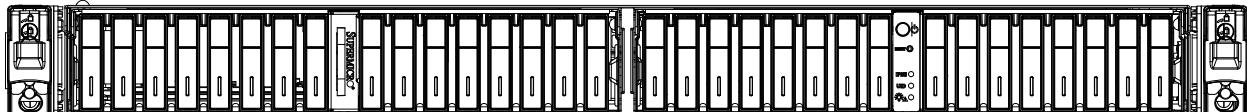




# SuperServer®

## 1029P-NR32R



USER'S MANUAL

Revision 1.0a

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](http://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 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 a commercial environment. 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](http://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](http://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 1.0a

Release Date: September 13, 2018

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 © 2018 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 SuperServer 1029P-NR32R. Installation and maintenance should be performed by experienced technicians only.

Please refer to the 1029P-NR32R server specifications page on our website for updates on supported memory, processors and operating systems (<http://www.supermicro.com>).

### Notes

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

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

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

[support@supermicro.com](mailto:support@supermicro.com)

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

### Warnings

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



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



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

# Contents

## ***Chapter 1 Introduction***

|                                   |    |
|-----------------------------------|----|
| 1.1 Overview.....                 | 8  |
| 1.2 Unpacking the System .....    | 8  |
| 1.3 System Features .....         | 9  |
| 1.4 System Chassis Features ..... | 10 |
| Control Panels.....               | 10 |
| Front Features.....               | 11 |
| Rear Features .....               | 12 |
| 1.5 Motherboard Layout .....      | 13 |
| Quick Reference Table.....        | 14 |

## ***Chapter 2 System Installation***

|  |    |
|--|----|
| 2.1 Overview.....                                | 16 |
| 2.2 Preparing for Setup .....                    | 16 |
| Choosing a Setup Location.....                   | 16 |
| Rack Precautions .....                           | 16 |
| System Precautions .....                         | 17 |
| Rack Mounting Considerations .....               | 17 |
| Ambient Operating Temperature.....               | 17 |
| Airflow .....                                    | 17 |
| Mechanical Loading.....                          | 17 |
| Circuit Overloading .....                        | 18 |
| Reliable Ground.....                             | 18 |
| 2.3 Installing the System into a Rack.....       | 19 |
| Identifying the Sections of the Rack Rails ..... | 19 |
| Releasing the Inner Rails.....                   | 20 |
| Installing the Inner Rails on the Chassis .....  | 21 |
| Installing the Outer Rails on the Rack .....     | 22 |
| Installing the Chassis onto the Rack .....       | 24 |

## ***Chapter 3 Maintenance and Component Installation***

|                                  |    |
|----------------------------------|----|
| 3.1 Powering On the System ..... | 25 |
| 3.2 Removing Power .....         | 25 |
| 3.3 Accessing the System.....    | 25 |

|   |    |
|---|----|
| 3.4 Processor and Heatsink Installation.....                            | 27 |
| The Intel® Xeon® Scalable Series Processor.....                         | 27 |
| Overview of the Processor Carrier Assembly .....                        | 28 |
| Overview of the CPU Socket .....  | 28 |
| Overview of the Processor Heatsink Module.....                          | 29 |
| Creating the Non-F Model Processor Carrier Assembly.....                | 30 |
| Assembling the Processor Heatsink Module .....                          | 31 |
| Preparing the CPU Socket for Installation .....                         | 32 |
| Installing the Processor Heatsink Module (PHM) .....                    | 33 |
| Removing the Processor Heatsink Module (PHM) from the Motherboard ..... | 34 |
| Memory Installation .....   | 35 |
| Memory Support .....  | 35 |
| Memory Population Guidelines.....                                       | 36 |
| Memory Population Sequence .....  | 36 |
| DIMM Installation .....   | 39 |
| DIMM Removal .....  | 39 |
| PCI Expansion Card Installation .....                                   | 40 |
| Motherboard Battery .....   | 40 |
| 3.5 Chassis Components .....  | 41 |
| Ruler Drives .....  | 41 |
| Removing a Drive Using Linux.....                                       | 41 |
| Removing a Drive Using Windows .....                                    | 44 |
| References.....   | 47 |
| Removing and Installing a Ruler Drive.....                              | 47 |
| System Cooling .....  | 48 |
| Power Supply .....  | 49 |
| Power Supply Failure .....  | 49 |
| PCI-E Expansion Cards .....   | 50 |
| <b>Chapter 4 Motherboard Connections</b>                                |    |
| 4.1 Power Connections .....   | 51 |
| 4.2 Front Control Panel .....   | 52 |
| 4.3 Rear I/O Ports .....  | 56 |
| Ethernet Ports.....   | 57 |
| 4.4 Headers and Connectors .....  | 58 |
| 4.5 Jumpers.....  | 61 |

|  |     |
|--|-----|
| Explanation of Jumpers .....                                     | 61  |
| 4.6 LED Indicators .....   | 63  |
| <b>Chapter 5 Software</b>  |     |
| 5.1 OS Installation .....  | 65  |
| Installing the Windows OS for a RAID System .....                | 65  |
| Installing Windows to a Non-RAID System .....                    | 65  |
| 5.2 Driver Installation .....                                    | 66  |
| 5.3 SuperDoctor® 5 .....   | 67  |
| 5.4 IPMI .....   | 68  |
| <b>Chapter 6 BIOS</b>  |     |
| 6.1 Introduction .....   | 69  |
| Starting the Setup Utility .....                                 | 69  |
| 6.2 Main Menu .....  | 70  |
| 4.3 Advanced Setup Configurations .....                          | 71  |
| 6.4 Event Logs .....   | 99  |
| 6.5 IPMI .....   | 101 |
| 6.6 Security Settings .....                                      | 104 |
| 6.7 Boot Settings .....  | 107 |
| 6.8 Save & Exit .....  | 109 |
| <b>Appendix A BIOS Error Codes</b>                               |     |
| <b>Appendix B Standardized Warning Statements for AC Systems</b> |     |
| B.1 About Standardized Warning Statements .....                  | 113 |
| <b>Appendix C System Specifications</b>                          |     |
| <b>Appendix D UEFI BIOS Recovery</b>                             |     |
| D.1 Overview .....   | 135 |
| D.2 Recovering the UEFI BIOS Image .....                         | 135 |
| D.3 Recovering the Main BIOS Block with a USB Device .....       | 136 |

## Contacting Supermicro

### **Headquarters**

Address: Super Micro Computer, Inc.  
980 Rock Ave.  
San Jose, CA 95131 U.S.A.  
Tel: +1 (408) 503-8000  
Fax: +1 (408) 503-8008  
Email: marketing@supermicro.com (General Information)  
support@supermicro.com (Technical Support)  
Website: [www.supermicro.com](http://www.supermicro.com)

### **Europe**

Address: Super Micro Computer B.V.  
Het Sterrenbeeld 28, 5215 ML  
's-Hertogenbosch, The Netherlands  
Tel: +31 (0) 73-6400390  
Fax: +31 (0) 73-6416525  
Email: sales@supermicro.nl (General Information)  
support@supermicro.nl (Technical Support)  
rma@supermicro.nl (Customer Support)  
Website: [www.supermicro.nl](http://www.supermicro.nl)

### **Asia-Pacific**

Address: Super Micro Computer, Inc.  
3F, No. 150, Jian 1st Rd.  
Zhonghe Dist., New Taipei City 235  
Taiwan (R.O.C)  
Tel: +886-(2) 8226-3990  
Fax: +886-(2) 8226-3992  
Email: support@supermicro.com.tw  
Website: [www.supermicro.com.tw](http://www.supermicro.com.tw)

# Chapter 1

## Introduction

### 1.1 Overview

This chapter provides a brief outline of the functions and features of the 1029P-NR32R. The 1029P-NR32R is based on the X11DPS-RE motherboard and the SC136HTS-R1K69P-R2 chassis. The SC136HTS-R1K69P-R2 chassis features two front mounted sleds, with the right side having a control panel, and space for sixteen (16) drive bays for NVMe/PCI-E drives.

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

| Main Parts List  |                  |          |
|--|------------------|----------|
| Description  | Part Number      | Quantity |
| SC136 16-ruler sled (without bezel)  | MCP-220-13602-0N | 2        |
| 40x40x56 mm, 23.3K-20.3K RPM, counter-rotating fan   | FAN-0163L4       | 8        |
| SC136H power supply air shroud   | MCP-310-13601-0N | 1        |
| 1U Ruler NVMe backplane support 16x Ruler slots, used in 1U 32 Ruler dense storage system                      | BPN-EDS3-136P1   | 2        |
| 1U Passive CPU heat sink for equipped with a Narrow Retention Mechanism  | SNK-P0067PS      | 2        |
| Riser Card   | RSC-R1U-E16R     | 2        |
| Rail set, quick/quick, auto latch, travel 609.1mm short version, rack post=26.5"~41, 1U 17.2 SC118GQE 1U 4xGPU | MCP-290-11809-0N | 1        |
| AC-DC 1600W at high and 1000W at low line, Platinum level  | PWS-1K69P-1R     | 2        |

### 1.2 Unpacking the System

Inspect the box the SuperServer 1029P-NR32R was shipped in and note if it was damaged in any way. If any equipment appears damaged, please file a damage claim with the carrier who delivered it.

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

## 1.3 System Features

The following table provides you with an overview of the main features of the 1029P-NR32R. Please refer to Appendix C for additional specifications.

| System Features        |   |
|------------------------|---|
| <b>Motherboard</b>     | X11DPS-RE   |
| <b>Chassis</b>         | SC136HTS-R1K69P-R2  |
| <b>CPU</b>             | Dual Intel 81xx/61xx/51xx/41xx/31xx series  |
| <b>Socket Type</b>     | Socket P  |
| <b>Memory</b>          | Up to 3TB of RDIMM/NV-DIMM DDR4 ECC 2666/2400/2133 MHz speed memory in twenty-four (24) memory slots. |
| <b>Chipset</b>         | Intel® C627   |
| <b>Expansion Slots</b> | 2 PCI-E 3.0 x32 Tray cable connector interface<br>2 PCI-E 3.0 x16 slots with riser card support       |
| <b>Hard Drives</b>     | Up to sixteen (16) hot-swappable Ruler NVMe/PCI-E drive bays in two 16-bay sleds                      |
| <b>Power</b>           | Two (2) redundant 1600W power supplies  |
| <b>Form Factor</b>     | 1U rackmount server   |
| <b>Dimensions</b>      | (WxHxD) 17.26 x 1.71 x 35.95 in. (438.4 x 43.6 x 913 mm)  |

## 1.4 System Chassis Features

### Control Panels

The switches and LEDs located on the control panels are described below. One control panel is located on the front of the chassis on the right side.

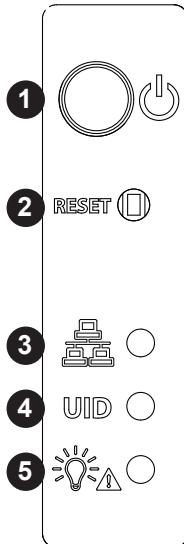


Figure 1-1. Control Panel View

| Control Panel Features |                         |   |
|------------------------|-------------------------|---|
| Item                   | Feature                 | Description   |
| 1                      | Power Button            | <p>The main power button is used to apply or remove power from the power supply to the system. Turning off system power with this button removes the main power but maintains standby power. To perform many maintenance tasks, you must also unplug system before servicing.</p> <p>Note: Before applying power to the system, refer to Section 2.4, "Powering On the System."</p>   |
| 2                      | Reset Button            | The reset button is used to reset the system.   |
| 3                      | LAN LED                 | Indicates activity from the LAN ports.  |
| 4                      | UID LED                 | Illuminates when the UID button is activated. Use this to easily identify the system in a rack environment.   |
| 5                      | Power Fail LED/Info LED | <p>Indicates a power supply module has failed when solid red. The second power supply module will take the load and keep the system running but the failed module will need to be replaced. Refer to Chapter 3 for details on replacing the power supply. This LED should be off when the system is operating normally.</p> <p>After the server powers on, this LED will blink at 4Hz until initialization is complete, upon which time it will turn off and become the Power Fail LED.</p> |

## Front Features

The SC136HTS-R1K69P-R2 is a 1U chassis. See the illustration below for the features included on the front of the chassis.

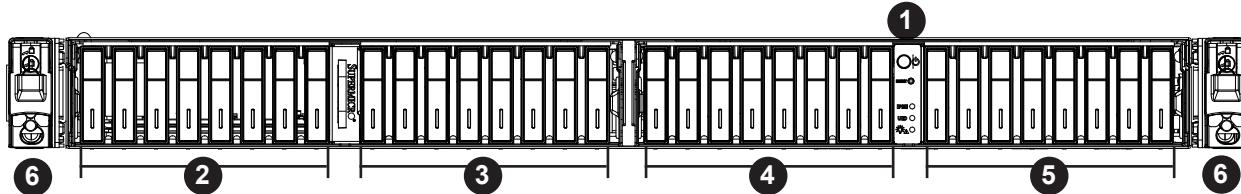
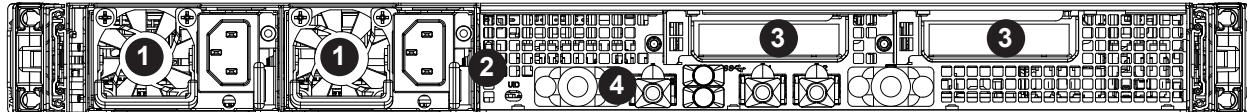


Figure 1-2. Chassis Front View

| Front Chassis Features |               |  |
|------------------------|---------------|--|
| Item                   | Feature       | Description  |
| 1                      | Control Panel | Front control panel with LEDs and buttons (see preceding page) |
| 2                      | Drive Bays    | Hot-swappable Ruler SSDs (Drive IDs: 0 to 7)                   |
| 3                      | Drive Bays    | Hot-swappable Ruler SSDs (Drive IDs: 8 to 15)                  |
| 4                      | Drive Bays    | Hot-swappable Ruler SSDs (Drive IDs: 16 to 23)                 |
| 5                      | Drive Bays    | Hot-swappable Ruler SSDs (Drive IDs: 24 to 31)                 |
| 6                      | Latch         | Latch for releasing and extending the chassis from the rack    |

## Rear Features

The illustration below shows the features included on the rear of the chassis.



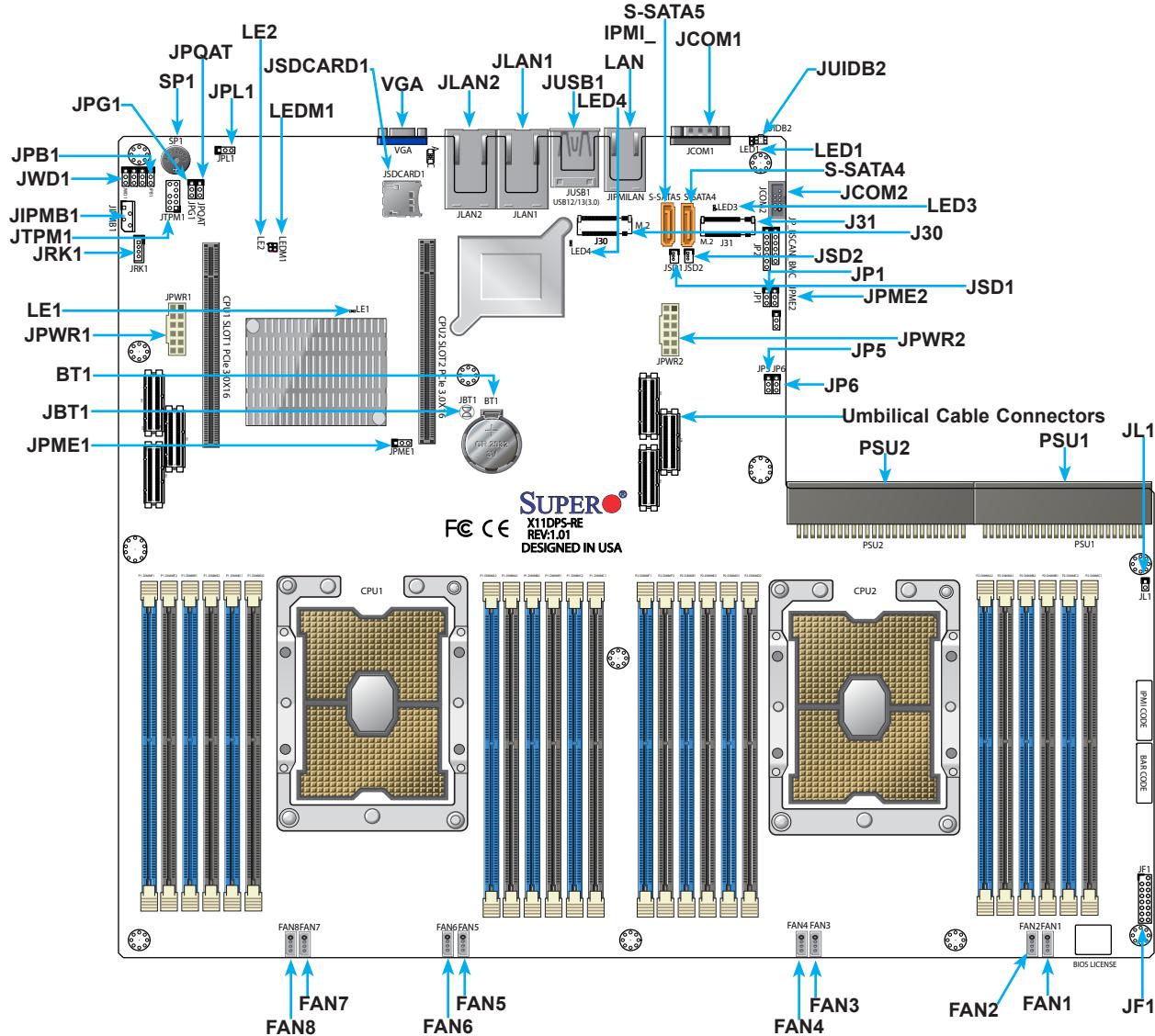
**Figure 1-3. Chassis Rear View**

| Rear Chassis Features |                      |  |
|-----------------------|----------------------|--|
| Item                  | Feature              | Description  |
| 1                     | Power Supply         | This is the 1600W power supply module with LED and there are two modules for power redundancy. (See Power Supply LED table.) |
| 2                     | UID Button           | Press this button to activate the UID LED, which allows you to quickly identify the system in a rack.                        |
| 3                     | Expansion Card Slots | Slots for expansion cards.   |
| 4                     | I/O Ports            | Rear I/O ports (see Section 4.3).  |

| Power Supply LED |   |
|------------------|---|
| Status           | Description   |
| Solid green      | Power supply is providing power to the system.  |
| Solid amber      | Power supply is plugged in and deactivated, or the system is powered off but in an abnormal state.  |
| Blinking amber   | Power supply temperature has reached 63 °C. The system automatically powers off if the temperature rises to 70 °C, and automatically resets when the temperature falls below 60 °C. |

## 1.5 Motherboard Layout

Below is a layout of the X11DPS-RE with jumper, connector and LED locations shown. See the table on the following page for descriptions. For detailed descriptions, pinout information and jumper settings, refer to Chapter 4.



**Figure 1-4. Motherboard Layout**

## Notes:

- See Chapter 4 for detailed information on jumpers, I/O ports, and JF1 front panel connections.
  -
- " " indicates the location of Pin 1.
- Jumpers/LED indicators not indicated are used for testing only.
- Use only the correct type of onboard CMOS battery as specified by the manufacturer. Do not install the onboard battery upside down to avoid possible explosion.

## Quick Reference Table

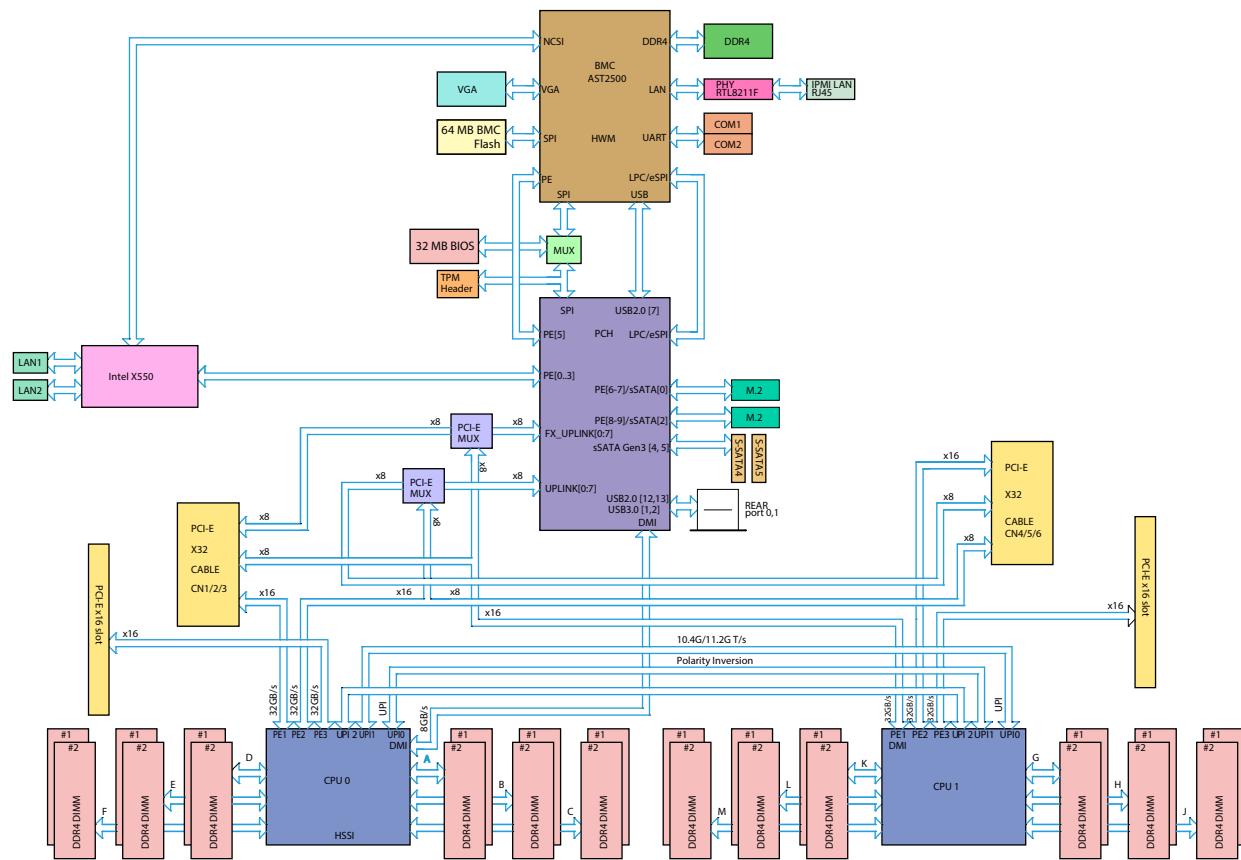
| Jumper | Description                        | Default Setting                          |
|--------|------------------------------------|--|
| GBT1   | CMOS Clear                         | Open (Normal)                            |
| JPB1   | BMC Enable/Disable                 | Pins 1-2 (Enabled)                       |
| JPG1   | VGA Enable/Disable                 | Pins 1-2 (Enabled)                       |
| JPQAT  | QAT Enable/Disable                 | Pins 1-2 (Enabled)                       |
| JPL1   | GLAN Enable/Disable                | Pins 1-2 (Enabled)                       |
| JPME1  | ME Recovery                        | Pins 1-2 (Normal)                        |
| JPME2  | Manufacturing Mode                 | Pins 1-2 (Normal)                        |
| JWD1   | Watch Dog Timer Enable             | Pins 1-2 (Reset)                         |
| JBR1   | BIOS Recovery                      | Pins 1-2 (Normal)                        |
| JP1    | BIOS Advance Function              | Pins 2-3 (Normal)                        |
| JP5    | BMC Power Button Ready Test Header | Pins 1-2 (Normal)<br>Pins 2-3 (Disabled) |

| LED   | Description        | Status                      |
|-------|--------------------|-----------------------------|
| LED1  | UID LED            | Solid Blue: Unit Identified |
| LED3  | M.2 SLOT 1 LED     | Blinking Green: M.2 Active  |
| LED4  | M.2 SLOT 2 LED     | Blinking Green: M.2 Active  |
| LE1   | CPLD Heartbeat LED | Blinking Green: Normal      |
| LEDM1 | BMC Heartbeat LED  | Blinking Green: Normal      |
| LE2   | Onboard Power LED  | Solid Green: Power on       |

| Connector        | Description   |
|------------------|---|
| BT1              | Onboard CMOS battery                                      |
| JCOM1/JCOM2      | COM ports   |
| FAN1 ~ FAN8      | System/CPU fan headers (FAN1: CPU Fan)                    |
| JIPMILAN         | IPMI-Dedicated LAN port                                   |
| JIPMB1           | 4-pin external I <sup>2</sup> C header (for an IPMI card) |
| JF1              | Front control panel header                                |
| JL1              | Chassis intrusion header                                  |
| JPWR1/JPWR2      | Backplane power connectors                                |
| JRK1             | Intel RAID key header for NVMe Solid State Devices (SSD)  |
| JSDCARD1         | SD card socket  |
| JSD1 - JSD2      | SATA Disk-on-module (DOM) power connectors                |
| JTPM1 TPM/PORT80 | Trusted Platform Module/Port 80 connector                 |
| JUIDB2           | Unit Identifier (UID) switch                              |
| JUSB1 (3.0)      | USB 3.0 rear ports (USB12/13)                             |
| PSU1             | Power Supply Unit 1                                       |
| PSU2             | Power Supply Unit 2                                       |

| Connector   | Description   |
|-------------|---|
| S-SATA4~5   | (Powered) SATA connectors with power-pins built-in with support of SuperDOM |
| JLAN1/JLAN2 | 10G LAN ports 1 and 2   |
| VGA         | VGA port  |
| J30         | M.2 SLOT 1  |
| J31         | M.2 SLOT 2  |

**Note:** To avoid causing interference with other components, please be sure to use an add-on card that is fully compliant with the PCI-standard on a PCI slot.



**Figure 1-5. System Block Diagram**

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

## Chapter 2

# System Installation

### 2.1 Overview

This chapter provides advice and instructions for mounting your system in a server rack. If your system is not already fully integrated with drives, fans 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 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 at least 25 inches of clearance in front of the rack so that you can open the front door completely. Leave approximately 30 inches of clearance behind 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

- Verify 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 verify that 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 might cause the rack to become unstable.

## System 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 components at the bottom of the rack first. Subsequent components should be installed in decreasing order of weight.
- Use a regulating uninterruptible power supply (UPS) to protect the system 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 and panels 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.



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

## 2.3 Installing the System into a Rack

This section provides information on installing the SC136HTS-R1K69P-R2 chassis into a rack unit with the rails provided. Due to the variety of rack units on the market, the assembly procedure might differ slightly. You should also refer to the installation instructions that came with the rack unit you are using.

### Identifying the Sections of the Rack Rails

The 1029P-NR32R includes two rack rail assemblies in the rack mounting kit. Each assembly consists of three sections: An inner chassis rail which secures directly to the chassis, an outer rail that secures to the rack, and a middle rail which extends from the outer rail. These assemblies are specifically designed for the left and right side of the chassis.

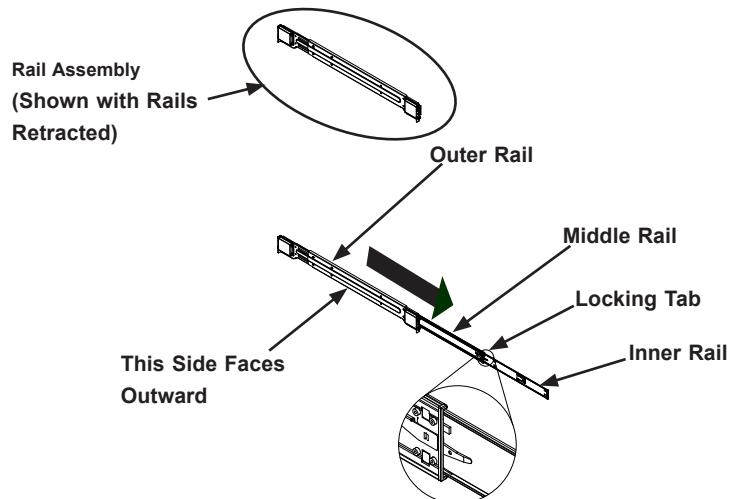


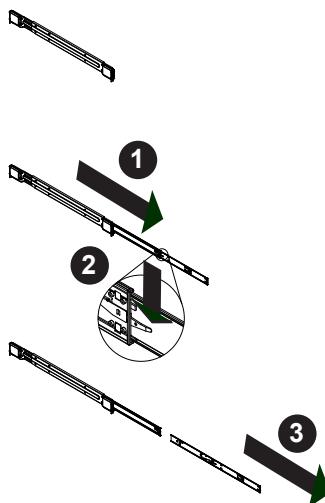
Figure 2-1. Identifying the Rail Sections

**Note:** The rails have a locking tab, which serves two functions. First, it locks the system into place when installed and pushed fully into the rack (its normal operating position). In addition, these tabs lock the system in place when fully extended from the rack. This prevents the system from coming completely out of the rack when pulled out for servicing.

## Releasing the Inner Rails

### *Releasing the Inner Rails from the Outer Rails*

1. Pull the inner rail out of the outer rail until it is fully extended as illustrated below.
2. Press the locking tab down to release the inner rail.
3. Fully release the inner rail.
4. Repeat steps 1-3 for the second outer rail.



**Figure 2-2. Extending and Releasing the Inner Rails**



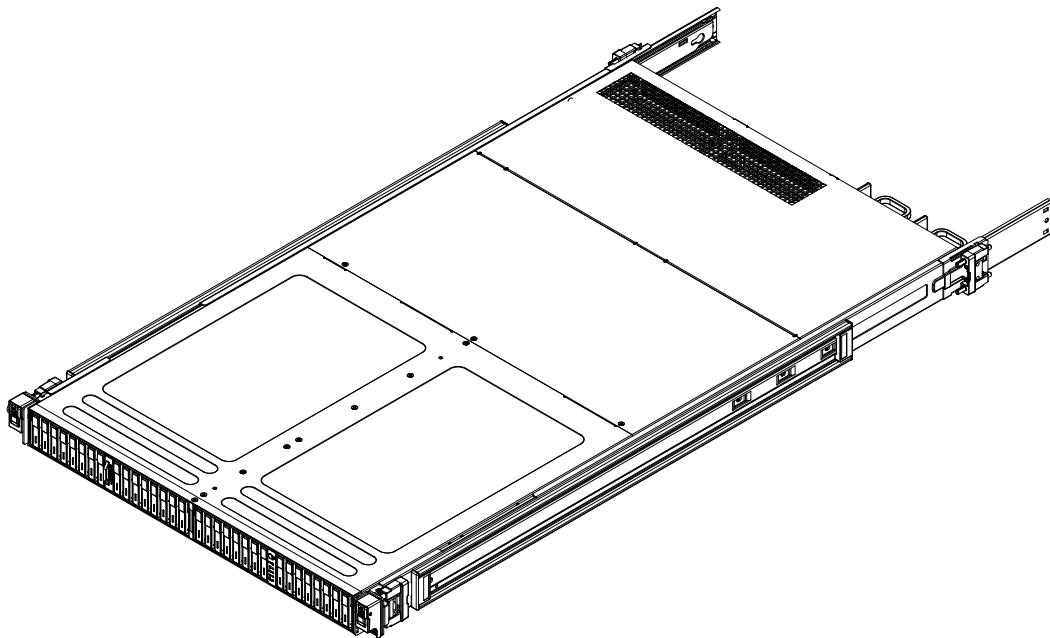
**Warning:** Stability hazard. The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before you slide the unit out for servicing. Failure to stabilize the rack can cause the rack to tip over.

## Installing the Inner Rails on the Chassis

### *Installing the Inner Rails*

1. 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.
2. Slide the inner rail toward the back of the chassis until the rail clicks into the locked position, which secures the inner rail to the chassis.
3. Secure the inner rail to the chassis with the screws provided.
4. Repeat steps 1-3 for the second inner rail.

**Note:** Chassis pictured may vary slightly from the 1029P-NR32R system chassis.



**Figure 2-3. Inner Rails Installed**



**Warning:** In any instance of pulling the system from the rack, always use a rack lift and follow all associated safety precautions.



**Warning:** When initially installing the system to a rack, test that the rail locking tabs engage to prevent the system from being overextended. Have a rack lift in place as a precaution in case the test fails.

## Installing the Outer Rails on the Rack

### Installing the Outer Rails

1. If your rack has round mounting holes, adjust the fittings on the outer rails. Press the latch at the end of the rail to change from square fittings to round fittings.

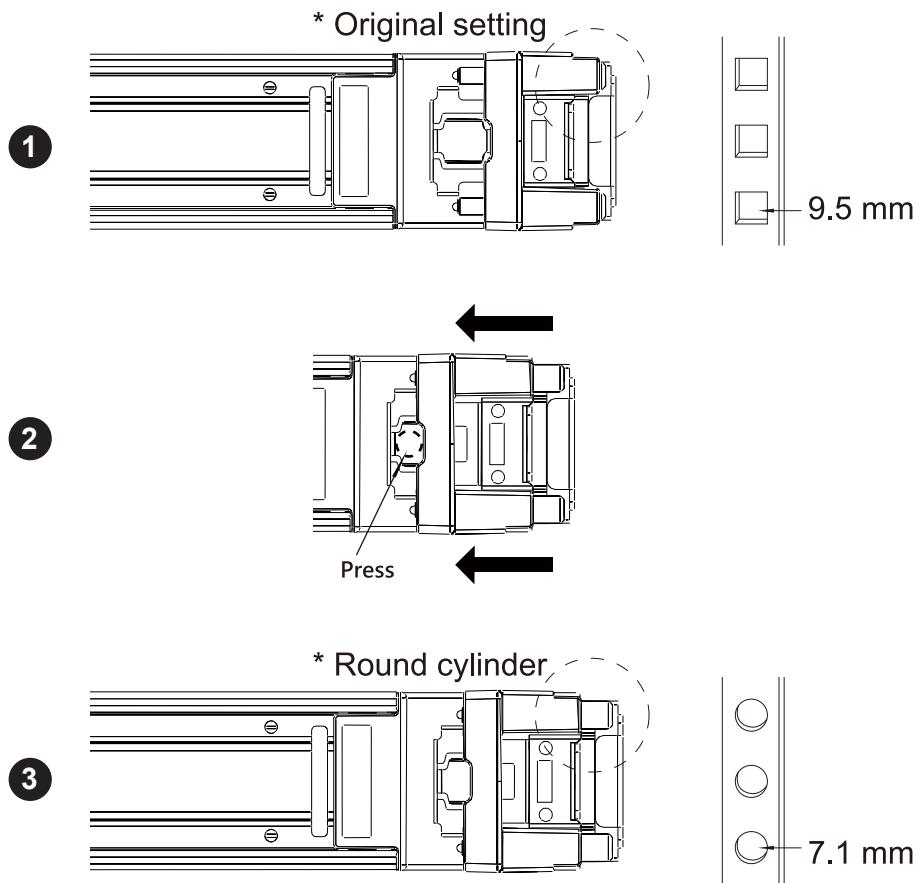
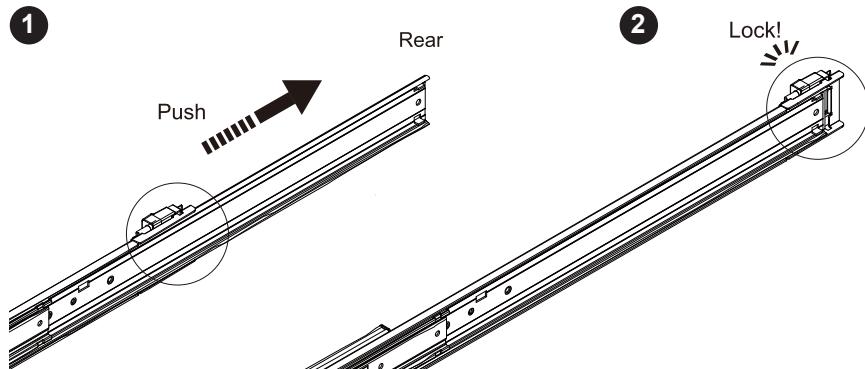


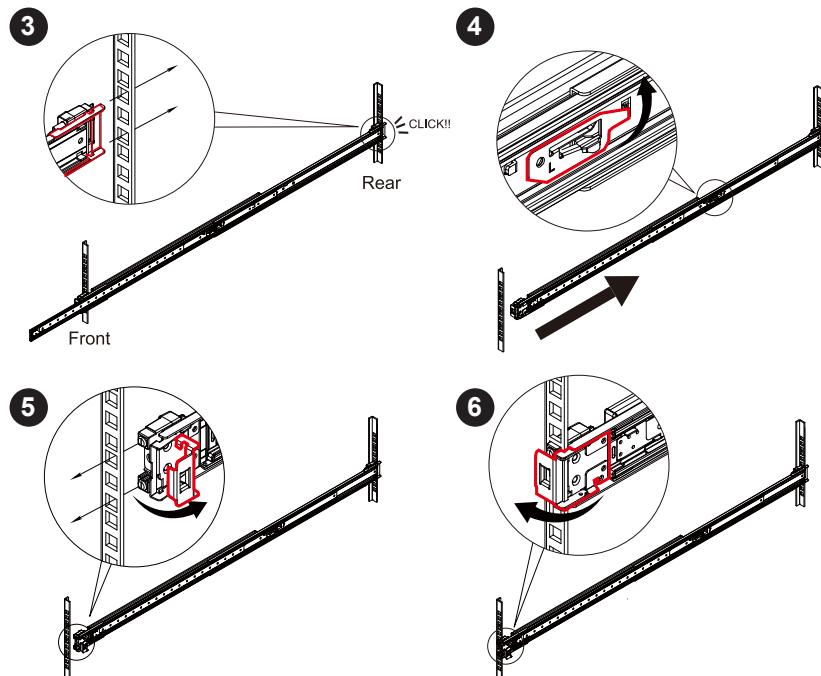
Figure 2-4. Adjusting Outer Rail Fittings

2. Push the middle rail back into the outer rail. An audible click indicates that the rail is fully inserted.



**Figure 2-5. Adjusting the Middle Rail**

3. Insert the pegs on the rear of the outer rail into the rear rack holes. An audible click indicates that the rail is locked into place.
4. Press upward on the locking tab near the rear end of the middle rail, and extend the outer rail until the length fits within the posts of the rack.
5. On the front end of the outer rail, turn the latch to the open position and push the pegs into the front rack holes.
6. Turn the latch to the locked position.
7. Repeat steps 1-6 for the remaining outer rail.



**Figure 2-6. Installing Outer Rails to a Rack**

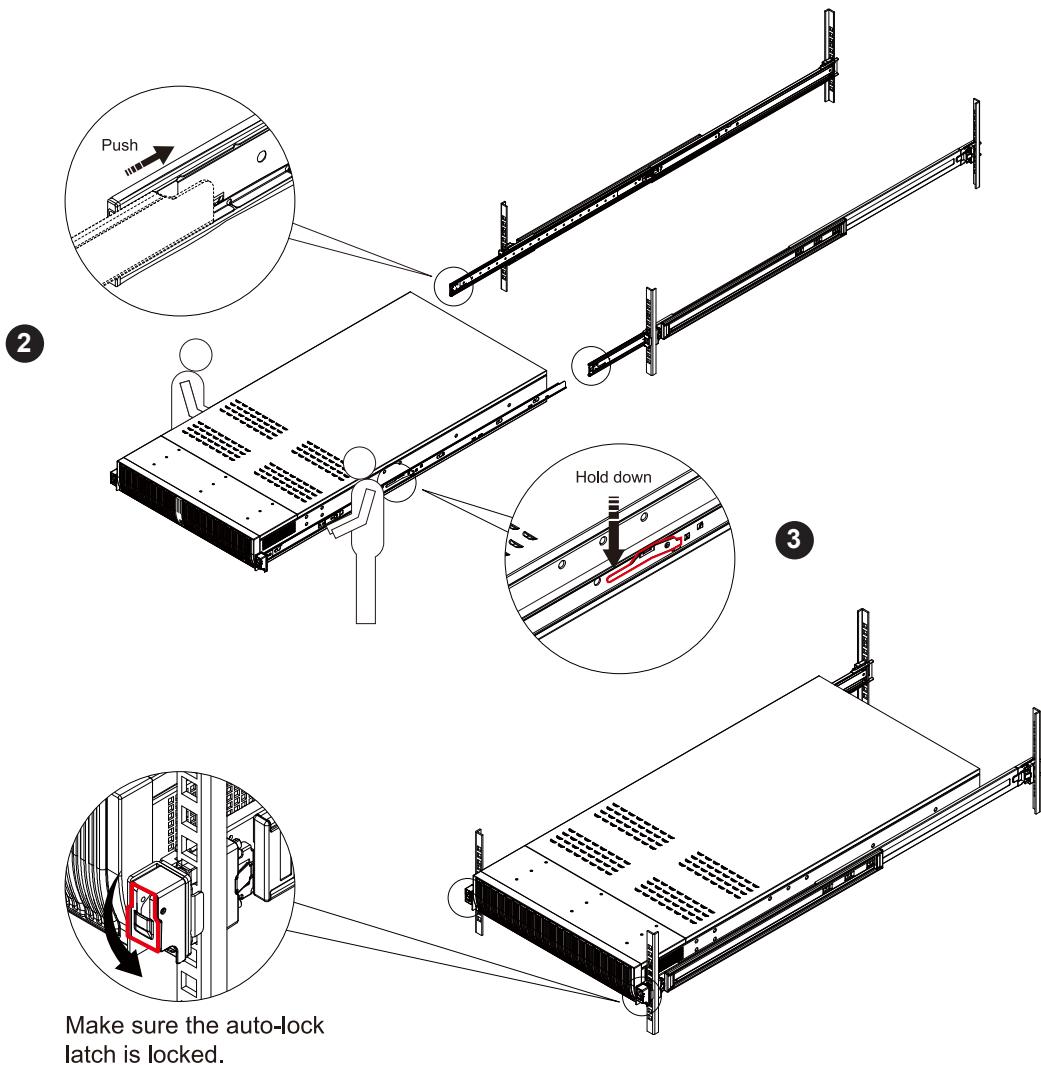
## Installing the Chassis onto the Rack

### Installing the Chassis onto the Rack

1. Fully extend the middle rails as illustrated in Figure 2-7.
2. Align the inner rails of the chassis with the middle rails on the rack.
3. Slide the inner rails into the middle rails, keeping pressure even on both sides. Hold down the locking lever on the inner rail to push the chassis fully onto the rack. An audible click indicates that the chassis is secured into the rails.



**Warning:** Mounting the system into the rack requires at least two people to support the chassis during installation. Follow safety recommendations printed on the rails.



**Figure 2-7. Installing the System into a 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 Powering On the System

Use the procedure below to power on the system.

1. Connect a power cord from a grounded AC outlet to the 1029P-NR32R. Do *not* power on the system.
2. Press the power button on the 1029P-NR32R, or power on the system using the IPMI command interface.

### 3.2 Removing Power

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

1. Use either the power button on the control panel or IPMI to power down the system.
2. After the system has completely shut-down, disconnect the AC power cord(s) from the power strip or outlet. (If your system has more than one power supply, remove the AC power cords from all power supply modules.)
3. Disconnect the power cord(s) from the power supply module(s).

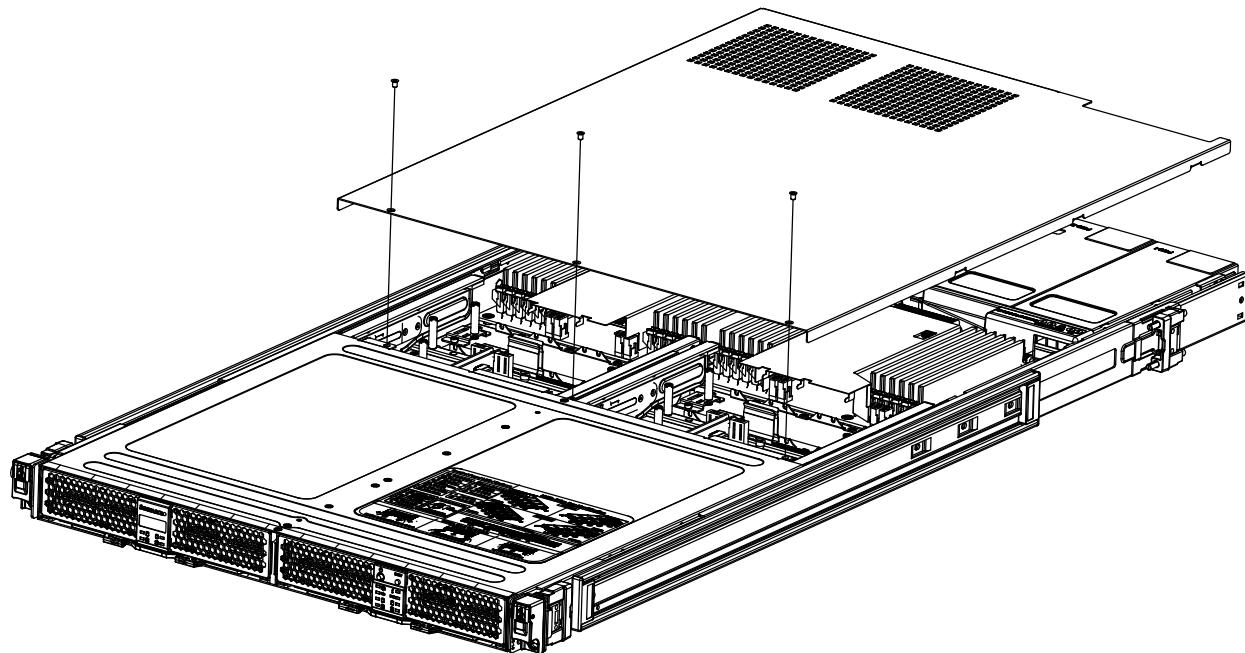
### 3.3 Accessing the System

The SC136HTS chassis features a removable top cover, which allows easy access to the inside of the chassis.

#### ***Removing the Top Cover***

1. Using a correctly-sized phillips-head screw driver, remove the three screws from the top panel.
2. When the screws are off, the top panel should come off easily by pulling it upwards.

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



**Figure 3-1. Removing the Chassis Cover**

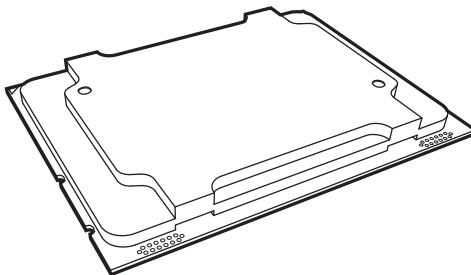
## 3.4 Processor and Heatsink Installation

The processor (CPU) and processor carrier should be assembled together first to form the processor carrier assembly. This will be attached to the heatsink to form the processor heatsink module (PHM) before being installed onto the CPU socket.

**Notes:**

- Use ESD protection.
- Unplug the AC power cord from all power supplies after shutting down the system.
- Check that the plastic protective cover is on the CPU socket and none of the socket pins are bent. If they are, contact your retailer.
- When handling the processor, avoid touching or placing direct pressure on the LGA lands (gold contacts). Improper installation or socket misalignment can cause serious damage to the processor or CPU socket, which may require manufacturer repairs.
- Thermal grease is pre-applied on a new heatsink. No additional thermal grease is needed.
- Refer to the Supermicro website for updates on processor support.
- All graphics in this manual are for illustrations only. Your components may look different.

### The Intel® Xeon® Scalable Series Processor

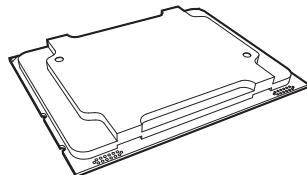


Non-Fabric Model

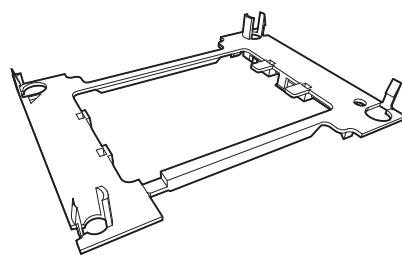
## Overview of the Processor Carrier Assembly

The processor carrier assembly contains the Intel Xeon Non-Fabric (Non-F) processor and a processor carrier.

### 1. Non-F Processor



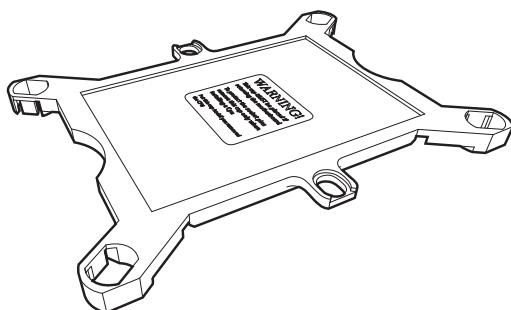
### 2. Processor Carrier



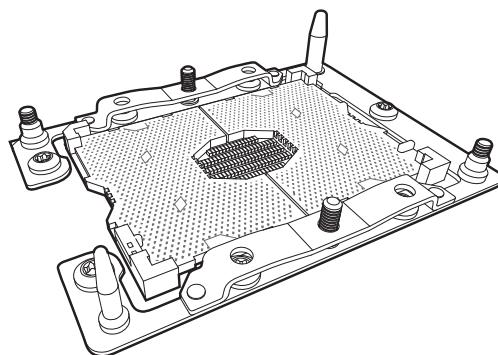
## Overview of the CPU Socket

The CPU socket is protected by a plastic protective cover.

### 1. Plastic Protective Cover



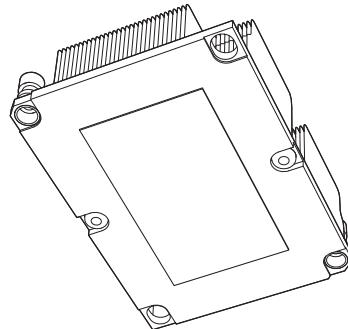
### 2. CPU Socket



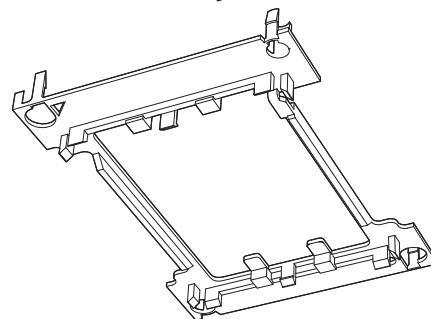
## Overview of the Processor Heatsink Module

The Processor Heatsink Module (PHM) contains a heatsink, a processor carrier, and the Intel Xeon Non-Fabric (Non-F) processor.

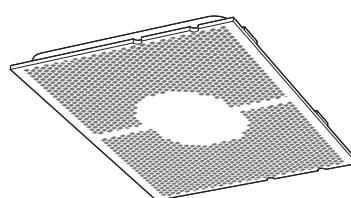
### 1. Heatsink with Thermal Grease



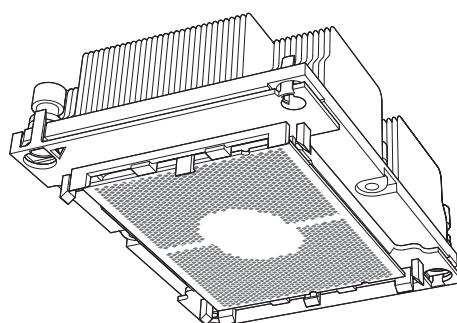
### 2. Processor Carrier



### 3. Non-F Processor



### Processor Heatsink Module

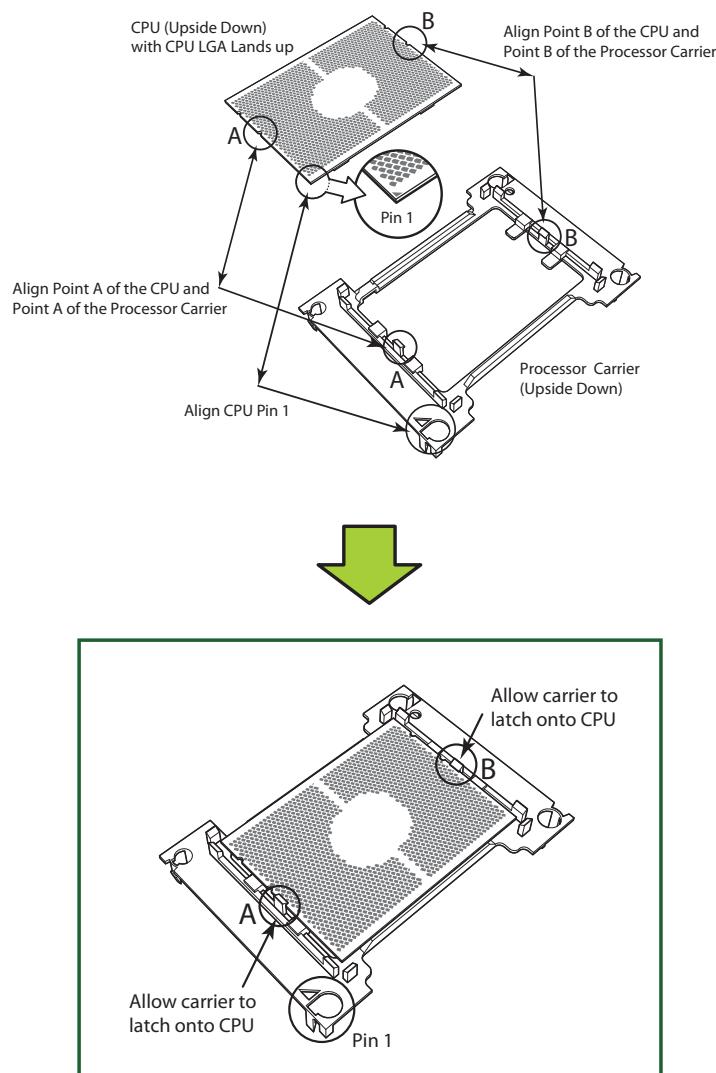


Bottom View

## Creating the Non-F Model Processor Carrier Assembly

To install a Non-F model processor into the processor carrier, follow the steps below:

1. Hold the processor with the LGA lands (gold contacts) facing up. Locate the small, gold triangle in the corner of the processor and the corresponding hollowed triangle on the processor carrier. These triangles indicate pin 1. See the images below.
2. Using the triangles as a guide, carefully align and place Point A of the processor into Point A of the carrier. Then gently flex the other side of the carrier for the processor to fit into Point B.
3. Examine all corners to ensure that the processor is firmly attached to the carrier.

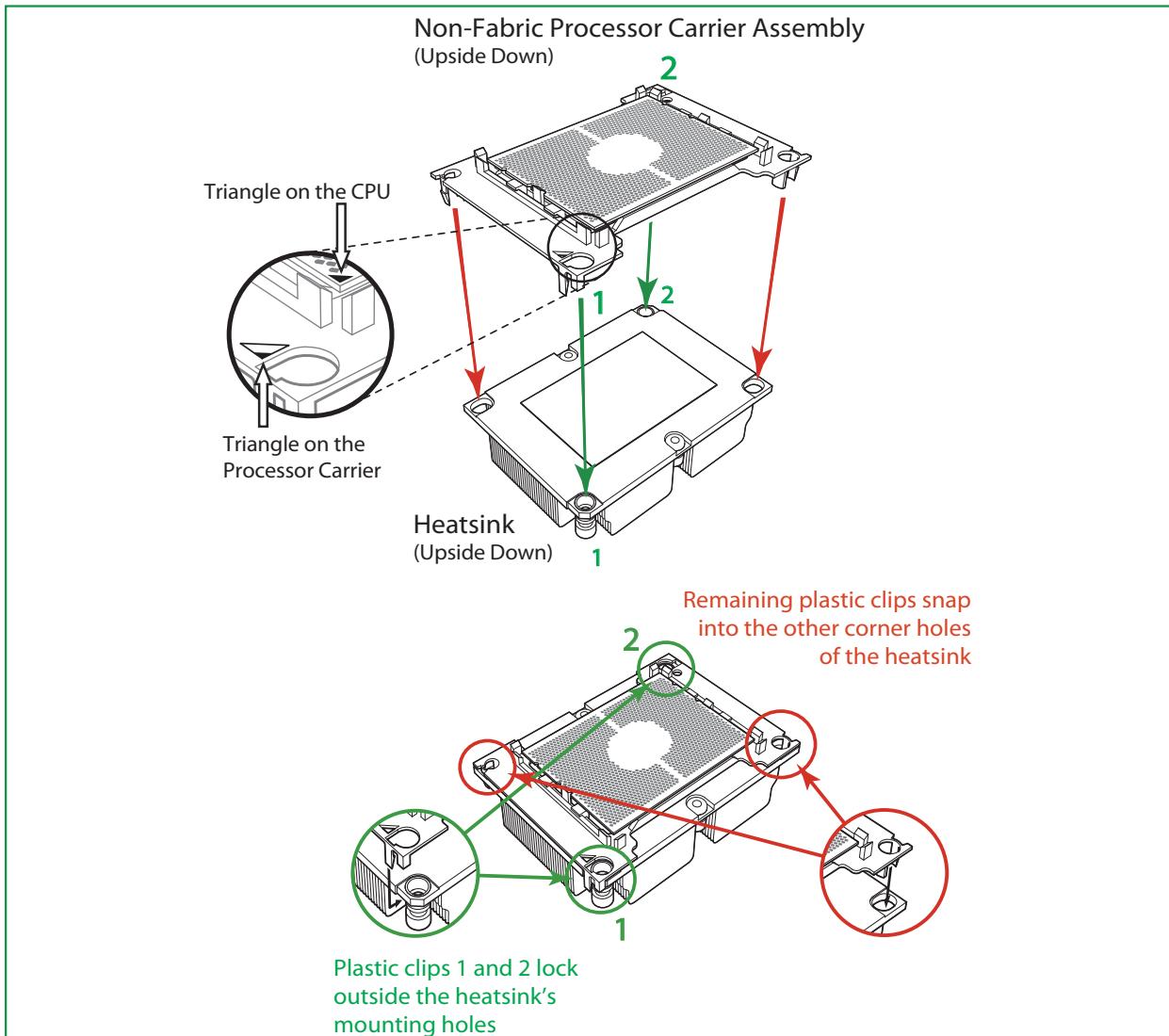


Processor Carrier Assembly (Non-F Model)

## Assembling the Processor Heatsink Module

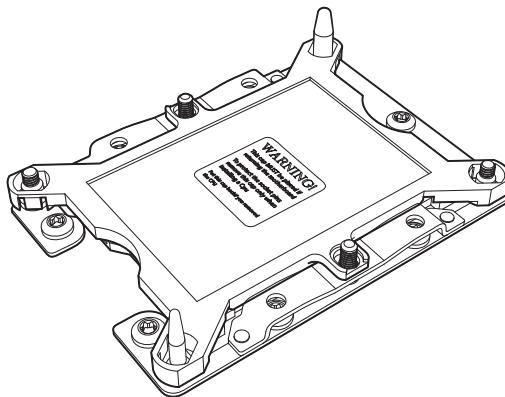
After creating the processor carrier assembly for the Non-F model processor, mount it onto the heatsink to create the processor heatsink module (PHM):

1. Note the label on top of the heatsink, which marks the heatsink mounting holes as 1, 2, 3, and 4. If this is a new heatsink, the thermal grease has been pre-applied on the underside. Otherwise, apply the proper amount of thermal grease.
2. Turn the heatsink over with the thermal grease facing up. Hold the processor carrier assembly so the processor's gold contacts are facing up, then align the triangle on the assembly with hole 1 of the heatsink. Press the processor carrier assembly down. The plastic clips of the assembly will lock outside of holes 1 and 2, while the remaining clips will snap into their corresponding holes.
3. Examine all corners to ensure that the plastic clips on the processor carrier assembly are firmly attached to the heatsink.

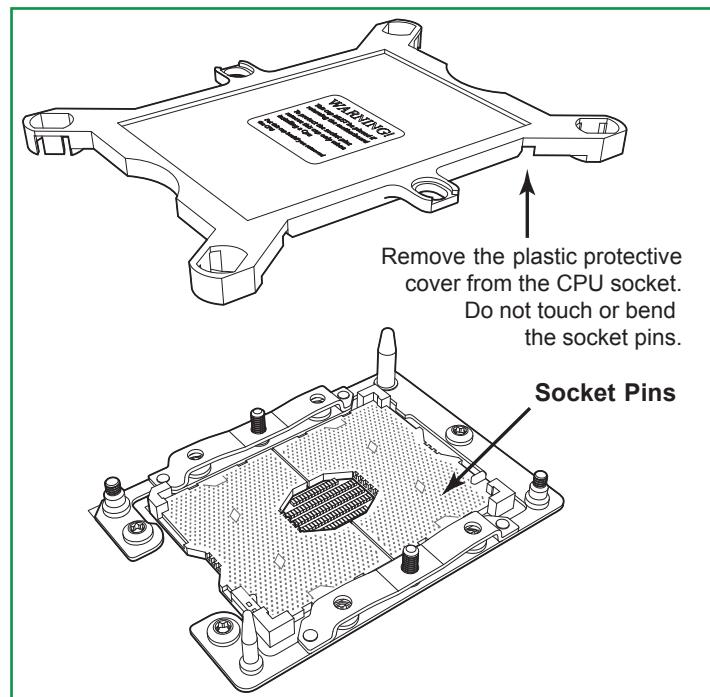


## Preparing the CPU Socket for Installation

This motherboard comes with a plastic protective cover installed on the CPU socket. Remove it from the socket to install the Processor Heatsink Module (PHM). Gently pull up one corner of the plastic protective cover to remove it.



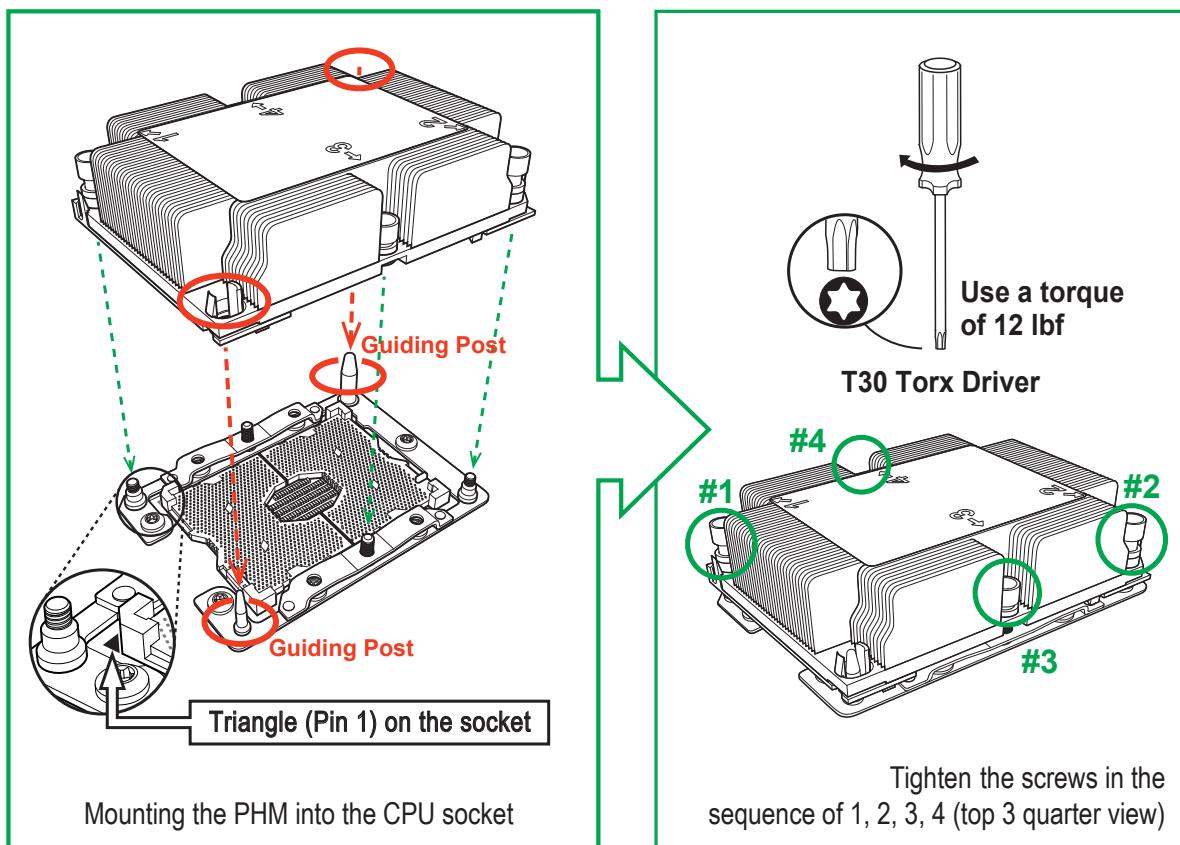
CPU Socket with Plastic Protective Cover



## Installing the Processor Heatsink Module (PHM)

- Once you have assembled the processor heatsink module (PHM) by following the instructions, you are ready to install the processor heatsink module (PHM) into the CPU socket on the motherboard. To install the PHM into the CPU socket, follow the instructions below.
- Locate the triangle (pin 1) on the CPU socket, and locate the triangle (pin 1) at the corner of the PHM that is closest to "1." (If you have difficulty locating pin 1 of the PHM, turn the PHM upside down. With the LGA-lands side facing up, you will note the hollow triangle located next to a screw at the corner. Turn the PHM right side up, and you will see a triangle marked on the processor clip at the same corner of hollow triangle.)
- Carefully align pin 1 (the triangle) on the the PHM against pin 1 (the triangle) on the CPU socket.
- Once they are properly aligned, insert the two diagonal oval holes on the heatsink into the guiding posts.
- Using a T30 Torx-bit screwdriver, install four screws into the mounting holes on the socket to securely attach the PHM onto the motherboard starting with the screw marked "1" (in the sequence of 1, 2, 3, and 4).

**Note:** Do not use excessive force when tightening the screws to avoid damaging the LGA-lands and the processor.

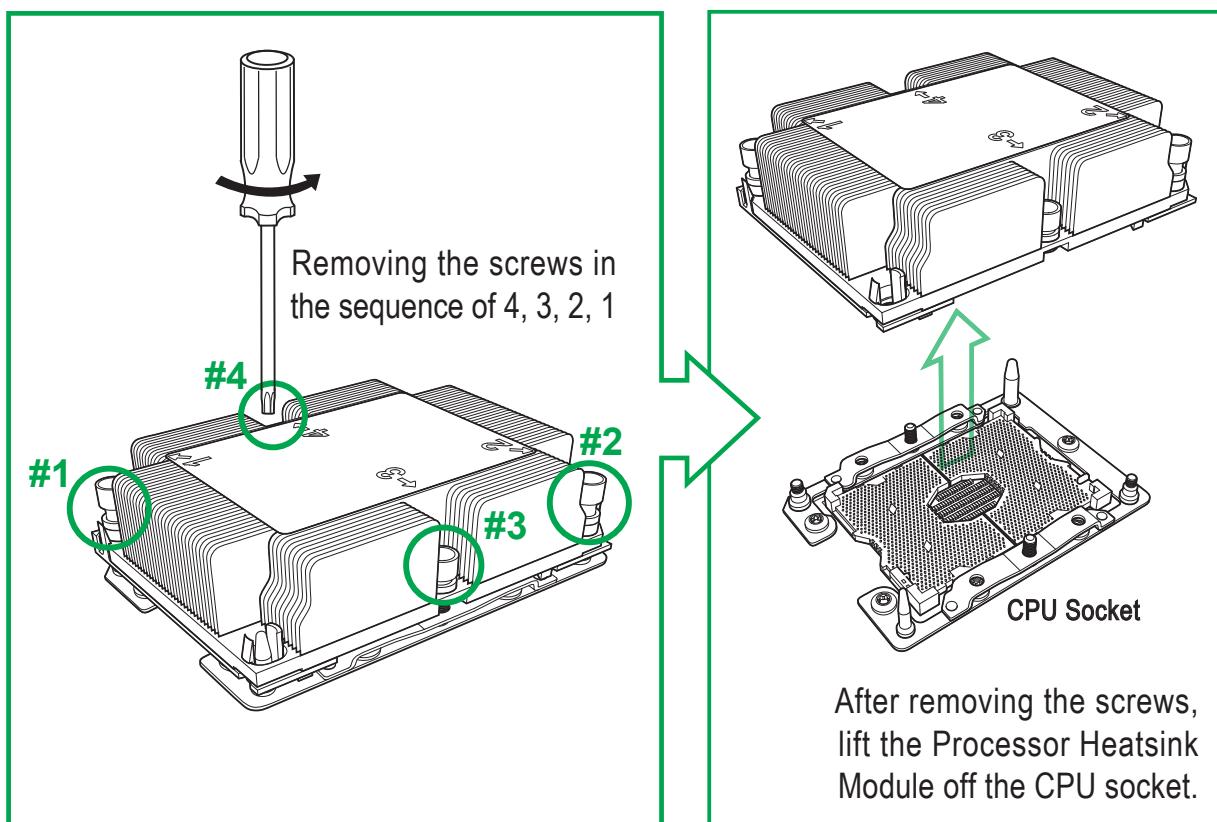


## Removing the Processor Heatsink Module (PHM) from the Motherboard

Before removing the processor heatsink module (PHM), unplug power cord from the power outlet.

1. Using a T30 Torx-bit screwdriver, turn the screws on the PHM counterclockwise to loosen them from the socket, starting with screw marked #4 (in the sequence of 4, 3, 2, 1).
2. After all four screws are removed, wiggle the PHM gently and pull it up to remove it from the socket.

**Note:** To properly remove the processor heatsink module, be sure to loosen and remove the screws on the PHM in the sequence of 4, 3, 2, 1 as shown below.



## Memory Installation

### Memory Support

The X11DPS-RE supports up to 3TB of RDIMM/NV-DIMM, DDR4 ECC 2666/2400/2133 MHz speed memory modules in twenty-four (24) slots. Populating these DIMM modules with a pair of memory modules of the same type and size will result in interleaved memory, which will improve memory performance.

| DDR4 Memory Support for Two Slots per Channel |                               |                    |          |                       |                       |  |
|---|-------------------------------|--------------------|----------|-----------------------|-----------------------|--|
| Type  | Ranks Per DIMM and Data Width | DIMM Capacity (GB) |          | Speed (MT/s)          |                       |  |
|   |                               |                    |          | Two Slots per Channel |                       |  |
|   |                               | 4 Gb               | 8 Gb     | One DIMM per Channel  | Two DIMMs per Channel |  |
| RDIMM   | SRx4                          | 8 GB               | 16 GB    | 2666                  | 2666                  |  |
|   | SRx8                          | 4 GB               | 8 GB     | 2666                  | 2666                  |  |
|   | DRx8                          | 8 GB               | 16 GB    | 2666                  | 2666                  |  |
|   | DRx4                          | 16 GB              | 32 GB    | 2666                  | 2666                  |  |
| RDIMM 3Ds                                     | QRX4                          | N/A                | 2H-64GB  | 2666                  | 2666                  |  |
|   | 8RX4                          | N/A                | 4H-128GB | 2666                  | 2666                  |  |

| DDR4 Memory Support for One Slot per Channel |                               |                    |          |                      |      |  |
|--|-------------------------------|--------------------|----------|----------------------|------|--|
| Type   | Ranks Per DIMM and Data Width | DIMM Capacity (GB) |          | Speed (MT/s)         |      |  |
|  |                               |                    |          | One Slot per Channel |      |  |
|  |                               | 4 Gb               | 8 Gb     | One DIMM per Channel |      |  |
| RDIMM  | SRx4                          | 8 GB               | 16 GB    | 2666                 | 2666 |  |
|  | SRx8                          | 4 GB               | 8 GB     | 2666                 | 2666 |  |
|  | DRx8                          | 8 GB               | 16 GB    | 2666                 | 2666 |  |
|  | DRx4                          | 16 GB              | 32 GB    | 2666                 | 2666 |  |
| RDIMM 3Ds                                    | QRX4                          | N/A                | 2H-64GB  | 2666                 | 2666 |  |
|  | 8RX4                          | N/A                | 4H-128GB | 2666                 | 2666 |  |

Check the Supermicro website for possible updates to memory support.

### ***Memory Population Guidelines***

- All DIMMs must be DDR4. LRDIMMs are not supported by this server.
- Balance memory. Using unbalanced memory topology, such as populating two DIMMs in one channel while populating one DIMM in another channel, reduces performance. It is not recommended for Supermicro systems.
- In dual-CPU configurations, memory must be installed in the slots associated with the installed CPUs.

#### *Guidelines Regarding Mixing DIMMs*

- Populating slots with a pair of DIMM modules of the same type and size results in interleaved memory, which improves memory performance.
- Use memory modules of the same type and speed, as mixing is not allowed.
- x4 and x8 DIMMs can be mixed in the same channel.

#### *DIMM Construction*

- RDIMM (*non-3DS*) Raw Cards: A/B (2Rx4), C (1Rx4), D (1Rx8), E (2Rx8)
- 3DS RDIMM Raw Cards: A/B (4Rx4)

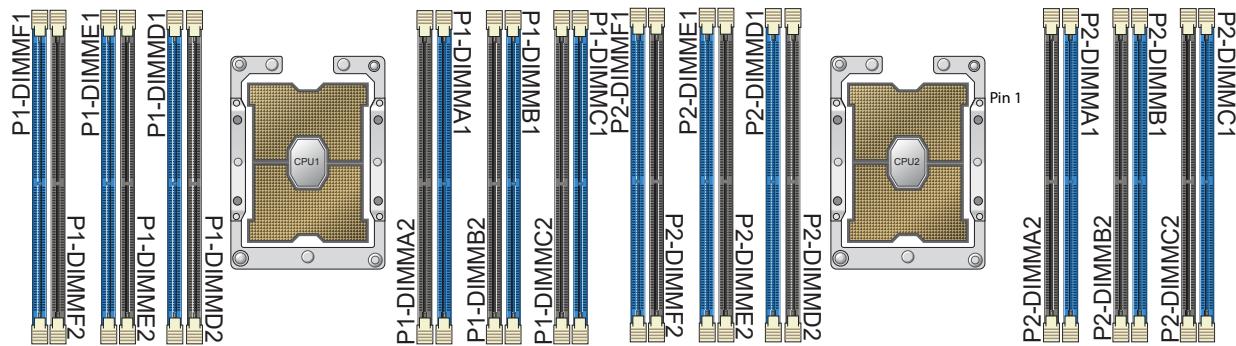
### ***Memory Population Sequence***

**Blue slots versus black slots:** Install the first DIMM in the blue memory slot, which is the first of a memory channel. Then, if using two DIMMs per channel, install the second DIMM in the black slot.

The following memory population sequence table was created based on guidelines provided by Intel to support Supermicro motherboards. The diagram is for illustrative purposes; your motherboard may look different.

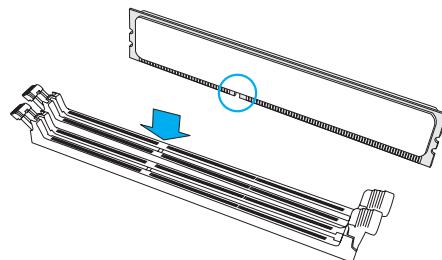
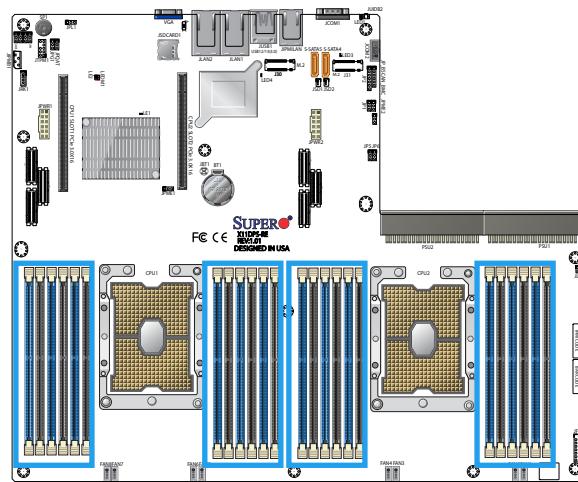
| <b>Memory Population for X11 DP Motherboard, 24 DIMM Slots</b> |  |
|--|--|
| <b>When 1 CPU is used:</b>                                     | <b>Memory Population Sequence</b>  |
| 1 CPU & 1 DIMM   | CPU1: P1-DIMMA1  |
| 1 CPU & 2 DIMMs  | CPU1: P1-DIMMA1/P1-DIMMD1  |
| 1 CPU & 3 DIMMs  | CPU1: P1-DIMMC1/P1-DIMMB1/P1-DIMMA1  |
| 1 CPU & 4 DIMMs  | CPU1: P1-DIMMB1/P1-DIMMA1/P1-DIMMD1/P1-DIMME1  |
| 1 CPU & 5 DIMMs<br>(Unbalanced: not recommended)               | CPU1: P1-DIMMC1/P1-DIMMB1/P1-DIMMA1/P1-DIMMD1/P1-DIMME1  |
| 1 CPU & 6 DIMM   | CPU1: P1-DIMMC1/P1-DIMMB1/P1-DIMMA1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1  |
| 1 CPU & 7 DIMMs<br>(Unbalanced: not recommended)               | CPU1: P1-DIMMB1/P1-DIMMB2/P1-DIMMA1/P1-DIMMA2/P1-DIMMD1/P1-DIMME1/P1-DIMMF1  |
| 1 CPU & 8 DIMMs  | CPU1: P1-DIMMB1/P1-DIMMB2/P1-DIMMA1/P1-DIMMA2/P1-DIMMD2/P1-DIMMD1/P1-DIMME2/P1-DIMME1  |
| 1 CPU & 9 DIMMs<br>(Unbalanced: not recommended)               | CPU1: P1-DIMMC1/P1-DIMMC2/P1-DIMMB1/P1-DIMMB2/P1-DIMMA1/P1-DIMMA2/P1-DIMMD1/P1-DIMME1/P1-DIMMF1  |
| 1 CPU & 10 DIMMs<br>(Unbalanced: not recommended)              | CPU1: P1-DIMMC1/P1-DIMMB1/P1-DIMMB2/P1-DIMMA1/P1-DIMMA2/P1-DIMMD2/P1-DIMMD1/P1-DIMME2/P1-DIMME1/P1-DIMMF1  |
| 1 CPU & 11 DIMMs<br>(Unbalanced: not recommended)              | CPU1: P1-DIMMC1/P1-DIMMC2/P1-DIMMB1/P1-DIMMB2/P1-DIMMA1/P1-DIMMA2/P1-DIMMD2/P1-DIMMD1/P1-DIMME2/P1-DIMME1/P1-DIMMF1  |
| 1 CPU & 12 DIMMs   | CPU1: P1-DIMMC1/P1-DIMMC2/P1-DIMMB1/P1-DIMMB2/P1-DIMMA1/P1-DIMMA2/P1-DIMMD2/P1-DIMMD1/P1-DIMME2/P1-DIMME1/P1-DIMMF2/P1-DIMMF1  |
| <b>When 2 CPUs are used:</b>                                   | <b>Memory Population Sequence</b>  |
| 2 CPUs & 2 DIMMs   | CPU1: P1-DIMMA1<br>CPU2: P2-DIMMA1   |
| 2 CPUs & 4 DIMMs   | CPU1: P1-DIMMA1/P1-DIMMD1<br>CPU2: P2-DIMMA1/P2-DIMMD1   |
| 2 CPUs & 6 DIMMs   | CPU1: P1-DIMMC1/P1-DIMMB1/P1-DIMMA1<br>CPU2: P2-DIMMC1/P2-DIMMB1/P2-DIMMA1   |
| 2 CPUs & 8 DIMMs   | CPU1: P1-DIMMB1/P1-DIMMA1/P1-DIMMD1/P1-DIMME1<br>CPU2: P2-DIMMB1/P2-DIMMA1/P2-DIMMD1/P2-DIMME1   |
| 2 CPUs & 10 DIMMs  | CPU1: P1-DIMMC1/P1-DIMMB1/P1-DIMMA1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1<br>CPU2: P2-DIMMB1/P2-DIMMA1/P2-DIMMD1/P2-DIMME1   |
| 2 CPUs & 12 DIMMs  | CPU1: P1-DIMMC1/P1-DIMMB1/P1-DIMMA1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1<br>CPU2: P2-DIMMC1/P2-DIMMB1/P2-DIMMA1/P2-DIMMD1/P2-DIMME1/P2-DIMMF1   |
| 2 CPUs & 14 DIMMs  | CPU1: P1-DIMMB1/P1-DIMMB2/P1-DIMMA1/P1-DIMMA2/P1-DIMMD2/P1-DIMMD1/P1-DIMME2/P1-DIMME1<br>CPU2: P2-DIMMC1/P2-DIMMB1/P2-DIMMA1/P2-DIMMD1/P2-DIMME1/P2-DIMMF1   |
| 2 CPUs & 16 DIMMs  | CPU1: P1-DIMMB1/P1-DIMMB2/P1-DIMMA1/P1-DIMMA2/P1-DIMMD2/P1-DIMMD1/P1-DIMME2/P1-DIMME1<br>CPU2: P2-DIMMB1/P2-DIMMB2/P2-DIMMA1/P2-DIMMA2/P2-DIMMD2/P2-DIMMD1/P2-DIMME2/P2-DIMME1                               |
| 2 CPUs & 18 DIMMs  | CPU1: P1-DIMMC1/P1-DIMMC2/P1-DIMMB1/P1-DIMMB2/P1-DIMMA1/P1-DIMMA2/P1-DIMMD2/P1-DIMMD1/P1-DIMME2/P1-DIMME1/P1-DIMMF2/P1-DIMMF1<br>CPU2: P2-DIMMC1/P2-DIMMB1/P2-DIMMA1/P2-DIMMD1/P2-DIMME1/P2-DIMMF2/P1-DIMMF1 |

| Memory Population for X11 DP Motherboard, 24 DIMM Slots |  |
|---|--|
| 2 CPUs & 20 DIMMs                                       | CPU1: P1-DIMMC1/P1-DIMMC2/P1-DIMMB1/P1-DIMMB2/P1-DIMMA1/P1-DIMMA2/<br>P1-DIMMD2/P1-DIMMD1/P1-DIMME2/P1-DIMME1/P1-DIMMF2/P1-DIMMF1<br>CPU2: P2-DIMMB1/P2-DIMMB2/P2-DIMMA1/P2-DIMMA2/P2-DIMMD2/P2-DIMMD1/<br>P2-DIMME2/P2-DIMME1   |
| 2 CPUs & 22 DIMMs<br>(Unbalanced: not recommended)      | CPU1: P1-DIMMC1/P1-DIMMC2/P1-DIMMB1/P1-DIMMB2/P1-DIMMA1/P1-DIMMA2/<br>P1-DIMMD2/P1-DIMMD1/P1-DIMME2/P1-DIMME1/P1-DIMMF1<br>CPU2: P2-DIMMC1/P2-DIMMC2/P2-DIMMB1/P2-DIMMB2/P2-DIMMA1/P2-DIMMA2/<br>P2-DIMMD2/P2-DIMMD1/P2-DIMME2/P2-DIMME1/P2-DIMMF1                     |
| 2 CPUs & 24 DIMMs                                       | CPU1: P1-DIMMC1/P1-DIMMC2/P1-DIMMB1/P1-DIMMB2/P1-DIMMA1/P1-DIMMA2/<br>P1-DIMMD2/P1-DIMMD1/P1-DIMME2/P1-DIMME1/P1-DIMMF2/P1-DIMMF1<br>CPU2: P2-DIMMC1/P2-DIMMC2/P2-DIMMB1/P2-DIMMB2/P2-DIMMA1/P2-DIMMA2/<br>P2-DIMMD2/P2-DIMMD1/P2-DIMME2/P2-DIMME1/P2-DIMMF2/P2-DIMMF1 |

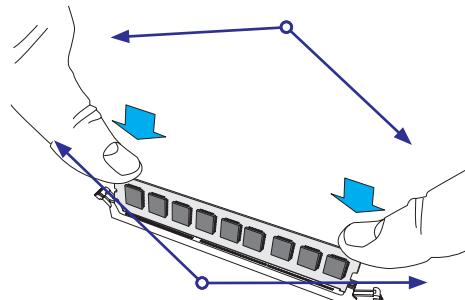


## DIMM Installation

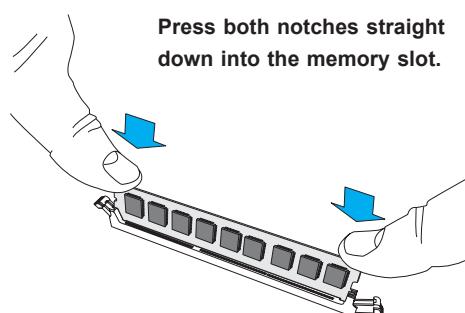
1. Follow the instructions given in the memory population guidelines listed in the previous sections to install memory modules on your motherboard. For the system to work properly, please use memory modules of the same type and speed on the motherboard. (See the Note below.)
2. Push the release tabs outwards on both ends of the DIMM slot to unlock it.
3. Align the key of the DIMM module with the receptive point on the memory slot.
4. Align the notches on both ends of the module against the receptive points on the ends of the slot.
5. Use two thumbs together to press on both ends of the module straight down into the slot until the module snaps into place.
6. Press the release tabs to the lock positions to secure the DIMM module into the slot.



Notches



Release Tabs



Press both notches straight down into the memory slot.

## DIMM Removal

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

## PCI Expansion Card Installation

The system includes two pre-installed riser cards (RSC-R1U-E16R) that allow you to position standard size PCI-E cards at a 90-degree angle, allowing them to fit inside the chassis.

### ***Installing PCI Expansion Cards***

The riser cards have already been pre-installed into the motherboard. Perform the following steps to install an add-on card into one of them:

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

1. Remove the chassis cover to access the inside of the system.
2. Remove the PCI slot shield on the chassis by releasing the locking tab.
3. Insert the expansion (add-on) card into the riser card.
4. Secure the card with the locking tab.

## Motherboard Battery

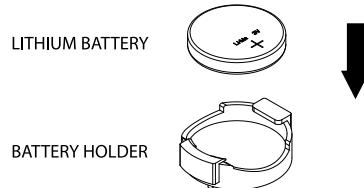
The motherboard uses non-volatile memory to retain system information when system power is removed. This memory is powered by a lithium battery residing on the motherboard.

### ***Replacing the Battery***

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

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 3-2. 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 (CR2032).

## 3.5 Chassis Components

### Ruler Drives

Your system likely came with drives installed. The 1029P-NR32R supports thirty-two (32) hot-swappable RSSDs (Ruler SSDs).

This section is intended to address the need to prepare PCIe NVMe SSD to be hot-plugged in Supermicro SuperServer SYS-1029P-NR32R & SYS-1029P-N32R systems.

**Warning:** Hot removing an NVMe SSD from any deployed systems requires careful planning. If possible, it is generally a good idea to stop the IO access to the target NVMe SSD and migrate out its data first. Make sure that the target NVMe SSD is identified correctly. Then, prepare and remove the target NVMe SSD with every precaution.

**Warning:** Surprise hot removal of an RSSD can result in loss of all data on the drive. The following instructions must be followed for safe removal of RSSDs.

#### *Removing a Drive Using Linux*

Examples listed here were done under Linux RHEL 7.4. Command output in this section maybe abbreviated for easier reading. Additional notes are added with marking “◀”.

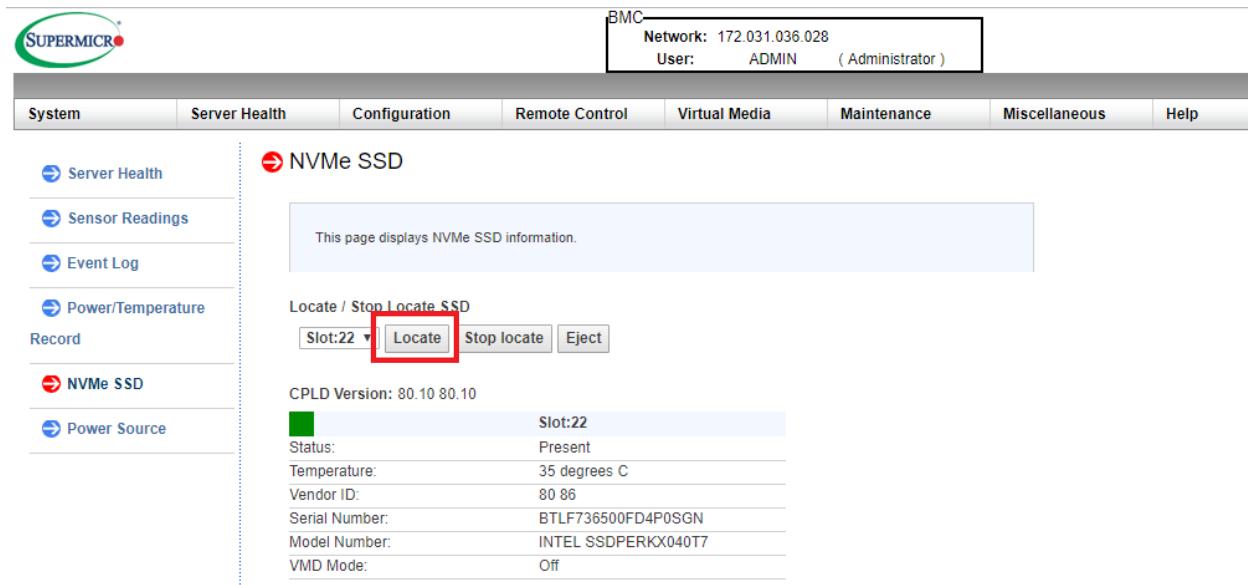
As NVMe SSD events are generally associated with their /dev entries in Linux, this document shows a method to correlate the slot number of an NVMe SSD in a server enclosure to its kernel /dev entry, and prepare the target SSD for hot removal.

#### *Removing an NVMe Ruler SSD in the Linux Environment*

1. Find the target NVMe SSD information. To find the information of any target NVMe SSD, say /dev/nvme12n1, use the following command:

```
# udevadm info -n /dev/nvme12n1 -a
...
looking at parent device '/devices/pci0000:3a/0000:3a:00.0/0000:3b:00.0/0000:3c:06.0/0000:43:00.0/nvme/nvme12':
  KERNELS=="nvme12"
  SUBSYSTEMS=="nvme"
  DRIVERS==""
  ATTRS{transport}=="pcie"
  ATTRS{model}=="INTEL SSDPERKX040T7"           ◀ /dev/nvme12n1's vendor & model
  ATTRS{ctrlid}=="0"
  ATTRS{serial}=="BTLF736500FD4P0SGN"           ◀ /dev/nvme12n1's serial number
  ATTRS{firmware_rev}=="QDV101D0"
```

2. Find the slot information of the target NVMe SSD. In the server BMC GUI (under Server Health / NVMe SSD), the probed target NVMe SSD information can be used find its slot location in the enclosure:



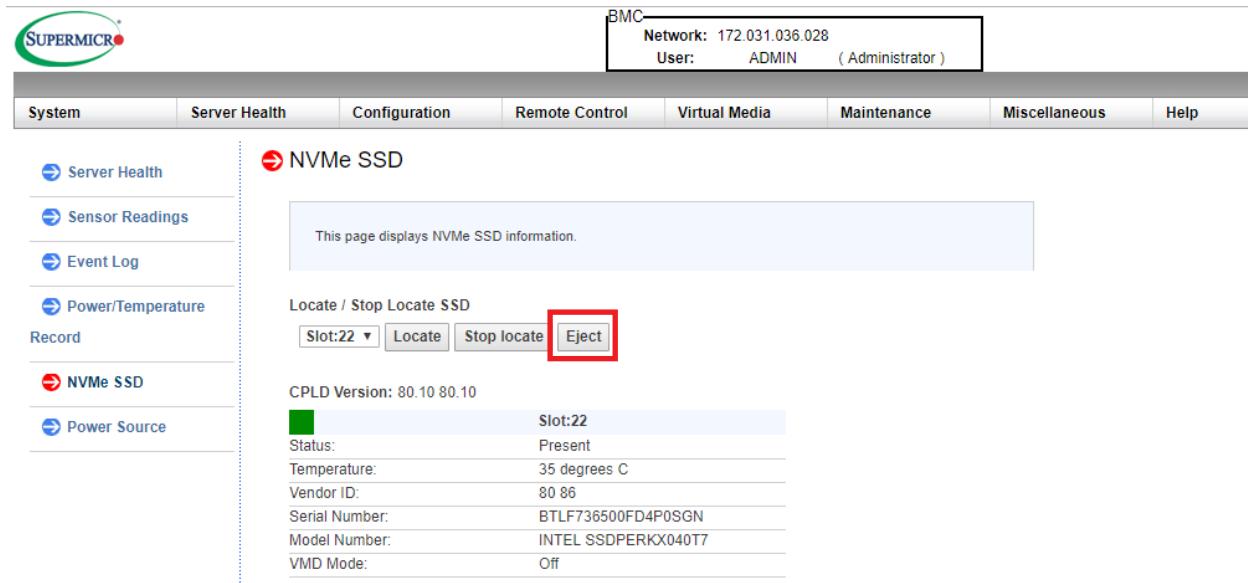
The screenshot shows the Supermicro BMC GUI. The top header displays 'BMC', 'Network: 172.031.036.028', and 'User: ADMIN (Administrator)'. The left sidebar menu includes 'System', 'Server Health', 'Configuration', 'Remote Control', 'Virtual Media', 'Maintenance', 'Miscellaneous', and 'Help'. Under 'Server Health', the 'NVMe SSD' option is selected. The main content area is titled 'NVMe SSD' and contains a message: 'This page displays NVMe SSD information.' Below this is a 'Locate / Stop Locate SSD' section with buttons for 'Slot:22', 'Locate' (which is highlighted with a red box), 'Stop locate', and 'Eject'. A table provides detailed information for Slot 22:

| CPLD Version: 80.10 80.10   |                     |
|---|---------------------|
|  | Slot:22             |
| Status:   | Present             |
| Temperature:  | 35 degrees C        |
| Vendor ID:  | 80 86               |
| Serial Number:  | BTLF736500FD4P0SGN  |
| Model Number:   | INTEL SSDPERKX040T7 |
| VMD Mode:   | Off                 |

As shown in above BMC GUI screen shot, the target NVMe SSD is in Slot 22, with its Vendor / Model / Serial matching what we probed.

Besides slot labeling on the drive tray, the slot physical position could also be located thru Locate function on BMC GUI (as shown above). When being located, the slot LED would be blinking RED in SYS-1029P-N32R, or the RSSD LED would be blinking BLUE in SYS-1029P-NR32R.

3. Prepare the target NVMe SSD for hot removal. On the BMC GUI, once the target NVMe SSD has been correctly identified, click the Eject button for its slot to remove it from the OS:



The screenshot shows the Supermicro BMC GUI, identical to the previous one but with the 'Eject' button highlighted with a red box in the 'Locate / Stop Locate SSD' section. The rest of the interface and data table for Slot 22 remain the same.

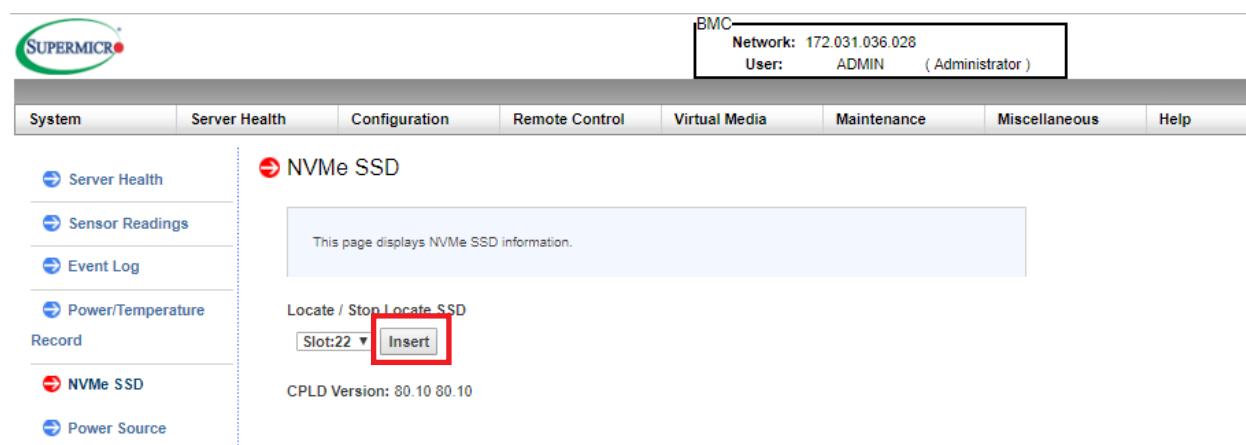
Confirm the eject operation by clicking the “OK” button on the following pop-up window. Once the GUI indicates that the NVMe SSD has been rejected successfully, the target is removed from the OS.

To confirm that target SSD has been removed from OS, do the following:

- Execute the #lsblk command and check that the /dev entry has been removed.
- Execute the #dmesg command and check the related messages.
- For U.2 SSD in SYS-1029P-N32R, its slot LED should become solid GREEN. For RSSD in SYS-1029P-NR32R, its LEDs should become OFF

After confirming that target NVMe SSD has been removed from OS, it can then be safely removed from its slot.

In case the above action needs to be reversed, the ejected NVMe SSD can be re-installed back into OS by clicking its Insert button:



The screenshot shows the SuperMicro BMC web interface. At the top, there is a header with the SuperMicro logo and navigation links: System, Server Health, Configuration, Remote Control, Virtual Media, Maintenance, Miscellaneous, and Help. The Maintenance tab is selected. In the top right corner, there is a box showing the BMC network information: Network: 172.031.036.028, User: ADMIN (Administrator).

The main content area is titled "NVMe SSD" with a red circular arrow icon. A message box states: "This page displays NVMe SSD information." Below this, there is a "Locate / Stop Locate SSD" section with a dropdown menu set to "Slot:22" and a red box around the "Insert" button. At the bottom of this section, it says "CPLD Version: 80.10 80.10".

On the left side, there is a sidebar with navigation links: Server Health, Sensor Readings, Event Log, Power/Temperature Record, NVMe SSD (which is selected and has a red circular arrow icon), and Power Source.

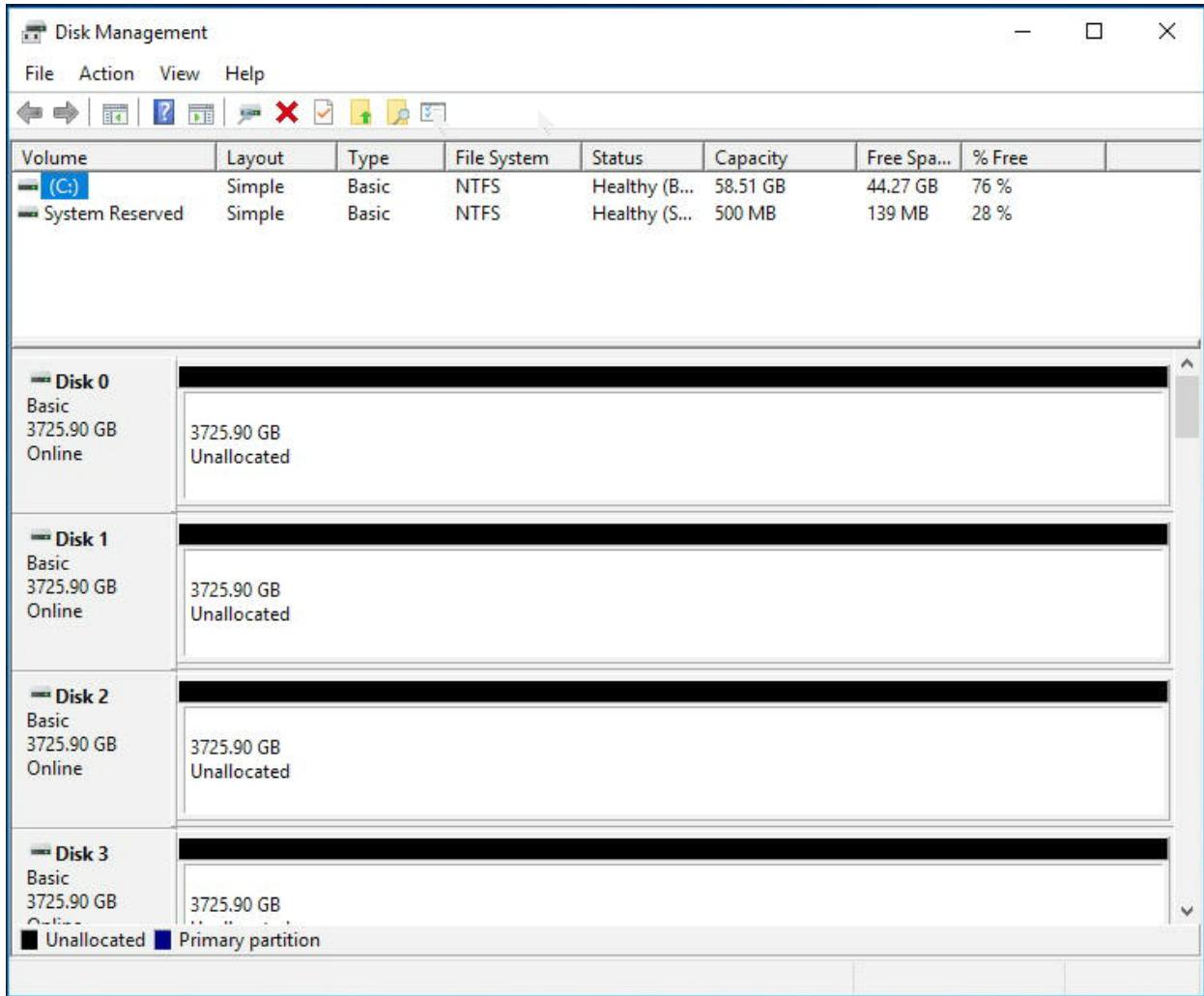
4. The replacement NVMe SSD can now be hot inserted. After the OS has discovered the newly inserted NVMe SSD, it will be ready for configuration and access.

## Removing a Drive Using Windows

Examples listed here were done under Windows Server 2016. Command output in this section maybe abbreviated for easier reading. Additional notes are added with marking “←”.

Windows generally reports NVMe SSD events associated with a disk or harddisk number. In this section, a method is shown how to correlate an NVMe SSD’s slot number in a server enclosure to its Disk #, and prepare the target SSD for hot removal.

1. Get the target NVMe SSD information. From Start (Right Click)\Disk Management, all the installed NVMe SSD information can be obtained:

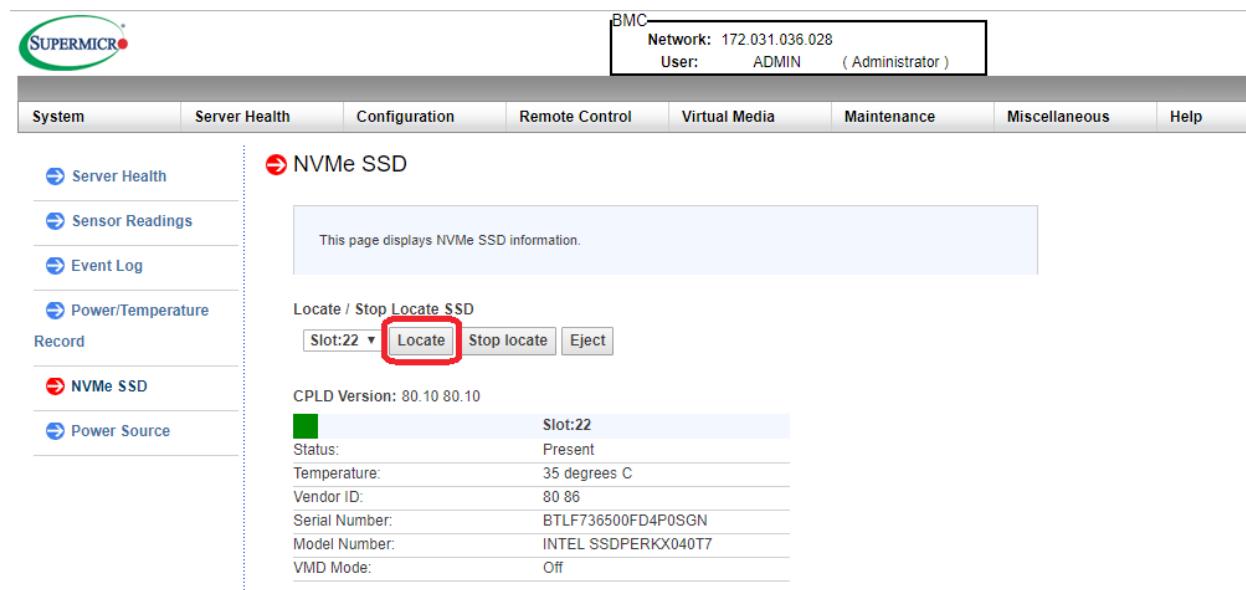


Also, with Intel SSD data center tool, all the installed Intel SSD information could be listed with the following command:

```
#isdct show -intelssd
...
- Intel SSD DC P4500 Series BTLF736500FD4P0SGN - ← Serial number

Bootloader : 0136
DevicePath : \\.\PHYSICALDRIVE12 ← Disk / Harddisk #
DeviceStatus : Healthy
Firmware : QDV101D0
FirmwareUpdateAvailable : The selected Intel SSD contains current firmware as of this tool release.
Index : 4
ModelNumber : INTEL SSDPERKX040T7 ← Vendor / Model
ProductFamily : Intel SSD DC P4500 Series
SerialNumber : BTLF736500FD4P0SGN ← Serial number
```

2. Find the slot information of the target NVMe SSD. With the serial number of a target NVMe SSD, its slot information can be found from the server BMC GUI (under Server Health / NVMe SSD):

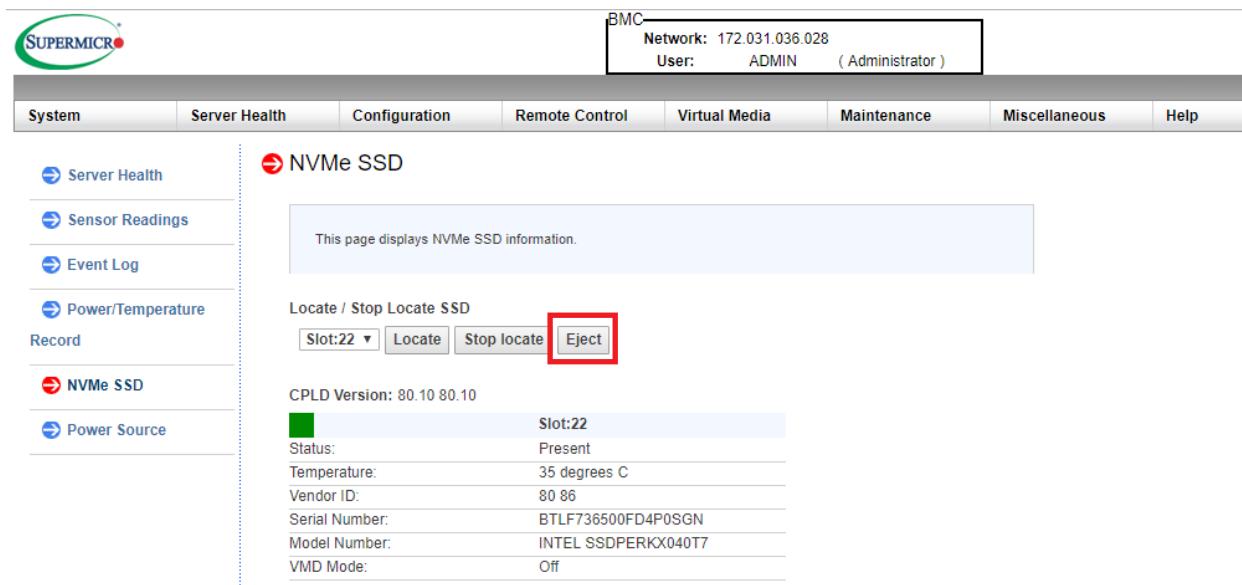


The screenshot shows the Supermicro BMC interface. At the top, there is a header with the Supermicro logo and network information: Network: 172.031.036.028 and User: ADMIN (Administrator). Below the header is a navigation menu with links: System, Server Health, Configuration, Remote Control, Virtual Media, Maintenance, Miscellaneous, and Help. The 'Server Health' link is currently selected. On the left, there is a sidebar with links: Server Health, Sensor Readings, Event Log, Power/Temperature Record, NVMe SSD (which is selected and highlighted in blue), and Power Source. The main content area is titled 'NVMe SSD' and contains the following text: 'This page displays NVMe SSD information.' Below this is a 'Locate / Stop Locate SSD' section with a dropdown menu set to 'Slot:22' and three buttons: 'Locate' (which is highlighted with a red box), 'Stop locate', and 'Eject'. Underneath is a table with the following data:

| CPLD Version: 80.10 80.10 |                     |
|---------------------------|---------------------|
| Status:                   | Present             |
| Temperature:              | 35 degrees C        |
| Vendor ID:                | 80 86               |
| Serial Number:            | BTLF736500FD4P0SGN  |
| Model Number:             | INTEL SSDPERKX040T7 |
| VMD Mode:                 | Off                 |

With Locate function as shown above, the slot physical position of the target NVMe SSD could be located. When being located, the slot LED would be blinking RED in SYS-1029P-N32R, or the RSSD LED would be blinking BLUE in SYS-1029P-NR32R.

3. Prepare the target NVMe SSD for hot removal. On the BMC GUI, once the target NVMe SSD has been correctly identified, click the Eject button for its slot to remove it from the OS:



The screenshot shows the BMC (Baseboard Management Controller) GUI. The top header includes the SUPERMICRO logo, network information (Network: 172.031.036.028, User: ADMIN (Administrator)), and navigation tabs: System, Server Health, Configuration, Remote Control, Virtual Media, Maintenance, Miscellaneous, and Help. The left sidebar has links for Server Health, Sensor Readings, Event Log, Power/Temperature Record, NVMe SSD (which is selected and highlighted with a red box), and Power Source. The main content area is titled 'NVMe SSD' and displays a message: 'This page displays NVMe SSD information.' Below this is a 'Locate / Stop Locate SSD' section with buttons for Slot:22 (dropdown), Locate, Stop locate, and Eject (which is highlighted with a red box). A table provides detailed information for Slot:22: CPLD Version: 80.10 80.10, Status: Present, Temperature: 35 degrees C, Vendor ID: 80 86, Serial Number: BTLF736500FD4P0SGN, Model Number: INTEL SSDPERKX040T7, and VMD Mode: Off.

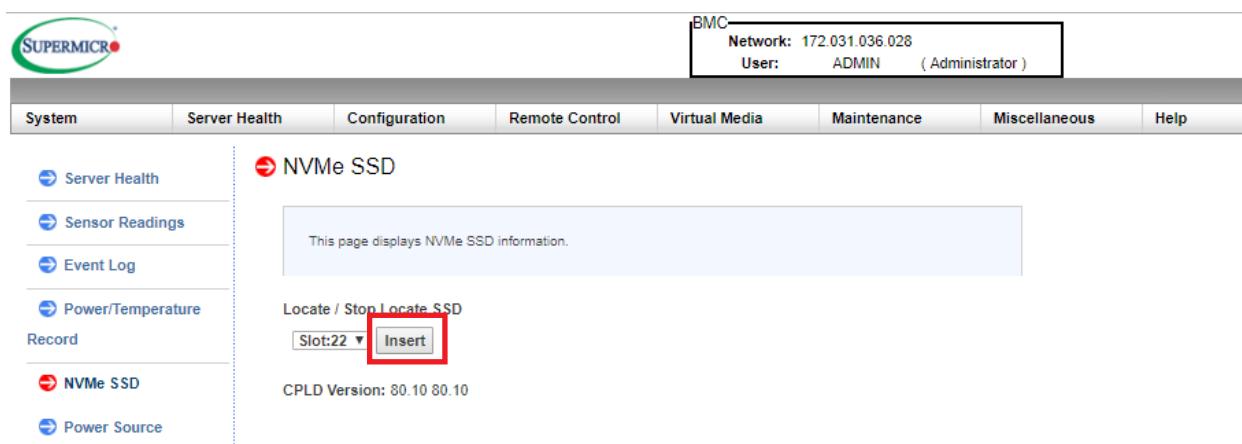
Confirm the eject operation by clicking the “OK” button on the following pop-up window. Once the GUI indicates that the NVMe SSD has been rejected successfully, the target would have been removed from the OS.

Please wait for the target SSD to be fully removed from host by checking

- Its Disk # & information removed from Disk management.
- For U.2 SSD in SYS-1029P-N32R, its slot LED should become solid GREEN. For RSSD in SYS-1029P-NR32R, its LEDs should become OFF.

After confirming that target SSD has been removed from Windows, it could then be safely removed from its slot.

In case the above action need to be reversed, the ejected NVMe SSD can be re-installed back into OS by clicking the Insert button:



The screenshot shows the BMC GUI, identical to the previous one but with the 'Insert' button highlighted with a red box in the 'Locate / Stop Locate SSD' section. The rest of the interface, including the sidebar and main content area, remains the same.

4. Hot insert the replacement NVMe SSD. The replacement NVMe SSD could simply be hot inserted. After Windows discovers the newly inserted SSD, it will be ready for configuration and access.

## References

### *Internal References*

Supermicro SuperServer SYS-1029P-N32R information and documents:

<https://www.supermicro.com/products/system/1U/1029/SYS-1029P-N32R.cfm>

Supermicro SuperServer SYS-1029P-NR32R information and documents:

<https://www.supermicro.com/products/system/1U/1029/SYS-1029P-NR32R.cfm>

### *External References*

Intel SSD Data Center Tool information and downloads:

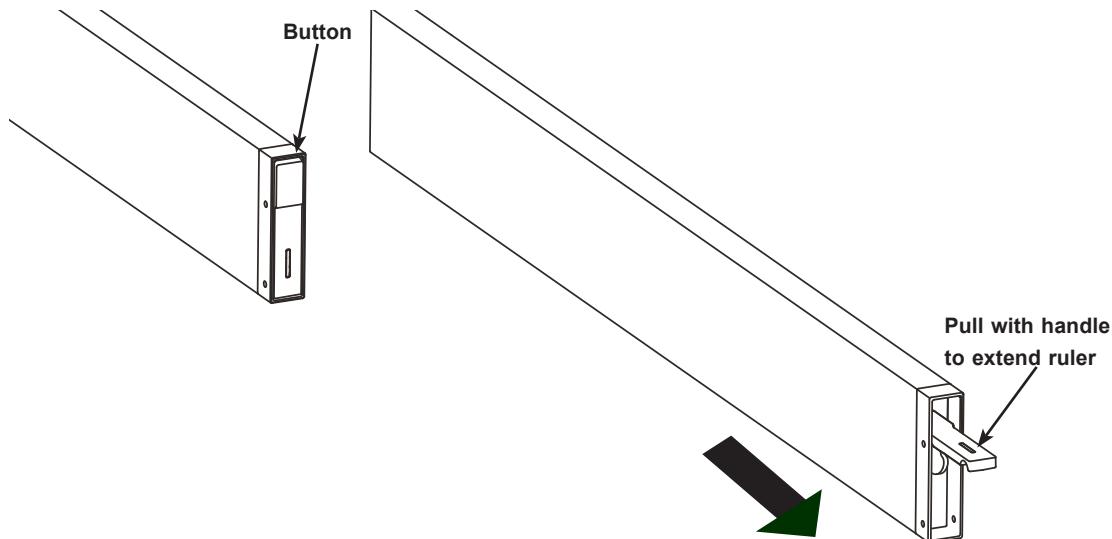
<https://downloadcenter.intel.com/download/27863?v=t>

## **Removing and Installing a Ruler Drive**

Drives are installed and removed by extending a ruler from the chassis.

### **Extending a Ruler**

1. Press the button at the top of the ruler to pop out the handle.
2. Grasp the handle and latches and use them to extend the ruler out of the chassis.



**Figure 3-10. Removing a Ruler**

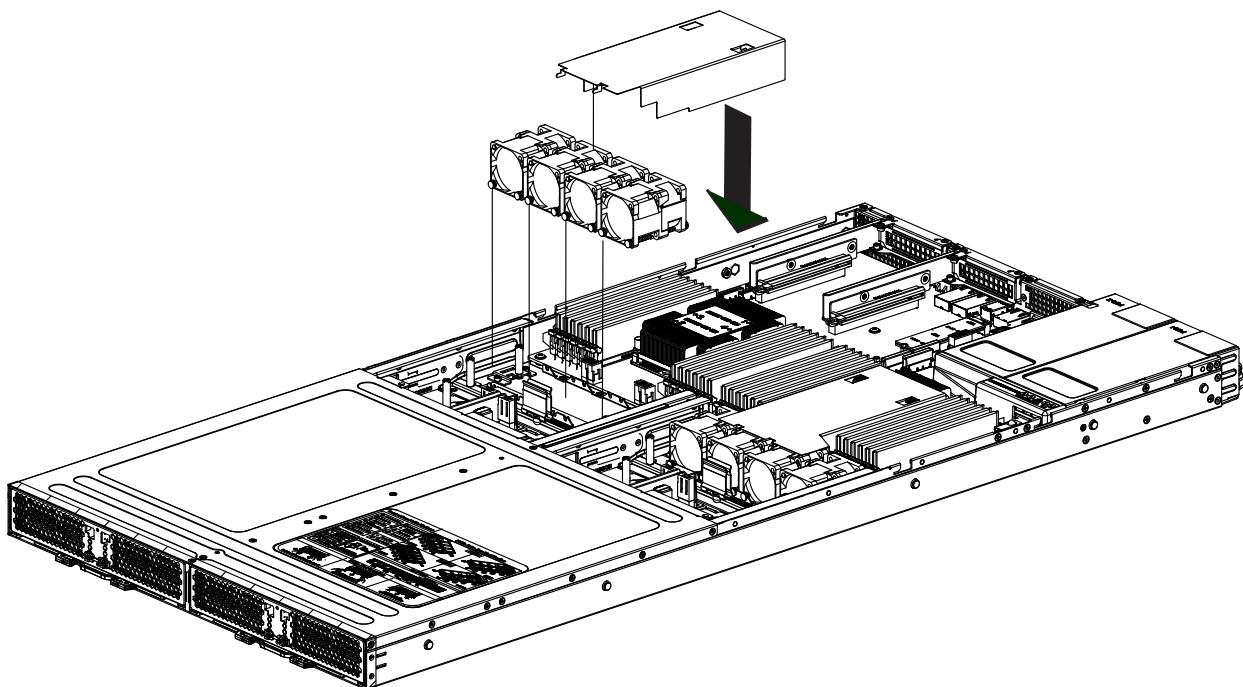
3. To reinstall the ruler, slide it back into the chassis until the handle retracts and the ruler clicks to a stop, indicating it has been fully seated.

## System Cooling

Eight 4-cm hot-swap fans provide the cooling for the system. It is very important that the chassis top cover is properly installed and forms a seal in order for the cooling air to circulate properly through the chassis and cool the components.

### *Replacing a Fan*

1. If necessary, open the chassis while the power is running to determine which fan requires changing. (Never run the system for an extended period of time with the chassis open.)
2. Open the chassis cover.
3. Remove the failed fan from the chassis.
4. Place the new fan into the vacant space in the housing while making sure the arrows on the top of the fan (indicating air direction) point in the same direction as the arrows on the other fans.



**Figure 3-11. Installing a System Fan**

## Power Supply

The 1029P-NR32R has a 1600W redundant, hot-plug power supply consisting of two power modules. Each power supply module has an auto-switching capability, which enables it to automatically sense and operate at a 100V - 240V input voltage.

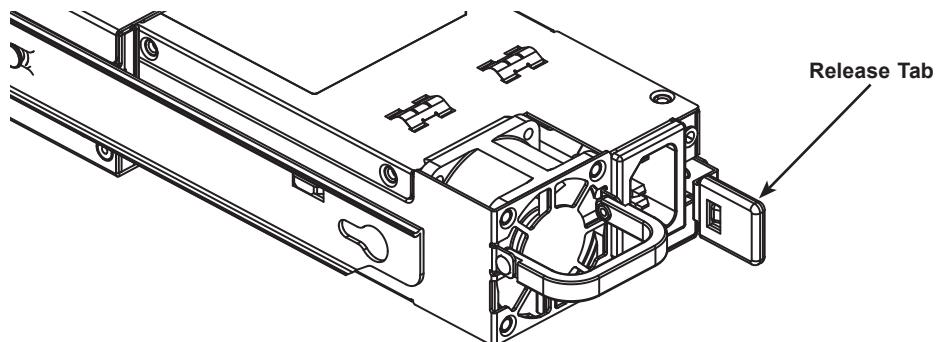
### ***Power Supply Failure***

If either of the two power supply modules fail, the other will take the full load and allow the system to continue operation without interruption. The Power Fail LED illuminates until the failed module has been replaced. Replacements can be ordered directly from Supermicro (see contact information in the Preface). The power supply modules have a hot-swap capability, so you can replace the failed module without powering down the system.

Replacement units can be ordered directly from Supermicro.

### ***Removing/Replacing the Power Supply***

1. Unplug the power cord from the failed power supply module.
2. Push the release tab on the back of the power supply.
3. Pull the power supply out using the handle provided.
4. Replace the failed power module with another of the same model.
5. Push the new power supply module into the power bay until it clicks into the locked position.
6. Plug the AC power cord back into the module.



**Figure 3-12. Removing/Replacing a Power Supply**

## PCI-E Expansion Cards

The 1029P-NR32R can accommodate up to two low-profile PCI-E expansion cards in the rear slots.

### ***Installing an Add-on Card***

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

1. Remove the shield for the PCI-E slot that you wish to populate. Verify that the card you are installing is supported by the slot.
2. Seat the card firmly into the slot by pushing down with your thumbs evenly on both sides of the card.
3. Use a screw to secure the top of the card shield to the chassis. The PCI-E slot shields protect the motherboard and its components from EMI and aid in proper ventilation, so verify that each unused slot is covered by a shield.

# Chapter 4

## Motherboard Connections

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

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

### 4.1 Power Connections

Two power connections on the X11DPS-RE must be connected to the power supply. The wiring is included with the power supply.

- SMCI-Proprietary Power (PSU1/PSU2)
- 8-pin Processor Power (JPWR1/JPWR2)

#### SMCI-Proprietary Power Connectors

Two SMCI-proprietary Power Supply Unit connectors, located at PSU1/PSU2, provide main power to your system. Please note that these power connectors are reserved for Supermicro system use only.

#### PCIE-Proprietary Power Connectors

JPWR1/2 are 12-pin power connectors used by proprietary PCIE-based memory backplane designs. Connect appropriate power cables here to provide power to your PCI-E devices.

| 12V 8-pin Power Pin Definitions |            |
|---------------------------------|------------|
| Pin#                            | Definition |
| 1 - 6                           | Ground     |
| 7 - 12                          | +12V       |

Required Connection

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

## 4.2 Front Control Panel

JF1 contains header pins for various buttons and indicators that are normally located on a control panel at the front of the chassis. These connectors are designed specifically for use with Supermicro chassis. See the figure below for the descriptions of the front control panel buttons and LED indicators.

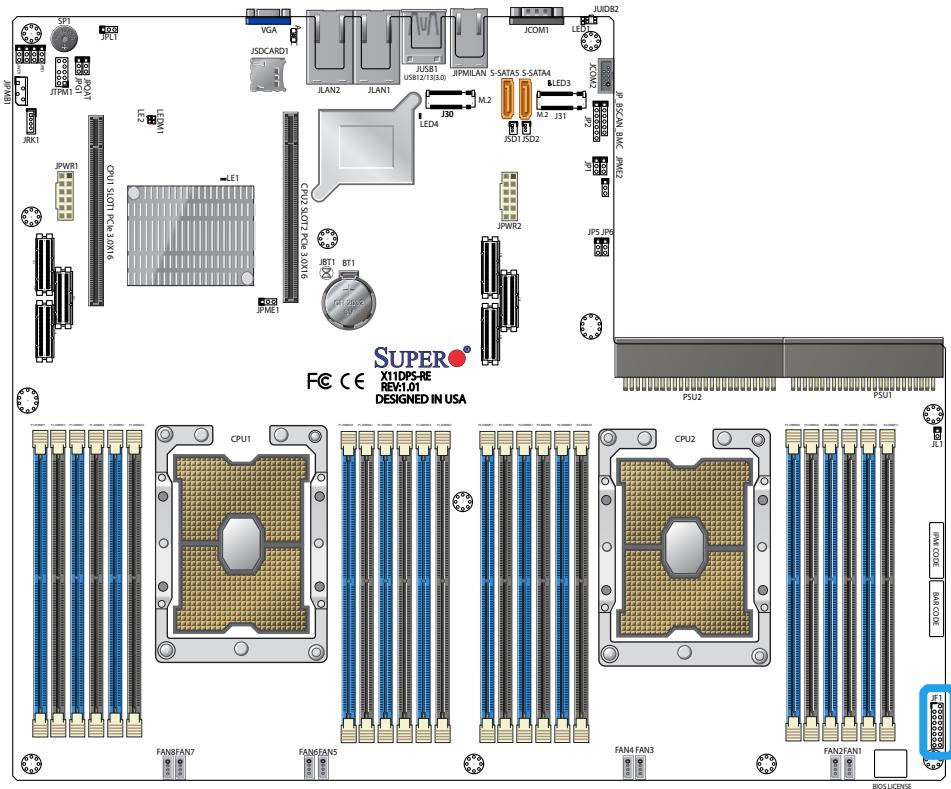


Figure 4.1 JF1 Header Pins

|           | 1            | 2 |                 |
|-----------|--------------|---|-----------------|
| PWR       | Power Button | ○ | ○               |
| Reset     | Reset Button | ○ | ○               |
| 3.3V      |              | ○ | ○               |
| UID LED   |              | ○ | ○               |
| 3.3V Stby |              | ○ | ○               |
| 3.3V Stby |              | ○ | ○               |
| 3.3V Stby |              | ○ | ○               |
| 3.3V Stby |              | ○ | ○               |
|           |              |   | Ground          |
|           |              |   | Ground          |
|           |              |   | Power Fail LED  |
|           |              |   | OH/Fan Fail LED |
|           |              |   | NIC2 Active LED |
|           |              |   | NIC1 Active LED |
|           |              |   | HDD LED         |
|           |              |   | PWR LED         |

## Power Button

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

| Power Button<br>Pin Definitions (JF1) |            |
|---------------------------------------|------------|
| Pins                                  | Definition |
| 1                                     | Signal     |
| 2                                     | Ground     |

## Reset Button

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

| Reset Button<br>Pin Definitions (JF1) |            |
|---------------------------------------|------------|
| Pins                                  | Definition |
| 3                                     | Reset      |
| 4                                     | Ground     |

## Power Fail LED

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

| Power Fail LED<br>Pin Definitions (JF1) |                 |
|---|-----------------|
| Pins                                    | Definition      |
| 5                                       | 3.3V            |
| 6                                       | PWR Supply Fail |

| Power Fail LED<br>Pin Definitions (JF1) |                 |
|---|-----------------|
| Pins                                    | Definition      |
| 5                                       | 3.3V            |
| 6                                       | PWR Supply Fail |

## Fan Fail and UID LED

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

| OH/Fan Fail LED<br>Pin Definitions (JF1) |                 |
|--|-----------------|
| Pins                                     | Definition      |
| 7  | Blue UID LED    |
| 8  | OH/Fan Fail LED |

| OH/Fan Fail Indicator<br>Status |            |
|---------------------------------|------------|
| State                           | Definition |
| Off                             | Normal     |
| On                              | Overheat   |
| Flashing                        | Fan Fail   |

## NIC1/NIC2 (LAN1/LAN2)

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

| LAN1/LAN2 LED<br>Pin Definitions (JF1) |            |      |                    |
|--|------------|------|--------------------|
| Pin#                                   | Definition | Pin# | Definition         |
| 9                                      | +3.3V      | 10   | NIC 2 Activity LED |
| 11                                     | +3.3V      | 12   | NIC 1 Activity LED |

## HDD LED

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

| HDD LED<br>Pin Definitions (JF1) |            |
|----------------------------------|------------|
| Pins                             | Definition |
| 13                               | 3.3V Stdby |
| 14                               | HDD Active |

### Unit Identifier Switch/UID LED Indicator

A Unit Identifier (UID) switch and a rear UID LED (LED1) are located on the I/O back panel. A front UID switch is located on pins 7 & 8 of the front panel control (JF1). When you press the front or the rear UID switch, both front and rear UID LEDs will be turned on. Press the UID switch again to turn off the LED indicators. The UID indicators provide easy identification of a system that may be in need of service. (Note: UID can also be triggered via IPMI on the motherboard. For more information, please refer to the IPMI User's Guide posted on our website at <http://www.supermicro.com>.)

| UID Switch<br>Pin Definitions |            |
|-------------------------------|------------|
| Pin#                          | Definition |
| 1                             | Ground     |
| 2                             | Ground     |
| 3                             | Button In  |
| 4                             | Button In  |

| UID LED<br>Pin Definitions |                 |
|----------------------------|-----------------|
| Color                      | Status          |
| Blue: On                   | Unit Identified |

### Power LED

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

| Power LED<br>Pin Definitions (JF1) |            |
|------------------------------------|------------|
| Pins                               | Definition |
| 15                                 | 3.3V       |
| 16                                 | PWR LED    |

## 4.3 Rear I/O Ports

See Figure 4-2 below for the locations and descriptions of the various I/O ports on the rear of the motherboard.

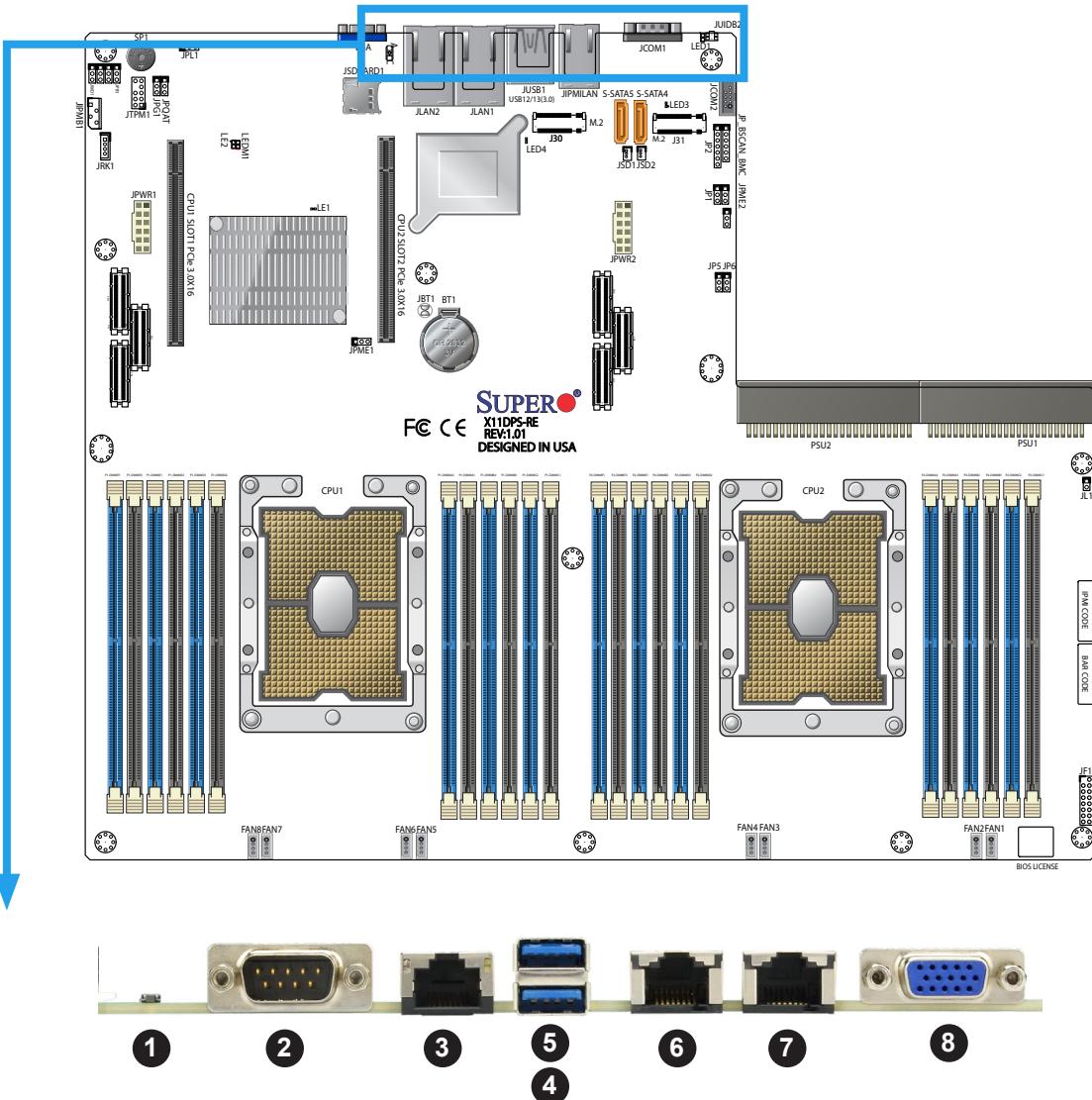


Figure 4.2 Rear I/O Ports

| Back Panel I/O Ports |                                 |     |             |
|----------------------|---------------------------------|-----|-------------|
| No.                  | Description                     | No. | Description |
| 1.                   | Unit Identifier Switch (JUIDB2) | 5.  | USB13 (3.0) |
| 2.                   | JCOM1                           | 6.  | JLAN1       |
| 3.                   | IPMI LAN                        | 7.  | JLAN2       |
| 4.                   | USB12 (3.0)                     | 8.  | VGA         |

## Serial Port

There are two COM connectors (JCOM1/JCOM2) near the I/O back panel, next to the IPMI LAN connector. These COM connectors provide serial communication support. See the table below for pin definitions.

## VGA Port

There is one VGA port on the IO back panel. Connect to this port for the VGA display.

| COM Connector (JCOM1/2)<br>Pin Definitions |            |      |            |
|--|------------|------|------------|
| Pin#                                       | Definition | Pin# | Definition |
| 1  | DCD        | 6    | DSR        |
| 2  | RXD        | 7    | RTS        |
| 3  | TXD        | 8    | CTS        |
| 4  | DTR        | 9    | RI         |
| 5  | Ground     | 10   | N/A        |

## Universal Serial Bus (USB) Ports

There are two USB 3.0 ports (USB12/14) on the I/O back panel located at JUSB1.

| Back Panel USB 12/13 (3.0)<br>Pin Definitions |            |      |            |
|---|------------|------|------------|
| Pin#  | Definition | Pin# | Definition |
| A1  | VBUS       | B1   | Power      |
| A2  | D-         | B2   | USB_N      |
| A3  | D+         | B3   | USB_P      |
| A4  | GND        | B4   | GND        |
| A5  | Stda_SSRX- | B5   | USB3_RN    |
| A6  | Stda_SSRX+ | B6   | USB3_RP    |
| A7  | GND        | B7   | GND        |
| A8  | Stda_SSTX- | B8   | USB3_TN    |
| A9  | Stda_SSTX+ | B9   | USB3_TP    |

## Ethernet Ports

An IPMI-dedicated LAN that supports GbE LAN is located on the backplane. All Ethernet ports accept RJ45 type cables. Please refer to the LED Indicator Section for LAN LED information.

## LAN Ports

Two 10G LAN ports (JLAN1, JLAN2) are located on the I/O back panel. These ports accept RJ45 type cables.

## 4.4 Headers and Connectors

### Onboard Fan Header

This motherboard has eight headers (FAN1~8). All these 4-pin fan headers are backward-compatible with traditional 3-pin fans. However, onboard fan speed control is available only when all 4-pin fans are used on the motherboard. Fan speed control is supported by Thermal Management via IPMI 2.0 interface. See the table below for pin definitions.

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

### TPM Header

The Trusted Platform Module (TPM)/Port 80 is located at JTPM1 and is available from SMCI (optional). 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 hard drive is not installed in the system. See the table below for pin definitions.

| TPM/Port 80 Header<br>Pin Definitions |             |      |            |
|---------------------------------------|-------------|------|------------|
| Pin#                                  | Definition  | Pin# | Definition |
| 1                                     | +3.3V       | 2    | SPI_CS#    |
| 3                                     | RESET#      | 4    | SPI_MISO   |
| 5                                     | SPI_CLK     | 6    | GND        |
| 7                                     | SPI_MOSI    | 8    |            |
| 9                                     | +3.3V Stdby | 10   | SPI IRQ    |

### RAID Key Header

A RAID key header is located at JRK1 on the motherboard and is used to support onboard NVMe drives.

### Chassis Intrusion

A Chassis Intrusion header is located at JL 1 on the motherboard. Attach the appropriate cable from the chassis to inform you of a chassis intrusion when the chassis is opened. Refer to the table below for pin definitions.

| Chassis Intrusion<br>Pin Definitions |                 |
|--------------------------------------|-----------------|
| Pin#                                 | Definition      |
| 1                                    | Intrusion Input |
| 2                                    | Ground          |

### NVMe Slots (PCI-E 3.0 x32)

There are two PCI-E 3.0 x32 slots with Tray Cable Connector Interface connections on the motherboard.

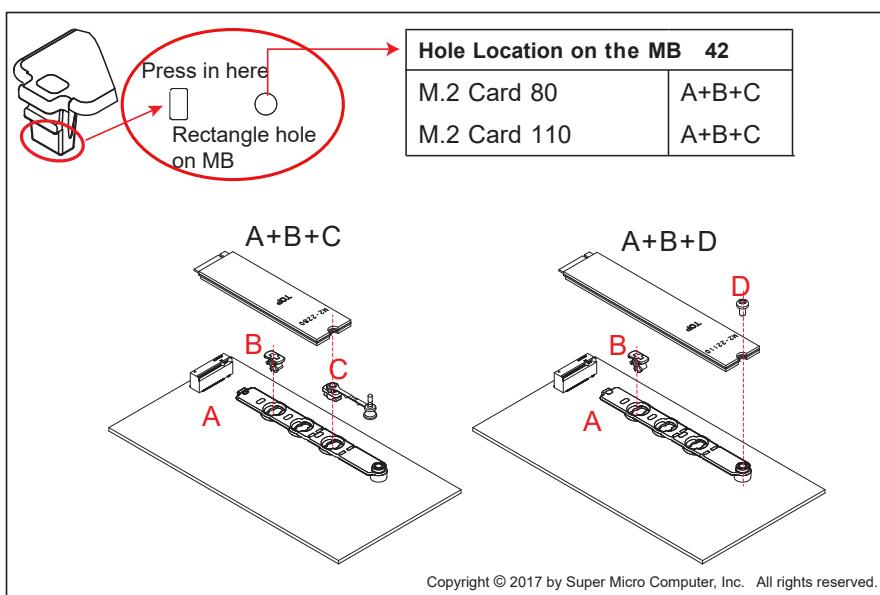
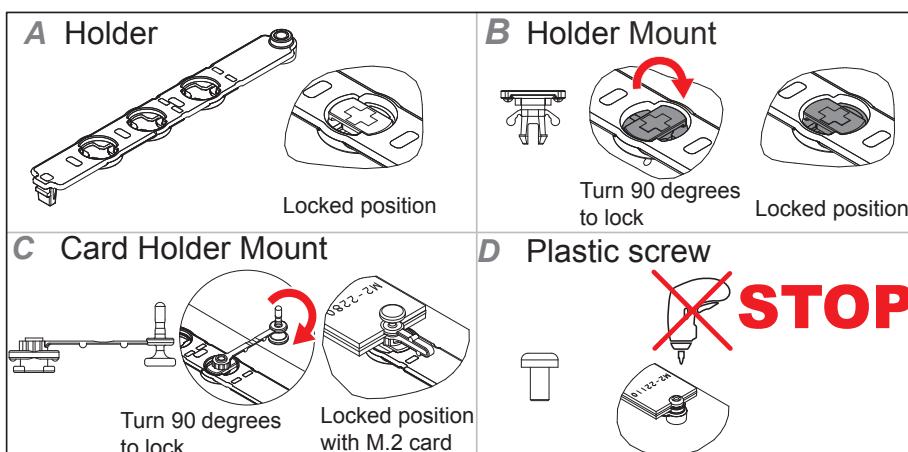
### PCI-E 3.0 Slots

There are two PCI-E 3.0 x16 slots located on the motherboard. CPU1 SLOT1 PCI-E and CPU2 SLOT2 PCI-E are supported by their corresponding CPU's, and offer riser card support.

**Note:** To avoid causing interference with other components, please be sure to use an add-on card that is fully compliant with the PCI-standard on a PCI slot.

### PCI-E Hybrid M.2 Slots

The X11DPS-RE motherboard has two PCI-E hybrid M.2 slots, J30 (SLOT1), and J31 (SLOT2). M.2 was formerly Next Generation Form Factor (NGFF) and serves to replace mini PCI-E. M.2 allows for a variety of card sizes, increased functionality, and spatial efficiency. The M.2 socket on the motherboard supports PCI-E 3.0 X4 (32 Gb/s) SSD cards in the 2280 and 22110 form factors.



### S-SATA 3.0 Ports

The X11DPS-RE has two SATA DOM 3.0 ports (S-SATA4, S-SATA5). S-SATA4/S-SATA5 can be used with Supermicro SuperDOMs which are yellow SATA DOM connectors with power pins built in, and do not require external power cables. Supermicro SuperDOMs are backward-compatible with regular SATA HDDs or SATA DOMs that need external power cables. All these SATA ports provide serial-link signal connections, which are faster than the connections of Parallel ATA.

| SATA 3.0 Port Pin Definitions |          |
|-------------------------------|----------|
| Pin#                          | Signal   |
| 1                             | Ground   |
| 2                             | SATA_TXP |
| 3                             | SATA_TXN |
| 4                             | Ground   |
| 5                             | SATA_RXN |
| 6                             | SATA_RXP |
| 7                             | Ground   |

### Internal Speaker/Buzzer

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

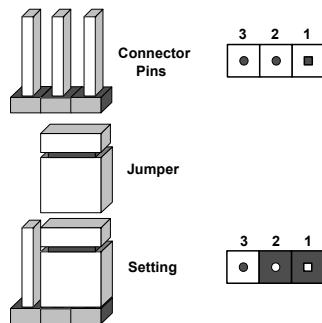
| Internal Buzzer Pin Definitions |            |               |
|---------------------------------|------------|---------------|
| Pin#                            | Definition |               |
| 1                               | Pos (+)    | Beep In       |
| 2                               | Neg (-)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

## 4.5 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**

JB1 is used to clear CMOS, which will also clear any passwords. Instead of pins, this jumper consists of contact pads to prevent accidentally clearing the contents of CMOS.

#### **To Clear CMOS**

1. First power down the system and unplug the power cord(s).
2. Remove the cover of the chassis to access the motherboard.
3. Remove the onboard battery from the motherboard.
4. Short the CMOS pads with a metal object such as a small screwdriver for at least four seconds.
5. Remove the screwdriver (or shorting device).
6. Replace the cover, reconnect the power cord(s) and power on the system.

**Notes:** Clearing CMOS will also clear all passwords.

*Do not use the PW\_ON connector to clear CMOS.*



## BIOS Recovery

The default setting is on pins 1 and 2 of jumper JBR1 for normal operation (Normal). For BIOS recovery, close pins 2-3. Refer to the table below for jumper settings.

| BIOS Recovery<br>Jumper Settings |               |
|----------------------------------|---------------|
| Jumper Setting                   | Definition    |
| Pins 1-2                         | Normal        |
| Pins 2-3                         | BIOS Recovery |

## VGA Enable/Disable

JPG1 allows you to enable or disable the VGA port using the onboard graphics controller.

The default setting is Enabled.

| VGA Enable/Disable<br>Jumper Settings |            |
|---------------------------------------|------------|
| Jumper Setting                        | Definition |
| Pins 1-2                              | Enabled    |
| Pins 2-3                              | Disabled   |

## Management Engine (ME) Recovery

Use jumper JPME1 to select ME Firmware Recovery mode, which will limit resource allocation for essential system operation only in order to maintain normal power operation and management. In the single operation mode, online upgrade will be available via Recovery mode. See the table below for jumper settings.

| ME Recovery Mode<br>Jumper Settings |             |
|-------------------------------------|-------------|
| Jumper Setting                      | Definition  |
| Pins 1-2                            | Normal      |
| Pins 2-3                            | ME Recovery |

## Manufacturing Mode Select

Close JPME2 to bypass SPI flash security and force the system to use the Manufacturing Mode, which will allow you to flash the system firmware from a host server to modify system settings. See the table below for jumper settings.

| Manufacturing Mode Select<br>Jumper Settings |                    |
|--|--------------------|
| Jumper Setting                               | Definition         |
| Pins 1-2                                     | Normal (Default)   |
| Pins 2-3                                     | Manufacturing Mode |

### Watch Dog Timer

The Watch Dog function is a monitor controlled by the JWD1 that can reboot the system when a software application hangs. It must be enabled in BIOS, where the default is set to Reset. In the case an application hangs, jumping pins 1-2 will cause Watch Dog to reset the system while jumping pins 2-3 will generate a non-maskable interrupt signal.

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

## 4.6 LED Indicators

### IPMI-Dedicated LAN LEDs

An IPMI-dedicated LAN is located on the I/O Backplane of the motherboard. The amber LED on the right indicates activity, while the green LED on the left indicates the speed of the connection. See the tables at right for more information.

| IPMI LAN Link LED (Left) & Activity LED (Right) |                 |            |
|---|-----------------|------------|
| Color   | State           | Definition |
| Link (Left)                                     | Green: Solid    | 100 Mbps   |
| Activity (Right)                                | Amber: Blinking | Active     |



### BMC Heartbeat LED

LEDM1 is the BMC heartbeat LED. When the LED is blinking green, BMC is functioning normally. See the table below for the LED status.

| Onboard Power LED Indicator |            |
|-----------------------------|------------|
| LED Color                   | Definition |
| Green: Blinking             | BMC Normal |

## Onboard Power LED

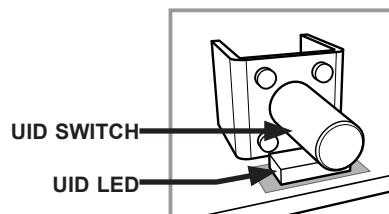
The Onboard Power LED is located at LE2 on the motherboard. When this LED is on, the system is also on. Be sure to turn off the system and unplug the power cord before removing or installing components. Refer to the table below for more information.

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

## Unit ID LED

A rear UID LED indicator at LED1 is located near the UID switch on the I/O back panel. This UID indicator provides easy identification of a system unit that may need service.

| UID LED<br>LED Indicator |                 |
|--------------------------|-----------------|
| LED Color                | Definition      |
| Blue: On                 | Unit Identified |



# Chapter 5

## Software

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

### 5.1 OS Installation

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

#### Installing the Windows OS for a RAID System

1. Insert Microsoft's Windows Setup DVD in the DVD drive and the system will start booting up from the DVD.
2. Insert the USB stick containing Windows drivers to a USB port on the system.  
**Note:** for older legacy OS's, please use a method to slipstream the drivers.
3. Select the partition on the drive in which to install Windows.
4. Browse the USB folder for the proper driver files.
5. Choose the RAID driver indicated in the Windows OS Setup screen, then choose the hard drive in which you want to install it.
6. Once all devices are specified, continue with the installation.
7. After the Windows OS installation is completed, the system will automatically reboot.

#### Installing Windows to a Non-RAID System

1. Insert Microsoft's Windows OS Setup DVD in the DVD-ROM drive and the system will start booting up from the DVD.
2. Continue with the installation. The Windows OS Setup screen will display.
3. From the Windows OS Setup screen, press the <Enter> key. The OS Setup will automatically load all device files and then continue with the Windows installation.
4. After the installation has completed, the system will automatically reboot.

## 5.2 Driver Installation

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

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

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

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

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



Figure 5-1. Driver & Tool Installation Screen

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

## 5.3 SuperDoctor® 5

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

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

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

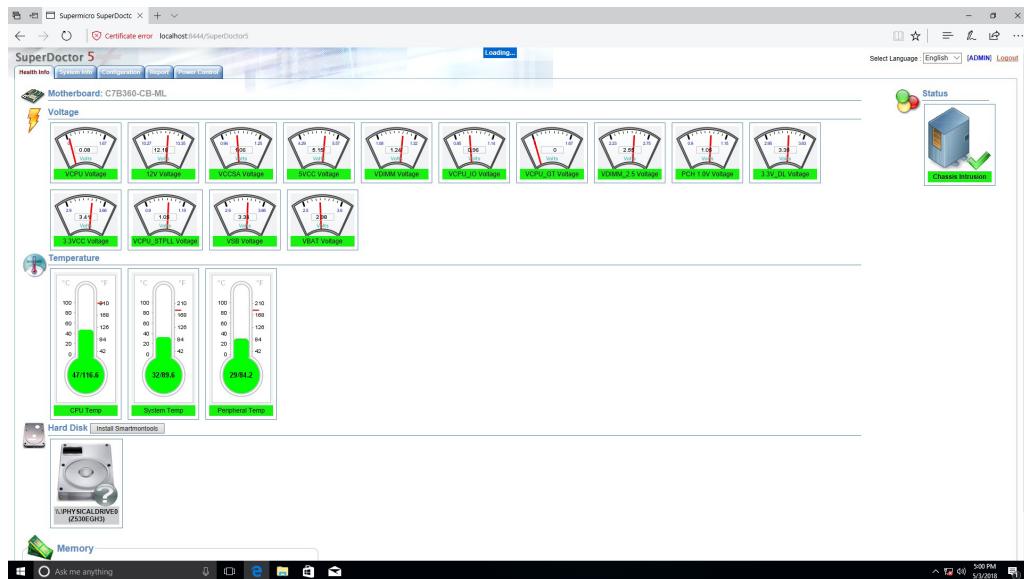


Figure 5-2. SuperDoctor 5 Interface Display Screen (Health Information)

## 5.4 IPMI

The X11DPS-RE supports the Intelligent Platform Management Interface (IPMI). IPMI is used to provide remote access, monitoring and management. There are several BIOS settings that are related to IPMI.

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

# Chapter 6

## BIOS

### 6.1 Introduction

This chapter describes the AMIBIOS™ Setup utility for the X11DPS-RE motherboard. The BIOS is stored on a chip and can be easily upgraded using a flash program.

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

#### Starting the Setup Utility

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

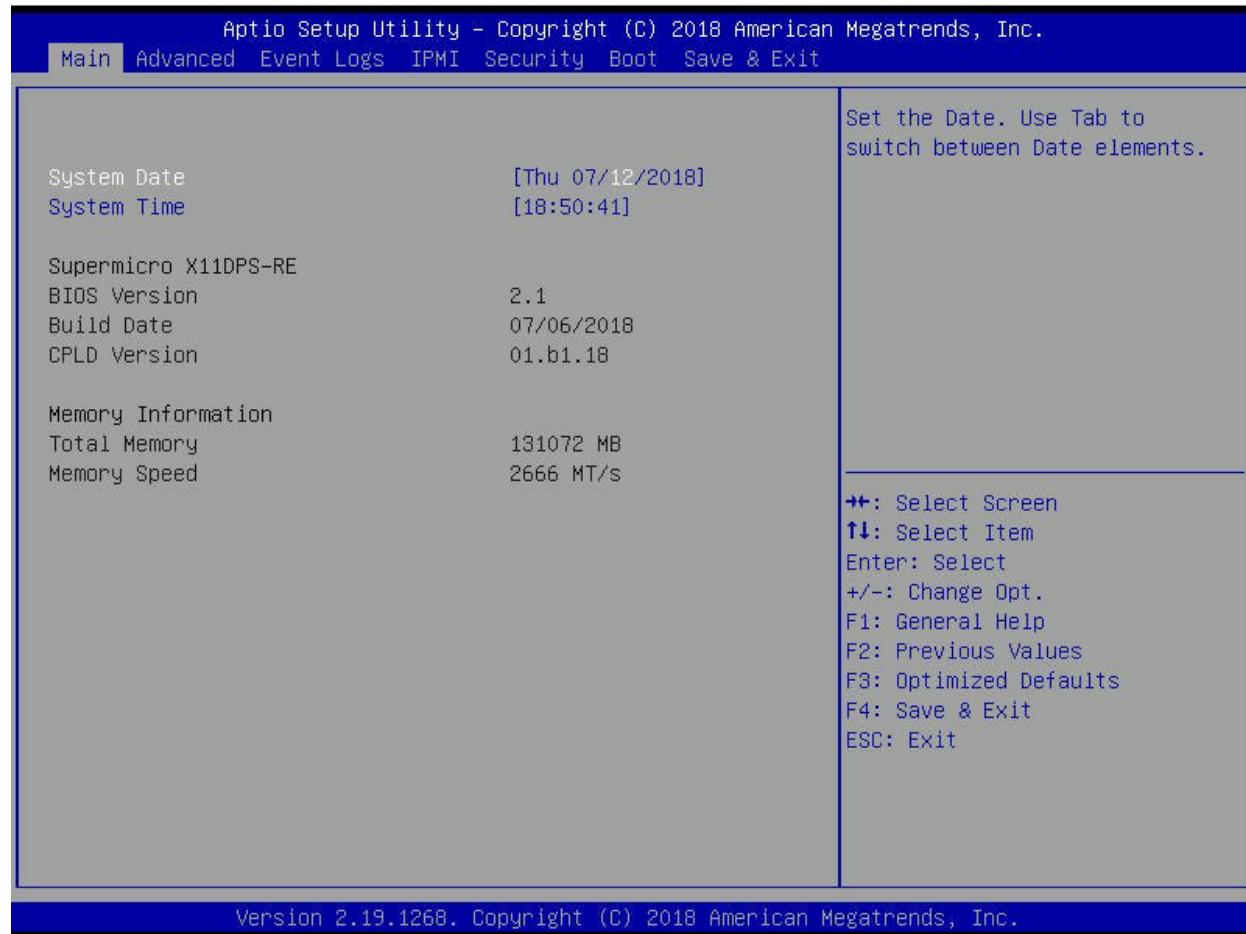
The Main BIOS screen has two main frames. The left frame displays all the options that can be configured. “Grayed-out” options cannot be configured. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is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

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

The BIOS setup utility uses a key-based navigation system called hot keys. Most of these hot keys (**<F1>**, **<F10>**, **<Enter>**, **<ESC>**, **<Arrow>** keys, etc.) can be used at any time during the setup navigation process.

## 6.2 Main Menu

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



### System Date/System Time

Use this item to change the system date and time. Highlight System Date or System Time using the arrow keys. Enter new values using the keyboard. Press the <Tab> key or the arrow keys to move between fields. The date must be entered in Day MM/DD/YYYY format. The time is entered in HH:MM:SS format.

**Note:** The time is in the 24-hour format. For example, 5:30 P.M. appears as 17:30:00. The date's default value is 01/01/2014 after RTC reset.

### Supermicro X11DPS-RE

#### BIOS Version

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

#### Build Date

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

### CPLD Version

This item displays the version of the CPLD (Complex-Programmable Logical Device) used in the system.

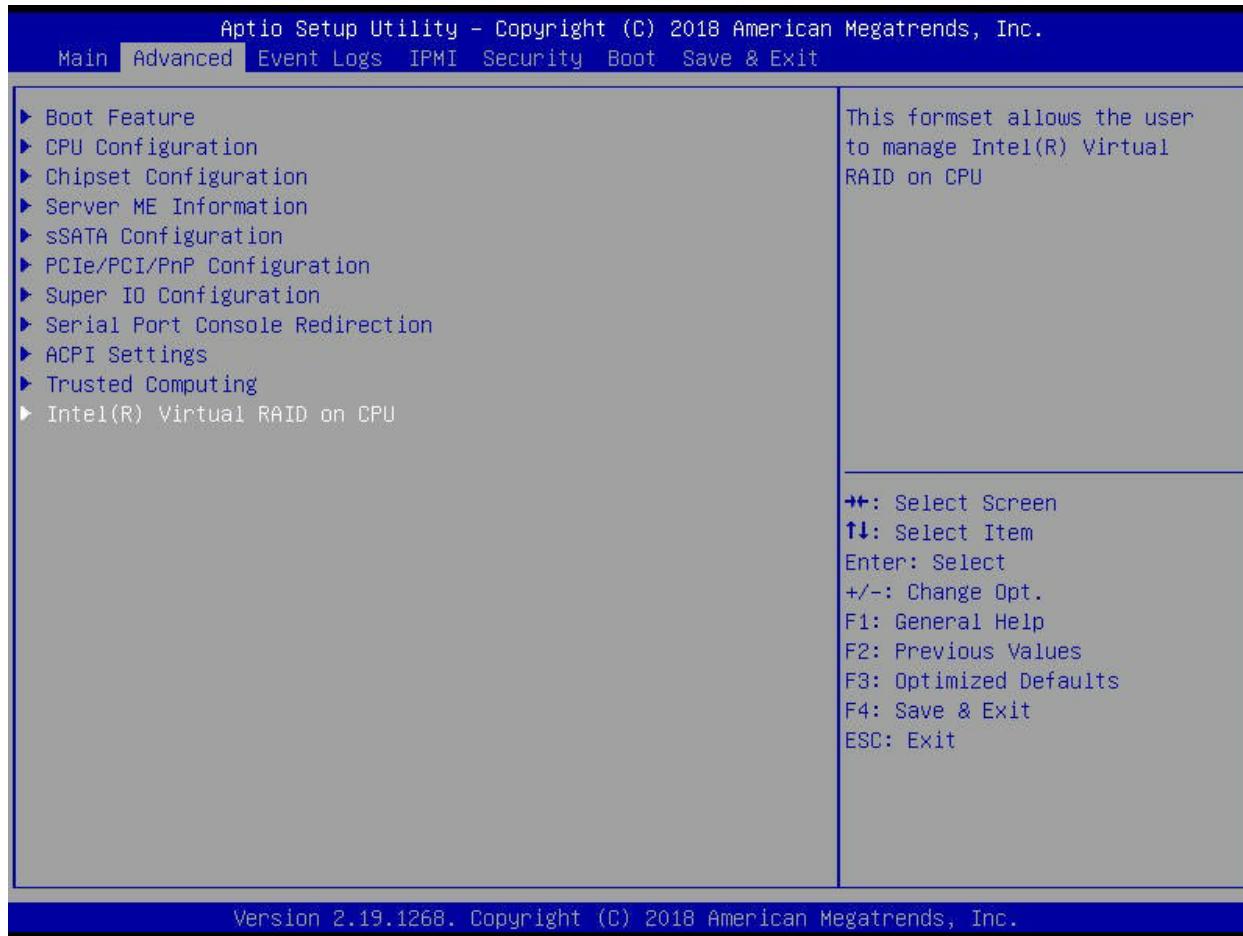
### Memory Information

#### Total Memory

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

## 4.3 Advanced Setup Configurations

Use the arrow keys to select the Advanced submenu and press <Enter> to access the submenu items:



**Warning:** Take caution when changing the Advanced settings. An incorrect value, a very high DRAM frequency, or an incorrect DRAM timing setting may make the system unstable. When this occurs, revert to the default to the manufacturer default settings.

## ►Boot Feature

### **Quiet Boot**

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

**Note:** POST message is always displayed regardless of the item setting.

### **Option ROM Messages**

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

### **Bootup NumLock State**

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

### **Wait For 'F1' If Error**

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

### **INT19 Trap Response**

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

### **Re-try Boot**

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

## **Power Configuration**

### **Watch Dog Function**

Select Enabled to allow the Watch Dog timer to reboot the system when it is inactive for more than 5 minutes. The options are **Disabled** and **Enabled**.

### Power Button Function

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

### Restore on AC Power Loss

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

## ►CPU Configuration

**Warning:** Setting the wrong values in the following sections may cause the system to malfunction.

## ►Processor Configuration

The following CPU information will be displayed:

- Processor BSP Revision
- Processor Socket
- Processor ID
- Processor Frequency
- Processor Max Ratio
- Processor Min Ratio
- Microcode Revision
- L1 Cache RAM
- L2 Cache RAM
- L3 Cache RAM
- Processor 0 Version
- Processor 1 Version

### Hyper-Threading (ALL)

Select Enable to use Intel Hyper-Threading Technology to enhance CPU performance. The options are **Disabled** and Enabled.

#### Cores Enabled

Use this feature to enable or disable CPU cores in the processor specified by the user. Enter 0 to enable all cores available in the processor. Please note that the maximum of 16 CPU cores are currently available in each CPU package. The default option is **0**.

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

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

#### Intel Virtualization Technology

Select **Enable** to use Intel Virtualization Technology, which will allow the I/O device assignments to be directly reported to the VMM (Virtual Memory Management) through the DMAR ACPI tables. This feature offers fully-protected I/O resource-sharing across the Intel platforms, providing the user with greater reliability, security and availability in networking and data-sharing. The settings are **Disable** and **Enable**.

#### PPIN Control

Select Unlock/Enable to use the Protected-Processor Inventory Number (PPIN) in the system. The options are **Unlock/Disable** and **Unlock/Enable**.

#### Hardware Prefetcher (Available when supported by the CPU)

If this feature is set to Enable, the hardware prefetcher will prefetch streams of data and instructions from the main memory to the Level 2 (L2) cache to improve CPU performance. The options are **Enable** and **Disable**.

#### Adjacent Cache Prefetch (Available when supported by the CPU)

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

**Note:** Please power off and reboot the system for the changes you've made to take effect. Please refer to Intel's website for detailed information.

#### DCU Streamer Prefetcher (Available when supported by the CPU)

If this item is set to Enable, the DCU (Data Cache Unit) streamer prefetcher will prefetch data streams from the cache memory to the DCU (Data Cache Unit) to speed up data accessing and processing for CPU performance enhancement. The options are **Enable** and **Disable**.

### **DCU IP Prefetcher**

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

### **LLC Prefetch**

If this feature is set to Enable, LLC (hardware cache) prefetching on all threads will be supported. The options are **Disable** and Enable.

### **Extended APIC (Extended Advanced Programmable Interrupt Controller)**

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

### **AES-NI**

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

## **►Advanced Power Management Configuration**

### **Power Technology**

Select Energy Efficient to support power-saving mode. Select Custom to customize system power settings. Select Disabled to disable power-saving settings. The options are Disable, **Energy Efficient**, and Custom. When this feature is set to Custom, the following items will display.

#### **Power Performance Tuning (Available when "Power Technology" is set to Custom)**

Select BIOS to allow the system BIOS to configure the Power-Performance Tuning Bias setting below. The options are BIOS Controls EPB and **OS Controls EPB**.

#### **ENERGY\_PERF\_BIAS\_CFG Mode Energy (ENERGY PERFORMANCE BIAS CONFIGURATION Mode) (Available when supported by the Processor and when "Power Performance Tuning" is set to BIOS Controls EPB)**

This feature allows the user to set the desired processor power use policy for the machine by prioritizing system performance or energy savings. Selecting Maximum Performance will maximize performance (to its highest potential); however, this may result in maximum power consumption. The higher the performance is, the higher the power consumption will be. Select Max Power Efficient to prioritize power saving; however, system performance may be substantially impacted. The options are Maximum Performance, Performance, **Balanced Performance**, Balanced Power, Power, and Max Power Efficient.

## ►CPU P State Control

### SpeedStep (PStates)

EIST (Enhanced Intel SpeedStep Technology) allows the system to automatically adjust processor voltage and core frequency in an effort to reduce power consumption and heat dissipation. Please refer to Intel's website for detailed information. The options are **Disable** and **Enable**.

#### **EIST PSD Function (Available when SpeedStep is set to Enable)**

Use this item to configure the processor's P-State coordination settings. During a P-State, the voltage and frequency of the processor will be reduced when it is in operation. This makes the processor more energy efficient, resulting in further energy gains. The options are **HW\_ALL**, **SW\_ALL** and **SW-ANY**.

#### **Turbo Mode (Available when SpeedStep is set to Enable)**

Select **Enable** for processor cores to run faster than the frequency specified by the manufacturer. The options are **Disable** and **Enable**.

## ►Hardware PM (Power Management) State Control

### Hardware P-States

If this feature is set to **Disable**, hardware will choose a P-state setting for the system based on an OS request. If this feature is set to **Native Mode**, hardware will choose a P-state setting based on OS guidance. If this feature is set to **Native Mode with No Legacy Support**, hardware will choose a P-state setting independently without OS guidance. The options are **Disable**, **Native Mode**, **Out of Band Mode**, and **Native Mode with No Legacy Support**.

## ►CPU C State Control

### Autonomous Core C-State

Select **Enable** to support Autonomous Core C-State control which will allow the processor core to control its C-State setting automatically and independently. The options are **Disable** and **Enable**.

### CPU C6 Report

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

### **Enhanced Halt State (C1E)**

Select Enable to enable "Enhanced Halt State" support, which will significantly reduce the CPU's power consumption by minimizing CPU's clock cycles and reduce voltage during a "Halt State." The options are **Disable** and **Enable**.

## **► Package C State Control**

### **Package C State**

Use this feature to set the limit on the C-State package register. The options are **C0/C1 state**, C2 state, C6 (non-Retention) state, C6 (Retention) state, No Limit, and Auto.

## **► Chipset Configuration**

**Warning:** Setting the wrong values in the following sections may cause the system to malfunction.

## **► North Bridge**

This feature allows the user to configure the settings for the Intel North Bridge.

## **► UPI (Ultra Path Interconnect) Configuration**

This section displays the following UPI General Configuration information:

- Number of CPU
- Number of IIO
- Current UPI Link Speed
- Current UPI Link Frequency
- UPI Global MMIO Low Base/Limit
- UPI Global MMIO High Base/Limit
- UPI PCI-E Configuration Base/Size

### **Degrade Precedence**

Use this feature to select the degrading precedence option for Ultra Path Interconnect connections. Select Topology Precedent to degrade UPI features if system options are in conflict. Select Feature Precedence to degrade UPI topology if system options are in conflict. The options are **Topology Precedence** and **Feature Precedence**.

### **Link L0p Enable**

Select Enable to enable Link L0p. The options are Disable, Enable, and **Auto**.

### **Link L1 Enable**

Select Enable to enable Link L1 (Level 1 link). The options are Disable, Enable, and **Auto**.

### **IO Directory Cache**

Select Enable for the IODC (I/O Directory Cache) to generate snoops instead of generating memory lockups for remote IIO (InvlToM) and/or WCiLF (Cores). Select Auto for the IODC to generate snoops (instead of memory lockups) for WCiLF (Cores). The options are Disable, **Auto**, Enable for Remote InvlToM Hybrid Push, InvlToM AllocFlow, Enable for Remote InvlToM Hybrid AllocNonAlloc, and Enable for Remote InvlToM and Remote WVLF.

### **Isoc Mode**

Select Enabled for Isochronous support to meet QoS (Quality of Service) requirements. This feature is especially important for Virtualization Technology. The options are Enable and **Disable**.

### **SNC**

Sub NUMA Clustering (SNC) is a feature that breaks up the Last Level Cache (LLC) into clusters based on address range. Each cluster is connected to a subset of the memory controller. Enabling SNC improves average latency and reduces memory access congestion to achieve higher performance. Select Auto for 1-cluster or 2-clusters depending on IMC interleave. Select Enable for Full SNC (2-clusters and 1-way IMC interleave). The options are **Disable**, Enable, and Auto.

### **Stale AtoS**

This feature optimizes A to S directory. When all snoop responses found in directory A are found to be RspI, then all data is moved to directory S and is returned in S-state. The options are **Disable**, Enable, and Auto.

### **LLC dead line alloc**

Select Enable to optimally fill dead lines in LLC. Select Disable to never fill dead lines in LLC. The options are Disable, **Enable**, and Auto.

## ►Memory Configuration

### Enforce POR

Select POR to enforce POR restrictions for DDR4 memory frequency and voltage programming. The options are **POR** and Disable.

### Memory Frequency

Use this feature to set the maximum memory frequency for onboard memory modules. The options are **Auto**, 1866, 2000, 2133, 2200, 2400, 2600, and 2666.

### IMC Interleaving

This feature allows the user to configure Integrated Memory Controller (IMC) Interleaving settings. The options are **Auto**, 1-way Interleave, and 2-way Interleave.

### Data Scrambling for NVDIMM

Select Enable to enable data scrambling for onboard NVDIMM memory to enhance system performance and security. The options are **Auto**, Disable, and Enable.

### Data Scrambling for DDR4

Select Enable to enable data scrambling for DDR4 memory to enhance system performance and security. The options are **Auto**, Disable, and Enable.

### tCCD\_L Relaxation

Select Enable for tCCD\_L to override the SPD. Select Disable for onboard DIMM modules to run based on memory frequencies. The options are **Enable** or **Disable**.

### rRWSR Relaxation

Select Enable for rRWSR to override SPD. Select Disable for onboard DIMM modules to run based on memory frequencies. The options are **Enable** or **Disable**.

### Enable ADR

Select Enable for ADR (Automatic Diagnostic Repository) support to enhance memory performance. The options are **Disable** and **Enable**.

## ►Memory Topology

This item displays the information of onboard memory modules as detected by the BIOS.

## ►Memory RAS (Reliability\_Availability\_Serviceability) Configuration

Use this submenu to configure the following Memory RAS settings.

### Mirror Mode

Select Enable to set all 1LM/2LM memory installed in the system on the mirror mode, which will create a duplicate copy of data stored in the memory to increase memory security, but it will reduce the memory capacity into half. The options are **Disable**, Mirror Mode 1LM and Mirror Mode 2LM.

### Memory Rank Sparing

Select Enable to support memory-rank sparing to optimize memory performance. The options are **Disable** and **Enable**.

**Note:** This item will not be available when memory mirror mode is enabled.

### Correctable Error Threshold

Use this item to enter the threshold value for correctable memory errors. The default setting is **10**.

### SDDC Plus One (Available when this feature is supported by the CPU & the item: Intel Run Sure is set to Disable)

SDDC (Single Device Data Correction) checks and corrects single-bit or multiple-bit (4-bit max.) memory faults that affect an entire single x4 DRAM device. SDDC Plus One is the enhanced feature to SDDC. SDDC+1 will spare the faulty DRAM device out after an SDDC event has occurred. After the event, the SDDC+1 ECC mode is activated to protect against any additional memory failure caused by a 'single-bit' error in the same memory rank. The options are **Disable** and **Enable\***. (The option "Enable" can be set as default when it is supported by the motherboard.)

### ADDDC (Adaptive Double Device Data Correction) Sparing

Select Enable for Adaptive Double Device Data Correction (ADDDC) support, which will not only provide memory error checking and correction but will also prevent the system from issuing a performance penalty before a device fails. Please note that virtual lockstep mode will only start to work for ADDDC after a faulty DRAM module is spared. The options are **Enable\*** and **Disable**. (The option "Enable" can be set as default when it is supported by the motherboard.)

### **Patrol Scrub**

Patrol Scrubbing is a process that allows the CPU to correct correctable memory errors detected in a memory module and send the corrections to the requestor (the original source). When this item is set to **Enable**, the IO hub will read and write back one cache line every 16K cycles if there is no delay caused by internal processing. By using this method, roughly 64 GB of memory behind the IO hub will be scrubbed every day. The options are **Disable** and **Enable**.

### **Patrol Scrub Interval**

Use this item to specify the number of hours (between 0 to 24) required for the system to complete a full patrol scrubbing. Enter 0 for patrol scrubbing to be performed automatically. The default setting is **24**.

**Note:** This item is hidden when Patrol Scrub item is set to Disable.

## **► IIO Configuration**

### **EV DFX (Device Function On-Hide) Features**

When this feature is set to **Enable**, the EV\_DFX Lock Bits that are located in a processor will always remain clear during electric tuning. The options are **Disable** and **Enable**.

## **► CPU1 Configuration**

### **IOU0 (IIO PCIe Br1)**

This item configures the PCI-E Bifurcation setting for a PCI-E port specified by the user. The options are x4x4x4x4, x4x4x8, x8x4x4, x8x8, x16, and **Auto**.

### **IOU1 (IIO PCIe Br2)**

This item configures the PCI-E Bifurcation setting for a PCI-E port specified by the user. The options are x4x4x4x4, x4x4x8, x8x4x4, x8x8, x16, and **Auto**.

### **IOU2 (IIO PCIe Br3)**

This item configures the PCI-E Bifurcation setting for a PCI-E port specified by the user. The options are x4x4x4x4, x4x4x8, x8x4x4, x8x8, x16, and **Auto**.

### **MCP0 (IIO PCIe Br4)**

This item configures the PCI-E Bifurcation setting for a PCI-E port specified by the user. The options are x16 and **Auto**.

### **MCP1 (IIO PCIe Br5)**

This item configures the PCI-E Bifurcation setting for a PCI-E port specified by the user. The options are x16 and **Auto**.

## **►Socket 0 PcieBr0D00F0 - Port 0/DMI PcieBr1D00F0 - Port 1A PcieBr2D00F0 - Port 2A PcieBr3D00F0 - Port 3A PcieBr4D00F0 - MCP 0 PcieBr5D00F0 - MCP 1**

### **Link Speed**

Use this item to select the link speed for the PCI-E port specified by the user. The options are **Auto**, Gen 1 (2.5 GT/s), Gen 2 (5 GT/s), and Gen 3 (8 GT/s).

### **PCI-E Port Max Payload Size**

Selecting **Auto** for this feature will enable the motherboard to automatically detect the maximum Transaction Layer Packet (TLP) size for the connected PCI-E device, allowing for maximum I/O efficiency. Selecting 128B or 256B will designate maximum packet size of 128 or 256. Options are **Auto**, 128, and 256. **Auto** is enabled by default.

## **►IOAT Configuration**

### **Disable TPH (TLP Processing Hint)**

TPH is used for data-tagging with a destination ID and a few important attributes. It can send critical data to a particular cache without writing through to memory. Select No in this item for TLP Processing Hint support, which will allow a "TPL request" to provide "hints" to help optimize the processing of each transaction occurred in the target memory space. The options are **No** and Yes.

### **Prioritize TPH (TLP Processing Hint)**

Select Yes to prioritize the TPL requests that will allow the "hints" to be sent to help facilitate and optimize the processing of certain transactions in the system memory. The options are **Enable** and **Disable**.

### **Relaxed Ordering**

Select **Enable** to enable Relaxed Ordering support which will allow certain transactions to violate the strict-ordering rules of PCI and to be completed prior to other transactions that have already been enqueued. The options are **Disable** and **Enable**.

## ►Intel VT for Directed I/O (VT-d)

### Intel® VT for Directed I/O (VT-d)

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

### Interrupt Remapping

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

### PassThrough DMA

Select Enable for the Non-Iscoh VT-d engine to pass through DMA (Direct Memory Access) to enhance system performance. The options are **Enable** and Disable.

### ATS

Select Enable to enable ATS (Address Translation Services) support for the Non-Iscoh VT-d engine to enhance system performance. The options are **Enable** and Disable.

### Posted Interrupt

Select Enable to support VT\_D Posted Interrupt which will allow external interrupts to be sent directly from a direct-assigned device to a client machine in non-root mode to improve virtualization efficiency by simplifying interrupt migration and lessening the need of physical interrupts. The options are **Enable** and Disable.

### Coherency Support (Non-Iscoh)

Select Enable for the Non-Iscoh VT-d engine to pass through DMA (Direct Memory Access) to enhance system performance. The options are **Enable** and Disable.

## ►Intel® VT for Directed I/O (VT-d)

### Intel® VT for Directed I/O (VT-d)

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

### Interrupt Remapping

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

### **PassThrough DMA**

Use this feature to allow devices such as network cards to access the system memory without using a processor. Select Enable to use the Non-Isoch VT\_D Engine Pass Through Direct Memory Access (DMA) support. The options are **Enable** and Disable.

### **ATS**

Use this feature to enable Non-Isoch VT-d Engine Address Translation Services (ATS) support. ATS translates virtual addresses to physical addresses. The options are **Enable** and Disable.

### **Posted Interrupt**

Use this feature to enable VT\_D Posted Interrupt. The options are **Enable** and Disable.

### **Coherency Support (Non-Isoch)**

Use this feature to maintain setting coherency between processors or other devices. Select Enable for the Non-Iscoh VT-d engine to pass through DMA to enhance system performance. The options are **Enable** and Disable.

## **IIO-PCIE Express Global Options**

The section allows the user to configure the following PCI-E global options:

### **PCE-E Hot Plug**

Select Enable to support Hot-plugging for the selected PCI-E slots which will allow the user to replace the devices installed in the slots without shutting down the system. The options are **Enable** and **Disabled**.

### **PCI-E Completion Timeout (Global)**

Use this item to select the PCI-E Completion Time-out settings. The options are **Yes**, **No**, and **Per-Port**.

## ►South Bridge

The following South Bridge information will display:

- USB Module Version
- USB Devices

### Legacy USB Support

Select Enabled to support onboard legacy USB devices. Select Auto to disable legacy support if there are no legacy USB devices present. Select Disable to have all USB devices available for EFI applications only. The options are **Enabled**, **Disabled** and **Auto**.

### XHCI Hand-Off

This is a work-around solution for operating systems that do not support XHCI (Extensible Host Controller Interface) hand-off. The XHCI ownership change should be claimed by the XHCI driver. The options are **Enabled** and **Disabled**.

### Port 60/64 Emulation

Select Enabled for I/O port 60h/64h emulation support, which in turn, will provide complete legacy USB keyboard support for the operating systems that do not support legacy USB devices. The options are **Disabled** and **Enabled**.

### Port 61h Bit-4 Emulation

Select Enabled to enable the emulation of Port 61h bit-4 toggling in SMM (System Management Mode). The options are **Disabled** and **Enabled**.

### Install Windows 7 USB support

EHCI needs to be supported in order for USB 2.0 to work properly during the installation of Windows 7; however, EHCI support was removed from X11 DP Motherboard platforms. When this item is enabled, this feature will allow USB keyboard and mouse to work properly during installation of Windows 7. After installation of Windows 7 and all the drivers, please disable this feature. The options are **Disabled** and **Enabled**.

## ►Server ME (Management Engine) Configuration

This feature displays the following General ME Configuration settings.

Operational Firmware Version

Backup Firmware Version

Recovery Firmware Version

ME Firmware Status #1

ME Firmware Status #2

Current State

Error Code

## ►SATA Configuration

When this submenu is selected, the AMI BIOS automatically detects the presence of the SATA devices that are supported by the Intel PCH chip and displays the following items:

### **SATA Controller**

This item enables or disables the onboard SATA controller supported by the Intel PCH chip. The options are **Enable** and **Disable**.

### **Configure SATA as (Available when the item above: SATA Controller is set to enabled)**

Select AHCI to configure a SATA drive specified by the user as an AHCI drive. Select RAID to configure a SATA drive specified by the user as a RAID drive. The options are **AHCI** and **RAID**. (Note: This item is hidden when the SATA Controller item is set to **Disabled**.)

### **SATA HDD Unlock**

Select **Enable** to unlock SATA HDD password in the OS. The options are **Enable** and **Disable**.

### **SATA/sSATA RAID Boot Select (Available when the item "Configure SATA as" is set to "RAID")**

This feature allows the user to decide which controller should be used for system boot. The options are **None**, **SATA Controller**, **sSATA Controller**, and **Both**.

### **Aggressive Link Power Management**

When this item is set to **Enabled**, the SATA AHCI controller manages the power use of the SATA link. The controller will put the link in a low power mode during an extended period of I/O inactivity, and will return the link to an active state when I/O activity resumes. The options are **Enable** and **Disable**.

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

Select EFI to load the EFI driver for system boot. Select Legacy to load a legacy driver for system boot. The options are Disable, EFI, and **Legacy**.

**SATA Port 0 - SATA Port 7****Hot Plug**

Select Enable to support Hot-plugging for the device installed on a selected SATA port which will allow the user to replace the device installed in the slot without shutting down the system. The options are Enable and **Disable**.

**Spin Up Device**

On an edge detect from 0 to 1, set this item to allow the SATA device installed on the SATA port specified by the user to start a COMRESET initialization. The options are Enable and **Disable**.

**SATA Device Type**

Use this item to specify if the device installed on the SATA port selected by the user should be connected to a Solid State drive or a Hard Disk Drive. The options are **Hard Disk Drive** and Solid State Drive.

## ►sSATA Configuration

When this submenu is selected, AMI BIOS automatically detects the presence of the sSATA devices that are supported by the sSATA controller and displays the following items:

**sSATA Controller**

This item enables or disables the onboard sSATA controller supported by the Intel SCU. The options are **Enable** and Disable.

**Configure sSATA as**

Select AHCI to configure an sSATA drive specified by the user as an AHCI drive. Select RAID to configure an sSATA drive specified by the user as a RAID drive. The options are **AHCI** and RAID. (Note: This item is hidden when the sSATA Controller item is set to Disabled.)

**SATA HDD Unlock**

Select Enable to unlock sSATA HDD password in the OS. The options are **Enable** and Disable.

**SATA/sSATA RAID Boot Select (Available when the item "Configure SATA as" is set to "RAID")**

This feature allows the user to decide which controller should be used for system boot. The options are None, SATA Controller, **sSATA Controller**, and Both.

### **Aggressive Link Power Management**

When this item is set to Enable, the sSATA AHCI controller manages the power use of the SATA link. The controller will put the link in a low power mode during an extended period of I/O inactivity, and will return the link to an active state when I/O activity resumes. The options are **Disable** and **Enable**.

### **sSATA RAID Option ROM/UEFI Driver (Available when the item "Configure SATA as" is set to "RAID")**

Select EFI to load the EFI driver for system boot. Select Legacy to load a legacy driver for system boot. The options are **Disable**, **EFI**, and **Legacy**.

### **sSATA Port 0 - sSATA Port 5**

#### **Hot Plug**

Select Enable to support Hot-plugging for the device installed on an sSATA port selected by the user which will allow the user to replace the device installed in the slot without shutting down the system. The options are **Disable** and **Enabled**.

#### **Spin Up Device**

On an edge detect from 0 to 1, set this item to allow the sSATA device installed on the sSATA port specified by the user to start a COMRESET initialization. The options are **Enable** and **Disable**.

#### **sSATA Device Type**

Use this item to specify if the device installed on the sSATA port specified by the user should be connected to a Solid State drive or a Hard Disk Drive. The options are **Hard Disk Drive** and **Solid State Drive**.

## **►PCIe/PCI/PnP Configuration**

The following PCI information will be displayed:

- PCI Bus Driver Version
- PCI Devices Common Settings:

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

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

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

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

### **MMIO High Base**

Use this item to select the base memory size according to memory-address mapping for the IO hub. The base memory size must be between 4032G to 4078G. The options are **56T**, 48T, 24T, 16T, 4T, and 1T.

### **MMIO High Granularity Size**

Use this item to select the high memory size according to memory-address mapping for the IO hub. The options are 1G, 4G, 16G, 64G, **256G**, and 1024G.

### **PCI PERR/SERR Support**

Use this feature to enable or disable the runtime event for SERR (System Error)/ PERR (PCI/ PCI-E Parity Error). The options are **Disabled** and Enabled.

### **Maximum Read Request**

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

### **MMCFG Base**

This feature determines the lowest MMCFG (Memory-Mapped Configuration) base assigned to PCI devices. The options are 1G, 1.5G, 1.75G, **2G**, 2.25G, and 3G.

### **VGA Priority**

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

### **RSC-R1U SLOT1 PCI-E x16 OPROM/RSC-R1U SLOT2 PCI-E x16 OPROM**

Select EFI to allow the user to boot the computer using an EFI (Expansible Firmware Interface) device installed on the PCI-E slot specified by the user. Select Legacy to allow the user to boot the computer using a legacy device installed on the PCI-E slot specified by the user. The options are Disabled, **Legacy** and EFI. (Note: Riser card names may differ in each system.)

### **Onboard LAN Option ROM Type**

Use this to select firmware type to be loaded for onboard LANs. The options are **Legacy** and EFI.

### **Onboard Video Option ROM**

Use this feature to select the Onboard Video Option ROM type. The options are Disabled, **Legacy** and EFI.

### **Onboard LAN1 Option ROM**

Use this feature to select the type of device installed in LAN Port1 used for system boot. The options are **Legacy**, EFI and Disabled.

### Onboard LAN2 Option ROM

Use this feature to select the type of device installed in LAN Port2 used for system boot. The options are Legacy, EFI and **Disabled**.

## ►Network Stack Configuration

### Network Stack

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

*\*If "Network Stack" is set to Enabled, the following items will display:*

#### Ipv4 PXE Support

Select Enabled to enable Ipv4 PXE boot support. If this feature is disabled, it will not create the Ipv4 PXE boot option. The options are Disabled and **Enabled**.

#### Ipv4 HTTP Support

Select Enabled to enable Ipv4 HTTP boot support. If this feature is disabled, it will not create the Ipv4 HTTP boot option. The options are **Disabled** and Enabled.

#### Ipv6 PXE Support

Select Enabled to enable Ipv6 PXE boot support. If this feature is disabled, it will not create the Ipv6 PXE boot option. The options are Disabled and **Enabled**.

#### Ipv6 HTTP Support

Select Enabled to enable Ipv6 HTTP boot support. If this feature is disabled, it will not create the Ipv6 HTTP boot option. The options are **Disabled** and Enabled.

#### PXE Boot Wait Time

Use this feature to select the wait time to press the <ESC> key to abort the PXE boot. The default is **0**.

#### Media Detect Count

Select this to assign the number of times presence of media will be checked. The default is **1**.

## ►Super IO Configuration

### Super IO Chip AST2500

## ►Serial Port 1 Configuration

#### Serial Port 1

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

#### Device Settings

This item displays the base I/O port address and the Interrupt Request address of a serial port specified by the user.

#### Change Settings

This feature specifies the base I/O port address and the Interrupt Request address of Serial Port 1. Select **Auto** for the BIOS to automatically assign the base I/O and IRQ address to a serial port specified.

The options for Serial Port 1 are **Auto**, (IO=3F8h; IRQ=4), (IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12), (IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12); (IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12), and (IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12).

## ►Serial Port 2 Configuration

#### Serial Port 2

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

#### Device Settings

This item displays the base I/O port address and the Interrupt Request address of a serial port specified by the user.

**Note:** This item is hidden when Serial Port 2 is set to Disabled.

#### Change Settings

This feature specifies the base I/O port address and the Interrupt Request address of Serial Port 2. Select **Auto** for the BIOS to automatically assign the base I/O and IRQ address to a serial port specified. The options for Serial Port 2 are **Auto**, (IO=2F8h; IRQ=3), (IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12), (IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12); (IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12), and (IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12).

### Serial Port 2 Attribute

Select SOL to use COM Port 2 as a Serial\_Over\_LAN (SOL) port for console redirection. The options are **SOL** and COM.

## ►Serial Port Console Redirection

### COM 1 Console Redirection

Select Enabled to enable COM Port 1 for Console Redirection, which will allow a client machine to be connected to a host machine at a remote site for networking. The options are **Disabled** and Enabled.

\*If the item above set to Enabled, the following items will become available for configuration:

## ►Console Redirection Settings (for COM1)

### Terminal Type

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

### Bits Per second

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

### Data Bits

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

### Parity

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

### Stop Bits

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

### Flow Control

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

### VT-UTF8 Combo Key Support

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

### Recorder Mode

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

### Resolution 100x31

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

### Legacy OS Redirection Resolution

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

### Putty KeyPad

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

### Redirection After BIOS Post

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

### COM2/SOL (Serial-Over-LAN) Console Redirection

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

*\*If the item above set to Enabled, the following items will become available for user's configuration:*

## ►Console Redirection Settings (for SOL)

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

### Terminal Type

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

### Bits Per second

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

### Data Bits

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

### Parity

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

### Stop Bits

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

### Flow Control

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

### VT-UTF8 Combo Key Support

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

### **Recorder Mode**

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

### **Resolution 100x31**

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

### **Legacy OS Redirection Resolution**

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

### **Putty KeyPad**

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

### **Redirection After BIOS Post**

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

## **►Legacy Console Redirection**

### **Legacy Serial Redirection Port**

Use the feature to select the COM port to display redirection of Legacy OS and Legacy OPROM messages. The default setting is **COM1** and SOL.

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

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

#### **Console Redirection (for EMS)**

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

*\*If the item above set to Enabled, the following items will become available for user's configuration:*

## ►Console Redirection Settings (EMS)

### Out-of-Band Management Port

The feature selects a serial port in a client server to be used by the Windows Emergency Management Services (EMS) to communicate with a remote host server. The options are **COM1** and **SOL**.

### Terminal Type

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

### Bits Per Second

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

### Flow Control

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

Data Bits: 8

Parity: None

Stop Bits: 1

## ►ACPI Settings

Use this feature to configure Advanced Configuration and Power Interface (ACPI) power management settings for your system.

### NUMA Support (Available when the OS supports this feature)

Select Enabled to enable Non-Uniform Memory Access support to enhance system performance. The options are **Disabled** and **Enabled**.

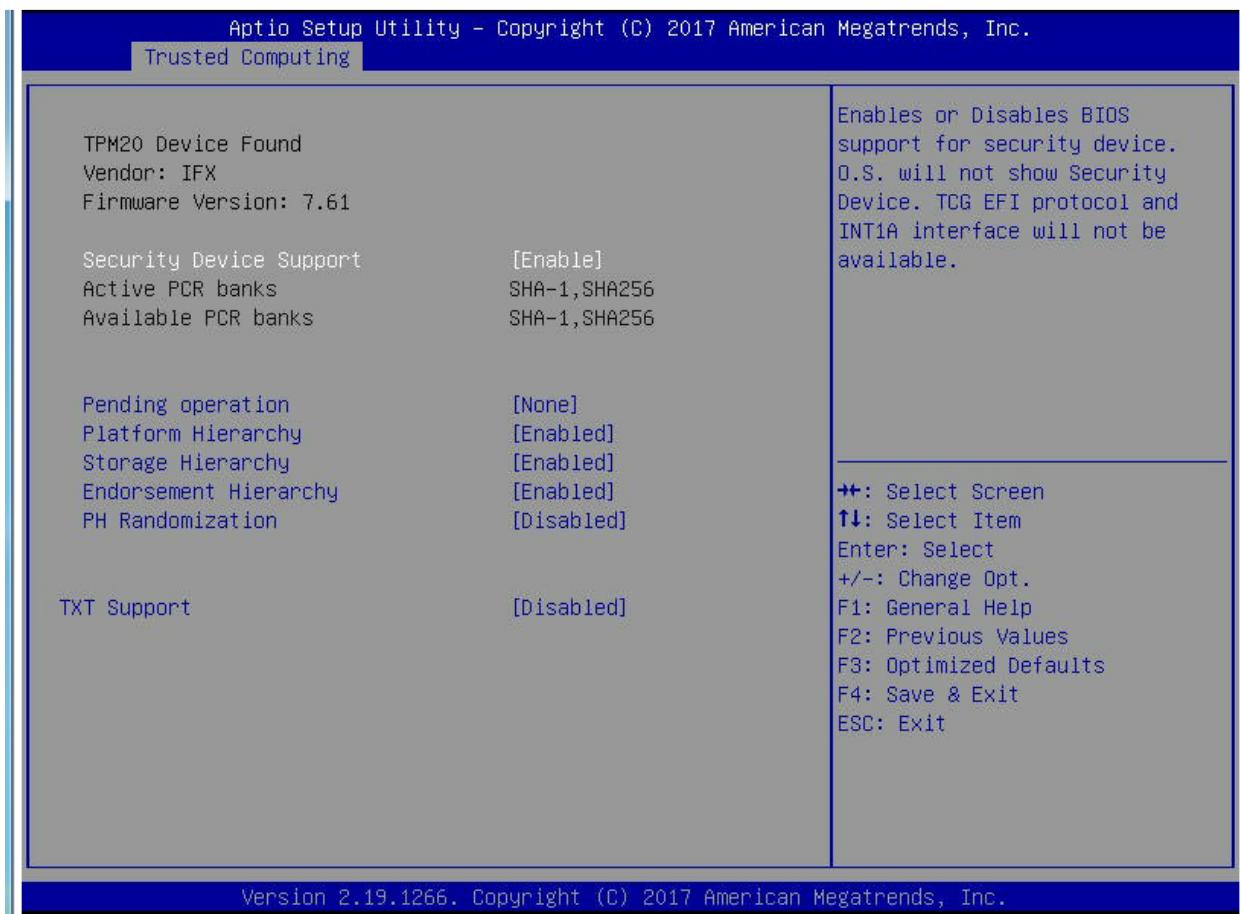
### WHEA Support

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

## High Precision Timer

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

## ►Trusted Computing (Available when a TPM device is installed and detected by the BIOS)



When a TPM (Trusted-Platform Module) device is detected in your machine, the following information will be displayed.

- TPM2.0 Device Found
- Vendor
- Firmware Version

## Security Device Support

If this feature and the TPM jumper (JPT1 if installed onboard) on the motherboard are both enabled, the onboard security (TPM) device will be enabled in the BIOS to enhance data integrity and system security. Please note that the OS will not show the security device. Neither TCG EFI protocol nor INT1A interaction will be made available for use. If you have made changes on the setting on this item, be sure to reboot the system for the change to take effect. The options are **Disable** and **Enable**. If this option is set to **Enable**, the following screen and items will display:

- Active PCR Banks
- Available PCR Banks

## Pending Operation

Use this feature to schedule a TPM-related operation to be performed by a security (TPM) device at the next system boot to enhance system data integrity. Your system will reboot to carry out a pending TPM operation. The options are **None** and **TPM Clear**.

**Note:** Your system will reboot to carry out a pending TPM operation.

## Platform Hierarchy (for TPM Version 2.0 and above)

Select **Enabled** for TPM Platform Hierarchy support which will allow the manufacturer to utilize the cryptographic algorithm to define a constant key or a fixed set of keys to be used for initial system boot. This early boot code is shipped with the platform and is included in the list of "public keys". During system boot, the platform firmware uses this trusted public key to verify a digital signature in an attempt to manage and control the security of the platform firmware used in a host system via a TPM device. The options are **Enabled** and **Disabled**.

## Storage Hierarchy

Select **Enabled** for TPM Storage Hierarchy support that is intended to be used for non-privacy-sensitive operations by the platform owner such as an IT professional or the end user. Storage Hierarchy has an owner policy and an authorization value, both of which can be set and are held constant (-rarely changed) through reboots. This hierarchy can be cleared or changed independently of the other hierarchies. The options are **Enabled** and **Disabled**.

## Endorsement Hierarchy

Select **Enabled** for Endorsement Hierarchy support, which contains separate controls to address the user's privacy concerns because the primary keys in this hierarchy are certified by the TPM or a manufacturer to be constrained to an authentic TPM device that is attached to an authentic platform. A primary key can be an encrypted, and a certificate can be created using `TPM2_ActivateCredential`. It allows the user to independently enable "flag, policy, and authorization value" without involving other hierarchies. A user with privacy concerns can disable the endorsement hierarchy while still using the storage hierarchy for TPM applications and permitting the platform software to use the TPM. The options are **Enabled** and **Disabled**.

### PH (Platform Hierarchy) Randomization (for TPM Version 2.0 and above)

Select Enabled for Platform Hierarchy Randomization support, which is used only during the platform developmental stage. This feature cannot be enabled in the production platforms. The options are **Disabled** and Enabled.

### TXT Support

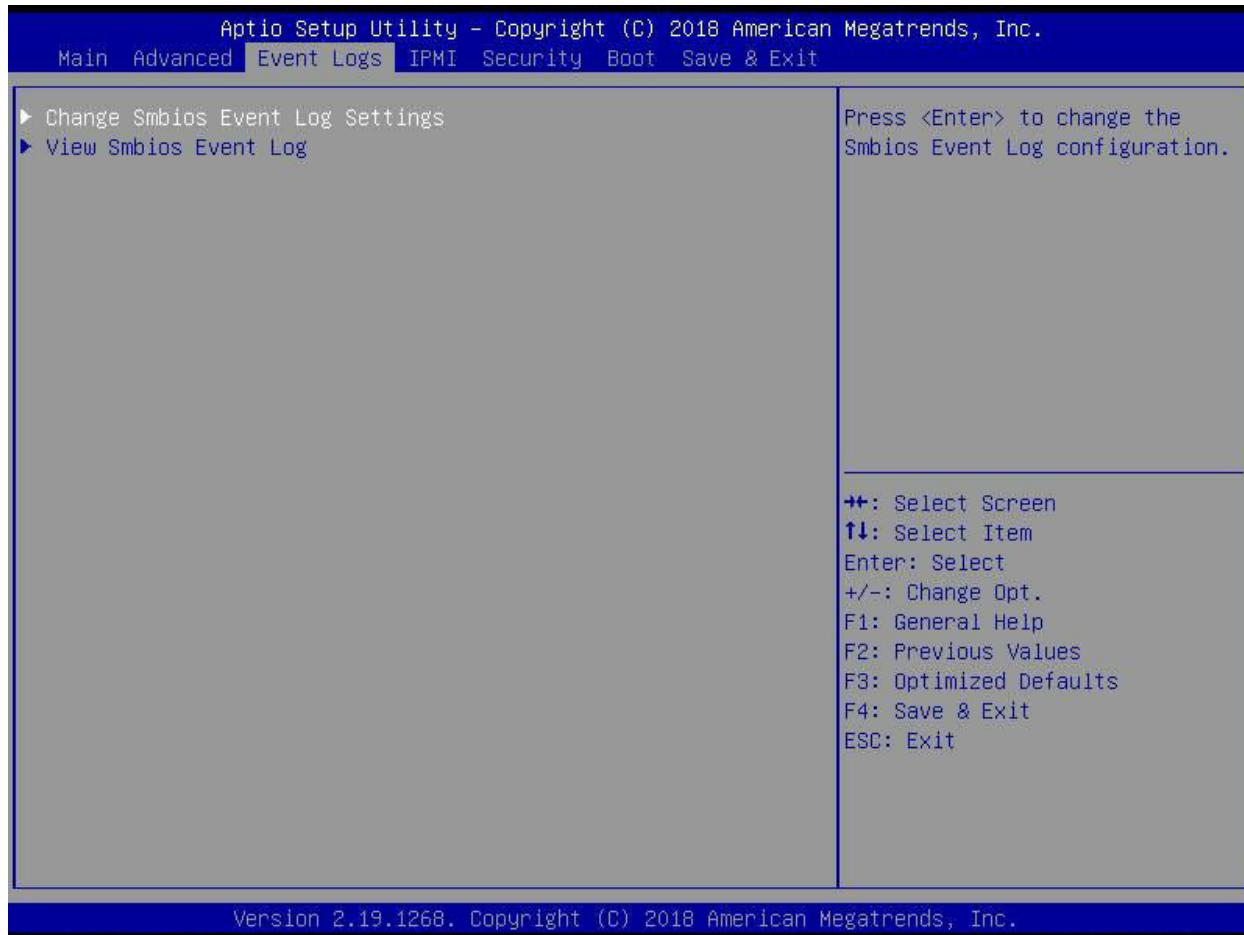
Select Enabled to enable Intel Trusted Execution Technology (TXT) support to enhance system security and data integrity. The options are **Disabled** and Enabled.

**Note 1:** If the option for this item (TXT Support) is set to Enabled, be sure to disable EV DFX (Device Function On-Hide) support for the system to work properly. (EV DFX is under "IIO Configuration" in the "Chipset/North Bridge" submenu).

**Note 2:** For more information on TPM, please refer to the TPM manual at <http://www.supermicro.com/manuals/other>.

## 6.4 Event Logs

Use this feature to configure Event Log settings.



## ►Change SMBIOS Event Log Settings

### Enabling/Disabling Options

#### SMBios Event Log

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

#### Erasing Settings

#### Erase Event Log

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

#### When Log is Full

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

### SMBIOS Event Log Standard Settings

#### Log System Boot Event

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

#### MECI (Multiple Event Count Increment)

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

#### METW (Multiple Event Count Time Window)

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

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

### Custom Options

#### Log OEM Codes

This feature Enables or Disables the logging of EFI Status Codes as OEM Codes (if not already converted to legacy). The options are Enabled or **Disabled**.

#### Convert OEM Codes

This feature Enables or **Disables** the converting of EFI Status Codes to Standard Smbios Typed (Not all may be translated). The options are Enabled or **Disabled**.

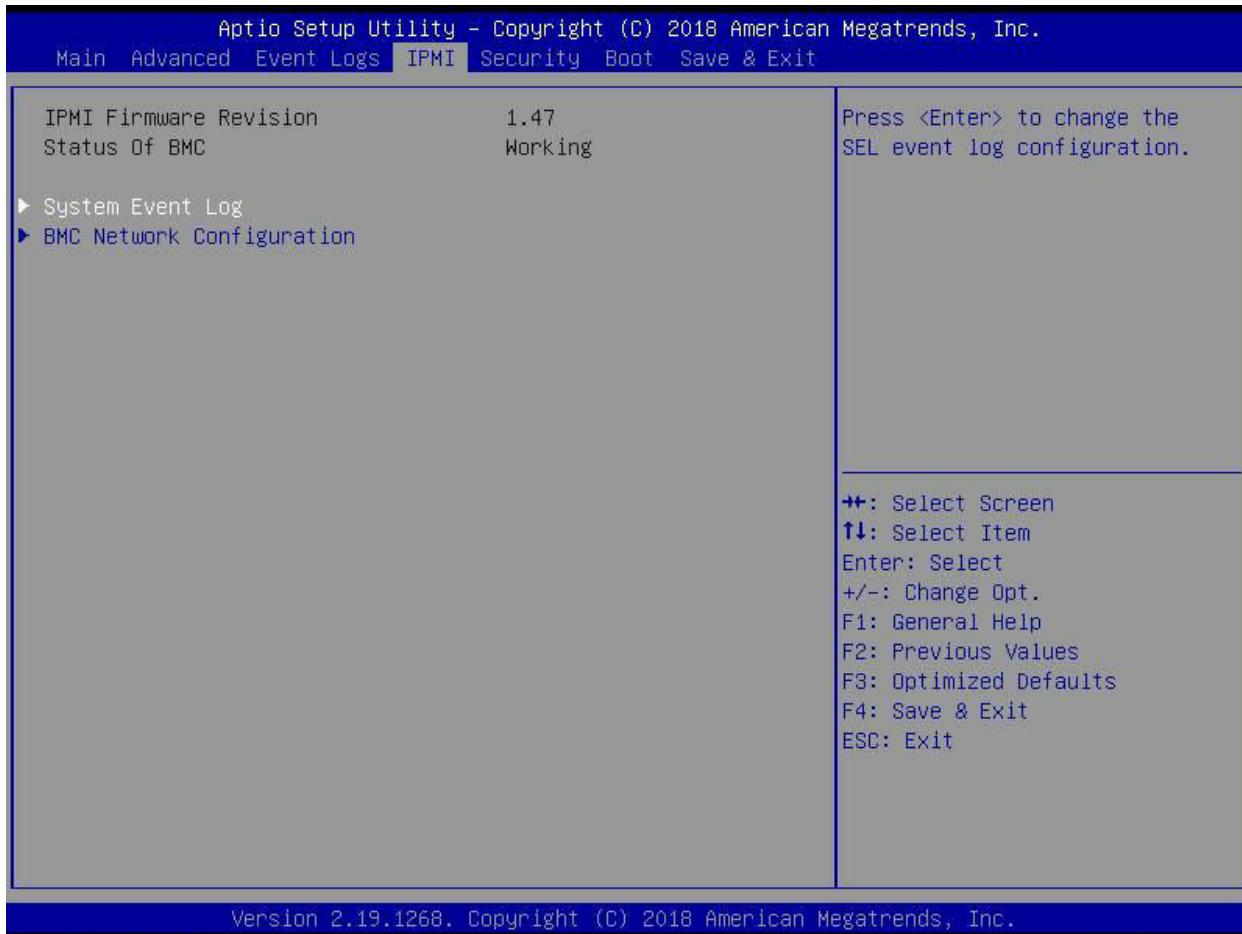
## ►View SMBIOS Event Log

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

### Date/Time/Error Code/Severity

## 6.5 IPMI

Use this feature to configure Intelligent Platform Management Interface (IPMI) settings.



When you select this submenu and press the <Enter> key, the following information will display:

- IPMI Firmware Revision: This item indicates the IPMI firmware revision used in your system.
- Status of BMC: This item indicates the status of the BMC (Baseboard Management Controller) installed in your system.

## ►System Event Log

### Enabling/Disabling Options

#### SEL Components

Select Enabled for all system event logging at bootup. The options are Disabled and **Enabled**.

#### Erasing Settings

##### Erase SEL

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

##### When SEL is Full

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

### Custom EFI Logging Options

#### Log EFI Status Codes

This feature allows the user to determine whether the BIOS will log EFI Status Codes, error code only, progress code only, or both. The options are Disabled, Both, **Error code**, and Progress code

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

## ►BMC Network Configuration

### Configure IPV4 support

#### IPMI\_LAN Selection

This item displays the IPMI\_LAN setting. The default setting is **Failover**.

#### IPMI Network Link Status

This item displays the IPMI Network Link status. The default setting is **Dedicated LAN**.

**Current Configuration Address source**

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

**Station IP Address**

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

**Subnet Mask**

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

**Station MAC Address**

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

**Gateway IP Address**

This item displays the Gateway IP address for this computer. This should be in decimal and in dotted quad form (i.e., 172.31.0.1).

**VLAN**

Enabling this item displays the virtual LAN settings. The options are Enabled and **Disabled**.

**Update IPMI\_LAN Configuration**

Select Yes for the BIOS to implement all IP/MAC address changes at the next system boot. The options are **No** and Yes.

***\*If the item above set to Yes, the following items will become available for user's configuration:***

**IPMI\_LAN Selection**

This item displays the IPMI\_LAN setting. The default setting is **Failover**.

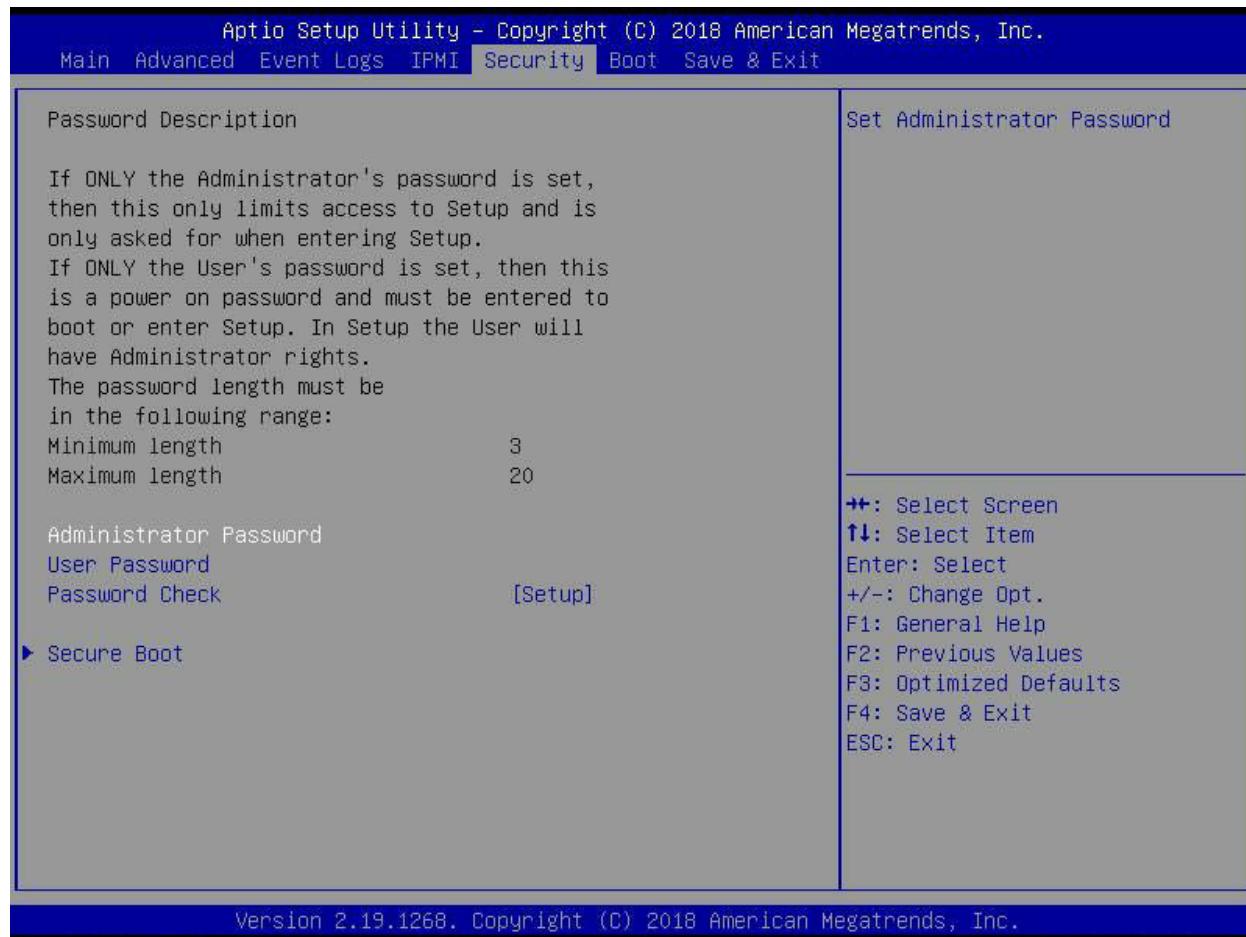
**VLAN**

Enabling this item displays the virtual LAN settings. The options are Enabled and **Disabled**.

**Configuration Address Source**

## 6.6 Security Settings

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



### Administrator Password

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

### User Password

Press Enter to create a new, or change an existing User password.

### Password Check

Select Setup for the system to check for a password at Setup. Select Always for the system to check for a password at bootup or upon entering the BIOS Setup utility. The options are **Setup** and **Always**.

## ►Secure Boot

When you select this submenu and press the <Enter> key, the following items will display:

- System Mode
- Secure Boot
- Vendor Keys

### Attempt Secure Boot

Use this item to enable secure boot. The options are **Disabled** and **Enabled**.

### Secure Boot Mode

Use this feature to select the desired secure boot mode for the system. The options are **Standard** and **Custom**.

### CSM Support

Use this feature to select the desired secure boot mode for the system. The options are **Disabled** and **Enabled**.

## ►Key Management

### Provision Factory Defaults

Select Enabled to install all manufacturer default keys for the following system security settings. The options are **Disabled** and **Enabled**.

### ►Enroll all Factor Default Keys

Select Yes to install all manufacturer defaults for the following system security settings. The options are **Yes** and **No**.

### ►Enroll EFI Image

Select this item and press <Enter> to select an EFI (Extensible Firmware Interface) image for the system to operate in Secure Boot mode.

### ►Save All Secure Boot Variables

This feature allows the user to set and save the secure boot key variables specified by the user.

#### Secure Boot Variable/Size/Key#/Key Sources

## ►Platform Key (PK)

This feature allows the user to enter and configure a set of values to be used as a platform firmware key for the system. This set of values also indicate the size, the keys numbers, and the key source of the Platform Key. The options are **Save to File**, Set New, and Erase

## ►Key Exchange Keys

This feature allows the user to enter and configure a set of values to be used as a Key-Exchange-Keys for the system. This set of values also indicate the size, the keys numbers, and the key source of the Key-Exchange-Keys. The options are **Save to File**, Set New, Append and Erase.

## ►Authorized Signatures

This feature allows the user to enter and configure a set of values to be used as Authorized Signatures for the system. This set of values also indicate the size, the keys numbers, and the key source of the Authorized Signatures. The options are **Save to File**, Set New, Append and Erase.

## ►Forbidden Signatures

This feature allows the user to enter and configure a set of values to be used as Forbidden Signatures for the system. This set of values also indicate the size, the keys numbers, and the key source of the Forbidden Signatures. The options are **Save to File**, Set New, Append and Erase.

## ►Authorized TimeStamps

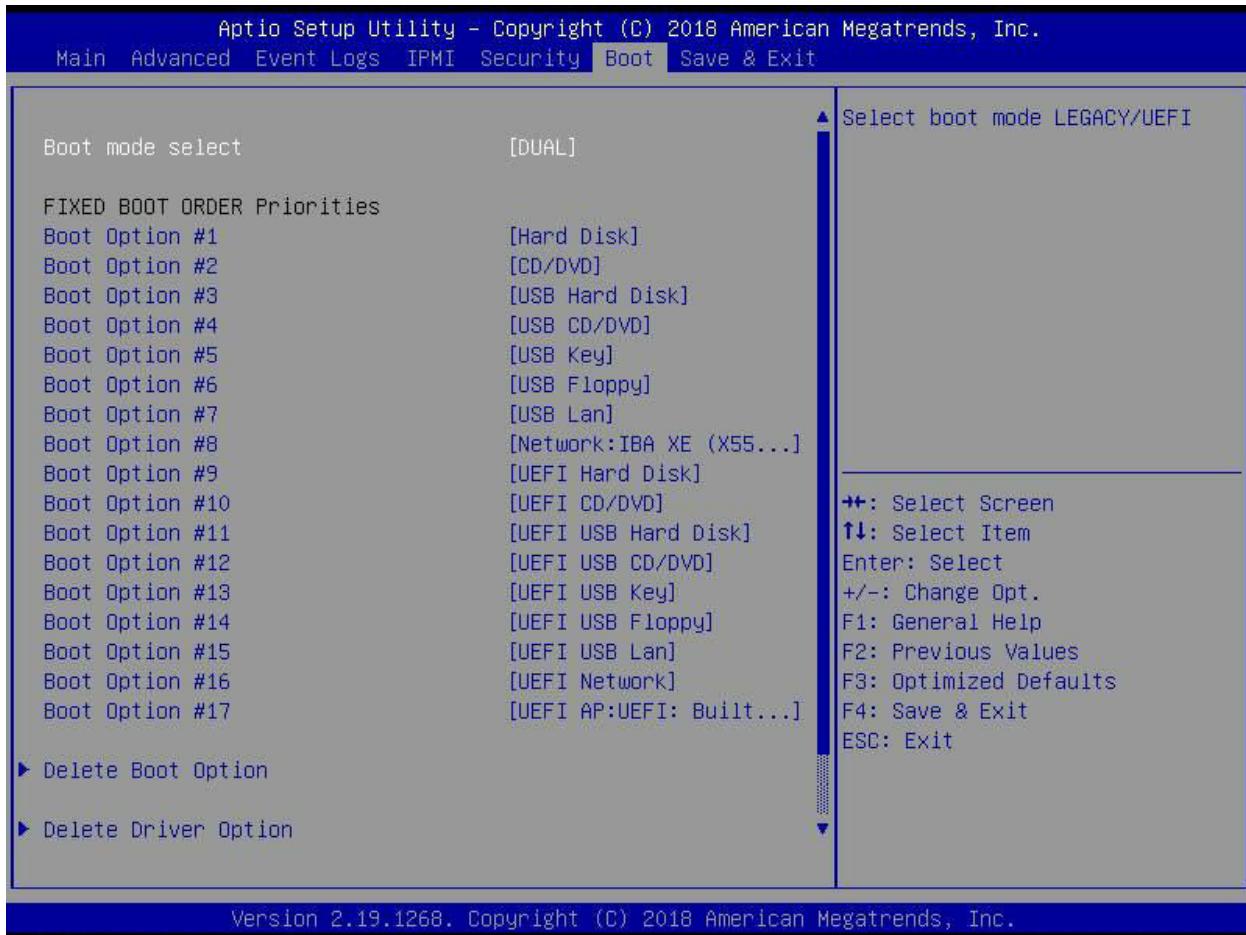
This feature allows the user to set and save the timestamps for Authorized Signatures to indicate when these signatures were entered into the system. The options are **Save to File**, Set New, Append and Erase.

## ►OsRecovery Signatures

This feature allows the user to set and save the Authorized Signatures used for OS recovery. The options are **Save to File**, Set New, Append and Erase.

## 6.7 Boot Settings

Use this feature to configure Boot Settings:



### Boot Mode Select

Use this feature to select the type of devices that the system is going to boot from. The options are Legacy, UEFI (Unified Extensible Firmware Interface), and **Dual**.

### Legacy to EFI support

The options are **Disabled** and **Enabled**.

### Fixed Boot Order Priorities

This feature prioritizes the order of a bootable device from which the system will boot. Press <Enter> on each entry from top to bottom to select devices. When the item above -"Boot Mode Select" is set to **Dual** (default), the following items will be displayed for configuration:

- Boot Option #1 - Boot Option #17

When the item above -"Boot Mode Select" is set to Legacy, the following items will be display for configuration:

- Boot Option #1 - Boot Option #8

When the item above -"Boot Mode Select" is set to UEFI, the following items will be display for configuration:

- Boot Option #1 - Boot Option #9

### ►Delete Boot Option

This feature allows the user to select a boot device to delete from the boot priority list.

#### **Delete Boot Option**

Use this item to remove an EFI boot option from the boot priority list.

### ►Delete Driver Option

This feature allows the user to add a new boot option to the boot priority features for your system.

### ►UEFI Application Boot Priorities

This feature sets the system boot order of detected devices.

- Boot Option #1

### ►NETWORK Drive BBS Priorities

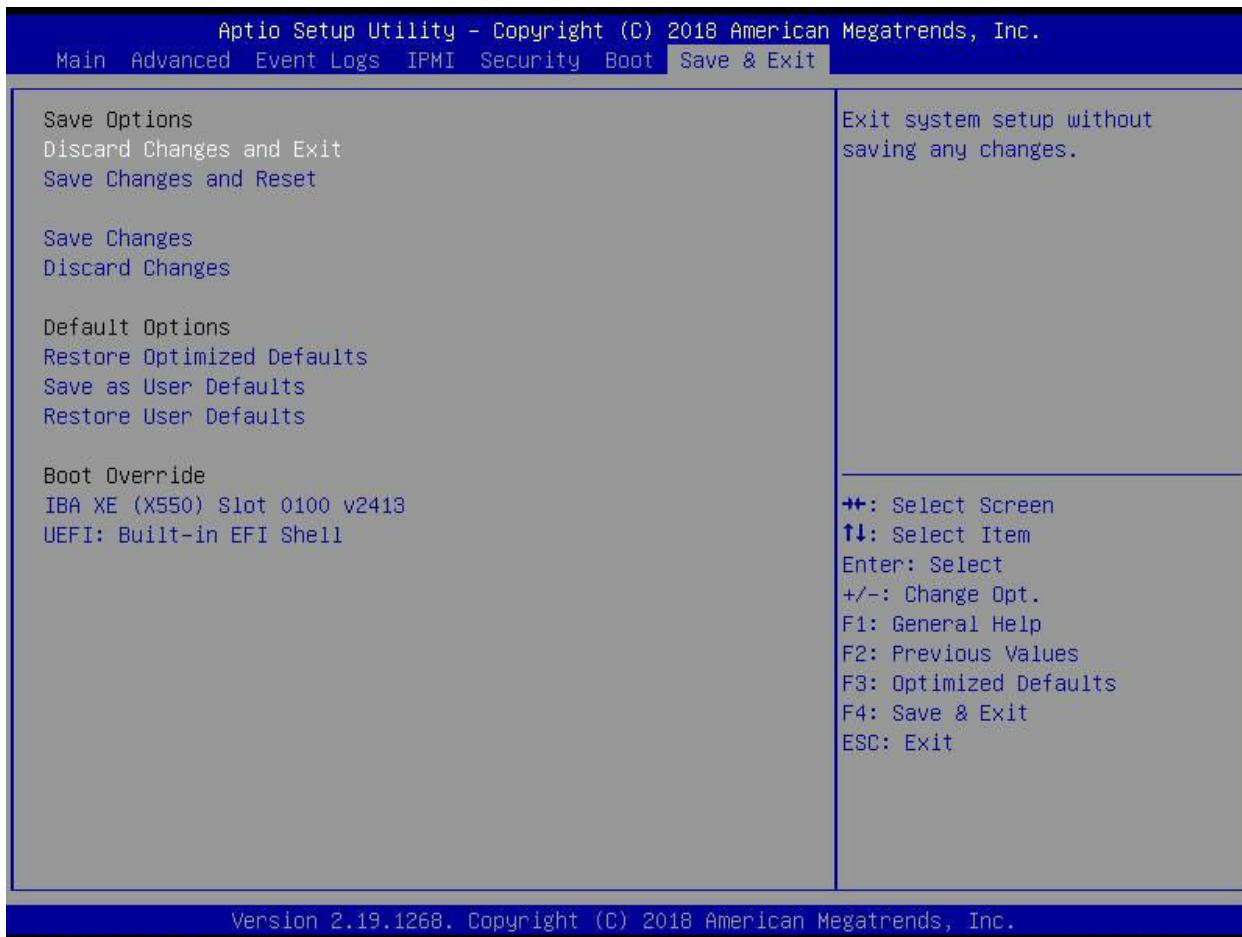
This feature sets the system boot order of detected devices.

- Boot Option #1

- Boot Option #2

## 6.8 Save & Exit

Select the Save & Exit tab from the BIOS setup screen to configure the settings below.



### Save Options

#### Discard Changes and Exit

Select this option to quit the BIOS setup without making any permanent changes to the system configuration and reboot the computer. Select Discard Changes and Exit from the Exit menu and press <Enter>.

#### Save Changes and Reset

When you have completed the system configuration changes, select this option to leave the BIOS setup utility and reboot the computer for the new system configuration parameters to take effect. Select Save Changes and Exit from the Exit menu and press <Enter>.

#### Save Changes

When you have completed the system configuration changes, select this option to save all changes made. This will not reset (reboot) the system.

## **Discard Changes**

Select this option and press <Enter> to discard all the changes and return to the AMI BIOS setup utility.

## **Default Options**

### **Restore Optimized Defaults**

To set this feature, select Restore Defaults from the Exit menu and press <Enter> to load manufacturer default settings which are intended for maximum system performance but not for maximum stability.

### **Save As User Defaults**

To set this feature, select Save as User Defaults from the Exit menu and press <Enter>. This enables the user to save any changes to the BIOS setup for future use.

### **Restore User Defaults**

To set this feature, select Restore User Defaults from the Exit menu and press <Enter>. Use this feature to retrieve user-defined settings that were saved previously.

## **Boot Override**

### **UEFI: Built-in EFI Shell**

This feature allows the user to override the Boot priorities sequence in the Boot menu, and immediately boot the system with a device specified by the user instead of the one specified in the boot list. This is a one-time override.

# Appendix A

## BIOS Error Codes

### A-1 BIOS Error Beep (POST) Codes

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

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

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

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

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

## A-2 Additional BIOS POST Codes

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

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

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

## Appendix B

# Standardized Warning Statements for AC Systems

## B.1 About Standardized Warning Statements

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

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

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

### Warning Definition



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

警告の定義

この警告サインは危険を意味します。

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

此警告符号代表危险。

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

此警告符号代表危險。

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 von Unfällen vertraut. Suchen Sie mit der am Ende jeder Warnung angegebenen Anweisungsnummer nach der jeweiligen Übersetzung in den übersetzten Sicherheitshinweisen, die zusammen mit diesem Gerät ausgeliefert wurden.

**BEWAHREN SIE DIESE HINWEISE GUT AUF.**

**INSTRUCCIONES IMPORTANTES DE SEGURIDAD**

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

**GUARDE ESTAS INSTRUCCIONES.**

**IMPORTANTES INFORMATIONS DE SÉCURITÉ**

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

**CONSERVEZ CES INFORMATIONS.**

תקנון הצהרות אזהרה

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

اًكَّ فَحَالَةٌ وُكِيَّ أَيْ تَتَسَبَّبُ فِي اصَابَةٍ جَسْدَهُ هَذَا الْزَهْزَعُ عُ خَطْرٌ تَحْذِيرٌ .  
 قَبْلَ أَيْ تَعْوِلَ عَلَى أَيْ هَعْدَاتٍ، كَيْ عَلَى عَلَنْ بِالْوَخَاطِرِ الْأَجْوَهُ عَيْ الْذَوَائِزِ  
 الْكَهْزَبَائِيَّةِ  
 وَكَيْ عَلَى دَرَّهُ بِالْوَوَارِسَاتِ الْقَائِيَّةِ لَوْعُ وَقَعَ أَيْ حَادِثٌ  
 اسْتَخْدِمْ رَقْنَ الْبِّإِيِّ الْوَصْصَ فَهَاهُ كُلَّ تَحْذِيرٍ لِلْعَشْرِ تَرْجُوتَهَا

### 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 waarschuwingssymbool 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 התקינה לפני חיבור המערכת למקור מתח.

اقر إرشادات التركيب قبل توصيل النظام إلى مصدر للطاقة

시스템을 전원에 연결하기 전에 설치 안내를 읽어주십시오.

### Waarschuwing

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

## Circuit Breaker



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

### サーキット・ブレーカー

この製品は、短絡(過電流)保護装置がある建物での設置を前提としています。

保護装置の定格が250 V、20 Aを超えないことを確認下さい。

### 警告

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

### 警告

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

### Warnung

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

### ¡Advertencia!

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

### Attention

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

מווצר זה מסתמך על הגנה המותקנת במבנים **למניעת קוצר חשמל**. יש לוודא כי  
המיכשיר המגן מפני הקוצר החשמלי הוא לא יותר מ- 250VDC, 20A

هذا المنتج يعتمد على معدات الحماية من الدوائر القصيرة التي تم تثبيتها في  
المبني  
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 electrische 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、シャーシー内部にアクセスするには、システムの電源はすべてのソースから切断され、電源コードは電源モジュールから取り外す必要があります。

### 警告

在你打开机箱并安装或移除内部器件前,必须将系统完全断电,并移除电源线。

### 警告

在您打開機殼安裝或移除內部元件前，必須將系統完全斷電，並移除電源線。

### Warnung

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

### ¡Advertencia!

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

### Attention

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

ازהרה מפני ניתוק חשמלי,

ازהרה!

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

يجب فصل انظاوم من جميع مصادر انطاقت وإزانت سهك انكهرباء من وحدة امداد  
انطاقت قبم  
انصل إني انمناطق انداخهيت نههيكم نتشبيج أو إزانت مكناث الجهاز

경고!

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

#### Waarschuwing

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

## Equipment Installation



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

#### 機器の設置

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

#### 警告

只有经过培训且具有资格的人员才能进行此设备的安装、更换和维修。

#### 警告

只有經過受訓且具資格人員才可安裝、更換與維修此設備。

#### Warnung

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

#### ¡Advertencia!

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

**Attention**

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

אזהרה!

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

والمدربين لتزكيب واستبدال أو خدمة هذا الجهاز يجب أن يسمح فقط للموظفه المؤهلية

**경고!**

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

**Waarschuwing**

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

**Restricted Area**

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

**アクセス制限区域**

このユニットは、アクセス制限区域に設置されることを想定しています。

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

**警告**

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

**警告**

此裝置僅限安裝於進出管制區域，進出管制區域係指僅能以特殊工具、鎖頭及鑰匙或其他安全方式才能進入的區域。

### Warnung

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

### ¡Advertencia!

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

### Attention

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

אזור עם גישה מוגבלת  
ゾーハラ!

יש להתקן את היחידה באזוריים שיש בהם הגבלת גישה. הגישה ניתנת בעזרת  
'כלי אבטחה בלבד (מפתח, מנעול ועוד).

تحصيص هذه انحذة ترك بها ف مناطق محظورة تم .  
يمكن انتصيل إن منطق ممحظورة فقط من خلال استخدام أداة خاصة  
أو أوس هُت أخرى نلاًاما قم و مفتاح

### 경고!

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

### Waarschuwing

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

## Battery Handling



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

### 電池の取り扱い

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

### 警告

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

### 警告

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

### Warnung

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

### Attention

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

### ¡Advertencia!

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

### אזהרה!

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

هناك خطر من انفجار في حالة اسحذال البطارية بطريقة غير صحيحة فعليل  
اسحذال البطارية

فقط بنفس النوع أو ما يعادلها مما أوصى به الشرمة المصنعة  
جخلص من البطاريات الممسحعملة وفقا لتعليمات الشرمة الصانعة

경고!

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

Waarschuwing

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

## Redundant Power Supplies



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

冗長電源装置

このユニットは複数の電源装置が接続されている場合があります。

ユニットの電源を切るためには、すべての接続を取り外さなければなりません。

警告

此部件连接的电源可能不止一个，必须将所有电源断开才能停止给该部件供电。

警告

此裝置連接的電源可能不只一個，必須切斷所有電源才能停止對該裝置的供電。

Warnung

Dieses Gerät kann mehr als eine Stromzufuhr haben. Um sicherzustellen, dass der Einheit kein 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  
אוורה!

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

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

### 경고!

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

### Waarschuwing

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

## Backplane Voltage



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

バックプレーンの電圧

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

修理する際には注意ください。

警告

当系统正在进行时，背板上有很危险的电压或能量，进行维修时务必小心。

警告

當系統正在進行時，背板上有危險的電壓或能量，進行維修時務必小心。

Warnung

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

¡Advertencia!

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

Attention

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

מתה בפנל האחורי

אוורה!

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

هناك خطر مه التيار الكهربائي أو الطاقة المبذدة على اللحمة  
عندما يكن 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

אוורה!

התקנת הציוד חייבת להיות תואמת לחוקי החשמל המקומיים והלאומיים.

تركيب المعدات الكهربائية يجب أن يمتثل للقوانين المحلية والدولية 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

ازורה!

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

التخلص النهائي من هذا المنتج ينبغي التعامل معه وفقاً لجميع القوانين واللائحة البيئية 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

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

### Warnung

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

### ¡Advertencia!

Riesgo de piezas móviles. Mantener alejado de las aspas del ventilador. Los ventiladores podran dar vuelta cuando usted quite 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.

### ازهاره!

חלקים נייחים מסוכנים. התרחק מלהבי המא Orr בפעולת הכח מסירם את חלקו המא Orr מהמארז, יתכן והמא Orrים עדים עובדים. יש להרחק למרחק בטוח את הא צבעות וכל עבודה שונות מהפתחים בתוך המא Orr

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

### 경고!

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

### Waarschuwing

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

## Power Cable and AC Adapter



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

### 電源コードとACアダプター

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

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

### 警告

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

### 警告

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

### Warnung

Nutzen Sie beim Installieren des Produkts ausschließlich die von uns zur Verfügung gestellten Verbindungskabeln, Stromkabeln und/oder Adapter, die Ihre örtlichen Sicherheitsstandards einhalten. Der Gebrauch von anderen Kabeln und Adaptern 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 sécurité y compris les tailles de cables et les prises électriques 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 כבלים חשמליים ומותאמים

אזהרה!

אשר נרכשו או הותאמו לצורך ההתקנה, ואשר הותאמו לדרישות AC כאשר מתקנים את המזוזה, יש להשתמש בכבלים, ספקים ומוגדים הבטיחות והמקומיות, כולל מידת נכונה של הcabל והתקע. שימוש בכל cabל או מוגד מסווג אורה, עלול לגרום לתקלה או קוצר חשמלי. בהתאם לדרישות UL או CSA - להזקי השימוש במכשירי החשמל וחוקי הבטיחות, קיים איסור להשתמש בכבלים המומסכים בלבד Supermicro עבור כל מוגדר חשמלי אורה, אלא רק במוגדר אשר הותאם ע"י (UL/CSA) בלבד.

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

### 전원 케이블 및 AC 어댑터

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

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

### Stroomkabel en AC-Adapter

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

# Appendix C

## System Specifications

### Processors

Single Dual Intel 81xx/61xx/51xx/41xx/31xx series in an Socket P type socket

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

### Chipset

Intel Intel® C627 chipset

### BIOS

256 Mb SPI AMI BIOS® SM Flash UEFI BIOS

### Memory

Up to twenty-four (24) 240-pin DIMM slots that can support up to 3TB of RDIMM/NV-DIMM of unbuffered ECC

DDR4 ECC 2666/2400/2133 MHz speed SDRAM

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

### SATA Controller

On-chip (Intel® C627) controller

### Drive Bays

Up to sixteen (16) Ruler internal drive bays

### PCI Expansion Slots

2 PCI-E 3.0 x32 Tray cable connector interface

2 PCI-E 3.0 x16 slots with riser card support

### Motherboard

X11DPS-RE; (17" (W) x 19.5" (L) (431.8-mm x 495.3-mm))

### Chassis

SC136HTS-R1K69P-R2; 1U Rackmount, (WxHxD) 17.26 x 1.71 x 35.95 in. (438.4 x 43.6 x 913 mm)

### System Cooling

Up to eight (8) 4-cm counter-rotating PWM fans

### Power Supply

Model: PWS-1K69P-1R

AC Input Voltages: 100-240 VAC

Rated Input Current: 6-3A

Rated Input Frequency: 50-60 Hz

Rated Output Power: 1000/1600W

Rated Output Voltages: +12V (83A/132A)

### Operating Environment

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

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

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

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

### **Regulatory Compliance**

Electromagnetic Emissions: FCC Class A, EN 55032 Class A, EN 61000-3-2/3-3, CISPR 32 Class A

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

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

Other: VCCI-CISPR 32 and AS/NZS CISPR 32

Environmental: Directive 2011/65/EU and Directive 2012/19/EU

### **Perchlorate Warning**

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

# Appendix D

## UEFI BIOS Recovery

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

### D.1 Overview

The Unified Extensible Firmware Interface (UEFI) provides a software-based interface between the operating system and the platform firmware in the pre-boot environment. The UEFI specification supports an architecture-independent mechanism that will allow the UEFI OS loader stored in an add-on card to boot the system. The UEFI offers clean, hands-off management to a computer during system boot.

### D.2 Recovering the UEFI BIOS Image

A UEFI BIOS flash chip consists of a recovery BIOS block and a main BIOS block (a main BIOS image). The 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. (For a RMA request, please see section 3.5 for more information). Also, you may use the Supermicro Update Manager (SUM) Out-of-Band (OOB) ([https://www.supermicro.com.tw/products/nfo/SMS\\_SUM.cfm](https://www.supermicro.com.tw/products/nfo/SMS_SUM.cfm)) to reflash the BIOS.

## D.3 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 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.

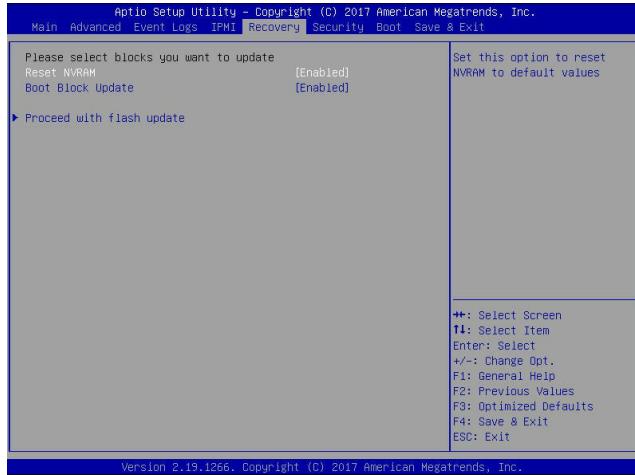
To perform UEFI BIOS recovery using a USB-attached device, follow the instructions below.

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.

**Notes:** 1. If you cannot locate the "Super.ROM" file in your drive disk, visit our website at [www.supermicro.com](http://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. 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.

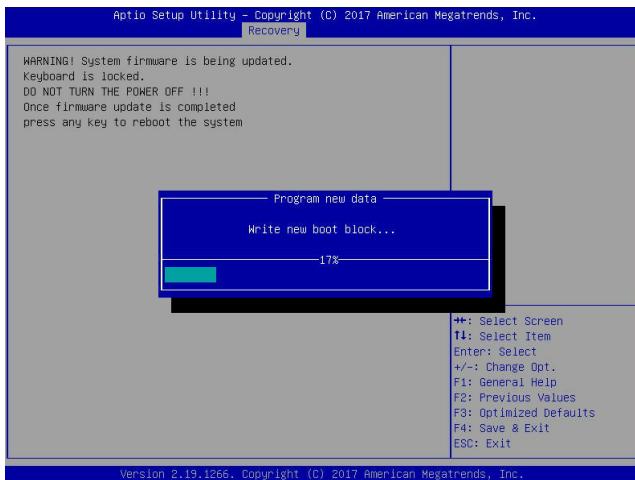


2. Insert the USB device that contains the new BIOS image ("Super.ROM") into your USB drive and reset the system when the following screen appears.

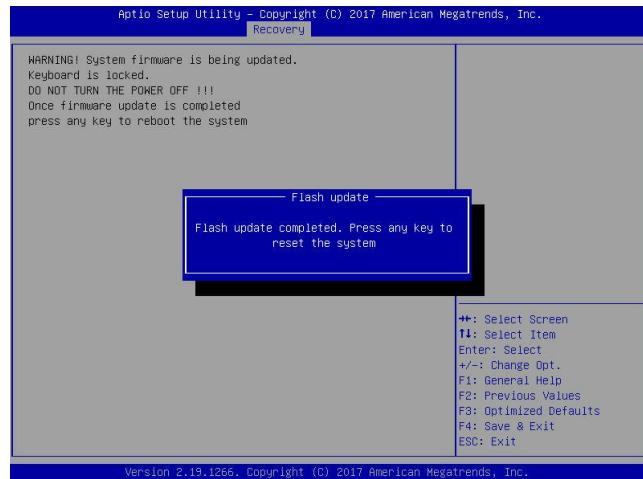


3. After locating the healthy BIOS binary image, the system will enter the BIOS Recovery menu as shown below.

**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.

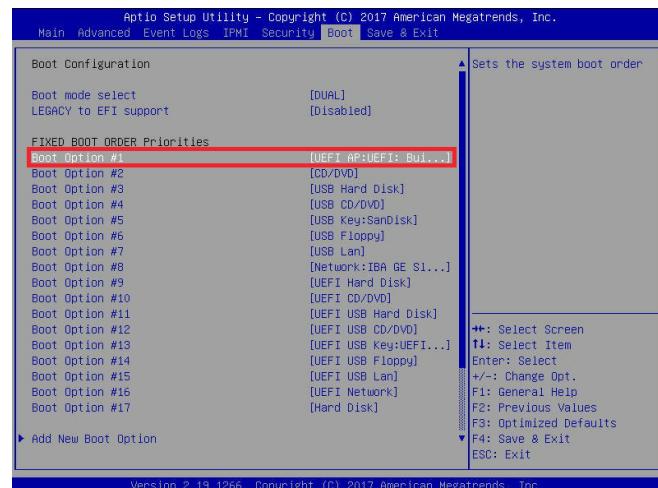


**Note:** *Do not interrupt the BIOS flashing process until it has completed.*

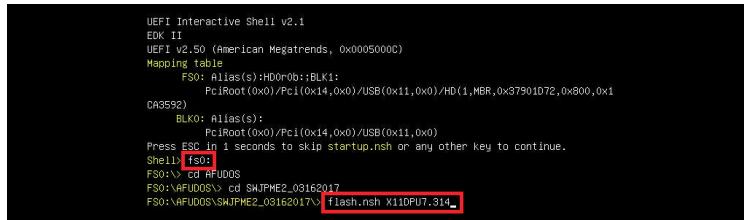
5. After the BIOS recovery process is complete, press any key to reboot the system.

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

7. Press <Del> 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.



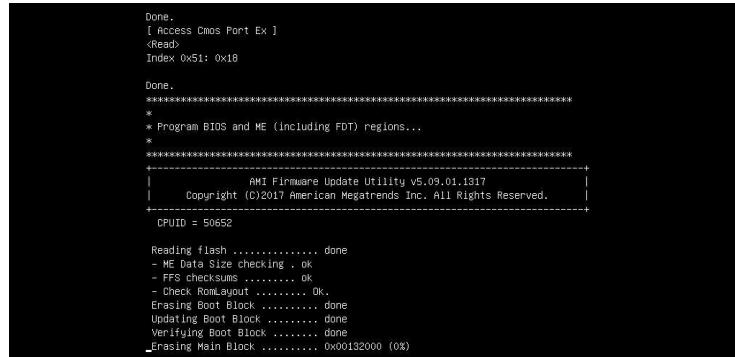
- When the UEFI Shell prompt appears, type `fs#` to change the device directory path. Go to the directory that contains the BIOS package you extracted earlier from Step 6. Enter `flash.nsh BIOSname.###` at the prompt to start the BIOS update process.



```

UEFI Interactive Shell v2.1
EDK II
UEFI v2.50 (American Megatrends, 0x00050000)
Mapping table
  FSO: Alias(s):H00:0:BLK1:
    PciRoot(0x0)/Pci(0x14,0x0)/USB(0x11,0x0)/HD(1,MBR,0x37901D72,0x800,0x1
  CA3592)
  BLKO: Alias(s):
    PciRoot(0x0)/Pci(0x14,0x0)/USB(0x11,0x0)
Press ESC in 1 seconds to skip startup.nsh or any other key to continue.
Shell> fs#
Shell> cd AFUDOS
FSO:\AFUDOS> cd SWJPME2_03162017> flash.nsh X11DPU7.314
  
```

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



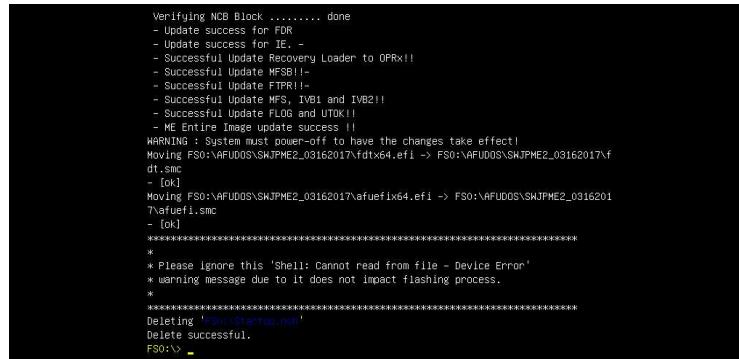
```

Done.
[ Access Cmos Port Ex ]
<Read>
Index 0x51: 0x18

Done.
*****
* Program BIOS and ME (including FDT) regions...
*
*****
| AMI Firmware Update Utility v5.09.01.1917
| Copyright (C)2017 American Megatrends Inc. All Rights Reserved.
+-----+
CPUDID = 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 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 the AC power cable in the power supply again to power on the system.



```

Verifying NCB Block ..... done
- Update success for FDR
- Update success for IE. -
- Successfully Update Recovery Loader to OPRx!!
- Successful Update MFSB!!-
- Successful Update FTRP!!-
- Successful Update ME and IVB1 and IVB2!!
- Successful Update PL00 and UTOK!!
- ME Entire Image update success !!
WARNING : System must power-off to have the changes take effect!
Moving FSO:\AFUDOS\SWJPME2_03162017\fdtx64.efi -> FSO:\AFUDOS\SWJPME2_03162017\f
dtx64.smc
[ok]
Moving FSO:\AFUDOS\SWJPME2_03162017\afufefix64.efi -> FSO:\AFUDOS\SWJPME2_03162017\afufefi.smc
[ok]
*****
* Please ignore this 'Shell: Cannot read from file - Device Error'
* warning message due to it does not impact flashing process.
*
*****
Deleting 'afufefix64'
Delete successful.
FSO:>
  
```

- Press `<Del>` continuously to enter the BIOS Setup utility.
- Press `<F3>` to load the default settings.
- After loading the default settings, press `<F4>` to save the settings and exit the BIOS Setup utility.