



SUPERWORKSTATION SYS-751GE-TNRT



USER'S MANUAL

Revision 1.0

The information in this User's Manual has been carefully reviewed and is believed to be accurate. The vendor assumes no responsibility for any inaccuracies that may be contained in this document, and makes no commitment to update or to keep current the information in this manual, or to notify any person or organization of the updates. Please Note: For the most up-to-date version of this manual, please see our website at www.supermicro.com.

Super Micro Computer, Inc. ("Supermicro") reserves the right to make changes to the product described in this manual at any time and without notice. This product, including software and documentation, is the property of Supermicro and/or its licensors, and is supplied only under a license. Any use or reproduction of this product is not allowed, except as expressly permitted by the terms of said license.

IN NO EVENT WILL Super Micro Computer, Inc. BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, SPECULATIVE OR CONSEQUENTIAL DAMAGES ARISING FROM THE USE OR INABILITY TO USE THIS PRODUCT OR DOCUMENTATION, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN PARTICULAR, SUPER MICRO COMPUTER, INC. SHALL NOT HAVE LIABILITY FOR ANY HARDWARE, SOFTWARE, OR DATA STORED OR USED WITH THE PRODUCT, INCLUDING THE COSTS OF REPAIRING, REPLACING, INTEGRATING, INSTALLING OR RECOVERING SUCH HARDWARE, SOFTWARE, OR DATA.

Any disputes arising between manufacturer and customer shall be governed by the laws of Santa Clara County in the State of California, USA. The State of California, County of Santa Clara shall be the exclusive venue for the resolution of any such disputes. Supermicro's total liability for all claims will not exceed the price paid for the hardware product.

FCC Statement: This equipment has been tested and found to comply with the limits for a Class A or Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in industrial environment for Class A device or in residential environment for Class B device. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause harmful interference with radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense.

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".



WARNING: This product can expose you to chemicals including lead, known to the State of California to cause cancer and birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

The products sold by Supermicro are not intended for and will not be used in life support systems, medical equipment, nuclear facilities or systems, aircraft, aircraft devices, aircraft/emergency communication devices or other critical systems whose failure to perform be reasonably expected to result in significant injury or loss of life or catastrophic property damage. Accordingly, Supermicro disclaims any and all liability, and should buyer use or sell such products for use in such ultra-hazardous applications, it does so entirely at its own risk. Furthermore, buyer agrees to fully indemnify, defend and hold Supermicro harmless for and against any and all claims, demands, actions, litigation, and proceedings of any kind arising out of or related to such ultra-hazardous use or sale.

Manual Revision 1.0

Release Date: September 19, 2023

mk

Unless you request and receive written permission from Super Micro Computer, Inc., you may not copy any part of this document. Information in this document is subject to change without notice. Other products and companies referred to herein are trademarks or registered trademarks of their respective companies or mark holders.

Copyright © 2023 by Super Micro Computer, Inc.
All rights reserved.

Printed in the United States of America

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 server. Installation and maintenance should be performed by experienced technicians only.

Please refer to the SYS-751GE-TNRT [server specifications page](#) on our website for updates on supported memory, processors and operating systems.

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: <https://www.supermicro.com/wdl>
- Product safety info: http://www.supermicro.com/about/policies/safety_information.cfm

If you have any questions, please 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.

Secure Data Deletion

A secure data deletion tool designed to fully erase all data from storage devices can be found on our website: https://www.supermicro.com/about/policies/disclaimer.cfm?url=/wdl/utility/Lot9_Secure_Data_Deletion_Utility/

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.

Contents

Chapter 1 Introduction

1.1 Overview	9
1.2 System Features	10
Front View	10
Control Panel	12
Drive Carrier Indicators	13
Rear View	14
Rear Input/Output Panel	15
Liquid Cooling Ports	16
LAN Speed Indicator	16
Power Supply Indicator	16
Side View, Right	17
1.3 Motherboard Layout	18
Quick Reference	19
Motherboard Block Diagram	20
1.4 Processor and Heatsink	21
Processor Overview	21
1.5 Memory	22
Memory Support	22
Memory Population Guidelines	23
Guidelines Regarding Mixing DIMMs	23
DIMM Construction	23
HBM CPUs	25

Chapter 2 Server Installation

2.1 Overview	26
2.2 Unpacking the System	26
2.3 Preparing for Setup	26
Choosing a Setup Location	26
Rack Precautions	27
Chassis Precautions	27
Rack Mounting Considerations	27
Ambient Operating Temperature	27
Airflow	28

Mechanical Loading	28
Circuit Overloading	28
Reliable Ground	28
2.4 Installing the Rails	29
Preparing the Chassis	29
Installing the Inner Rails onto the Chassis	31
Installing the Outer Rails onto the Rack	33
2.5 Installing the System into a Rack	34
Removing the System from the Rack	35
Chapter 3 Maintenance and Component Installation	
3.1 Removing Power	36
3.2 Accessing the System	37
Front Bezel	38
3.3 Motherboard Battery	39
3.4 Storage Drives	40
Checking the Temperature of an NVMe Drive	43
3.5 System Cooling	44
Radiator and Fans	44
Filling/Draining Liquid Coolant	45
Changing the Dust Filter	46
3.6 Power Supply	47
Power Supply Indicator	47
Chapter 4 Motherboard Connections	
4.1 Rear Input/Output Ports	49
4.2 Power Connections	50
4.3 Headers and Connectors	50
Control Panel	55
4.4 Jumpers	57
4.5 LED Indicators	59
Chapter 5 Software	
5.1 Microsoft Windows OS Installation	60
5.2 Driver Installation	62
5.3 SuperDoctor® 5	63
5.4 BMC	64
BMC ADMIN User Password	64

Chapter 6 Optional Components

6.1 Storage Protocols Supported	65
6.2 TPM Security Module	65
6.3 Intel Virtual RAID on CPU (VROC).....	66
Requirements and Restrictions	66
Supported SSDs and Operating Systems	66
Additional Information	67
Hardware Key	67
Configuring Intel VMD	68
Configuring VMD Manually	68
Creating NVMe RAID Configurations.....	73
Status Indications	74
Hot Swap Drives	74
Hot-unplug	74
Hot-plug	74
Related Information Links	74

Chapter 7 Troubleshooting and Support

7.1 Information Resources	75
Website	75
Direct Links for the SYS-751GE-TNRT System.....	75
Direct Links for General Support and Information	75
7.2 BMC Interface	76
7.3 Troubleshooting Procedures	77
General Technique	77
No Power	77
No Video	77
System Boot Failure	78
Memory Errors	78
Losing the System Setup Configuration	78
When the System Becomes Unstable	78
7.4 POST Codes	80
7.5 Crash Dump Using the BMC Dashboard.....	80
7.6 UEFI BIOS Recovery	81
Overview	81

Recovering the UEFI BIOS Image.....	81
Recovering the Main BIOS Block with a USB Device.....	81
7.7 CMOS Clear	86
7.8 Where to Get Replacement Components	87
7.9 Reporting an Issue	87
Technical Support Procedures	87
Returning Merchandise for Service.....	87
Vendor Support Filing System	88
7.10 Feedback	88
7.11 Contacting Supermicro.....	89
Appendix A Standardized Warning Statements for AC Systems	
Appendix B System Specifications	

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)
Sales-USA@supermicro.com (Sales Inquiries)
Government_Sales-USA@supermicro.com (Gov. Sales Inquiries)
support@supermicro.com (Technical Support)
RMA@supermicro.com (RMA Support)
Webmaster@supermicro.com (Webmaster)

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_Europe@supermicro.com (Sales Inquiries)
Support_Europe@supermicro.com (Technical Support)
RMA_Europe@supermicro.com (RMA 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: Sales-Asia@supermicro.com.tw (Sales Inquiries)
Support@supermicro.com.tw (Technical Support)
RMA@supermicro.com.tw (RMA Support)

Website: www.supermicro.com.tw

Chapter 1

Introduction

1.1 Overview

This chapter provides an outline of the functions and features of the SYS-751GE-TNRT SuperWorkstation. The following provides an overview of the specifications and capabilities.

System Overview	
Motherboard	X13DEG-QT
Chassis	CSE-759TS-R2K21BP
Processor	Dual Intel 4th Gen Xeon Scalable processors in Socket E (LGA4677) and TDP up to 350 W
Memory	Supports up to 2 TB of RDIMM DDR5 ECC memory with speeds of up to 4800 MT/s in 16 DIMM slots Note: Memory DIMM capacities larger than 16 GB are supported under certain conditions, please contact Supermicro Technical Support for additional information about specialized system optimization
Storage	Eight 2.5" hot-swap front drive bays, NVMe/SATA Two M.2 PCIe 5.0 x4 NVMe 2280/22110 Two SuperDOMs
Expansion Slots	Six PCIe 5.0 slots x16 FHFL, including four liquid cooling for GPUs
I/O Ports	LAN: Two 10 GbE LAN ports, one dedicated BMC LAN port USB: Two USB 3.2 Gen1 (front), three USB 3.2 Gen1, one USB 3.2 TypeC (rear) Audio: Audio out, mic in VGA , COM
System Cooling	Closed loop liquid cooling, Direct to Chip (CPUs, GPUs, and memory)
Power	Two 1200/2200 W multi-output 80Plus Titanium level modules
Form Factor	5U Mid-Tower; (W x H x D) 8.6 x 17.9 x 27.6 in. or 218 x 455 x 701 mm

A Quick Reference Guide can be found on the [product page](#) of the Supermicro website.

The following safety models associated with the SYS-751GE-TNRT have been certified as compliant with UL or CSA: GS7A-S20X13, GS7A-20

1.2 System Features

The following views of the system display the main features. Refer to [Appendix B](#) for additional specifications.

Front View

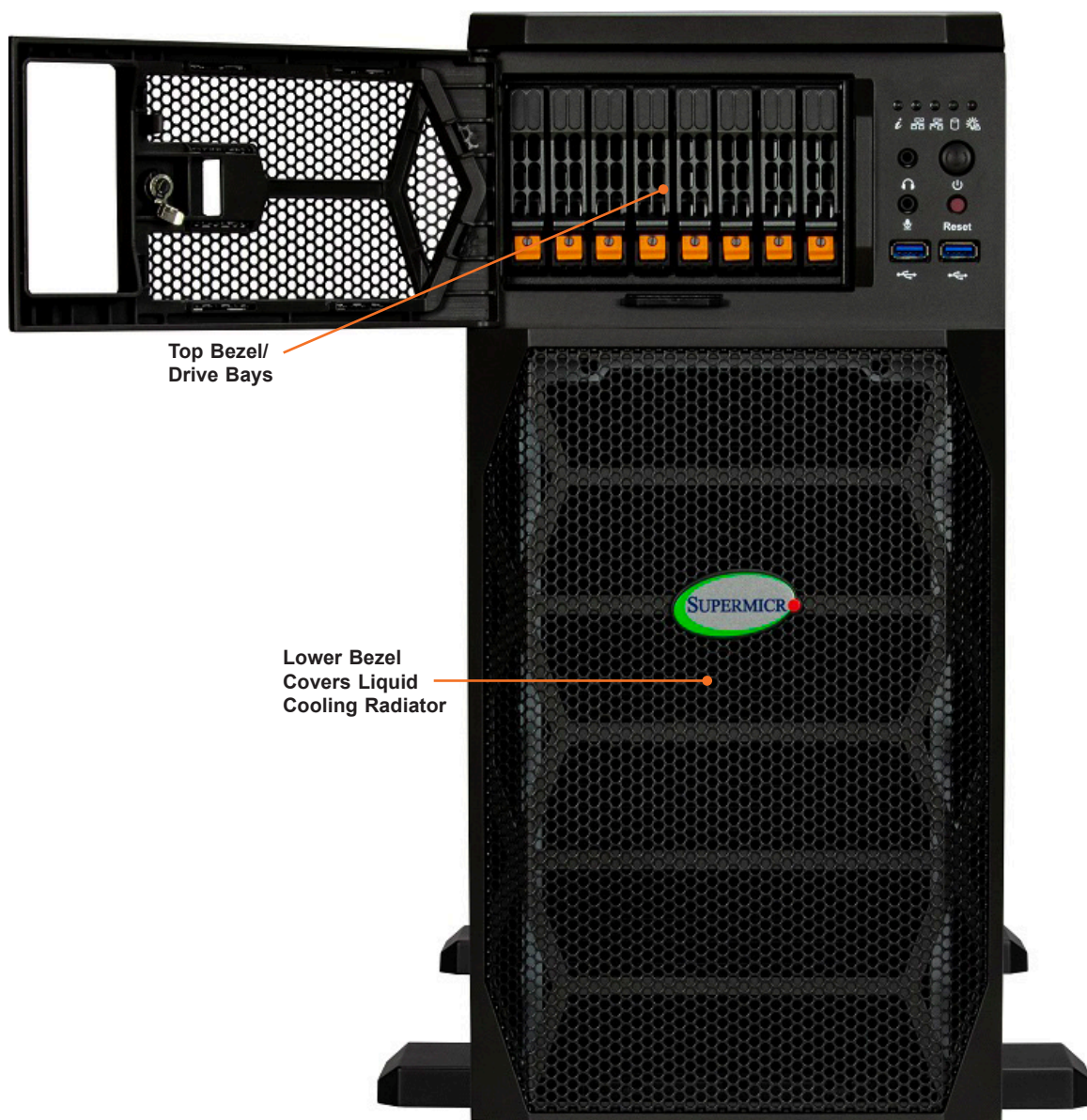


Figure 1-1. System Front View



Figure 1-2. Front Storage Drive Logical Numbers

Front View Features	
Item	Description
Control Panel	See the following page for details.
Drive Bays	Eight 2.5" NVMe/SATA hot-swap storage drive bays
Service/Asset Tag	Pulls out to reveal a sticker with the unique BMC password

Control Panel

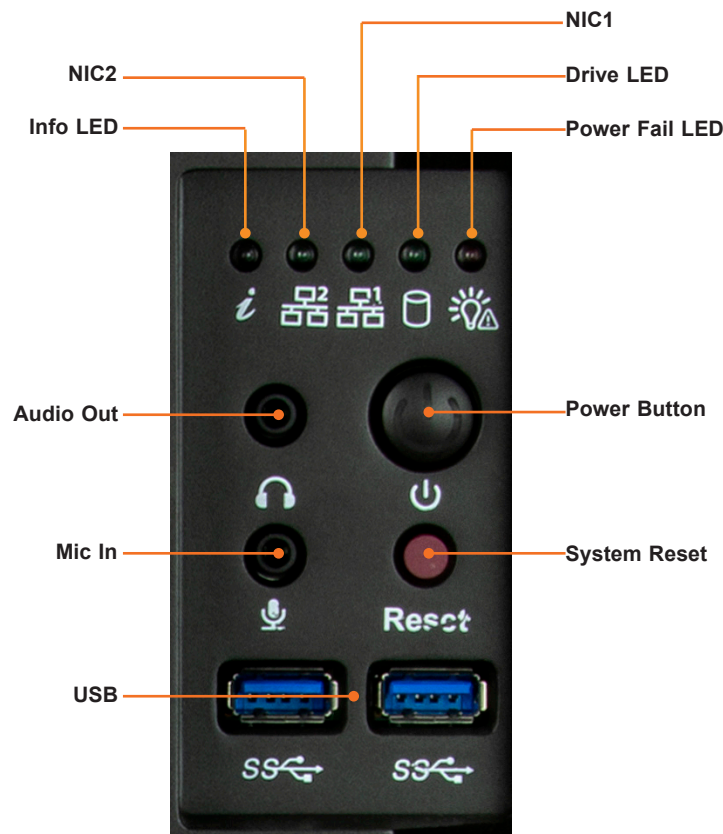


Figure 1-3. Control Panel

Control Panel Features	
Features	Description
Power Button	The main power switch applies or removes primary power from the power supply to the server but maintains standby power.
System Reset Button	Reboots the system
Audio Out	HD audio output port. See Section 4.1 for details.
Mic In	Microphone input port. See Section 4.1 for details.
USB	Two USB 3.2 Gen1 ports
Info LED	Alerts operator to several states (noted in the table below).
NIC LEDs	Indicates network activity on LAN1 or LAN2
Drive LED	Indicates activity on the storage drives when flashing.
Power Fail LED	Indicates a power supply module has failed.

Information LED	
Color, Status	Description
Red, solid	An overheating condition has occurred
Red, blinking at 1Hz	Fan failure, check for an inoperative fan
Red, blinking at 0.25Hz	Power failure, check for a non-operational power supply
Red, blinking at 10Hz	CPLD recovery mode error
Blue, solid	Unit ID has been activated locally
Blue, blinking	Unit ID has been activated using the BMC

Drive Carrier Indicators

Each drive carrier has two LED indicators: an activity indicator and a status indicator. For RAID configurations using a controller, the meaning of the status indicator is described in the table below. For OS RAID or non-RAID configurations, some LED indications are not supported, such as hot spare. For VROC configurations, refer to the [VROC section](#) in this manual.

Drive Carrier LED Indicators			
	Color	Blinking Pattern	Behavior for Device
Activity LED	Blue	Solid On	Idle SAS drive installed
	Blue	Blinking	I/O activity
	Off		Idle SATA or no drive
Status LED	Red	Solid On	Failed drive with RSTe support
	Red	Blinking at 1 Hz	Rebuilding drive with RSTe support
	Red	Blinking at 4 Hz	Identifying drive with RSTe support
	Red	Blinking with two blinks and one stop at 1 Hz	Hot spare for drive with RSTe support
	Red	On for five seconds, then off	Power on for drive with RSTe support

Rear View

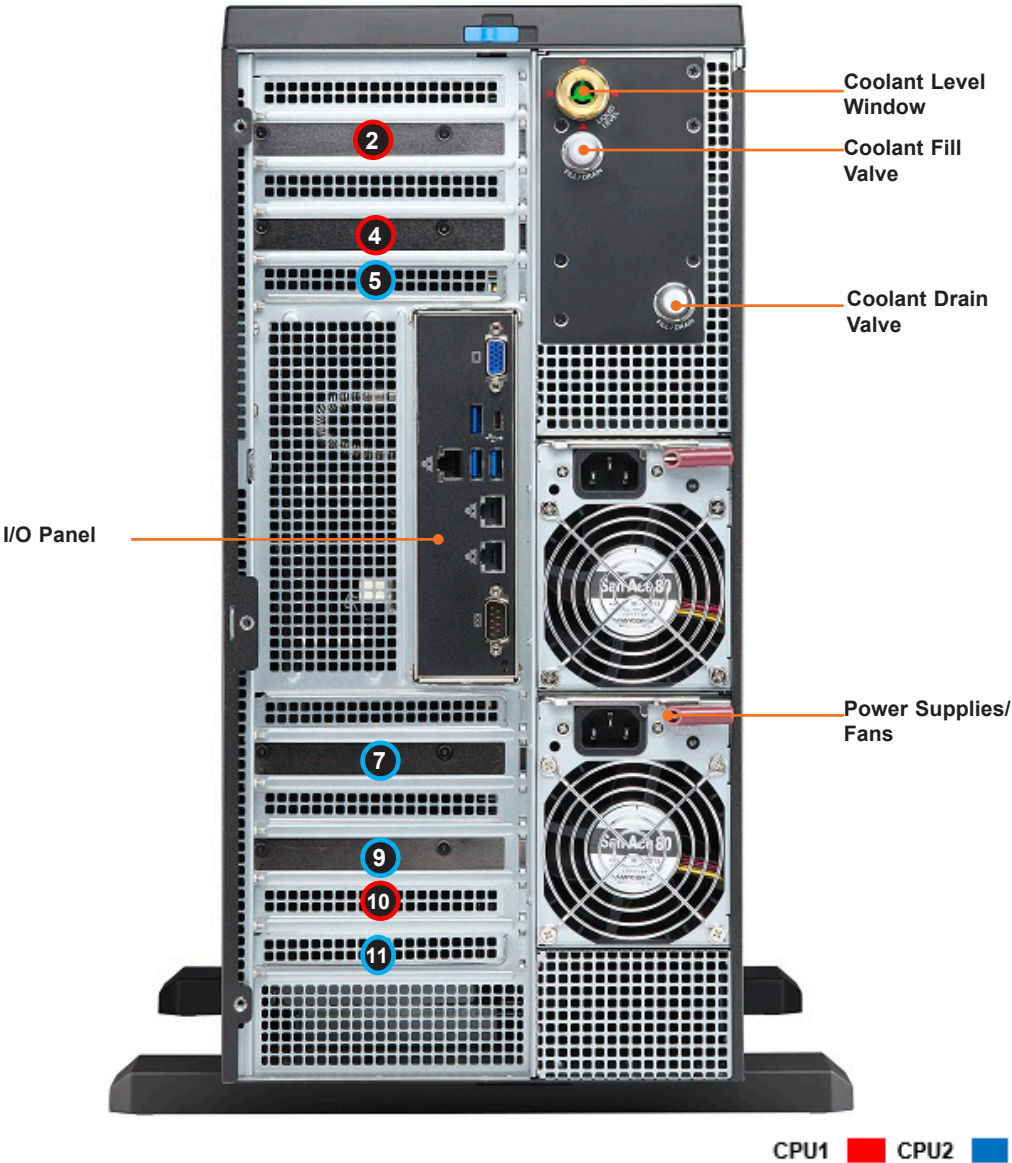


Figure 1-4. System Rear View

System Features: Rear	
Feature	Description
I/O Panel	See the following subsection for details
Coolant Level Window	Glass window to visually confirm liquid coolant level
Coolant Fill/Drain Valves	These valves are used to fill or drain the liquid coolant from the system
Expansion Slots	Seven (six useable) PCIe 5.0 slots; see the following table
Power Supply	Two redundant hot-swap modules, each including a fan

Expansion Slot Locations	
Item	Description
2	GPU, PCIe 5.0 x16 full-height, 10.5", double width slot (CPU1)
4	GPU, PCIe 5.0 x16 full-height, 10.5", single width slot (CPU1)
5	Not accessible due to DIMM liquid cooling module
7	GPU, PCIe 5.0 x16 full-height, 10.5", single width slot (CPU2)
9	GPU, PCIe 5.0 x16 full-height, 10.5", double width slot (CPU2)
10	PCIe 5.0 x16 full-height, 10.5" slot (CPU1)
11	PCIe 5.0 x16 full-height, 10.5" slot (CPU2)

CPU1 ■ CPU2 ■

Rear Input/Output Panel

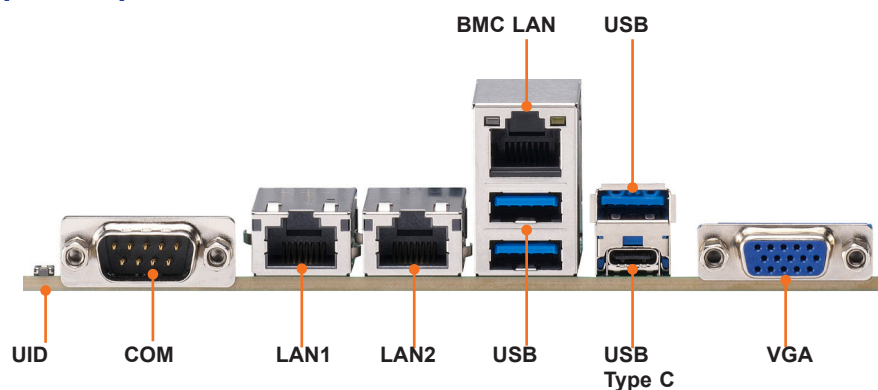


Figure 1-5. Rear I/O Panel

System Features: Rear	
Feature	Description
UID	The unit identification (UID) button turns on or off the blue light function of the Information LED and a blue LED on the rear of the chassis.
LANs	Two 10GbE ports
BMC LAN	A dedicated 1GbE port to access the BMC
USB	One USB 3.2 Gen2 (Type C) port Three USB 3.2 Gen1 ports

LAN Speed Indicator

The Ethernet ports each have two LEDs. One LED indicates activity when flashing green. The other may be green, amber or off to indicate the speed of the connection.

LAN LED (Speed Indicator)	
Color	Speed
Green, solid	10 Gb/s
Amber, solid	1 Gb/s
Off	Slower or no connection

Power Supply Indicator

Power Supply Indicator	
LED Color and State	Power Supply Condition
Green, Steady	Indicates that the power supply is on
Green, Blinking	Indicates that the power supply is plugged in and turned off by the system.
Amber, Blinking	Indicates that the power supply has a warning condition and continues to operate.
Amber, Steady	Indicates that the power supply is plugged in, and is in an abnormal state. The system might need service. Please contact Supermicro technical support.
Off	No AC power to modules

Side View, Right

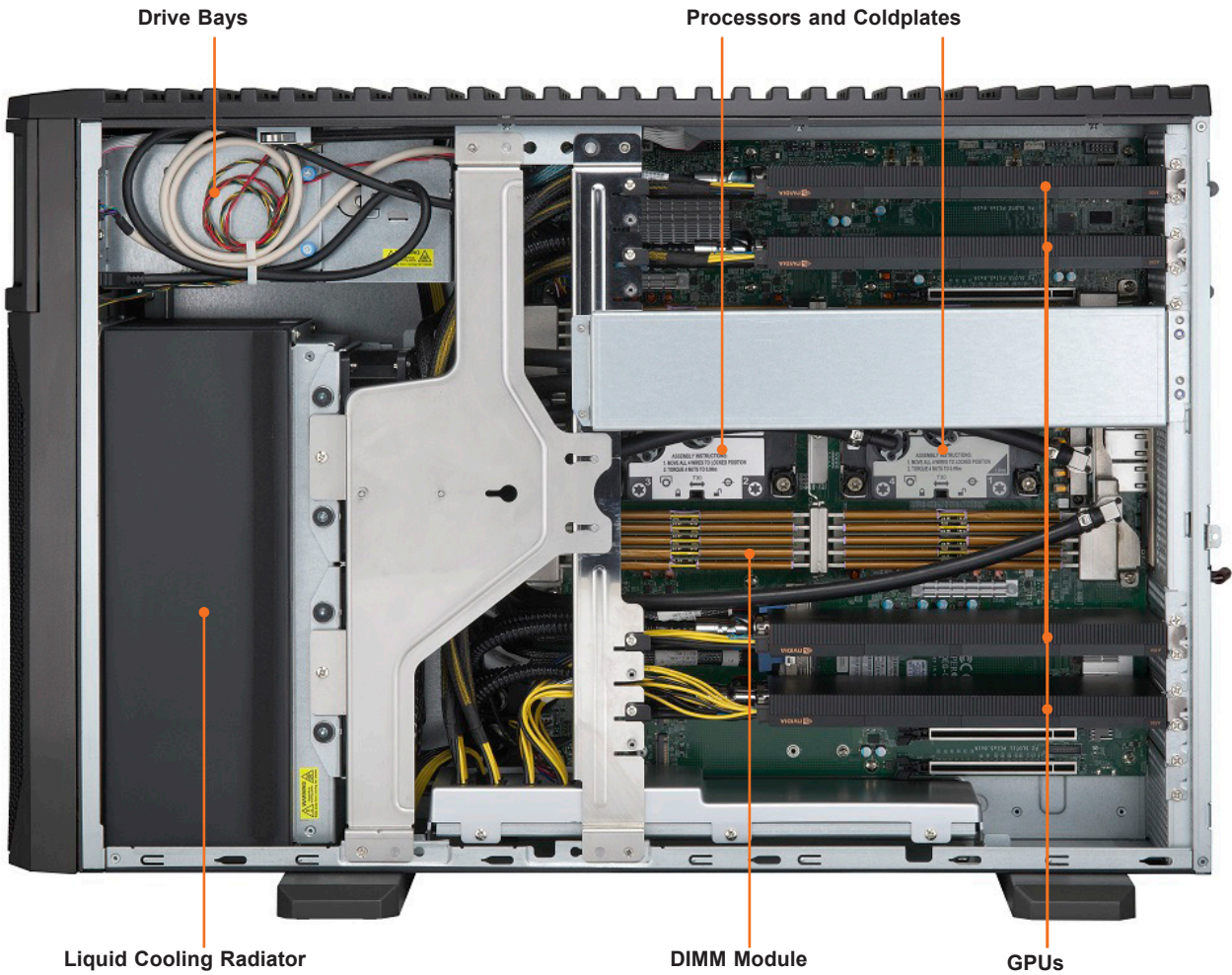


Figure 1-6. System: Right Side View, with Liquid Cooling

System Features: Right Side	
Feature	Description
Drive Bays	Eight bays for storage drives
Processors and Coldplates	Dual liquid cooled CPUs
Liquid Cooling Radiator	System hot and cold water exchangers
DIMM Module	Sixteen dual in-line memory module slots with liquid cooling (one example called out above)
GPUs	Four liquid cooled GPU cards

1.3 Motherboard Layout

Below is a layout of the X13DEG-QT motherboard with jumper, connector and LED locations shown. See the following page for descriptions. For detailed descriptions, pinout information and jumper settings, refer to [Chapter 4](#) or the [Motherboard Manual](#).

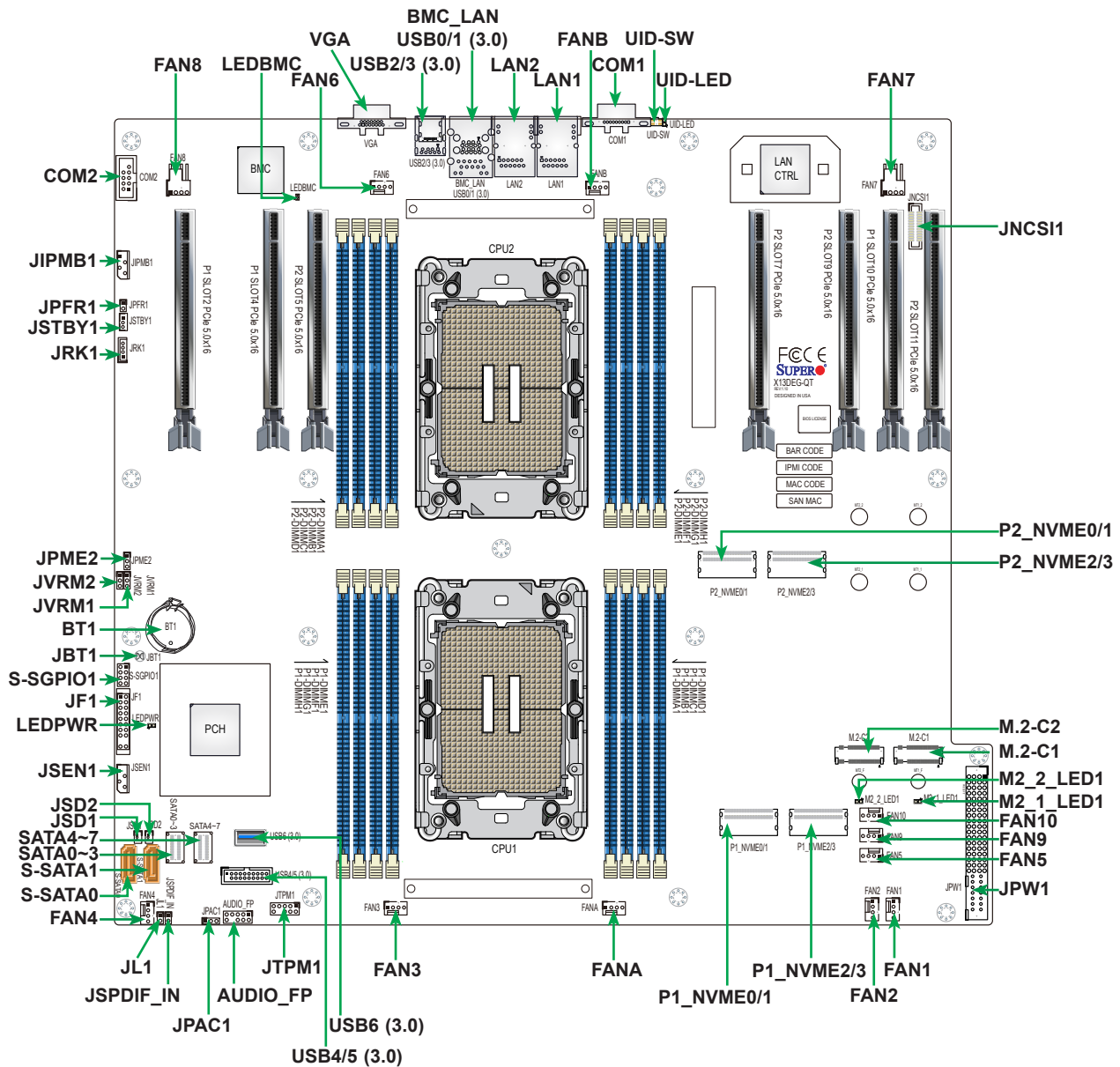


Figure 1-7. Motherboard Layout

Quick Reference

Jumper	Description	Default Setting
JBT1	CMOS Clear	Open (Normal)
JPAC1	Audio Enable	Pins 1-2 (Enabled)
JPME2	ME Manufacturing Recovery	Pins 1-2 (Normal)
JVRM1	VRM SMB Clock (to BMC or PCH)	Pins 1-2 (BMC, Normal)
JVRM2	VRM SMB Data (to BMC or PCH)	Pins 1-2 (BMC, Normal)

Connector	Description
AUDIO_FP	Front Panel Audio Header
BMC_LAN	Dedicated BMC LAN Port (RJ45)
BT1	Onboard CMOS Battery
COM1	Rear I/O COM Port
COM2	Front Accessible COM Header
FAN1–FAN10, FANA, FANB	CPU/System Fan Headers (FANA: CPU1 Fan Header, FANB: CPU2 Fan Header)
JF1	Front Control Panel Header
JIPMB1	4-pin BMC External I2C Header
JL1	Chassis Intrusion Header
JNCIS1	Network Controller Sideband Interface (NC-SI) Connector
JPRG1	Connector reserved for manufacturer use for onboard Complex Programmable Logic Device (CPLD) firmware programming
JPW1	Power Distribution Board Slot
JRK1	Intel VROC Key Header
JSD1, JSD2	SATA DOM Power Connectors
JSEN1	Inlet Sensor Header
JSPDIF_IN	Sony/Philips Digital Interface Audio Input Header
JSTBY1	5V Standby Power Header
JTPM1	Trusted Platform Module/Port 80 Connector
LAN1, LAN2	10GbE LAN Ports
M.2-C1 (M2_1), M.2-C2 (M2_2)	PCIe 5.0 NVMe M.2 Slots (with support of M-Key 2280 and 22110)
MT1_1, MT1_2, MT2_1, MT2_2	M.2 Device Mounting Holes
P1_NVME0/1, P1_NVME2/3	PCIe 5.0 x8 MCIO Connectors supported by CPU1 with four NVMe connections
P2_NVME0/1, P2_NVME2/3	PCIe 5.0 x8 MCIO Connectors supported by CPU2 with four NVMe connections
S-SATA0, S-SATA1	Intel PCH Powered S-SATA Ports with support of SuperDOM (Disk on Module) devices
S-SGPIO1	Serial General Purpose I/O Connection Header (for S-SATA0/S-SATA1 SuperDOM)
SATA0–3, SATA4–7	SlimSAS LP Connectors with support of eight Intel PCH SATA 3.0 connections (RAID 0, RAID 1, RAID 5, and RAID 10 supported)
(P1) SLOT2/4/10, (P2) SLOT5/7/9/11	PCIe 5.0 x16 Slots * For Intel SP XCC processors, SLOT11 supports PCIe Gen. 4 link.

Connector	Description
UID-SW	Unit Identifier (UID) Switch / BMC Reset Button
USB0–USB3 (3.0)	Rear I/O USB Ports (USB 3.0)
USB4/5 (3.0)	Front-accessible USB 3.0 Header with support of two USB 3.0 connections
USB6 (3.0)	Internal USB 3.0 Vertical Type-A Connector
VGA	Rear I/O VGA Port

LED	Description	State: Status
LEDBMC	BMC Heartbeat LED	Blinking Green: BMC Normal (Active) Solid Green: During BMC Reset or during a Cold Reboot
LEDPWR	Power LED	LED On: Onboard Power On
M2_1_LED1, M2_2_LED1	M.2 LEDs	Blinking Green: Device Working
UID-LED	Unit Identifier (UID) LED	Solid Blue: Unit Identified

Motherboard Block Diagram

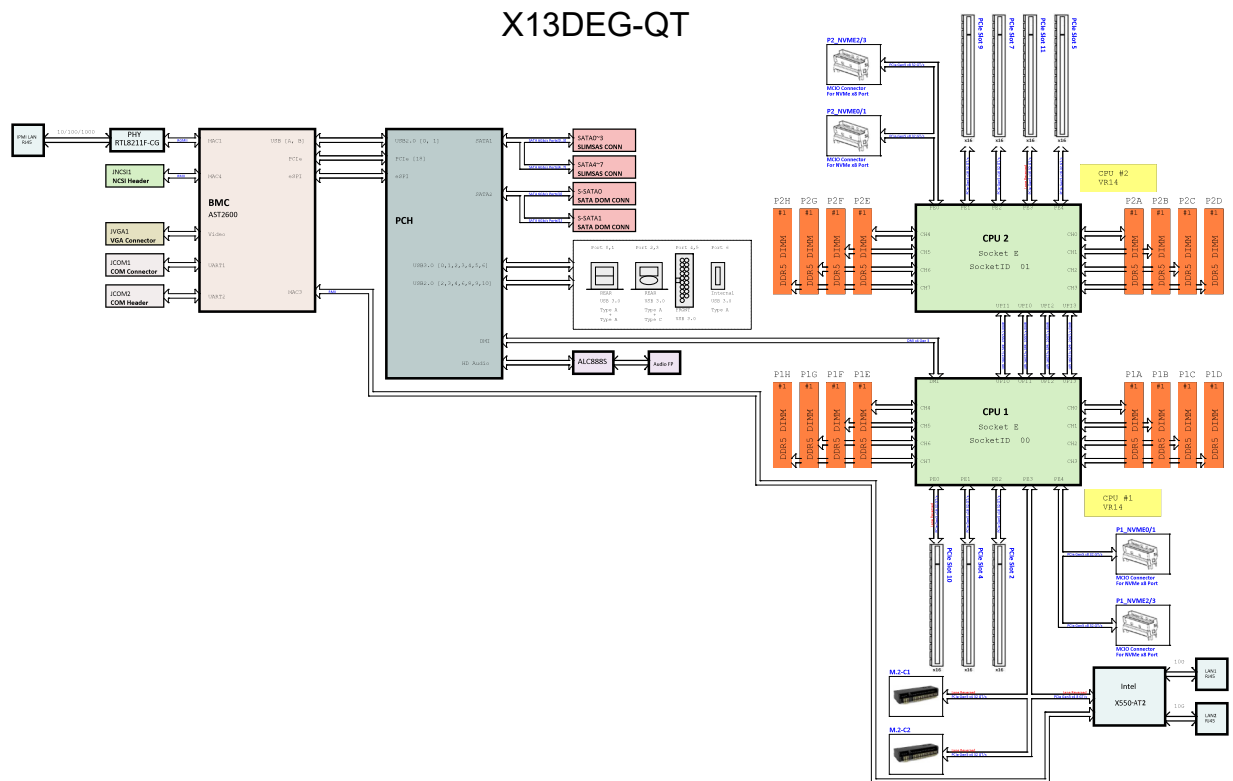
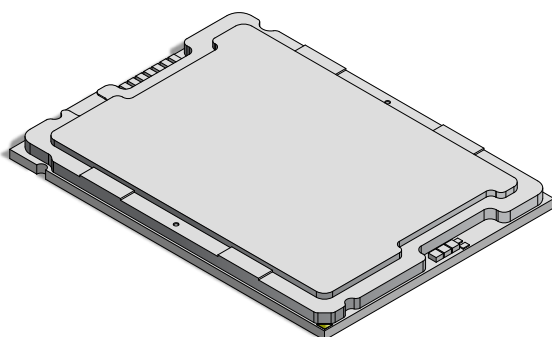


Figure 1-8. Motherboard Block Diagram

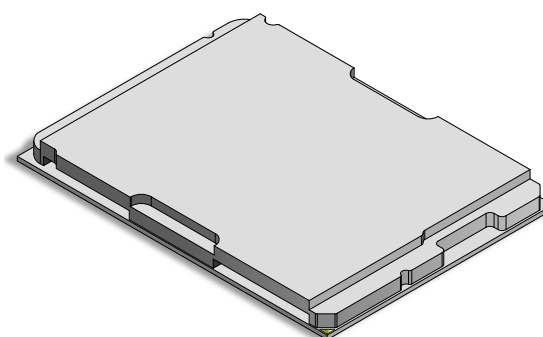
1.4 Processor and Heatsink

Processor Overview

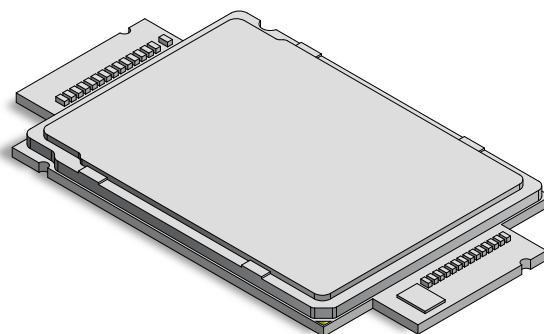
The motherboard supports three versions of the Intel 4th Gen Xeon Scalable processors. They differ in the number of cores, and each requires a different CPU carrier. The XCC version supports up to 60 cores, the MCC version supports up to 32 cores, and the HBM (Xeon Max series) version supports up to 56 cores. The CPU carriers differ by the presence or absence of shims and levers. Processors must be installed or replaced by the manufacturer.



SP XCC



SP MCC



SP HBM

CPU and Carrier Type					
CPU Type	Cores	Carrier Type	Lever	Shim	Carrier Part Number
XCC	60	E1A	Yes	No	SKT-1333L-0000-FXC (alt: SKT-1333L-0001-LTS)
MCC	32	E1B	Yes	Yes	SKT-1424L-001B-FXC (alt: SKT-1424L-001B-LTS)
HBM	56	E1C	No	No	SKT-1425H-001C-FXC (alt: SKT-1425H-001C-LTS)

1.5 Memory

Memory modules must be installed or replaced by the manufacturer.

Memory Support

The system supports up to 2 TB of RDIMM DDR5 (288-pin) ECC memory with speeds of up to 4800 MT/s in 16 DIMM slots. For validated memory, use our [Product Resources page](#).

Note: Memory DIMM capacities larger than 16 GB are supported under certain conditions, please contact Supermicro Technical Support for additional information about specialized system optimization.

DDR5 Memory Support for the Intel 4th Gen Xeon Scalable Processors-SP					
Type	Ranks Per DIMM and Data Width (Stack)	DIMM Capacity (GB)		Speed (MT/s)	
		Memory Density 16 Gb	Memory Density 24Gb ²	One DIMM per Channel ¹	Two DIMMs per Channel
				1.1 Volts	
RDIMM	SRx8 (RC D)	16 GB	24 GB	4800*	4400*
	SRx4 (RC C)	32 GB	48 GB		
	SRx4 (RC F) 9x4	32 GB	NA		
	DRx8 (RC E)	32 GB	48 GB		
	DRx4 (RC A)	64 GB	96GB		
	DRx4 (RC B) 9x4	64 GB	NA		
RDIMM-3DS	(4R/8R)x4	2H- 128 GB	NA		
	(RC A)	4H- 256 GB			

*Memory speed and capacity support depends on the processors used in the system.

Note 1: 1DPC applies to 1SPC or 2SPC implementations (SPC - sockets per channel).

Note 2: 24Gb XCC only with limited configs: 1DPC all DIMM types, 2DPC 96GB only. Only 8 and 16 DIMM configs, no fallbacks.

Memory Population Guidelines

Use the DIMM slots listed below for memory modules. This memory population table is based on guidelines provided by Intel to support Supermicro motherboards.

Memory Population, 16 DIMM Slots, for XCC and MCC CPUs	
CPU/DIMMs	Memory Population Sequence
2 CPUs & 2 DIMMs	CPU1 & CPU2: A1 or B1 or E1 or F1
2 CPUs & 4 DIMMs	CPU1 & CPU2: A1, G1 or CPU1 & CPU2: C1, E1
2 CPUs & 8 DIMMs	CPU1: A1, C1, E1, G1 CPU2: A1, C1, E1, G1
2 CPUs & 12 DIMMs	CPU1 & CPU2: A1, C1, D1, E1, F1, G1 or CPU1 & CPU2: A1, B1, C1, E1, G1, H1 or CPU1 & CPU2: B1, C1, D1, E1, F1, H1 or CPU1 & CPU2: A1, B1, D1, F1, G1, H1
2 CPUs & 16 DIMMs	CPU1: A1, B1, C1, D1, E1, F1, G1, H1 CPU2: A1, B1, C1, D1, E1, F1, G1, H1

Notes:

- All DIMMs must be DDR5.

Guidelines Regarding Mixing DIMMs

- Mixing memory modules of different types, speeds, ranks and vendors is very likely to cause performance issues, and therefore not recommended.
- Populating slots with a pair of DIMM modules of the same type and size results in interleaved memory, which improves memory performance.

DIMM Construction

- RDIMM (*non-3DS*) Raw Cards: A/B (2Rx4), C (1Rx4), D (1Rx8), E (2Rx8)
- LRDIMMs are not supported.

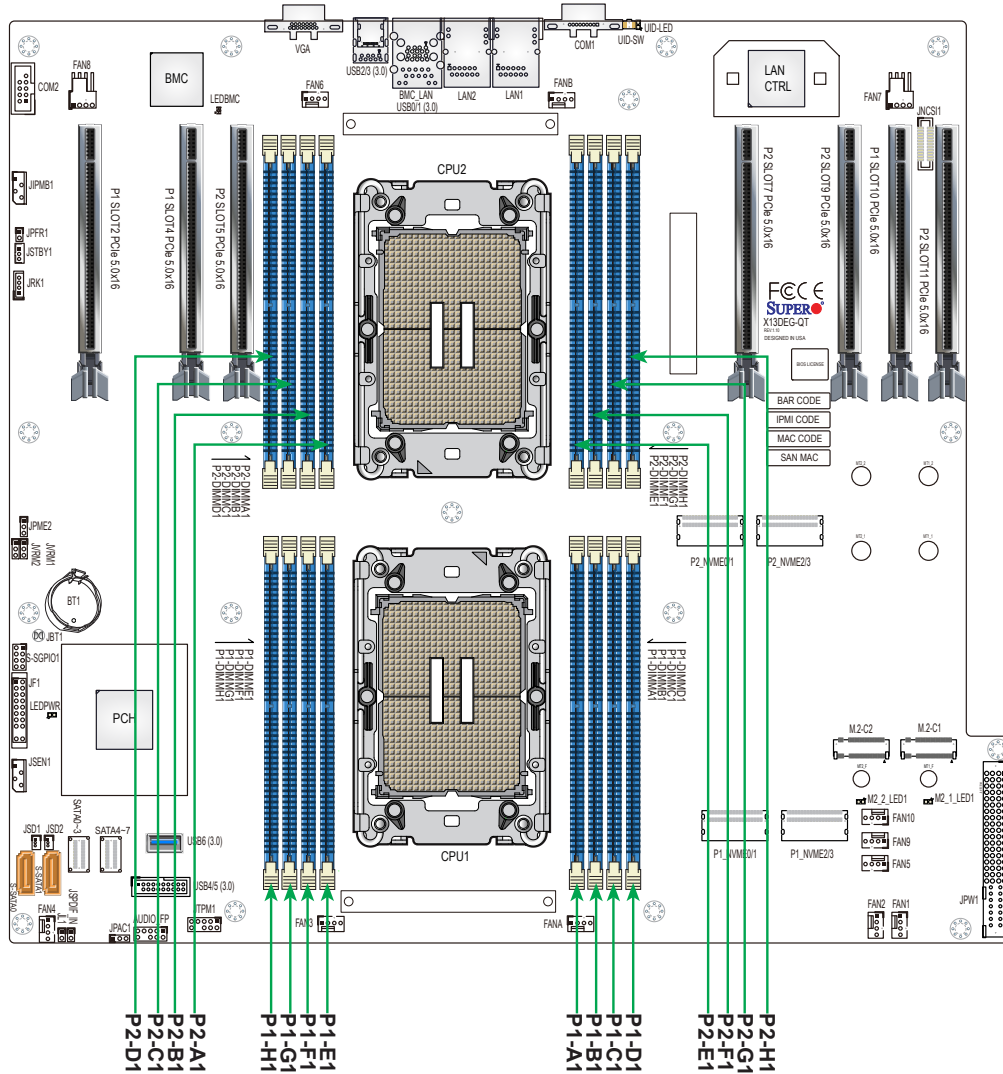


Figure 3-5. DIMM Slots

HBM CPUs

The system supports Intel Xeon Max Series CPUs, designed for high bandwidth memory (HBM).

Memory Population, 16 DIMM Slots, for HBM CPUs	
CPU/DIMMs	Slots
2 CPUs & 2 DIMMs	CPU1: A1; CPU2: A1 or CPU1: E1; CPU2: E1
2 CPUs & 4 DIMMs	CPU1: A1, G1; CPU2: A1, G1 or CPU1: C1, E1; CPU2: C1, E1
2 CPUs & 8 DIMMs	CPU1: A1, C1, E1, G1 CPU2: A1, C1, E1, G1
2 CPUs & 16 DIMMs	CPU1: A1, B1, C1, D1, E1, F1, G1, H1 CPU2: A1, B1, C1, D1, E1, F1, G1, H1

Notes:

- CPU Only Mode: supported when only HBM is installed.
- Cache Mode: supported when HBM and other DIMMs are installed. The processor will be configured in the Two-Level Memory mode (2LM), which is the default setting.
- Flat Mode: supporting the One-Level Memory mode (1LM). Use the BIOS Setup utility to set this memory mode.
- Max Series (HBM) CPU supports 1DPC (4800MT/s) / 2DPC (4400MT/s) to optimize the memory bandwidth. Max Series (HBM) CPU supports 1, 2, 4, or 8 DIMMs in Flat Mode as well as Cache Mode, and 0 DIMMs in HBM-Only mode. HBM-Only mode runs exclusively using HBM memory.
- SPR+HBM supports 4 or 8 DIMMs in all modes (Flat / Cached and Quadrant / SNC4)
 - 4 DIMMs -> populate 1 DIMM/iMC
 - 8 DIMMs -> populate 1 DIMM/Channel, 2 DIMM/iMC
 - All other configurations not listed above are not supported.
- For 2S design, each socket has to be populated identically.

Chapter 2

Server Installation

2.1 Overview

Although the CSE-759 chassis is designed to stand vertically by itself, it can be installed optionally in a server rack horizontally. This chapter provides advice and instructions for mounting your system in a server rack. If your system is not already fully integrated with processors, system memory etc., refer to [Chapter 3](#) for details on installing those specific components.

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

2.2 Unpacking the System

Inspect the box in which the SYS-751GE-TNRT system was shipped, 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 rack unit that will hold the server. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. It will also require a grounded AC power outlet nearby. Be sure to read the precautions and considerations noted in [Appendix A](#).

2.3 Preparing for Setup

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

Choosing a Setup Location

- The system should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated.
- Leave enough clearance in front of the rack so that you can open the front door completely (~25 inches) and approximately 30 inches of clearance in the back of the rack to allow sufficient space for airflow and access when servicing.
- This product should be installed only in a Restricted Access Location (dedicated equipment rooms, service closets, etc.).

- This product is not suitable for use with visual display workplace devices according to §2 of the German Ordinance for Work with Visual Display Units.

Rack Precautions

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

Chassis Precautions

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

Rack Mounting Considerations

Ambient Operating Temperature

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

Airflow

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

Mechanical Loading

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

Circuit Overloading

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

Reliable Ground

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



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

- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.
- Slide rail mounted equipment is not to be used as a shelf or a work space.



Slide rail mounted equipment is not to be used as a shelf or a work space.



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

2.4 Installing the Rails

The CSE-759 chassis can be installed in a server rack horizontally. There are a variety of rack units on the market, which may require a slightly different assembly procedure. This rail set fits a rack between 25.6" and 33" deep.

The following is a basic guideline for installing the system into a rack with the rack mounting hardware (if provided). You should also refer to the installation instructions that came with the specific rack you are using.

Preparing the Chassis

The chassis comes with two bottom stabilizers and a top cover. These must be removed to attach the mounting rails.

Removing the Top Cover

1. Lay the chassis on its side with the right side facing up.
2. Push the latch as shown on the illustration.
3. While holding the latch, grasp the top cover and slide it towards the front of the chassis and off.

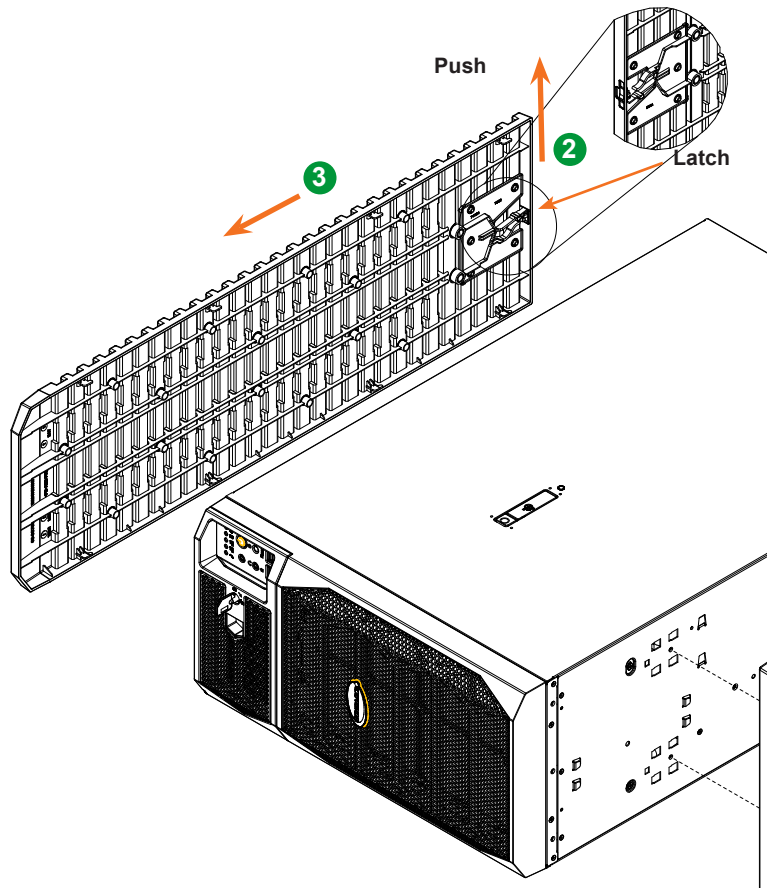


Figure 2-1. Removing the Top Cover

Removing the Bottom Stabilizers

1. Remove two screws from the bottom of each stabilizer as shown.

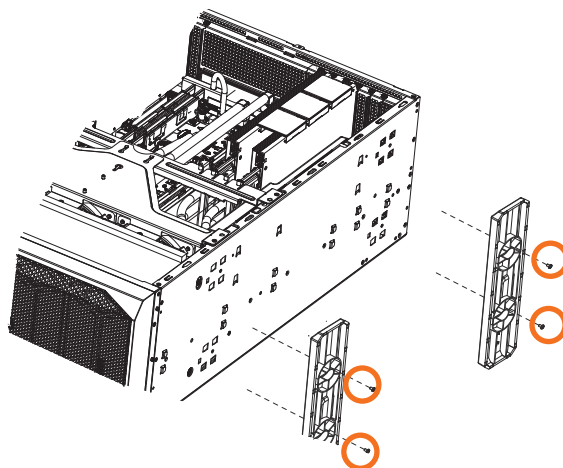


Figure 2-2. Bottom Stabilizer Screws

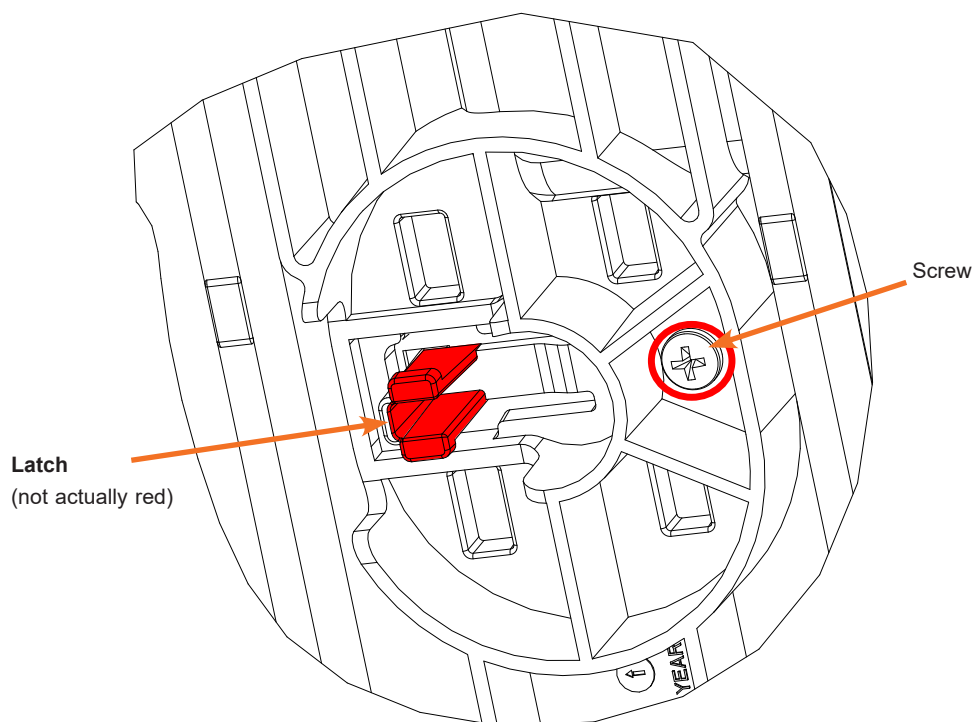


Figure 2-3. Bottom Stabilizer Latch and Screw

2. Find the two plastic spring latches on the bottom of the each stabilizer and pull them outward.
3. While holding the latches out, slide the stabilizer toward the rear and off.

Installing the Inner Rails onto the Chassis

There are two sets of rack rails, one set for the right side of the chassis and one for the left. Each set consists of an inner rail that attaches to the chassis, and an outer rail that attaches to the rack.

Releasing Inner Rail from the Outer Rail

Each inner rail has a locking latch. This latch prevents the server from coming completely out of the rack when the chassis is pulled out for servicing. To mount the rail onto the chassis, first release the inner rail from the outer rails.

1. Pull the inner rail out of the outer rail until it is fully extended.
2. Press the locking tab down to release the inner rail.
3. Pull the inner rail all the way out.

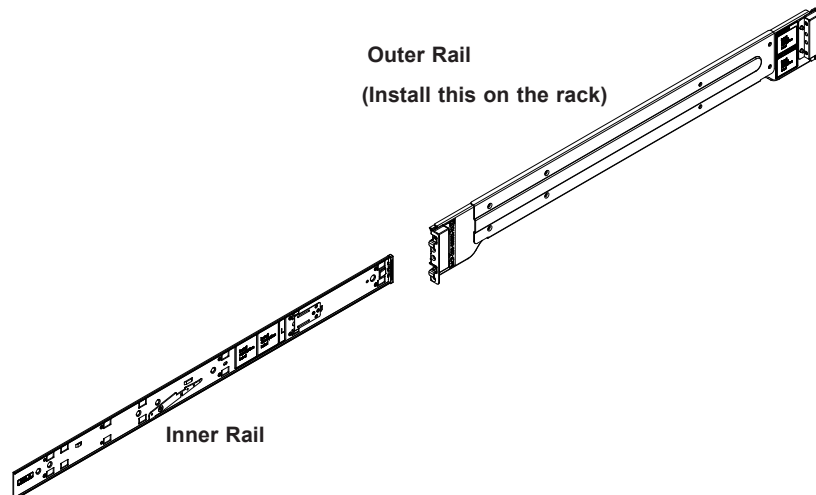


Figure 2-4. Inner Rail and Outer Rail

Installing the Inner Rails onto the Chassis

1. Identify the left and right inner rails. They are labeled.
2. Attach the handles to the front of the chassis sides with screws.

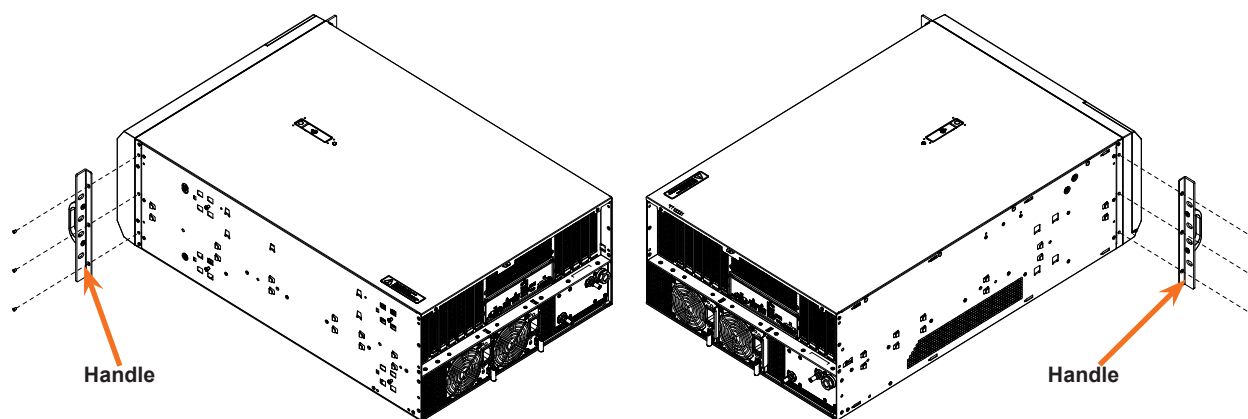


Figure 2-4. Attaching the Handles

3. Place the inner rail firmly against the side of the chassis, aligning the hooks on the side of the chassis with the holes in the inner rail.
4. Slide the inner rail forward toward the front of the chassis until the quick release bracket snaps into place, securing the rail to the chassis.
5. Optionally, you can further secure the inner rail to the chassis with screws.

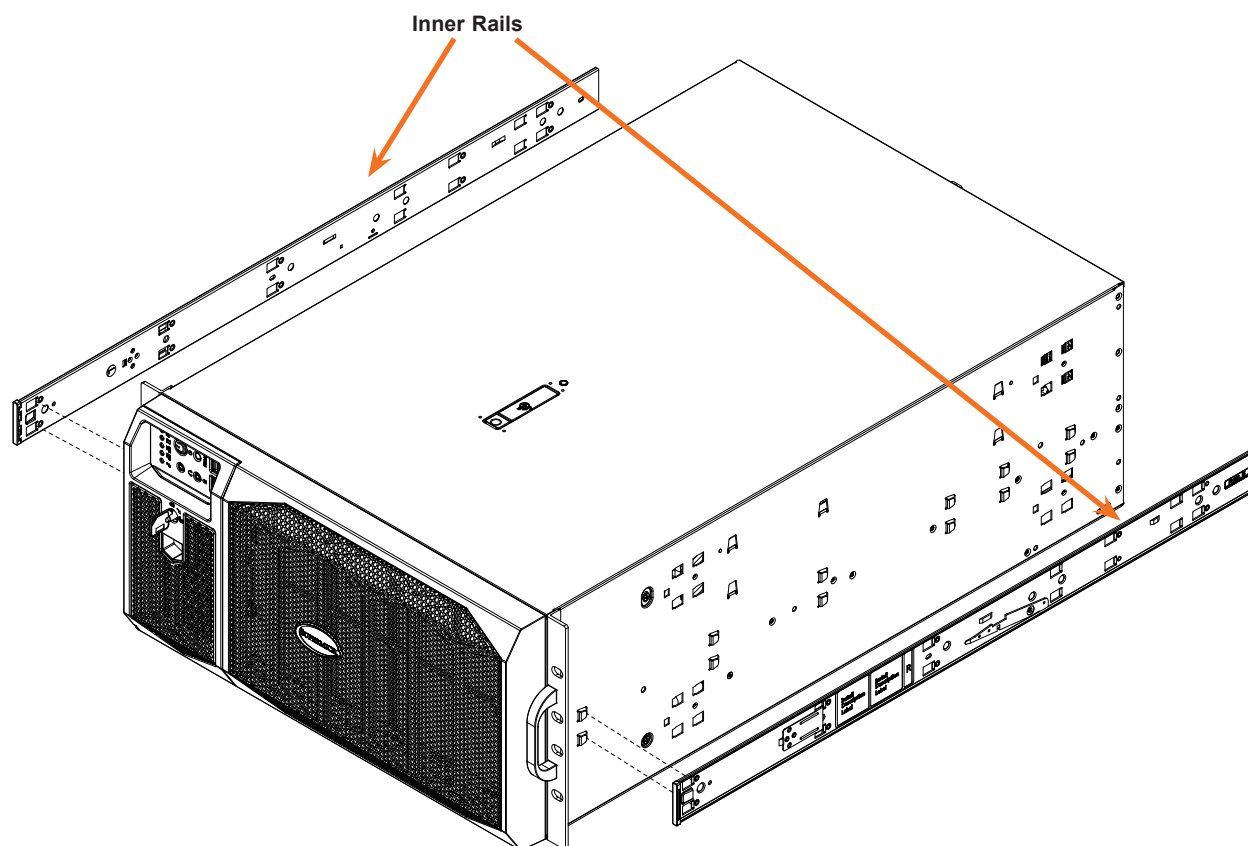


Figure 2-5. Attaching the Inner Rack Rails

Installing the Outer Rails onto the Rack

Installing the Outer Rails

1. Press upward on the locking tab at the rear end of the middle rail.
2. Push the middle rail back into the outer rail.
3. Hang the hooks on the front of the outer rail onto the square holes on the front of the rack. If desired, use screws to secure the outer rails to the rack.
4. Pull out the rear of the outer rail, adjusting the length until it just fits within the posts of the rack.
5. Hang the hooks of the rear section of the outer rail onto the square holes on the rear of the rack. Take care that the proper holes are used so the rails are level. If desired, use screws to secure the rear of the outer rail to the rear of the rack.
6. Repeat for the other outer rail.

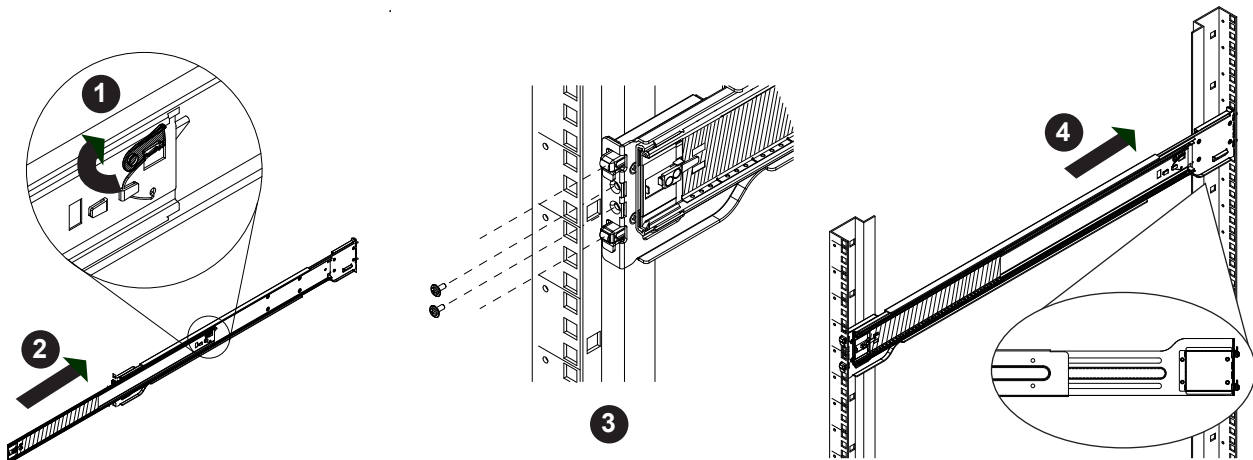


Figure 2-6. Installing the Outer Rails to the Rack

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



Stability hazard. The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before you slide the unit out for servicing. Failure to stabilize the rack can cause the rack to tip over.

2.5 Installing the System into a Rack

Once rails are attached to the chassis and the rack, you can install the server.

Installing the Chassis into a Rack

1. Extend the outer rails as illustrated above.
2. Align the inner rails of the chassis with the outer rails on the rack.
3. Slide the inner rails into the outer rails, keeping the pressure even on both sides. When the chassis has been pushed completely into the rack, it should click into the locked position.
4. Optional screws may be used to hold the front of the chassis to the rack.

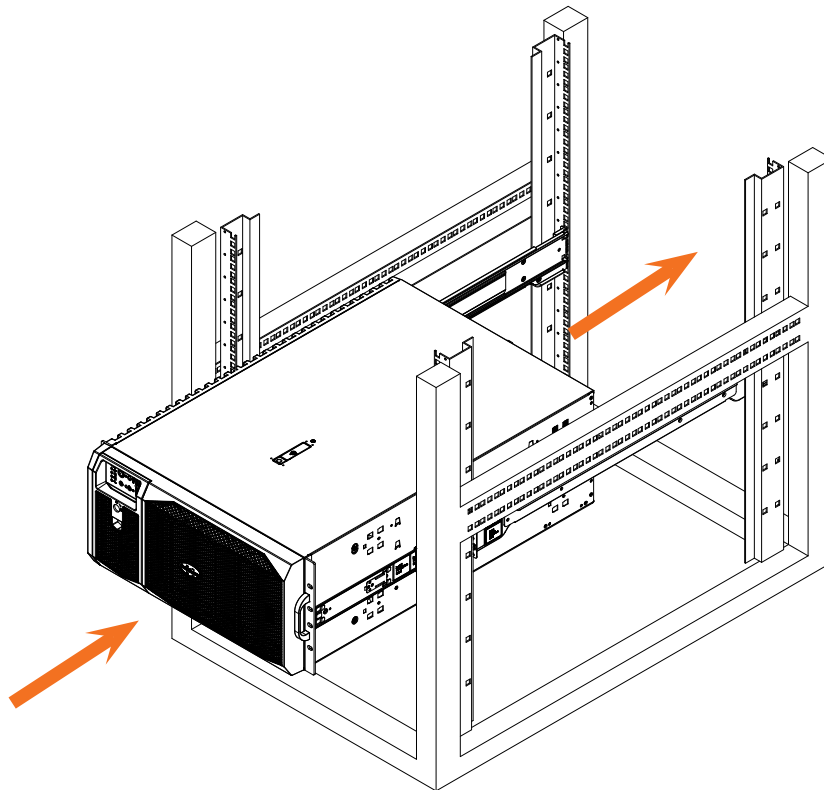


Figure 2-7. Installing the Server into the Rack

Notes: Figure is for illustrative purposes only. Always install servers to the bottom of a rack first.

Removing the System from the Rack

Caution! It is dangerous for a single person to off-load the heavy chassis from the rack without assistance. Be sure to have sufficient assistance supporting the chassis when removing it from the rack. Use a lift.

1. If necessary, loosen the thumb screws on the front of the chassis that hold it in the rack.
2. Pull the chassis forward out the front of the rack until it stops.
3. Press the release latches on each of the inner rails downward simultaneously and continue to pull the chassis forward and out of the rack.

Chapter 3

Maintenance and Component Installation

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

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

3.1 Removing Power

Use the following procedure to ensure that power has been removed from the system. This is necessary when removing or installing non hot-swap components or when replacing a non-redundant power supply.

1. Use the operating system to power down the system.
2. After the system has completely shut-down, disconnect the AC power cord from the power strip or outlet.
3. Disconnect the power cord from the power supply module.

3.2 Accessing the System

Except for short periods of time, do not operate the workstation without the cover in place. The allows for proper airflow and prevents overheating.

Removing the Right Side Chassis Cover

1. Remove the three screws at the rear of the chassis.
2. On the cover, use a Philips screwdriver to unlock the screw.
3. Press the release button on the cover.
4. Slide the cover toward the rear to remove it.

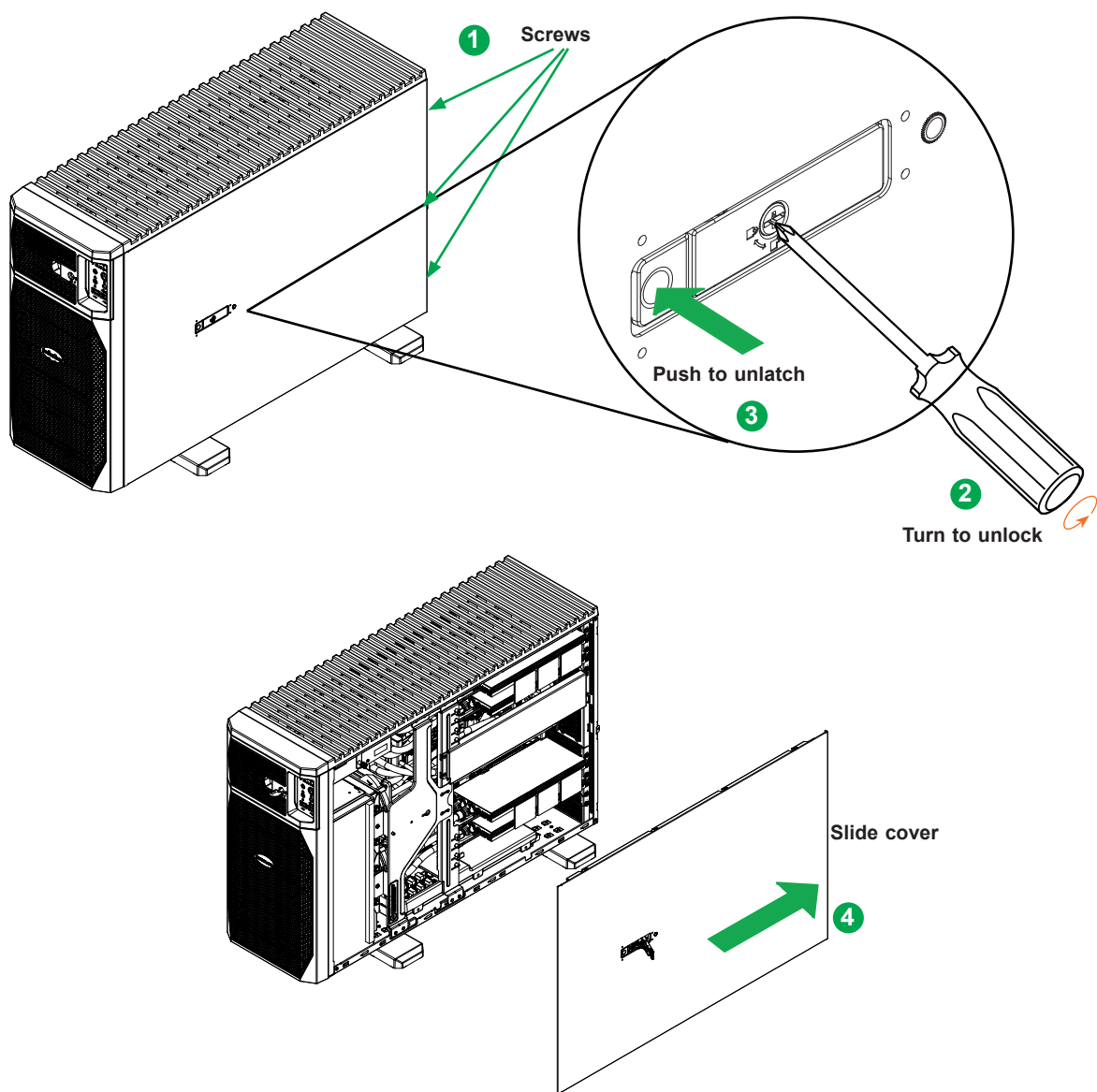


Figure 3-1. Removing the Right-side Cover

Removing the Left Side Chassis Cover

1. Remove the three screws at the rear of the cover.
2. Slide the cover back to remove it from the chassis.

Front Bezel

The front bezel must be removed to change the dust filter.

1. Remove the left side cover.
2. Locate and pull the three release latches, then push them loose from their slots.
3. Lift off the bezel.

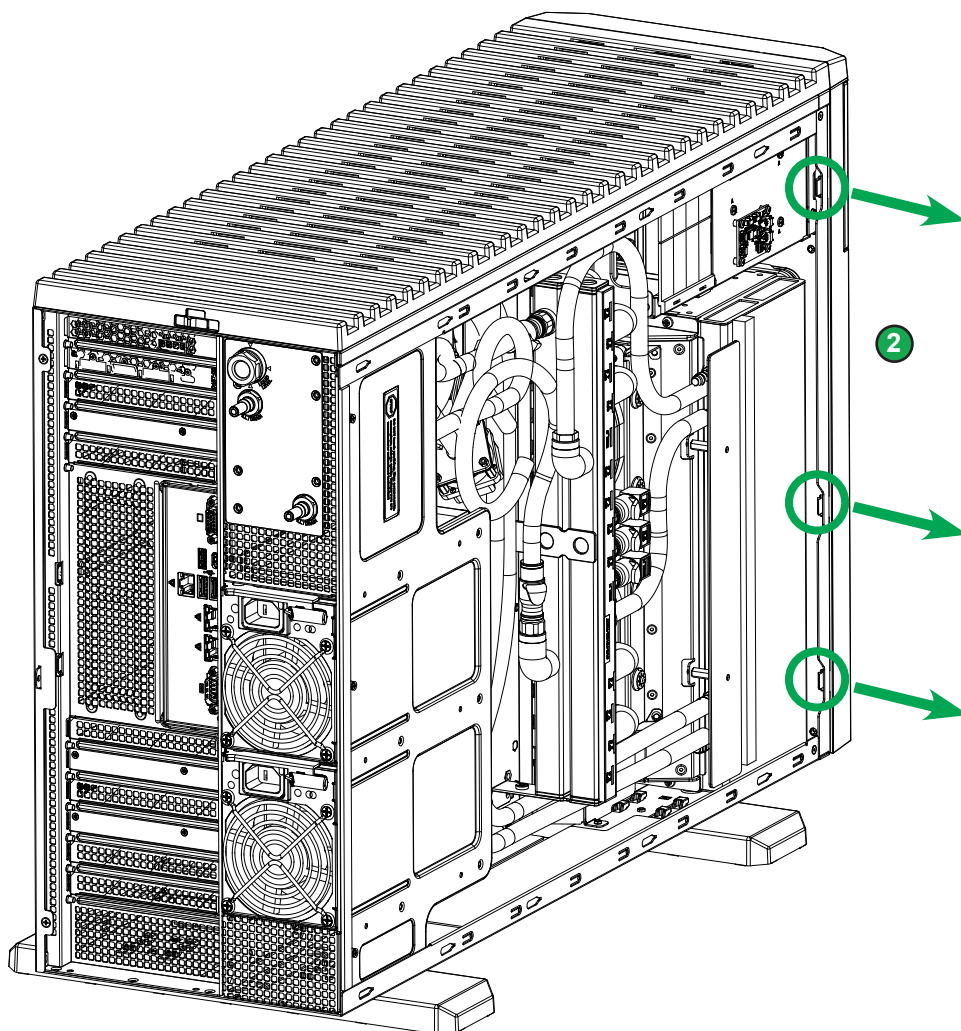


Figure 3-2. Releasing the Bezel Latches

3.3 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.

1. Push aside the small clamp that covers the edge of the battery. When the battery is released, lift it out of the holder.
2. To insert a new battery, slide one edge under the lip of the holder with the positive (+) side facing up. Then push the other side down until the clamp snaps over it.

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

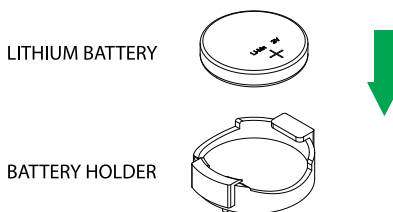


Figure 3-3. Installing the Onboard Battery



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 (BR2032).

3.4 Storage Drives

The system supports up to eight hot-swap 2.5" NVMe or SATA storage drives. Drives are mounted in tool-less carriers that simplify their removal from the chassis. These carriers also help promote proper airflow. For compatible storage drives, see the [SYS-751GE-TNRT product page](#).

For Virtual RAID configurations, refer to the [VROC](#) section in this manual.



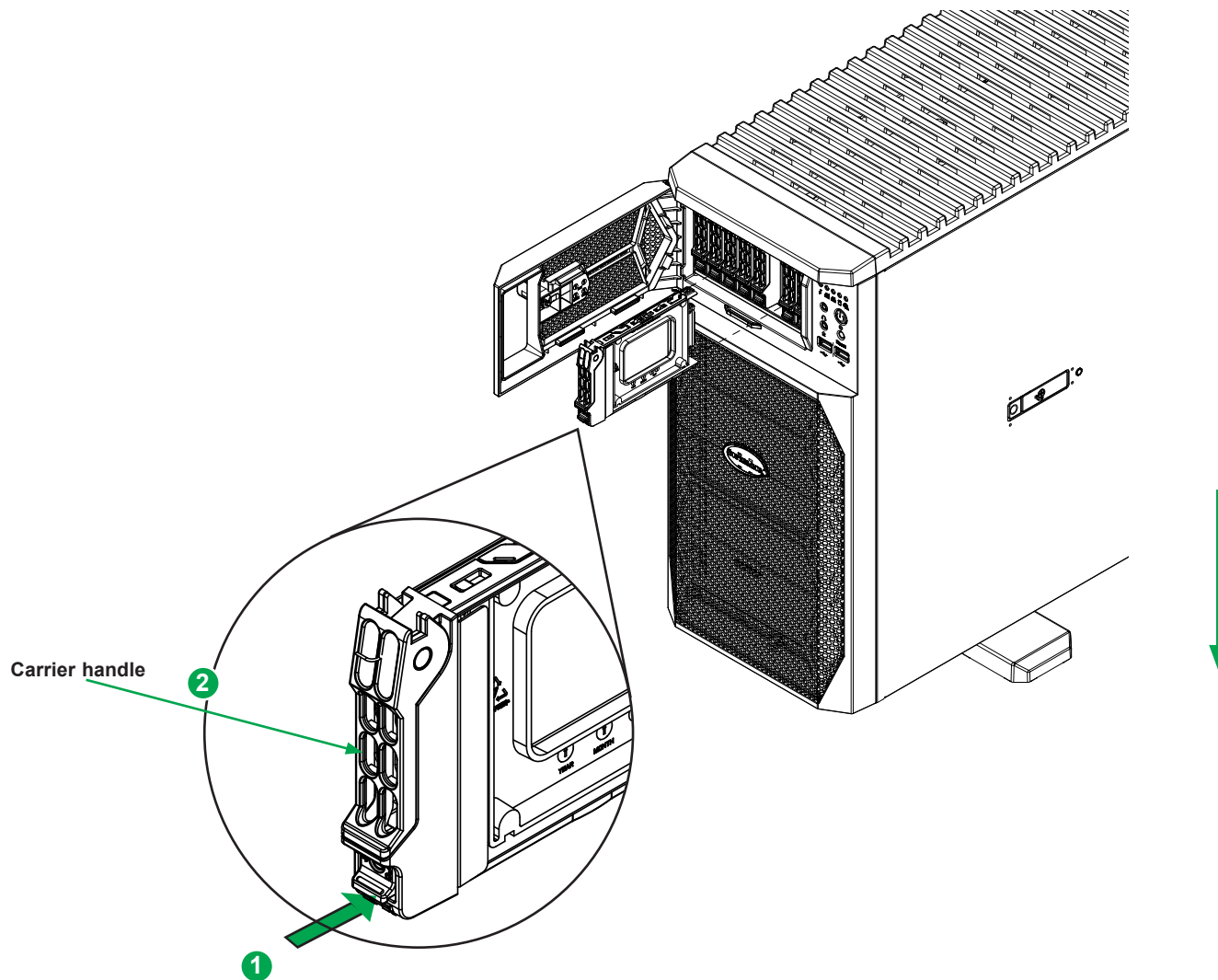
Figure 3-5. Logical Drive Numbers

The system can also accommodate two M.2 solid state drives (SSDs). Each M.2 socket supports a PCIe 5.0 x4 2280/22110 NVMe M.2 SSD. These must be installed or replaced by the manufacturer.

The system also supports two SATA DOM modules. These must be installed or replaced by the manufacturer.

Removing a Drive Carrier from the Chassis

1. Press the release button on the storage drive carrier, which will extend the handle.
2. Use the carrier handle to pull the drive out of the chassis.

**Figure 3-6. Removing a Storage Drive Carrier**

Installing a Drive

1. Remove the dummy drive, which comes pre-installed in the drive carrier. Pull out the two locking clasps on the left outside of the carrier and lift out the dummy drive.
2. Position the drive above the carrier with the PCB side facing down and the connector end toward the rear of the carrier.

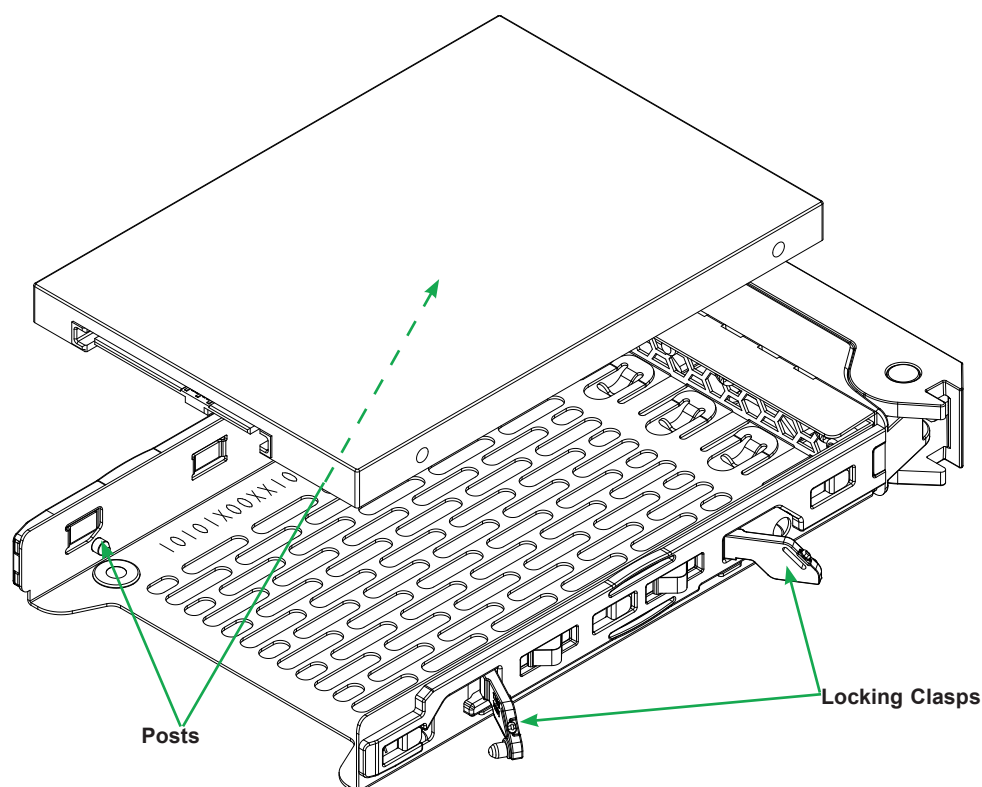


Figure 3-7. Installing a Drive into a Carrier

3. Tilt the drive to insert it onto the two posts on the right inside of the carrier.
4. Pull out the two spring locking clasps and allow the drive to sit fully in the carrier, then close them to secure the drive.
5. Insert the drive carrier into its bay, keeping the release button on the right. When the carrier reaches the rear of the bay, the release handle will retract.
6. Push the handle in until it clicks into its locked position

Checking the Temperature of an NVMe Drive

There are two ways to check using the BMC Dashboard.

Checking a Drive

- **BMC Dashboard > Server Health > NVMe SSD** – Shows the temperatures of all NVMe drives.
- **BMC Dashboard > Server Health > Sensor Reading > NVME_SSD** – Shows the single highest temperature among all the NVMe drives.

3.5 System Cooling

Radiator and Fans

The SC759 features a closed loop liquid cooling system that includes a storage tank for the liquid coolant, a radiator and two heavy duty fans.

This cooling system works by drawing heat from the CPUs, GPUs, and memory using the liquid coolant, pumps, and tubes. Hot coolant is then transferred to the radiator where heat is dissipated using the two fans pulling air through the radiator and then pushing it to the rear.

Since the cooling system comes prefilled with the required coolant, the following details are provided for informational purposes, as very little maintenance is needed for the system.

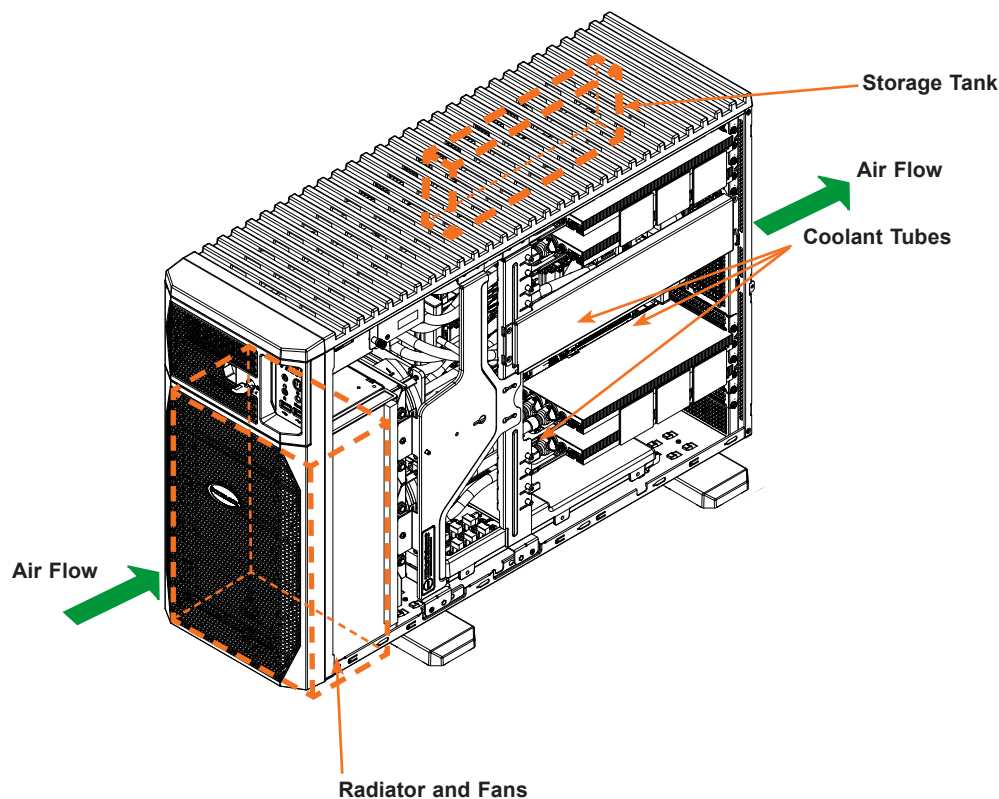


Figure 3-8. Liquid Cooling System Overview

Filling/Draining Liquid Coolant

Over time, the coolant level can decrease. There is a small window to monitor the level. Coolant can be added through the fill valve located on the rear of the chassis. Use the manufacturer qualified coolant irrigation equipment to fill or drain the coolant.

Caution: Since water is an excellent conductor of electricity, be sure the system is unplugged before filling, draining fluid or rerouting tubes.

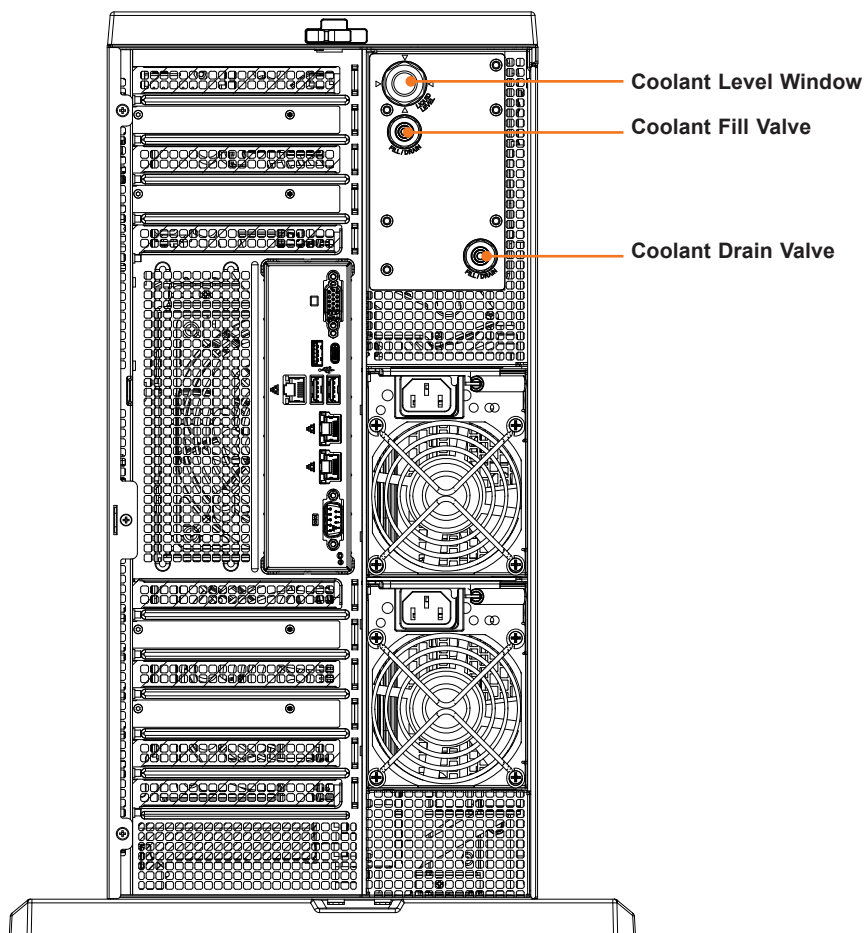


Figure 3-9. Coolant Fill/Drain Valves

Changing the Dust Filter

1. Remove the left side chassis [cover](#).
2. Remove the [front bezel](#).
3. Pop out the dust filter by lifting the plastic latch at the bottom.
4. Snap the new filter into place.
5. Close the bezel and replace the left side cover.

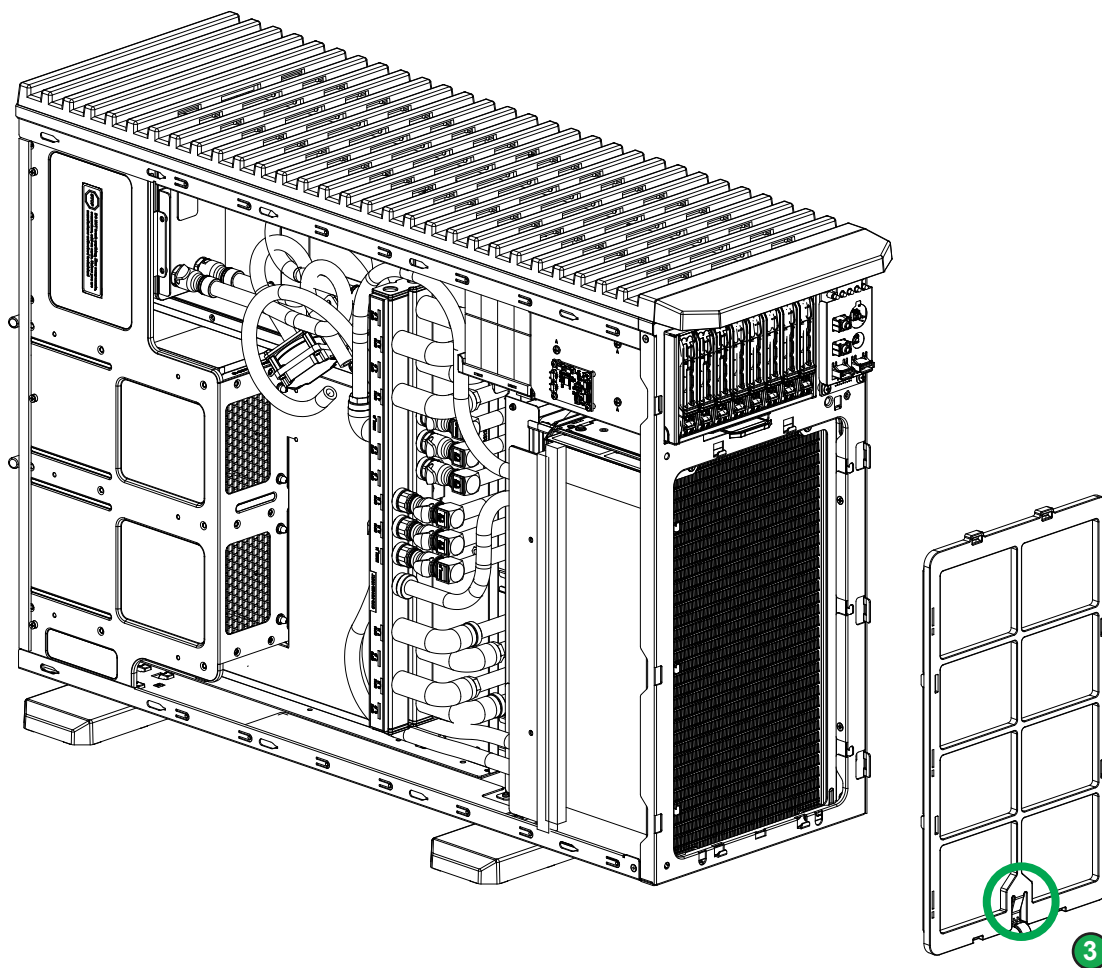


Figure 3-10. Replacing the Dust Filter

3.6 Power Supply

The system features redundant power supplies. The power modules can be changed without powering down the system. New units can be ordered directly from Supermicro or authorized distributors.

These power supplies are auto-switching capable. This feature enables them to automatically sense the input voltage and operate at a 100-120v or 180-240v.

Power Supply Indicator

Power Supply Indicator	
LED Color and State	Power Supply Condition
Green, Steady	Indicates that the power supply is on
Green, Blinking	Indicates that the power supply is plugged in and turned off by the system.
Amber, Blinking	Indicates that the power supply has a warning condition and continues to operate.
Amber, Steady	Indicates that the power supply is plugged in, and is in an abnormal state. The system might need service. Please contact Supermicro technical support.
Off	No AC power to modules

Replacing the Power Supply

1. Unplug the AC cord from the module to be replaced.
2. Push and open the locking lever on the back of the power supply as illustrated.
3. Pull the power supply out using the lever.
4. Replace the failed power module with the same model. Push the new power supply module into the power bay until it clicks.
5. Plug the AC power cord back into the module.

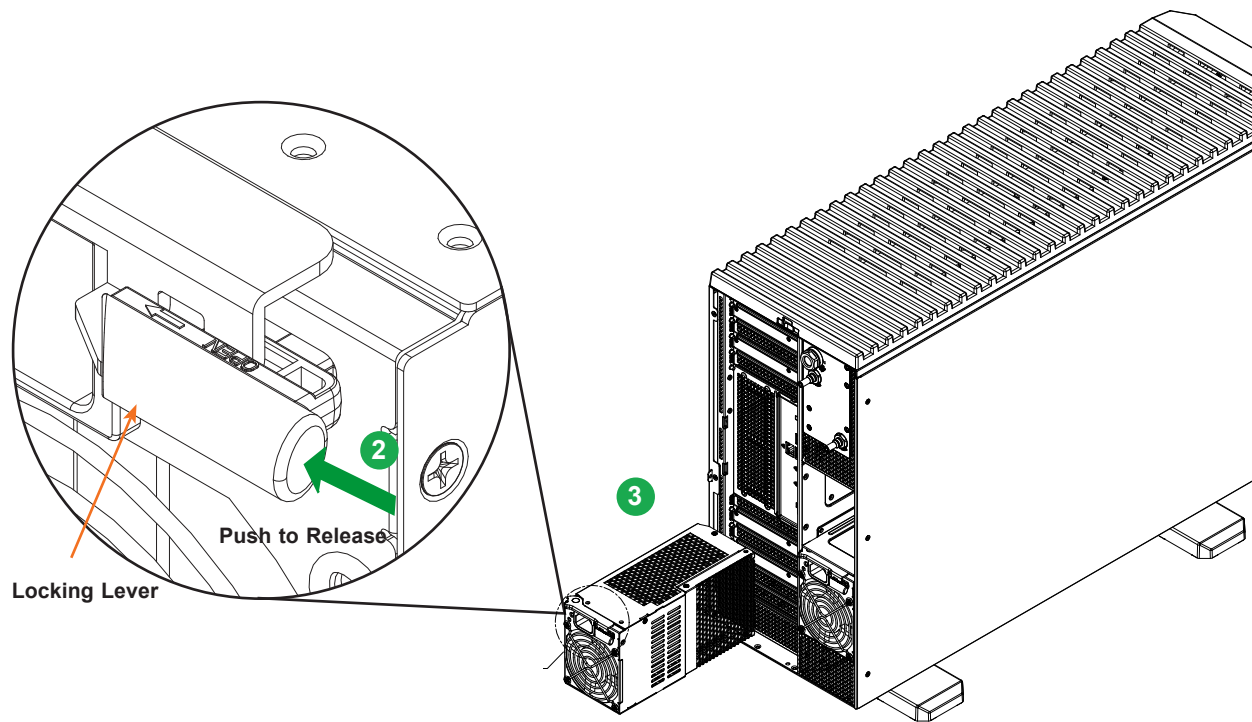


Figure 3-11. Removing the Power Supply

Chapter 4

Motherboard Connections

This section describes the jumpers, connections and LEDs on the motherboard and provides pinout definitions. Some connections might not be used in this system. A motherboard layout indicating component locations may be found in [Chapter 1](#). More detail can be found in the [Motherboard Manual](#).

4.1 Rear Input/Output Ports

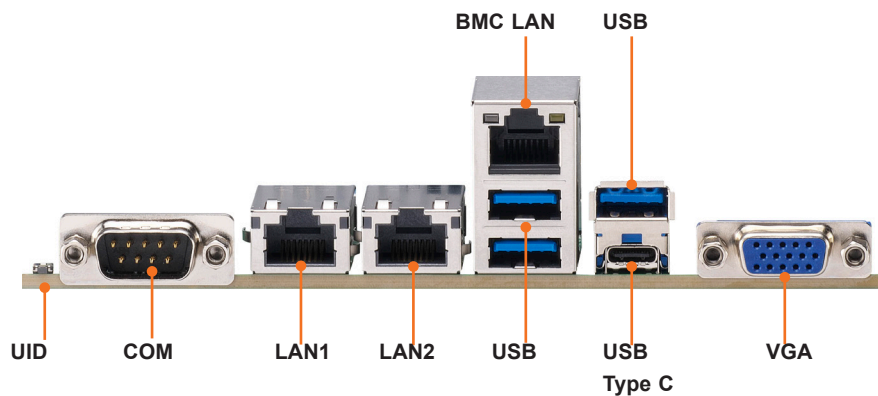


Figure 4-1. Rear Input/Output Panel

Unit Identifier Switch/UID LED Indicator

A Unit Identifier (UID) switch and a UID LED indicator are located on the rear of the system. When you press the UID switch, both front and rear UID LED indicators are toggled on or off. The UID indicators provide easy identification of a system in a rack. The UID can also be triggered using the BMC.

The UID switch can also be used to reset the BMC. See [Section 7.8](#) for details.

LAN Ports

Two Ethernet LAN1/LAN2 ports support 10 GbE LAN connections by means of the Intel X550-AT2 LAN controller. Also, there is a dedicated LAN port to provide access to the BMC. Refer to [Section 4.5](#) for LAN LED speeds.

Universal Serial Bus (USB)

There are three USB 3.0 ports and one USB Type C port.

4.2 Power Connections

Power Distribution Board Slot (JPW1)

There is one 12 VDC power connector (JPW1) on the motherboard to provide adequate power supply to your system.

12 VDC Power Connector Pin Definitions	
Pin#	Definition
1-9, 19-27, C, D, J, K	Ground
10-18, 28-36	+12 V
A, B, E, F, G, H, I, L, M, N	Sideband

Required Connection

4.3 Headers and Connectors

Fan Headers

There are twelve 4-pin fan headers (FAN1–FAN10, FANA, FANB) on the motherboard. FANA is the fan header for CPU1. FANB is the fan header for CPU2. All these 4-pin fan headers are backwards compatible with the traditional 3-pin fans. However, fan speed control is available for 4-pin fans only by Thermal Management via the BMC interface.

4-pin Fan Header Pin Definitions	
Pin#	Definition
1	Ground (Black)
2	+12V (Red)
3	Tachometer
4	PWM Control

TPM Header

The JTPM1 header is used to connect a Trusted Platform Module (TPM)/Port 80, which is an option available from Supermicro. A TPM/Port 80 connector is a security device that supports encryption and authentication in hard drives. It allows the motherboard to deny access if the TPM associated with the storage drive is not installed in the system. For more information on the TPM: www.supermicro.com/manuals/other/TPM.pdf.

Trusted Platform Module/Port 80 Header Pin Definitions			
Pin#	Definition	Pin#	Definition
1	P3V3	2	SPI_TPM_CS_N
3	PCIe_RESET_N#	4	SPI_PCH_MISO
5	SPI_PCH_CLK#	6	Ground
7	SPI_PCH_MOSI	8	N/A
9	JTPM1_P3V3A	10	IRQ_TPM_SPIN_N

BMC External I²C Header

A 4-pin SMBus (I²C) header for the BMC is located at JIPMB1. Connect the appropriate cable here to use the IPMB I²C connection on your system. Refer to the layout for the location of JIPMB1

NC-SI Connector

The Network Controller Sideband Interface (NC-SI) connector is located at JNC SI1. This is used to connect a Network Interface Card (NIC) to the motherboard to allow the onboard Baseboard Controller (BMC) to communicate with a network.

Note: For detailed instructions on how to configure NIC settings, refer to the Network Interface Card Configuration User's Guide posted on the web page under the link: <http://www.supermicro.com/support/manuals/>.

T-SGPIO Header

The Serial General Purpose Input/Output header (T-SGPIO1) is used to communicate with the enclosure management chip on the backplane.

T-SGPIO Header Pin Definitions			
Pin#	Definition	Pin#	Definition
1	NC	2	NC
3	Ground	4	Data
5	Load	6	Ground
7	Clock	8	NC

NC = No Connection

Audio Front Panel Header

A 10-pin audio header (AUDIO FP) located on the motherboard allows you to use the onboard sound chip (ALC888S) for audio function. Connect an audio cable to this header to use this feature.

Audio Header Pin Definitions			
Pin#	Definition	Pin#	Definition
1	Microphone_Left	2	Audio_Ground
3	Microphone_Right	4	Audio_Detect
5	Line_2_Right	6	Ground
7	Jack_Detect	8	Key
9	Line_2_Left	10	Ground

Standby Power Header

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.

Standby Power Pin Definitions	
Pin#	Definition
1	+5V Standby
2	Ground
3	No Connection

Disk-On-Module Power Connector

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

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

Chassis Intrusion

A Chassis Intrusion header is located at JL1. Attach the appropriate cable from the chassis to the header to alert when the chassis is opened.

Chassis Intrusion Pin Definitions	
Pins	Definition
1	Intrusion Input
2	Ground

Inlet Sensor Header

This header (JSEN1) allows BMC to monitor thermal inlet temperature. A special module is required. Please contact Supermicro at www.supermicro.com to purchase the module for this header.

Inlet Sensor Header Pin Definitions	
Pin#	Definition
1	SMBDAT
2	Ground
3	SMBCLK
4	3.3V STBY

M.2-C1/M.2-C2 Slots

Two M.2 slots are located at M.2-C1 and M.2-C2 on the motherboard. These M.2 slots support PCIe 5.0 x4 M.2 NVMe devices in the 2280 and 22110 form factors. To accommodate the 2280 and 22110 form factors, two M.2 mounting holes (MT1_1, MT1_2, MT2_1, MT2_2) are provided for each M.2 slot.

SPDIF_IN Header

The Sony/Philips Digital Interface (JSPDIF_IN) header is used for digital audio. Place a cap on each header for audio support. A cable is needed to use the connection.

SPDIF_In Pin Definitions	
Pin#	Definition
1	S/PDIF_In
2	Ground

MCIO NVMe Connectors

Four PCIe 5.0 x8 MCIO NVMe connectors, located at P1_NVME0/1, P1_NVME2/3, P2_NVME0/1, and P2_NVME2/3, provide eight U.2 NVMe connections. P1_NVME0/1 and P1_NVME2/3 connections are supported by CPU1, and P2_NVME0/1 and P2_NVME2/3 connections are supported by CPU2.

Note: When installing an NVMe device, connect the first MCIO NVMe connector (P1_NVME0/1) first for your system to work properly.

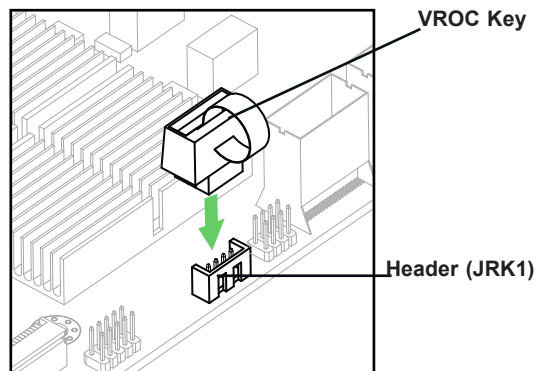
SATA Connectors

This motherboard has four SATA 3.0 connectors, located at SATA0~3, SATA4~7, S-SATA0, and S-SATA1, support ten SATA connections on the motherboard. These SATA connectors are supported by the Intel PCH C741 chipset. S-SATA0 and S-SATA1 can be used with Supermicro SuperDOMs, which are orange SATA DOM connectors with power pins built in, and do not require external power cables. S-SATA0 and S-SATA1 are compatible with regular SATA HDDs or SATA DOMs that need external power cables.

RAID Key Header

An Intel VROC RAID Key header is located at JRK1. It supports VMD used in creating optional advanced NVMe RAID configurations.

RAID Key Header Pin Definitions	
Pin#	Definition
1	Ground
2	RAID_KEY_PU
3	Ground
4	PCH_RAID_KEY



Note: This drawing is for illustration only. Your motherboard may look different.

Control Panel

JF1 contains header pins for the front control panel connections. All JF1 wires have been bundled into a single cable to simplify this connection. Make sure the red wire plugs into pin 1 as marked on the motherboard. The other end connects to the control panel PCB board.

Front Control Panel (JF1) LED Indicators						
Event	Pwr (LED1)	HDD (LED2)	LAN (LED3/4)	UID (LED6)	Info (LED5)	Pwr Fail (LEDPWR)
Power On	Solid On					
HDD Activity		Blinking				
NIC Activity			Blinking			
Overheat					Solid On	
Fan Fail					Blinking 1Hz	
Power Fail					Blinking 1/4 Hz	Solid On
Local UID On				Solid On		
Remote UID On				Blinking 1 Hz		
Checking BMC/BIOS	Blinking at 4 HZ					
Recovering/Updating	BMC Blinking at 4 HZ BMC 2 Blinks at 4 Hz, 1 Pause at 2 Hz (on-on-off-off)			BIOS/BMC Blinking at 10Hz		
Flash Not Detected or Golden Image Check Failed	BMC/BIOS Blinking at 1 HZ					
CPLD Recovery Mode				Blinking at 10Hz (MB UID LED)	Blinking at 10Hz (FP Red LED)	

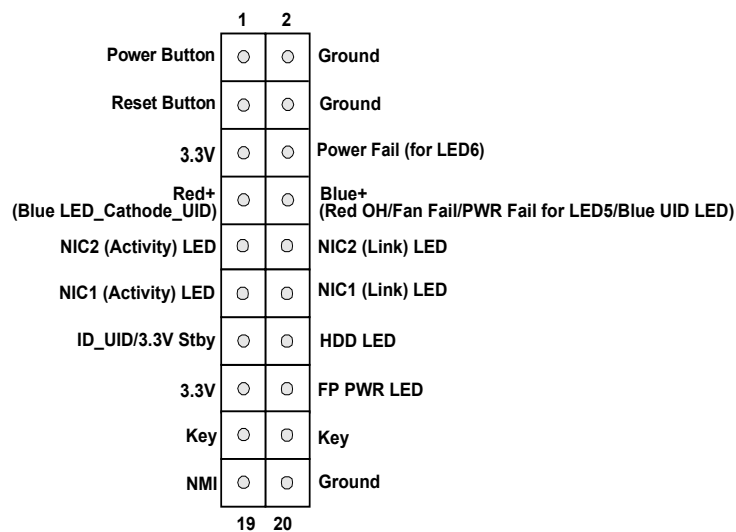


Figure 4-2. JF1 Control Panel Pins

Power Button

The Power On and BMC/BIOS Status LED button is located on Pin 1 and Pin 2 of JF1. Momentarily contacting both pins will power on/off the system or display BMC/BIOS status.

Power Button LED Indicator Status	
Status	Event
Green: solid on	System power on
Blinking green at 4 Hz	BMC/BIOS checking
Blinking green at 4 Hz	BIOS recovery/update in progress
Blinking red x2 (2 blinks red) at 4 Hz, 1 pause at 2 Hz (on-on-off-off)	BMC recovery/update in progress
Blinking green at 1 Hz	BMC/BIOS flash not detected or golden image checking failure

Reset Button

The Reset Button connection is located on pins 3 and 4. Momentarily contacting both pins will reset the system.

Power Fail LED

The Power Fail LED connection is located on pins 5 and 6.

Information LED (OH/Fan Fail/PWR Fail/UID LED)

The Information LED (OH/Fan Fail/PWR Fail/UID LED) connection is located on Pin 7 and Pin 8. The LED on Pin 7 is active when the UID button (JUIDB1) on the rear I/O panel is pressed. The LED on Pin 8 provides warnings of overheat, power failure, or fan failure. The Information indicator is described in [Chapter 1](#).

NIC1/NIC2 (LAN1/LAN2)

The NIC (Network Interface Controller) LED connection for LAN port 1 is located on pins 11 and 12, and the LED connection for LAN port 2 is on pins 9 and 10.

HDD LED/UID Switch

The HDD LED/UID Switch connection is located on pins 13 and 14. UID is used for a chassis that supports a front UID Button. The front UID Button functions in the same way as the rear UID Button; both are for input only and cannot be used for output. When this LED is blinking green, it indicates storage is active. Attach a cable to Pin 13 and Pin 14 to show ID_UID status and storage drive activity.

Power LED

The Power LED connection is located on pins 15 and 16.

NMI Button

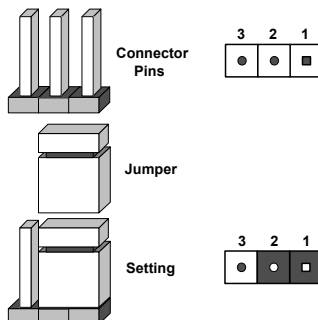
The non-maskable interrupt button header is located on pins 19 and 20.

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. See the motherboard layout page for jumper locations.

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



CMOS Clear

JBT1 is used to clear CMOS. See [Section 7.7](#) for details.

Onboard Audio Enable

JPAC1 allows you to enable or disable the onboard audio support. The default setting is on pins 1-2 to enable onboard audio connections.

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

I²C Bus for VRM

JVRM1 and JVRM2 allow the BMC or the PCH to access CPU and memory VRM controllers.

VRM Jumper Settings	
Jumper Setting	Definition
Pins 1-2	BMC (Default)
Pins 2-3	PCH

ME Recovery

JPME2 is used for ME Firmware Recovery mode, which will limit system resource for essential function use only without putting restrictions on power use. In the single operation mode, online upgrade will be available via Recovery mode.

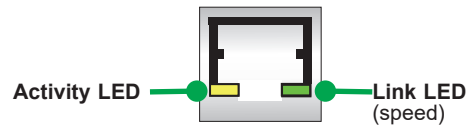
ME Recovery Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Normal (Default)
Pins 2-3	ME Recovery

4.5 LED Indicators

Network LAN LEDs

The Ethernet ports each have two LEDs. One LED indicates activity when flashing green. The other may be solid green, amber or off to indicate the speed of the connection.

LAN Link LED	
Color	Definition
Green	10 Gb/s
Amber	1 Gb/s
Off	Slower or no connection



BMC LAN LEDs

A dedicated BMC LAN connection is provided on rear I/O panel.

LAN Link LED	
Color	Definition
Green	100 Mb/s
Amber	1 Gb/s
Off	Slower or no connection

Onboard Power LED

The Onboard Power LED is LEDPWR1. When this LED is on, the system power is connected.

BMC Heartbeat LED

LEDBMC1 is the BMC heartbeat LED. When the LED is blinking green, BMC is functioning normally.

M.2 LED Indicators

Two M.2 LEDs indicate when the M.2 SSDs are working properly. When LED4 is blinking, M.2-C1 is functioning normally, while LED7 is blinking, M.2-C2 is functioning normally.

M.2 LEDs	
Definition	
LED4	M.2-C1 functioning normally
LED7	M.2-C1 functioning normally

Chapter 5

Software

After the hardware has been installed, you can install the Operating System (OS), configure RAID settings and install the drivers.

5.1 Microsoft Windows OS Installation

If you will be using RAID, you must configure RAID settings before installing the Windows OS and the RAID driver. Refer to the RAID Configuration User Guides posted on our website at www.supermicro.com/support/manuals.

Installing the OS

1. Create a method to access the MS Windows installation ISO file. That can be a USB flash or media drive.
2. Retrieve the proper RST/RSTe driver. Go to the Supermicro web page for your motherboard and click on "Download the Latest Drivers and Utilities", select the proper driver, and copy it to a USB flash drive.
3. Boot from a bootable device with Windows OS installation. You can see a bootable device list by pressing **F11** during the system startup.

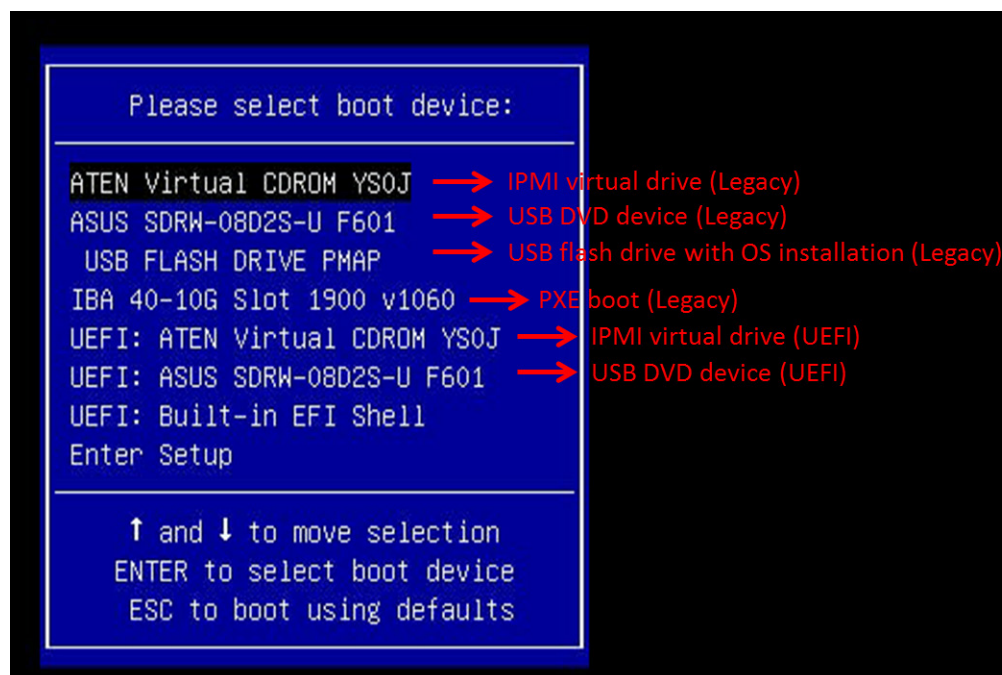


Figure 5-1. Select Boot Device

4. During Windows Setup, continue to the dialog where you select the drives on which to install Windows. If the disk you want to use is not listed, click on “Load driver” link at the bottom left corner.

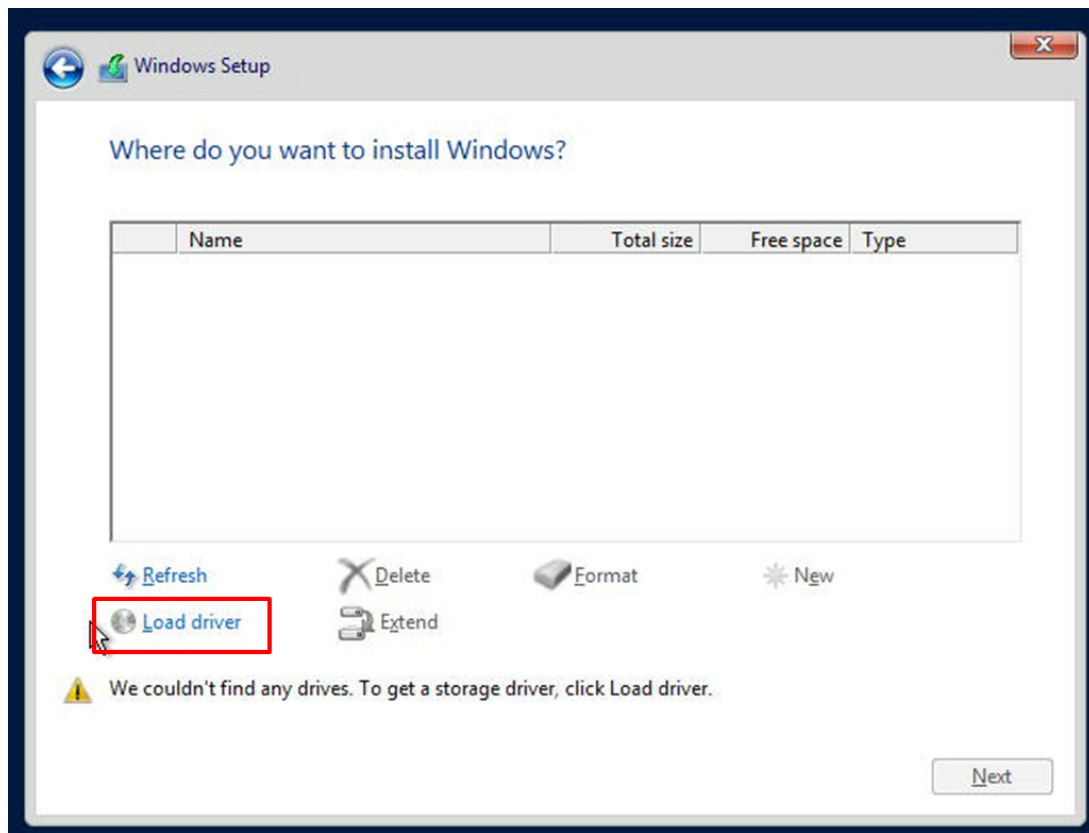


Figure 5-2. Load Driver Link

To load the driver, browse the USB flash drive for the proper driver files.

- For RAID, choose the SATA/sSATA RAID driver indicated then choose the storage drive on which you want to install it.
 - For non-RAID, choose the SATA/sSATA AHCI driver indicated then choose the storage drive on which you want to install it.
5. Once all devices are specified, continue with the installation.
 6. After the Windows OS installation has completed, the system will automatically reboot multiple times.

5.2 Driver Installation

The Supermicro website contains drivers and utilities for your system at <https://www.supermicro.com/wdl/driver>. Some of these must be installed, such as the chipset driver.

After accessing the website, go into the CDR_Images (in the parent directory of the above link) and locate the ISO file for your motherboard. Download this file to to a USB flash or media drive. (You may also use a utility to extract the ISO file if preferred.)

Another option is to go to the Supermicro website at <http://www.supermicro.com/products/>. Find the product page for your motherboard, and "Download the Latest Drivers and Utilities".

Insert the flash drive or disk and the screenshot shown below should appear.

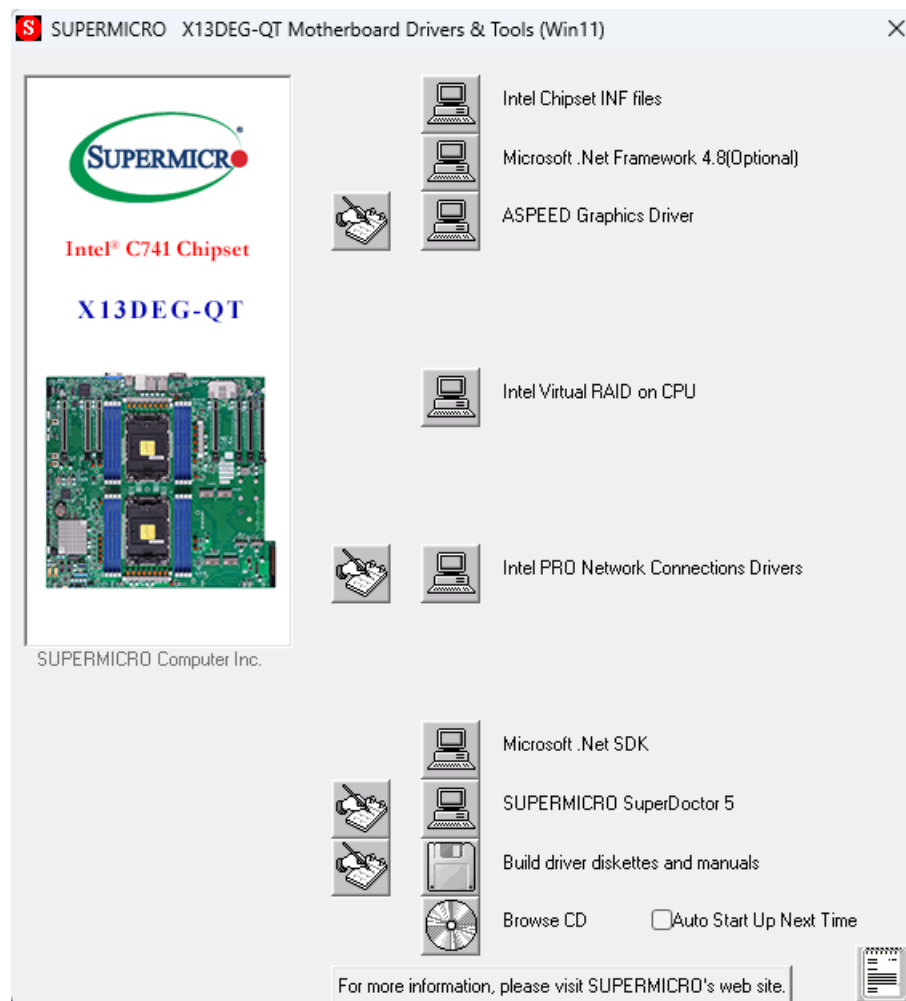


Figure 5-3. Driver & Tool Installation Screen

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

5.3 SuperDoctor® 5

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

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

[SuperDoctor® Manual and Resources](#)

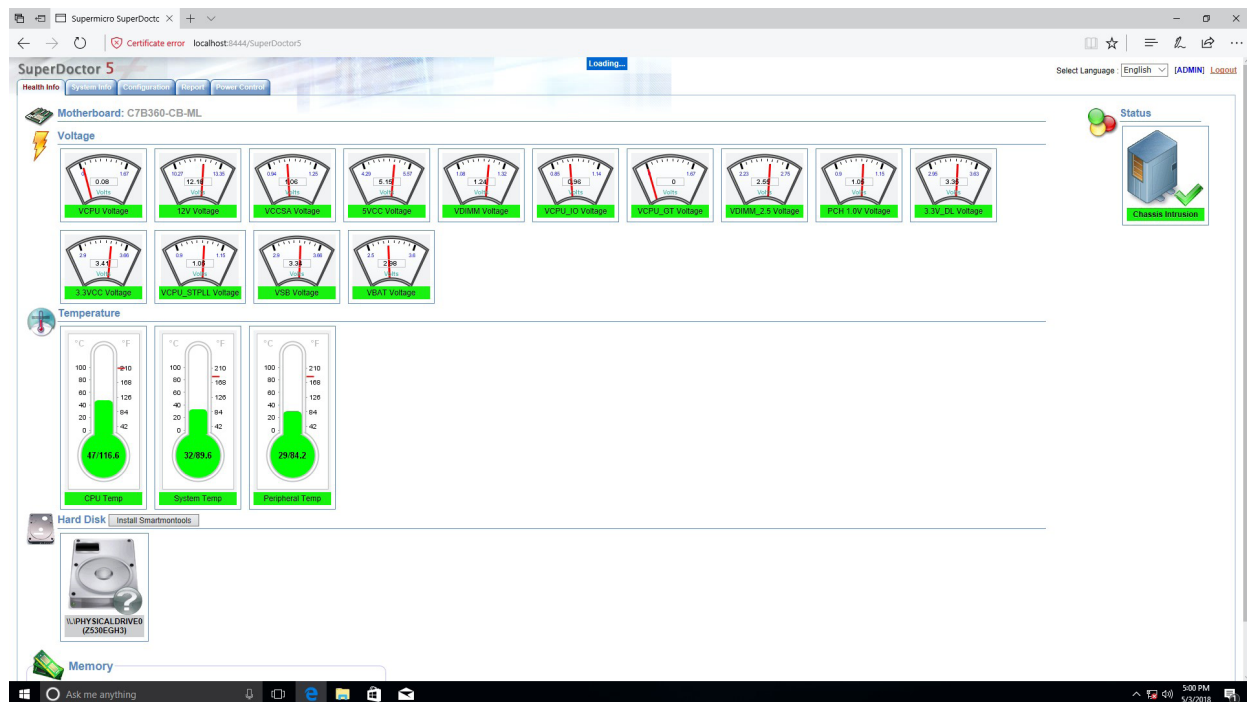


Figure 5-4. SuperDoctor 5 Interface Display Screen (Health Information)

5.4 BMC

The motherboard provides remote access, monitoring and management through the baseboard management controller (BMC) and other management controllers distributed among different system modules. There are several BIOS settings that are related to BMC. For general documentation and information on BMC, visit our website at:

www.supermicro.com/en/solutions/management-software/bmc-resources

BMC ADMIN User Password

For security, each system is assigned a unique default BMC password for the ADMIN user. This can be found on a sticker on the chassis and a sticker on the motherboard. The sticker also displays the BMC MAC address. If necessary, the password can be reset using the Supermicro IPMICFG tool.



Figure 5-5. BMC Password Label

The sticker can be found on the motherboard. See Chapter 1 for the [location](#).

Chapter 6

Optional Components

This chapter describes alternate configurations and optional system components.

6.1 Storage Protocols Supported

The storage drive bays can be configured to support either SATA, SAS, or NVMe drives by adding optional parts to the system.

SATA – The system supports up to six SATA drives by adding an additional storage add-on cards and cables. Alternatively, the system can support up to four SATA drive bays using the motherboard's onboard SATA controller. Additional cables are still required.

SAS – The system supports up to six SAS drives. Additional storage add-on cards and cables are required.

NVMe – The system supports up to six NVMe drives. Additional cables are required.

See the following section for the supported storage drive bay configurations and the optional parts required.

6.2 TPM Security Module

SPI capable TPM 2.0 (or 1.2) with Infineon 9670 controller, horizontal form factor

The JTPM1 header is used to connect a Trusted Platform Module (TPM). A TPM is a security device that supports encryption and authentication in hard drives. It enables the motherboard to deny access if the TPM associated with the hard drive is not installed in the system.

Details and installation procedures are at:

<http://www.supermicro.com/manuals/other/TPM.pdf>.

- AOM-TPM-9670V
- AOM-TPM-9671V

6.3 Intel Virtual RAID on CPU (VROC)

Intel Virtual RAID on CPU (Intel VROC) is an enterprise RAID solution for NVMe SSDs directly attached to Intel Xeon Scalable processors. Intel Volume Management Device (VMD) is an integrated controller inside the CPU PCIe root complex.

- A single processor supports up to 12 NVMe SSDs and up to 6 RAID arrays.
- A dual processor system supports up to 24 NVMe SSDs and 12 RAID arrays.

Strip sizes are 4K, 8K, 16K, 32K, 64K, 128K.

Requirements and Restrictions

- **Intel VROC is only available when the system is configured for UEFI boot mode.**
- To enable the **mdadm** command and support for RSTe, install the patch from
 - Linux: <https://downloadcenter.intel.com/download/28158/Intel-Virtual-RAID-on-CPU-Intel-VROC-and-Intel-Rapid-Storage-Technology-enterprise-Intel-RSTe-Driver-for-Linux->
 - Windows: <https://downloadcenter.intel.com/download/28108/Intel-Virtual-RAID-on-CPU-Intel-VROC-and-Intel-Rapid-Storage-Technology-enterprise-Intel-RSTe-Driver-for-Windows->
- To enable Intel VROC, a hardware key must be inserted on the motherboard, and the appropriate processor's Virtual Management Devices must be enabled in the BIOS setup.
- It is possible to enable Intel VROC without a hardware key installed, but only RAID0 will be enabled.
- Intel VROC is not compatible with secure boot. This feature must be disabled.
- When creating bootable OS RAID1 devices, you must have both devices on the same CPU, and a VMD on that CPU.
- Spanning drives when creating RAID devices is not recommended due to performance issues, even though it is supported.

Supported SSDs and Operating Systems

To see the latest support information: <https://www.intel.com/content/www/us/en/support/articles/000030310/memory-and-storage/ssd-software.html>

Additional Information

Additional information is available on the product page for the Supermicro add-on card and the linked manuals.

www.supermicro.com/products/accessories/addon/AOC-VROCxxxMOD.cfm

Hardware Key

The Intel VROC hardware key is a license key that detects the Intel VROC SKU and activates the function accordingly. The key must be plugged into the Supermicro motherboard (connector JRK1). The key options are:

Intel® VROC Keys			
VROC Package	Description	Part Number	Intel MM Number
Standard	RAID 0, 1, 10 Supports 3rd party SSDs	AOC-VROCSTNMOD	951605
Premium	RAID 0, 1, 5, 10 Supports 3rd party SSDs	AOC-VROCPREMOD	951606
Intel SSD only	RAID 0, 1, 5, 10 Supports Intel SSDs only	AOC-VROCINTMOD	956822

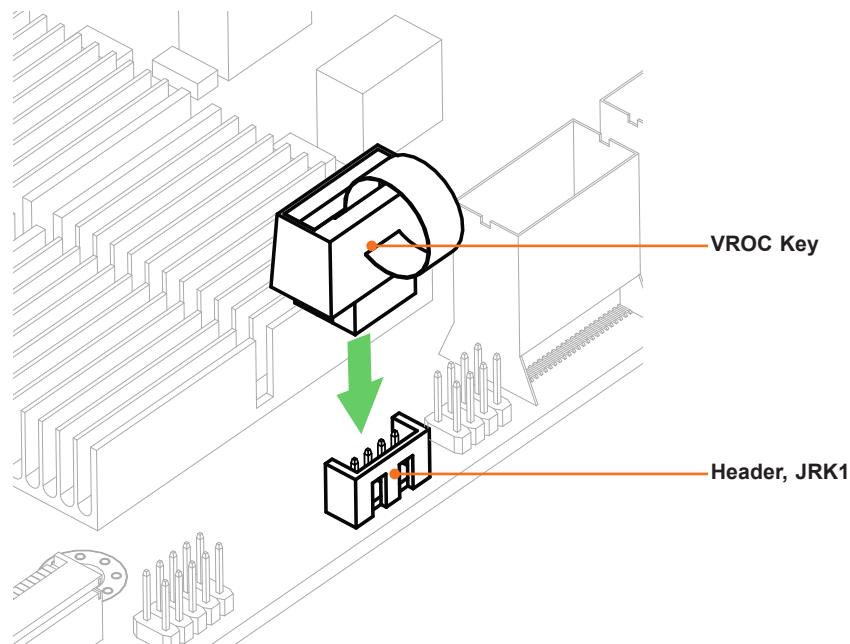


Figure 6-1. Intel VROC RAID Key and Motherboard Connector JRK1

Configuring Intel VMD

VMD must be enabled on PCIe ports which have NVMe drives attached to them in order for those drives to be added to a VROC RAID configuration. The default BIOS setting for the NVMe Mode Switch is **Auto** which automatically enables VMD on all installed NVMe drives.

NVMe Mode Switch :

- **Auto** Enables VMD for all NVMe ports if VROC Key is installed.
- **VMD** Enables VMD for all NVMe ports despite the lack of the VROC Key.
- **Manual** Allows the user to select specific NVMe ports on which to enable VMD.

The NVMe Mode Switch can be viewed or selected at **BIOS > Advanced > Chipset Configuration > North Bridge > IIO Configuration > Intel® VMD Technology**.

Note: Without a VROC Key, there is no RAID support with the **Auto** switch. Only RAID 0 is supported with the **VMD** and **Manual** switches.

Configuring VMD Manually

The steps for manually configuring VMD on specific NVMe ports in UEFI BIOS are shown below. Example screenshots may differ for your server.

1. Reboot the server and press [DEL] key to access the BIOS options.
2. Switch to **Advanced > Chipset Configuration > North Bridge > IIO Configuration > Intel® VMD Technology**.
3. Select **VMD Mode Switch**, then select **Manual**.

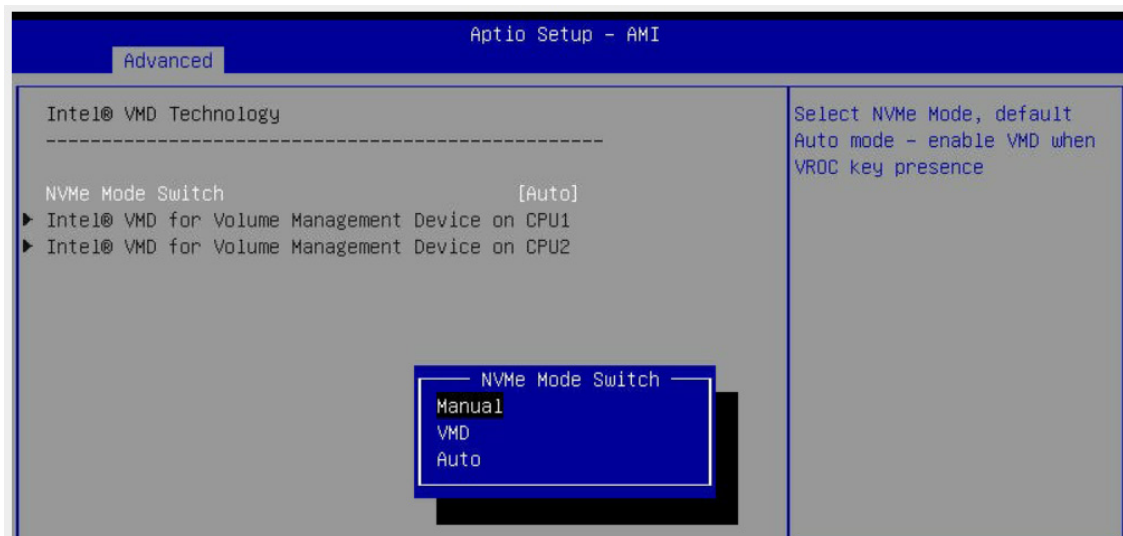


Figure 6-2. BIOS, Selecting VMD Mode

Caution: VMD must only be enabled on NVMe port resources. If VMD is enabled on other PCIe ports, the functionality of those ports will be impacted. See the table below.

This table identifies the NVMe Port Resources. Enable VMD on the NVMe drive's corresponding hardware stack according to the VMD BIOS Settings table.

Intel VMD BIOS Settings, SYS-751GE-TNRT Systems					
CPU1	NVMe Slots	VMD Port	CPU2	NVMe Slots	VMD Port
PE3 Lane8-11	M.2 A	Sock0 IOU3 Port E	PE2 lane0-7	JNVME2	Sock1 IOU2 Port A, C
PE4 lane8-11	M.2A	Sock0 IOU4 PortE			
PE4 lane0-7	JNVME1	Sock0 IOIU4 Port A, C			

4. Select “Intel VMD for Volume Management Device on” on CPU1 or CPU2 to enable VMD for devices under the respective CPU. .



Figure 6-3. Intel VMD for Volume Management Device on CPU1 and CPU2

5. Choose Enable for “Enable/Disable VMD” for IOU 0 to list the available devices under IOU 0.

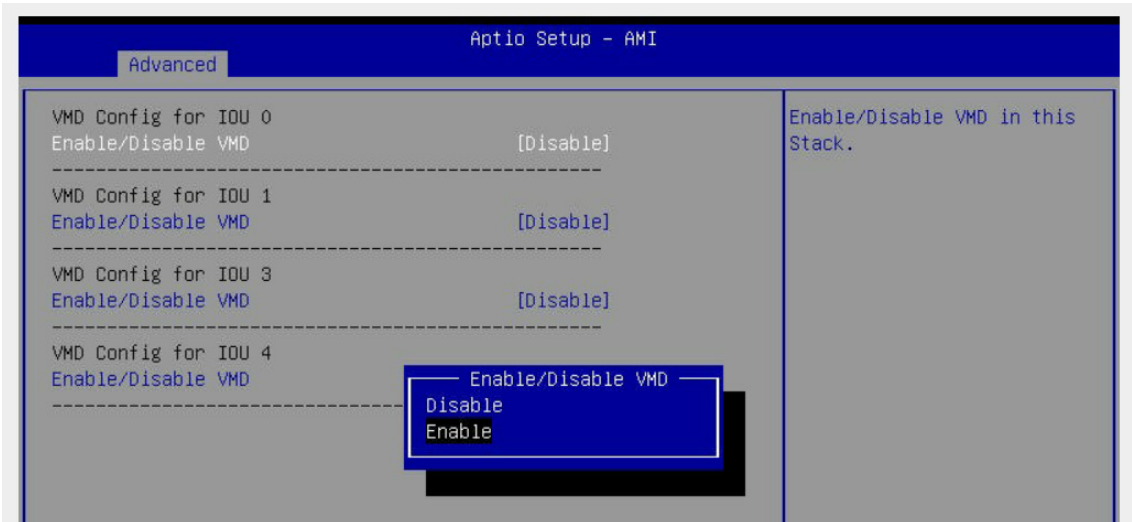


Figure 6-4. BIOS, Enabling VMD on devices under CPU2 (Example)

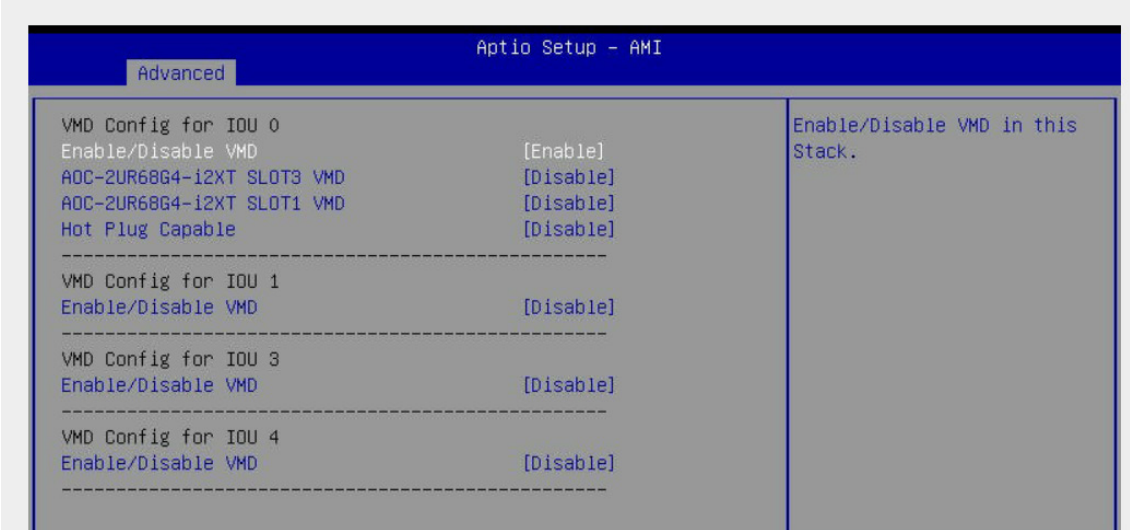


Figure 6-5. BIOS, Enabling VMD on CPU 2 (Example)

6. Enable the NVMe port resource according to table above for the NVMe drives that will be used in a RAID configuration.

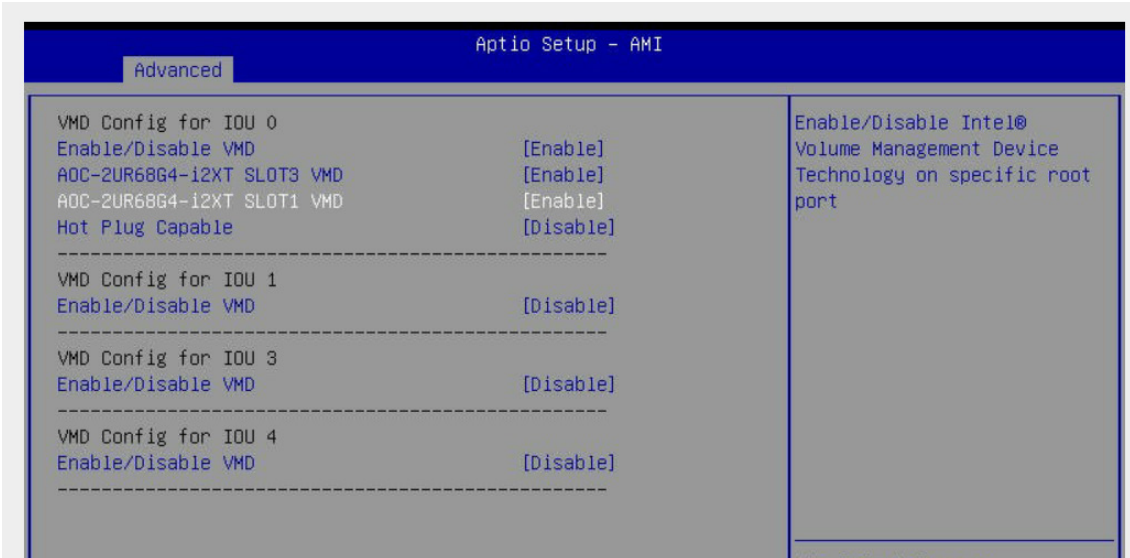


Figure 6-6. BIOS, Enabling CPU2 (Example)

7. Choose whether to make the NVMe drives in this IOU **Hot Plug Capable** by selecting Enabled or Disabled.
8. Repeat steps 4 through 7 for each IOU # on each CPU to enable VMD on the desired NVMe ports.

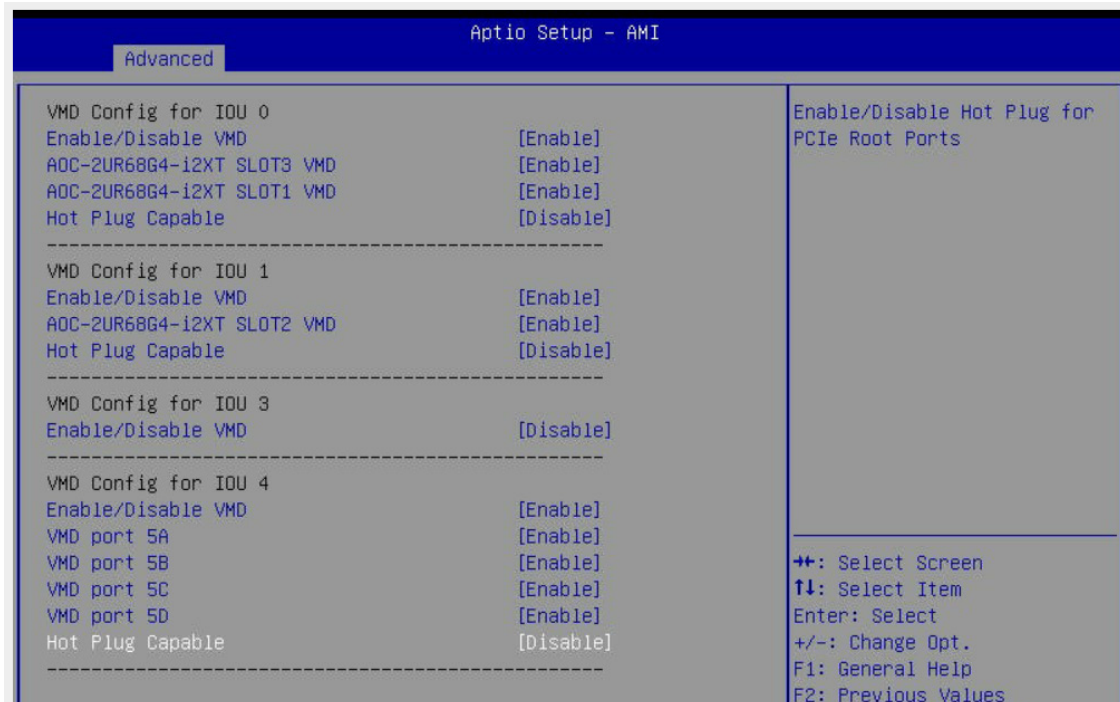


Figure 6-7. BIOS, Enabling CPU2 Completed (Example)

9. Press [F4] to save the configuration and reboot the system.

Note: If there is an existing RAID configuration, delete the RAID volume associated with the VMD controller before disabling the controller. Failure to do so may lead to unexpected behavior.

Note: The effects of physically changing or swapping a CPU on the VMD controller have not been thoroughly tested or documented.

Creating NVMe RAID Configurations

1. Open **Advanced > Intel(R) Virtual RAID on CPU > All Intel VMD Controllers > Create RAID Volume**.

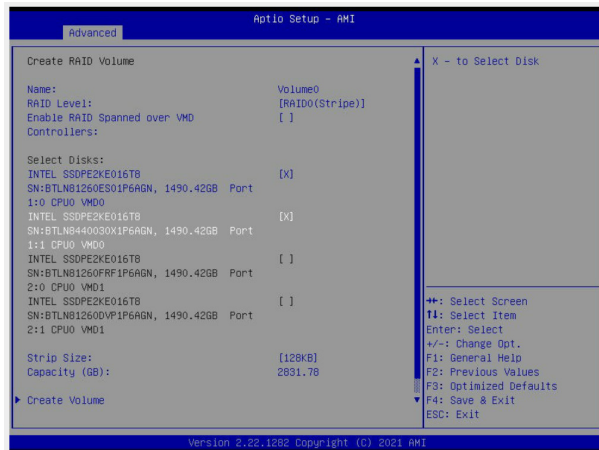


Figure 6-8. Created Volume *without* enabling RAID spanned over VMD controller

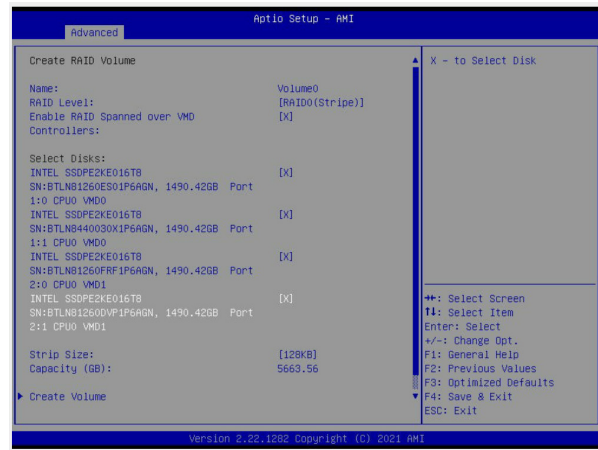


Figure 6-9. Created Volume *with* enabling RAID spanned over VMD controller

2. Set **Name**.
3. Set **RAID Level**.
4. If cross-controller RAID is required, select **Enable RAID spanned over VMD Controller**.
5. Select specific disks for RAID with an [X].
 - RAID0: Select at least two [2 - 24] disks
 - RAID1: Select only two disks
 - RAID5: Select at least three [3 - 24] disks
 - RAID10: Select only four disks
6. Select **Strip Size** (Default 64KB).
7. Select **Create Volume**.
8. If another RAID is needed, start again at step 1.

Status Indications

An LED indicator on the drive carrier shows the RAID status of the drive.

Drive Carrier Status LED Indicator	
Status	State (red)
Normal function	Off
Locating	4 Hz blinking
Fault	Solid on
Rebuilding	1 Hz blinking

IBPI SFF 8489 Defined Status LED States

Hot Swap Drives

Intel VMD enables hot-plug and hot-unplug for NVMe SSDs, whether from Intel or other manufacturers. Under vSphere ESXi, several steps are necessary to avoid potential stability issues. See the information at link [1] below.

Hot-unplug

1. Prevent devices from being re-detected during rescan:

```
esxcli storage core claiming autoclaim --enabled=false
```

2. Unmount the VMFS volumes on the device. Check [2] for details.
3. Detach the device. Check [3] for details.
4. Physically remove the device.

Hot-plug

- Physically install the device.

ESXi will automatically discover NVMe SSDs, but a manual scan may be required in some cases.

Related Information Links

[1] <https://kb.vmware.com/s/article/2151404>

[2] <https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.storage.doc/GUID-1B56EF97-F60E-4F21-82A7-8F2A7294604D.html>

[3] <https://docs.vmware.com/en/VMware-vSphere/6.5/com.vmware.vsphere.storage.doc/GUID-F2E75F67-740B-4406-9F0C-A2D99A698F2A.html>

Chapter 7

Troubleshooting and Support

7.1 Information Resources

Website

A great deal of information is available on the Supermicro website, supermicro.com.

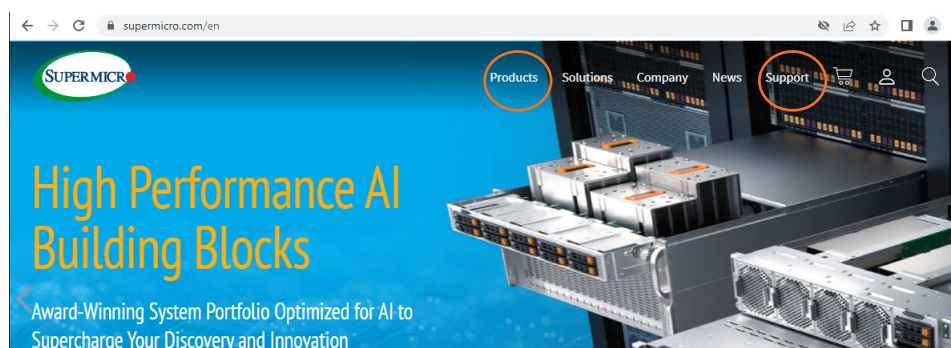


Figure 7-1. Supermicro Website

- Specifications for servers and other hardware are available by clicking the **Products** option.
- The **Support** option offers downloads (manuals, BIOS/BMC, drivers, etc.), FAQs, RMA, warranty, and other service extensions.

Direct Links for the SYS-751GE-TNRT System

Web SYS-751GE-TNRT [specifications page](#)

Web X13DEG-QT [motherboard page](#) for links to the Quick Reference Guide, User Manual, validated storage drives, etc.

Direct Links for General Support and Information

[Frequently Asked Questions](#)

[TPM User Guide](#)

[BMC User Guide](#)

[SuperDoctor5 Large Deployment Guide](#)

For validated memory, use our [Product Resources page](#)

Direct Links (continued)

[Product Matrices](#) page for links to tables summarizing specs for systems, motherboards, power supplies, riser cards, add-on cards, etc.

[Security Center](#) for recent security notices

[Supermicro Phone and Addresses](#)

7.2 BMC Interface

The system supports a Baseboard Management Controller (BMC) interface. It provides remote access, monitoring and management. There are several BIOS settings related to the BMC.

For general documentation and information on the BMC, please visit our website at: https://www.supermicro.com/manuals/other/BMC_IPMI_X13_H13.pdf.

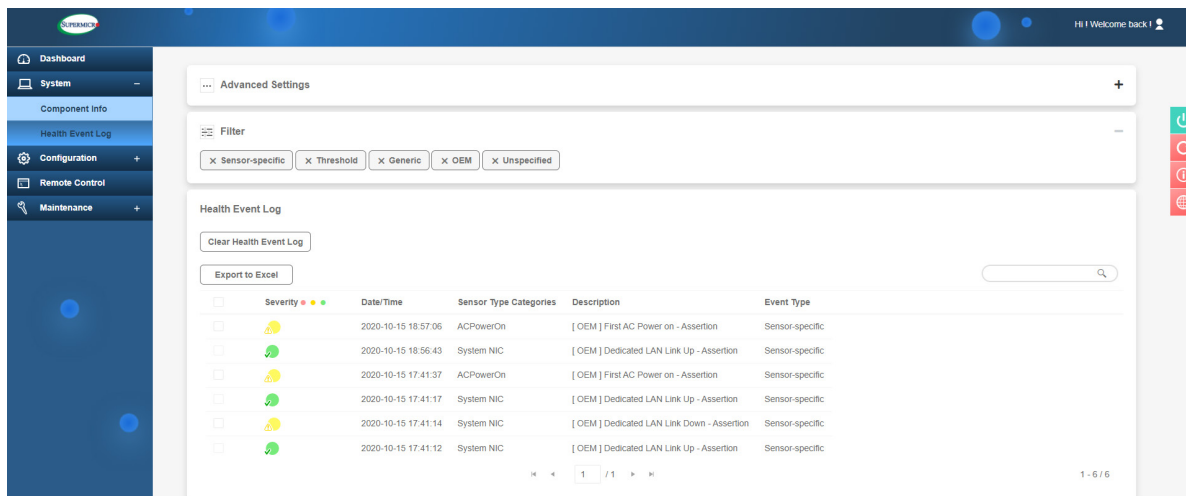


Figure 7-2. BMC Dashboard Sample

7.3 Troubleshooting Procedures

Use the following procedures to troubleshoot your system. If you have followed all of the procedures below and still need assistance, refer to the [Technical Support Procedures](#) or [Returning Merchandise for Service](#) sections in this chapter. [Power down](#) the system before changing any non hot-swap hardware components.

General Technique

If you experience unstable operation or get no boot response, try:

1. With power off, remove all but one DIMM and other added components, such as add-on cards, from the motherboard. Make sure the motherboard is not shorted to the chassis.
2. Set all jumpers to their default positions.
3. Power up. If the system boots, check for memory errors and add-on card problems.

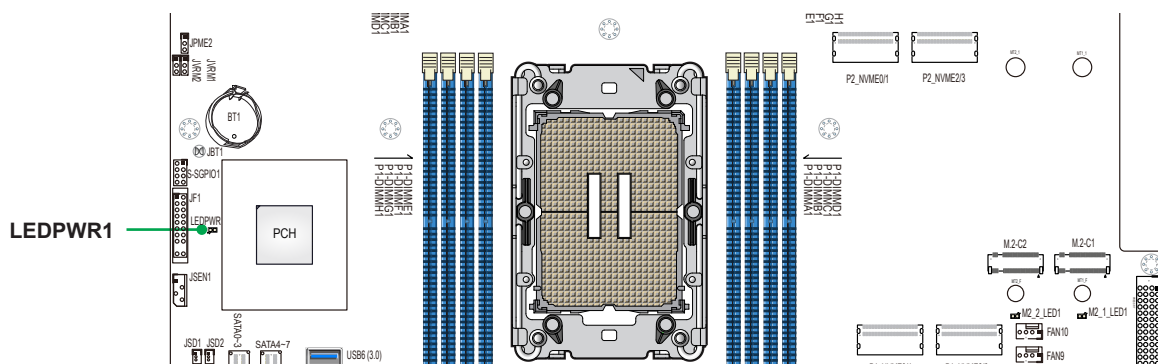


Figure 7-3. Location of the MB Power LED

No Power

- Check that the power LED on the motherboard is on.
- Make sure that the power connector is connected to the power supply.
- Check that the motherboard battery still supplies approximately 3 VDC. If it does not, replace it.
- Check that the system input voltage is 100-120 v or 180-240 v.
- Turn the power switch on and off to test the system

No Video

If the power is on but you have no video, remove all add-on cards and cables.

System Boot Failure

If the system does not display Power-On-Self-Test (POST) or does not respond after the power is turned on, try the following:

- Turn on the system with only one DIMM module installed. If the system boots, check for bad DIMM modules or slots by following the Memory Errors Troubleshooting procedure below.

Memory Errors

- Make sure that the DIMM modules are properly and fully installed.
- Confirm that you are using the correct memory. Also, it is recommended that you use the same memory type and speed for all DIMMs in the system. See [Section 1.5](#) for memory details.
- Check for bad DIMM modules or slots by swapping modules between slots and noting the results.

Losing the System Setup Configuration

- Always replace power supplies with the exact same model that came with the system. A poor quality power supply may cause the system to lose the CMOS setup configuration..
- Check that the motherboard battery still supplies approximately 3 VDC. If it does not, replace it.

If the above steps do not fix the setup configuration problem, contact your vendor for repairs.

When the System Becomes Unstable

If the system becomes unstable during or after OS installation, check the following:

- CPU/BIOS support: Make sure that your CPU is supported and that you have the latest BIOS installed in your system.
- Memory: Make sure that the memory modules are supported. Refer to the product page on our website at www.supernmicro.com. Test the modules using **memtest86** or a similar utility.
- Storage drives: Make sure that all drives work properly. Replace if necessary.
- System cooling: Check that all heatsink fans and system fans work properly. Check the hardware monitoring settings in the BMC to make sure that the CPU and system temperatures are within the normal range. Also check the Control panel Overheat LED.

- Adequate power supply: Make sure that the power supply provides adequate power to the system. Make sure that all power connectors are connected. Refer to the Supermicro website for the minimum power requirements.
- Proper software support: Make sure that the correct drivers are used.

If the system becomes unstable before or during OS installation, check the following:

- Source of installation: Make sure that the devices used for installation are working properly, including boot devices.
- Cable connection: Check to make sure that all cables are connected and working properly.
- Use the minimum configuration for troubleshooting: Remove all unnecessary components (starting with add-on cards first), and use the minimum configuration (but with a CPU and a memory module installed) to identify the trouble areas.
- Identify a bad component by isolating it. Check and change one component at a time.
 - Remove a component in question from the chassis, and test it in isolation. Replace it if necessary.
 - Or swap in a new component for the suspect one.
 - Or install the possibly defective component into a known good system. If the new system works, the component is likely not the cause of the problem.

7.4 POST Codes

The AMI UEFI BIOS supplies 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, the POST codes can be viewed from the BMC using the Post Snooping function.

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

7.5 Crash Dump Using the BMC Dashboard

In the event of a processor internal error (IERR) that crashes your system, you may want to provide information to support staff. You can download a crash dump of status information using the BMC Dashboard. The BMC manual is available at https://www.supermicro.com/manuals/other/BMC_IPMI_X13_H13.pdf.

Check Error Log

1. Access the BMC web interface.
2. Click the **Server Health** tab, then **Event Log** to verify an IERR error.

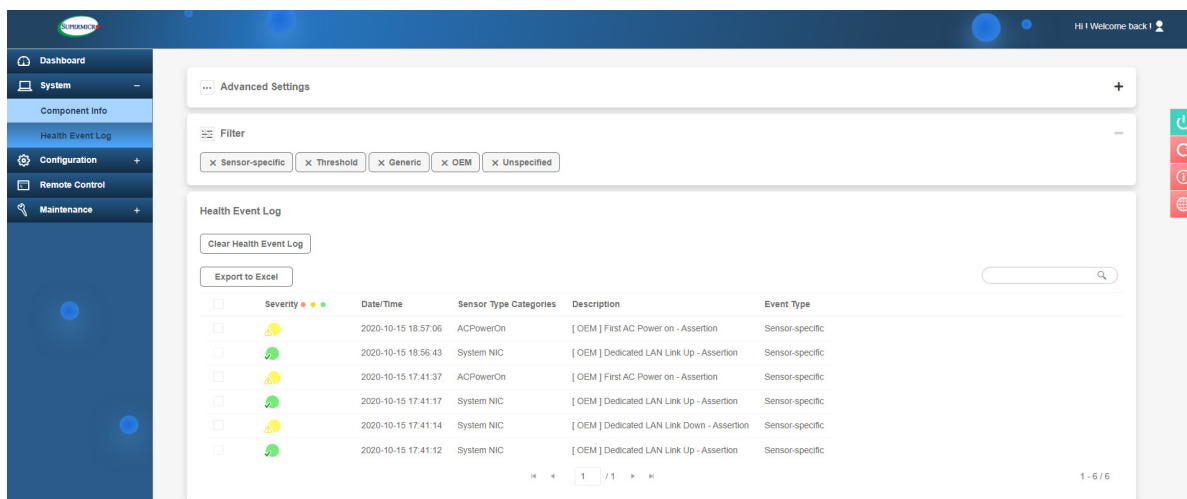


Figure 7-4. BMC Event Log

In the event of an IERR, the BMC executes a crash dump. You must download the crash dump and save it.

7.6 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 do update the BIOS, do not shut down or reset the system while the BIOS is updating to avoid possible boot failure.

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.

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 recovery block contains critical BIOS codes, including memory detection and recovery codes for the user to flash a healthy BIOS image if the original main BIOS image is corrupted. When the system power is turned on, the recovery block codes execute first. Once this process is complete, 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 block crashes.

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

Recovering the Main BIOS Block with a USB Device

This feature allows the user to recover the main 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 the recovery block 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 Root "\\" directory of a USB device or a writable CD/DVD.

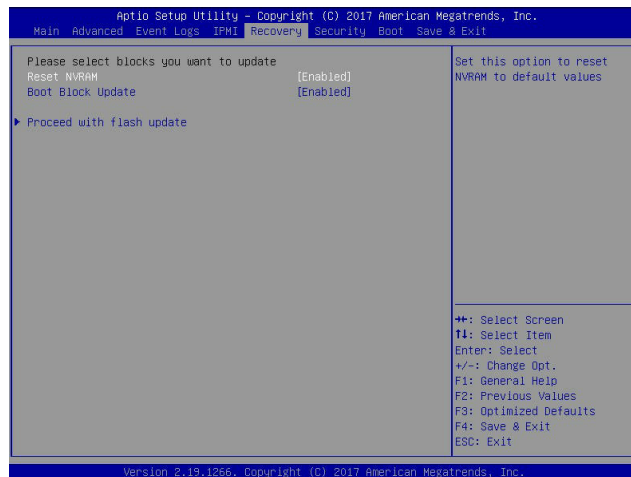
Note 1: If you cannot locate the "Super.ROM" file in your drive disk, visit our website at www.supermicro.com to download the BIOS package. Extract the BIOS binary image into a USB flash device and rename it "Super.ROM" for the BIOS recovery use.

Note 2: Before recovering the main BIOS image, confirm that the "Super.ROM" binary image file you download is the same version or a close version meant for your motherboard.

2. Insert the USB device that contains the new BIOS image ("Super.ROM") into your USB drive and reset the system when the following screen appears.
3. After locating the healthy BIOS binary image, the system will enter the BIOS Recovery menu as shown below.



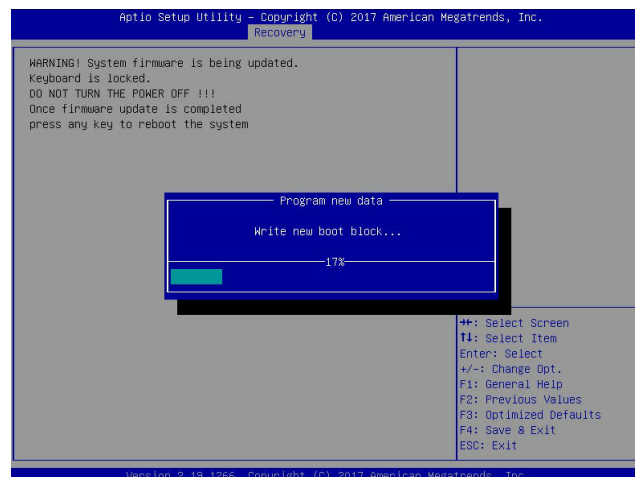
Note: At this point, you may decide if you want to start the BIOS recovery. If you decide to proceed with BIOS recovery, follow the procedures below.



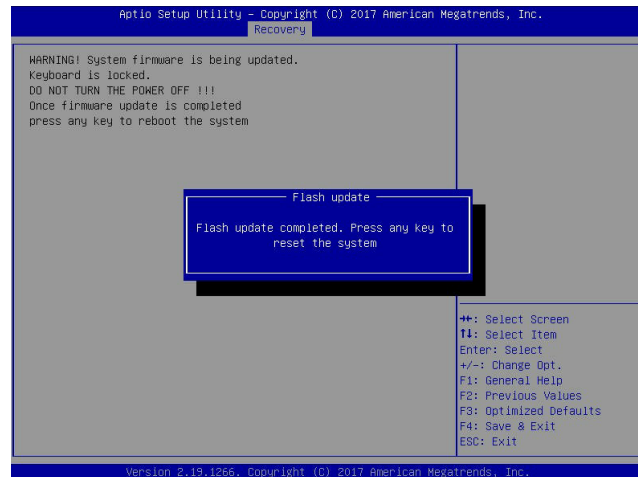
4. When the screen as shown above displays, use the arrow keys to select the item "Proceed with flash update" and press the <Enter> key. You will see the BIOS recovery progress as shown in the screen below.

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

5. After the BIOS recovery process is complete, press any key to reboot the system.
6. Using a different system, extract the BIOS package into a USB flash drive.

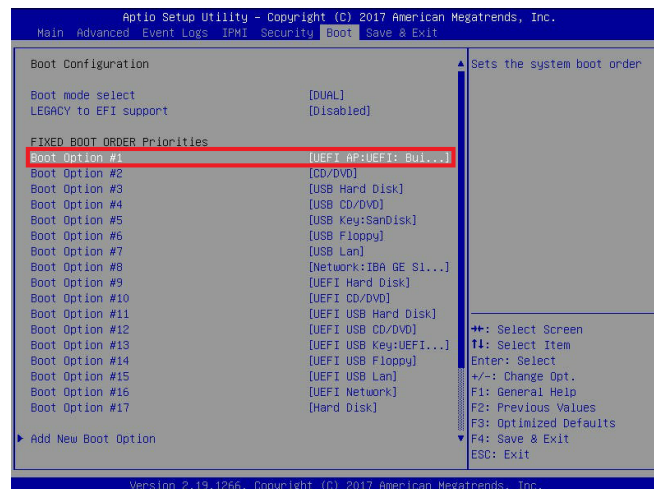


7. Press continuously during system boot to enter the BIOS Setup utility. From the top of the tool bar, select Boot to enter the submenu. From the submenu list, select Boot



Option #1 as shown below. Then, set Boot Option #1 to [UEFI AP:UEFI: Built-in EFI Shell]. Press <F4> to save the settings and exit the BIOS Setup utility.

8. When the UEFI Shell prompt appears, type `fs#` to change the device directory path. Go to the directory that contains the BIOS package you extracted earlier from Step 6. Enter `flash.nsh BIOSname.###` at the prompt to start the BIOS update process.



Note: Do not interrupt this process until the BIOS flashing is complete.

```

UEFI Interactive Shell v2.1
EDK II
UEFI v2.50 (American Megatrends, 0x0005000C)
Mapping table
  FSD: Alias(s):HD(0:0B):BLK1:
    PciRoot(0x0)/Pci(0x14,0x0)/USB(0x11,0x0)/HD(1,MBR,0x37901D72,0x800,0x1
CR3592)
  BLK0: Alias(s):
    PciRoot(0x0)/Pci(0x14,0x0)/USB(0x11,0x0)
Press F10 in 1 seconds to skip startup.nsh or any other key to continue.
Shell> fs0:
FS0:\> cd AFUDOS
FS0:\AFUDOS> cd SKJPM2_03162017
FS0:\AFUDOS\SKJPM2_03162017> flash.nsh X10PU7.314

```

9. The screen above indicates that the BIOS update process is complete. When you see the screen above, unplug the AC power cable from the power supply, clear CMOS, and plug

```

Done.
[ Access Cmos Port Ex ]
<Read>
Index 0x51: 0x10

Done.
*****
*
* Program BIOS and ME (including FDT) regions...
*
*****
| AMT Firmware Update Utility v5.09.01.1317 |
| Copyright (C)2017 American Megatrends Inc. All Rights Reserved. |
*****
CPUID = 50652

Reading flash ..... done
- ME Data Size checking - ok
- FFS checksums ..... ok
- Check RomLayout ..... OK
Erasing Boot Block ..... done
Updating Boot Block ..... done
Verifying Boot Block ..... done
Erasing Main Block ..... 0x00132000 (0%)

```

the AC power cable in the power supply again to power on the system.

10. Press continuously to enter the BIOS Setup utility.

```

Verifying NDB Block ..... done
- Update success for FDR
- Update success for IEV
- Successful Update Recovery Loader to OPRx!!
- Successful Update MFSB!!
- Successful Update FPR!!
- Successful Update MFS, IVB1 and IVB2!!
- Successful Update FLOG and UTDK!!
- ME Entire Image update success !!
WARNING : System must power-off to have the changes take effect!
Moving FS0:\AFUDOS\SKJPM2_03162017\rdtx64.efi -> FS0:\AFUDOS\SKJPM2_03162017\
dt.smc
- [ok]
Moving FS0:\AFUDOS\SKJPM2_03162017\afuef1x64.efi -> FS0:\AFUDOS\SKJPM2_0316201
7\afuef1.smc
- [ok]
*****
* Please ignore this 'Shell: Cannot read from file - Device Error'
* warning message due to it does not impact flashing process.
*
*****
Deleting "afuef1.smc"
Delete successful.
FS0:\>

```

11. Press <F3> to load the default settings.
12. After loading the default settings, press <F4> to save the settings and exit the BIOS Setup utility.

7.7 CMOS Clear

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

To Clear CMOS

1. First [power down](#) the system completely.
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 cords and power on the system.



JBT1 contact pads

Notes: Clearing CMOS will also clear all passwords.

Do not use the PW_ON connector to clear CMOS.

7.8 Where to Get Replacement Components

If you need replacement parts for your system, to ensure the highest level of professional service and technical support, purchase exclusively from our Supermicro Authorized Distributors/System Integrators/Resellers. A list can be found at: <http://www.supermicro.com>. Click the "Where to Buy" tab.

7.9 Reporting an Issue

Technical Support Procedures

Before contacting Technical Support, please take the following steps. If your system was purchased through a distributor or reseller, please contact them for troubleshooting services. They have the best knowledge of your specific system configuration.

1. Please review the [Troubleshooting Procedures](#) in this manual and [Frequently Asked Questions](#) on our website before contacting Technical Support.
2. BIOS upgrades can be downloaded from our website. **Note:** Not all BIOS can be flashed depending on the modifications to the boot block code.
3. If you still cannot resolve the problem, include the following information when contacting us for technical support:
 - System, motherboard, and chassis model numbers and PCB revision number
 - BIOS release date/version (this can be seen on the initial display when your system first boots up)
 - System configuration

An example of a Technical Support form is posted on our [website](#). Distributors: For immediate assistance, please have your account number ready when contacting our technical support department by email.

Returning Merchandise for Service

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service will be rendered. You can obtain service by calling your vendor for a Returned Merchandise Authorization (RMA) number. When returning to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and mailed prepaid or hand-carried. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

For faster service, RMA authorizations may be requested online (<http://www.supermicro.com/support/rma/>).

Whenever possible, repack the chassis in the original Supermicro carton, using the original packaging material. If these are no longer available, be sure to pack the chassis securely, using packaging material to surround the chassis so that it does not shift within the carton and become damaged during shipping.

This warranty only covers normal consumer use and does not cover damages incurred in shipping or from failure due to the alteration, misuse, abuse or improper maintenance of products.

During the warranty period, contact your distributor first for any product problems.

Vendor Support Filing System

For issues related to Intel, use the Intel IPS filing system:

<https://www.intel.com/content/www/us/en/design/support/ips/training/welcome.html>

For issues related to Red Hat Enterprise Linux, since it is a subscription based OS, contact your account representative.

7.10 Feedback

Supermicro values your feedback as we strive to improve our customer experience in all facets of our business. To provide feedback on our manuals, please email us at techwriterteam@supermicro.com.

7.11 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)
Sales-USA@supermicro.com (Sales Inquiries)
Government_Sales-USA@supermicro.com (Gov. Sales Inquiries)
support@supermicro.com (Technical Support)
RMA@supermicro.com (RMA Support)
Webmaster@supermicro.com (Webmaster)

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_Europe@supermicro.com (Sales Inquiries)
Support_Europe@supermicro.com (Technical Support)
RMA_Europe@supermicro.com (RMA 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: Sales-Asia@supermicro.com.tw (Sales Inquiries)
Support@supermicro.com.tw (Technical Support)
RMA@supermicro.com.tw (RMA Support)

Website: www.supermicro.com.tw

Appendix A

Standardized Warning Statements for AC Systems

About Standardized Warning Statements

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

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

These warnings may also be found on our website at http://www.supermicro.com/about/policies/safety_information.cfm.

Warning Definition



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

警告の定義

この警告サインは危険を意味します。

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

此警告符号代表危險。

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

此警告符號代表危險。

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

Warnung

WICHTIGE SICHERHEITSHINWEISE

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

BEWAHREN SIE DIESE HINWEISE GUT AUF.

INSTRUCCIONES IMPORTANTES DE SEGURIDAD

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

GUARDE ESTAS INSTRUCCIONES.

IMPORTANTES INFORMATIONS DE SÉCURITÉ

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

CONSERVEZ CES INFORMATIONS.

תקנון הזהרות אזהרה

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

اَكْ ف حالة وُكِي اَي تتسبب ف اصابة جسدهُ هذا الزهرز عُ خطر! تحذُرُ .
 قبل اَي تعول على اَي هعدات، كي على علن بالوخاطز ال اُجوة عي الذوائر
 الكهزبائِة
 وكي على درا ة بالووارسات البقائِة لو عُ وقع اَي حادث
 استخدم رقن الب اِي الو صُص ف ها ة كل تحذُر للعشر تزجوتها

안전을 위한 주의사항

경고!

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

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

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

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

BEWAAR DEZE INSTRUCTIES

Installation Instructions



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

設置手順書

システムを電源に接続する前に、設置手順書をお読み下さい。

警告

将此系统连接电源前,请先阅读安装说明。

警告

將系統與電源連接前，請先閱讀安裝說明。

Warnung

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

¡Advertencia!

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

Attention

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

יש לקרוא את הוראות התקנה לפני חיבור המערכת למקור מתח.

اقرأ إرشادات التركيب قبل توصيل النظام إلى مصدر للطاقة

시스템을 전원에 연결하기 전에 설치 안내를 읽어주십시오.

Waarschuwing

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

Circuit Breaker

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

サーキット・ブレーカー

この製品は、短絡(過電流)保護装置がある建物での設置を前提としています。

保護装置の定格が250 V、20 Aを超えないことを確認下さい。

警告

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

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

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

경고!

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

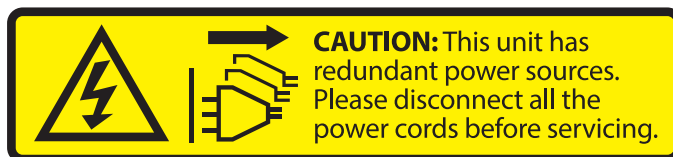
Waarschuwing

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

Power Disconnection Warning



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



電源切断の警告

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

警告

在你打开机箱并安装或移除内部器件前,必须将系统完全断电,并移除电源线。

警告

在您打開機殼安裝或移除內部元件前，必須將系統完全斷電，並移除電源線。

Warnung

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

¡Advertencia!

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

Attention

Le système doit être débranché de toutes les sources de puissance ainsi que de son cordon d'alimentation secteur avant d'accéder à l'intérieur du chassis pour installer ou enlever des composants de 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 امنطاط انداخهيت نههيكم نتشيج أو إزانت مكنناث 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 انصلل إن منطقت محظورة فقط من خلال استخداو 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

電池更換不當會有爆炸危險。請只使用同類電池或制造商推荐的功能相当的電池更換原有電池。請按制造商的說明處理廢舊電池。

警告

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

Warnung

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

Attention

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

¡Advertencia!

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

אזהרה!

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

هناك خطر من انفجار في حالة اسحبذال البطارية بطريقة غير صحيحة فعلى
 اسحبذال البطارية
 فقط بنفس النوع أو ما يعادلها مما أوصت به الشركة المصنعة
 جخلص من البطاريات المسحمة وفقاً 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 يمتثل للقوايه المحلية والبطية المتعلقة
بالكهرباء

경고!

현 지역 및 국가의 전기 규정에 따라 장비를 설치해야 합니다.

Waarschuwing

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

Product Disposal



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

製品の廃棄

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

警告

本产品的废弃处理应根据所有国家的法律和规章进行。

警告

本產品的廢棄處理應根據所有國家的法律和規章進行。

Warnung

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

¡Advertencia!

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

Attention

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

סילוק המוצר

אזהרה!

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

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

경고!

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

Waarschuwing

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

Hot Swap Fan Warning



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

ファン・ホットスワップの警告

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

警告!

警告! 危险的可移动性零件。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 cord) for any other electrical devices than products designated by Supermicro only.

電源コードとACアダプター

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

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

警告

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

AC ימאתמו מילמשח מילבכ

!הרהזא

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

תאלבאלא אארשב מץ וא ענדחמל וא ערפוטמל תאליסוולא מאדחטסאב מץ, גתנמל ביגרת דנע כלז יפ אמב עילחמל עמאלסל תאבלטתמו נינאוץב מאזתלאל עמ דדרתמל ראיטל תאלוחמו עיזאברמלל קיירח וא לטע יפ בבסטטי דץ ירזא תאלוחמו תאלבאלא יא מאדחטסא. מילסל סבאלאו לסוולא מץ ח CSA וא UL לבק נמ ענדחמל תאלבאלא מאדחטסא תאדעמל עיזאברמלל עזגאלל עמאלסל נונאק רזחי Supermicro לבק נמ ענדחמל עינעמל תאגתנמל ריג ירזא תאדעמ יא עמ (UL/CSA) עמאלע למחתיטלוא

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 verbied het gebruik van UL of CSA -gecertificeerde Kabels (met UL/CSA in de code) voor elke andere toepassing dan de door Supermicro hiervoor beoogde Producten.

Appendix B

System Specifications

Processors

Dual Intel 4th Gen Xeon Scalable processors in Socket E (LGA-4677) with four UPIs (16GT/s max.) with up to 60 CPU cores and TDP up to 270 W

Chipset

Intel PCH C741

BIOS

256 Mb SPI Flash ROM

Memory

Supports up to 2 TB of RDIMM DDR5 (288-pin) ECC memory with speeds of up to 4800 MT/s in 16 DIMM slots; Size Up to 256 GB at 1.1 V

Storage Drives

Eight 2.5" hot-swap front drive bays, NVMe/SATA
Two M.2 PCIe 5.0 x4 NVMe 2280/22110

PCI Expansion Slots

Six PCIe 5.0 slots x16 FHFL: four GPUs, two PCIe cards, one inaccessible

Input/Output

LAN: Two 10 GbE LAN ports, one dedicated BMC LAN port
USB: Two USB 3.2 Gen1 (front), three USB 3.2 Gen1, one USB 3.2 TypeC (rear)
Audio: Audio out, mic in
VGA , COM

Motherboard

X13DEG-QT; 14.57" (W) x 15.87" (L) (370 mm x 402.996 mm) 14.567"

Chassis

CSE-759TS-R2K21BP; 5U Tower; (W x H x D) 8.6 x 17.9 x 27.6 in. or 218 x 455 x 701 mm

System Cooling

Closed loop liquid cooling, Direct to Chip (CPUs, GPUs, and memory)
CPU air shrouds

Power Supply

Model: PWS-2K21A-SQ, 1200/2200W multi-output, 80Plus Titanium level

AC Input; 100-240 Vac, 50-60 Hz

1200 W: 100-127 Vac / 9.5 A-12 A

1800 W: 200-220 Vac / 9.5 A-10 A

1980 W: 220-230 Vac / 9.5 A-10 A

2200 W: 220-240 Vac / 9.6 A-11.8 A (UL/cUL only)

2090 W: 230-240 Vac / 9.8 A-10 A

2090 W: 230-240 Vdc / 9.8 A-10 A (China only)

Output:

+12V

1200 W (100 - 127 Vac) 100 A

1800 W (200 - 220 Vac) 150 A

1980 W (220 - 230 Vac) 165 A

2200 W (220 - 240 Vac) 183.33 A

2090 W (230 - 240 Vac) 174.17 A

2090 W (230 - 240 Vdc)

Operating Environment

Operating Temperature: 10° to 25° C (50° to 77° F)

Non-operating Temperature: -40° to 60° C (-40° to 140° F)

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

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

Note: High TDP CPUs and specific components may be supported under specific conditions. Contact Technical Support for details

Regulatory Compliance

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

Certified Safety Models

Compliant with UL and CSA: HS829-R12X12, HS829-12, HS829-R26X12, HS829-26, HS829-R16X12, HS829-16, HS829-16DX12, HS829-16D, HS829-R13DX12, and HS829-13D

Applied Directives, Standards

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

Electromagnetic Compatibility Regulations 2016

FCC Part 15

ICES-003

VCCI-CISPR 32

AS/NZS CISPR 32

BS/EN55032

BS/EN55035

CISPR 32

CISPR 35

BS/EN 61000-3-2

BS/EN 61000-3-3

BS/EN 61000-4-2

BS/EN 61000-4-3

BS/EN 61000-4-4

BS/EN 61000-4-5

BS/EN 61000-4-6

BS/EN 61000-4-8

BS/EN 61000-4-11

Environment:

2011/65/EU (RoHS Directive)

EC 1907/2006 (REACH)

2012/19/EU (WEEE Directive)

California Proposition 65

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

UL/CSA 62368-1 (USA and Canada)

Electrical Equipment (Safety) Regulations 2016

IEC/BS/EN 62368-1

Perchlorate Warning

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

この装置は、クラスA機器です。この装置を住宅環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

VCCI — A