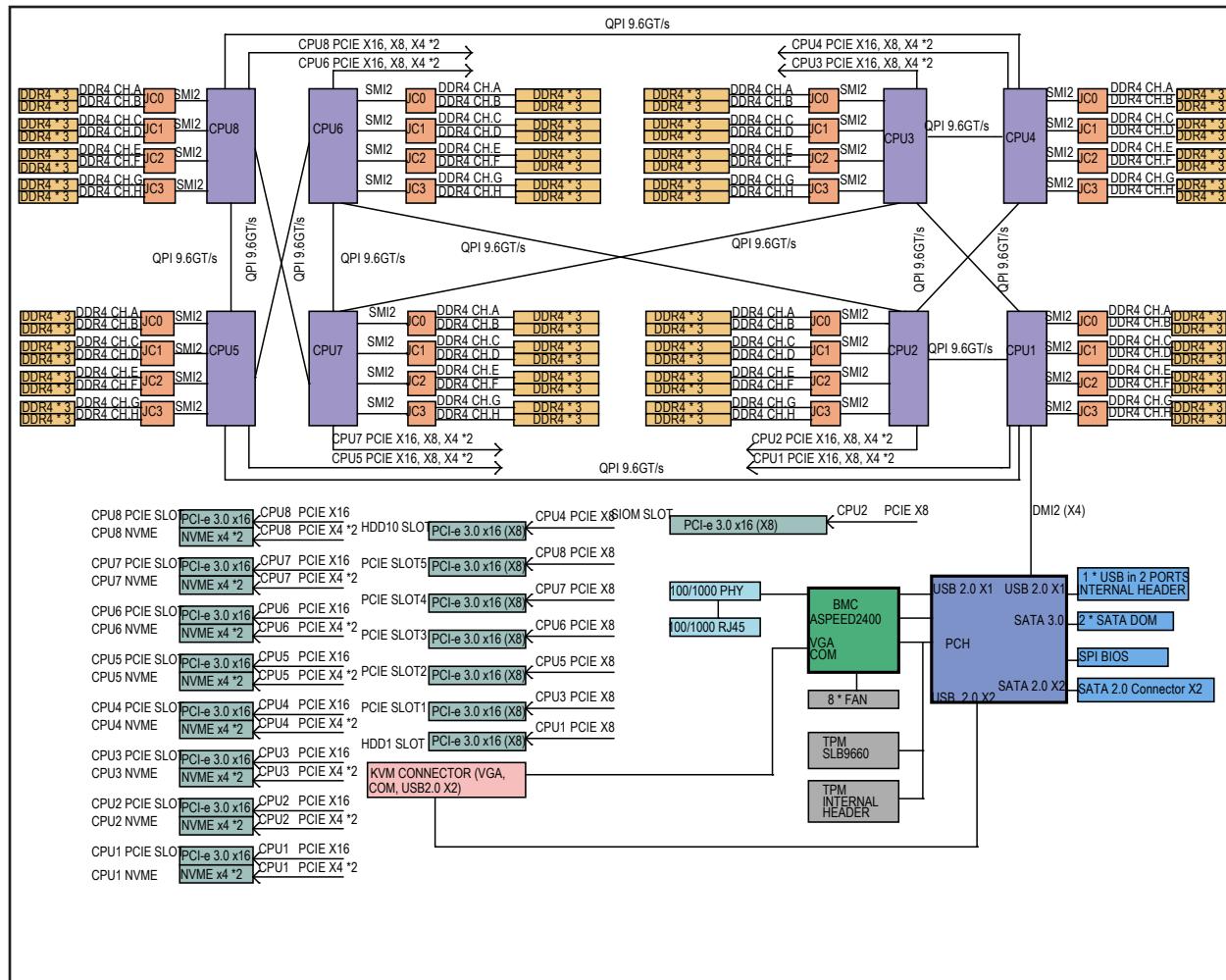
Figure 1-10. System Block Diagram

Note: This is a general block diagram and may not exactly represent the features on your CPU Module board. See the System Specifications appendix for the actual specifications of your CPU Module board.

Chapter 2

Server Installation

2.1 Overview

This chapter provides advice and instructions for mounting your system in a server rack. If your system is not already fully integrated with processors, system memory etc., refer to Chapter 4 for details on installing those specific components.

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 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 acccording 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.

Server Precautions

- Review the electrical and general safety precautions in Appendix B.

- 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 recommended 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.

Warning: do not pick up the server with the front handles. They are designed to pull the system from a rack only.

2.3 Installing the System Into a Rack

This section provides information on installing the system into a rack. There are a variety of rack units on the market, meaning the procedure may differ slightly. Refer to the Enclosure Template that was included with the system for help.

Rack Mounting Hardware

The following is a list of rack mounting hardware you will need for rack setup and installation:

- Two rail assemblies (one for each side of the enclosure)

- Two handles

- Four roundhead screws for fastening the enclosure ears to the rack

- Eight flathead screws and washers for mounting the rails to the rack

Installation

Use the procedure below for installing the system into a rack.

Installing to a Rack

1. Decide where you want to place the system into the rack (see "Rack Mounting Considerations" in the previous section).

2. Position the Enclosure Template at the front of the enclosure to determine the locations of the screws for the chassis rails (see Figure 2-1).
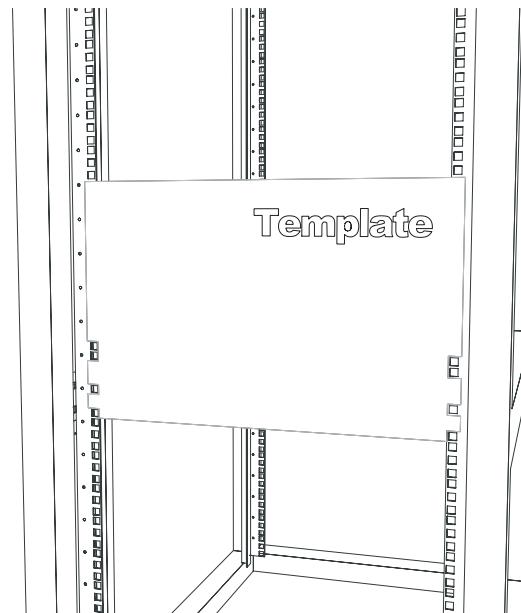
Figure 2-1. Positioning the Enclosure Template

3. The two rail sections are screwed together to keep them immobile during shipping. Release these screws just enough to allow the rails to slide apart. Note the arrow on the rail, which indicates the end that attaches to the front of the rack.

4. Slide the rails apart far enough to match the depth of the rack. Position the rails with the template and secure the front of each to the front of the rack with two flathead screws, then secure the back of each rail to the rear of the rack with two flathead screws (see Figure 2-2). Note that the rails are left/right specific and very heavy.
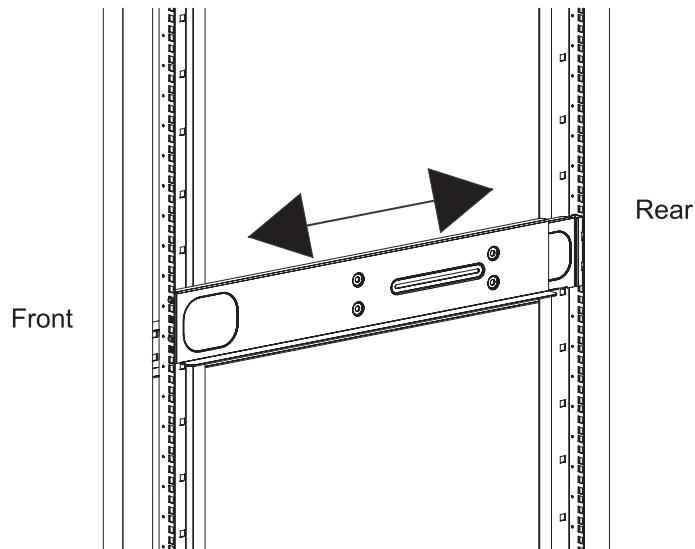
Figure 2-2. Securing the Rails to the Rack

5. (Optional step) Add the front left and right handles to the chassis using five screws to secure each handle. Install a thumbscrew through the bottom hole of each handle (see Figure 2-3).

Note: These handles are optional and need only be installed when mounting the system into a short rack. When mounting into a deep rack, they are unnecessary and regular screws should be used instead of thumbscrews.

Be aware that these handles are not to be used for lifting the system, they are only to be used to slide the system within the rack.

6. With one person on either side (see the descriptive label on the side of the chassis), lift the system and slide it into the installed rails.
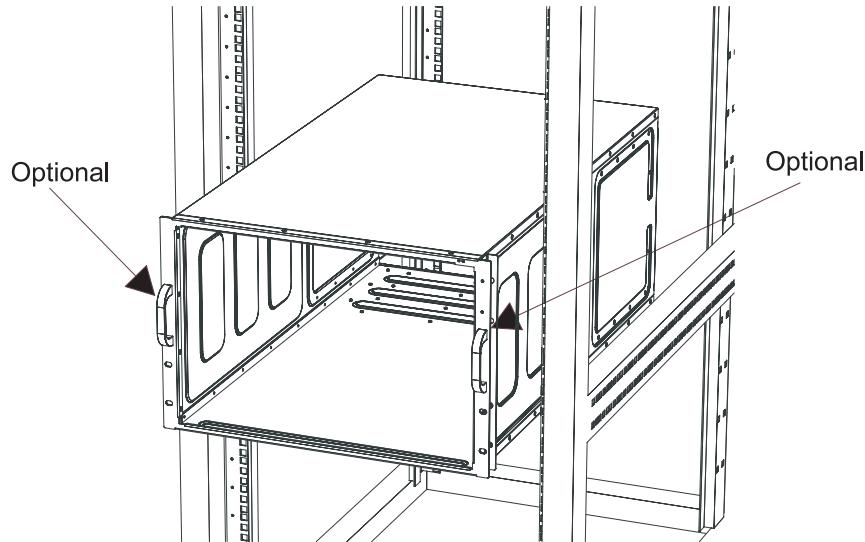
Figure 2-3. Attaching the Optional Handles

WARNING: Be sure that the system is empty of all CPU modules, storage modules, power supplies, PCI-E modules and the PCH module BEFORE lifting (as shown in the figure above with the chassis empty). These should be installed AFTER the system is mounted in the rack. Injury and damage may occur if components are not removed from the rack prior to installation.

7. After pushing the system all the way into the rack, use two roundhead screws on each side of the server to lock it into place.

8. With the system now secure in the rack, the CPU modules, storage modules, power supplies, PCI-E modules and the PCH module may all be installed in the chassis.

Note: Figures are for illustrative purposes only. Always install servers to the bottom of a rack first.

Warning: 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.

Installation or replacement of most components require that power first be removed from the system. Please follow the procedures given in each section.

3.1 Removing Power

Removing power from the system is necessary when removing or installing non hot-swap components or when replacing a non-redundant power supply.

1. Use the operating system to power down the system.

2. After the system has completely shut-down, disconnect the AC power cords from all power supply modules.

3.2 Accessing the System

The 7088B-TR4FT is a modular system with the motherboards, hard drives, fans and power supplies all accessible for servicing without the need to open the chassis.

Please refer to the relevent sections in this chapter for the correct procedures to use when servicing any of these subsystems.

3.3 CPU Modules

Removing/Installing a CPU Module

1. Begin by removing power from the system as described in Section 3-1.

2. Pull the top thumb lock outward while slightly lifting the top lever. Repeat this procedure for the bottom thumb lock and lever.

3. Lift the top lever up while simultaneously pushing the bottom lever down all the way until the CPU module pops out.

4. With both levers fully released, grasp them both and pull the module outward to remove it from the enclosure as shown in Figure 3-1.

5. Put the module on a flat, non-conductive surface before removing or installling any components.
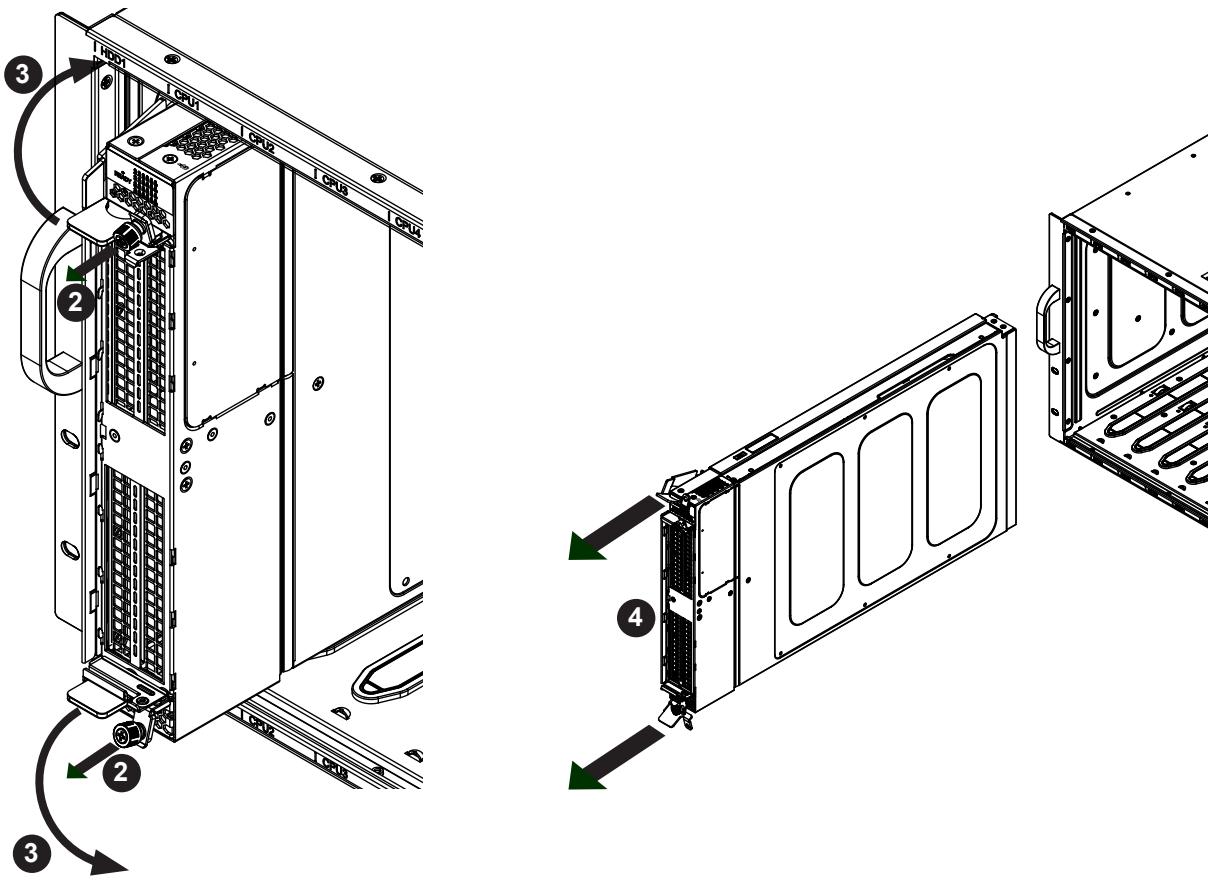
Figure 3-1. Removing a CPU Module

Processor and Heatsink Installation

Follow the procedures in this section to install a processor (CPU) and heatsink to the motherboard.

Notes:

• The motherboard should be installed into the chassis first and the processor should be installed into the CPU socket before you install a CPU heatsink.

• If you bought a CPU separately, make sure that you use an Intel-certified multi-directional heatsink only.

• When receiving a motherboard without a processor pre-installed, make sure that the plastic CPU socket cap is in place and none of the socket pins are bent; otherwise, contact your retailer immediately.

• Refer to the Supermicro website for updates on CPU support.

Installing the Processor(s)

Begin by removing power from the system as described in Section 3.1 and remove a CPU module as described previously.

1. There are two load levers on the E7-8800 (v3/v4) socket. First press and release the load lever labeled 'Open 1st'.

2. Press the second load lever labeled 'Close 1st' to release the load plate that covers the CPU socket.

3. With the 'Close 1st' lever fully retracted, gently push down on the 'Open 1st' lever to open the load plate. Lift the load plate to open it completely.

Load Lever
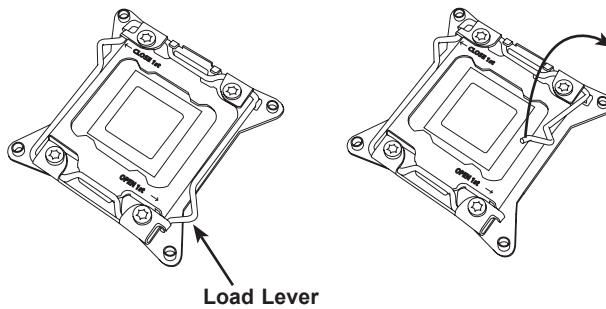
4. Using your thumb and index finger, hold the CPU by its edges. Align the CPU keys (the semi-circle cutouts) with the socket keys.
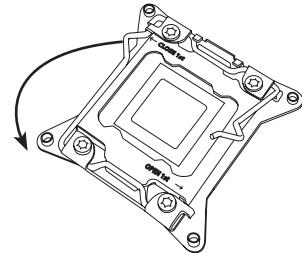
5. Once aligned, carefully lower the CPU straight down into the socket. (Do not drop the CPU on the socket or move it against the surface of the socket, which could damage the CPU or the socket.)

Push down gently
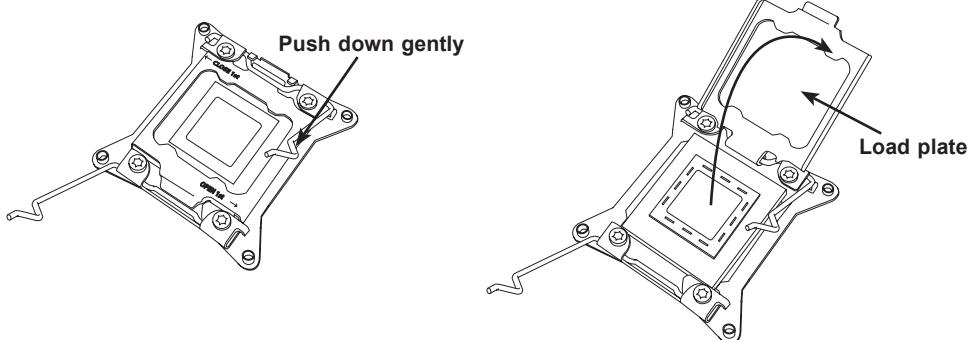
Load plate

6. With the CPU in the socket, inspect the four corners of the CPU to make sure that the CPU is properly installed.

Keys (circled)
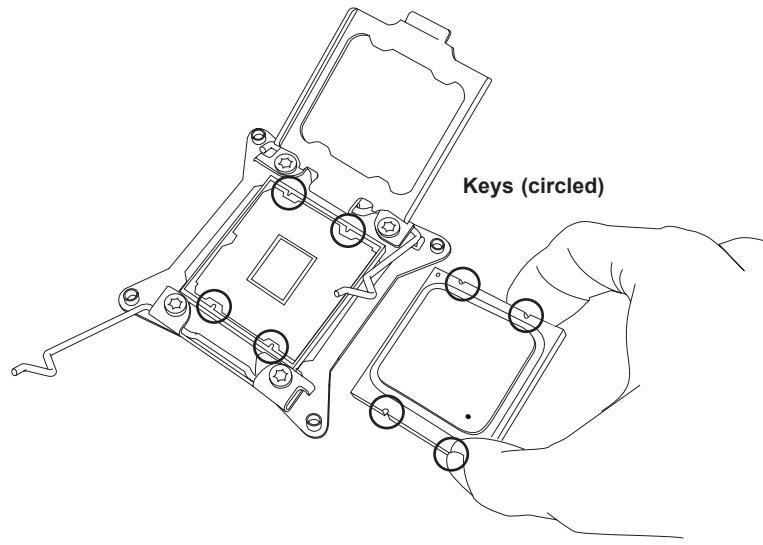
7. With the CPU properly installed, close the load plate, then lock the 'Close 1st' lever first, followed by the 'Open 1st' lever. Gently push the load levers down until they lock.

Installing a Heatsink

A passive type heatsink is used on the CPU Board.

Note: Do not apply any thermal grease to the heatsink or the CPU die; the required amount has already been applied.

'Close 1st' Lever   **Lever Locked**

'Open 1st' Lever
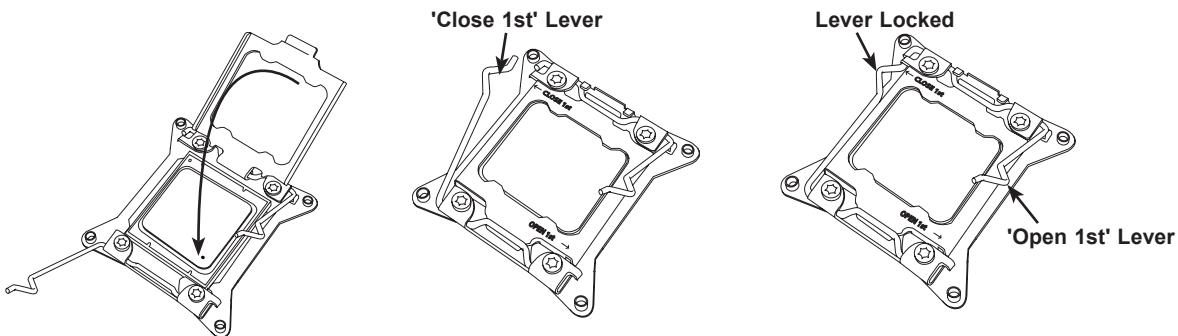
Note: The CPU installs in the socket in one direction only. Make sure that it's properly inserted into the CPU socket before closing the load plate. If it doesn't close properly, do not force it as it may damage the CPU. Instead, open the load plate again to make sure that the CPU is aligned properly.

1. Place the heatsink on top of the CPU so that the four mounting holes are aligned with those on the heatsink retention mechanism.

2. Screw in two diagonal screws (i.e. the #1 and the #3 screws) until they are just snug. Do not fully tighten the screws or you may damage the CPU.

3. Add the two remaining screws then finish the installation by fully tightening all four screws (be careful not to overtighten).

Removing a Heatsink

We do not recommend removing the heatsink. If necessary, please follow the instructions below to prevent damage to the CPU or the CPU socket.

1. Unscrew and remove the heatsink screws from the motherboard in the sequence as show in the figure above.

2. Hold and <u>gently</u> pivot the heatsink back and forth to loosen it from the CPU. (Do not use excessive force when dislodging the heatsink.)

3. Once the heatsink is loose, remove it from the CPU.

4. Clean the surface of the CPU and the heatsink to get rid of the old thermal grease. Reapply the proper amount of thermal grease to the surface before you re-install the heatsink.
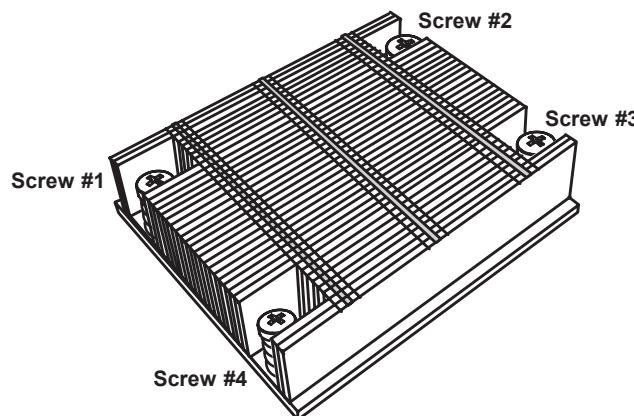
Figure 3-2. Removing the Heatsink

Note: Wait for the heatsink to cool down before removing it.

Memory Installation

Memory Support

Each of the eight CPU Board boards can support up to 3TB of ECC/non-ECC DDR4-1866 (Lockstep Mode) or DDR4-1600 (Performance Mode) LRDIMM memory in 24 memory slots. A fuly populated system will thus support 24TB of memory. Populating these DIMM slots with memory modules of the same type and size will improve memory performance.

Check the Supermicro website for possible updates to memory support.

Installing Memory

Begin by removing power from the system as described in Section 3.1.

1. Start populating the blue slots first (DIMMA1, DIMMB1, DIMMC1, DIMMD1, DIMME1, DIMMF1, DIMMG1 and DIMMH1). Push the release tabs outwards on both ends of the DIMM slot to unlock it.

2. Align the key of the DIMM with the receptive point on the memory slot and the notches on both ends of the module with the receptive points on the slot.

3. With your thumbs on both ends of the module, press it straight down into the slot until the module snaps into place.

4. Press the release tabs to the locked positions to secure the DIMM module into the slot. Repeat for other DIMM slots as needed. See next page for population sequence.

5. To remove a DIMM, unlock the release tabs then pull the DIMM from the memory slot.

Caution: Exercise extreme caution when installing or removing memory modules to prevent any possible damage to the DIMMs or slots.
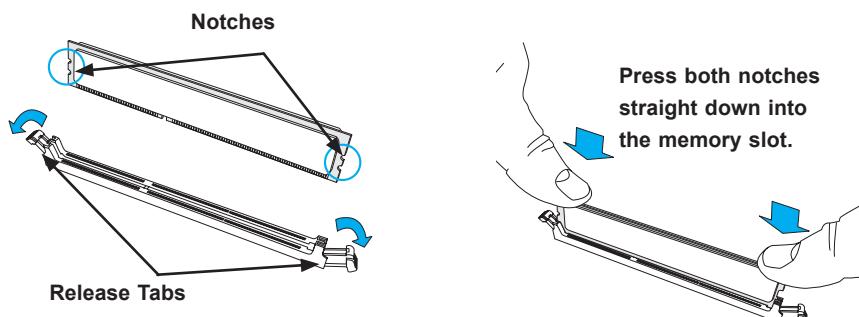
Figure 3-3. Installing DIMMs

Note: Visit the product page on the Supermicro website for possible updates to memory support (www.supermicro.com).

DIMM Module Population Sequence

When installing memory modules, the DIMM slots should be populated in the following order: DIMMA1, DIMMB1, DIMMC1, DIMMD1, DIMME1, DIMMF1, DIMMG1 and DIMMH1.

• Always use DDR4 DIMM modules of the same type, size and speed.

• Mixed DIMM speeds can be installed. However, all DIMMs will run at the speed of the slowest DIMM.

• The motherboard will support odd-numbered modules (1 or 3 modules installed). However, for best memory performance, install DIMM modules in pairs to activate memory interleaving.

DDR4 3DS LRDIMM/LRDIMM/RDIMM ECC (2:1) Memory Support

Type	SR= Single Rank DR= Dual Rank QR = Quad Rank	Max DIMM Capacity (GB)		Max Speed (MT/s)[2]; Voltage (V); Slot Per Channel (SPC) and DIMM Per Channel (DPC)				
				2 SPC		3 SPC		
				1DPC	2DPC	1DPC	2DPC	3DPC
		4Gb	8Gb	1.2V	1.2V	1.2V	1.2V	1.2V
RDIMM	SRx8	4GB	8GB	1866	1866	1866	1866	1600
RDIMM	SRx4	8GB	16GB	1866	1866	1866	1866	1600
RDIMM	DRx8	8GB	16GB	1866	1866	1866	1866	1333
RDIMM	DRx4	16GB	32GB	1866	1866	1866	1866	1333
LRDIMM	QRx4	32GB	64GB	1866	1866	1866	1866	1600
LRDIMM 3DS[1]	8Rx4	64GB	128GB	1866	1866	1866	1866	1333

DDR4 3DS LRDIMM/LRDIMM/RDIMM ECC (1:1) Memory Support

Type	SR= Single Rank DR= Dual Rank QR = Quad Rank	Max DIMM Capacity (GB)		Max Speed (MT/s)[2]; Voltage (V); Slot Per Channel (SPC) and DIMM Per Channel (DPC)				
				2 SPC		3 SPC		
				1DPC	2DPC	1DPC	2DPC	3DPC
		4Gb	8Gb	1.2V	1.2V	1.2V	1.2V	1.2V
RDIMM	SRx8	4GB	8GB	1600	1600	1600	1600	1600
RDIMM	SRx4	8GB	16GB	1600	1600	1600	1600	1600
RDIMM	DRx8	8GB	16GB	1600	1600	1600	1600	1333
RDIMM	DRx4	16GB	32GB	1600	1600	1600	1600	1333
LRDIMM	QRx4	32GB	64GB	1600	1600	1600	1600	1600
LRDIMM 3DS[1]	8Rx4	64GB	128GB	1600	1600	1600	1600	1333

3.4 PCI-E Expansion Card Installation

The 7088B-TR4FT supports up to 15 PCI-E 3.0 slots [eight x16 in the CPU modules, two x8 (in x16) slots in the storage modules, and five x8 (in x16) slots in the PCIE modules] for eight GPUs or up to sixteen U.2 NVMe drives (optional). The system features a hot-plug* capability for adding and removing PCI-E expansion cards in the PCIE modules.

PCIE Module

Perform the following steps to replace an add-in card in one of five hot-plug PCIE modules at the rear of the system while the system is on.

*The OS must support the hot-plug feature.

Removing a Hot-Plug PCI-E Card

1. Initiate a hot-removal request by pushing the Attention Button on the corresponding slot. The green power LED will blink to indicate the module is in a transition state. (To cancel the hot-plug removal operation, press the Attention Button again within five seconds.)

2. The power LED will turn off, showing that it is safe to remove the module. If not, it indicates the request has failed (possibly due to client's software unwilling to relinquish the device).

3. Push the red release tab located at the top left of the module to the right in order to pull out the latch

4. Use the latch to pull the PCIE module from the chassis.

5. Push the silver locking tab to fully release the PCI-E expansion card.

6. Pull the card out of the PCIE board.
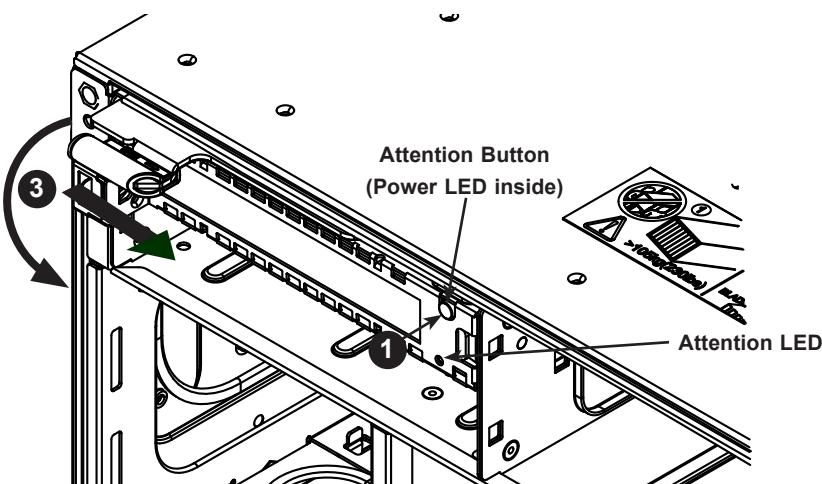
Figure 3-4. Releasing a PCIE Module
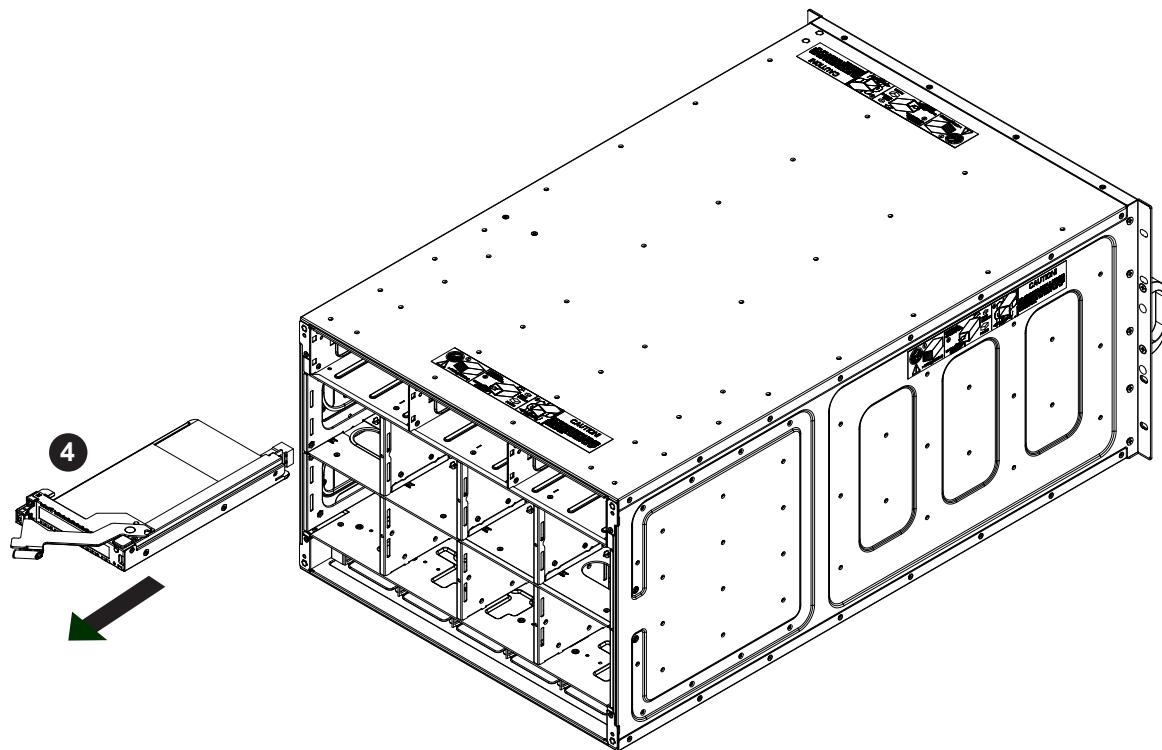
Figure 3-5. Removing a PCIE Module
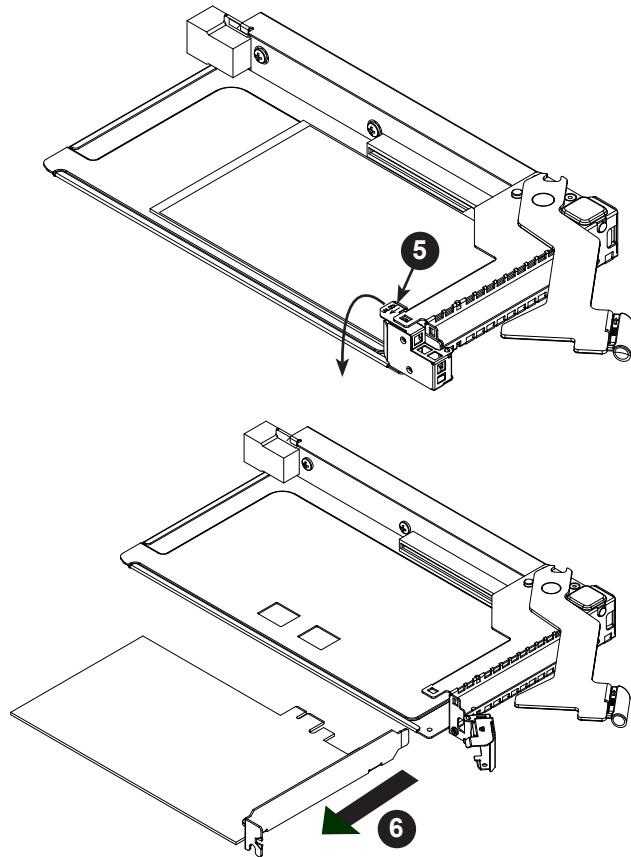
Figure 3-6. Removing a PCI-E Card from a PCIE Module

Adding a Hot-Plug PCI-E Card

1. Insert the PCI-E expansion (add-on) card into the PCIE board, making sure the card bracket aligns with the optional screw hole.

2. Secure the add-in card by locking the silver locking tab then insert the PCIE module back to the chassis and fully close the red release tab.

3. A hot-plug addition request is made by pushing the Attention Button on the corresponding slot. The green power LED will blink to indicate the module is in a transition state. (To cancel the hot-plug removal operation, press the Attention Button again within five seconds.)

4. The power LED will change from blinking to solid on to indicate that the device to be added has been found, configured and has the driver loaded.

5. If the request fails, the power LED will stop blinking and the slot will remain disabled. The hot-plug software should activate the Attention LED to indicate an operational problem.
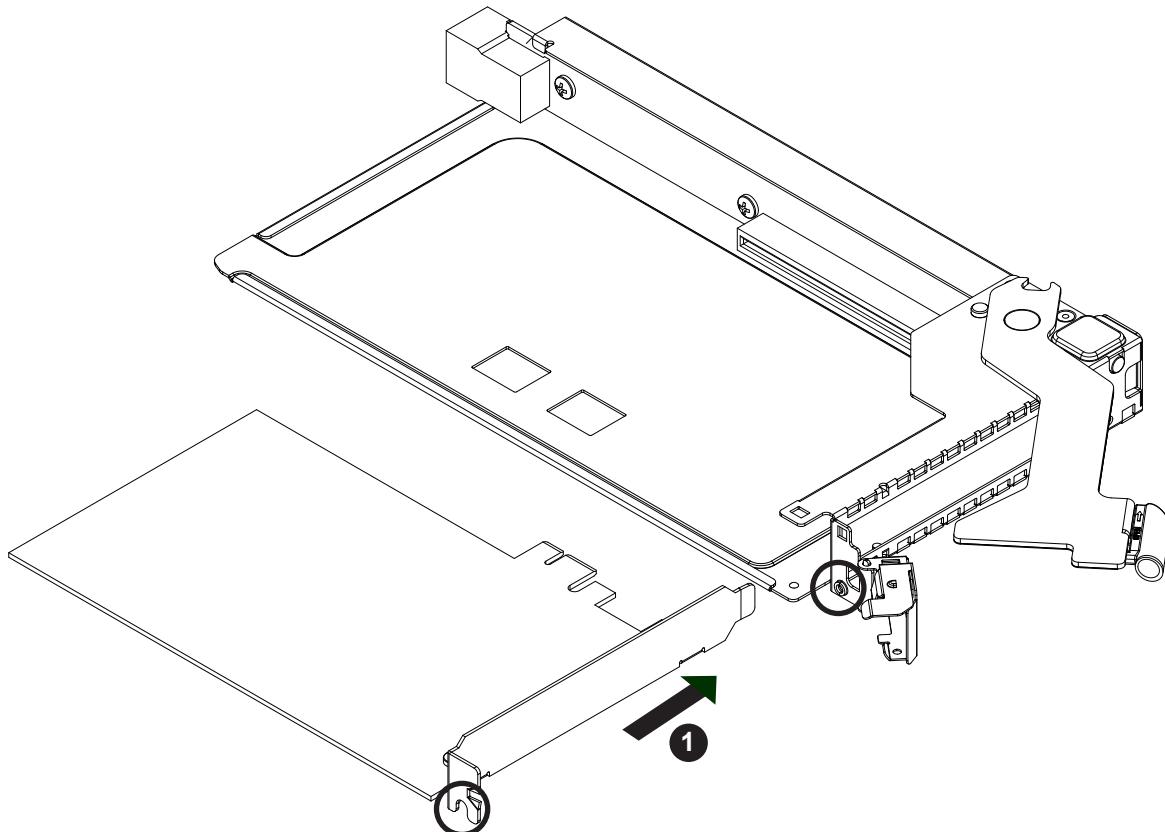
Figure 3-7. Adding a PCI-E Card to a PCIE Module

CPU Module

Perform the following steps to install an add-on card in any of the eight CPU modules at the front of the system. Power must be removed from the system (as described in Section 3.1) when performing this procedure.

1. Begin by removing the corresponding CPU module, as described in Section 3.3.

2. Open the top cover after removing the screw that secures it to the chassis.

3. Remove the five screws on the front riser cover and lift it up. (If a GPU card is installed in the CPU module you must also remove two additional screws and the GPU power cable.)

4. Release the latch and pull the PCI-E card out from the riser card.

5. Insert the PCI-E expansion (add-in) card to the riser card.

6. Reverse the steps above to secure the add-on card and replace the CPU module back into the chassis. Make sure the four front hooks have been completely inserted.

7. Power up the system.
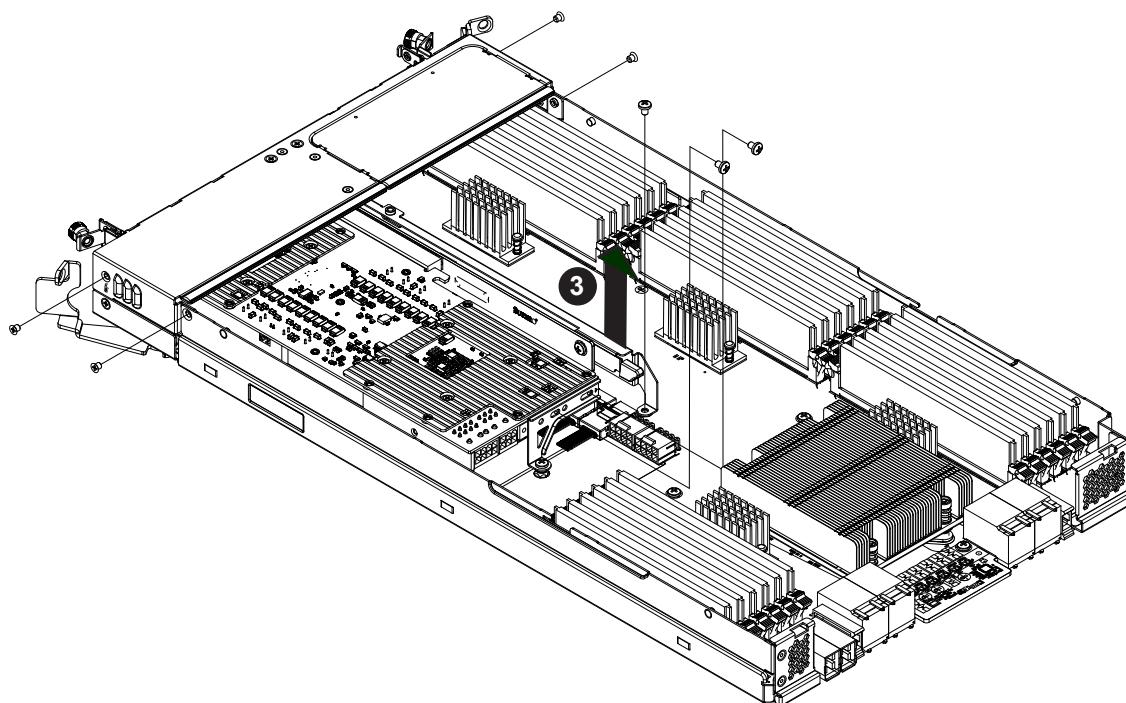
Figure 3-8. Installing a PCI-E Card in a CPU Module
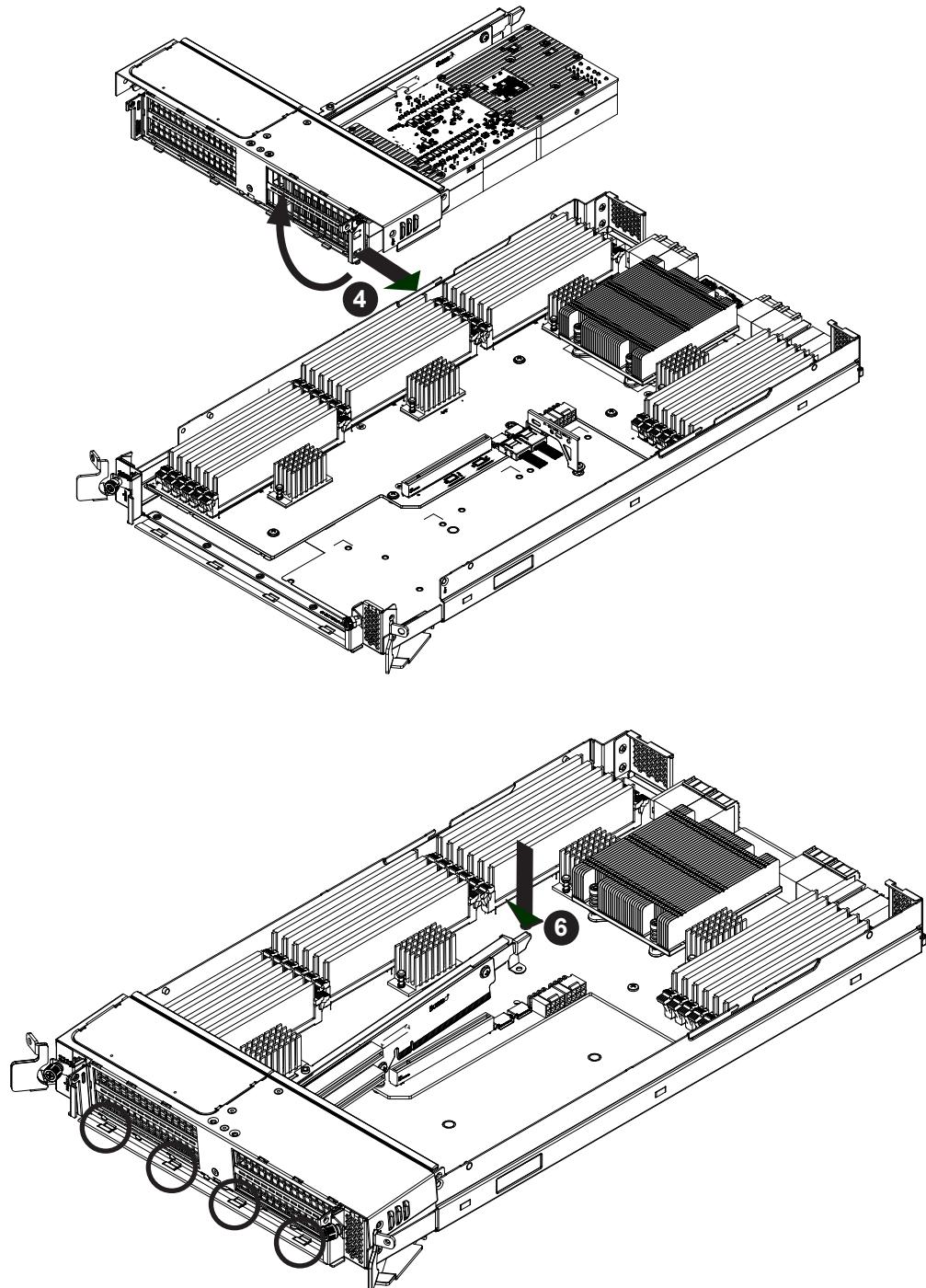
Figure 3-8. Installing a PCI-E Card in a CPU Module (cont.)

Storage Module

Perform the following steps to install an add-on card in either of the two HDD storage modules at the front of the system. Power must be removed from the system as described in Section 3.1 when performing this procedure.

1. Begin by removing the storage module as described in Section 3.6.

2. Open the top cover of the storage module as shown in Figure 3-15.

3. Remove the screws that secure the riser card assembly to the storage module and pull the riser card assembly from the HDD board.

4. Remove the screw and pull the PCI-E card from the riser card assembly.

5. Insert the PCI-E expansion (add-on) card to the riser card.

6. Reverse the steps above to secure the card and replace the storage module back into the chassis.

7. Power up the system.
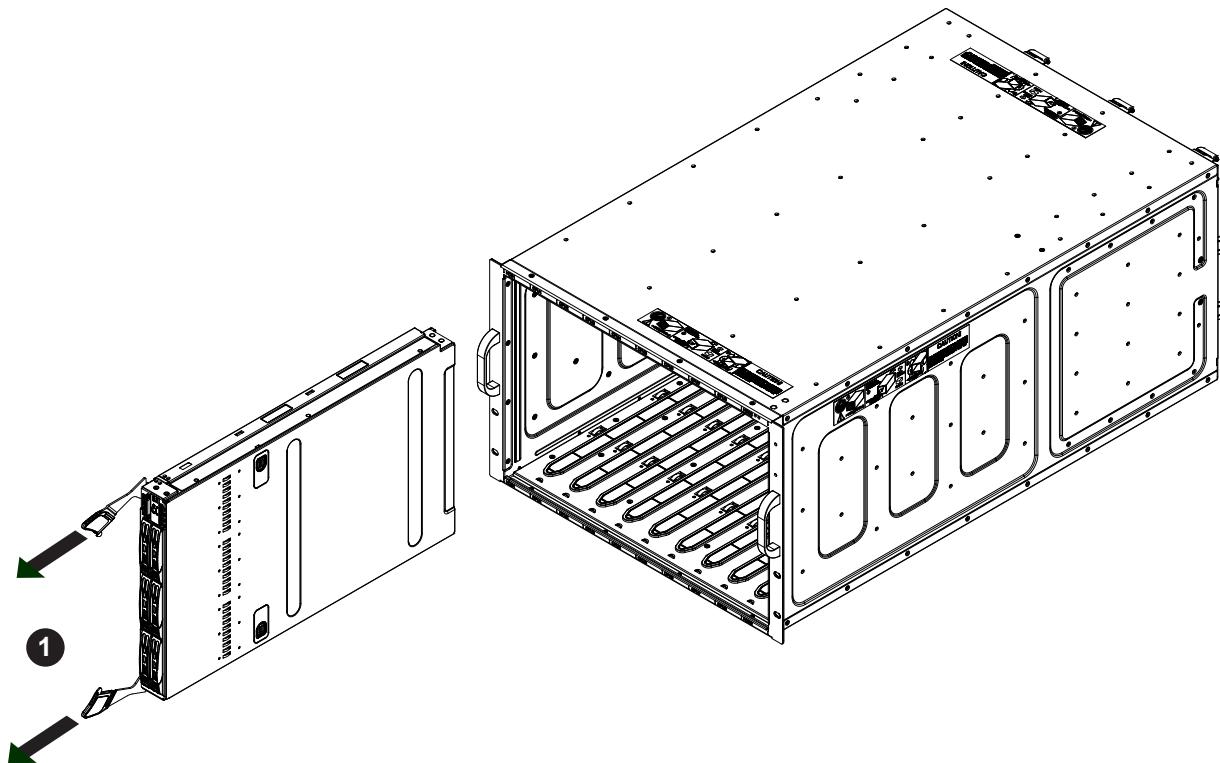
Figure 3-9. Removing a Storage Module
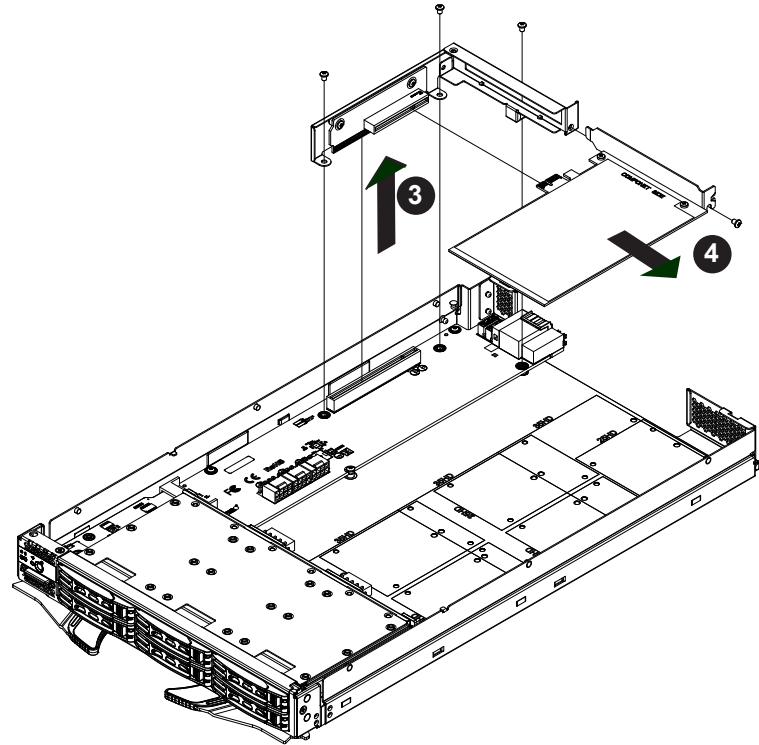
Figure 3-10. Installing a PCI-E Card in a Storage Module

3.5 Onboard Battery

The system uses non-volatile memory to retain system information when system power is removed. This memory is powered by a lithium battery on the PCH board.

Replacing the Battery

Begin by removing power from the system as described in section 3.1.

1. Push aside the small clamp that covers the edge of the battery. When the battery is released, lift it out of the holder.

2. To insert a new battery, slide one edge under the lip of the holder with the positive (+) side facing up. Then push the other side down until the clamp snaps over it.

Note: Please handle used batteries carefully. Do not damage the battery in any way; a damaged battery may release hazardous materials into the environment. Do not discard a used battery in the garbage or a public landfill. Please comply with the regulations set up by your local hazardous waste management agency to dispose of your used battery properly.

LITHIUM BATTERY

BATTERY HOLDER
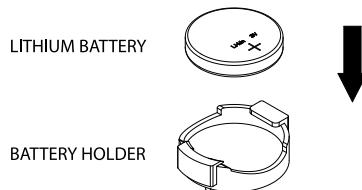
Figure 3-11. Installing the Onboard Battery

Warning: There is a danger of explosion if the onboard battery is installed upside down (which reverses its polarities). The battery must be replaced only with the same or an equivalent type recommended by the manufacturer (CR2032).

3.6 Chassis Components

Hot-Swap Hard Drives

The 7088B-TR4FT includes two storage modules that each support six 2.5" hot-swap SATA hard drives (for a total of twelve for the system). The hot-swap drives are mounted in drive carriers to simplify their installation and removal from the chassis, which may be done without removing power from the system.

Note: Enterprise level hard disk drives are recommended for use in Supermicro chassis and servers. For information on recommended HDDs, visit the Supermicro website at http://www.supermicro.com/products/nfo/files/storage/SBB-HDDCompList.pdf

Removing a Hot-Swap Drive Carrier

1. Push the release button on the carrier.

2. Swing the handle fully out.

3. Grasp the handle and use it to pull the drive carrier out of its bay in the storage module.

Mounting a Drive in a Drive Carrier

1. To add a new drive, install it into the carrier with the printed circuit board side facing down so that the mounting holes align with those in the carrier.

2. Secure the drive to the carrier with the screws provided, then push the carrier completely into the drive bay. You should hear a *click* when the drive is fully inserted. This indicates that the carrier has been fully seated and connected to the midplane, which automatically makes the power and logic connections to the hard drive.

Removing a Drive from a Drive Carrier

1. Remove the screws that secure the hard drive to the carrier and separate the hard drive from the carrier.

2. Replace the carrier back into the drive bay.
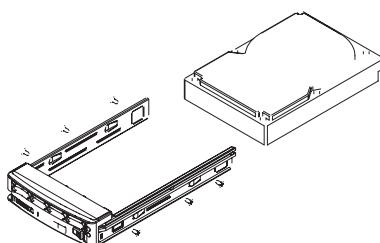
Figure 3-12. Mounting a Drive in a Carrier
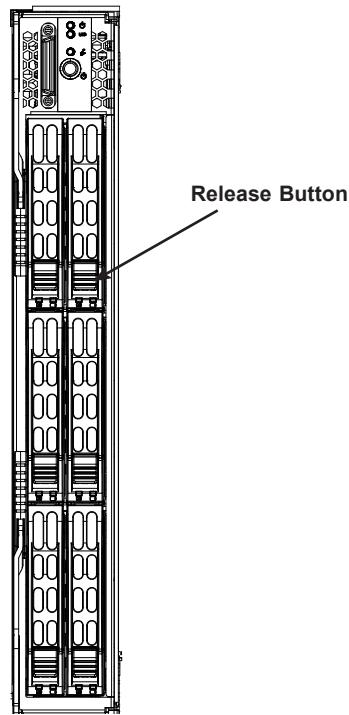
Figure 3-13. Removing a Drive Carrier

Hard Drive Carrier Indicators

Each hard drive carrier has two LED indicators: an activity indicator and a status indicator. In RAID configurations, the status indicator lights to indicate the status of the drive. In non-RAID configurations, the status indicator remains off. See the table below for details.

Hard Drive Carrier LED Indicators		
LED	**State/Condition**	**Indication**
Green	Blinking	Drive activity
Red	Solid on	Drive failure

Internal Hard Drives

The two storage modules in the 7088B-TR4FT also support up to six 3.5" or twenty 2.5" fixed HDDs. Installing or removing these drives requires the module to be removed from the chassis.

Removing a Storage Module

1. Begin by removing power from the system as described in Section 3-1.

2. Each release lever on the module has a locking latch. Push both latches to unlock the levers.

3. Grasp the release levers on both ends of the module and pull outward as shown below.

4. The module should disengage, allowing you to pull it completely out of the chassis.

5. Put the module on a flat, non-conductive surface before removing or installling the internal hard drives.
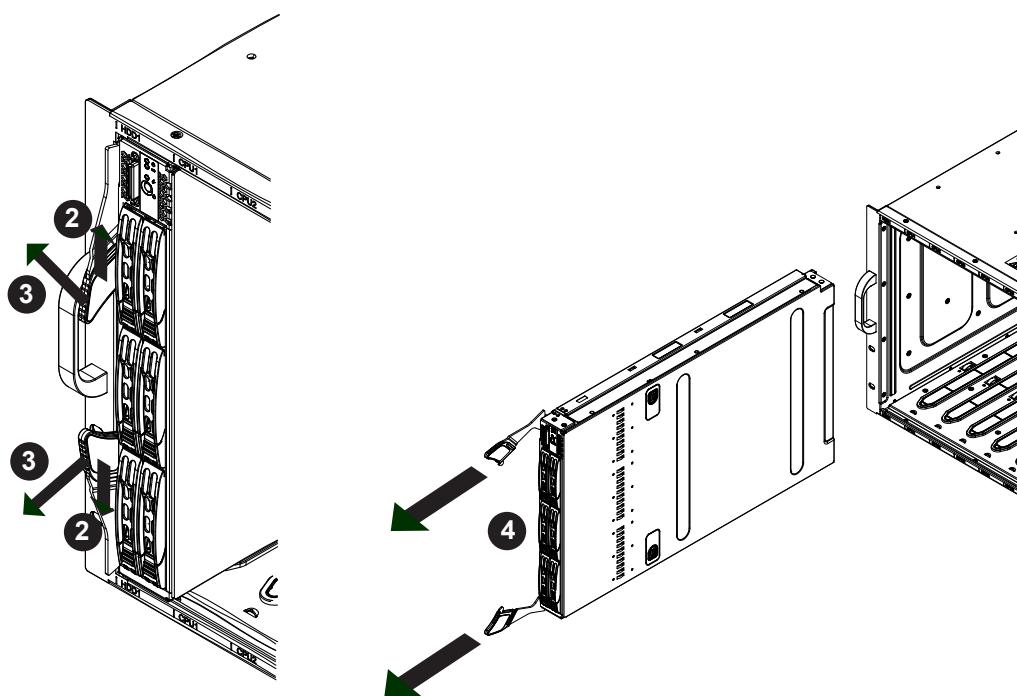
Figure 3-14. Removing a Storage Module

Removing/Installing Internal Hard Drives

To remove the cover of the storage module, depress the two release buttons and push the cover toward the rear of the module as shown below.

2.5" HDDs

The 2.5" hard drives are mounted in brackets that are secured to the bottom of the storage module tray. See Figure 3-17 for the layout and assembly.

1. Remove the bracket(s) holding the drive(s) you wish to replace by unscrewing from the bottom of the module.

2. Each drive is held in place in the bracket with four screws. Remove these as well as the SATA power and data cables then take out the hard drive.

3. Install a new hard drive into the bracket, reconnect the power and data cables and secure the drive with the four screws.

4. Repeat the steps above as necessary.

5. With all brackets and their drives installed in the module, replace the cover and slide the storage module back into its bay in the chassis.

6. Depress the power button to boot up the system.

Release Button

Release Button
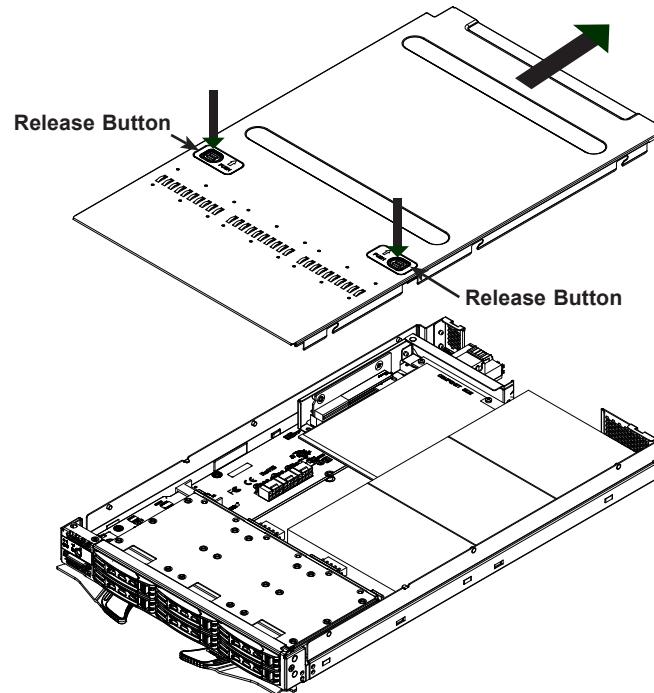
Figure 3-15. Removing the Storage Module Cover
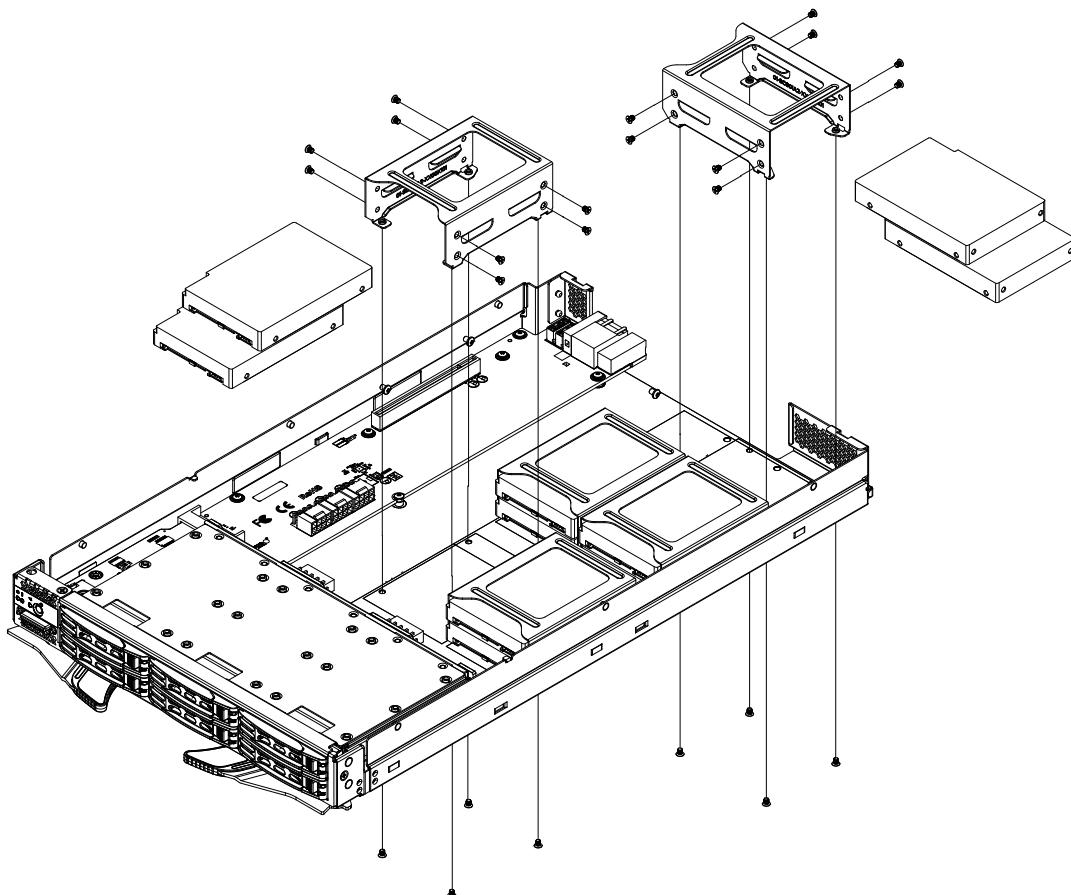
Figure 3-16. Installing/Removing 2.5" HDDs

3.5" HDDs

The 3.5" hard drives mount directly to the bottom of the storage module tray. See Figure 3-18 for the layout and assembly.

1. Remove the SATA power and data cables and unscrew the bracket (from the bottom of the module) from the drive you wish to replace, then remove the drive.

2. Install a new hard drive into the same location, reconnect the power and data cables and secure the drive to the bracket with the four screws.

3. Repeat the steps above as necessary.

4. With all drives installed in the module, replace the cover and slide the storage module back into its bay in the chassis.

5. Depress the power button to boot up the system.
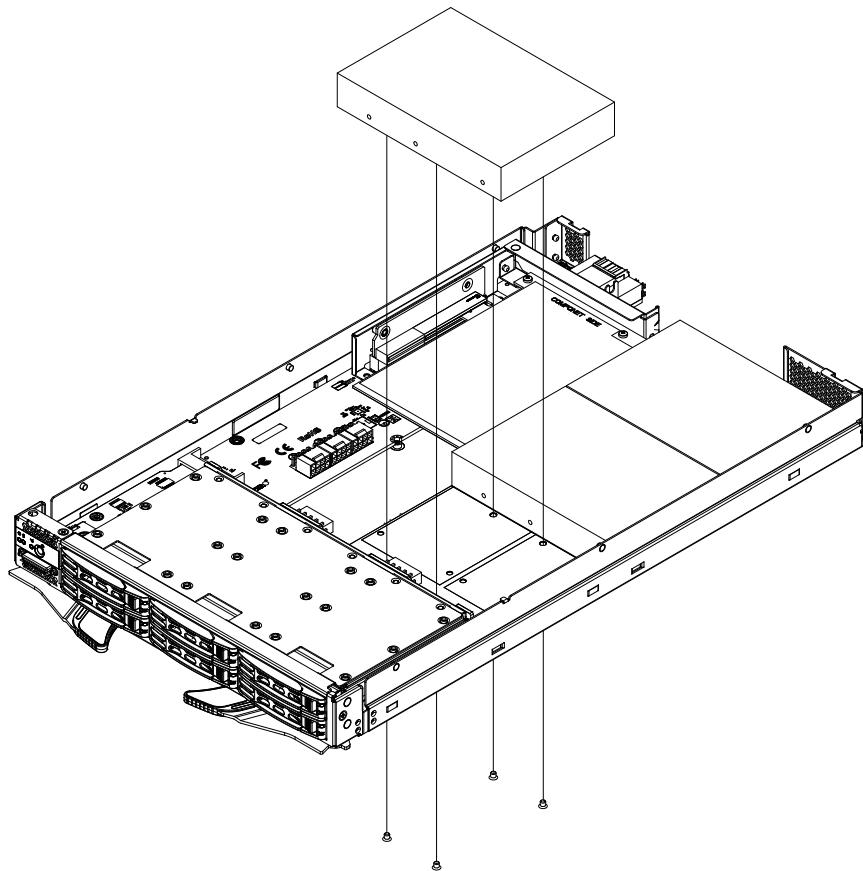
Figure 3-17. Installing/Removing 3.5" HDDs

System Cooling

Eight hot-swapable 9-cm counter-rotating fans at the rear of the chassis provide the cooling for the system. Each fan unit is made up of two fans joined back-to-back, which rotate in opposite directions. This counter-rotating action generates exceptional airflow and is effective in dampening vibration levels.

Replacing Fans

Fan speed is controlled by system temperature via IPMI. If a fan fails, the remaining fans will ramp up to full speed. Replace any failed fan at your earliest convenience with the same type and model (the system can continue to run with a failed fan).

Replacing a System Fan

1. Inspect the rear of the chassis to determine which fan requires changing.

2. Squeeze both release tabs on the fan simultaeously and gently pull the fan from the housing (see figure below). The fan's wiring will automatically detach.

3. Place the new fan into the vacant fan space and push in until it clicks into place.

Release Tab

Release Tab
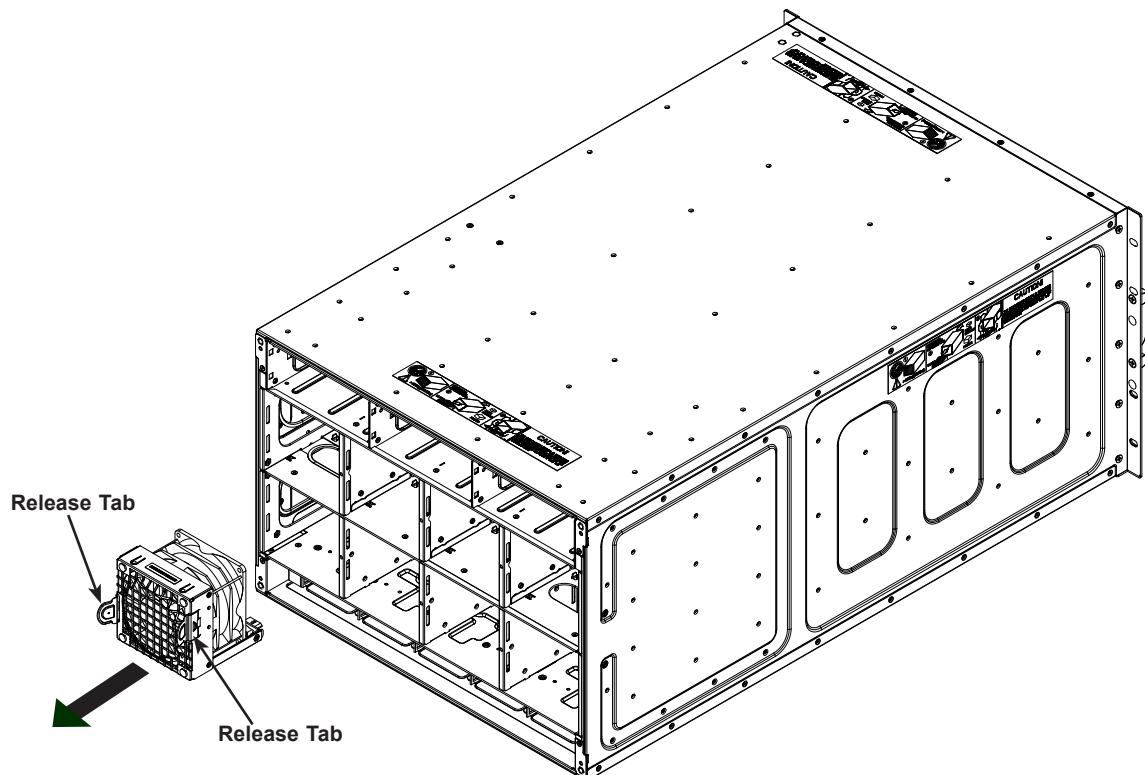
Figure 3-18. Replacing a System Fan

Power Supply

The 7088B-TR4FT has a redundant power system composed of five Titanium level 1600W power supplies.

Power Supply Failure

If a power supply unit fails, the others will take on the load to allow the system to continue operation without interruption. The amber Power Fail LED will illuminate and remain on until the failed unit has been replaced. Replacement units can be ordered directly from Supermicro (see contact information in the Preface).

Removing the Power Supply

Begin by removing power from the system as described in Section 3.1.

1. Unplug the AC power cord from the power supply to be replaced.

2. Push the release tab on the back of the power supply.

3. Grap the unit's handle to pull the power supply out from its bay.

Installing a New Power Supply

1. Replace the failed power module with the same model (PWS-1K62A-1R).

2. Push the new power supply module into the power bay until you hear a click.

3. Plug the AC power cord back into the module.
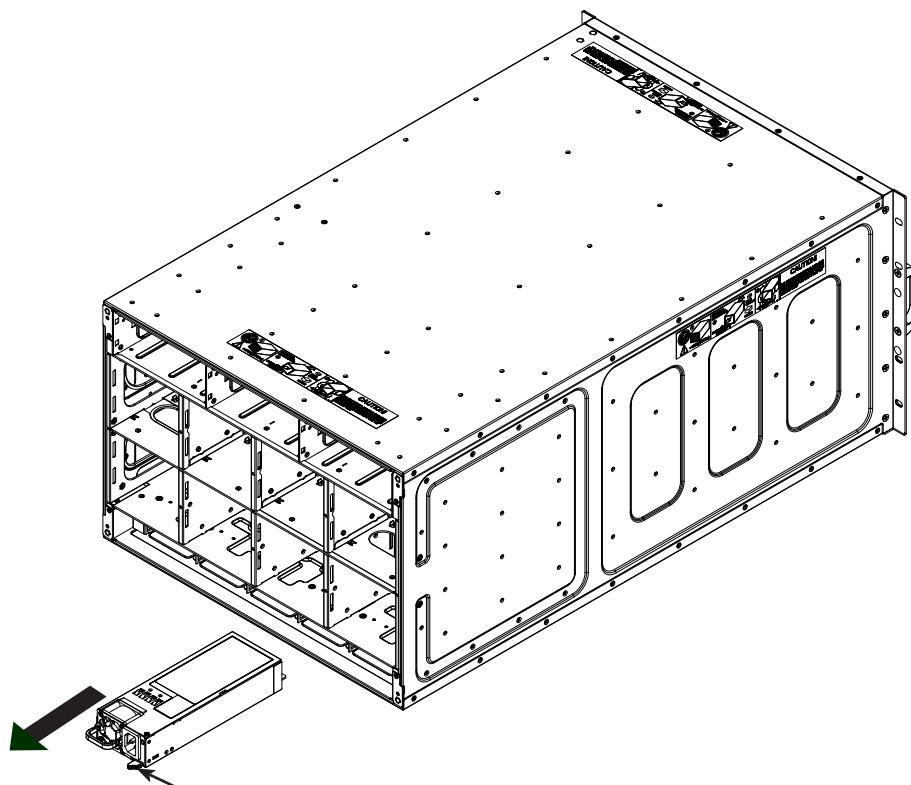
Figure 3-19. Replacing a Power Supply

Chapter 4

Board Connections

This section describes the connections on the various boards in the system and provides pinout definitions. The LEDs on the motherboard are also described here. A severboard layout indicating component locations may be found in Appendix B.

Please review the Safety Precautions in Chapter 3 before installing or removing components.

4.1 PCH Board Connections and Jumpers

I-SATA 0/1 & M.2 Connectors

Two SATA 3.0 ports (I-SATA 0/1) are provided on the PCH Board. These ports are supported by the Intel PCH chip and are used with Supermicro SuperDOMs (Disk-on-Module) built-in power pins. SuperDOM connectors are backward-compatible with regular SATA HDDs and SATA DOMs.

In addition, two M.2 connectors (J7, J8) are also located on the PCH board to provide SATA 2.0 (or PCI-E 2.0) support.

Note: For more information on SATA HostRAID configurations, refer to the Intel SATA HostRAID user's guide posted on our website at http://www.supermicro.com.

Unit Identifier Switch/LED

A UID (Unit Identifier) switch and LED indicator (LED2) are located on the PCH Board. LED2 is located next to the UID switch. Pressing the UID switch turns on the UID LED. Press the UID switch again to turn it off. These UID indicator provide easy identification of a system unit that may be in need of service.

Note: UID can also be triggered via IPMI. For more information on the IPMI, refer to the IPMI User's Guide posted on our website at http://www.supermicro.com.

UID Switch Pin Definitions	
Pin#	Definition
1	Ground
2	Ground
3	Button In
4	Button In

UID LED Status	
Color	Status
Blue: On	Unit Identified

Dedicated IPMI LAN

A dedicated IPMI LAN port provides KVM support for IPMI 2.0. This port accepts an RJ45-type cable.

There are two LEDs on this port. The LED on the right indicates activity, while the LED on the left indicates the speed of the connection.

IPMI LAN LED		
Color	Status	State
Off	Off	10 Mb/s
Green	On	100 Mb/s
Amber	On	1 Gb/s
Yellow: Blinking	Blinking	Activity on Port

DOM Power Connectors

The Disk-On-Module (DOM) power connectors at JSD1/ JSD2 provides 5V power to a solid-state DOM storage device connected to one of the SATA ports.

DOM Power Pin Definitions	
Pin#	Definition
1	5V
2	Ground
3	Ground

TPM/Port 80 Header

A Trusted Platform Module (TPM)/Port 80 header is located at JTPM1 to provide TPM support and a Port 80 connection. TPM is a security device that supports encryption and authentication for hard drives. It enables the motherboard to deny access if the TPM associated with the hard drive is not installed in the system.

Trusted Platform Module Header Pin Definitions			
Pin#	Definition	Pin#	Definition
1	LCLK	2	GND
3	LFRAME#	4	<(KEY)>
5	LRESET#	6	+5V
7	LAD3	8	LAD2
9	+3.3V	10	LAD1
11	LAD0	12	GND
13	SMB_CLK	14	SMB_DAT
15	+3V Stdby	16	SERIRQ
17	GND	18	CLKRUN#
19	LPCPD#	20	LDRQ#

4.2 HDD Board Connections and Jumpers

HDD Power Connectors

Three 8-pin 12V power connectors (JPWR1/JPWR2/JPWR3) are located on the HDD Board to provide power supply for HDDs.

+12V 8-pin Power Pin Definitions	
Pin#	Definition
1 - 4	Ground
5, 6	+12V
7, 8	+5V

SATA Ports

Two SATA 2.0 ports (I-SATA4/I-SATA5) are provided on the HDD Board. These ports are supported by the Intel PCH.

Explanation of Jumpers

To modify the operation of the motherboard, jumpers are used to choose between optional settings. Jumpers create shorts between two pins to change the function associated with it. Pin 1 is identified with a square solder pad on the printed circuit board. See the motherboard layout page for jumper locations.

Note: On a two-pin jumper, "Closed" means the jumper is on both pins and "Open" indicates the jumper is either on only one pin or has been completely removed.
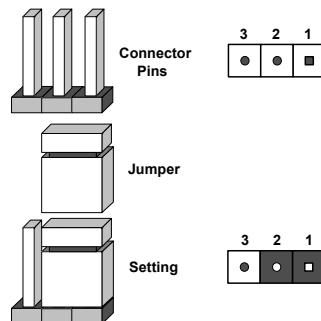
CMOS Clear

JBT1 is used to clear CMOS, which will also clear any passwords. Instead of pins, this jumper consists of contact pads to prevent accidentally clearing the contents of CMOS.

To Clear CMOS

1. First power down the system and unplug the power cord(s).

2. Remove the cover of the chassis to access the motherboard.

3. Remove the onboard battery from the motherboard.

4. Short the CMOS pads with a metal object such as a small screwdriver for at least four seconds.

5. Remove the screwdriver (or shorting device).

6. Replace the onboard battery.

7. Replace the cover, reconnect the power cord(s) and power on the system.

Notes: Clearing CMOS will also clear all passwords.

Do not use the PW_ON connector to clear CMOS.

VGA Enable/Disable

JPG1 allows you to enable or disable the VGA port. The default setting is Enabled.

VGA Enable/Disable Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Enabled
Pins 2-3	Disabled

Manufacturer Mode Select

Close pins 2 and 3 of jumper JPME2 to bypass SPI flash security and force the system to operate in the manufacturer mode, which will allow the user to flash the system firmware from a host server for system setting modifications. The default setting is Normal.

Manufacturer Mode Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Normal
Pins 2-3	Manufacturer Mode

TPM Support Enable/Disable

Use JPT1 to enable TPM (Trusted Platform Modules) support, which enhances data integrity and system security. The default setting is Enabled.

Note: For more information on configuring IPMI, refer to the WPCM 450 IPMI BMC User's Guide posted on our website at http://www.supermicro.com.

TPM Support Enable/Disable Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Enabled
Pins 2-3	Disabled

Watch Dog

JWD controls the Watch Dog function. Watch Dog is a monitor that can reboot the system when a software application hangs. Jumping pins 1-2 will cause Watch Dog to reset the system if an application hangs. Jumping pins 2-3 will generate a non-maskable interrupt signal for the application that hangs. Watch Dog must also be enabled in BIOS. The default setting is Reset.

Note: When Watch Dog is enabled, the user needs to write their own application software to disable it.

Watch Dog Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Reset
Pins 2-3	NMI
Open	Disabled

4.3 Enclosure Midplane Connections

Universal Serial Bus (USB) Header

Located on the reverse side of the Enclosure Midplane is a USB 2.0 header. This header can be used to provide USB access at the rear of the chassis with a cable (not included).

USB 2.0 Header Pin Definitions			
Pin#	**Definition**	**Pin#**	**Definition**
1	+5V	2	+5V
3	NC	4	USB_PCH_N2
5	NC	6	USB_PCH_P2
7	Ground	8	Ground
9	Key	10	NC

NC = No Connection

Chapter 5

Software

After the hardware has been installed, you should install the Operating System (OS), configure RAID settings and install the drivers. Necessary drivers and utilities may be found at ftp://ftp.supermicro.com/driver.

5.1 OS Installation

You must first configure RAID settings (if using RAID) before you install the Windows OS and the software drivers. To configure RAID settings, please refer to the RAID Configuration User Guides posted on our website at www.supermicro.com/support/manuals.

Installing the Windows OS for a RAID System

1. Insert Microsoft's Windows Setup DVD in the DVD drive and the system will start booting up from the DVD.

2. Insert the USB stick containing Windows drivers to a USB port on the system.
   Note: for older legacy OS's, please use a method to slipstream the drivers.

3. Select the partition on the drive in which to install Windows.

4. Browse the USB folder for the proper driver files.

5. Choose the RAID driver indicated in the Windows OS Setup screen, then choose the hard drive in which you want to install it.

6. Once all devices are specified, continue with the installation.

7. After the Windows OS installation is completed, the system will automatically reboot.

Installing Windows to a Non-RAID System

1. Insert Microsoft's Windows OS Setup DVD in the DVD-ROM drive and the system will start booting up from the DVD.

2. Continue with the installation. The Windows OS Setup screen will display.

3. From the Windows OS Setup screen, press the <Enter> key. The OS Setup will automatically load all device files and then continue with the Windows installation.

4. After the installation has completed, the system will automatically reboot.

5.2 Driver Installation

The Supermicro FTP site contains drivers and utilities for your system at ftp://ftp.supermicro.com. Some of these must be installed, such as the chipset driver.

After accessing the FTP site, go into the CDR_Images directory and locate the ISO file for your motherboard. Download this file to create a DVD of the drivers and utilities it contains. (You may also use a utility to extract the ISO file if preferred.)

After creating a DVD with the ISO files, insert the disk into the DVD drive on your system and the display shown in Figure 5-1 should appear.

Another option is to go to the Supermicro website at http://www.supermicro.com/products/. Find the product page for your motherboard here, where you may download individual drivers and utilities to your hard drive or a USB flash drive and install from there.

Note: To install the Windows OS, please refer to the instructions posted on our website at http://www.supermicro.com/support/manuals/.
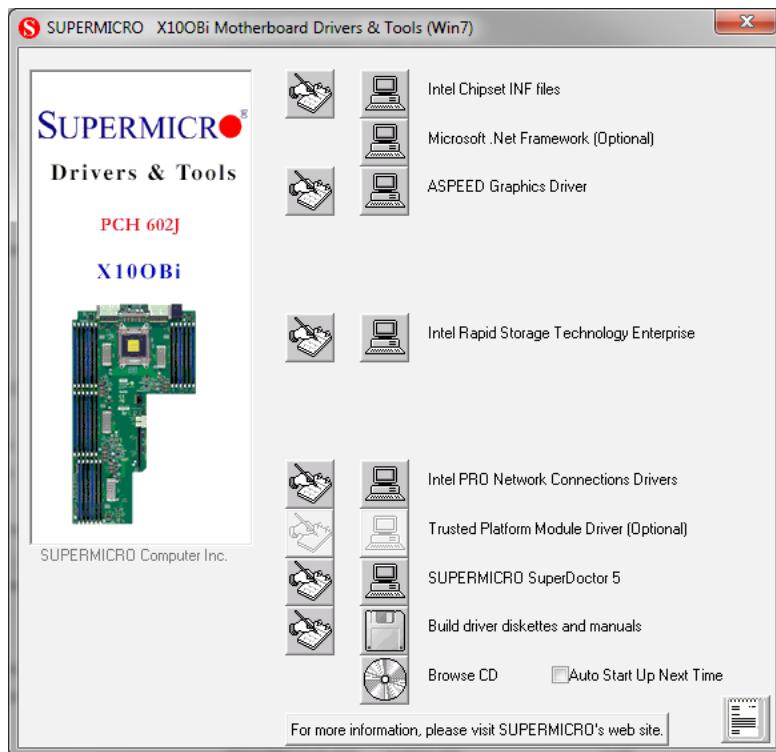
Figure 5-1. Driver & Tool Installation Screen

Note: Click the icons showing a hand writing on paper to view the readme files for each item. Click the computer icons to the right of these items to install each item (from top to the bottom) one at a time. **After installing each item, you must re-boot the system before moving on to the next item on the list.** The bottom icon with a CD on it allows you to view the entire contents.

5.3 SuperDoctor® 5

The Supermicro SuperDoctor 5 is a program that functions in a command-line or web-based interface for Windows and Linux operating systems. The program monitors such system health information as CPU temperature, system voltages, system power consumption, fan speed, and provides alerts via email or Simple Network Management Protocol (SNMP).

SuperDoctor 5 comes in local and remote management versions and can be used with Nagios to maximize your system monitoring needs. With SuperDoctor 5 Management Server (SSM Server), you can remotely control power on/off and reset chassis intrusion for multiple systems with SuperDoctor 5 or IPMI. SuperDoctor 5 Management Server monitors HTTP, FTP, and SMTP services to optimize the efficiency of your operation.

Note: The default User Name and Password for SuperDoctor 5 is admin / admin.

Figure 5-2. SuperDoctor 5 Interface Display Screen (Health Information)
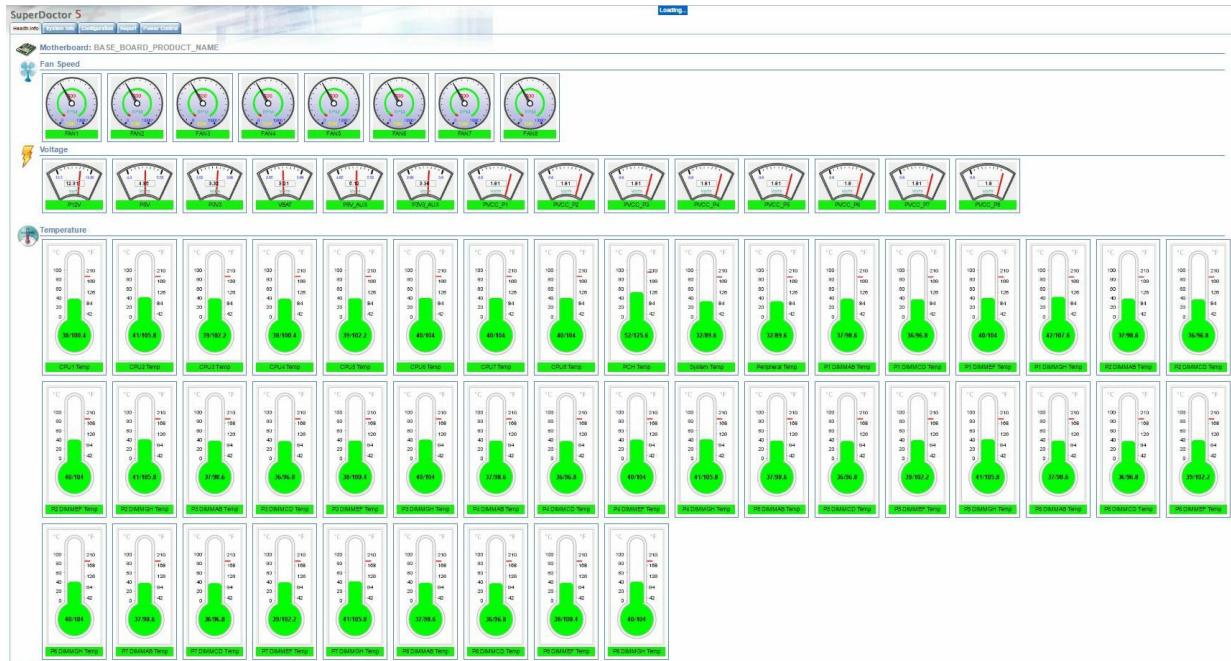
5.4 IPMI

The X10OBi-CPU support the Intelligent Platform Management Interface (IPMI). IPMI is used to provide remote access, monitoring and management. There are several BIOS settings that are related to IPMI.

For general documentation and information on IPMI, please visit our website at: http://www.supermicro.com/products/nfo/IPMI.cfm.

Chapter 6

BIOS

6.1 Introduction

This chapter describes the AMI BIOS setup utility for the X10OBi Platform. It also provides the instructions on how to navigate the AMI BIOS setup utility screens. The AMI ROM BIOS is stored in a Flash EEPROM and can be easily updated.

BIOS Setup Utility

To enter the AMI BIOS setup utility screens, press the <Del> key while the system is booting up.

Note: In most cases, the <Del> key is used to invoke the AMI BIOS setup screen. There are a few cases when other keys are used, such as <F3>, <F4>, etc.

Each main BIOS menu option is described in this manual. The Main BIOS setup menu screen has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured. Options in blue can be configured by the user. The right frame displays the key legend. Above the key legend is an area reserved for informational text. When an option is selected in the left frame, it is highlighted in white. Often informational text will accompany it.

Note: The AMI BIOS has default informational messages built in. The manufacturer retains the option to include, omit, or change any of these informational messages.

The AMI BIOS setup utility uses a key-based navigation system called "hot keys." Most of the AMI BIOS setup utility "hot keys" can be used at any time during setup navigation. These keys include <F3>, <F4>, <Enter>, <ESC>, arrow keys, etc.

Notes: Options printed in Bold are default settings. <F3> is used to load optimal default settings. <F4> is used to save the settings and exit the setup utility.

How To Change the Configuration Data

The configuration data that determines the system parameters may be changed by entering the AMI BIOS setup utility. This setup utility can be accessed by pressing <Delete> at the appropriate time during system boot.

Note: For AMI UEFI BIOS Recovery, please refer to the UEFI BIOS Recovery User Guide posted @ http://www.supermicro.com/support/manuals/.

Starting the Setup Utility

Normally, the only visible Power-On Self-Test (POST) is the memory test. As the memory is being tested, press the <Delete> key to enter the main menu of the AMI BIOS setup utility. From the main menu, you can access the other setup screens. An AMI BIOS identification string is displayed at the left bottom corner of the screen below the copyright message.

> **Warning:** Do not upgrade the BIOS unless your system has a BIOS-related issue. Flashing the wrong BIOS can cause irreparable damage to the system. In no event shall the manufacturer be liable for direct, indirect, special, incidental, or consequential damage arising from a BIOS update. If you have to update the BIOS, do not shut down or reset the system, while the BIOS is being updated to avoid possible boot failure.

6.2 Main Setup

When you first enter the AMI BIOS setup utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab on the top of the screen. The Main BIOS Setup screen is shown below.

```
         Aptio Setup Utility - Copyright (C) 2016 American Megatrends, Inc.
    Main  Advanced  Event Logs  IPMI  Security  Boot  Save & Exit

                                                    Set the Date. Use Tab to
                                                    switch between Date elements.
    System Date                    [Thu 09/22/2016]
    System Time                    [17:51:54]

    Supermicro X10OBi
    BIOS Version                   3.0
    Build Date                     08/04/2016 10:11:58
    CPLD Version                   04.a1.00

    Memory Information
    Total Memory                   4194304 MB(DDR4 1600MHz)

                                                    ++: Select Screen
                                                    ↑↓: Select Item
                                                    Enter: Select
                                                    +/-: Change Opt.
                                                    F1: General Help
                                                    F2: Previous Values
                                                    F3: Optimized Defaults
                                                    F4: Save & Exit
                                                    ESC: Exit

         Version 2.17.1249. Copyright (C) 2016 American Megatrends, Inc.
```

The AMI BIOS Main menu displays the following information:

System Date/System Time

Use this item to change the system date and time using the arrow keys. Enter new values through the keyboard and press <Enter>. Press the <Tab> key to move between fields. The date must be entered in Day MM/DD/YYYY format. The time is entered in HH:MM:SS format. (Note: The time is in the 24-hour format. For example, 5:30 P.M. appears as 17:30:00.).

BIOS Version: This item displays the version of the BIOS ROM used in the system.

Build Date: This item displays the date when the version of the BIOS ROM used in the system was built.

CPLD Version: This item displays the version of CPLD (Complex Programmable Logic Device) firmware used in the system.

Memory Information

Total Memory: This item displays the total size of memory available in the system.

6.3 Advanced Setup Configurations

Select the Advanced tab to access the following submenu items.
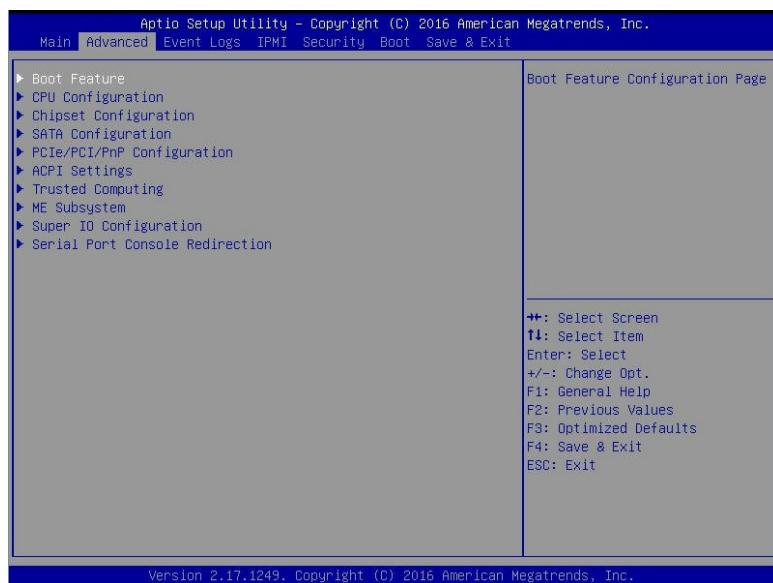
▶Boot Features

Boot Configuration

Quiet Boot

Use this item to select bootup screen display between POST messages and the OEM logo. Select Disabled to display the POST messages. Select Enabled to display the OEM logo instead of the normal POST messages. The options are Disabled and **Enabled**.

AddOn ROM Display Mode

Use this item to set the display mode for the Option ROM. Select Keep Current to use the current AddOn ROM Display setting. Select Force BIOS to use the Option ROM display set by the system BIOS. The options are **Force BIOS** and Keep Current.

Bootup Num-Lock

Use this item to set the power-on state for the Numlock key. The options are **On** and Off.

Wait For 'F1' If Error

Select Enabled to force the system to wait until the 'F1' key is pressed when an error occurs. The options are Disabled and **Enabled**.

Re-try Boot

If this item is set to Enabled, the system BIOS will continuously try to boot from the selected boot drive. The options are **Disabled**, Legacy Boot, and EFI Boot.

Power Configuration

Watch Dog Function

If enabled, the Watch Dog timer will allow the system to automatically reboot when a non-recoverable error occurs and it lasts for more than five minutes. The options are **Disabled** and Enabled.

Power Button Function

If this item is set to Instant Off, the system will power off immediately as soon as the user presses the power button. If this item is set to 4 Seconds Override, the system will power off when the user presses the power button for 4 seconds or longer. The options are **Instant Off** and 4 Seconds Override.

Restore on AC Power Loss

Use this item to set the power state after a power outage. Select Stay Off for the system power to remain off after a power outage. Select Power On to turn on the system power after a power outage. Select Last State to allow the system to resume its last power state before a power outage. The options are Power On, Stay Off, and **Last State**.

▶CPU Configuration

This submenu displays the following CPU information as detected by the BIOS. It also allows the user to configure CPU settings.

▶Processor 1 - Processor 8

This submenu displays the following information of the CPU specified by you.

- Processor Socket

- Processor ID

- Processor Frequency

- Microcode Revision

- L1 Cache RAM

- L2 Cache RAM

- L3 Cache RAM

- Processor 1 Version - Processor 8 Version

Clock Spread Spectrum

Select Enable to allow the BIOS to attempt to reduce the level of Electromagnetic Interference caused by the components whenever needed. The options are **Disable** and Enable.

Hyper-Threading

Select Enable to support Intel's Hyper-threading Technology to enhance CPU performance. The options are Disable and **Enable**.

Cores Enabled

Use this item to set the number of CPU cores to be enabled in your system. Enter "0" to enable all cores. There are 24 cores available in the system. The default setting is 0.

Check CPU BIST (Built-In-Self-Test) Result

Select Enable to de-activate the CPU core that has failed in the built-in self-test at bootup. The options are Disable and **Enable**.

Performance/Watt

Select Power Optimized to enable Intel® Turbo Boost Technology support when the Power Performance State P0 has lasted more than two seconds. The options are **Traditional** and Power Optimized.

Execute-Disable Bit (Available if supported by the OS & the CPU)

Select Enable for Execute Disable Bit Technology support, which will allow the processor to designate areas in the system memory where an application code can execute and where it cannot, thus preventing a worm or a virus from flooding illegal codes to overwhelm the processor or damage the system during an attack. The options are Disable and **Enable**. (Refer to Intel and Microsoft websites for more information.)

Intel Virtualization Technology (Available when supported by the CPU)

Select Enable to support Intel Virtualization Technology, which will allow one platform to run multiple operating systems and applications in independent partitions, creating multiple "virtual" systems in one physical computer. The options are Disable and **Enable**.

Note: If there is a change to this setting, you will need to power off and restart the system for the change to take effect. Please refer to Intel's website for detailed information.

Intel Safer Mode Extensions

Select Enable for Safer Mode Extensions (SMX) support to enhance data security in the processor for Intel Virtualization media support. The options are **Disable** and Enable.

Hardware Prefetcher (Available when supported by the CPU)

If set to Enable, the hardware prefetcher will prefetch streams of data and instructions from the main memory to the L2 cache to improve CPU performance. The options are **Enable** and Disable.

Adjacent Cache Prefetch (Available when supported by the CPU)

Select Enable for the CPU to prefetch both cache lines for 128 bytes as comprised. Select Disable for the CPU to prefetch both cache lines for 64 bytes. The options are **Enable** and Disable.

Note: Please reboot the system for changes on this setting to take effect. Please refer to Intel's website for detailed information.

DCU (Data Cache Unit) Streamer Prefetcher (Available when supported by the CPU)

If set to Enable, the DCU Streamer Prefetcher will prefetch data streams from the cache memory to the DCU to speed up data accessing and processing for CPU performance enhancement. The options are **Enable** and Disable.

DCU IP Prefetcher

If set to Enable, the IP prefetcher in the DCU (Data Cache Unit) will prefetch IP addresses to improve network connectivity and system performance. The options are **Enable** and Disable.

DCU Mode

Use this item to set the data-prefecting mode for the DCU (Data Cache Unit). The options are **32KB 8Way Without ECC** and 16KB 4Way With ECC.

Direct Cache Access (DCA)

Select Enable to use Intel DCA (Direct Cache Access) Technology to ehance data transferring and accessing. The options are Disable and **Enable**.

Extended APIC (Advanced Programmable Interrupt Controller)

Based on Intel's Hyper-Threading architecture, each logical processor (thread) is assigned 256 APIC IDs (APIDs) in 8-bit bandwidth. When this item is set to Enable, the APIC ID will be expanded from 8 bits to 16 bits to provide 512 APIDs to each thread to enhance CPU performance. The options are Disable and **Enable**.

AES-NI

Select Enable to use the Intel Advanced Encryption Standard (AES) New Instructions (NI) to ensure data security. The options are **Enable** and Disable.

▶ Advanced Power Management Configuration

Advanced Power Management Configuration

Power Technology

Select Energy Efficient to support power-saving mode. Select Custom to customize system power settings. Select Max Performance to optimize system performance. Select Disabled to disable power-saving settings. The options are Disable, **Energy Efficient**, and Custom. If the option is set to Custom, the following items will display:

▶ CPU P State Control (Available when Power Technology is set to Custom)

EIST (P-states)

EIST (Enhanced Intel SpeedStep Technology) allows the system to automatically adjust processor voltage and core frequency to reduce power consumption and heat dissipation. The options are Disable and **Enable**.

Turbo Mode

Select Enable to use the Turbo Mode to boost system performance. The options are Disable and **Enable**.

P-state Coordination

Use this item to change the P-state (Power-Performance State) coordination type. P-state is also known as "SpeedStep" for Intel processors. Select HW_ALL to change the P-state coordination type for hardware components only. Select SW_ALL to change the P-state coordination type for all software installed in the system. Select SW_ANY to change the P-state coordination type for a software program in the system. The options are **HW_All**, SW_ALL, and SW_ANY.

PL2_SAFETY_NET_ENABLE

Select Enable to enable PL2_SAFETY_NET-ENABLE support to boost system performance. The options are Disable and **Enable**.

▶ CPU C State Control (Available when Power Technology is set to Custom)

C2C3TT (C2-to-C3 Transaction Timer)

Use this item to set the transaction timer from the C2 state to the C3 state. Enter 0 for Auto, which will allow the BIOS to configure the transaction timer automatically. The default setting is 0 (Auto).

Package C State limit

Use this item to set the limit on the C-State package register. The options are C0/1 state, C2 state, C6 (non-Retention) state, and **C6 (Retention)** state.

CPU C3 Report

Select Enable to allow the BIOS to report the CPU C3 state (ACPI C2) to the operating system. During the CPU C3 state, the CPU clock generator is turned off. The options are **Disable** and Enable.

CPU C6 Report (Available when Power Technology is set to Custom)

Select Enable to allow the BIOS to report the CPU C6 state (ACPI C3) to the operating system. During the CPU C6 state, power to all cache is turned off. The options are Disable and **Enable**.

Enhanced Halt State (C1E)

Select Enable to use the "Enhanced Halt State" feature, which will significantly reduce CPU power consumption by reducing CPU's clock cycle and voltage during a "Halt State." The options are Disable and **Enable**.

▶ CPU T State Control (Available when Power Technology is set to Custom)

ACPI (Advanced Configuration Power Interface) T-States

Select Enable to support CPU throttling by the operating system to reduce power consumption. The options are Disable and **Enable**.

▶ CPU Advanced PM (Power Management) Tuning

▶ Energy Perf (Performance) BIAS

Energy Performance Tuning

Select BIOS to allow the system BIOS to configure the 'Energy-Performance Tuning Bias' settings. The options are **BIOS** and OS.

Energy/Performance BIAS Setting

Use this item to select an appropriate fan setting to achieve maximum system performance (with maximum cooling) or maximum energy efficiency (with maximum power saving). The fan speeds are controlled by the firmware management via IPMI 2.0. The options are Performance, **Balanced Performance**, Balanced Power, and Power.

Workload Configuration

Use this item to set the power management setting optimized for regular workload condition. The options are **Balanced** [recommended] and I/O sensitive.

▶ Chipset Configuration

▶ North Bridge

This feature is used to configure Intel North Bridge settings.

▶ Integrated IO Configuration

EV DFX (Device Function On-Hide) Features

When this item is set to Enable, the EV_DFX Lock Bits that are located on a processor will always remain clear during electric tuning. The options are **Disable** and Enable.

▶ IIO0 Configuration/IIO1 Configuration/IIO2 Configuration /IIO3 Configuration/IIO4 Configuration/IIO5 Configuration/IIO6 Configuration / IIO7 Configuration

▶ PCI Express Port 0 (DMI)

Use the items below to configure the PCI-E settings for a PCI-E port specified by the user. The following items will display:

- PCI-E Port Link Status
- PCI-E Port Link Max
- PCI-E Port Link Speed

Link Speed

Use this item to select the PCI-E link speed for the PCI-E port specified by the user. The options for CPU-PCH DMI port are **Auto**, GEN1 (2.5 GT/s), and GEN2 (5 GT/s). The options for Onboard LAN are Auto, GEN1 (2.5 GT/s), **GEN2 (5 GT/s)**, and GEN3 (8 GT/s). The options for CPU1 Slot1 X8 are **Auto**, GEN1 (2.5 GT/s), GEN2 (5 GT/s), and GEN3 (8 GT/s). CPU1 Slot2 X16 port are **Auto**, GEN1 (2.5 GT/s), GEN2 (5 GT/s), .and GEN3 (8 GT/s). (Note: the option of GEN3 (8 GT/s) is available on the IIO4 Configuration/IIO5 Configuration/IIO6 Configuration /IIO7 Configuration only.)

▶ PCI Express Port 1A/PCI Express Port 1B/PCI Express Port 2A/PCI Express Port 2B/PCI Express Port 2C/PCI Express Port 2D/PCI Express Port 3A/PCI Express Port 3B/PCI Express Port 3C/PCI Express Port 3D

Use the items below to configure the PCI-E settings for a PCI-E port specified by the user. The following items will display:

- PCI-E Port Link Status

- PCI-E Port Link Max
- PCI-E Port Link Speed

Link Speed

Use this item to select the PCI-E link speed for the PCI-E port specified by the user. The options for CPU-PCH DMI port are **Auto**, GEN1 (2.5 GT/s), and GEN2 (5 GT/s). The options for Onboard LAN are Auto, GEN1 (2.5 GT/s), **GEN2 (5 GT/s)**, and GEN3 (8 GT/s). The options for CPU1 Slot1 X8 are **Auto**, GEN1 (2.5 GT/s), GEN2 (5 GT/s), and GEN3 (8 GT/s). CPU1 Slot2 X16 port are **Auto**, GEN1 (2.5 GT/s), GEN2 (5 GT/s), and GEN3 (8 GT/s).

▶IOAT Configuration

Enable IOAT

Select Enable to enable Intel I/OAT (I/O Acceleration Technology), which will significantly reduce CPU overhead by leveraging CPU architectural features to free the system resource up for other tasks. The options are **Disable** and Enable.

No Snoop

Select Enable to support no-snoop mode for each CB device. The options are **Disable** and Enable.

Disable TPH

Select Enable to de-activate TLP Processing Hint support. The options are Enable and **Disable**.

▶ Intel VT for Directed I/O (VT-d)

Intel VT for Directed I/O (VT-d)

Select Enable to enable Intel Virtualization Technology support for Direct I/O VT-d by reporting the I/O device assignments to the VMM (Virtual Machine Monitor) through the DMAR ACPI Tables. This feature offers fully-protected I/O resource sharing across Intel platforms, providing greater reliability, security and availability in networking and data-sharing. The options are **Enable** and Disable.

Interrupt Remapping

Select Enable to support Interrupt Remapping to enhance system performance. The options are **Enable** and Disable.

PCI Express Global Options

Power Down Unused Ports

Select Enable to power down the ports that are connected. The options are **Disable** and Enable.

▶ **QPI (Quick Path Interconnect) General Configuration**

QPI Status

The following information will display:

- Number of CPU

- Number of IIO

- Link Speed

- Current QPI Link Frequency

- QPI Global MMIO Low Base/Limit

- QPI Global MMIO High Base/Limit

- QPI PCI-E Configuration Base/Siz (Size)

Link Frequency Select

Use this feature to select the desired frequency for QPI Link connections. The options are 6.4GB/s, 8.0GB/s, 9.6BG/s, **Auto**, Auto Limited, and Use Per Link Setting.

Link L0p Enable

Select Enable for Link L0p support. The options are Disable and **Enable**.

Link L1 Enable

Select Enable for Link L1 support. The options are Disable and **Enable**.

Legacy VGA Socket

Enter the VGA socket number (from 0-7) that will be used to support legacy VGA. The default setting is 0.

▶ **QPI Per Socket Configuration**

▶ **CPU 1/CPU 2/CPU 3/CPU 4/CPU 5/CPU 6/CPU 7/CPU 8**

Bus Resource Allocation Ratio

Use this feature to set the bus resource-allocation ratio (from 0-8). The default setting is 1.

IO Resource Allocation Ratio

Use this feature to set the IO resource-allocation ratio (from 0-8). The default setting is 1.

MMIOL Resource Allocation Ratio

Use this feature to set the Memory-Mapped IO resource-allocation ratio (from 0-8). The default setting is 1.

IIO UniPhy Disable

Select Yes to hide the entire UNIFY in L2 cache. The options are No and Yes.

▶Memory Configuration

This section displays the following Integrated Memory Controller (IMC) information.

Halt On Memory Error

Use this feature to halt the system when a memory error has occurred. The options are **Disabled** and Enabled.

DDR Speed

Use this feature to force a DDR3 memory module to run at a frequency other than what is specified in the specification. The options are **Auto**, 800, 1067, 1333, 1600, 1867, and 2133.

ODT Timing Mode

Use this feature to set the ODT (On-Die Termination) Timing mode for the memory controller to enhance memory performance. The options are **Aggressive Timing** and Conservative Timing.

MxB Rank Sharing Mapping

Use this feature to select the address-mapping setting for memory-rank sharing to enhance the performance of extended multimedia platforms. The options are Maximum Margin and **Maximum Performance**.

LRDIMM (Load-Reduction DIMM) Module Delay

When this item is set to Disabled, the MRC (Memory Regulator Controller) will not use SPD bytes 90-95 for module delay for LRDIMM memory modules. The options are **Disabled** and Auto.

Data Scrambling

Select Enabled to enable data scrambling to enhance system performance and data integrity. The options are Disabled and **Enabled**.

VMSE Lockstep Mode

Select Enabled to support the VMSE Lockstep mode, which will support Lock step mode for the Intel Scalable Memory Interconnect 2 (Intel SMI 2) controller. The options are 1:1 Mode and **2:1 Mode**.

HA (Hash Mode) Early Write Post Mode

Select Enable to support memory hash-method-comparison mode when the system is running at the early stage of POST (Power-On-Self-Test). The options are is **Enable** and Disabled and Enabled.

Command 2 Data Tuning

Select Enabled to fine-tune the electrical command paths from the host system to the memory-extension buffer (MXB). The options are Disabled and **Enabled**.

Closed Loop Thermal Throttling

Select Enabled to support Closed-Loop Thermal Throttling, which will improve system reliability and reduce CPU power consumption via automatic voltage control while the CPU is in idle states. The options are Disabled and **Enabled**.

▶ **Memory Topology**

This item displays the status of each DIMM module as detected by the BIOS.

- Memory Buffer Controller
- Memory Channel
- DIMM Frequency

▶Memory RAS (Reliability Availability Serviceability) Configuration

This submenu will display the following items:

- Current Memory Mode
- Mirroring
- Sparing

Memory Rank Sparing

This item indicates if memory rank sparing is supported by the motherboard. Memory rank sparing enhances system performance. The options are **Disabled** and Enabled.

Spare Error/Memory Correctable Thr (Threshold)

Use this item to set the correctable error thresholds for spare memory modules. The default setting is 10.

Leaky Bucket Low Bit

Use this feature to set the Low Bit value for the Leaky Bucket algorithm which is used to check the data transmissions between CPU sockets and the memory controller. The default setting is 40.

Leaky Bucket High Bit

Use this item to set the High Bit value for the Leaky Bucket algorithm which is used to check the data transmissions between CPU sockets and the memory controller. The default setting is 41.

Memory Interleaving

Use this item to set the DIMM memory interleaving mood. The options are NUMA (1-way) Node Interleave; **2-way Node Interleave**; 4-way Node Interleave; 8 Way Interleaving, inter-socket; and Auto.

Channel Interleaving

Use this item to set the DIMM channel interleaving mood. The options are **Auto**, 1-way Interleave, 2-way Interleave, 3-way Interleave, and 4-way Interleave.

Rank Interleaving

Use this item to select a rank memory interleaving method. **Auto**, 1-way Interleave, 2-way Interleave, 4-way Interleave, and 8-way Interleave.

Demand Scrub

Demand Scrubbing is a process that allows the CPU to correct correctable memory errors found on a memory module. When the CPU or I/O issues a demand-read command, and the read data from memory turns out to be a correctable error, the error is corrected and sent to the requestor (the original source). Memory is updated as well. Select Enable to use Demand Scrubbing for ECC memory correction. The options are **Enable** and Disable.

Device Tagging

Select Enable to support device tagging. The options are **Disable** and Enable.

A7 Mode

Select Enabled to support A7 (Addressing) Mode to improve memory performance. The options are **Disable** and Enable.

DDDC Support

Select Enable to enable Double-Device Data Correction (DDDC) support which will allow the error-correction codes to correct memory errors caused by two failed DRAM devices. The options are **Disable** and Enable.

▶South Bridge

This feature is used to configure Intel South Bridge settings.

▶USB Configuration

The following USB items will display.

- USB Module Version

- USB Devices

Legacy USB Support (Available when USB Functions is not Disabled)

Select Enabled to support legacy USB devices. Select Auto to disable legacy support if USB devices are not present. Select Disabled to have USB devices available for EFI (Extensive Firmware Interface) applications only. The settings are **Enabled**, Disabled, and Auto.

EHCI Hand-Off

This item is for operating systems that do not support Enhanced Host Controller Interface (EHCI) hand-off. When this item is enabled, EHCI ownership change will be claimed by the EHCI driver. The settings are **Disabled** and Enabled.

Port 60/64 Emulation

Select Enabled for I/O port 60h/64h emulation support which will provide complete USB keyboard legacy support for the operating system that does not support Legacy USB devices. The options are Disabled and **Enabled**.

▶SATA Configuration

When this submenu is selected, the AMI BIOS automatically detects the presence of SATA devices and displays the following items:

SATA Controller

This item enables or disables the built-in SATA controllers on the motherboard. The options are Disabled and **Enabled**.

Configure SATA as

Use this item to configure the SATA mode for a devices installed in the SATA port specified by the user. The options are IDE, **AHCI**, and RAID.

SATA Port 0/SATA Port 1/SATA Port 2/SATA Port 3/SATA Port 4/SATA Port 5

This section allows the user to configure the following settings for the SATA port specified by the user.

SATA RAID Option ROM/UEFI Driver (Available when "Configure SATA as" is set to RAID)

Use this item to define the RAID settings for the system. The options are Legacy, EFI, and Disabled.

SATA Port 0/SATA Port 1/SATA Port 2/SATA Port 3/SATA Port 4/ SATA Port 5

Select Enabled to enable the SATA port specified by the user. The options are **Enabled** and Disabled.

Software Preserve

Hot Plug (Available when "Configure SATA as" is set to RAID or AHCI)

Select Enabled to support Hot-plugging for the selected SATA port which will allow the user to replace a device without shutting down the system. The options are Disabled and **Enabled**.

Spin Up Device (Available when "Configure SATA as" is set to RAID or AHCI)

Select Enabled to allow the PCH to start a COMRESET initialization (from 0 to 1 on an edge detect) on a selected device. The options are **Disabled** and Enabled.

▶PCIe/PCI/PnP Configuration

PCI Latency Timer

Use this feature to set the latency timer of each PCI device installed on a PCI bus. Select 64 to set the PCI latency to 64 PCI clock cycles. The options are **32**, 64, 96, 128, 160, 192, 224 and 248 (PCI Bus Clocks).

VGA Palette Snoop

Select Enabled to support VGA palette register snooping which will allow the PCI card that does not contain its own VGA color palette to examine the video card palette and mimic it for proper color display. The options are **Disabled** and Enabled.

PCI PERR/SERR Support

Select Enabled to allow a PCI device to generate a PERR (PCI/PCI-E Parity Error) or an SERR (System Error) number for a PCI bus error event. The options are **Disabled** and Enabled.

Above 4G Decoding (Available if the system supports 64-bit PCI decoding)

Select Enabled to decode a PCI device that supports 64-bit in the space above 4G Address. The options are **Disabled** and Enabled.

SR-IOV (Available if the system supports Single-Root Virtualization)

Select Enabled for Single-Root IO Virtualization support. The options are Disabled and **Enabled**.

Maximum Payload

Select Auto to allow the system BIOS to automatically set the maximum payload value for a PCI-E device to enhance system performance. The options are **Auto**, 128 Bytes, 256 Bytes, 512 Bytes, 1024 Bytes, 2048 Bytes, and 4096 Bytes

Maximum Read Request

Select Auto to allow the system BIOS to automatically set the maximum Read Request size for a PCI-E device to enhance system performance. The options are **Auto**, 128 Bytes, 256 Bytes, 512 Bytes, 1024 Bytes, 2048 Bytes, and 4096 Bytes.

ASPM Support

Use this item to set the Active State Power Management (ASPM) level for a PCI-E device. Select Force L0s to force all PCI-E links to operate at L0s state. Select Auto to allow the system BIOS to automatically set the ASPM level for the system. Select Disabled to disable ASPM support. The options are **Disabled** and Auto.

Warning: Enabling ASPM support may cause some PCI-E devices to fail!

Legacy INTx Interrupts

Select Enabled for Legacy INTx Interrupts support. The options are Disabled and **Enabled**.

MMIOHBase

Use this item to select the base memory size according to memory-address mapping for the PCH. The base memory size must be between 4032G to 4078G. The options are **56T**, 40T, 24T, 3584G, 2T, 512G, and 256G.

MMIO High Size

Use this item to select the high memory size according to memory-address mapping for the PCH. The options are 32G, 64G, **128G**, 256G, 512G, and 1024G.

Resource Auto Adjust

When this item is set to Enable, the PCI resource-requests for each CPU socket will be automatically adjusted on the need-base when the PCI resource allocator has failed. The options are **Enable** and Disable.

CPU1 Storage AOC OPROM/CPU3 PCI-E x8 OPROM/CPU4 Storage AOC OPROM/CPU5 PCI-E x8 OPROM/CPU6 PCI-E x8 OPROM/CPU7 PCI-E x8 OPROM/CPU8 PCI-E x8 OPROM/CPU GPU OPROM

Use this item to select the type of device to be installed on a slot specified by the user for system boot. The options are Disabled, EFI and **Legacy Only**.

CPU NVME OPROM

Use this item to select the type of device installed on the CPU NVME connector to be used for system boot. The options are Disabled, EFI, and **Legacy**.

Onboard Video OPROM

Use this item to select the type of device installed on the onboard video port that will be used for system boot. The options are Disabled, EFI, and **Legacy**.

VGA Priority

Use this item to select the graphics adapter to be used as the primary boot device. The options are **Auto**, Onboard, and Offboard.

PCIe Hotplug Control

If this item is set Enabled, the user will be able to change a PCI-E device without shutting down the system. The options are **Enabled** and Disabled.

Load Onboard LAN1 Option ROM/Load Onboard LAN2 Option ROM

Select Enabled to enable the onboard LAN1/LAN2 Option ROM which will allow the user to boot the computer using a network device. The default setting for LAN1 Option ROM is PXE, and the default setting for LAN2 Option ROM is Disabled.

Network Stack

Select Enabled to enable PXE (Preboot Execution Environment) or UEFI (Unified Extensible Firmware Interface) for network stack support. The options are Enabled and **Disabled**.

▶**ACPI Settings**

WHEA Support

Select Enabled to support the Windows Hardware Error Architecture (WHEA) platform and provide a common infrastructure for the system to handle hardware errors within the Windows OS environment to reduce system crashes and to enhance system recovery and health monitoring. The options are Enabled and Disabled.

Lock Legacy Resources

Select Enabled for locking legacy-resources support . The options are Enabled and Disabled.

▶Trusted Computing (Available when a TPM device is detected by the BIOS)

Configuration

Security Device Support

Select Enable on this item and enable the TPM jumper on the motherboard to enable onboard security devices to improve data integrity and network security. The options are **Enable** and Disable.

TPM (Trusted-Platform Module) State

Select Enabled to use TPM security settings to improve data integrity and network security. The options are Disabled and **Enabled**.

Pending Operation

Use this item to schedule an operation for the security device. The options are None, Enable Take Ownership, Disable Take Ownership, and TPM Clear. **Note:** The computer will reboot in order to execute the pending commands and change the state of the security device.

Current Status Information: This item displays the information regarding the current TPM status.

TPM Enable Status

This item displays the status of TPM Support to indicate if TPM is currently enabled or disabled.

TPM Active Status

This item displays the status of TPM Support to indicate if TPM is currently active or not activated.

TPM Owner Status

This item displays the status of TPM Ownership.

TXT Support

Select Enabled for Intel TXT technology support to improve network security. The options are Enabled and **Disabled**.

►ME (Management Engine) Subsystem

This feature displays the following ME Subsystem Configuration settings.

- General ME Configuration

- Operational Firmware Version

- Recovery Firmware Version

- ME Firmware Features

- ME Firmware Status #1

- ME Firmware Status #2

  - Current State
  - Error Code

►Super IO Configuration

Super IO Chip: This item displays the Super IO chip used in the motherboard.

►Serial Port 1 Configuration

Serial Port

Select Enabled to enable a serial port specified by the user. The options are **Enabled** and Disabled.

Device Settings

This item displays the settings of Serial Port 1 (COM).

Change Settings

This option specifies the base I/O port address and the Interrupt Request address of Serial Port 1 (COM). Select Disabled to prevent the serial port from accessing any system resources. When this option is set to Disabled, the serial port becomes unavailable. The options are **Auto**, IO=3F8h; IRQ=4; IO=3F8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2F8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=3E8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2E8h; IRQ=IRQ=3, 4, 5, 6, 7, 10, 11, 12.

▶Serial Port 2 Configuration

Serial Port

Select Enabled to enable a serial port specified by the user. The options are **Enabled** and Disabled.

Device Settings

This item displays the settings of Serial Port 2.

Change Settings

This option specifies the base I/O port address and the Interrupt Request address of Serial Port 2 (SOL). Select Disabled to prevent the serial port from accessing any system resources. When this option is set to Disabled, the serial port becomes unavailable. The options are **Auto**, O=2F8h; IRQ=3; IO=3F8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2F8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=3E8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2E8h; IRQ=IRQ=3, 4, 5, 6, 7, 10, 11, 12.

Serial Port 2 Attribute

Use this feature to select the attribute for this serial port. The options are **SOL** (Serial On LAN), and COM.

▶Serial Port Console Redirection

COM 1 Console Redirection

This submenu allows the user to configure the following Console Redirection settings for this port.

Console Redirection

Select Enabled for Console Redirection support. The options are Enabled and **Disabled**. If set to Enabled, the following items will become available for configuration:

▶(COM1) Console Redirection Settings

Terminal Type

Use this item to select the target terminal emulation type for Console Redirection. Select VT100 to use the ASCII Character set. Select VT100+ to add color and function key support. Select ANSI to use the Extended ASCII Character Set. Select VT-UTF8

to use UTF8 encoding to map Unicode characters into one or more bytes. The options are ANSI, VT100, **VT100+**, and VT-UTF8.

Bits Per second

Use this item to set the transmission speed for a serial port used in Console Redirection. Make sure that the same speed is used in the host computer and the client computer. A lower transmission speed may be required for long and busy lines. The options are 9600, 19200, 38400, 57600 and **115200** (bits per second).

Data Bits

Use this item to set the data transmission size for Console Redirection. The options are 7 (Bits) and **8 (Bits)**.

Parity

A parity bit can be sent along with regular data bits to detect data transmission errors. Select Even if the parity bit is set to 0, and the number of 1's in data bits is even. Select Odd if the parity bit is set to 0, and the number of 1's in data bits is odd. Select None if you do not want to send a parity bit with your data bits in transmission. Select Mark to add a mark as a parity bit to be sent along with the data bits. Select Space to add a Space as a parity bit to be sent with your data bits. The options are **None**, Even, Odd, Mark and Space.

Stop Bits

A stop bit indicates the end of a serial data packet. Select 1 Stop Bit for standard serial data communication. Select 2 Stop Bits if slower devices are used. The options are **1** and 2.

Flow Control

Use this item to set the flow control for Console Redirection to prevent data loss caused by buffer overflow. Send a "Stop" signal to stop sending data when the receiving buffer is full. Send a "Start" signal to start sending data when the receiving buffer is empty. The options are **None** and Hardware RTS/CTS.

VT-UTF8 Combo Key Support

Select Enabled to enable VT-UTF8 Combination Key support for ANSI/VT100 terminals. The options are **Enabled** and Disabled.

Recorder Mode

Select Enabled to capture the data displayed on a terminal and send it as text messages to a remote server. The options are **Disabled** and Enabled.

Resolution 100x31

Select Enabled for extended-terminal resolution support. The options are Disabled and **Enabled**.

Legacy OS Redirection Resolution

Use this item to select the number of rows and columns used in Console Redirection for legacy OS support. The options are **80x24** and 80x25.

Putty KeyPad

This feature selects Function Keys and KeyPad settings for Putty, which is a terminal emulator designed for the Windows OS. The options are **VT100**, LINUX, XTERMR6, SCO, ESCN, and VT400.

Redirection After BIOS Post

Use this item to enable or disable legacy Console Redirection after BIOS POST. When the option-BootLoader is selected, legacy Console Redirection is disabled before booting the OS. When the option- Always Enable is selected, legacy Console Redirection remains enabled during OS bootup. The options are **Always Enable** and BootLoader.

COM2/SOL Console Redirection

This submenu allows the user to configure the following Console Redirection settings for the SOL Port specified by the user.

Console Redirection

Select Enabled to use the SOL Port for Console Redirection. The options are **Enabled** and Disabled.

▶**Console Redirection Settings/Legacy Console Redirection Settings**

This feature allows the user to specify how the host computer will exchange data with the client computer, which is the remote computer used by the user.

Terminal Type

Use this feature to select the target terminal emulation type for Console Redirection. Select VT100 to use the ASCII Character set. Select VT100+ to add color and function key support. Select ANSI to use the Extended ASCII Character Set. Select VT-UTF8 to use UTF8 encoding to map Unicode characters into one or more bytes. The options are ANSI, VT100, **VT100+**, and VT-UTF8.

Bits Per second

Use this item to set the transmission speed for a serial port used in Console Redirection. Make sure that the same speed is used in the host computer and the client computer. A lower transmission speed may be required for long and busy lines. The options are 9600, 19200, 38400, 57600 and **115200** (bits per second).

Data Bits

Use this item to set the data transmission size for Console Redirection. The options are 7 Bits and **8 Bits**.

Parity

A parity bit can be sent along with regular data bits to detect data transmission errors. Select Even if the parity bit is set to 0, and the number of 1's in data bits is even. Select Odd if the parity bit is set to 0, and the number of 1's in data bits is odd. Select None if you do not want to send a parity bit with your data bits in transmission. Select Mark to add a mark as a parity bit to be sent along with the data bits. Select Space to add a Space as a parity bit to be sent with your data bits. The options are **None**, Even, Odd, Mark and Space.

Stop Bits

A stop bit indicates the end of a serial data packet. Select 1 Stop Bit for standard serial data communication. Select 2 Stop Bits if slower devices are used. The options are **1** and 2.

Flow Control

Use this item to set the flow control for Console Redirection to prevent data loss caused by buffer overflowing. Send a "Stop" signal to stop sending data when the receiving buffer is full. Send a "Start" signal to start sending data when the receiving buffer is empty. The options are **None** and Hardware RTS/CTS.

VT-UTF8 Combo Key Support

Select Enabled to enable VT-UTF8 Combination Key support for ANSI/VT100 terminals. The options are **Enabled** and Disabled.

Recorder Mode

Select Enabled to capture the data displayed on a terminal and send it as text messages to a remote server. The options are **Disabled** and Enabled.

Resolution 100x31

Select Enabled for extended-terminal resolution support. The options are Disabled and **Enabled**.

Legacy OS Redirection Resolution

Use this item to select the number of rows and columns to be used in Console Redirection for legacy OS support. The options are **80x24** and 80x25.

Putty KeyPad

Use this item to select Function Keys and KeyPad settings for Putty, which is a terminal emulator designed for the Windows OS. The options are **VT100**, LINUX, XTERMR6, SCO, ESCN, and VT400.

Redirection After BIOS Post

Use this item to enable or disable Legacy Console Redirection after BIOS POST (Power-On Self-Test). When this item is set to Bootloader, Legacy Console Redirection is disabled before booting the OS. When this item is set to **Always Enable**, Legacy Console Redirection remains enabled when booting the OS. The options are Always Enable and Bootloader.

Serial Port for Out-of-Band Management/Windows Emergency Management Services (EMS)

The submenu allows the user to configure Console Redirection settings to support Out-of-Band Serial Port management.

Console Redirection (for EMS)

Select Enabled to use a COM port selected by the user for Console Redirection. The options are Enabled and **Disabled**.

▶Console Redirection Settings (for EMS)

This feature allows the user to specify how the host computer will exchange data with the client computer, which is the remote computer used by the user.

Out-of-Band Management Port

Use this item to select a serial port to be used by the Microsoft Windows Emergency Management Services (EMS) to communicate with a remote server. The options are **COM1 Console Redirection** and COM2/SOL Console Redirection.

Terminal Type

Use this item to select the target terminal emulation type for Console Redirection. Select VT100 to use the ASCII character set. Select VT100+ to add color and function key support. Select ANSI to use the extended ASCII character set. Select VT-UTF8 to use UTF8 encoding to map Unicode characters into one or more bytes. The options are ANSI, VT100, VT100+, and **VT-UTF8**.

Bits Per Second

This item sets the transmission speed for a serial port to be used in Console Redirection. Make sure that the same speed is used in the host computer and the client computer. A lower transmission speed may be required for long and busy lines. The options are 9600, 19200, 57600, and **115200** (bits per second).

Flow Control

Use this item to set the flow control for Console Redirection to prevent data loss caused by buffer overflowing. Send a "Stop" signal to stop sending data when the receiving buffer is full. Send a "Start" signal to start sending data when the receiving buffer is empty. The options are **None**, Hardware RTS/CTS, and Software Xon/Xoff.

The setting for each these features is displayed: Data Bits, Parity, Stop Bits

6.4 Event Logs

Use this feature to configure Event Log settings.

```
                    Aptio Setup Utility – Copyright (C) 2016 American Megatrends, Inc.
          Main  Advanced  Event Logs  IPMI  Security  Boot  Save & Exit

                                                        Press <Enter> to change the
   ▶ Change Smbios Event Log Settings                   Smbios Event Log configuration.

   ▶ View Smbios Event Log




                                                        ↔: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F2: Previous Values
                                                        F3: Optimized Defaults
                                                        F4: Save & Exit
                                                        ESC: Exit



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```

▶Change SMBIOS Event Log Settings

This feature allows the user to configure SMBIOS Event settings.

Enabling/Disabling Options

SMBIOS Event Log

Select Enabled to enable SMBIOS (System Management BIOS) Event Logging during system boot. The options are **Enabled** and Disabled.

Runtime Error Logging Support

Select Enabled to support Runtime Error Logging. The options are **Enabled** and Disabled.

Erasing Settings

Erase Event Log

Select Yes to erase all error events in the SMBIOS (System Management BIOS) log before an event logging is initialized at bootup. The options are **No** and Yes.

When Log is Full

Select Erase Immediately to immediately erase all errors in the SMBIOS event log when the event log is full. Select Do Nothing for the system to do nothing when the SMBIOS event log is full. The options are **Do Nothing** and Erase Immediately.

SMBIOS Event Log Standard Settings

Log System Boot Event

Select Enabled to log system boot events. The options are **Disabled** and Enabled.

MECI (Multiple Event Count Increment)

Enter the increment value for the multiple event counter. Enter a number between 1 to 255. The default setting is 1.

METW (Multiple Event Count Time Window)

This item is used to determine how long (in minutes) the multiple event counter should wait before generating a new event log. Enter a number between 0 to 99. The default setting is 60.

Note: Please reboot the system for the changes to take effect.

▶View SMBIOS Event Log

This item allows the user to view the event in the SMBIOS event log. Select this item and press <Enter> to view the status of an event in the log. The following categories are displayed:

Date/Time/Error Code/Severity

6.5 IPMI

Select the IPMI (Intelligent Platform Management Interface) tab to access the following submenu items.

These items indicates your system IPMI firmware revision number and status.

- IPMI Firmware Revision

- Status of IPMI

▶System Event Log

Enabling/Disabling Options

SEL Components

Select Enabled to enable all system event logging support at bootup. The options are **Enabled** and Disabled.

Erasing Settings

Erase SEL

Select Yes, On next reset to erase all system event logs upon next system reboot. Select Yes, On every reset to erase all system event logs upon every system reboot. Select No to keep all system event logs after each system reboot. The options are **No**, Yes, On next reset, and Yes, On every reset.

When SEL is Full

This feature allows the user to determine what the AMI BIOS should do when the system event log is full. Select Erase Immediately to erase all events in the log when the system event log is full. The options are **Do Nothing** and Erase Immediately.

Note: After making changes on a setting, be sure to reboot the system for the changes to take effect.

▶BMC Network Configuration

IPMI LAN Select

Use this item to select the IPMI LAN setting which will take effect on the next system boot. The default setting is Failover.

Current Configuration Address Source

Use this item to select the IP address source for this computer. If Static is selected, you will need to know the IP address of this computer and enter it to the system manually in the field. If DHCP is selected, AMI BIOS will search for a DHCP (Dynamic Host Configuration Protocol) server attached to the network and request the next available IP address for this computer. The options are **DHCP** and Static.

Station IP Address

This item displays the Station IP address for this computer. This should be in decimal and in dotted quad form (i.e., 192.168.10.253).

Subnet Mask

This item displays the sub-network that this computer belongs to. The value of each three-digit number separated by dots should not exceed 255.

Station MAC Address

This item displays the Station MAC address for this computer. Mac addresses are 6 two-digit hexadecimal numbers.

Router IP Address

This item displays the router IP address for this computer. This should be in decimal and in dotted quad form (i.e., 192.168.10.253).

VLAN

Select Enable for VLAN support. The default setting is Disable.

Update IPMI LAN Configuration

Select Yes for the system BIOS to automatically reset the following IPMI settings at next system boot. The options are Yes and **No**.

6.6 Security

This menu allows the user to configure the following security settings for the system.

```
          Aptio Setup Utility - Copyright (C) 2016 American Megatrends, Inc.
   Main  Advanced  Event Logs  IPMI  Security  Boot  Save & Exit

  Password Description                              Set Administrator Password

  If ONLY the Administrator's password is set,
  then this only limits access to Setup and is
  only asked for when entering Setup.
  If ONLY the User's password is set, then this
  is a power on password and must be entered to
  boot or enter Setup. In Setup the User will
  have Administrator rights.
  The password length must be
  in the following range:
  Minimum length             3
  Maximum length             20
                                                   →←: Select Screen
                                                   ↑↓: Select Item
  Administrator Password                           Enter: Select
  User Password                                    +/-: Change Opt.
                                                   F1: General Help
                                                   F2: Previous Values
  HDD Security Configuration:                      F3: Optimized Defaults
  P4:ST9500620NS                                   F4: Save & Exit
                                                   ESC: Exit



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```

Administrator Password

Use this item to set the administrator password which is required to enter the BIOS setup utility. The length of the password should be from 3 characters to 20 characters long.

User Password

Use this item to set a user password which is required to log into the system and to enter the BIOS setup utility. The length of the password should be from 3 characters to 20 characters long.

6.7 Boot

This submenu allows the user to configure the following boot settings for the system.

```
                  Aptio Setup Utility - Copyright (C) 2016 American Megatrends, Inc.
          Main   Advanced  Event Logs  IPMI  Security  Boot  Save & Exit

                                                        ▲ Select boot mode LEGACY/UEFI
          Boot Mode Select               [DUAL]

          FIXED BOOT ORDER Priorities
          Boot Option #1                 [Hard Disk: ST950062...]
          Boot Option #2                 [CD/DVD]
          Boot Option #3                 [USB Hard Disk]
          Boot Option #4                 [USB CD/DVD]
          Boot Option #5                 [USB Key]
          Boot Option #6                 [USB Floppy]
          Boot Option #7                 [Network]
          Boot Option #8                 [UEFI Hard Disk]
          Boot Option #9                 [UEFI CD/DVD]
          Boot Option #10                [UEFI USB Hard Disk]    ▶←: Select Screen
          Boot Option #11                [UEFI USB CD/DVD]       ↑↓: Select Item
          Boot Option #12                [UEFI USB Key]          Enter: Select
          Boot Option #13                [UEFI USB Floppy]       +/-: Change Opt.
          Boot Option #14                [UEFI Network]          F1: General Help
          Boot Option #15                [UEFI AP:UEFI: Built...] F2: Previous Values
                                                                 F3: Optimized Defaults
        ▶ Delete Boot Option                                     F4: Save & Exit
                                                                 ESC: Exit
        ▶ Delete Driver Option

        ▶ Hard Disk Drive BBS Priorities                       ▼

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```

Boot Mode Select

Use this item to configure boot mode select settings for your system. The options are Legacy, UEFI, and Dual.

Fixed Boot Order Priorities

This option prioritizes the order of bootable devices from which the system will boot. Press <Enter> on each entry from top to bottom to select devices.

When "Boot Mode Select" is set to Dual (default), the following items will be displayed for configuration:

  Dual Boot Order #1 - Dual Boot Order #15

When "Boot Mode Select" is set to Legacy, the following items will be displayed for configuration:

Legal Boot Order #1 - Legal Boot Order #7

When "Boot Mode Select" is set to UEFI, the following items will be displayed for configuration:

UEFI Boot Order #1 - UEFI Boot Order #8

▶Delete Boot Option

Use this item to select a boot device to delete from the boot priority list.

▶Delete Drive Option

Use this item to select a bootable drive to delete from the boot priority list.

▶UEFI Application Boot Priorities

Boot Order #1

6.8 Save & Exit

This submenu allows the user to configure the Save and Exit settings for the system.

```
          Aptio Setup Utility - Copyright (C) 2016 American Megatrends, Inc.
    Main  Advanced  Event Logs  IPMI  Security  Boot  Save & Exit

    Save Options                                 Exit system setup after saving
    Save Changes and Exit                        the changes.
    Discard Changes and Exit

    Save Changes and Reset
    Discard Changes and Reset

    Save Changes
    Discard Changes

    Default Options
    Restore Defaults
    Save as User Defaults
    Restore User Defaults                        →←: Select Screen
                                                 ↑↓: Select Item
    Boot Override                                Enter: Select
    P4: ST9500620NS                              +/-: Change Opt.
    UEFI: Built-in EFI Shell                     F1: General Help
                                                 F2: Previous Values
                                                 F3: Optimized Defaults
                                                 F4: Save & Exit
                                                 ESC: Exit

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```

Save Changes and Exit

When completing the system configuration changes, select this option to save the changes and exit from the BIOS setup utility. When a dialog box appears, asking you if you want to save configuration and exit, select Yes to save the changes and exit from the BIOS setup utility.

Discard Changes and Exit

Select this option to quit the BIOS setup without making any changes to the system configuration. Select Discard Changes and Exit, and press <Enter>. When the dialog box appears, asking you if you want to exit the BIOS setup without saving, select Yes to quit BIOS without saving the changes.

Save Changes and Reset

After completing the system configuration changes, select this option to save the changes and reboot the computer so that the new system configuration settings can take effect.

Save Changes

Select this option and press <Enter> to save all changes you've made so far and return to the AMI BIOS utility. When the dialog box appears, asking you if you want to save configuration, select Yes to save the changes, or select No to return to the BIOS without making changes.

Discard Changes

Select this feature and press <Enter> to discard all the changes and return to the BIOS setup. When the dialog box appears, asking you if you want to load previous values, select Yes to load the values previous saved, or select No to keep the changes you've made so far.

Default Options

Restore Defaults

Select this feature and press <Enter> to load the optimized default settings that help optimize system performance. When the dialog box appears, asking you if you want to load optimized defaults, select Yes to load the optimized default settings, or select No to abandon optimized defaults.

Save as User Defaults

Select this feature and press <Enter> to save the current settings as the user's defaults. When the dialog box appears, asking you if you want to save values as user's defaults, select Yes to save the current values as user's default settings, or select No to keep the defaults previously saved as the user's defaults.

Restore User Defaults

Select this feature and press <Enter> to load the user's defaults previously saved in the system. When the dialog box appears, asking you if you want to restore user's defaults, select Yes to restore the user's defaults previously saved in the system, or select No to abandon the user's defaults that were previously saved.

Boot Override

This feature allows the user to override the Boot Option Priority sequence set in the Boot menu, and boot the system with one of the listed devices instead. This is a one-time override.

Appendix A

BIOS Error Codes

A-1 BIOS Error Beep (POST) Codes

During the POST (Power-On Self-Test) routines, which are performed each time the system is powered on, errors may occur.

Non-fatal errors are those which, in most cases, allow the system to continue the boot-up process. The error messages normally appear on the screen.

Fatal errors are those which will not allow the system to continue the boot-up procedure. If a fatal error occurs, you should consult with your system manufacturer for possible repairs.

These fatal errors are usually communicated through a series of audible beeps. The numbers on the fatal error list (on the following page) correspond to the number of beeps for the corresponding error. All errors listed, with the exception of Beep Code 8, are fatal errors.

BIOS Beep (POST) Codes		
Beep Code	**Error Message**	**Description**
1 beep	Refresh	Ready to boot
5 short, 1 long	Memory error	No memory detected in system
5 beeps	No con-in or con-out devices	Con-in includes USB or PS/2 keyboard, PCI or serial console redirection, and IPMI KVM or SOL. Con-out includes the video controller, PCI or serial console redirection, and IPMI SOL.

IPMI Error Codes		
Beep Code	**Error Message**	**Description**
1 continuous beep	System OH	System overheat

Appendix B

Standardized Warning Statements for AC Systems

B.1 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 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。

此警告符号代表危险。
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 הצהרות אזהרה

הצהרות 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.

تحذير! هذا الرمز يعني خطر انك في حالة يمكن أن تتسبب في اصابة جسدية .
قبل أن تعمل على أي معدات،كن على علم بالمخاطر الناجمة عن الدوائر
الكهربائية
وكن على دراية بالممارسات الوقائية لمنع وقوع أي حوادث
استخدم رقم البيان المنصوص في نهاية كل تحذير للعثور لترجمتها

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, 60VDC

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

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 electrische installatie. Controleer of het beveiligde aparaat 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.

電源切断の警告

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、シャーシー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断され、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 chassis pour installer ou enlever des composants de systéme.

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 النظام من جميع مصادر الطاقة وإزالة سلك الكهرباء من وحدة امداد الطاقة قبل
الوصول إلى المناطق الداخلية للهيكل لتثبيت أو إزالة مكونات الجهاز

경고!

시스템에 부품들을 장착하거나 제거하기 위해서는 섀시 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す。

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.

<div dir="rtl">

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

يجب أن يسمح فقط للموظفين المؤهلين والمدربين لتركيب واستبدال أو خدمة هذا الجهاز

</div>

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
此裝置僅限安裝於進出管制區域，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').

تم تخصيص هذه الوحدة لتركيبها في مناطق محظورة .
يمكن الوصول إلى منطقة محظورة فقط من خلال استخدام أداة خاصة،
قفل ومفتاح أو أي وسيلة أخرى للأمان

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

电池更换不当会有爆炸危险。请只使用同类电池或制造商推荐的功能相当的电池更换原有电池。请按制造商的说明处理废旧电池。

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 استبدال البطارية بطريقة غير صحيحة فعليك استبدال البطارية
فقط بنفس النوع أو ما يعادلها كما أوصت به الشركة المصنعة
تخلص من البطاريات المستعملة وفقا لتعليمات 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 ontploffingsgevaar 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
此裝置連接的電源可能不只一個，必須切斷所有電源才能停止對該裝置的供電。

Warnung

Dieses Gerät kann mehr als eine Stromzufuhr haben. Um sicherzustellen, dass der Einheit kein trom 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 !
ליחדה 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 لعزل 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 أوالطاقة الموجودة على اللوحة
عندما يكون النظام يعمل كن 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 instalacion 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 للقوانين المحلية والوطنية 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.

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

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！危险的可移动性零件。请务必与转动的风扇叶片保持距离。　当您从机架移除风扇装置，风扇可能仍在转动。小心不要将手指、螺丝起子和其他物品太靠近风扇

警告
危险的可移动性零件。請務必與轉動的風扇葉片保持距離。　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 ell montaje del ventilador del chasis. Mandtenga los dedos, los destornilladores y todos los objetos lejos de las aberturas del ventilador

Attention

Pieces mobiles dangereuses. Se tenir a l'ecart 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 בפעולהכאשר מסירים את חלקי המאוורר מהמארז, יתכן והמאווררים עדיין עובדים. יש להרחיק למרחק בטוח את האצבעות וכלי עבודה שונים מהפתחים בתוך המאוורר

تحذير! أجزاء متحركة خطرة. 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. 섀시로부터 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 code) 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、提供または指定された接続ケーブル、電源コードとACアダプターを使用下さい。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/CSE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连接线，电源线和电源适配器.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連接線，電源線和電源適配器.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

Bei der Installation des Produkts, die zur Verfügung gestellten oder benannt Anschlusskabel, Stromkabel und Netzteile. Verwendung anderer Kabel und Adapter kann zu einer Fehlfunktion oder ein Brand entstehen. Elektrische Geräte und Material Safety Law verbietet die Verwendung von UL-oder CSA-zertifizierte Kabel, UL oder CSA auf der Code für alle anderen elektrischen Geräte als Produkte von Supermicro nur bezeichnet gezeigt haben.

¡Advertencia!

Al instalar el producto, utilice los cables de conexión previstos o designados, los cables y adaptadores de CA. La utilización de otros cables y adaptadores podría ocasionar un mal funcionamiento o un incendio. Aparatos Eléctricos y la Ley de Seguridad del Material prohíbe el uso de UL o CSA cables certificados que tienen UL o CSA se muestra en el código de otros dispositivos eléctricos que los productos designados por Supermicro solamente.

Attention

Lors de l'installation du produit, utilisez les bables de connection fournis ou désigné. L'utilisation d'autres cables et adaptateurs peut provoquer un dysfonctionnement ou un incendie. Appareils électroménagers et de loi sur la sécurité Matériel interdit l'utilisation de UL ou CSA câbles certifiés qui ont UL ou CSA indiqué sur le code pour tous les autres appareils électriques que les produits désignés par Supermicro seulement.

חשמליים ומתאמי AC

אזהרה !
כאשר מתקינים את המוצר, יש להשתמש בכבלים, ספקים ומתאמים AC אשר
נועדו וסופקו לשם כך. שימוש בכל כבל או מתאם אחר יכול לגרום לתקלה או
קצר חשמלי. על פי חוקי שימוש במכשירי חשמל וחוקי בטיחות, קיים איסור
להשתמש בכבלים המוסמכים ב- UL או ב- CSA (כשאר מופיע עליהם קוד של
UL/CSA) עבור כל מוצר חשמלי אחר שלא צוין על ידי סופרקמיקרו בלבד.

عند تركيب الجهاز يجب استخدام كابلات التوصيل،والكابلات الكهربائية
ومحولات التيار المتردد
التي . أن استخدام أي كابلات ومحولات أخرى يتسبب في حدوث عطل أو حريق.
تم توفيرها لك مع المنتج
الأجهزة الكهربائية ومواد قانون السلامة يحظر استخدام الكابلات CSA أو UL
معتمدة من قبل
لأي أجهزة كهربائية أخرى غير المنتجات المعينة من قبل Supermicro
(التي تحمل علامة UL/CSA)

경고!

제품을 설치할 때에는 제공되거나 지정된 연결케이블과 전원케이블, AC어댑터를 사용해야 합니다. 그 밖의 다른 케이블들이나 어댑터들은 고장 또는 화재의 원인이 될 수 있습니다. 전기용품안전법 (Electrical Appliance and Material Safety Law)은 슈퍼마이크로에서 지정한 제품들 외에는 그 밖의 다른 전기 장치들을 위한 UL또는 CSA에서 인증한 케이블(전선 위에 UL/CSA가 표시)들의 사용을 금지합니다.

Waarschuwing

Bij het installeren van het product, gebruik de meegeleverde of aangewezen kabels, stroomkabels en adapters. Het gebruik van andere kabels en adapters kan leiden tot een storing of een brand. Elektrisch apparaat en veiligheidsinformatiebladen wet verbiedt het gebruik van UL of CSA gecertificeerde kabels die UL of CSA die op de code voor andere elektrische apparaten dan de producten die door Supermicro alleen.

Appendix C

System Specifications

Processors

Eight Intel® EX Xeon E7-8800 v3/v4 series in an FCLGA2011 type socket*

Note: Please refer to the motherboard specifications page on our website for updates to supported processors.

Chipset

Intel C602J chipset

BIOS

16 MB AMI® Flash ROM (on PCH Board)

Memory

192 DIMM slots that can support up to 24 TB of DDR4-2400/2133/1866/1600/1333 3DS LRDIMM memory*

Note: Fastest speed memory can run is 1866 MHz. See the memory section in Chapter 3 for details and our website for updates to supported memory.

SATA Controller

On-chip (Intel C602J) controller

Drive Bays

Twelve 2.5" hot-swap drive bays for SATA drives, and either twenty 2.5" or six 3.5 internal (fixed) HDDs*

PCI Expansion Slots

Fifteen PCI Express 3.0 x4 (in x8) slot*
Eight PCI Express 3.0 x16 slots*
Seven PCI Express 3.0 x8 (in x16) slots*

CPU Board

AOM-X10OBi-CPU

PCH (Platform Controller Hub) Board

AOM-X10OBi-PCH

PCIE Board

AOM-X10OBi-PCIE

HDD (Hard Disk Drive) Board

AOM-X10OBi-HDD

Chassis

SC718TQC-R4800; 7U Rackmount, 17.63 x 12.2 x 28.87 in. / 310 x 448 x 733 cm (W x H x D)

System Cooling

Eight 9-cm hot-swap, counter-rotating fans

Power Supply

Model: PWS-1K62A-1R (five total in system)
AC Input Voltages: 100-240 VAC
Rated Input Current: 13-9A (100-127V) to 10-8A (200-240V)
Rated Input Frequency: 50-60 Hz
Rated Output Power: 1600W
Rated Output Voltages: +12Vsb (2.1A max.)

Operating Environment

Operating Temperature: 10º to 35º C (50º to 95º F)
Non-operating Temperature: -40º to 70º C (-40º to 158º F)
Operating Relative Humidity: 8% to 90% (non-condensing)
Non-operating Relative Humidity: 5% to 95% (non-condensing)

Regulatory Compliance

Electromagnetic Emissions: FCC Class A, EN 55022 Class A, EN 61000-3-2/3-3, CISPR 22 Class A

Electromagnetic Immunity: EN 55024/CISPR 24, (EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11)

Safety: CSA/EN/IEC/UL 60950-1 Compliant, UL or CSA Listed (USA and Canada), CE Marking (Europe)

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"

*Quantity shown is for a complete system.

Appendix D

UEFI BIOS Recovery Instructions

Warning: Do not upgrade the BIOS unless your system has a BIOS-related issue. Flashing the wrong BIOS can cause irreparable damage to the system. In no event shall Supermicro be liable for direct, indirect, special, incidental, or consequential damages arising from a BIOS update. If you need to update the BIOS, do not shut down or reset the system while the BIOS is updating to avoid possible boot failure.

D.1 Overview to UEFI BIOS

The Unified Extensible Firmware Interface (UEFI) specification provides a software-based interface between the operating system and the platform firmware in the pre-boot environment. The UEFI specification supports an architecture-independent mechanism for add-on card initialization to allow the UEFI OS loader, which is stored in the add-on card, to boot up the system. UEFI offers a clean, hands-off control to a computer system at bootup.

D.2 Recovering the UEFI BIOS Image (Main BIOS Block)

A UEFI BIOS flash chip consists of a recovery BIOS block, which is comprised of two boot blocks and a main BIOS block (the main BIOS image). The boot block contains critical BIOS codes including memory detection and recovery codes for the user to flash a new BIOS image if the original main BIOS image is corrupted. When the system power is on, the boot block codes execute first. Then the main BIOS code will continue with system initialization and bootup.

Note: Follow the BIOS recovery instructions below when the main BIOS boot crashes.

D.3 Recovering the UEFI BIOS with a USB Device

This feature allows the user to recover a BIOS image using a USB device without the need of additional utilities. A device such as a USB flash drive or a USB CD/DVD ROM/RW can be used. A USB hard disk drive cannot be used for BIOS recovery at this time.

To perform UEFI BIOS recovery using an attached device, follow the instructions below.

1. Using a different system, copy the "Super.ROM" binary image file into the disc Root "\" directory of a USB device or a writeable CD/DVD.

Note: If you cannot locate the "Super.ROM" file in your driver disk, visit our website at www. supermicro.com to download the BIOS image to a USB flash device and rename it "Super ROM".

2. Insert the USB device that contains the new BIOS image ("Super.ROM") into your USB drive and power on the system

3. While powering on the system, keep pressing <Ctrl> and <Home> simultaneously on your keyboard until your hear two short beeps. This may take from a few seconds to one minute.

4. After locating the new BIOS binary image, the system will enter the BIOS recovery menu as shown below.

```
                Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
     Main  Advanced  Event Logs  IPMI  Boot  Security  Exit  Recovery

    WARNING! BIOS Recovery mode has been detected            Select this to start flash
                                                             update
    Flash Update Parameters
    Reset NVRAM                          [Enabled]

  ▶ Proceed with flash update






                                                           →←: Select Screen
                                                           ↑↓: Select Item
                                                           Enter: Select
                                                           +/-: Change Opt.
                                                           F1: General Help
                                                           F2: Previous Values
                                                           F3: Optimized Defaults
                                                           F4: Save & Exit
                                                           ESC: Exit




                Version 2.10.1208. Copyright (C) 2010 American Megatrends, Inc.
```

Note: At this point, you may decide if you want to start with BIOS Recovery. If you decide to proceed with BIOS Recovery, follow the procedures below.

5. When the screen shown above displays, use the arrow keys to select the item "Proceed with flash update" and press the <Enter> key. You will see the BIOS recovery progress as shown in the screen below.

Note: *Do not interrupt* the BIOS flashing until it has completed.

```
        Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
                                           Recovery
 ┌────────────────────────────────────────────┬──────────────────────────────┐
 │ WARNING! System firmware is being updated.  │                              │
 │ Keyboard is locked.                         │                              │
 │ DO NOT TURN THE POWER OFF !!!               │                              │
 │ Once firmware update is completed           │                              │
 │ press any key to reboot the system          │                              │
 │                                             │                              │
 │ Flash update progress              15 %     │                              │
 │                                             │                              │
 │                                             │                              │
 │                                             │                              │
 │                                             │ →←: Select Screen            │
 │                                             │ ↑↓: Select Item              │
 │                                             │ Enter: Select                │
 │                                             │ +/-: Change Opt.             │
 │                                             │ F1: General Help             │
 │                                             │ F2: Previous Values          │
 │                                             │ F3: Optimized Defaults       │
 │                                             │ F4: Save & Exit              │
 │                                             │ ESC: Exit                    │
 │                                             │                              │
 │                                             │                              │
 └────────────────────────────────────────────┴──────────────────────────────┘
        Version 2.10.1208. Copyright (C) 2010 American Megatrends, Inc.
```

6. After the process has completed, press any key to reboot the system.

```
        Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
                                           Recovery
 ┌────────────────────────────────────────────┬──────────────────────────────┐
 │ WARNING! System firmware is being updated.  │                              │
 │ Keyboard is locked.                         │                              │
 │ DO NOT TURN THE POWER OFF !!!               │                              │
 │ Once firmware update is completed           │                              │
 │ press any key to reboot the system          │                              │
 │                                             │                              │
 │ Flash update progress          completed.   │                              │
 │                                             │                              │
 │                                             │                              │
 │                                             │                              │
 │                                             │ →←: Select Screen            │
 │                                             │ ↑↓: Select Item              │
 │                                             │ Enter: Select                │
 │                                             │ +/-: Change Opt.             │
 │                                             │ F1: General Help             │
 │                                             │ F2: Previous Values          │
 │                                             │ F3: Optimized Defaults       │
 │                                             │ F4: Save & Exit              │
 │                                             │ ESC: Exit                    │
 │                                             │                              │
 │                                             │                              │
 └────────────────────────────────────────────┴──────────────────────────────┘
        Version 2.10.1208. Copyright (C) 2010 American Megatrends, Inc.
```

7. Using a different system, extract the BIOS package into a bootable USB flash drive.

8. When the DOS prompt appears, enter AMI.BAT BIOSname.###.

Note: *Do not interrupt this process* until BIOS flashing has completed.

9. After receiving the message that the BIOS update is complete, unplug the AC power cable from the power supply to clear CMOS, then plug the AC power cable in the power supply again to power on the system.

10. Press <Del> continuously to enter the BIOS Setup utility.

11. Press <F3> to load the default settings.

12. After loading the default settings, press <F4> to save the settings and exit the BIOS Setup utility.