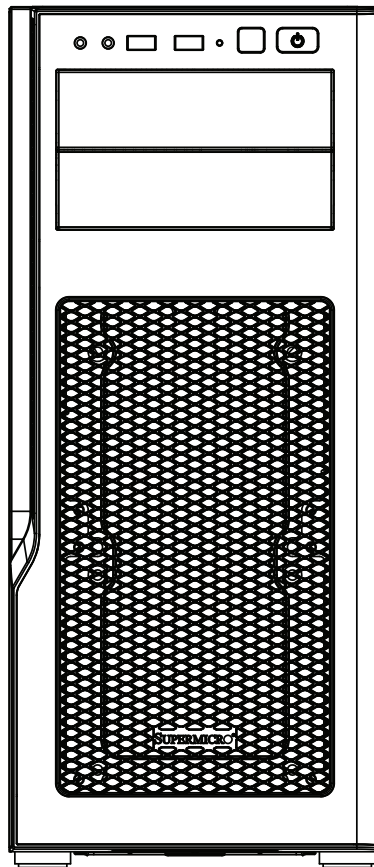




High Performance Desktop 5039AD-I



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 5039AD-I. Installation and maintenance should be performed by experienced technicians only.

Please refer to the 5039AD-I 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, contact our support team at:
support@supermicro.com

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

Warnings

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



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



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

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Contacting Supermicro

Headquarters

Address: Super Micro Computer, Inc.
980 Rock Ave.
San Jose, CA 95131 U.S.A.

Tel: +1 (408) 503-8000

Fax: +1 (408) 503-8008

Email: marketing@supermicro.com (General Information)
support@supermicro.com (Technical Support)

Website: www.supermicro.com

Europe

Address: Super Micro Computer B.V.
Het Sterrenbeeld 28, 5215 ML
's-Hertogenbosch, The Netherlands

Tel: +31 (0) 73-6400390

Fax: +31 (0) 73-6416525

Email: sales@supermicro.nl (General Information)
support@supermicro.nl (Technical Support)
rma@supermicro.nl (Customer Support)

Website: www.supermicro.nl

Asia-Pacific

Address: Super Micro Computer, Inc.
3F, No. 150, Jian 1st Rd.
Zhonghe Dist., New Taipei City 235
Taiwan (R.O.C)

Tel: +886-(2) 8226-3990

Fax: +886-(2) 8226-3992

Email: support@supermicro.com.tw

Website: www.supermicro.com.tw

Chapter 1

Introduction

1.1 Overview

This chapter provides a brief outline of the functions and features of the High Performance Desktop 5039AD-I. The 5039AD-I is based on the C9X299-PGF motherboard and the GS5A-753K chassis.

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

Main Parts List		
Description	Part Number	Quantity
Rear Exhaust Fan	N/A	1
Front Cooling Fan	N/A	2
3.5" HDD Cage (Three Drives)	MCP-220-GS504-0N	2
2.5" HDD Cage (Four Drives)	MCP-220-GS505-0N	1
Liquid Cooling Module (optional)	SNK-P3002A	1
120x38mm System Fan (optional)	FAN-0077L4	1
5.25" DVD Drive (optional)	DVM-LITE-DVDRW24-HBT	1
Active CPU Heatsink (optional)	SNK-P0050AP4	1
Mini-SAS HD to PCI-e SFF-8639 (optional for U.2 drives)	CBL-SAST-0957	1

1.2 Unpacking the System

Inspect the box that the 5039AD-I was shipped in and note if it was damaged in any way. If any equipment appears damaged, file a damage claim with the carrier who delivered it.

Decide on a suitable location for the system. 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. A grounded AC power outlet is also required. Read the precautions and considerations noted in Appendix B.

1.3 System Features

The following table provides an overview of the main features of the 5039AD-I. Refer to Appendix C for additional specifications.

System Features
Motherboard
C9X299-PGF
Chassis
GS5A-753K
CPU
Intel® Core™ X-series processor
Socket Type
LGA2066 R4
Memory
Supports up to 128GB of unbuffered, non-ECC, DDR4 memory with speeds of up to 2666MHz
Chipset
Intel® X299 chipset
Expansion Slots
Four CPU PCI-e 3.0 x16 Slots One PCH PCI-e 3.0 x1 Slot Two M.2 Slots
Hard Drive Bays
Two 5.25" drive bays, four 2.5" drive bays, and six combination bays that can house 3.5" or 2.5" drives
Power
750W power supply module (p/n SSR-750RM)
Form Factor
Mid-tower chassis
Dimensions
(WxHxD) 17.2 x 5.2 x 25.5 in. (437 x 132 x 647 mm)

1.4 Server Chassis Features

Control Panel

The switches and LEDs located on the control panel are described below. The control panel is located on the front end of the chassis. See Chapter 4 for details on the control panel connections.

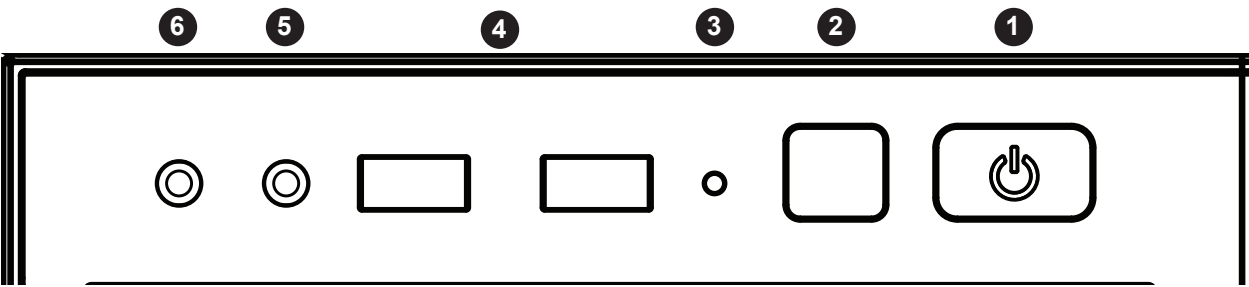


Figure 1-1. Control Panel View

Control Panel Features		
Item	Feature	Description
1	Power Button	The main power button is used to apply or remove power from the power supply to the server. Turning off system power with this button removes the main power but maintains standby power. To perform maintenance tasks, you must also unplug the system before servicing. The power button LED indicates that power is being supplied to the system power supply. This LED should normally be illuminated when the system is operating.
2	Reset Button	The reset button is used to reboot the system.
3	HDD LED	Indicates hard drive activity when flashing.
4	USB 3.0 Ports	Two universal serial bus (USB) 3.0 ports.
5	Audio Port	The audio port allows you to connect a cable for audio output.
6	Microphone Port	The microphone port allows you to connect a cable for audio input.

Front and Rear Features

The GS5A-753K is a mid-tower chassis. See the illustration below for the features included on the front and rear of the chassis.

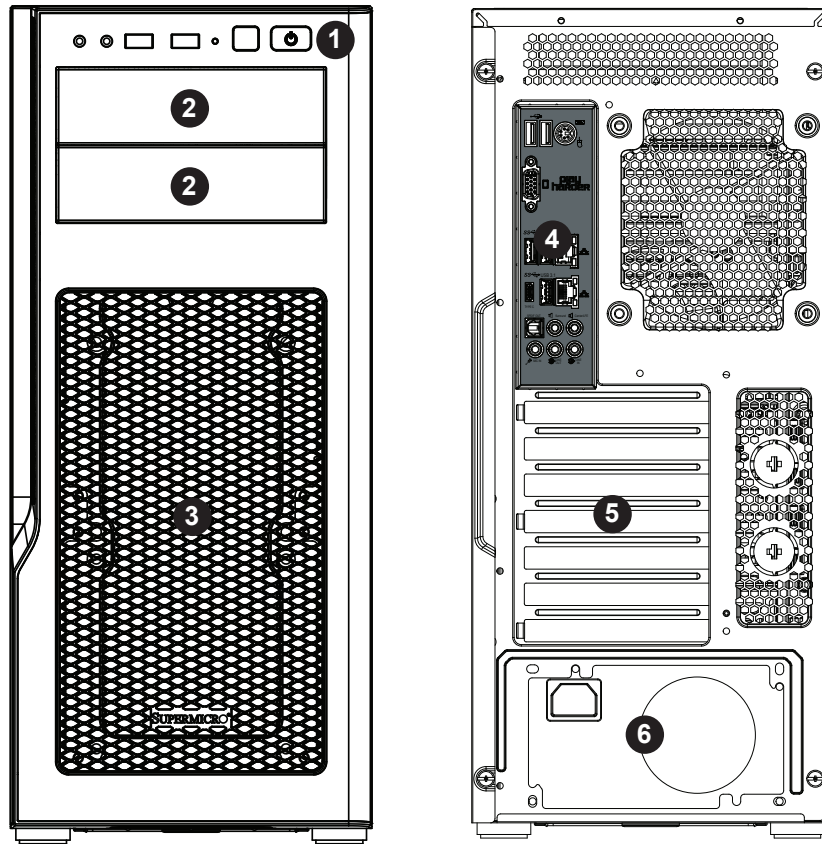


Figure 1-2. Chassis Front and Rear Views

Front and Rear Chassis Features		
Item	Feature	Description
1	Front Control Panel	Front control panel with LEDs and buttons (see preceding page)
2	Front 5.25" Drive Bay	Drive bay for 3.5" HDDs, 2.5" HDDs, SSDs, or removable media devices
3	Front Bezel Screen	Front grille with dust filter
4	Rear I/O ports	Rear I/O ports (see Section 4.3)
5	Expansion Card Slots	Slots for expansion cards
6	Power Supply	750W power supply module

1.5 Motherboard Layout

Below is a layout of the C9X299-PGF with jumper, connector, and LED locations shown. See the table on the following page for descriptions. For detailed descriptions, pinout information, and jumper settings, refer to Chapter 4.

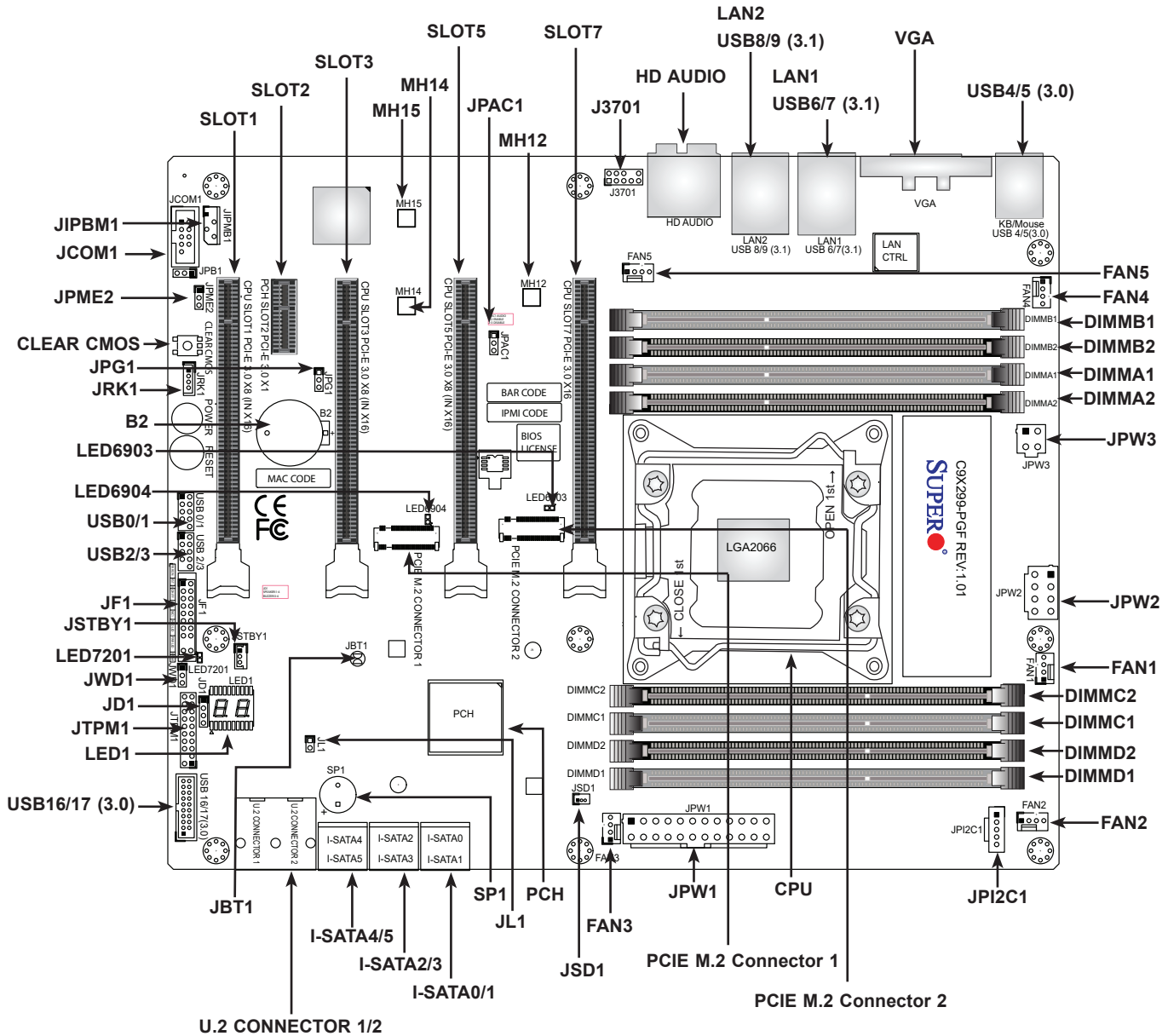


Figure 1-4. Motherboard Layout

Note: Components not documented are for internal testing only.

Quick Reference Table

Jumper	Description	Default Setting
CLEAR CMOS	CMOS clear switch	Push Button Switch
JBT1	Clear CMOS	Short pads to clear CMOS
JPAC1	Audio enable	Pins 1-2 (Enabled)
JPG1	VGA Enable/Disable	Pins 1-2 (Enabled)
JPME2	Intel manufacturing mode	Pins 1-2 (Normal)
JWD1	Watch dog function enable	Pins 1-2 (RST)
POWER BUTTON	Internal power button	Push Button Switch
RESET BUTTON	Onboard system reset button	Push Button Switch
Connector	Description	
B2	Onboard battery	
FAN1~5	System/CPU fan headers (FAN1/FAN2: CPU fans)	
HD AUDIO	High-definition audio ports (back panel)	
I-SATA0~5	Intel X299 SATA 3.0 Ports (6Gb/sec)	
J3701	Front panel audio header	
JCOM1	COM header	
JD1	Speaker/buzzer (Pins 1~4: External speaker; Pins 3~4: Buzzer)	
JF1	Front control panel header	
JIPMB1	4-pin external I ² C Header (for an IPMI card)	
JL1	Chassis intrusion header	
JPI ² C1	Power I ² C System Management Bus (SMBus) header	
JPW1	24-pin ATX main power connector (required)	
JPW2	+12V 8-pin CPU power connector (required)	
JPW3	+12V 4-pin CPU power connector (required)	
JRK1	Intel RAID key header	
JSD1	SATA DOM (Device-on-Module) power connectors	
JSTBY1	Standby power header	
JTPM1	Trusted Platform Module (TPM)/Port 80 connector	
LAN1/LAN2	LAN1: 5Gb LAN port LAN2: 1Gb LAN port (IPMI LAN)	
PCI-e M.2 CONNECTOR 1/2*	PCI-e M.2 connectors	
SP1	Internal buzzer/speaker	
U.2 CONNECTOR 1/2*	U.2 connectors for 2.5" SSDs	
USB0/1, 2/3	Front access USB 2.0 headers	
USB4/5	Back panel USB 3.0 ports	

***Note:** View AMI status codes at: [https://ami.com/ami_downloads/Aptio_4.x_Status_Codes_\(beep_checkpoint\).pdf](https://ami.com/ami_downloads/Aptio_4.x_Status_Codes_(beep_checkpoint).pdf)

Connector	Description
USB6/7, 8/9	Back panel USB 3.1 ports (USB8: Type A; USB9: Type C)
USB16/17	Front access USB 3.0 Headers
VGA	Back panel VGA port

LED	Description	Status
LED1	Status code LED	Digital readout*
LED6903	M.2 connector 2 active LED	Solid Green: M.2 device active
LED6904	M.2 connector 1 active LED	Solid Green: M.2 device active
LED7201	Onboard standby PWR LED	Solid Green: Power On

*Note: View AMI status codes at: [https://ami.com/ami_downloads/Aptio_4.x_Status_Codes_\(beep_checkpoint\).pdf](https://ami.com/ami_downloads/Aptio_4.x_Status_Codes_(beep_checkpoint).pdf)

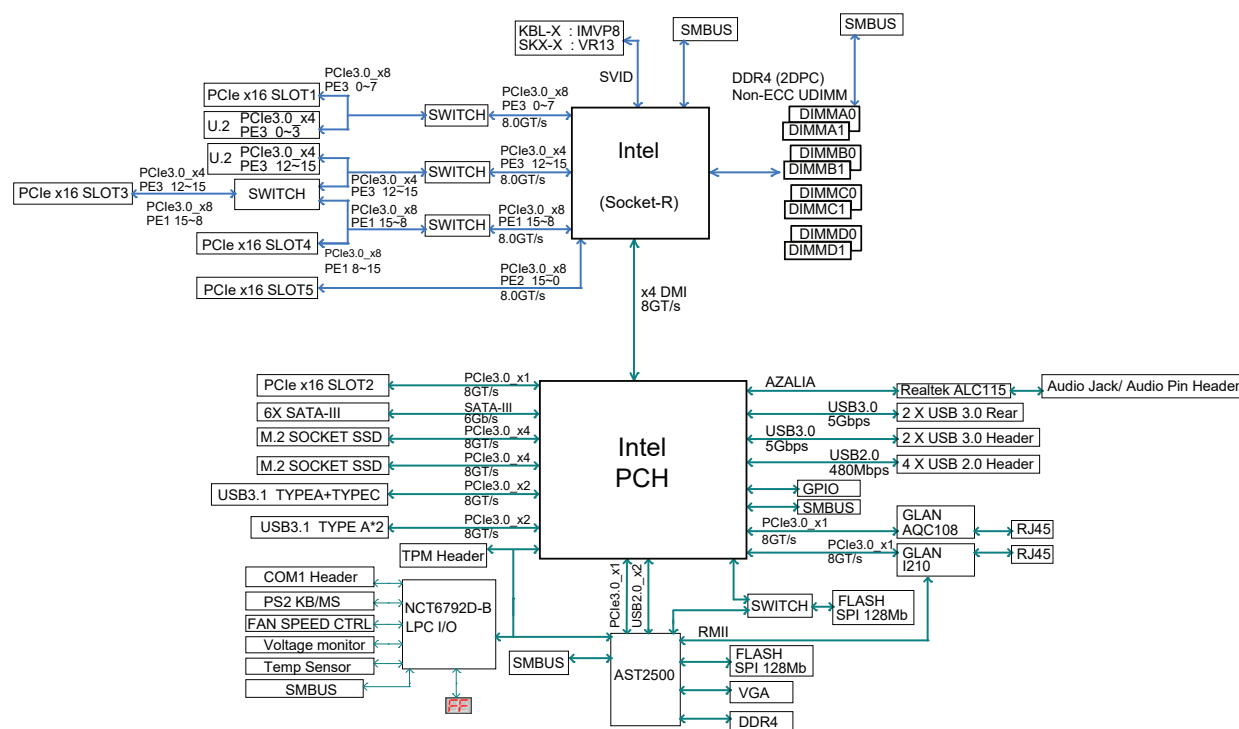


Figure 1-5. C9X299-PGF System Block Diagram

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

Chapter 2

Workstation Setup

2.1 Overview

This chapter provides advice and instructions for setting up your workstation. If your system is not already fully integrated with processors, system memory, etc., refer to Chapter 4 for details on installing those components.

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

2.2 Unpacking the System

Inspect the box the system was shipped in and note if it was damaged in any way. If the system appears damaged, file a damage claim with the carrier who delivered it.

Decide on a suitable location for the system. 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. A grounded power outlet is required.

2.3 Workstation Precautions

- Verify that the caster wheels on the workstation are locked.
- Review the electrical and general safety precautions in Appendix B.
- Use a regulating uninterruptible power supply (UPS) to protect the workstation from power surges, voltage spikes, and to keep your system operating in case of a power failure.
- Allow the power supply units and hot-swap SATA drives to cool before touching them.
- To maintain proper cooling, always keep all chassis panels closed and all SATA carriers installed when not being serviced.

2.4 Installing the GPU

A compatible graphics processing unit (GPU) must be installed into one of the PCI-e expansion slots. If the 2.5" HDD cage is installed, the maximum supported GPU size is 320mm. If the 2.5" HDD cage is *not* installed, the maximum supported GPU size is 420mm.

For instructions, refer to the "Installing PCI-e Expansion Cards" section of Chapter 3.

Chapter 3

Component Installation and Maintenance

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

Remove power from the system before installing or replacing components. Refer to Section 3.1.

3.1 Removing Power

Use the following procedure to verify that power has been removed from the system. This step is required 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 fully shut down, disconnect the AC power cord(s) from the power strip or outlet. (If your system has more than one power supply, remove the AC power cords from all power supply modules.)
3. Disconnect the power cord(s) from the power supply module(s).

3.2 Accessing the System

The 5039AD-I has two removable side covers. Except for short periods of time, do not operate the system without the cover in place. The chassis cover allows proper cooling airflow.

Side Covers

Removing a Side Chassis Cover

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

1. Remove the two thumb screws on the rear of the chassis.
2. Slide the cover toward the rear of the chassis.
3. Remove the cover from the chassis.

Warning: Except for short periods of time, do not operate the server without the cover in place. The chassis cover must be in place to allow for proper airflow and to prevent overheating.

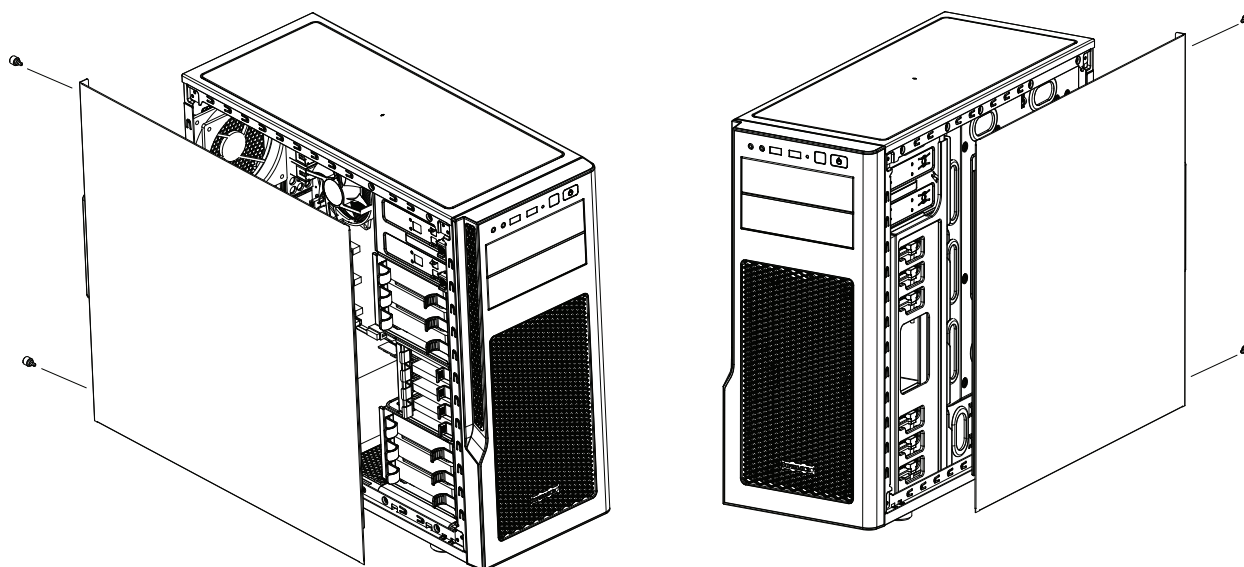


Figure 3-1. Removing the Side Chassis Covers

Front Bezel

Remove the front bezel by pulling off the bottom first. Generally, this is only necessary when replacing the front fans.

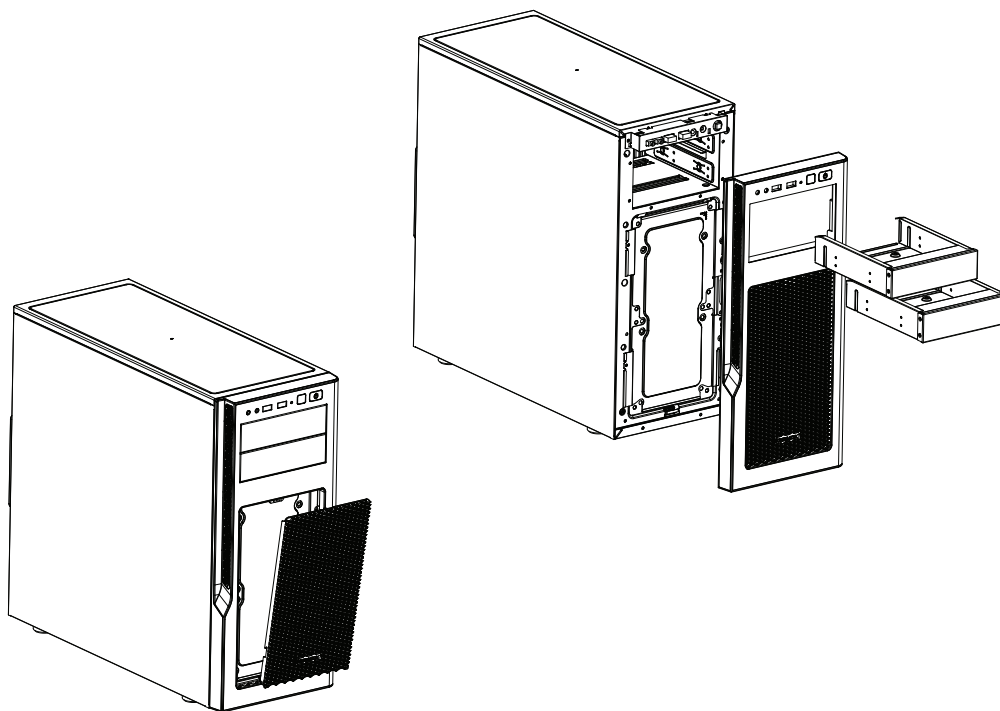


Figure 3-2. Removing the Front Bezel

3.3 Motherboard Components

Processor and Heatsink

Follow the procedures in this section to install a processor (CPU) and heatsink onto the motherboard. Improper CPU installation or socket misalignment can cause serious damage to the CPU or motherboard which might require RMA repairs.

Notes:

- Remove power from the system as described in Section 3.1 before installing the processor and heatsink.
- When handling the processor package, avoid placing direct pressure on the label area of the CPU or socket.
- When receiving a motherboard without a processor pre-installed, verify 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

Begin by removing power from the system as described in Section 3.1 and removing the chassis cover as described in Section 3.2.

1. On the LGA2066 socket, press and release the load lever labeled "Open 1st."
2. Press the load lever labeled "Close 1st" to release the load plate that covers the CPU socket. Fully retract the lever.
3. Gently push on the "Open 1st" lever to open the load plate. Lift the load plate open.
4. Remove the plastic warning cap from the socket.

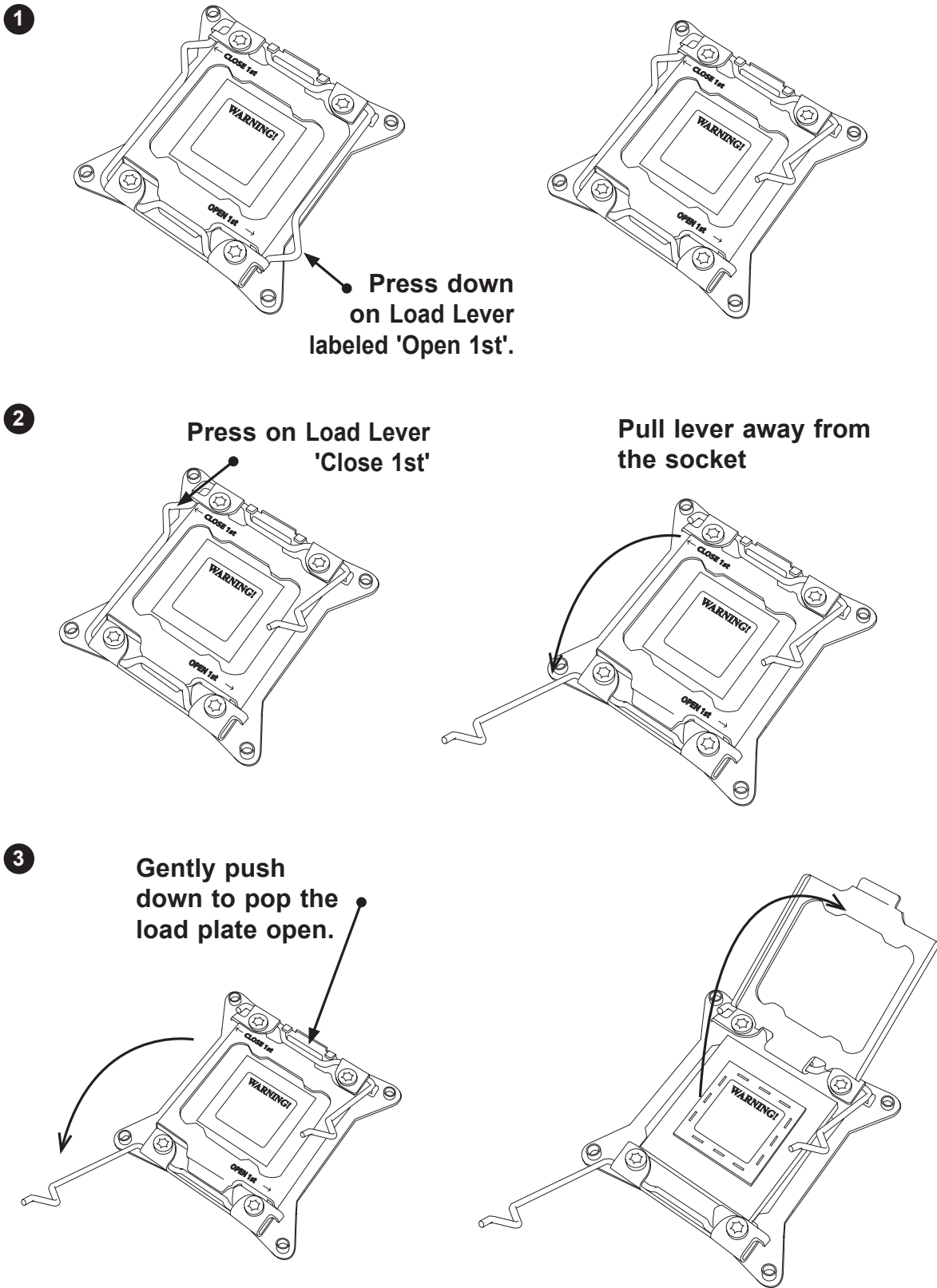


Figure 3-4. Removing the Warning Cap

5. Use your thumb and index finger to hold the CPU by its edges. Align the CPU keys (semi-circle cutouts) against the socket keys.

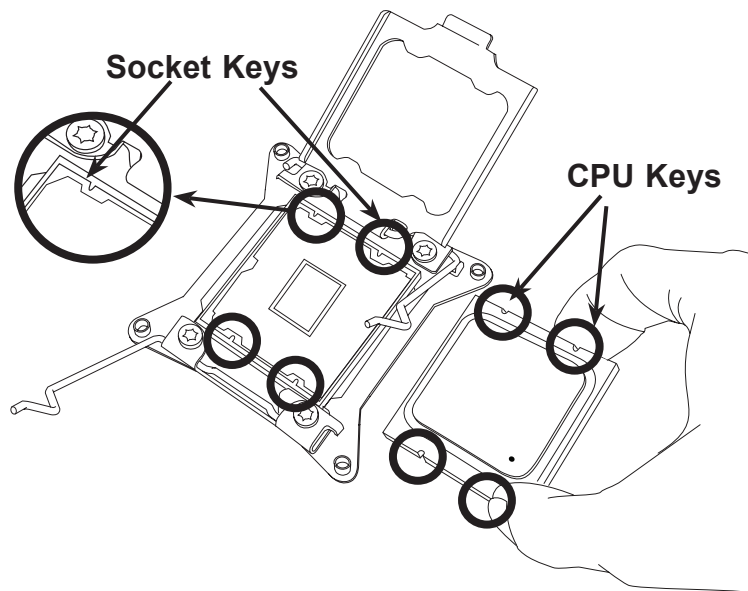


Figure 3-5. Aligning CPU Keys with Socket Keys

6. Carefully lower the CPU straight down into the socket. To avoid damaging the CPU or socket, do not drop the CPU into the socket, rub the CPU against the socket pins, or move the CPU after installing it.
7. Inspect the corners of the CPU to verify that it is properly installed.

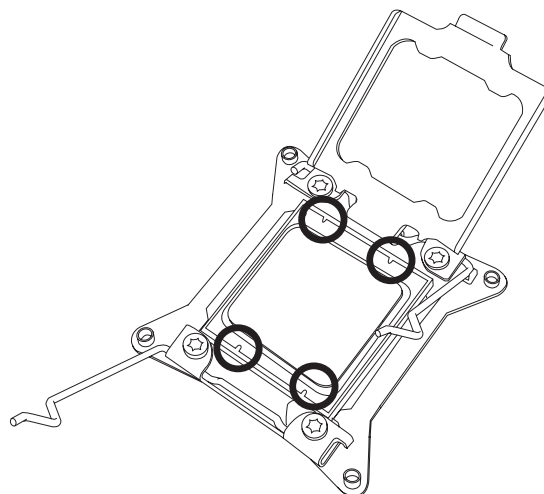


Figure 3-6. Properly Installed CPU

8. Close the load plate. Gently push the "Close 1st" lever until it locks, then repeat for the "Open 1st" lever.

Installing the CPU Heatsink

Begin by removing power from the system as described in Section 3.1 and removing the chassis cover as described in Section 3.2.

1. Apply the proper amount of thermal grease to the heatsink.
2. Place the heatsink on top of the CPU so that both mounting holes on the heatsink are aligned with those on the retention mechanism. Tighten the screws in the following order:

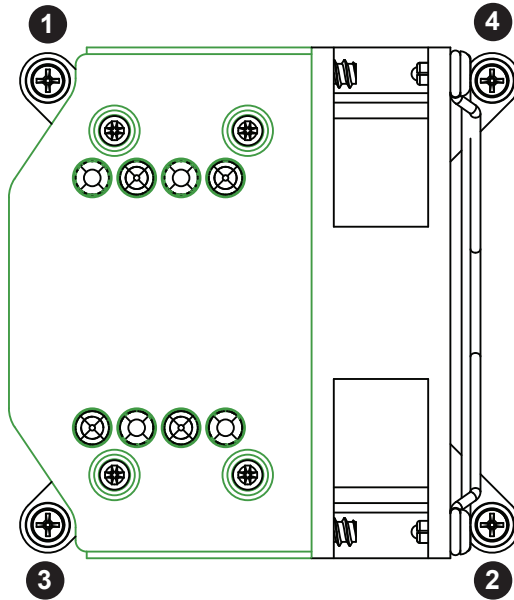


Figure 3-7. Tightening the Heatsink Screws (Top View)

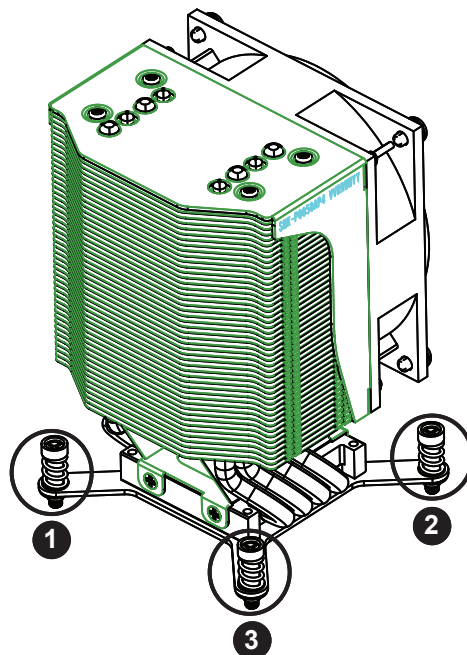


Figure 3-8. Tightening the Heatsink Screws (Isometric View)

Removing the CPU Heatsink

Warning: Only remove the heatsink if necessary.

Begin by removing power from the system as described in Section 3.1 and removing the chassis cover as described in Section 3.2.

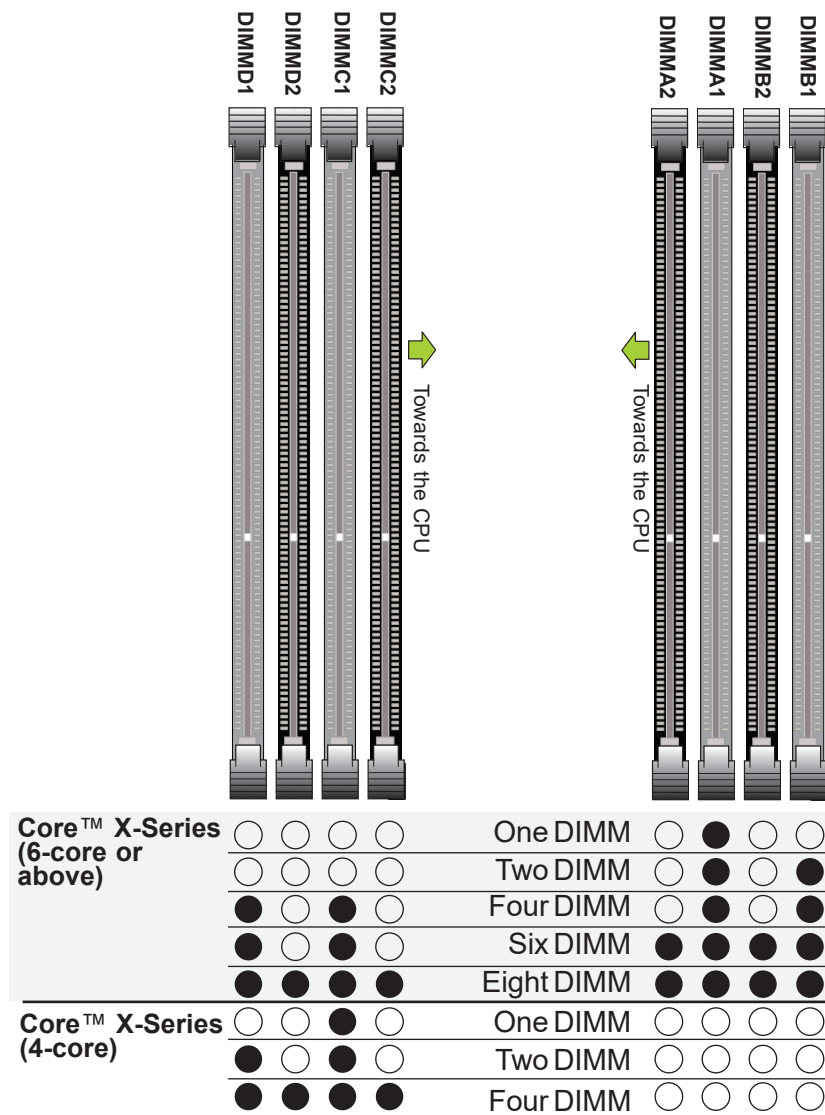
1. Loosen the heatsink screws in the order shown in Figure 3-7.
2. Gently wiggle the heatsink to loosen it.
3. Remove the heatsink from the motherboard.

Note: Graphics are for reference only. Components shipped with the system might look different.

Memory

Memory Support

The C9X299-PGF supports up to 128GB of unbuffered, non-ECC, DDR4 memory in eight slots. Refer to the diagram below for additional memory information.



Notes:

- Always use DDR4 DIMM modules of the same type, size and speed.
- Mixed DIMM speeds can be installed. However, all DIMMs run at the speed of the slowest DIMM.
- The motherboard supports odd-numbered modules (1 or 3 modules installed). However, to achieve the best memory performance, a balanced memory population is recommended

DIMM Installation/Removal

Begin by removing power from the system as described in Section 3.1 and removing the chassis cover as described in Section 3.2.

1. Insert DIMM modules in the following order: DIMMA1, DIMMB1, DIMMC1, DIMMD1, DIMMA2, DIMMB2, DIMMC2, DIMMD2. For the system to work properly, use memory modules of the same type and speed.
2. Push the release tab outward to unlock the slot.
3. Align the key of the DIMM module with the receptive point on the memory slot.
4. Align the notches on both ends of the module against the receptive points on the ends of the slot.
5. Seat the module firmly into the slot, pushing down with your thumbs evenly on both sides of the module until it snaps into place.
6. Press the release tab into the locked position to secure the DIMM module into the slot.

Reverse the steps above to remove the DIMM modules from the motherboard.

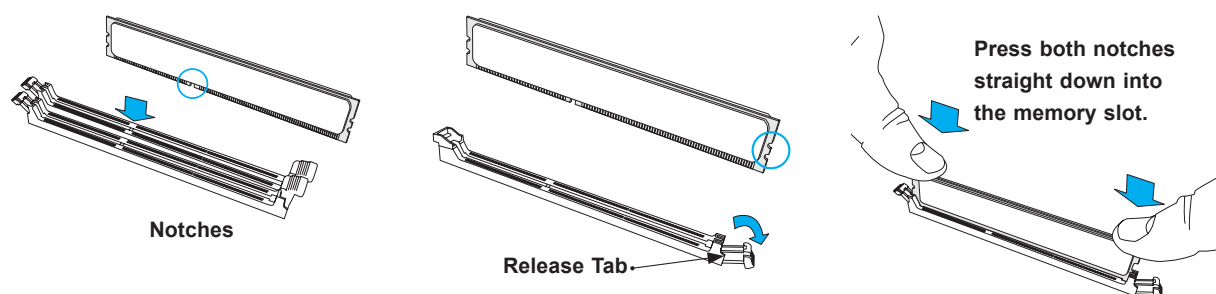


Figure 3-9. Installing DIMMs

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

PCI-e Expansion Cards

The 5039AD-I can accommodate up to seven PCI-e expansion cards. Install your graphics card into a PCI-e expansion slot.

Installing an Expansion Card

Begin by removing power from the system as described in Section 3.1 and removing the cover as described in Section 3.2.

1. Remove the shield for the PCI-e slot that you wish to populate. Verify that the card you are installing is supported by the slot.
2. Seat the card firmly into the slot by pushing down with your thumbs evenly on both sides of the card.
3. Use the thumb screw to secure the expansion card bracket to the rear of the chassis.

Motherboard Battery

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

Replacing the Battery

Begin by removing power from the system as described in Section 3.1 and removing the cover as described in Section 3.2.

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.

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

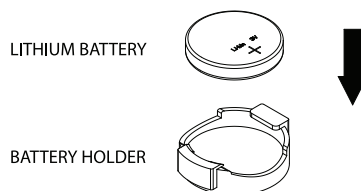


Figure 3-10. Installing the Onboard Battery

Note: 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. Comply with the regulations set up by your local hazardous waste management agency to dispose of your used battery properly.

3.4 Chassis Components

Hard Drives

Your system might ship with hard drives installed. The chassis has two 5.25" drive bays, four 2.5" drive bays, and six bays that can hold 3.5" or 2.5" drives.

- Each 5.25" bay can be fitted with a removable media drive (e.g. DVD) or a storage device (3.5" HDD, 2.5" HDD, or solid state drive).
- Four 2.5" drives in removable center cage.
- Three 2.5" or 3.5" drives in each of two removable combination cages.

The hard drives are mounted in drive carriers to simplify their installation and removal from the chassis. (Both procedures can be performed without removing power from the system.)

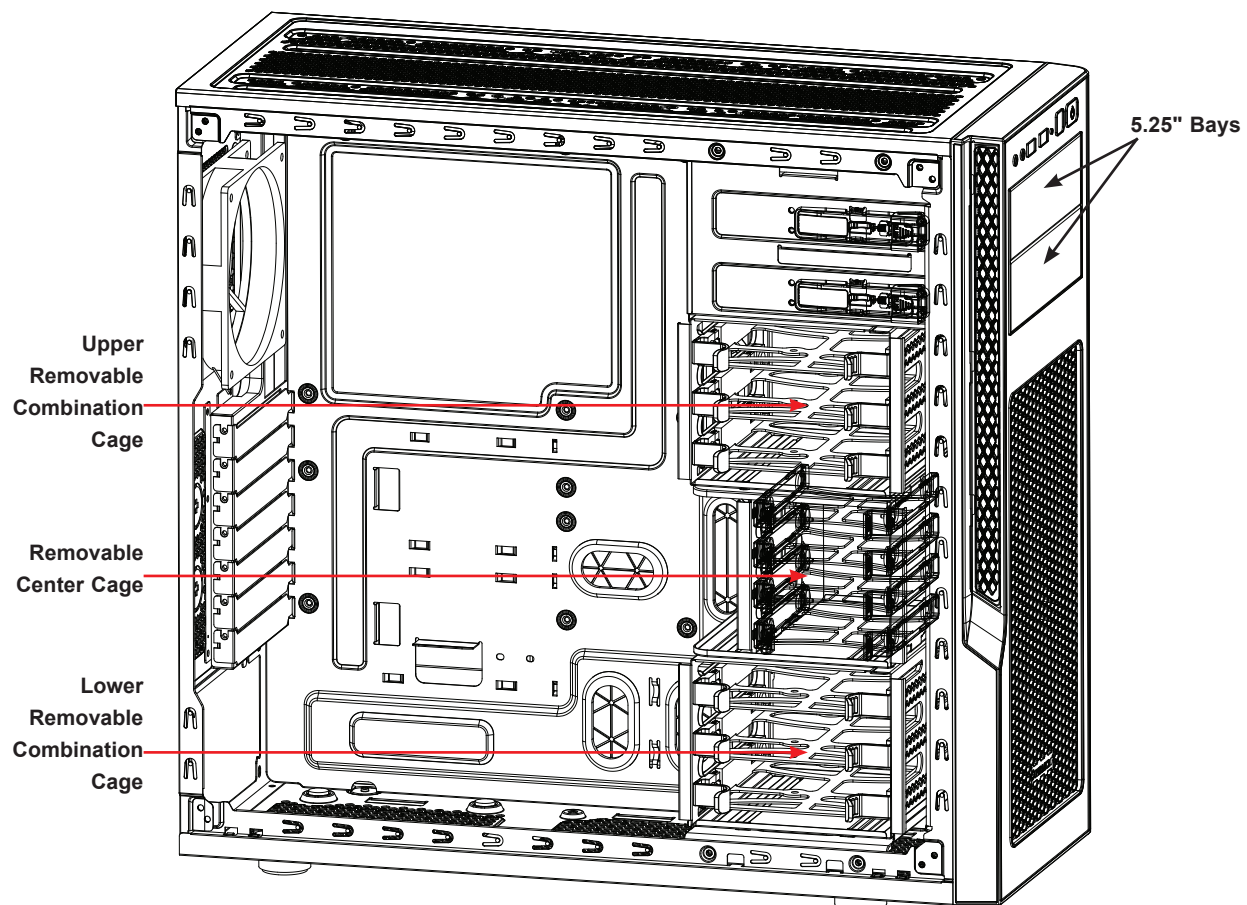


Figure 3-11. Drive Bays

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.

Installing a Storage Device in the 5.25" Drive Tray

You can install a 3.5" hard disk or up to two 2.5" hard disks or solid state drives. To install two 2.5" disks, the 2.5" dual HDD bracket is required (P/N MCP-220-00044-0N).

Begin by removing power from the system as described in Section 3.1 and removing the chassis left side cover as described in Section 3.2.

1. Locate and press the release tab for the drive tray in which you want to place the drive.
2. Push the drive tray toward the front of the chassis and remove it.
3. Secure the storage drive to the drive tray with screws through the bottom of the tray.
4. Slide the drive tray into the chassis. An audible click indicates that the tray is locked in place.

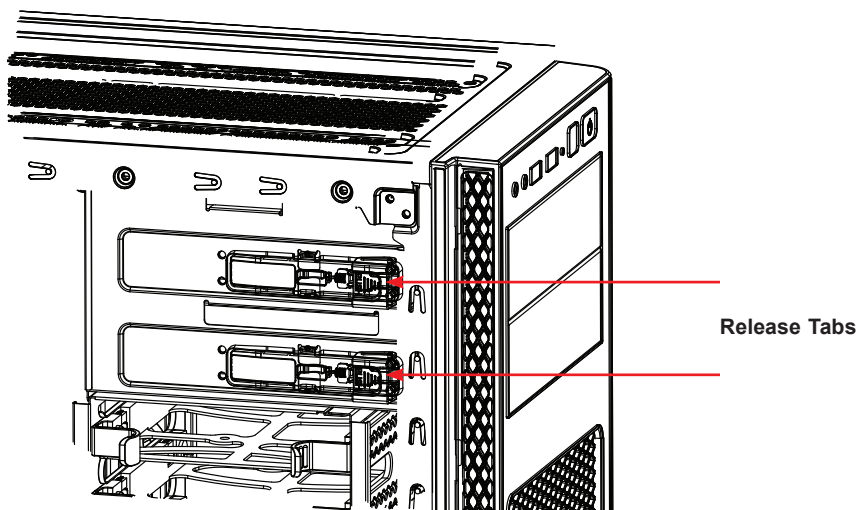


Figure 3-12. Release Tabs for 5.25" Drive Tray

Installing a DVD Drive in the 5.25" Drive Bay

1. Open the chassis left side cover.
2. Press the release tab for the drive tray where you want to place the DVD drive.
3. Push the drive tray toward the front of the chassis and remove it.
4. Slide the DVD drive into the vacated bay until it clicks into place.

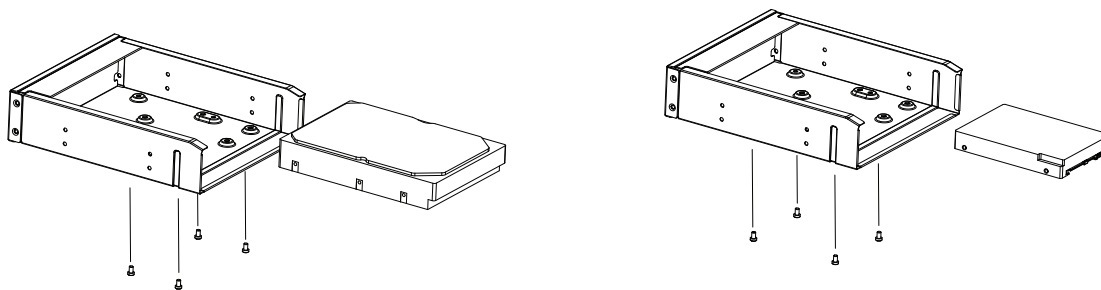


Figure 3-13. Storage Device Configurations for 5.25" Bays

Installing Drives into a Removable Cage

You can install up to four 2.5" drives in the dedicated center cage. Also, you can install up to three 2.5" or 3.5" drives into each combination cage (upper and lower).

Begin by removing power from the system as described in Section 3.1 and removing the chassis left side cover as described in Section 3.2.

1. Remove the drive mounting bracket from the cage. Pinch the tabs and pull the bracket out.
2. Secure the drive into the mounting bracket.
 - For 2.5" drives in the center cage, flex the drive bracket and slide the drive inside with the connectors facing the chassis rear.
 - For 2.5" drives in a combination cage, use screws through the bottom of the bracket to secure the drive with the connectors facing the chassis rear.
 - For 3.5" drives in a combination cage, flex the drive bracket and slide the drive inside with the connectors facing the chassis rear.

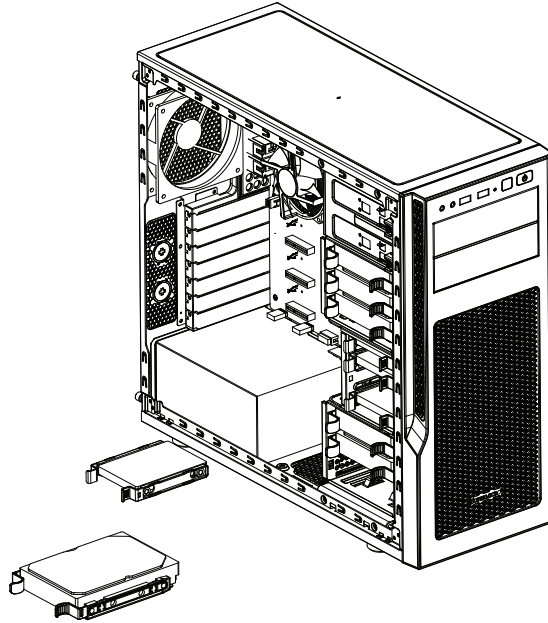


Figure 3-14. Installing Drives and Mounting Brackets into the Cage

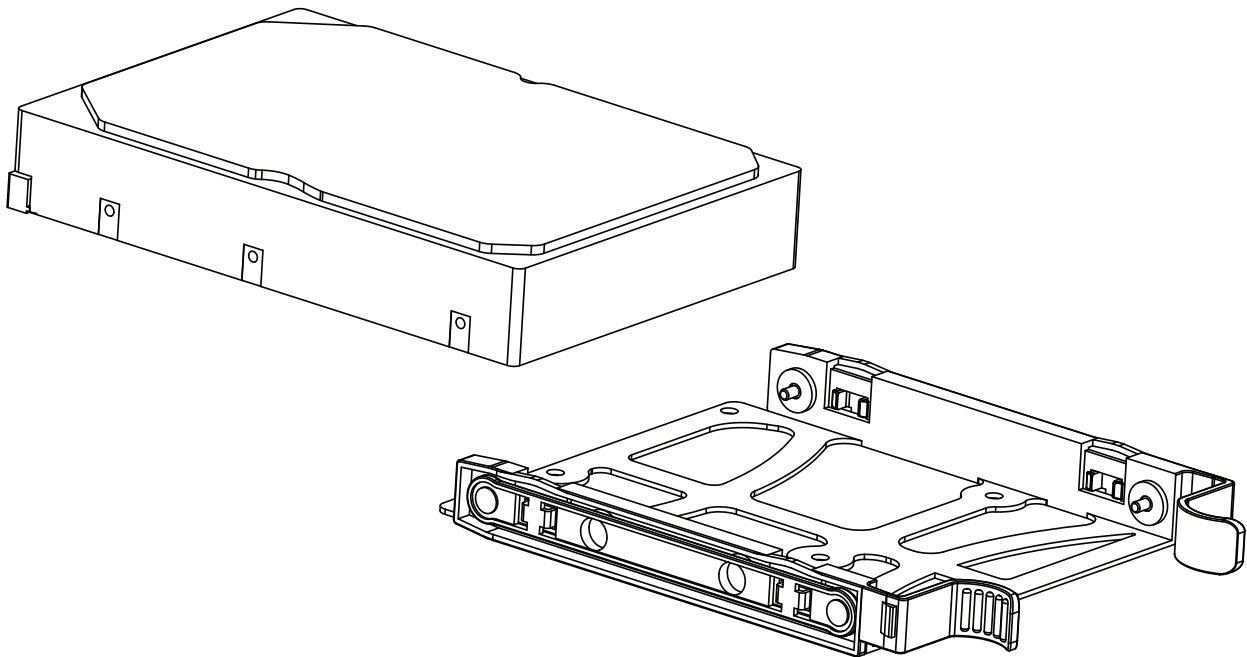


Figure 3-15. Mounting Tray for 3.5" Drive

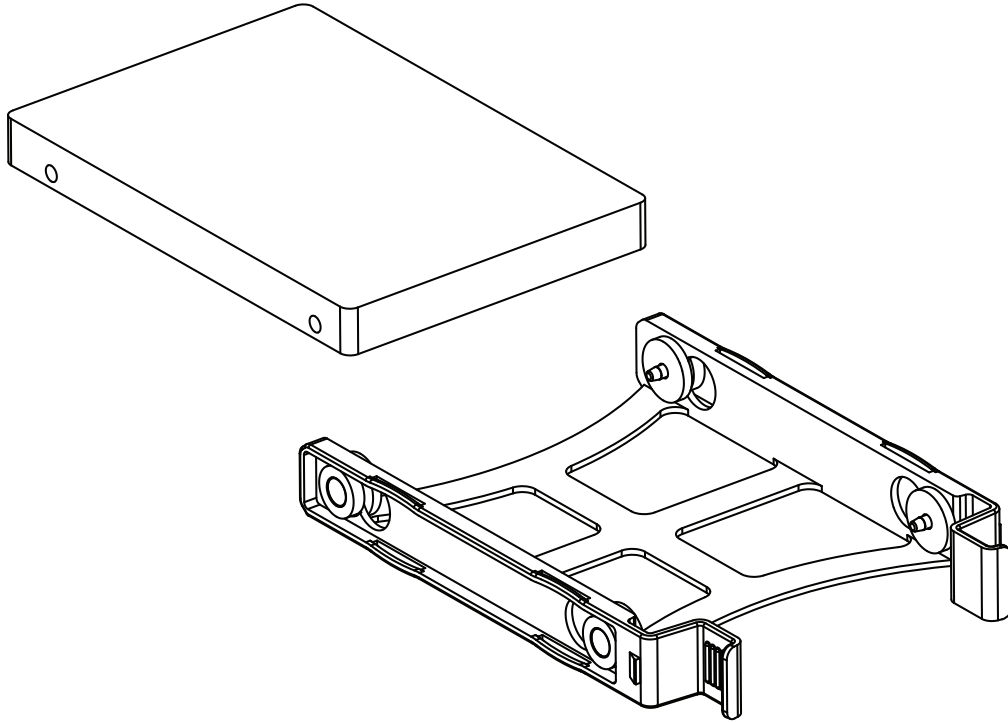


Figure 3-16. Mounting Tray for 2.5" Drive

System Cooling

Three 120 mm fans provide the cooling for the system (two in the front, one in the rear). Additionally, the following fan mount configurations are supported:

- Front fans can be replaced with 140 mm fans.
- Three fans can be installed on the chassis top (120 mm or 140 mm).
- One 120 mm fan can be installed on the chassis bottom.

It is very important that the chassis top cover is properly installed and forms a tight seal so that the cooling air can circulate through the chassis.

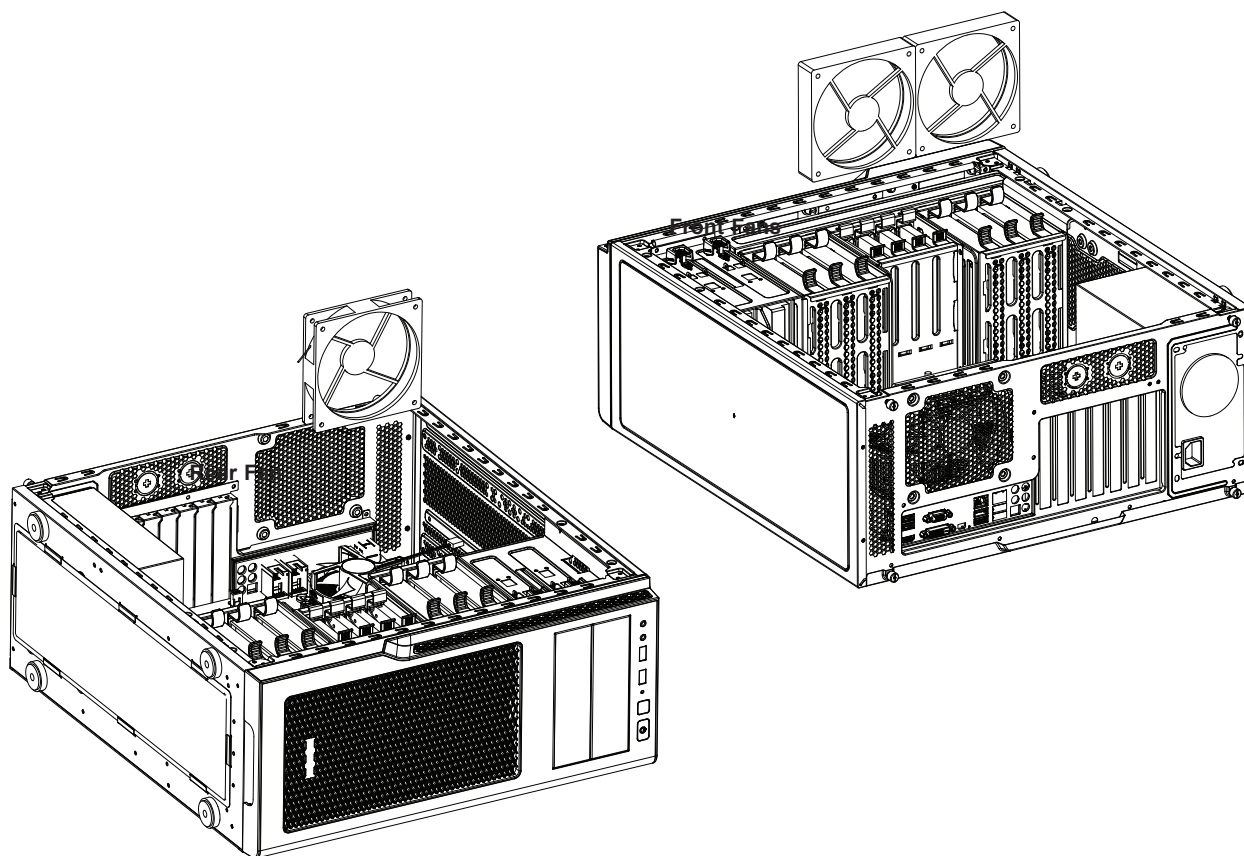


Figure 3-17. Standard Fan Placement

Adding or Replacing Fans

- To replace the standard front fans, remove the chassis front dust filter.
- To add a fan to the chassis bottom, the lower combination HDD cage must be removed.

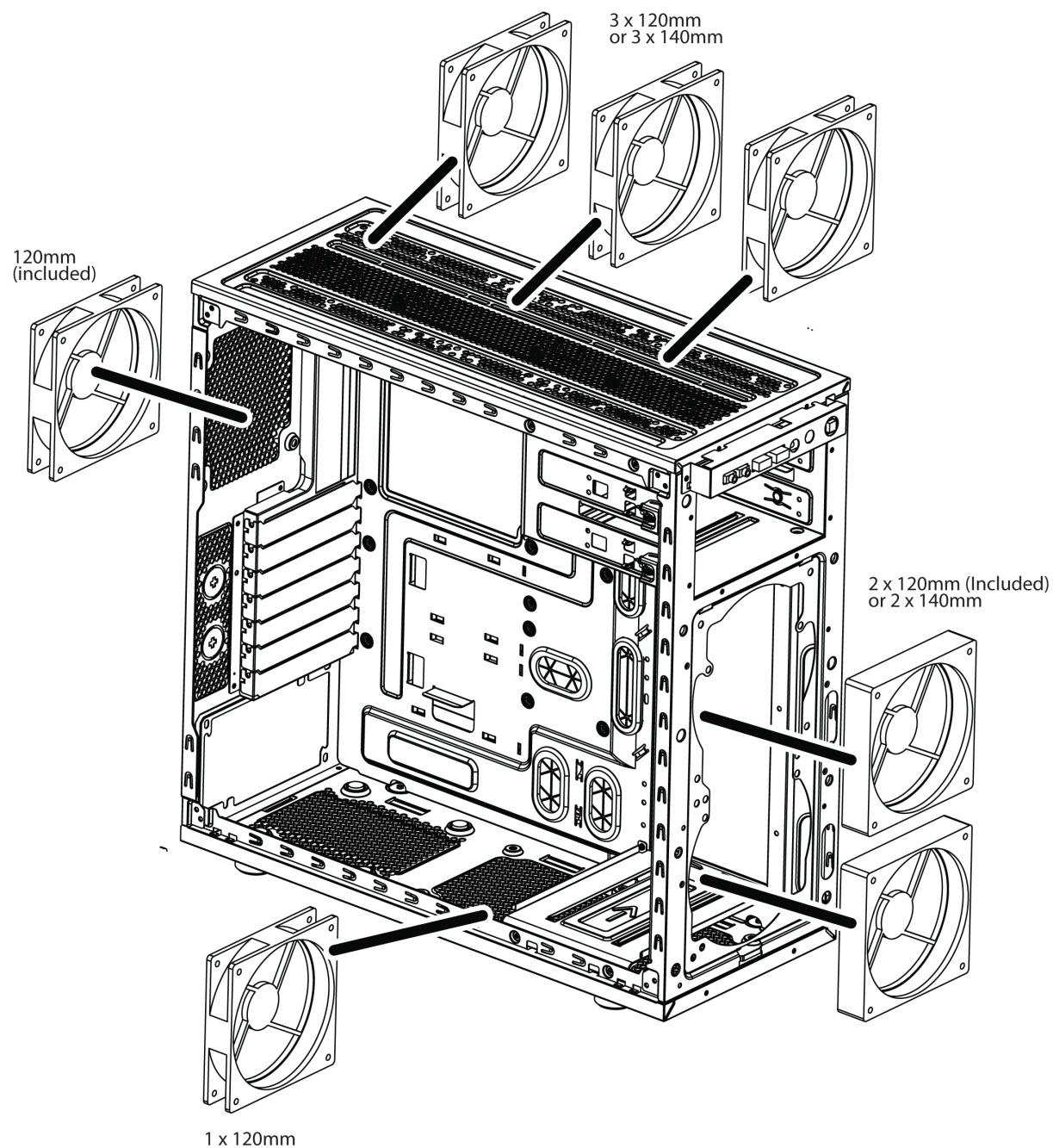


Figure 3-18. All Possible Fan Placements

Water Cooled Heatsink

The chassis supports a water cooled CPU heatsink. A 120 mm radiator can be placed over the rear fan. A 240 mm radiator can be placed under the top of the chassis. Consult your water cooling kit instructions for installation.

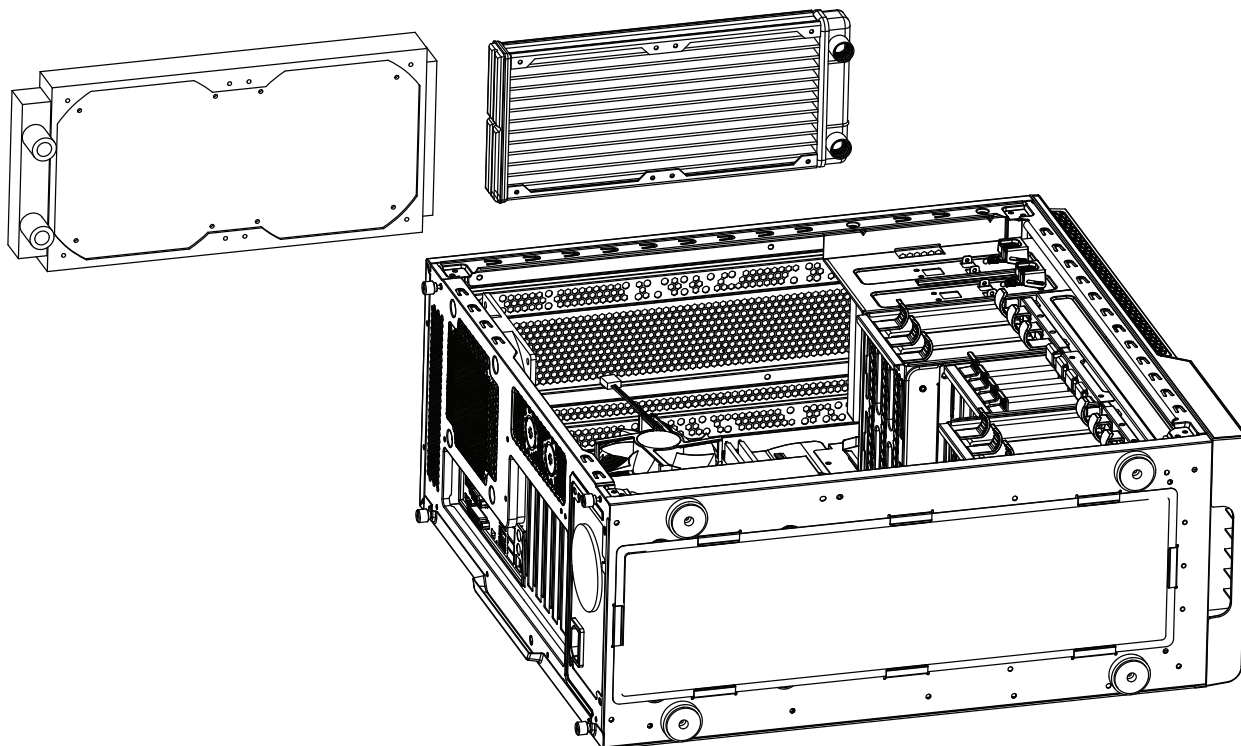


Figure 3-19. Example 240 mm Radiator

Air Flow

Verify that cables do not obstruct the cooling airflow.

Dust Filters

The chassis has two magnetic dust filters (one on the top and one on the bottom) and a dust filter that covers the front fans. Dust filters can be removed and cleaned to improve system air flow circulation.

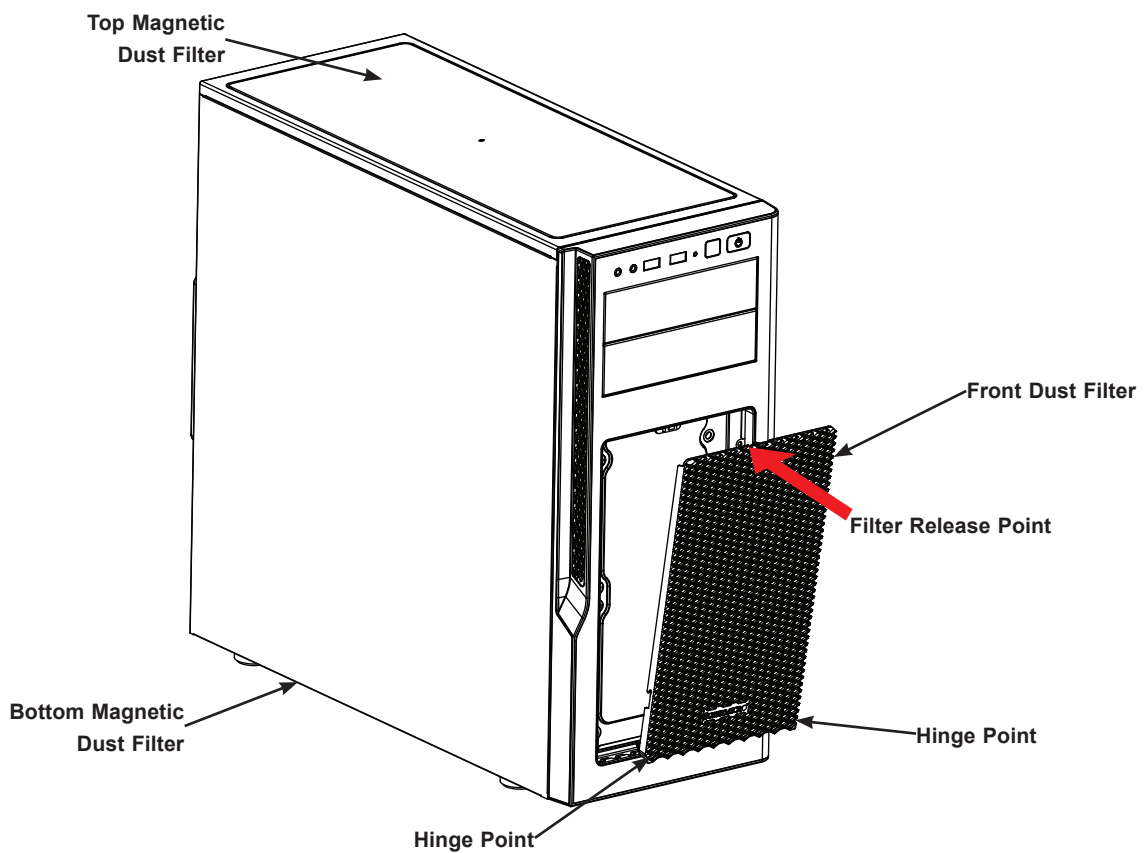


Figure 3-20. Dust Filters

Cleaning the Front Dust Filter

1. Release the filter by pushing the center of the top edge. The top pops loose.
2. Rotate the filter top downward to release it from the hinge points on the bottom.
3. Clean the filter.
4. Replace the filter. Align it with the bottom hinge points, then push the top edge into place. Push the top center until it clicks.

The top and bottom magnetic filters can also be removed for cleaning.

Power Supply

The 5039AD-I has a 750 watt power supply module. Mount the power supply on the rear floor of the chassis. The power supply can be mounted with the fan facing either up or down.

Chapter 4

Motherboard Connections

This section describes the connections on the motherboard and provides pinout definitions. Depending on how the system is configured, not all connections are required. The LEDs on the motherboard are also described here. A motherboard layout indicating component locations can be found in Chapter 1.

Review the Safety Precautions in Appendix B before installing or removing components.

4.1 Power Connections

Two power connections on the C9X299-PGF must be connected to the power supply. The wiring is included with the power supply.

- 24-pin Primary ATX Power (JPW1)
- 8-pin Processor Power (JPW2)
- 4-pin Processor Power (JPW3)

Main ATX Power Connector

The primary power connector (JPW1) meets the ATX SSI EPS 12V specification. You must also connect the 8-pin (JPW2) processor power connector to your power supply. The 4-pin (JPW3) power connector is optional.

ATX Power 24-pin Connector Pin Definitions (JPW1)			
Pin#	Definition	Pin#	Definition
13	+3.3V	1	+3.3V
14	-12V	2	+3.3V
15	COM	3	COM
16	PS_ON	4	+5V
17	COM	5	COM
18	COM	6	+5V
19	COM	7	COM
20	Res (NC)	8	PWR_OK
21	+5V	9	5VSB
22	+5V	10	+12V
23	+5V	11	+12V
24	COM	12	+3.3V

Required Connection

Important: To provide adequate power to the motherboard, connect the 24-pin, 8-pin, *and* the 4-pin power connectors to the power supply. Failure to do so may void the manufacturer's warranty on your power supply and motherboard.

8-Pin Power Connector

JPW2 is an 8-pin 12V DC power input for the processors, which must be connected to the power supply. Refer to the table below for pin definitions.

8-pin Power Pin Definitions (JPW2)	
Pin#	Definition
1 - 4	Ground
5 - 8	P12V (12V Power)

Required Connection

4.2 Headers and Connectors

Fan Headers

There are five 4-pin fan headers on the motherboard. Pins 1-3 are backward compatible with traditional 3-pin fans. The onboard fan speeds are controlled by Thermal Management via IPMI. When using Thermal Management setting, use all 3-pin fans or all 4-pin fans.

Fan Header Pin Definitions	
Pin#	Definition
1	Ground (Black)
2	2.5A/+12V (Red)
3	Tachometer
4	PWM_Control

Standby Power

The Standby Power header is located at JSTBY1 on the motherboard. You must have a card with a Standby Power connector and a cable to use this feature. Refer to the table below for pin definitions.

Standby Power Pin Definitions	
Pin#	Definition
1	+5V Standby
2	Ground
3	Wake-up

Internal Speaker/Buzzer

The Internal Speaker/Buzzer (SP1) is used to provide audible indications for various beep codes. Refer to the table below for pin definitions.

Internal Buzzer Pin Definitions		
Pin#	Definition	
1	Pos (+)	Beep In
2	Neg (-)	Alarm Speaker

Disk-On-Module Power Connector

The power connector for SATA DOM (Disk-On-Module) devices is located at JSD1. Connect appropriate cables here to provide power support for your Serial Link DOM devices.

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 Port 80 connection. Use this header to enhance system performance and data security. Refer to the table below for pin definitions. The following document provides information about the TPM: <http://www.supermicro.com/manuals/other/TPM.pdf>.

Trusted Platform Module Header Pin Definitions			
Pin#	Definition	Pin#	Definition
1	LCLK	11	LAD0
2	GND	12	GND
3	LFRAME#	13	SMB_CLK4
4	<(KEY)>	14	SMB_DAT4
5	LRESET#	15	+3V_DUAL
6	+5V (X)	16	SERIRQ
7	LAD 3	17	GND
8	LAD 2	18	CLKRUN# (X)
9	+3.3V	19	LPCPD#
10	LAD 1	20	LDRQ# (X)

Chassis Intrusion

A Chassis Intrusion header is located at JL1 on the motherboard. Attach the appropriate cable from the chassis to inform you of a chassis intrusion when the chassis is opened. Refer to the table below for pin definitions.

Chassis Intrusion Pin Definitions	
Pin#	Definition
1	Intrusion Input
2	Ground

External Speaker

Pins 1-4 of JD1 are for the speaker, and pins 3-4 are for the buzzer. The speaker connector pins (1-4) are used with an external speaker. If you wish to use the onboard speaker, close pins 1-4 with a cap. Refer to the tables below for pin definitions.

Speaker Connector Pin Definitions	
Pin Setting	Definition
3-4	Buzzer
1-4	External Speaker

Overheat/Fan Fail LED Header

The JF1 header is used to connect an LED indicator to provide warnings of chassis overheating and fan failure. This LED blinks when a fan failure occurs. Refer to the tables below for pin definitions.

Overheat LED header Status	
State	Definition
Off	Normal
Solid	Overheat
Blinking	Fan Fail

Overheat LED Pin Definitions	
Pin#	Definition
7	Vco
8	OH/Fan Fail LED

COM Port

One COM header (COM) is located on the motherboard next to PCI-e slot 1. Refer to the table below for pin definitions.

Serial/COM Port Pin Definitions			
Pin#	Definition	Pin#	Definition
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	Ground	10	n/a

U.2 SSD Connectors

The two U.2 SSD connectors (U.2 Connector 1, U.2 Connector 2) on the board are connected directly to the motherboard. They offer up to 4x PCI-e 3.0 lanes to a connected SSD device.

SATA Ports

The C9X299-PGF has six SATA 3.0 ports (I-SATA0-5) supported by the Intel® X299 chipset. These SATA ports support RAID 0, 1, 5, and 10. SATA ports provide serial-link signal connections, which are faster than the connections of Parallel ATA.

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

SATA 2.0/3.0 Connectors Pin Definitions	
Pin#	Signal
1	Ground
2	SATA_TXP
3	SATA_TXN
4	Ground
5	SATA_RXN
6	SATA_RXP
7	Ground

Intel RAID Key Header

The JRK1 header allows the user to enable RAID functions. Refer to the table below for pin definitions.

Overheat LED Pin Definitions	
Pin#	Definition
1	GND
2	PU 3.3V Stdbby
3	GND
4	PCH RAID KEY

4-pin External BMC I²C Header

A System Management Bus header for IPMI 2.0 is located at JIPMB1. Connect a cable to this header to use the IPMB I²C connection on your system. Refer to the table below for pin definitions.

External I ² C Header Pin Definitions	
Pin#	Definition
1	Data
2	Ground
3	Clock
4	No Connection

Control Panel

JF1 contains header pins for various control panel connections. Refer to the figure below for the pin locations and definitions of the control panel buttons and LED indicators.

All JF1 wires have been bundled into a single cable to simplify this connection. Verify that the red wire plugs into pin 1 as marked on the motherboard. The other end connects to the control panel PCB board.

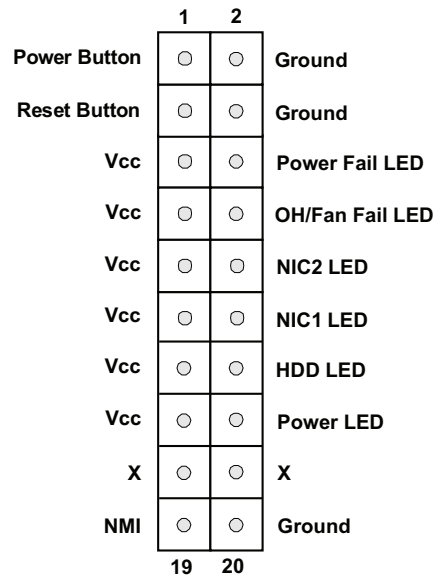


Figure 4-1. JF1: Control Panel Pins

Power Button

The Power Button connection is located on pins 1 and 2 of JF1. Momentarily contacting both pins will power on/off the system. This button can also be configured to function as a suspend button with a setting in the BIOS (see Chapter 4). To turn off the power when the system is in suspend mode, press the button for 4 seconds or longer. Refer to the table below for pin definitions.

Power Button Pin Definitions (JF1)	
Pins	Definition
1	Signal
2	Ground

Reset Button

The Reset Button connection is located on pins 3 and 4 of JF1. Attach it to a hardware reset switch on the computer case to reset the system. Refer to the table below for pin definitions.

Reset Button Pin Definitions (JF1)	
Pins	Definition
3	Reset
4	Ground

Power Fail LED

The Power Fail LED connection is located on pins 5 and 6 of JF1. Refer to the table below for pin definitions.

Power Fail LED Pin Definitions (JF1)	
Pin#	Definition
5	No Connection
6	Power Fail

Overheat (OH)/Fan Fail

Connect an LED cable to pins 7 and 8 of the Front Control Panel to use the Overheat/Fan Fail LED connections. The LED on pin 8 provides warnings of overheat or fan failure. Refer to the tables below for pin definitions.

OH/Fan Fail Indicator Status	
State	Definition
Off	Normal
On	Overheat
Flashing	Fan Fail

OH/Fan Fail LED Pin Definitions (JF1)	
Pin#	Definition
7	Vcc
8	OH/Fan Fail LED

NIC1/NIC2 (LAN1/LAN2 or LAN3/LAN4)

The Network Interface Controller (NIC) LED connection for LAN port 1 is located on pins 11 and 12 of JF1, while LAN port 2 is on pins 9 and 10. Attach the NIC LED cables here to display network activity. Refer to the table below for pin definitions.

LAN1/LAN2 or LAN3/LAN4 LED Pin Definitions (JF1)	
Pin#	Definition
9/11	Vcc
10/12	NIC2 Active LED/ NIC1 Active LED

HDD LED

The HDD LED connection is located on pins 13 and 14 of JF1. Attach a cable to pin 14 to show hard drive activity status. Refer to the table below for pin definitions.

HDD LED Pin Definitions (JF1)	
Pins	Definition
13	Vcc
14	HDD Active

Power LED

The Power LED connection is located on pins 15 and 16 of JF1. Refer to the table below for pin definitions.

Power LED Pin Definitions (JF1)	
Pins	Definition
15	Vcc
16	PWR LED

NMI Button

The non-maskable interrupt (NMI) button header is located on pins 19 and 20 of JF1. Refer to the table below for pin definitions.

NMI Button Pin Definitions (JF1)	
Pins	Definition
19	Control
20	Ground

4.3 Ports

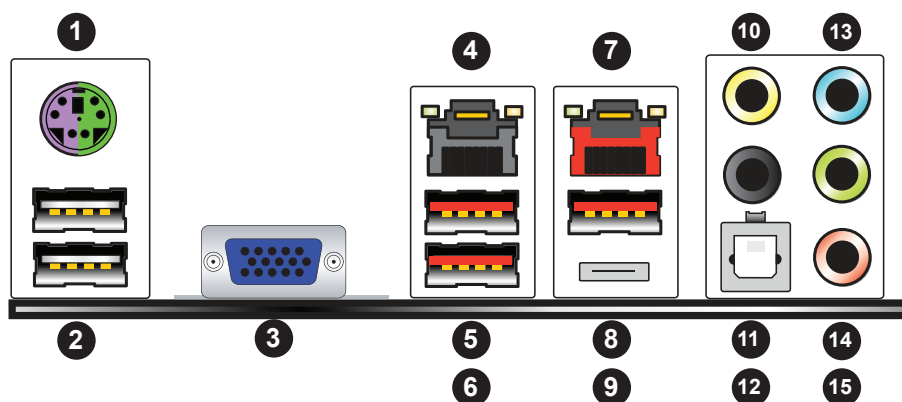


Figure 4-2. Rear I/O Ports

Rear I/O Ports					
#	Description	#	Description	#	Description
1	PS/2 Keyboard/Mouse	6	USB 3.1 Port 7	11	Surround Out
2	USB 3.0 Ports 4/5	7	1GbE LAN Port 2 (IPMI)	12	S/PDIF Out
3	VGA Port	8	USB 3.1 Port 8 (Type A)	13	Line In
4	5GbE LAN Port 1	9	USB 3.1 Port 9 (Type C)	14	Line Out
5	USB 3.1 Port 6	10	Center/LFE Out	15	Mic In

ATX PS/2 Keyboard/Mouse Port

The ATX PS/2 keyboard and mouse port is located on the rear I/O panel above USB 4/5.

Ethernet Ports

Two Ethernet ports (LAN1/2) are located on the I/O back panel. LAN1 is a 5GbE port and LAN2 is a 1GbE dedicated IPMI port. Refer to the LED Indicator section for LAN LED information.

Ethernet Ports Pin Definitions			
Pin#	Definition	Pin#	Definition
1	P2V5SB	10	SGND
2	TD0+	11	Active LED
3	TD0-	12	P3V3SB
4	TD1+	13	Link 100 LED (Green, +3V3SB)
5	TD1-	14	Link 1000 LED (Yellow, +3V3SB)
6	TD2+	15	Ground
7	TD2-	16	Ground
8	TD3+	17	Ground
9	TD3-	18	Ground

Universal Serial Bus (USB) Ports

There are two USB 3.0 ports (USB4/5) and four USB 3.1 ports (USB6/7, USB8: Type A, USB9: Type C) located on the I/O back panel. The motherboard also has two front accessible USB 2.0 headers (USB0/1, USB2/3) and one front accessible USB 3.0 header (USB16/17). The onboard headers can be used to provide front side USB access with a cable (not included).

Back Panel USB 0/1 (2.0), USB 8/9/10/11 (3.1) Pin Definitions			
Pin#	Definition	Pin#	Definition
1	+5V	5	+5V
2	USB_PN1	6	USB_PN0
3	USB_PP1	7	USB_PP0
4	Ground	8	Ground

Front Panel USB 0/1/2/3 (2.0) Pin Definitions			
Pin#	Definition	Pin#	Definition
1	+5V	6	USB_PP3
2	+5V	7	Ground
3	USB_PN2	8	Ground
4	USB_PN3	9	Key
5	USB_PP2	10	Ground

Front Panel USB 16/17 (3.0) Pin Definitions			
Pin#	Pin#	Signal Name	Definition
1	19	VBUS	Power
2	18	StdA_SSRX-	SuperSpeed Receiver
3	17	StdA_SSRX+	Differential Pair
4	16	Ground	Ground of PWR Return
5	15	StdA_SSTX-	SuperSpeed Transmitter
6	14	StdA_SSTX+	Differential Pair
7	13	GND_DRAIN	Ground for Signal Return
8	12	D-	USB 2.0 Differential Pair
9	11	D+	
10	x	N/A	N/A

HD AUDIO Ports

The motherboard includes a 7.1+2 channel High Definition Audio (HDA) codec that provides 10 DAC channels. The HD Audio connections on the I/O back panel simultaneously supports multiple-streaming 7.1 sound playback with two channels of independent stereo output through the front panel stereo out for front, rear, center and subwoofer speakers. Use the advanced software included in the CD-ROM with your motherboard to enable this function.

VGA Port

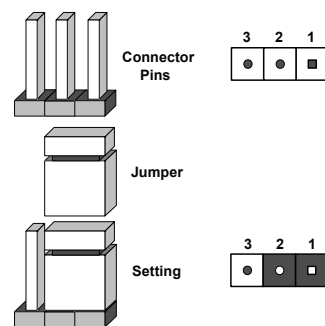
A video (VGA) port is located on the I/O back panel. Refer to the motherboard layout diagram in Section 1.5.

4.4 Jumpers

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. Refer to the motherboard layout diagram in Section 1.5 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 also clears 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 cover, reconnect the power cord(s) and power on the system.

Notes: Clearing CMOS also clears all passwords. Do *not* use the PW_ON connector to clear CMOS.



JBT1 contact pads

Watch Dog

Watch Dog (JWD1) is a system monitor that can reboot the system when a software application hangs. Close pins 1-2 to reset the system if an application hangs. Close pins 2-3 to generate a non-maskable interrupt (NMI) signal for the application that hangs. Refer to the table below for jumper settings. The Watch Dog must also be enabled in the BIOS.

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

ME Manufacturing Mode

Close pins 2-3 of jumper JPME2 to bypass SPI flash security and force the system to operate in manufacturing mode. This allows the user to flash the system firmware from a host server for system setting modifications. Refer to the table below for jumper settings. The default setting is Normal.

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

VGA Enable/Disable

Jumper JPG1 allows the user to enable the onboard VGA connector. The default setting is pins 1-2 to enable the connection. Refer to the table below for jumper settings.

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

Audio Enable

JPAC1 allows you to enable or disable the onboard audio support. The default position is on pins 1-2 to enable onboard audio connections. Refer the table on the right for jumper settings.

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

Power Button

In addition to the soft power switch provided in JF1, the motherboard is equipped with a soft power button on the motherboard. This switch works the same way as the soft power switch on JF1.

Reset Button

When pressed, the Reset Button reboots the system. This action erases everything in memory and restarts the system.

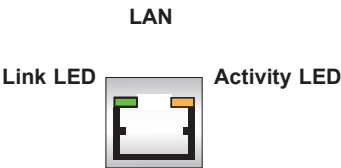
4.5 LED Indicators

LAN LEDs

Two LAN ports (LAN 1 ~ LAN 2) are located on the I/O back panel of the motherboard. Each Ethernet LAN port has two LEDs. The green LED indicates activity, while the other Link LED may be green, amber, or off to indicate the speed of the connection. Refer to the tables below for more information.

LAN Link LED (Left) LED State	
LED Color	Definition
Off	No connection
Green	5Gbps
Yellow/Amber	1Gbps

LAN Activity LED (Right) LED State		
Color	Status	Definition
Yellow	Flashing	Active



M.2 LEDs

Two M.2 LEDs are located on the motherboard. LED6903 is the activity LED for M.2 Connector 1, and LED6904 is the activity LED for M.2 Connector 2. A blinking LED indicates that M.2 is functioning normally

M.2 LED State	
LED Color	Definition
Green: Blinking	Device Working

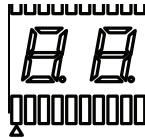
Onboard Power LED

The Onboard Power LED is located at LEDPWR on the motherboard. When this LED is on, the system is on. Be sure to turn off the system and unplug the power cord before removing or installing components. Refer to the table below for more information.

Onboard Power LED Indicator	
LED Color	Definition
Off	System Off (power cable not connected)
Green	System On

Status Display

LED1 displays alpha-numeric status (POST) codes when the motherboard is powered on. View AMI status codes at: [https://ami.com/ami_downloads/Aptio_4.x_Status_Codes_\(beep_checkpoint\).pdf](https://ami.com/ami_downloads/Aptio_4.x_Status_Codes_(beep_checkpoint).pdf)



Chapter 5

Software

After the hardware has been installed, install the Operating System (OS), configure RAID settings, and install the drivers. Necessary drivers and utilities can 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, 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 into the DVD drive. The system boots up from the DVD.
2. Insert the USB stick containing Windows drivers to a USB port on the system.
Note: For legacy operating systems, slipstream the drivers.
3. Select the partition on the drive on 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 on which you want to install it.
6. Once all devices are specified, continue with the installation.
7. After installation is complete, the system automatically reboots.

Installing Windows to a Non-RAID System

1. Insert Microsoft's Windows OS Setup DVD into the DVD-ROM drive. The system boots from the DVD.
2. Continue the installation. The Windows OS Setup screen displays.
3. On the Windows OS Setup screen, press the <Enter> key. The OS Setup automatically loads all device files and then continues the installation.
4. After installation is complete, the system automatically reboots.

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, navigate to 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 can 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. The dialog shown in Figure 5-1 displays.

Another option is to navigate to the Supermicro website at <http://www.supermicro.com/products/>. Find the product page for your motherboard and download drivers and utilities to your hard drive or a USB flash drive, then install from there.

Note: To install the Windows OS, refer to the instructions posted on our website at <http://www.supermicro.com/support/manuals/>.

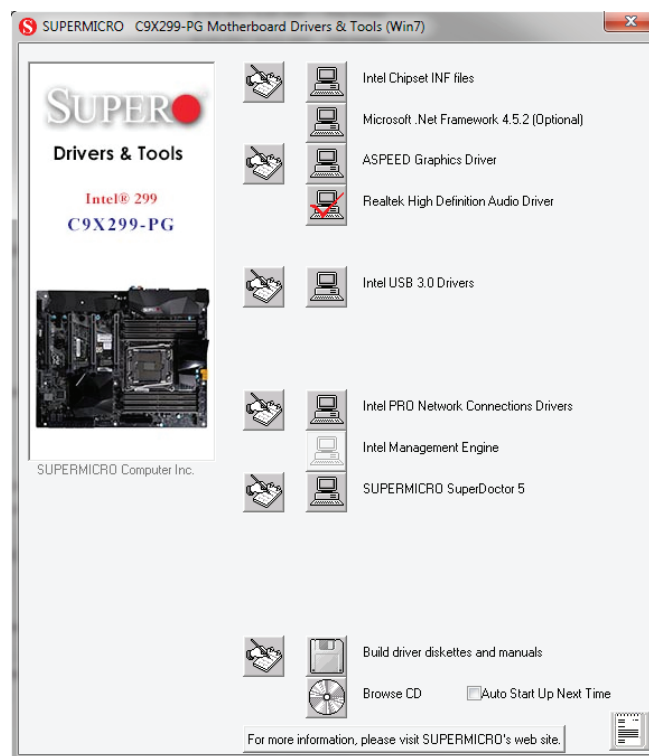


Figure 5-1. Driver & Tool Installation Screen

Note: Click the icon of a hand writing on paper to view the readme file for each item. Click the computer icon to install each item one at a time from the top item to the bottom item. After installing each item, you must reboot the system before installing the next item. The Browse CD button allows you to view the entire contents of the disc.

5.3 SuperDoctor® 5

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 system health information such as CPU temperature, system voltages, system power consumption, and 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 via 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.

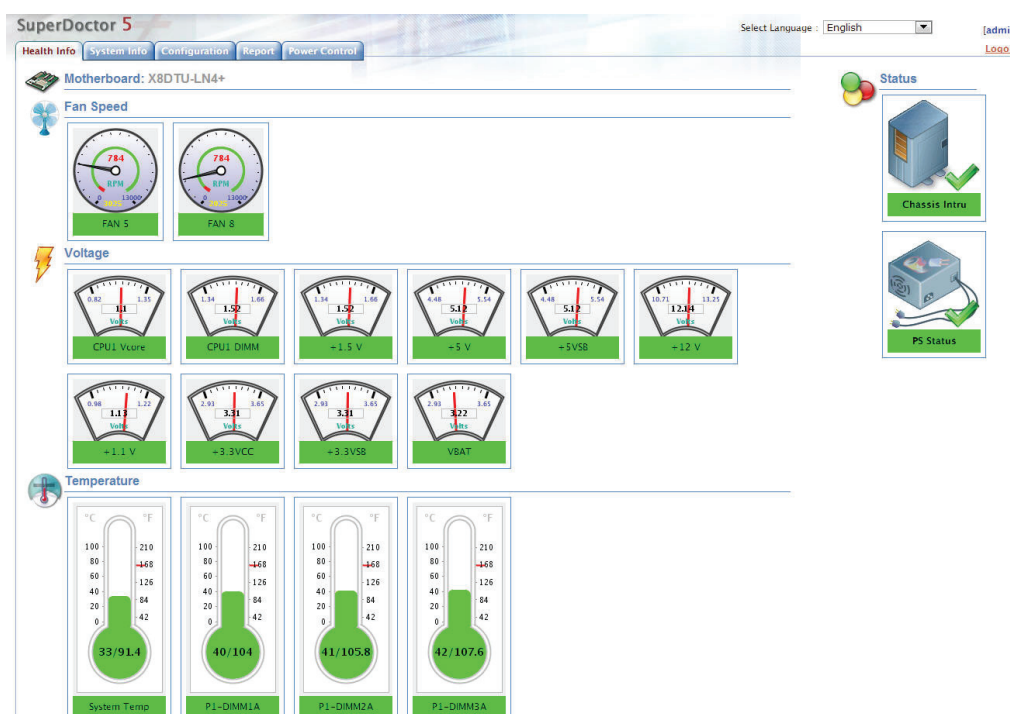


Figure 5-2. SuperDoctor 5 Interface Display Screen (Health Information)

5.4 IPMI

The C9X299-PGF supports 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, visit our website at: <http://www.supermicro.com/products/nfo/IPMI.cfm>.

Chapter 6

BIOS

6.1 Introduction

This chapter describes the AMIBIOS™ Setup utility for the motherboard. The BIOS is stored on a chip and can be easily upgraded using a flash program.

Note: Due to periodic changes to the BIOS, some settings may have been added or deleted and might not yet be recorded in this manual. Please refer to the Manual Download area of our website for any changes to BIOS that may not be reflected in this manual.

Starting the Setup Utility

To enter the BIOS Setup Utility, press the <Delete> key while the system is booting-up. (In most cases, the <Delete> key is used to invoke the BIOS setup screen. There are a few cases when other keys are used, such as <F1>, <F2>, etc.) Each main BIOS menu option is described in this manual.

The Main BIOS screen has two main frames. The left frame displays all the options that can be configured. "Grayed-out" options cannot be configured. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it. (Note that BIOS has default text messages built in. We retain the option to include, omit, or change any of these text messages.) Settings printed in **Bold** are the default values.

A "►" indicates a submenu. Highlighting such an item and pressing the <Enter> key will open the list of settings within that submenu.

The BIOS setup utility uses a key-based navigation system called hot keys. Most of these hot keys (<F1>, <F2>, <F3>, <Enter>, <ESC>, <Arrow> keys, etc.) can be used at any time during the setup navigation process.

How To Change the Configuration Data

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

Changing Between EZ Mode and Advanced Mode

Above the basic motherboard information and the clock is the EZ Mode/Advanced Mode button. When in EZ Mode, Serial ATA Port 0~5 information will be displayed. When in Advanced Mode, all following configuration menus and their contents become available.

6.2 Overclocking



► CPU Configuration

Advanced CPU OC Setting

This feature controls the CPU overclocking settings. The options are **Manual**, 3.8GHz, 3.9GHz, 4.0GHz, 4.1GHz, 4.2GHz, 4.3GHz, 4.4GHz, 4.5GHz, 4.6GHz, 4.7GHz, 4.8GHz, 4.9GHz, 5.0GHz, 5.1GHz, and 5.2GHz.

BCLK Setting

This feature controls the BCLK settings. The options are **100MHz**, 125MHz, 167MHz, and 250MHz.

BCLK Frequency

This feature controls the BCLK frequency. This is automatically controlled by the previous setting.

Per Core Mode

When enabled, this feature unlocks 'Core Voltage Mode', 'Core Extra Turbo Voltage', and 'Core Voltage Offset' configuration for Core-0~9. The options are Disabled or **Enabled**.

Core-0~9 Max Ratio

This feature overrides the Core Max Ratio on a per-core basis. Settings change automatically, unless 'Load SMC CPU OC Setting' feature is set to manual.

Core Max OC Ratio

This feature controls the general maximum overclocking ratio for the CPU cores and Ring. The default is **0**.

AVX2 Negative Offset

Enter a value for AVX2 Negative Offset. The default is **0**.

AVX3 Negative Offset

Enter a value for AVX3 Negative Offset. The default is **0**.

Core Voltage Mode

This feature controls the general Core Voltage Mode. The options are **Adaptive** or Override.

Core Extra Turbo Voltage

This feature controls the extra turbo voltage applied while IA Core is operating in turbo mode. The default is **0**.

Core Voltage Offset

This feature controls the Offset Voltage (in millivolts) applied to the IA core domain. The default is **0**.

Offset Prefix

This feature controls the offset value prefix. The options are positive **(+)** or negative **(-)**.

► Processor

Core Voltage Mode

This feature controls the general Core Voltage Mode. The options are **Adaptive** or Override.

Core Extra Turbo Voltage

This feature controls the extra turbo voltage applied while IA Core is operating in turbo mode. The default is **0**.

Core Voltage Offset

This feature controls the Offset Voltage (in millivolts) applied to the IA core domain. The default is **0**.

Offset Prefix

This feature controls the offset value prefix. The options are positive **(+)** or negative **(-)**.

Adjust PII

This feature sends the mailbox command to adjust the PII for higher-HCLK ratio combination. The options are **Disabled** or **Enabled**.

Change PIITrim Value

Enter a value to change the PII value to. The value range is between negative 63 and positive 63. The default is **0**.

Change PLLTRIM Prefix

This feature controls the PII value prefix. The options are positive **(+)** and negative **(-)**.

Change MC-PIITrim Value

Enter a value to change the MC-PII value to. The value range is between negative 63 and positive 63. The default is **0**.

Change MC-PLLTRIM Prefix

This feature controls the MC-PII value prefix. The options are positive **(+)** and negative **(-)**.

TJ-Max offset

Enter a value to change the TJ-Max value to. The default is **0**.

OverClocking Feature

This feature enables processor and memory overclocking features. The options are **Disabled** or **Enabled**.

WDT Enable

This feature enables the WatchDog Timer (WDT). The options are **Disabled** or **Enabled**.

Hyper-Threading [ALL]

This feature enables hyper-threading, which is a software method to control logical processor threads. The options are **Disabled** or **Enabled**.

Core Disable Bitmap(Hex)

Enter a hex value. Value '**0**' enables all cores. Value '**3fff**' disables all cores.

SpeedStep (Pstates)

This feature enables SpeedStep, also known as System Agent Geyserville. The options are **Disabled** or **Enabled**.

Boot performance mode

This feature controls the performance state that the BIOS will set initially. The options are **Max Performance** or **Max Efficient**.

Energy Efficient Turbo

Select Enabled to activate Energy Efficient Turbo. This feature will opportunistically lower the turbo frequency to increase efficiency. We recommend to leave this enabled and disable only in overclocking situations where the turbo frequency must remain constant. The options are **Enabled** or Disabled.

Turbo Mode

When EMTTM is enabled, this feature enables processor Turbo Mode. The options are Disabled or **Enabled**.

CPU Flex Ratio Override

This feature enables CPU Flex Ratio Programming. The options are **Disabled** or Enabled.

CPU Flex Ratio

When the feature above is enabled, this feature allows for a custom ratio value to be entered. It must be between the Max Efficiency Ratio and the Max Non-turbo Ratio set by the hardware. The default is **23**.

Thermal Monitor

This feature enables the thermal monitor. The options are Disabled or **Enabled**.

Current Limit Override

This feature enables current limit override. The options are **Disabled** or Enabled.

PL1 Limit

This feature enables the PL1 limit. If set to disabled, BIOS will program default values for the next two features. The options are **Disabled** or Enabled.

PL1 Power Limit

Enter a value for PL1 Power Limit. The default is **0**.

PL1 Time Window

Enter a value for PL1 Time Window. The default is **1**.

PL2 Power Limit

Enter a value for PL2 Power Limit. The default is **0**.

PL2 Time Window

Enter a value for PL2 Time Window. The default is **1**.

► Turbo Ratio Limit

Settings for TurboRatioLimit0~7 and TurboRatioCores0~7 are configurable in this sub-menu. The default for TurboRatioLimit0 is **40**. The default for TurboRatioCores0 is **10**. The default for the remaining features is **0**.

► Hardware PM State Control

Hardware P-States

This feature controls how P-states are selected. The 'Disable' option bases the choice on OS Request. The '**Native Mode**'/'Native Mode with No Legacy Support' option bases the choice on OS guidance. The 'Out of Band Mode' option enables autonomous P-state selection.

HardwarePM Interrupt

This feature enables Hardware PM Interrupt. The options are **Disabled** or Enabled.

EPP Enable

This feature enables Enhanced Parallel Port (EPP) for faster data transfer between computer and peripheral devices. The options are Disabled or **Enabled**.

APS rocketing

This feature enables APS rocketing, which allows the core ratio to jump to max turbo instantly rather than on a smooth curve. The options are **Disabled** or Enabled.

Scalability

This feature enables the use of Scalability in HWP p-code power efficiency algorithms. The options are **Disabled** or Enabled.

PPO-Budget

This feature enables PPO-Budget, which allocates power to cores based on their scalability/EPP. The options are **Disabled** or Enabled.

► CPU C State Control

Autonomous Core C-State

This feature enables autonomous Core C-State control. The options are **Disabled** or Enabled.

CPU C6 report

This feature controls CPU C6 reports to the operating system. The options are Disabled, Enabled, and **Auto**.

Enhanced Halt State(C1E)

This feature enables Enhanced Halt State (takes effect after reboot). The options are Disabled or **Enabled**.

OS ACPI Cx

This feature controls reporting of CC3/CC6. The options are **ACPI C2** or ACPI C3.

Package C State

This feature controls the Package C State limit. The options are C0/C1 state, C2 state, C6(non Retention) state, C6(Retention) state, No Limit, and **Auto**.

► CLR/Ring

CLR Max OC Ratio

This feature controls the maximum overclocking ratio for the CLR. The default is **0**.

CLR Min Ratio

This feature sets the minimum ratio for the CLR. The default is **8**.

CLR Voltage Mode

This feature controls the Voltage Mode for the CLR. The options are **Adaptive** or **Override**.

CLR Extra Turbo Voltage

This feature controls the extra turbo voltage applied while GT is operating in turbo mode. The default is **0**.

CLR Voltage Offset

This feature controls the Offset Voltage (in millivolts) applied to the GT core domain. The default is **0**.

Offset Prefix

This feature controls the offset value prefix. The options are positive **(+)** or negative **(-)**.

► Uncore

Uncore Voltage Offset

This feature controls the Offset Voltage (in millivolts) applied to the Uncore domain. The default is **0**.

Offset Prefix

This feature controls the offset value prefix. The options are positive **(+)** or negative **(-)**.

► SVID/FIVR

SVID Support

This feature enables SVID, which enables input voltage overrides. The options are **Disabled** or **Enabled**.

SVID Voltage Override

This feature overrides the Vccin input voltage, which affects the input voltage to the CPU. The default is **0**.

SVID VCCSA Voltage Override

This feature overrides the VccSA input voltage, which affects the input voltage to the CPU. The default is **0**.

SVID VCCIO Voltage Override

This feature overrides the VccIO input voltage, which affects the input voltage to the CPU. The default is **0**.

Load Line Calibration

This feature controls the Load Line Calibration. The options are Disabled, Level 1, Level 2, Level 3, Level 4, Level 5, Level 6, Level 7, and **Auto**.

Vcc PCH Vout voltage override enable

This feature overrides the Vcc PCH Vout voltage rail. The options are **Disabled** or Enabled.

Vcc PCH Vout voltage

This feature controls the voltage for the above feature. The default is **1.000V**.

FIVR Faults

This feature enables FIVR Faults. The default is **Enabled**.

**Selecting Disabled is NOT recommended and may cause negative effects.*

FIVR Efficiency Management

This feature enables FIVR efficiency management, which can improve power delivery efficiency. The default is **Enabled**.

**When enabled, this feature may have negative effects while overclocking, particularly BCLK overclocking.*

► Memory Overclocking

XMP Profile

This feature controls the XMP profile. The options are **Disabled**, Manual, and Profile 1.

**When set to Manual, the following memory timing configurations become available.*

Memory Frequency

This feature controls the maximum memory frequency (in Mhz). The options are **Auto**, 1000, 1200, 1333, 1400, 1600, 1800, 1866, 2000, 2133, 2200, 2400, 2600, 2666, 2800, 2933, 3000, 3200, 3400, 3466, 3600, 3733, 3800, 4000, 4200, 4266, and 4400.

Memory Voltage

Enter a value for Memory Voltage. To select 1.200 volts, enter 1200. The default is **1200**.

1st memory timing:**tCL**

This feature configures the Cas Latency Range. Enter a number between 4-18. The default is **15**.

tRCD

This feature selects the Row to Col Delay Range. Enter a number between 1-38. The default is **17**.

tRP

This feature selects the Ras Precharge Range. Enter a number 1-38. The default is **17**.

tRAS

This feature selects the Ras Active Time. Enter a number between 1-586. The default is 36.

2nd memory timing: Command Timing

This feature controls the desired memory controller command timing. The options are **1N**, 2N, and 3N.

tWR

This feature configures the Minimum Write Recovery Time. Enter a number between 1-38. The default is **16**.

tRFC

This feature selects the Minimum Refresh Recovery Delay Time. Enter a number between 1-9363. The default is **374**.

tRRD

This feature selects the Minimum Row Active To Row Active Delay Time. Enter a number between 1-38. The default is **4**.

tRRD_L

Enter a value for desired tRRD_L. The default is **6**.

tWTR

This feature configures the Minimum Internal Write to Read Command Delay Time. Enter a number between 1-38. The default is **3**.

tRTP

This feature configures the Internal Read to Precharge Command Delay Time. Enter a number between 1-38. The default is **8**.

tFAW

This feature selects the Minimum Four Activate Window Delay Time. Enter a numeric value between 1-586. The default is **23**.

tCWL

This feature selects the Minimum CAS Write Latency Time. Enter a numeric value. The default is **14**.

tREFI

This feature configures the Maximum tREFI Time (Average Periodic Refresh Interval). Enter a numeric value. The default is 8320.

tREFI_{x9}

Enter a value for desired tREFI_{x9}. The default is **73**.

tRC

Enter a value for desired tRC. The default is **50**.

3rd timing:**tWTR_L**

Enter a value for desired tWTR_L. The default is **8**.

tCCD_L

Enter a value for desired tCCD_L. The default is **2**.

tCCD_{WR_L}

Enter a value for desired tCCD_{WR_L}. The default is **2**.

tCKE

Enter a value for desired tCKE. The default is **6**.

tXP

Enter a value for desired tXP. The default is **7**.

t_{XSDLL}

Enter a value for desired t_{XSDLL}. The default is **768**.

tRRDR

Enter a value for desired tRRDR. The default is **1**.

tRRDD

Enter a value for desired tRRDD. The default is **1**.

tWWDR

Enter a value for desired tWWDR. The default is **3**.

tWWDD

Enter a value for desired tWWDD. The default is **3**.

tRWDR

Enter a value for desired tRWDR. The default is **6**.

tRWDD

Enter a value for desired tRWDD. The default is **6**.

tWRDR

Enter a value for desired tWRDR. The default is **1**.

tWRDD

Enter a value for desired tWRDD. The default is **1**.

tRWSR

Enter a value for desired tRWSR. The default is **5**.

tRRDS

Enter a value for desired tRRDS. The default is **1**.

tRWDS

Enter a value for desired tRWDS. The default is **6**.

tWWDS

Enter a value for desired tWWDS. The default is **3**.

tWRDS

Enter a value for desired tWRDS. The default is **1**.

4th memory timing:

RTL (CHA DIMM1)

Enter a value for desired RTL (CHA DIMM1). The default is **0**.

RTL (CHA DIMM2)

Enter a value for desired RTL (CHA DIMM2). The default is **0**.

RTL (CHB DIMM1)

Enter a value for desired RTL (CHB DIMM1). The default is **0**.

RTL (CHB DIMM2)

Enter a value for desired RTL (CHB DIMM2). The default is **0**.

RTL (CHC DIMM1)

Enter a value for desired RTL (CHC DIMM1). The default is **0**.

RTL (CHC DIMM2)

Enter a value for desired RTL (CHC DIMM2). The default is **0**.

RTL (CHD DIMM1)

Enter a value for desired RTL (CHD DIMM1). The default is **69**.

RTL (CHD DIMM2)

Enter a value for desired RTL (CHD DIMM2). The default is **0**.

IOL (CHA DIMM1)

Enter a value for desired IOL (CHA DIMM1). The default is **0**.

IOL (CHA DIMM2)

Enter a value for desired IOL (CHA DIMM2). The default is **0**.

IOL (CHB DIMM1)

Enter a value for desired IOL (CHB DIMM1). The default is **0**.

IOL (CHB DIMM2)

Enter a value for desired IOL (CHB DIMM2). The default is **0**.

IOL (CHC DIMM1)

Enter a value for desired IOL (CHC DIMM1). The default is **0**.

IOL (CHC DIMM2)

Enter a value for desired IOL (CHC DIMM2). The default is **0**.

IOL (CHD DIMM1)

Enter a value for desired IOL (CHD DIMM1). The default is **4**.

IOL (CHD DIMM2)

Enter a value for desired IOL (CHD DIMM2). The default is **0**.

RcompTarget[RdOdt]

Enter a value for desired Rcomptarget[RdOdt]. The default is **60**.

RcompTarget[WrDS]

Enter a value for desired RcompTarget[WrDS]. The default is **26**.

RcompTarget[WrDSCmd]

Enter a value for desired RcompTarget[WrDSCmd]. The default is **20**.

RcompTarget[WrDSCtl]

Enter a value for desired RcompTarget[WrDSCtl]. The default is **20**.

RcompTarget[WrDSClk]

Enter a value for desired RcompTarget[WrDSClk]. The default is **26**.

Rcompresistors1

Enter a value for desired Rcompresistors1. The default is **121**.

Rcompresistors2

Enter a value for desired Rcompresistors2. The default is **75**.

Rcompresistors3

Enter a value for desired Rcompresistors3. The default is **100**.

►DDR4 ODT Configuration

CHA DIMM1 RTT_WR

Enter a value for desired CHA DIMM1 RTT_WR. The options are **Auto**, Disabled, 60, 80, 120, 240, and Infinity.

CHA DIMM1 RTT_Prk

Enter a value for desired CHA DIMM1 RTT_Prk. The options are **Auto**, Disabled, 60, 80, 120, 240, and Infinity.

CHA DIMM1 RTT_NOM

Enter a value for desired CHA DIMM1 RTT_NOM. The options are **Auto**, Disabled, 60, 80, 120, 240, and Infinity.

CHA DIMM2 RTT_WR

Enter a value for desired CHA DIMM2 RTT_WR. The options are **Auto**, Disabled, 60, 80, 120, 240, and Infinity.

CHA DIMM2 RTT_Prk

Enter a value for desired CHA DIMM2 RTT_Prk. The options are **Auto**, Disabled, 60, 80, 120, 240, and Infinity.

CHA DIMM2 RTT_NOM

Enter a value for desired CHA DIMM2 RTT_NOM. The options are **Auto**, Disabled, 60, 80, 120, 240, and Infinity.

CHB DIMM1 RTT_WR

Enter a value for desired CHB DIMM1 RTT_WR. The options are **Auto**, Disabled, 60, 80, 120, 240, and Infinity.

CHB DIMM1 RTT_Prk

Enter a value for desired CHB DIMM1 RTT_Prk. The options are **Auto**, Disabled, 60, 80, 120, 240, and Infinity.

CHB DIMM1 RTT_NOM

Enter a value for desired CHB DIMM1 RTT_NOM. The options are **Auto**, Disabled, 60, 80, 120, 240, and Infinity.

CHB DIMM2 RTT_WR

Enter a value for desired CHB DIMM2 RTT_WR. The options are **Auto**, Disabled, 60, 80, 120, 240, and Infinity.

CHB DIMM2 RTT_Prk

Enter a value for desired CHB DIMM2 RTT_Prk. The options are **Auto**, Disabled, 60, 80, 120, 240, and Infinity.

CHB DIMM2 RTT_NOM

Enter a value for desired CHB DIMM2 RTT_NOM. The options are **Auto**, Disabled, 60, 80, 120, 240, and Infinity.

CHC DIMM1 RTT_WR

Enter a value for desired CHC DIMM1 RTT_WR. The options are **Auto**, Disabled, 60, 80, 120, 240, and Infinity.

CHC DIMM1 RTT_Prk

Enter a value for desired CHC DIMM1 RTT_Prk. The options are **Auto**, Disabled, 60, 80, 120, 240, and Infinity.

CHC DIMM1 RTT_NOM

Enter a value for desired CHC DIMM1 RTT_NOM. The options are **Auto**, Disabled, 60, 80, 120, 240, and Infinity.

CHC DIMM2 RTT_WR

Enter a value for desired CHC DIMM2 RTT_WR. The options are **Auto**, Disabled, 60, 80, 120, 240, and Infinity.

CHC DIMM2 RTT_Prk

Enter a value for desired CHC DIMM2 RTT_Prk. The options are **Auto**, Disabled, 60, 80, 120, 240, and Infinity.

CHC DIMM2 RTT_NOM

Enter a value for desired CHC DIMM2 RTT_NOM. The options are **Auto**, Disabled, 60, 80, 120, 240, and Infinity.

CHD DIMM1 RTT_WR

Enter a value for desired CHD DIMM1 RTT_WR. The options are **Auto**, Disabled, 60, 80, 120, 240, and Infinity.

CHD DIMM1 RTT_Prk

Enter a value for desired CHD DIMM1 RTT_Prk. The options are **Auto**, Disabled, 60, 80, 120, 240, and Infinity.

CHD DIMM1 RTT_NOM

Enter a value for desired CHD DIMM1 RTT_NOM. The options are **Auto**, Disabled, 60, 80, 120, 240, and Infinity.

CHD DIMM2 RTT_WR

Enter a value for desired CHD DIMM2 RTT_WR. The options are **Auto**, Disabled, 60, 80, 120, 240, and Infinity.

CHD DIMM2 RTT_Prk

Enter a value for desired CHD DIMM2 RTT_Prk. The options are **Auto**, Disabled, 60, 80, 120, 240, and Infinity.

CHD DIMM2 RTT_NOM

Enter a value for desired CHD DIMM2 RTT_NOM. The options are **Auto**, Disabled, 60, 80, 120, 240, and Infinity.

Enforce POR

This feature enables Plan Of Record restrictions for DDR4 frequency and voltage programming. The options are Auto, POR, and **Disabled**.

► Voltage Configuration

Note: This submenu only displays when using Core™ i7 7740X or i5 7640X CPUs.

Vcc Core voltage override enable

This feature overrides the Vcc Core voltage. The options are **Disabled** or Enabled.

Vcc Core voltage

When the above feature is enabled, enter a value. The default is **1230**.

Vcc SA voltage override enable

This feature overrides the Vcc SA voltage. The options are **Disabled** or Enabled.

Vcc SA voltage

When the above feature is enabled, enter a value. The default is **1050**.

Vcc IO voltage override enable

This feature overrides the Vcc IO voltage. The options are **Disabled** or Enabled.

Vcc IO voltage

When the above feature is enabled, enter a value. The default is **950**.

Vcc ST SFR Vout voltage override enable

This feature overrides the Vcc ST SFR Vout voltage. The options are **Disabled** or Enabled.

Vcc ST SFR Vout voltage

When the above feature is enabled, select a voltage option. The options are **1.000V**, 1.071V, 1.140V, 1.209V, 1.279V, 1.348V, 1.417V, 1.476V, and 1.530V.

Vcc SFR OC voltage override enable

This feature overrides the Vcc SFR OC voltage. The options are **Disabled** or Enabled.

Vcc SFR OC voltage

When the above feature is enabled, select a voltage option. The options are **1.200V**, 1.255V, 1.312V, 1.396V, 1.421V, 1.476V, 1.534V, 1.589V, 1.800V, 1.912V, 2.079V, 2.136V, 2.248V, 2.300V, 2.414V, 2.514V, 2.627V, 2.793V, 2.849V, 2.903V, 2.954V, and 3.010V.

Vcc SFR voltage override enable

This feature overrides the Vcc SFR voltage. The options are **Disabled** or Enabled.

Vcc SFR voltage

When the above feature is enabled, select a voltage option. The options are **1.000V**, 1.077V, 1.132V, 1.205V, 1.280V, 1.358V, 1.407V, 1.483V, and 1.510V.

Vcc PCH Vout voltage override enable

This feature overrides the Vcc PCH Vout voltage. The options are **Disabled** or Enabled.

Vcc PCH Vout voltage

When the above feature is enabled, select a voltage option. The options are **1.000V**, 1.106V, 1.194V, 1.288V, and 1.385V.

► Uncore**Uncore Voltage Offset**

Enter a value for the Uncore voltage offset (in millivolts). The value range is negative 1000 to positive 1000. The default is **0**.

Offset Prefix

This feature controls whether the offset value prefix. The options are positive **(+)** or negative **(-)**.

6.3 CPU



Note: The following submenus only display when using Core™ i9 7980X/7900X or i7 7820X/7800X CPUs. Core™ i7 7740X and i5 7640X CPUs display different options.

► Processor Configuration

Information (dependant on current hardware) is shown for the following features:

- Processor BSP Revision
- Processor ID
- Processor Frequency
- Processor Max Ratio
- Processor Min Ratio
- Microcode Revision
- L1 Cache RAM
- L2 Cache RAM
- L3 Cache RAM
- Processor 0 Version

Hyper-Threading [ALL]

This feature enables hyper-threading. The options are Disabled or **Enabled**.

Max CPUID Value Limit

This feature enables legacy operating systems which cannot support CPUs with extended CPUID to boot. The options are **Disabled** or Enabled.

Execute Disable Bit

This feature enables Execute Disable Bit. When disabled, it forces the Execute Disable feature flag to always return 0. The options are Disabled or **Enabled**.

Intel(VMX) Virtualization Technology

This feature enables a VMM to utilize Vanderpool (virtualization) Technology hardware capabilities. The options are Disabled or **Enabled**.

PPIN Control

This feature unlocks and either enables or disables PPIN Control. The options are Unlock/Disable or **Unlock/Enable**.

Hardware Prefetcher

This feature controls the MLC streamer prefetcher. The options are Disabled or **Enabled**.

Adjacent Cache Prefetch

This feature enables Adjacent Cache Prefetch. The options are Disabled or **Enabled**.

DCU Streamer Prefetcher

This feature enables DCU Streamer Prefetcher, which is an L1 data cache prefetcher. The options are Disabled or **Enabled**.

DCU IP Prefetcher

This feature enables DCU IP Prefetcher, which is an L1 data cache prefetcher. The options are Disabled or **Enabled**.

LLC Prefetch

This feature enables LLC Prefetch. The options are **Disabled** or Enabled.

DCU Mode

This mode controls which Data Cache Unit (DCU) mode is enabled. The options are **32KB 8Way Without ECC** or 16KB 4Way With ECC.

Extended APIC

This feature enables extended APIC support. The options are **Disabled** or Enabled.

AES-NI

This function enables AES-NI support. The options are Disabled or **Enabled**.

APIC Physical Mode

This function enables APIC Physical Destination Mode. The options are **Disabled** or Enabled.

►Common RefCode Configuration

MMCFG Size

This feature controls the MMCFG Size. The options are 64M, 128M, **256M**, 512M, 1G, and 2G.

MMIOHBase

This feature controls the MMIO High Base. The options are **56T**, 40T, 24T, 16T, 4T, and 1T.

MMIO High Granularity Size

This feature controls the allocation size used to assign MMIOH resources. The options are 1G, 4G, 16G, 64G, 256G, and **1024G**.

► Advanced Power Management Configuration**► CPU P State Control****SpeedStep (Pstates)**

This feature enables SpeedStep, also known as System Agent Geyserville. The options are Disabled or **Enabled**.

EIST PSD Function

This feature controls the EIST PSD Function. The options are **HW_ALL**, SW_ALL, and SW_ANY.

Turbo Mode

When EMTTM is enabled, this feature enables processor Turbo Mode. The options are Disabled or **Enabled**.

► Hardware PM State Control**Hardware P-States**

This feature controls how P-states are selected. The '**Disable**' option bases the choice on OS Request. The 'Native Mode'/'Native Mode with No Legacy Support' option bases the choice on OS guidance. The 'Out of Band Mode' option enables autonomous P-state selection.

► CPU C State Control**Autonomous Core C-State**

This feature enables Autonomous Core C-State support. The options are **Disabled** or Enabled.

CPU C6 report

This feature enables CPU C6(ACPI C3) reporting to the operating system. The options are Disabled, Enabled, and **Auto**.

Enhanced Halt State (C1E)

This feature enables Enhanced Halt State (takes effect after reboot). The options are Disabled or **Enabled**.

► Package C State Control

Package C State

This feature controls the Package C State limit. The options are C0/C1 state, C2 state, C6(non Retention) state, C6(Retention) state, No Limit, and **Auto**.

6.4 Memory



Enforce POR

When enabled, this feature enforces Plan of Record restrictions for DDR4 frequency and voltage programming. The options are **Auto**, POR, and Disabled.

Memory Frequency

This feature controls the maximum memory frequency (in MHz). The options are **Auto**, 1000, 1200, 1333, 1400, 1600, 1800, 1866, 2000, 2133, 2400, 2600, and 2666.

Custom Refresh Enable

This feature enables a custom memory refresh rate. The options are **Disabled** or Enabled.

MC BGF threshold

Enter a value for the HA to MC BGF threshold, which is used for scheduling MC request in bypass conditions. The default is **0**.

DLL Reset Test

Enter a value for the amount of loops to execute RMT for during DLL reset tests. The default is **0**.

►Memory Topology

The currently installed memory topology is displayed here.

►Memory RAS Configuration

Static Virtual Lockstep Mode

This feature enables Static Virtual Lockstep mode. The options are **Disabled** or **Enabled**.

Mirror mode

This feature enables Mirror mode, which is useful when memory redundancy is important. The options are **Disabled**, Mirror Mode 1LM, and Mirror Mode 2LM.

**Enabling Mirror mode will reduce memory capacity by half.*

ADDDC Sparing

This feature enables Adaptive Double Device Data Correction (ADDDC) Sparing, which detects when the pretermained threshold for correctable errors is reached and copies the contents of the failing DIMM to spare memory. The options are **Disabled** or **Enabled**.

Patrol Scrub

This feature enables Patrol Scrubbing, which is a process that allows the CPU to correct correctable memory errors detected on a memory module and send the correction to the requestor (the original source). When this feature is enabled, the IO hub will read and write back one cache line every 16K cycles if there is no delay caused by internal processing. By using this method, roughly 64 GB of memory behind the IO hub will be scrubbed every day. The options are **Disabled** or **Enabled**.

Patrol Scrub Interval

This feature controls how many hours the system should wait before the next complete patrol scrub is performed. Enter a value from 0-24. The default setting is **24**.

Patrol Scrub Address Mode

This feature controls which address mode Patrol Scrub uses. The options are Reverse Address or **System Physical Address**.

6.5 Advanced



► PCH-FW Configuration

This menu shows the following information:

- **ME Firmware Version**
- **ME Firmware Mode**
- **ME Firmware SKU**
- **ME File System Integrity Value**
- **ME Firmware Status 1**
- **ME Firmware Status 2**

Me FW Image Re-Flash

Use this feature to update the Management Engine firmware from an image in a USB flash drive attached to a USB port. The options are **Disabled** or Enabled.

► Chipset Configuration

Note: Setting incorrect values in the following two submenus may cause **system malfunction**.

► North Bridge

► IIO Configuration

EV DFX Features

This feature enables IIO DFX devices and other CPU devices like PMON. The options are **Disabled** or **Enabled**.

Isoc Mode

This feature controls Isoc mode support. The options are **Disabled**, **Enabled**, and **Auto**.

► CPU Configuration

IOU0 (IIO PCIe Br1)

This feature controls the port bifurcation for the selected slot(s). The options are [x4x4x4x4], [x4x4x8], [x8x4x4], [x8x8], [x16], and **Auto**.

IOU1 (IIO PCIe Br2)

This feature controls the port bifurcation for the selected slot(s). The options are [x4x4x4x4], [x4x4x8], [x8x4x4], [x8x8], [x16], and **Auto**.

IOU2 (IIO PCIe Br3)

This feature controls the port bifurcation for the selected slot(s). The options are [x4x4x4x4], [x4x4x8], [x8x4x4], [x8x8], [x16], and **Auto**.

► CPU SLOT6 PCI-E 3.0 x 16

Link Speed

This feature controls the link speed for this PCIe port. The options are **Auto**, Gen 1 (2.5 GT/s), Gen 2 (5GT/s), and Gen 3 (8 GT/s).

PCI-E Port Max Payload Size

This feature controls this PCIe port's maximum payload size. If possible set to 256B. The default is **Auto**.

► CPU SLOT4 PCI-E 3.0 x 8

Link Speed

This feature controls the link speed for this PCIe port. The options are **Auto**, Gen 1 (2.5 GT/s), Gen 2 (5GT/s), and Gen 3 (8 GT/s).

PCI-E Port Max Payload Size

This feature controls this PCIe port's maximum payload size. If possible set to 256B. The default is **Auto**.

► JNVME0~2

Link Speed

This feature controls the link speed for this PCIe port. The options are **Auto**, Gen 1 (2.5 GT/s), Gen 2 (5GT/s), and Gen 3 (8 GT/s).

PCI-E Port Max Payload Size

This feature controls this PCIe port's maximum payload size. If possible set to 256B. The default is **Auto**.

► IOAT Configuration

Disable TPH

This feature disables TLP Processing Hints (TPH). The options are **No** (enabled) or Yes (disabled).

Prioritize TPH

This feature prioritizes TLP Processing Hints (TPH). The options are **Disabled** or Enabled.

Relaxed Ordering

This feature enables Relaxed Ordering. The options are Enabled or **Disabled**.

► Intel® VT for Directed I/O (VT-d)

Intel® VT for Directed I/O (VT-d)

This feature enables VT-d by reporting the I/O device assignment to VMM. The options are Disabled or **Enabled**.

Interrupt Remapping

This feature enables VT-d Interrupt Remapping support. The options are Disabled or **Enabled**.

PassThrough DMA

This feature enables Non-Isoch VT-d engine PassThrough DMA support. The options are Disabled or **Enabled**.

ATS

This feature enables Non-Isoch VT-d engine ATS support. The options are Disabled or **Enabled**.

Posted Interrupt

This feature enables VT-d posted interrupt. The options are Disabled or **Enabled**.

Coherency Support (Non-Isoch)

This feature enables Non-Isoch VT-d engine Coherency support. The options are Disabled or **Enabled**.

►Intel® VMD technology

►Intel® VMD for Volume Management Device on CPU

Intel® VMD for Volume Management

This feature enables Volume Management Device technology in this stack. The options are **Disabled** or **Enabled**.

PCI-E Completion Timeout Disable

This feature disables PCIe completion timeout. The options are **No**, **Yes**, and **Per-Port**.

►South Bridge

USB Module Version

USB Devices - These settings will differ based on currently plugged in devices.

Legacy USB Support

This feature enables legacy USB support. The Auto setting disables legacy support when no USB device is connected. The options are **Disabled**, **Enabled**, and **Auto**.

XHCI Hand-off

This feature enables a workaround for operating systems without XHCI hand-off support. The options are **Disabled** or **Enabled**.

Port 60/64 Emulation

This feature enables port 60/64h emulation support, which is used to complete USB keyboard legacy support. The options are **Disabled** or **Enabled**.

RSA Support

This feature enables Rack Scale Architecture (RSA) support. The options are **Disabled** or **Enabled**.

Azalia

This feature enables HD Audio (Azalia) devices. The options are **Auto** or **Disabled**.

►SATA And RST Configuration

SATA Controllers

Use this feature to enable or disable the onboard SATA Controllers. The options are **Enabled** or **Disabled**.

Configure SATA as

Use this feature to select the mode for the installed SATA drives. The options are **AHCI** or **RAID**.

Aggressive Link Power Management

Select enabled for the PCH to aggressively enter the link power state. The options are Disabled or **Enabled**.

Storage Option ROM/UEFI Driver

This feature controls the execution of UEFI and Legacy OpROM. The options are Disabled, UEFI, and **Legacy**.

Serial ATA Port 0~7**Software Preserve**

This feature displays the software information for the detected device.

Hot Plug

This feature designates the port specified for hot plugging. Set to Enabled for hot-plugging support, which will allow the user to replace a SATA disk drive without shutting down the system. The options are Enabled or **Disabled**.

Spin Up Device

When this feature is disabled, all drives will spin up at boot. When it is enabled, it will perform Staggered Spin Up on any drive this feature is activated. The options are Enabled or **Disabled**.

SATA Device Type

Use this feature to identify the type of HDD that is connected to the STATA port. The options are **Hard Disk Drive** or Solid State Drive.

►Trusted Computing

- **TPM20 Device Found***
- **Vendor:** IFX*
- **Firmware Version:** 5.51*

*Exact hardware details will depend on currently installed hardware.

Security Device Support

If this feature and the TPM jumper on the motherboard are both set to Enabled, onboard security devices will be enabled for TPM (Trusted Platform Module) support to enhance data integrity and network security. Please reboot the system for a change on this setting to take effect. The options are Disabled or **Enabled**.

The following Platform Configuration Register information will be displayed:

- Active PCR banks: SHA-1,SHA256
- Available PCR banks: SHA-1,SHA256

**If the feature 'Security Device Support' is set to Enable, the following features will become available for configuration:*

SHA-1 PCR Bank

Use this feature to disable or enable the SHA-1 Platform Configuration Register (PCR) bank for the installed TPM device. The options are Disabled or **Enabled**.

SHA256 PCR Bank

Use this feature to disable or enable the SHA256 Platform Configuration Register (PCR) bank for the installed TPM device. The options are Disabled or **Enabled**.

Pending Operation

Use this feature to schedule a TPM-related operation to be performed by a security device for system data integrity. Your system will reboot to carry out a pending TPM operation. The options are **None** or TPM Clear.

Platform Hierarchy

Use this feature to disable or enable platform hierarchy for platform protection. The options are Disabled or **Enabled**.

Storage Hierarchy

Use this feature to disable or enable storage hierarchy for cryptographic protection. The options are Disabled or **Enabled**.

Endorsement Hierarchy

Use this feature to disable or enable endorsement hierarchy for privacy control. The options are Disabled or **Enabled**.

PH Randomization

This feature enables Platform Hierarchy randomization. The options are **Disabled** or Enabled.

**This feature is ONLY for development testing purposes.*

►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 Disabled or **Enabled**.

High Precision Event Timer

Select Enabled to activate the High Precision Event Timer (HPET) that produces periodic interrupts at a much higher frequency than a Real-time Clock (RTC) does in synchronizing multimedia streams, providing smooth playback and reducing the dependency on other timestamp calculation devices, such as an x86 RDTSC Instruction embedded in the CPU. The High Performance Event Timer is used to replace the 8254 Programmable Interval Timer. The options are Disabled or **Enabled**.

Native PCIE Enable

This feature enables Native PCIE control. The options are Disabled or **Enabled**.

Native ASPM

This feature selects what controls ASPM. The options are Disabled (BIOS controlled), Enabled (operating system controlled), and **Auto**.

NUMA

This feature enables Non-uniform Memory Access (NUMA). The options are Disabled or **Enabled**.

► Boot Feature

Boot Feature

Fast Boot

When this feature is enabled, a minimal set of devices required to launch during system bootup is initialized. The options are **Disabled** or Enabled.

Quiet Boot

Use this feature to select the screen display between POST messages or the OEM logo at bootup. Select Disabled to display the POST messages. Select Enabled to display the OEM logo instead of the normal POST messages. The options are Unchecked or **Checked**.

Bootup Num-Lock

Use this feature to set the Power-on state for the Numlock key. The options are Off or **On**.

Option ROM Messages

This feature controls the display mode for Option ROM. The options are **Force BIOS** or Keep Current.

INT19 (Interrupt 19) Trap Response

Interrupt 19 is the software interrupt that handles the boot disk function. When this feature is set to Immediate, the ROM BIOS of the host adaptors will "capture" Interrupt 19 at bootup immediately and allow the drives that are attached to these host adaptors to function as bootable disks. If this feature is set to Postponed, the ROM BIOS of the host adaptors will not capture Interrupt 19 immediately and allow the drives attached to these adaptors to function as bootable devices at boot. The options are **Immediate** or Postponed.

Port 61h Bit-4 Emulation

This feature enables port 61h bit-4 toggling in SMM. The options are **Disabled** or Enabled.

Wait for "F1" If Error

This feature forces the system to wait until the F1 key is pressed if an error occurs. The options are Disabled or **Enabled**.

Re-try Boot

When EFI Boot is selected, the system BIOS will automatically reboot the system from an EFI boot device after its initial boot failure. Select Legacy Boot to allow the BIOS to automatically reboot the system from a Legacy boot device after its initial boot failure. The options are **Disabled**, Legacy Boot, and EFI Boot.

Watch Dog Function

If enabled, the Watch Dog timer will allow the system to reboot when it is inactive for more than 5 minutes. The options are **Disabled** or Enabled.

Power Button Function

This feature controls how the system shuts down when the power button is pressed. Select 4 Seconds Override for the user to power off the system after pressing and holding the power button for 4 seconds or longer. Select Instant Off to instantly power off the system as soon as the user presses the power button. The options are **Instant Off** or 4 Seconds Override.

AC Loss Policy Depend on

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

EuP Support

EuP, or Energy Using Product, is a European energy-saving specification that sets a standard on the maximum total power consumption on electrical products. The options are **Unchecked** or Checked.

►NCT6792D Super IO Configuration

NCT6792D Super IO Configuration

Super IO Chip - NCT6792D

►Serial Port 1 Configuration

Serial Port 1

This feature enables the Serial Port 1 (COM1). The options are **Unchecked** or **Checked**.

Current Limit Override - The current limit override is shown.

Change Settings

This feature controls the Super IO device settings. The options are **Auto**, [IO=3F8h; IRQ=4;], [IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12;], [IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12;], [IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12;], and [IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;].

►AST2500SEC Super IO Configuration

AST2500SEC Super IO Configuration

Super IO Chip - AST2500SEC

►Serial Port 2 Configuration

Serial Port

This feature enables the Serial Port (COM). The options are **Unchecked** or **Checked**.

Current Limit Override - The current limit override is shown.

Change Settings

This feature controls the Super IO device settings. The options are **Auto**, [IO=2E8h; IRQ=7;], [IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12;], [IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12;], [IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12;], and [IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;].

►Serial Port Console Redirection

COM1

Console Redirection

This feature enables Console Redirection for remote data exchange. The options are **Unchecked** or **Checked**.

*The submenu below controls the specifics of how data is exchanged between the host and remote computer.

► Console Redirection Settings

Terminal Type

This feature controls the terminal emulation type. The options are **VT100**, VT100+, VT-UTF8, and ANSI.

Bits per second

This feature controls the transmission speed of the host serial port, which must be matched by the remote serial port. The options are 9600, 19200, 38400, 57600, and **115200**.

Data Bits

This feature controls the data bits. The options are 7 or **8**.

Parity

This feature controls whether parity bits are sent with data bits in order to detect transmission errors. The options are **None**, Even, Odd, Mark, and Space.

Stop Bits

This feature controls the amount of stop bits to send at the end of a data packet. Slow devices may require more than one stop bit. The options are **1** or 2.

Flow Control

This feature can prevent data loss from buffer overflow. The options are **None** or Hardware RTS/CTS.

VT-UTF8 Combo Key Support

This feature enables VT-UTF8 Combo Key support for ANSI/VT100 terminals. The options are **Unchecked** or **Checked**.

Recorder Mode

This feature enables only text to be sent across consoles. The options are **Unchecked** or **Checked**.

Resolution 100x31

This feature enables extended terminal resolution. The options are **Unchecked** or **Checked**.

Legacy OS Redirection Resolution

This feature controls the number of rows and columns supported by redirection on legacy operating systems. The options are **80x24** or 80x25

Putty KeyPad

This feature controls Putty KeyPad support. The options are **VT100**, LINUX, XTERMR6, SCO, ESCN, and VT400.

Redirection After BIOS POST

This feature controls when redirection is enabled. The 'BootLoader' option disables redirection until after booting to legacy operating system. The options are **Always Enable** or BootLoader.

SOL (Disabled)

Console Redirection - Port Is Disabled

Legacy Console Redirection

Legacy Serial Redirection Port

This feature controls which COM port to display redirection of legacy operating systems and OPRM messages. The options are **COM1** or 'SOL (Disabled)'.

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

Console Redirection

This feature enables console redirection for EMS. The options are **Unchecked** or Checked.

**The submenu below controls the specifics of how data is exchanged between the host and remote computer.*

► Console Redirection Settings

Out-of-Band Mgmt Port

This feature controls which port will be used for Out-of-Band (Windows Server) Management. The options are **COM1** or SOL (Disabled).

Terminal Type

This feature controls which terminal type is used for Out-of-Band Management. The preferred type is VT-UTF8, then VT100+, then VT100. The options are VT100, VT100+, **VT-UTF8**, and ANSI.

Bits per second

This feature controls the transmission speed of the host serial port, which must be matched by the remote serial port. The options are 9600, 19200, 57600, and **115200**.

Flow Control

This feature can prevent data loss from buffer overflow. The options are **None**, Hardware RTS/CTS, and Software Xon/Xoff.

Data Bits - 8

Parity - None

Stop Bits - 1

►PCIe/PCI/PnP Configuration

Option ROM execution

Video

This feature controls which option ROM to execute for the Video device. The options are Do Not Launch, UEFI, and **Legacy**.

Above 4G Decoding

This feature enables remapping of BIOS above 4GB. The options are Enabled or **Disabled**.

Onboard Video Option ROM

This feature controls which onboard video firmware will be loaded. The options are Legacy or **UEFI**.

PCI/PCIX/PCIe Slot 1, 2, 3, 5, 7 OPRM

This feature enables PCI/PCIX/PCIe OPRM option for the corresponding slot number.

CPU SLOT1/U.2_1 Select

This feature selects between CPU SLOT1 or U.2_1 PCIe support. The options are **CPU SLOT1** or U.2 CONECTOR 1.

CPU SLOT3/SLOT5 Select

This feature selects between a combination of SLOT3/SLOT5 configuration or only SLOT5. The options are **[CPU SLOT3 X8 SLOT5 X8]** or **[CPU SLOT5 X16]**.

Onboard LAN1 Support

This feature enables or disables onboard LAN1. The options are Disabled or **Enabled**.

Onboard LAN2 Support

This feature enables or disables onboard LAN2. The options are Disabled or **Enabled**.

Onboard LAN Option ROM Type

Use this feature to select which type of firmware to be loaded for the onboard LAN ports. The options are **Legacy** or UEFI.

Onboard LAN1 Option ROM

Select PXE (Preboot Execution Environment) to boot the computer using a PXE device installed in a LAN port specified. Select Disabled to prevent system boot using a device installed in a LAN port. The options are **Disabled** or PXE.

Onboard LAN2 Option ROM

Select PXE (Preboot Execution Environment) to boot the computer using a PXE device installed in a specified LAN port. Select Disabled to prevent system boot using a device installed in a LAN port. The options are Disabled or PXE.

Network Stack

Select Enabled to enable PXE (Preboot Execution Environment) or UEFI (Unified Extensible Firmware Interface) for network stack support. The options are **Enabled** or Disabled. If this feature is enabled, the next two features are available.

Ipv4 PXE Support

Select Enabled to enable Ipv4 PXE (Preboot Execution Environment) for boot support. If this feature is set to Disabled, Ipv4 PXE boot option will not be supported. The options are **Disabled** or Enabled.

Ipv6 PXE Support

Select Enabled to enable Ipv6 PXE (Preboot Execution Environment) for boot support. If this feature is set to Disabled, Ipv6 PXE boot option will not be supported. The options are **Disabled** or Enabled.

► Security

Use this submenu to create Administrator and User passwords. Using ONLY an Administrator password limits access to BIOS setup. Using ONLY a User password will lock unauthorized users from booting the system and/or entering BIOS setup.

► Secure Boot

System Mode - Setup

Secure Boot - Not Active

Vendor Keys - Active

Secure Boot Enable

When a Platform Key(PK) is enrolled, this feature may be enabled.

▶ Enter Audit Mode

**This submenu can only be used if current System Mode is set to User. The PK variable will be erased on transition to Audit Mode.*

Secure Boot Mode

This feature allows selection of the Secure Boot Mode between Standard and Custom. Selecting Custom enables users to change the Image Execution Policy and manage Secure Boot Keys. The options are **Custom** or Standard.

▶ Reset to Setup Mode

This feature deletes the contents of all UEFI Secure Boot key databases. This will result in entering Setup Mode.

▶ Restore Factory Keys

This feature resets the content of all UEFI Secure Boot key databases to factory defaults.

▶ Key Management

Provision Factory Defaults

This feature provisions factory default keys on the next system boot while in Setup Mode. The options are **Disabled** or Enabled.

▶ Restore Factory Keys

This feature resets the content of all UEFI Secure Boot key databases to factory defaults.

▶ Enroll Efi Image

When an EFI image is available, this feature allows the image to run in Secure Boot mode.

▶ Export Secure Boot variables

▶ Platform Key (PK)

This feature allows the user to configure the settings of the platform keys.

Set New

Select "Set New" to load the new platform keys (PK) from the manufacturer's defaults, then select Yes to load factory default keys or No to load an external file. To cancel the operation before selecting "Set New", select either OK or Cancel (both work).

►Key Exchange Keys**Set New**

Select "Set New" to load the new key exchange keys (KEK) from the manufacturer's defaults, then select Yes to load factory default keys or No to load an external file. To cancel the operation before selecting "Set New", select either OK or Cancel (both work).

Append

Select "Append" to load the new key exchange keys (KEK) from the manufacturer's defaults, then select Yes to load factory default keys or No to load an external file. To cancel the operation before selecting "Set New", select either OK or Cancel (both work).

►Authorized Signatures**Set New**

Select "Set New" to load the authorized signatures (DB) from the manufacturer's defaults, then select Yes to load factory default keys or No to load an external file. To cancel the operation before selecting "Set New", select either OK or Cancel (both work).

Append

Select "Append" to load the new authorized signatures (DB) from the manufacturer's defaults, then select Yes to load factory default keys or No to load an external file. To cancel the operation before selecting "Set New", select either OK or Cancel (both work).

►Forbidden Signatures**Set New**

Select "Set New" to load the forbidden signatures (DBX) from the manufacturer's defaults, then select Yes to load factory default keys or No to load an external file. To cancel the operation before selecting "Set New", select either OK or Cancel (both work).

Append

Select "Append" to load the new forbidden signatures (DBX) from the manufacturer's defaults, then select Yes to load factory default keys or No to load an external file. To cancel the operation before selecting "Set New", select either OK or Cancel (both work).

► Authorized TimeStamps

Set New

Select "Set New" to load the new authorized time stamps (DBT) from the manufacturer's defaults, then select Yes to load factory default keys or No to load an external file. To cancel the operation before selecting "Set New", select either OK or Cancel (both work).

Append

Select "Append" to load the new authorized time stamps (DBT) from the manufacturer's defaults, then select Yes to load factory default keys or No to load an external file. To cancel the operation before selecting "Set New", select either OK or Cancel (both work).

► OSRecovery Signature

Set New

Select "Set New" to load the OSRecovery Signatures (DBR) from the manufacturer's defaults, then select Yes to load factory default keys or No to load an external file. To cancel the operation before selecting "Set New", select either OK or Cancel (both work).

Append

Select "Append" to load the OSRecovery Signatures (DBR) from the manufacturer's defaults, then select Yes to load factory default keys or No to load an external file. To cancel the operation before selecting "Set New", select either OK or Cancel (both work).

6.6 System Health



Information regarding current system health and temperature is displayed. This information automatically updates:

CPU Temperature
 System Temperature
 Peripheral Temperature
 PCH Temperature
 VCPU
 12V
 VCCSA
 5VCC
 VDIMM
 VCPU_IO
 VCPU_GT
 VDIMM_2.5
 PCH 1.0V
 3.3V_DL
 VSb
 3.3VCC
 VBAT
 BVPU_STPLL

► Fan Control

Fan Speed Control Mode

This feature controls which fan speed control mode is selected. The options are **Quiet**, Stable, Full Speed, and Customize.

6.7 IPMI



Note: The following features and submenus reflect Core™ i7 7740X and i5 7640X CPUs.

BMC Firmware Revision

IPMI STATUS

► System Event Log

Enabling/Disabling Options

SEL Components

This feature enables or disables all aspects of System Event Logging during boot. The options are Disabled or **Enabled**.

Erasing Settings

Erase SEL

This feature controls if/when to erase SEL. The options are **No**; Yes, On next reset; Yes, On every reset.

When SEL is Full

This feature controls what happens with a full SEL. The options are **Do Nothing** or Erase Immediately.

Custom EFI Logging Options

Log EFI Status Codes

This feature controls what EFI codes get logged. The options are Disabled, **Error code**, Progress code, and Both (error and progress).

►BMC Network Configuration

This menu displays BMC information:

Configure IPV4 support

IPMI LAN Selection

IPMI Network Link Status

Update IPMI LAN Configuration

When enabled, the IPV4 settings below will be set to IPMI during the next system boot.

Configuration Address source

This feature controls how configure the LAN channel. The options are **Static** or DHCP(dynamic).

Station IP address

Subnet mask

Station MAC address

Gateway IP Address

VLAN

Configure IPV6 support

Lan channel 1

IPV6 Support

Use this feature to enable IPV6 support for LAN1. The options are Disabled and **Enabled**.

Configuration Address source

Use this feature to select the LAN channel parameters. The options are **Unspecified**, Static, DHCP.

*If the feature above is set to Static, Station IPV6 address, Prefix Length, and IPV6 Router1 IP Address are available for configuration. If DyanmicBmcDhcp is selected, no features are available for configuration.

- **Current Configuration Address source**

Station IPV6 address

Use this feature to enter the station IPV6 address. Select the feature and enter the address.

Prefix Length

Select a value to change the prefix length.

IPV6 Router1 IP Address

Use this feature to enter the IPV6 router1 TP address. Select the feature and enter the address.

- **IPV6 address status**
- **IPV6 DHCP Algorithm**

IPMI Function Support

This feature enables IPMI function support. The options are **Disabled** or Enabled.

6.8 Boot



Boot Configuration

Setup Prompt Timeout

Enter the wait time in seconds to wait for the setup activation key. Enter 65535 for indefinite wait time. The default is 1.

Boot mode select

Use this feature to select the boot mode. The options are **LEGACY**, UEFI, and DUAL.

FIXED BOOT ORDER Priorities

- Boot Option #1
- Boot Option #2
- Boot Option #3
- Boot Option #4
- Boot Option #5
- Boot Option #6
- Boot Option #7
- Boot Option #8

► Delete Driver Option**► NETWORK Drive BBS Priorities**

This feature allows the user to specify which UEFI network drive devices are boot devices.

- **Boot Option #1**

► Save Changes and Reset

This feature resets the system after saving changes.

► Discard Changes and Reset

This feature resets the system without saving changes.

► Save Changes

This feature saves changes, but does not reset the system.

► Discard Changes

This feature discards changes, but does not reset the system.

► Restore Defaults

This feature restores defaults to all setup options.

► Save as User Defaults

This feature saves all changes made so far and makes them the new defaults.

► Restore User Defaults

This feature restores all setup options to the user defaults.

6.9 BIOS Update

This feature is used to update the BIOS version manually. Two columns on information are shown. The left column shows CURRENT BIOS information. The right column shows NEW BIOS information. Use the **"Start Update"** item to begin flashing the new BIOS.



Appendix A

BIOS Codes

A.1 BIOS Error POST (Beep) 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 bootup process. 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, consult your system manufacturer for possible repairs.

Fatal errors are usually communicated through a series of audible beeps. The table shown below lists some common errors and their corresponding beep codes.

BIOS Beep (POST) Codes		
Beep Code	Error Message	Description
1 beep	Refresh	Circuits have been reset (Ready to power up)
5 short, 1 long	Memory error	No memory detected in system
5 long, 2 short	Display memory read/write error	Video adapter missing or with faulty memory
1 long continuous	System OH	System overheat condition

A.2 Additional BIOS POST Codes

The AMI BIOS supplies additional checkpoint codes, which are documented online at <http://www.supermicro.com/support/manuals/> ("AMI BIOS POST Codes User's Guide").

When BIOS performs the Power On Self Test, it writes checkpoint codes to I/O port 0080h. If the computer cannot complete the boot process, a diagnostic card can be attached to the computer to read I/O port 0080h (Supermicro p/n AOC-LPC80-20).

For information on AMI updates, please refer to <http://www.ami.com/products/>.

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。

此警告符号代表危險。

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

此警告符號代表危險。

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

Warnung

WICHTIGE SICHERHEITSHINWEISE

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

BEWAHREN SIE DIESE HINWEISE GUT AUF.

INSTRUCCIONES IMPORTANTES DE SEGURIDAD

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

GUARDE ESTAS INSTRUCCIONES.

IMPORTANTES INFORMATIONS DE SÉCURITÉ

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

CONSERVEZ CES INFORMATIONS.

תקנון הזהרות אזהרה

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

اَكْ فِ حَالَةٍ وُكِي اَيُّ تَتَسَبَّبُ فِ اَصَابَةِ جَسَدٍ هَذَا الزَّهْرُ عُ خَطَرٌ! تَحْذَرُ .
قَبْلَ اَيُّ تَعُولُ عَلَى اَيُّ هَعْدَاتٍ، كِي عَلَى عِلْنِ بِالْوَحَاظِ اَلْ اُجُوَّةِ عِي الذَّوَاتِرِ
الْكَهْزِبَائِيَّةِ
وَكِي عَلَى دَرَاةٍ بِالْوَوَارِسَاتِ النِّقَائِيَّةِ لَوْ عُو وَقَعَ اَيُّ حَادَثٍ
اَسْتَخْدَمَ رَقْنِ اَلْبِ اِيَّ اَلْوَصُصِ فِ هَآءِ كُلِّ تَحْذَرُ لِّلْعَشْرِ تَزْجُوْتَهَا

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-60VDC, 20A.

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

경고!

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

Waarschuwing

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

Power Disconnection Warning



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

電源切斷の警告

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

警告

在你打开机箱并安装或移除内部器件前,必须将系统完全断电,并移除电源线。

警告

在您打開機殼安裝或移除內部元件前，必須將系統完全斷電，並移除電源線。

Warnung

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

¡Advertencia!

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

Attention

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

אזהרה מפני ניתוק חשמלי

אזהרה!

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

يجب فصل انظاؤ من جميع مصادر انطاقت وإزانت سهك انكهرباء من وحدة امداد
انطاقت قېم
انصل إلى امناطق انداخھيت نهھيكم نتشيج أو إزانت مكناث الجهاز

경고!

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

Waarschuwing

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

Equipment Installation



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

機器の設置

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

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.

אזהרה!

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

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

경고!

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

Waarschuwing

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

Restricted Area

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

アクセス制限区域

このユニットは、アクセス制限区域に設置されることを想定しています。

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

警告

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

警告

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

אזור עם גישה מוגבלת

אזהרה!

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

تخصيص هذه انحدزة نترك بُها ف مناطق محظورة تم .
ممكن اننصل إن منطقت محظورة فقط من خلال استخذاو أداة خاصت
أو أ وس هُت أخري نلاأمما ققم ومفتاح

경고!

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

Waarschuwing

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

Battery Handling



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

電池の取り扱い

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

警告

電池更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 اسحبذال البطارية بطريقة غير صحيحة فعلى
اسحبذال البطارية
فقط بنفس النوع أو ما يعادلها مما أوصت به الشركة المصنعة
جخلص من البطاريات المسحمة وفقا لعمليات الشركة الصانعة

경고!

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

Waarschuwing

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

Redundant Power Supplies



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

冗長電源装置

このユニットは複数の電源装置が接続されている場合があります。

ユニットの電源を切るためには、すべての接続を取り外さなければなりません。

警告

此部件连接的电源可能不止一个，必须将所有电源断开才能停止给该部件供电。

警告

此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 Strom zugeführt wird, müssen alle Verbindungen entfernt werden.

¡Advertencia!

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

Attention

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

אם קיים יותר מספק אחד

אזהרה!

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

قد يكون لهذا الجهاز عدة اتصالات بوحدات امداد الطاقة .

يجب إزالة كافة الاتصالات لعسل الوحدة عن الكهرباء

경고!

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

Waarschuwing

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

Backplane Voltage



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

バックプレーンの電圧

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

修理する際には注意ください。

警告

当システム正在进行时，背板上有很危险的电压或能量，进行维修时务必小心。

警告

當系統正在進行時，背板上有危險的電壓或能量，進行維修時務必小心。

Warnung

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

¡Advertencia!

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

Attention

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

מתח בפנל האחורי

אזהרה!

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

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

경고!

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

Waarschuwing

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

Comply with Local and National Electrical Codes



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

地方および国の電気規格に準拠

機器の取り付けはその地方および国の電気規格に準拠する必要があります。

警告

设备安装必须符合本地与本国电气法规。

警告

設備安裝必須符合本地與本國電氣法規。

Warnung

Die Installation der Geräte muss den Sicherheitsstandards entsprechen.

¡Advertencia!

La 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 يمثل للقوايه المحلية والبطية المتعلقة
بالكهرباء

경고!

현 지역 및 국가의 전기 규정에 따라 장비를 설치해야 합니다.

Waarschuwing

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

Product Disposal



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

製品の廃棄

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

警告

本产品的废弃处理应根据所有国家的法律和规章进行。

警告

本產品的廢棄處理應根據所有國家的法律和規章進行。

Warnung

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

¡Advertencia!

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

Attention

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

סילוק המוצר

אזהרה!

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

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

경고!

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

Waarschuwing

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

Hot Swap Fan Warning



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

ファン・ホットスワップの警告

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

警告!

警告! 危险的可移动性零件。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。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。

Warnung

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

¡Advertencia!

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

Attention

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

אזהרה!

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

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

경고!

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

Waarschuwing

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

Power Cable and AC Adapter



Warning! When installing the product, use the provided or designated connection cables, power cables and AC adaptors. Using any other cables and adaptors could cause a malfunction or a fire. Electrical Appliance and Material Safety Law prohibits the use of UL or CSA -certified cables (that have UL/CSA shown on the 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、提供または指定および購入された接続ケーブル、電源コードとACアダプターを、該当する地域の条例や安全基準に適合するコードサイズやプラグと共に使用下さい。他のケーブルやアダプタを使用すると故障や火災の原因になることがあります。

電気用品安全法は、ULまたはCSA認定のケーブル(UL/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或采购的连接线,电源线和电源适配器。包含遵照当地法规和安全要求的合规的电源线尺寸和插头。使用其它线材或适配器可能会引起故障或火灾。除了Supermicro所指定的产品,电气用品和材料安全法律规定禁止使用未经UL或CSA认证的线材。(线材上会显示UL/CSA符号)。

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

AC כבלים חשמליים ומתאמי

אזהרה!

אשר נרכשו או הותאמו לצורך ההתקנה, ואשר הותאמו לדרישות AC כאשר מתקינים את המוצר, יש להשתמש בכבלים, ספקים ומתאמים הבטיחות המקומיות, כולל מידה נכונה של הכבל והתקע. שימוש בכל כבל או מתאם מסוג אחר, עלול לגרום לתקלה או קצר חשמלי. בהתאם כאשר מופיע עליהם קוד) UL-CSA או ב UL - לחוקי השימוש במכשירי החשמל וחוקי הבטיחות, קיים איסור להשתמש בכבלים המוסמכים ב Supermicro עבור כל מוצר חשמלי אחר, אלא רק במוצר אשר הותאם ע"י (UL/CSA) של

عند تركيب المنتج، قم باستخدام التوصيلات المتوفرة أو المحددة أو قم بشراء الكابلات الكهربائية ومحوّلات التيار المتردد مع الالتزام بقوانين ومتطلبات السلامة المحلية بما في ذلك حجم الموصل والقابس السليم. استخدام أي كابلات ومحوّلات أخرى قد يتسبب في عطل أو حريق. يحظر قانون السلامة للأجهزة الكهربائية والمعدات استخدام الكابلات المعتمدة Supermicro مع أي معدات أخرى غير المنتجات المعنية والمحددة من قبل (UL/CSA) والتي تحمل علامة CSA أو UL من قبل

전원 케이블 및 AC 어댑터

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

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

Stroomkabel en AC-Adapter

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

Appendix C

System Specifications

Processors

Supports Intel® Core™ X-series processor

Chipset

Intel® X299 chipset

BIOS

256 Mb AMI® SPI Flash BIOS

Memory

Supports up to 128GB of unbuffered, non-ECC, DDR4 memory with speeds of up to 2666MHz

Note: See the memory section in Chapter 3 for details and our website for updates to supported memory.

SATA Controller

On-chip (Intel® X299) controller

Drive Bays

Two 5.25" drive bays, four 2.5" drive bays, and six combination bays that can house 3.5" or 2.5" drives

PCI Expansion Slots

Four CPU PCI-e 3.0 x16 Slots

One PCH PCI-e 3.0 x1 Slot

Two M.2 Slots

Motherboard

C9X299-PGF; ATX form factor (12 x 9.6 in. / 305 x 244 mm.)

Chassis

GS5A-753K; Mid-tower chassis, (WxHxD) 17.2 x 5.2 x 25.5 in. (437 x 132 x 647 mm)

System Cooling

Three 120 mm fans (two in front, one in rear) plus option for four additional fans

Power Supply

Model: SSR-750RM Active PFC F3

AC Input Voltages: 100-240 VAC

Rated Input Frequency: 50-60 Hz

Rated Output Power: 750W

Rated Output Voltages: +3.3V (20A max, 0A min.), +5V (20A max, 0A min.), +12V (62A max, 0.1A min.), -12V (0.3A), +5Vsb (2.5A max, 0A Min.)

Operating Environment

Operating Temperature: 10° to 35° C (50° to 95° F)

Non-operating Temperature: -40° to 70° C (-40° to 158° F)

Operating Relative Humidity: 8% to 90% (non-condensing)

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

Regulatory Compliance

Electromagnetic Emissions: FCC Part15 Subpart B Class B, EN 55032 Class B, EN 61000-3-2/3-3, AS/NZS CISPR32

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)

VCCI 32

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"

Appendix D

UEFI BIOS Recovery

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

The Unified Extensible Firmware Interface (UEFI) 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 that will allow the UEFI OS loader stored in an add-on card to boot the system. The UEFI offers clean, hands-off management to a computer during system boot.

D.2 Recovering the UEFI BIOS Image

A UEFI BIOS flash chip consists of a recovery BIOS block and a main BIOS block (a 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 first turned on, the boot block codes execute first. Once this process is completed, the main BIOS code will continue with system initialization and the remaining POST (Power-On Self-Test) routines.

Note 1: Follow the BIOS recovery instructions below for BIOS recovery when the main BIOS boot crashes.

Note 2: When the BIOS boot block crashes, you will need to follow the procedures to make a Returned Merchandise Authorization (RMA) request. (For a RMA request, please see section 3.5 for more information). Also, you may use the Supermicro Update Manager (SUM) Out-of-Band (OOB) (https://www.supermicro.com.tw/products/nfo/SMS_SUM.cfm) to reflash the BIOS.

D.3 Recovering the BIOS Block with a USB Device

This feature allows the user to recover a BIOS image using a USB-attached device without additional utilities used. A USB flash device such as a USB Flash Drive, or a USB CD/DVD ROM/RW device can be used for this purpose. However, a USB Hard Disk drive cannot be used for BIOS recovery at this time.

The file system supported by UEFI is FAT (including FAT12, FAT16, and FAT32), which is installed on a bootable or non-bootable USB-attached device. However, the BIOS might need several minutes to locate the SUPER.ROM file if the media size becomes too large due to the huge volumes of folders and files stored in the device.

To perform UEFI BIOS recovery using a USB-attached device, follow the instructions below.

1. Using a different machine, copy the "Super.ROM" binary image file into the disc Root "\" directory of a USB device or a writable 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 into a USB flash device and rename it to "Super.ROM" for BIOS recovery use.

2. Insert the USB device that contains the new BIOS image ("Super.ROM") into your USB drive and power on the system
3. Set the JBR1 switch on the motherboard to recovery mode and power on the system. If the screen appears as below, press to continue.

```
Version 2.19.1266. Copyright (C) 2017 American Megatrends, Inc.
```

```
Supermicro C9X299 BIOS Date:09/08/2017 Rev:1.0
```

```
CPU : Intel(R) Core(TM) i7-7900X CPU @ 3.30GHz
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```
Speed : 3.30 GHz
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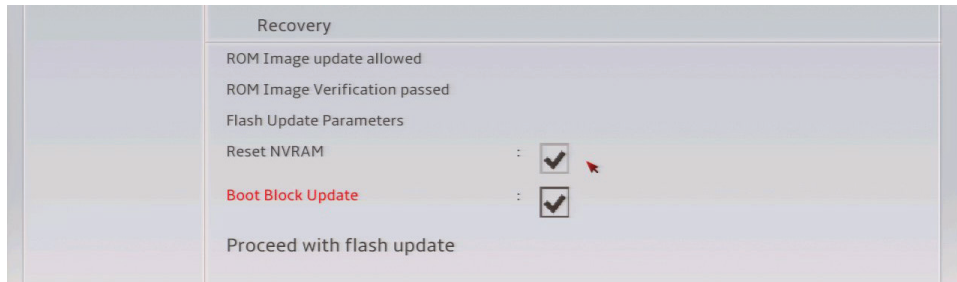
```
The IMC is operating with DDR4 2132 MHz
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```
Press DEL to run Setup
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```
Press F11 to invoke Boot Menu
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Press F12 to boot from PXE/LAN
```

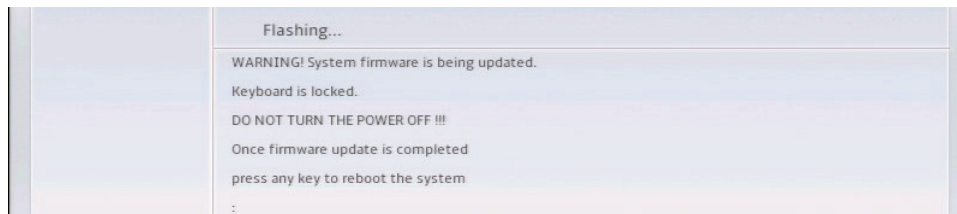
4. After locating the new BIOS binary image, the system will enter the BIOS Recovery menu as shown below.



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

5. When the screen as 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 process until it has completed.



6. After the BIOS recovery process is completed, click OK to reboot the system.

