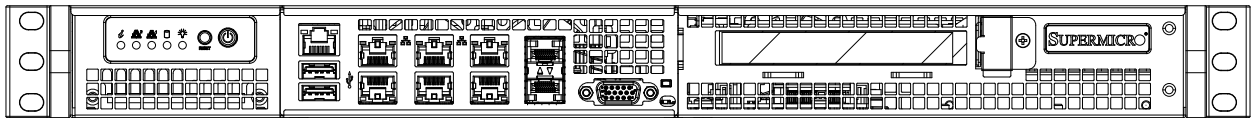




# SuperServer® 1019D-FRN8TP



USER'S MANUAL

Revision 1.0

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# Preface

## About this Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of the SuperServer 1019D-FRN8TP. Installation and maintenance should be performed by experienced technicians only.

Please refer to the 1019D-FRN8TP 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: <https://www.supermicro.com/wftp/>
- 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, 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.

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**Appendix B Standardized Warning Statements for AC Systems**

**Appendix C System Specifications**

**Appendix D UEFI BIOS Recovery**

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# Chapter 1

## Introduction

### 1.1 Overview

This chapter provides a brief outline of the functions and features of the 1019D-FRN8TP. The 1019D-FRN8TP is based on the X11SDV-8C-TP8F motherboard and the SC515-R407 chassis.

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

Main Parts List		
Description	Part Number	Quantity
Air Shroud	MCP-310-51503-0B	1
Riser Card	RSC-RR1U-E16	1
40x40x56 mm 13K-11K RPM Counter-rotating Fan	FAN-0157L4	4
AC and DC 240V Input, 400W, Platinum Level Redundancy power supply	PWS-407P-1R	2
Outer rail (quick) for 1U 17.2"W chass	MCP-290-00102-0N	1 set
Inner rail, front, short (quick) for 1U 17.2"W chass	MCP-290-00108-0N	1 set

### 1.2 Unpacking the System

Inspect the box that the SuperServer 1019D-FRN8TP was shipped in and note if it was damaged in any way. If any equipment appears damaged, file a damage claim with the carrier who delivered it.

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

## 1.3 System Features

The following table provides an overview of the main features of the 1019D-FRN8TP. Refer to Appendix C for additional specifications.

<b>System Features</b>
<b>Motherboard</b>
X11SDV-8C-TP8F
<b>Chassis</b>
SC515-R407
<b>CPU</b>
Intel® Xeon® D-2146NT SoC with a TDP of up to 80W
<b>Socket Type</b>
Embedded Processor
<b>Memory</b>
Supports up to 256 GB of ECC RDIMM or 512 GB of ECC LRDIMM DDR4 memory with speeds of up to 2133 MHz speed and up to 128 GB size at 1.2V in four (4) slots
<b>Chipset</b>
System on a Chip
<b>Expansion Slots</b>
The motherboard supports the following expansion slots: <ul style="list-style-type: none"> <li>• One (1) PCI-E 3.0 x16 slot</li> <li>• One (1) PCI-E 3.0 x8 slot</li> <li>• One (1) Mini PCI-E 3.0 x1 slot</li> <li>• One (1) M.2 PCI-E 3.0 x4 slot</li> <li>• One (1) M.2 PCI-E 3.0 x2 slot</li> </ul>
<b>Hard Drives</b>
Up to two (2) 2.5" fixed with bracket
<b>Cooling</b>
Up to two (2) mid-chassis mounted cooling fans
<b>Power</b>
400W Low Noise AC-DC power supply module with PFC (p/n PWS-406P-1R)
<b>Form Factor</b>
1U rackmount
<b>Dimensions</b>
(WxHxD) 17.2 x 1.7 x 16.9 in. (437 x 43 x 429 mm)



## 1.4 Server Chassis Features

### Control Panel

The switches and LEDs located on the control panel are described below. The control panel is located next to the left handle of the chassis. See Chapter 4 for details on the control panel connections.

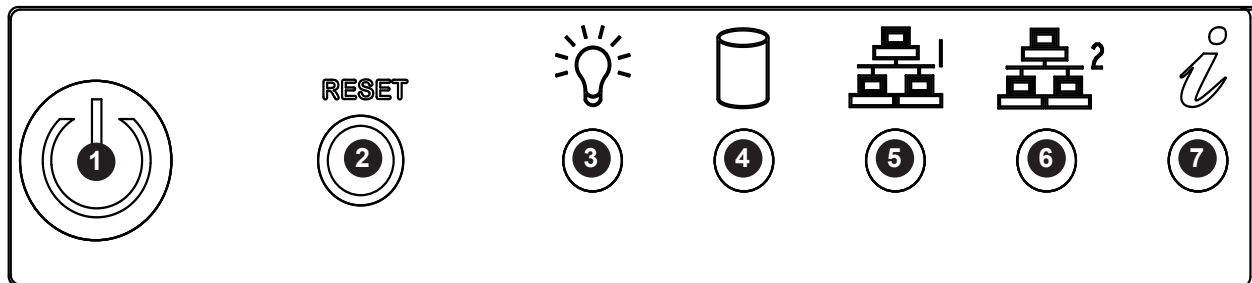


Figure 1-1. Control Panel View

Control Panel Features		
Item	Feature	Description
1	Power Button	The main power button is used to apply or remove power from the power supply to the server. Turning off system power with this button removes the main power but maintains standby power. To perform maintenance tasks, you must also unplug the system before servicing.
2	Reset Button	The reset button is used to reboot the system.
3	Power LED	Indicates power is being supplied to the system power supply. This LED should normally be illuminated when the system is operating.
4	HDD LED	Indicates hard drive activity when flashing.
5	NIC1 LED	Indicates network activity on LAN port 1 when flashing.
6	NIC2 LED	Indicates network activity on LAN port 2 when flashing.
7	Information LED	Indicates one of multiple conditions. Refer to the following table for more information.

Information LED	
Status	Description
Continuously on and red	An overheat condition has occurred (possibly caused by cable congestion).
Blinking red (1Hz)	Fan failure. Check for an inoperative fan.
Blinking red (0.25Hz)	Power supply failure.
Solid blue	Local UID has been activated. Use this function to locate the server in a rack environment.
Blinking blue	Remote UID has been activated. Use this function to activate the server from a remote location.

## Front Features

The SC515-R407 is a 1U chassis. See the illustration below for the features included on the front of the chassis.

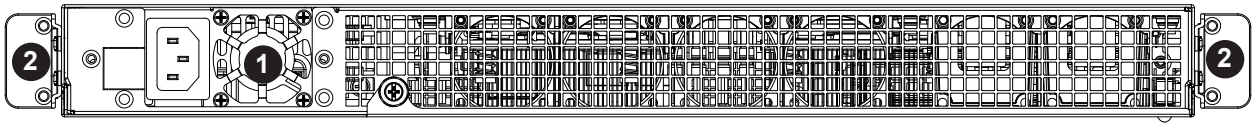


Figure 1-2. Chassis Front View

Front Chassis Features		
Item	Feature	Description
1	Control Panel	Front control panel with LEDs and buttons (see preceding page)
2	I/O Front Panel	Front I/O ports (see Section 4.3)
3	PCI-E Expansion Slot	Slot for PCI-E expansion card
4	Expansion Card Clip	Clip for cover of PCI-E expansion slot
5	Rack Ear Brackets	Secures the server chassis to the rack

## Rear Features

See the illustration below for the features included on the rear of the chassis.



**Figure 1-2. Chassis Rear View**

Front Chassis Features		
Item	Feature	Description
1	Power Supply	Rear mounted power supply
2	Rack Ear Brackets	Secures the server chassis to the rack

## 1.5 Motherboard Layout

Below is a layout of the X11SDV-8C-TP8F 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.

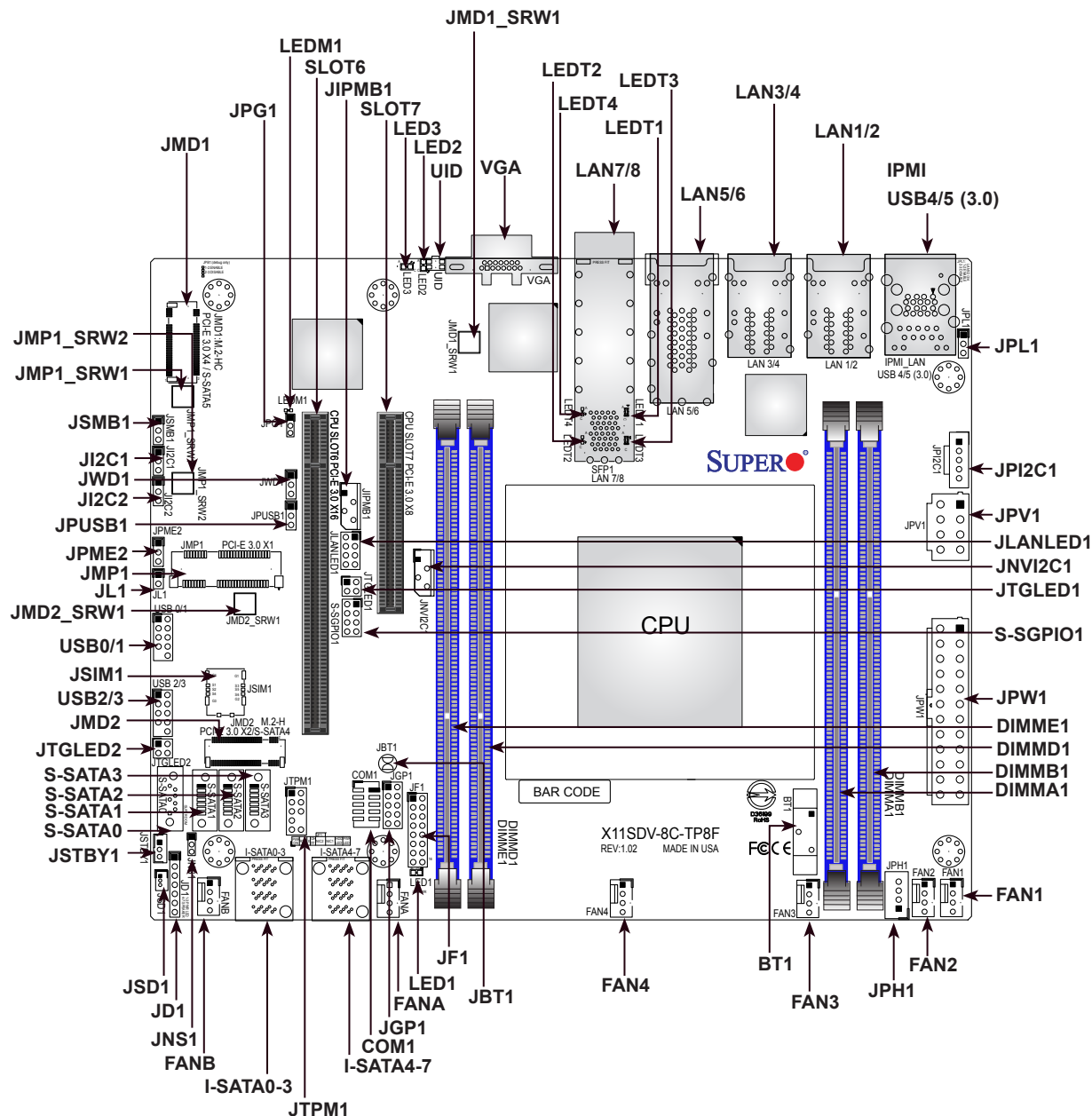


Figure 1-4. Motherboard Layout

**Notes:**

- See Chapter 4 for detailed information on jumpers, I/O ports, and JF1 front panel connections. Jumpers/LED indicators not indicated are used for testing only.
- When JLED1 (Onboard Power LED indicator) is on, system power is on. Unplug the power cable before installing or removing any components.

## Quick Reference Table

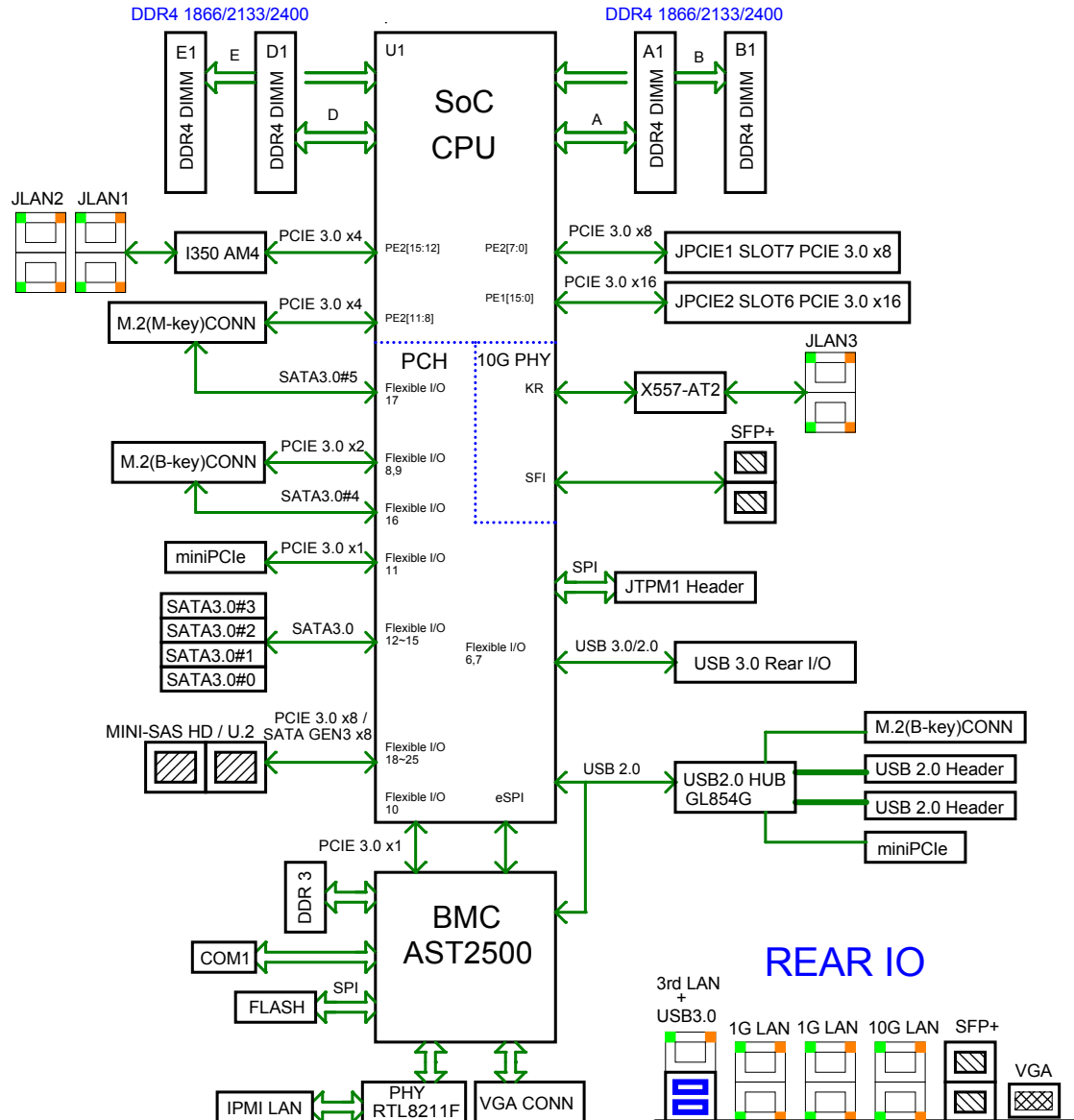
Jumper	Description	Default Setting
JBT1	CMOS Clear	Open: Normal, Closed: Clear CMOS
JI2C1, JI2C2	SMB to PCI-E Slots Enable/Disable	Pins 2-3 (Disabled)
JNS1	Mini-SAS HDD NVMe/SATA Mode Select	Pins 1-2: SATA (Default), Pins 2-3: NVMe
JPG1	Onboard VGA Enable	Pins 1-2 (Enabled)
JPL1	LAN1/2/3/4 Enable	Pins 1-2 (Enabled)
JPME2	Manufacturing Mode Select	Pins 1-2 (Normal)
JPUSB1	USB Wake Up	Pins 1-2 (Enabled)
JWD1	Watch Dog	Pins 1-2 (Reset)

LED	Description	Status
LED1	Power LED	Solid Green: Power On
LED2	UID LED	Solid Blue: Unit Identified
LED3	Overheat/PWR Fail/Fan Fail	Solid Red: Overheat Blinking Red: PWR Fail or Fan Fail
LEDM1	BMC Heartbeat	Blinking Green: BMC Normal

Connector	Description
BT1	Onboard Battery
COM1	COM Header
FAN1 - FAN4, FANA, FANB	System/CPU Fan Headers
IPMI_LAN	Dedicated IPMI LAN Port
I-SATA0-3, I-SATA4-7	Eight Intel® PCH SATA 3.0 Ports or Two NVMe U.2 Ports (See jumper JNS1 setting)
JD1	PWR LED/Buzzer Header (Pins 1-4: PWR LED, Pins 5-7: Buzzer)
JF1	Front Control Panel Header
JGP1	General Purpose I/O Header
JIPMB1	System Management Bus Header (for IPMI only)
JL1	Chassis Intrusion Header
JLANLED1	LAN1 - LAN4 Activity LED Header
JMD1	M.2 PCI-E 3.0 x4/S-SATA5 Connector (M-Key 2280)
JMD2	M.2 PCI-E 3.0 x2/S-SATA4 Connector (B-Key 3042)
JMD1_SRW1, JMD2_SRW1	M.2 Holding Screws
JMP1	Mini PCI-E x1 Connector
JMP1_SRW1	Mini PCI-E x1 Connector Holding Screw
JNVI2C1	NVMe I <sup>2</sup> C Header
JPI2C1	Power I <sup>2</sup> C System Management Bus (Power SMB) Header
JPH1	4-pin Power Connector for HDD use
JPW1	24-pin ATX Main Power Connector
JPV1	12V 8-pin DC Power Connector (Required to provide extra power to CPU, or as alternative power for special enclosure when the 24 pin ATX power is not in use)

Connector	Description
JSD1	SATA Disk On Module (DOM) Power Connector
JSIM1	Nano SIM Slot for M.2 B-Key WAN card support
JSMB1	System Management Bus Header
JSTBY1	+5V Standby Power Header
JTGLED1	LAN7/LAN8 Activity LED Header
JTGLED2	LAN5/LAN6 Activity LED Header
JTPM1	Trusted Platform Module (TPM)/Port 80 Connector
LAN1 - LAN4	1GbE (RJ45) LAN Ports
LAN5 - LAN6	10GbE (RJ45) LAN Ports
LAN7 - LAN8	10G SFP+ LAN Ports
S-SATA0 - S-SATA3	SATA 3.0 Ports
S-SGPIO1	Serial General Purpose I/O Header for S-SATA0-3
SLOT6	CPU PCI-E 3.0 x16 Slot
SLOT7	CPU PCI-E 3.0 x8 Slot
UID	Unit Identifier Button
USB0/1, USB2/3	Front Accessible USB 2.0 Headers
USB4/5	Back Panel USB 3.0 Ports
VGA	VGA Port

<b>X11SDV-8C-TP8F Motherboard Specifications</b>	
<b>Motherboard Model Name</b>	<b>X11SDV-8C-TP8F</b>
Processor Name	D-2146NT
Number of Cores	8
Number of Threads	16
Processor Base Frequency	2.30 GHz
Max Turbo Frequency	3.00 GHz
SoC Max TDP	80 W
Number of Memory Channels	4
Maximum Memory Speed	2133 MHz
Intel® Turbo Boost Technology	2.00
Embedded Options Available	Yes
Integrated Intel® QuickAssist Technology	Yes
Intel® Virtualization Technology (VT-x)	Yes
Intel® Virtualization Technology for Directed I/O (VT-d)	Yes
Intel® TSX-NI	Yes
Instruction Set	64-bit
Instruction Set Extensions	Intel® AVX2
Number of AVX-512 FMA Units	1



**Figure 1-4. Chipset Block Diagram**

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

# Chapter 2

## Server Installation

### 2.1 Overview

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

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

### 2.2 Preparing for Setup

The box in which the system was shipped includes the screws needed to install the server into a rack. 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 multi-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.

## **Server Precautions**

- Review the electrical and general safety precautions in Appendix B.
- Determine the placement of each component in the rack *before* you install the rails.
- Install the heaviest server components at the bottom of the rack first. Subsequent components should be installed in decreasing order of weight with the lightest component at the top.
- Use a regulating uninterruptible power supply (UPS) to protect the server from power surges and voltage spikes and to keep your system operating in case of a power failure.
- Allow any drives and power supply modules to cool before touching them.
- When not servicing, always keep the front door of the rack and all covers 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 might 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.



Mounted equipment is not to be used as a shelf or a work space.



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

## 2.3 Installing the System into a Rack

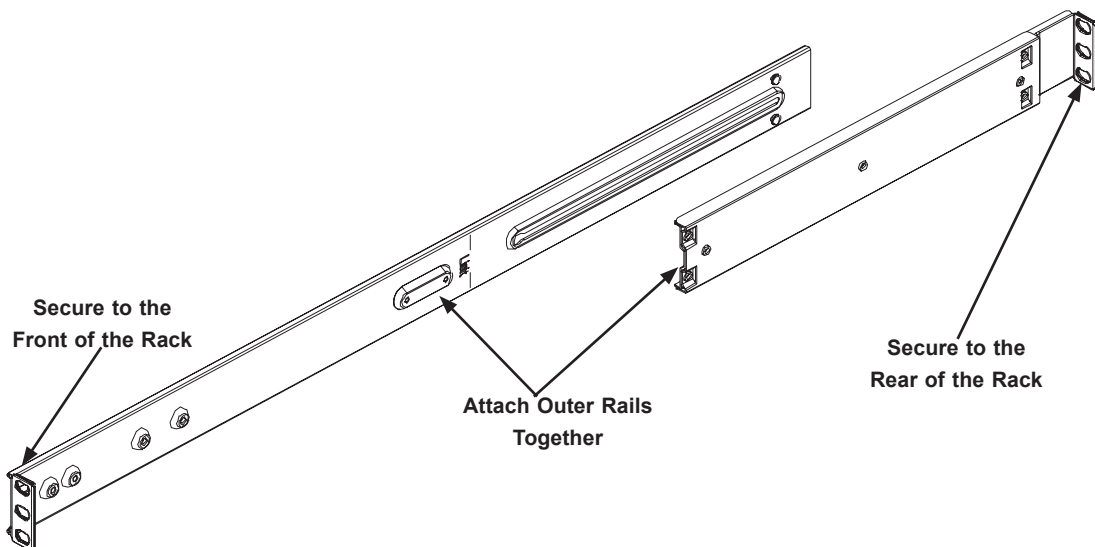
This section provides information on installing the SC515 chassis into a rack unit with the rails provided. There are a variety of rack units on the market, which may mean the assembly procedure will differ slightly. You should also refer to the installation instructions that came with the rack unit you are using.

**Note:** This rail will fit a rack between 26" and 33.5" deep.

Outer rails attach to the server rack and hold the server in place. The outer rails for the SC515 chassis extend between 30 inches and 33 inches.

### *Installing the Outer Rails to the Rack*

1. Attach the short bracket to the outside of the long bracket. Align the pins of the rail with the slides. The ends of each bracket must angle in the same direction.
2. Adjust both the short and long brackets to the proper distance so that the rail fits snugly into the rack.
3. Secure the long bracket to the front side of the outer rail with two M5 screws and the short bracket to the rear side of the outer rail with three M5 screws.
4. Repeat steps 1-3 for the remaining outer rail.



**Figure 2-1. Assembling the Outer Rails**

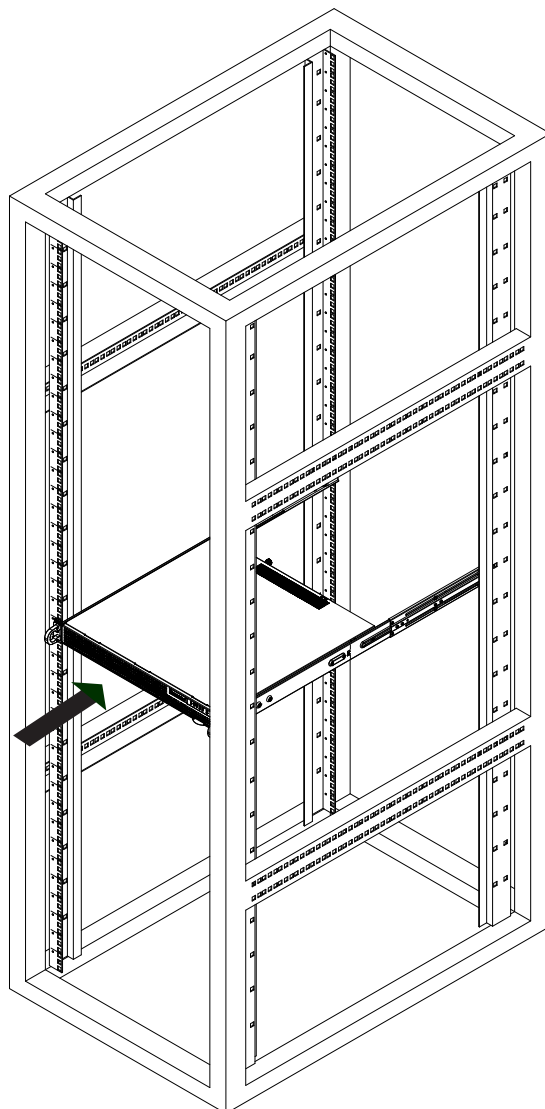


**Warning:** Stability hazard. The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before you slide the unit out for servicing. Failure to stabilize the rack can cause the rack to tip over.

### ***Installing the Chassis into a Rack***

1. Confirm that chassis includes the inner rails and rail extensions. Also, confirm that the outer rails are installed on the rack.
2. Align the chassis rails with the front of the rack rails.
3. Slide the chassis rails into the rack rails, keeping the pressure even on both sides (It may be necessary to depress the locking tabs when inserting). When the server has been pushed completely into the rack, the locking tabs will "click" into the locked position.
4. (Optional) Insert and tighten the thumbscrews that hold the front of the server to the rack.

**Note:** figures are for illustrative purposes only. Always install servers into racks from the bottom up.

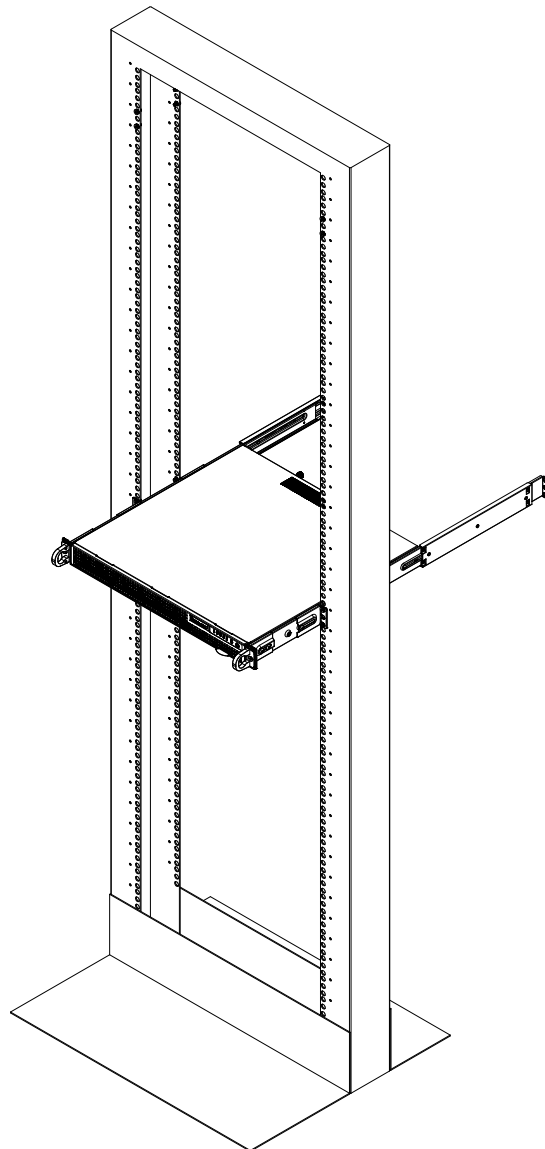


**Figure 2-2. Installing into a Rack**

### ***Installing the Chassis into a Mid-Mount Position (Telco) Rack***

1. Use the two L-shaped brackets (four total) to suspend the sides of the chassis within the rack.
2. Determine how far the chassis will extend out the front of the rack. Larger chassis should be positioned to balance the weight between front and back. If a bezel is included on your server, remove it.
3. Attach the two front brackets to each side of the chassis, then the two rear brackets positioned with just enough space to accommodate the width of the telco rack.
4. Finish by sliding the chassis into the rack and tightening the brackets to the rack.

**Note:** figures are for illustrative purposes only. Always install servers into racks from the bottom up.



**Figure 2-3. Installing the Server into a Telco Rack**

## Chapter 3

### Component Installation and Maintenance

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

Remove power from the system and remove the top cover before installing or replacing components. Refer to Section 3.1 and Section 3.2.

#### 3.1 Removing Power

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

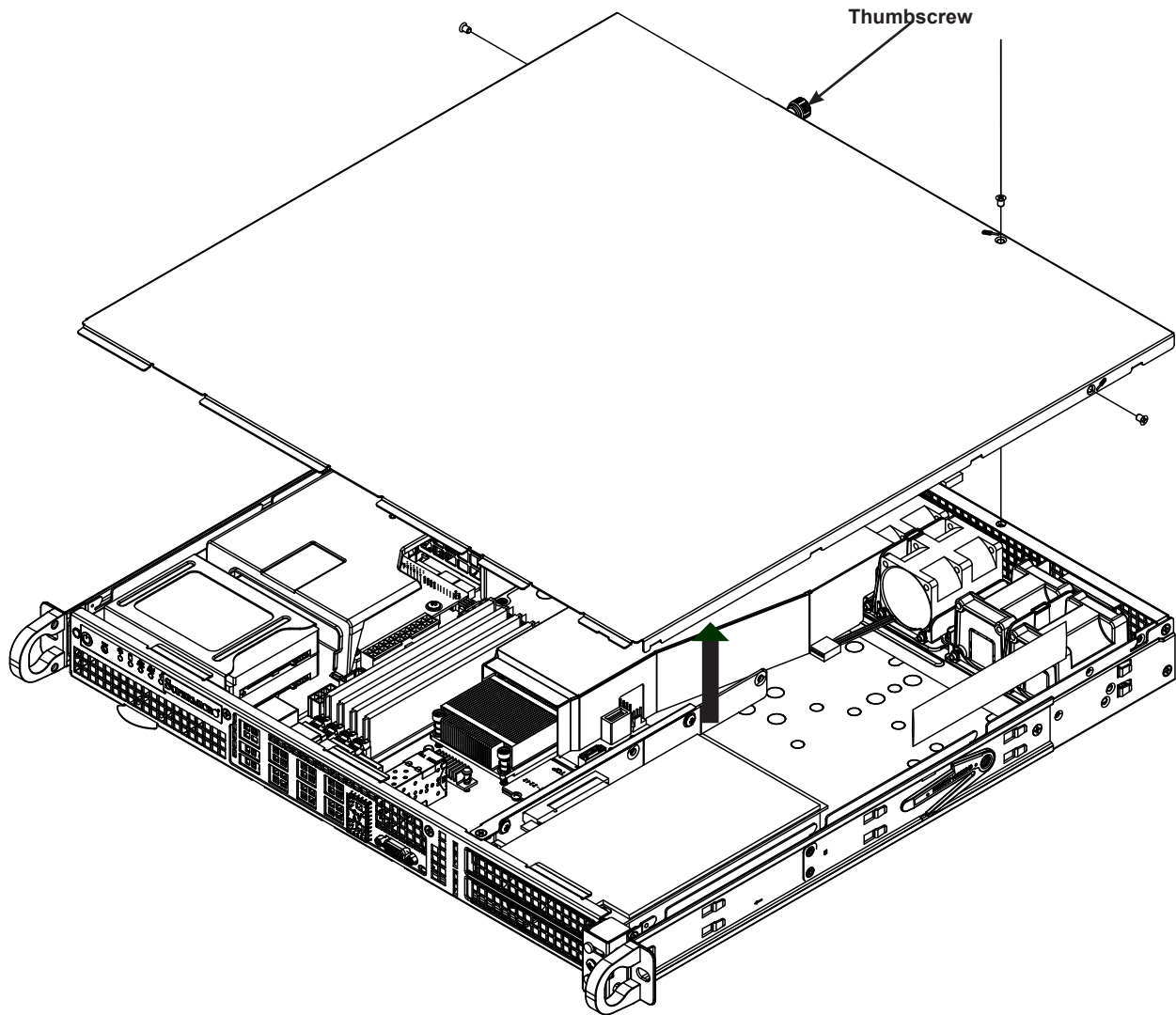
1. Use the operating system to power down the system.
2. After the system has fully shut down, disconnect the AC power cord(s) from the power strip or outlet. (If your system has more than one power supply, remove the AC power cords from all power supply modules.)
3. Disconnect the power cord(s) from the power supply module(s).

#### 3.2 Accessing the System

The chassis cover must be removed when performing some procedures in this chapter.

1. Power down the system.
2. Grasp the two handles on either side and pull the unit straight out until it locks (you will hear a "click").
3. Remove the three screws and the one thumbscrew securing the top cover to the chassis.
4. Slide the cover back toward the rear of the chassis then lift the cover upwards and off of the chassis.

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



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

### 3.3 Motherboard Components

**Note:** Check the Supermicro website for recommended memory modules.

**Important:** Exercise extreme care when installing or removing DIMM modules to prevent any possible damage.

#### Memory Support

The X11SDV-8C-TP8F motherboard supports up to 256 GB of ECC RDIMM or 512 GB of ECC LRDIMM DDR4 memory with speeds of up to 2133 MHz speed in four (4) memory slots. Populating these DIMM slots with memory modules of the same type and size will result in interleaved memory, which will improve memory performance.

#### DIMM Module Population Configuration

For optimal memory performance, follow the table below when populating memory.

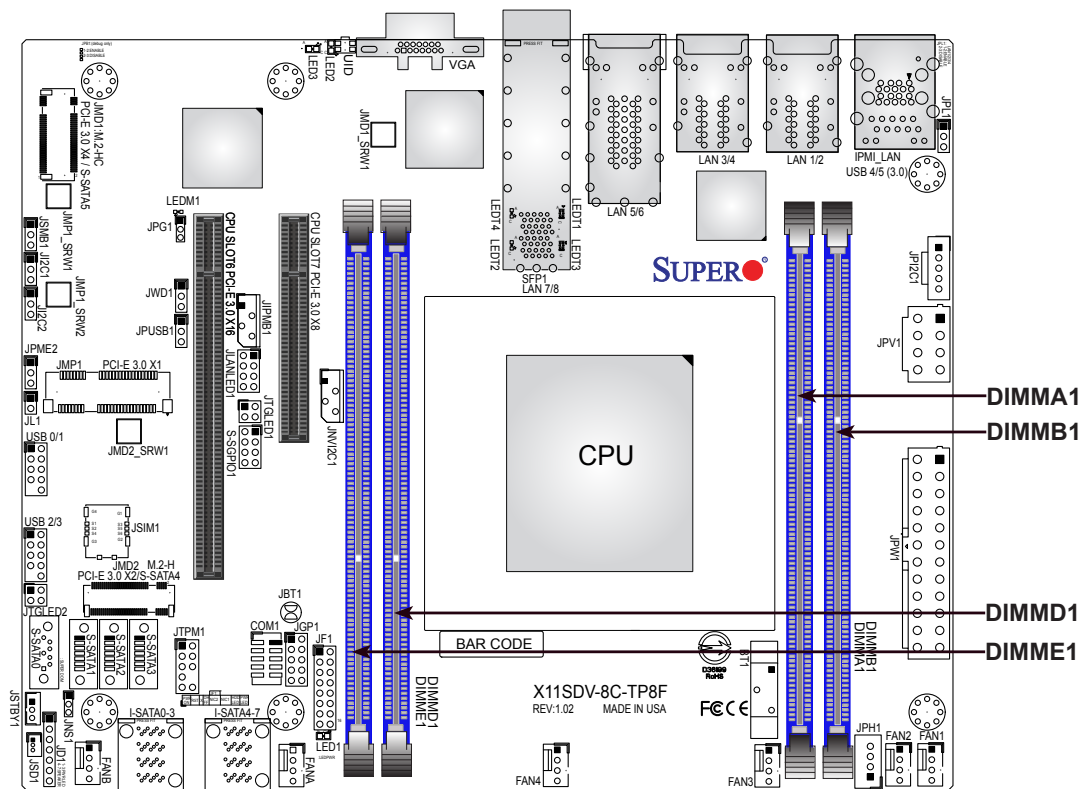
Memory Population (Balanced)				
DIMMA1	DIMMB1	DIMMD1	DIMME1	Total System Memory
4GB	4GB			8GB
4GB	4GB	4GB	4GB	16GB
8GB	8GB			16GB
8GB	8GB	8GB	8GB	32GB
16GB	16GB			32GB
16GB	16GB	16GB	16GB	64GB
32GB	32GB			64GB
32GB	32GB	32GB	32GB	128GB
64GB	64GB			128GB
64GB	64GB	64GB	64GB	256GB
128GB	128GB			256GB
128GB	128GB	128GB	128GB	512GB



## DIMM Module Population Sequence

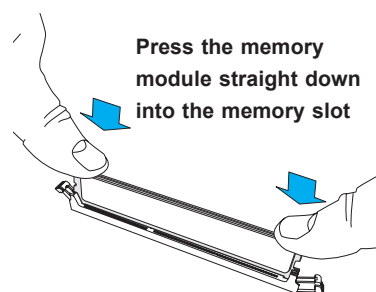
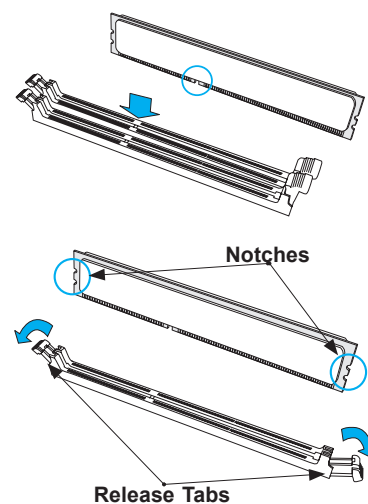
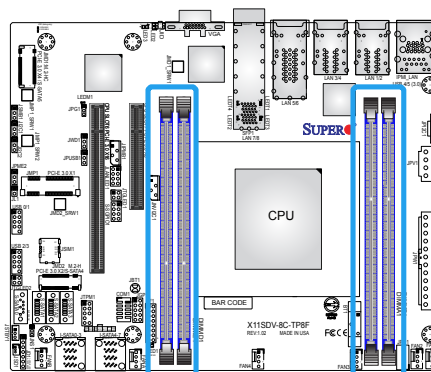
When installing memory modules, the DIMM slots should be populated in the following order: DIMMB1, DIMMA1, DIMME1, DIMMD1.

- Always use DDR4 DIMM modules of the same type, size, and speed.
- Mixed DIMM speeds can be installed. However, all DIMMs will run at the speed of the slowest DIMM.
- The motherboard will support odd-numbered modules (one or three modules installed). However, for best memory performance, install DIMM modules in pairs to activate memory interleaving.



## DIMM Installation

1. Insert the desired number of DIMMs into the memory slots, starting with DIMMB1, DIMMA1, DIMME1, DIMMD1. For best performance, please use the memory modules of the same type and speed in the same bank.
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. Press 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.



## DIMM Removal

Press both release tabs on the ends of the DIMM module to unlock it. Once the DIMM module is loosened, remove it from the memory slot.

## Motherboard Battery

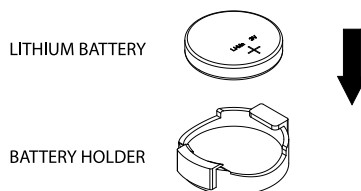
The motherboard uses non-volatile memory to retain system information when system power is removed. This memory is powered by a lithium battery residing on the motherboard.

### *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).

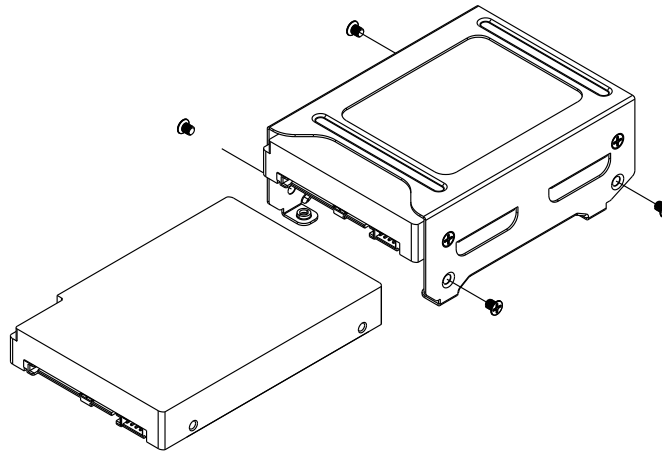
## 3.4 Chassis Components

### Drive Bay Installation/Removal

The 1019D-FRN8TP supports up to two (2) 2.5" fixed hard disk drives. Only enterprise level hard drives are recommended. The hard drives in your chassis may look slightly different than the ones shown in this manual.

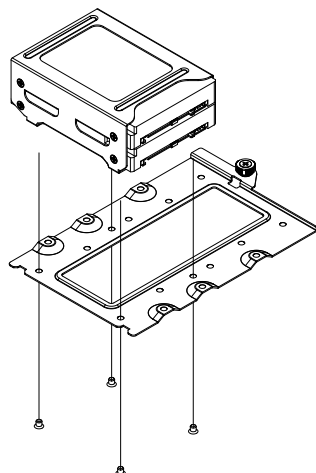
#### *Installing Hard Disk Drives*

1. Power down the system, remove the power cords from the rear of the power supply and remove the chassis cover as described in Section 3.1.
2. Secure the drive(s) into the optional bracket as shown in Figure 3-3.

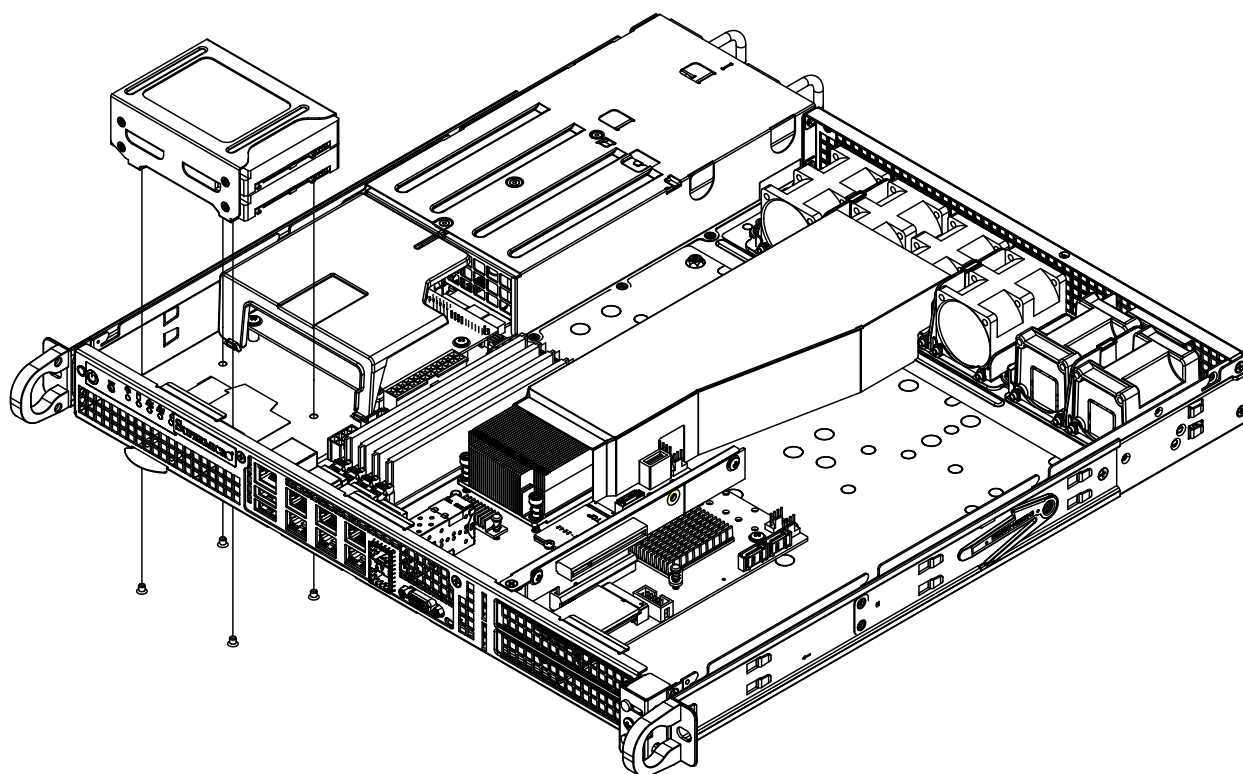


**Figure 3-3. Installing 2.5" Hard Drives into the Bracket**

3. Secure the HDD drive tray to the chassis floor using a screw as shown in Figure 3-4 or four screws as shown in Figure 3-5.
4. Connect the drive cabling, plug the power cords into the power supply, replace the chassis cover and power-up the system.



**Figure 3-4. Securing 2.5" HDD Brackets to the HDD Drive Tray**



**Figure 3-5. Installing 2.5" HDDs into the Chassis**

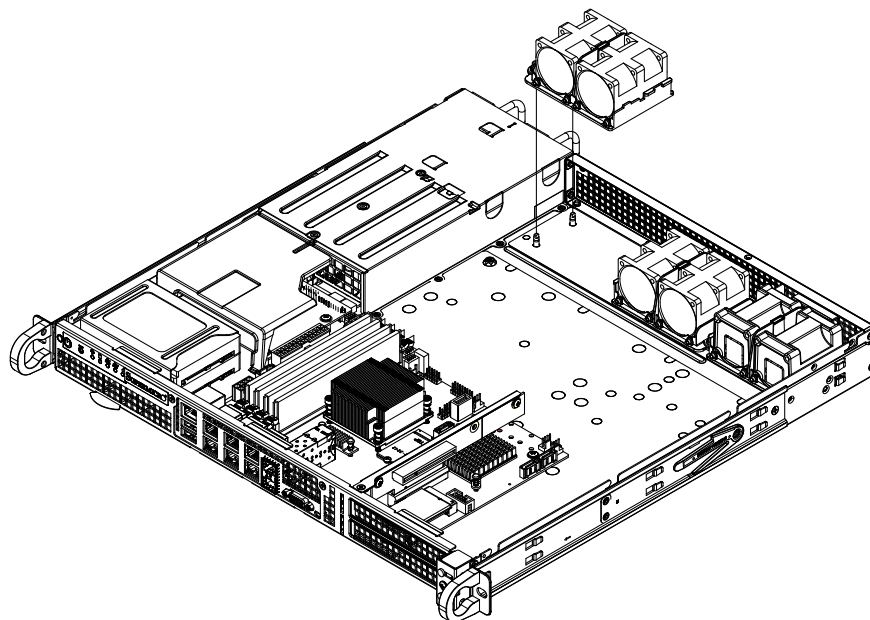
## System Fans

Four heavy-duty fans and sockets for two optional fans provide the cooling for the 1019D-FRN8TP. It is important that the chassis cover is properly installed in order for the cooling air to circulate properly through the chassis and cool the components.

Fan speed is controlled by system temperature via IPMI. If a fan fails, the remaining fan will ramp up to full speed and the Information LED on the control panel will turn on. Replace any failed fan with the same type and model.

### ***Replacing System Cooling Fans***

1. If necessary, open the chassis cover while the system is running to determine which fan has failed. Then power down the system and remove the chassis cover as described in section 3.1.
2. Remove the failed fan's cable from the connector on the motherboard, then lift the fan housing and the two fans inside it up and out of the chassis. (Gently pull upward to remove a failed fan from the housing.)
3. Place the new fan into the vacant space in the housing. Make sure the arrows on the sides of the fan (indicating air direction) point in the same direction as the arrows on the other fans.
4. Plug the fan's cable into the connector on the motherboard.
5. Place the fan housing into the chassis and secure it with the screws previously set aside.
6. Power up the system and check that the fan is working properly before replacing the top cover.

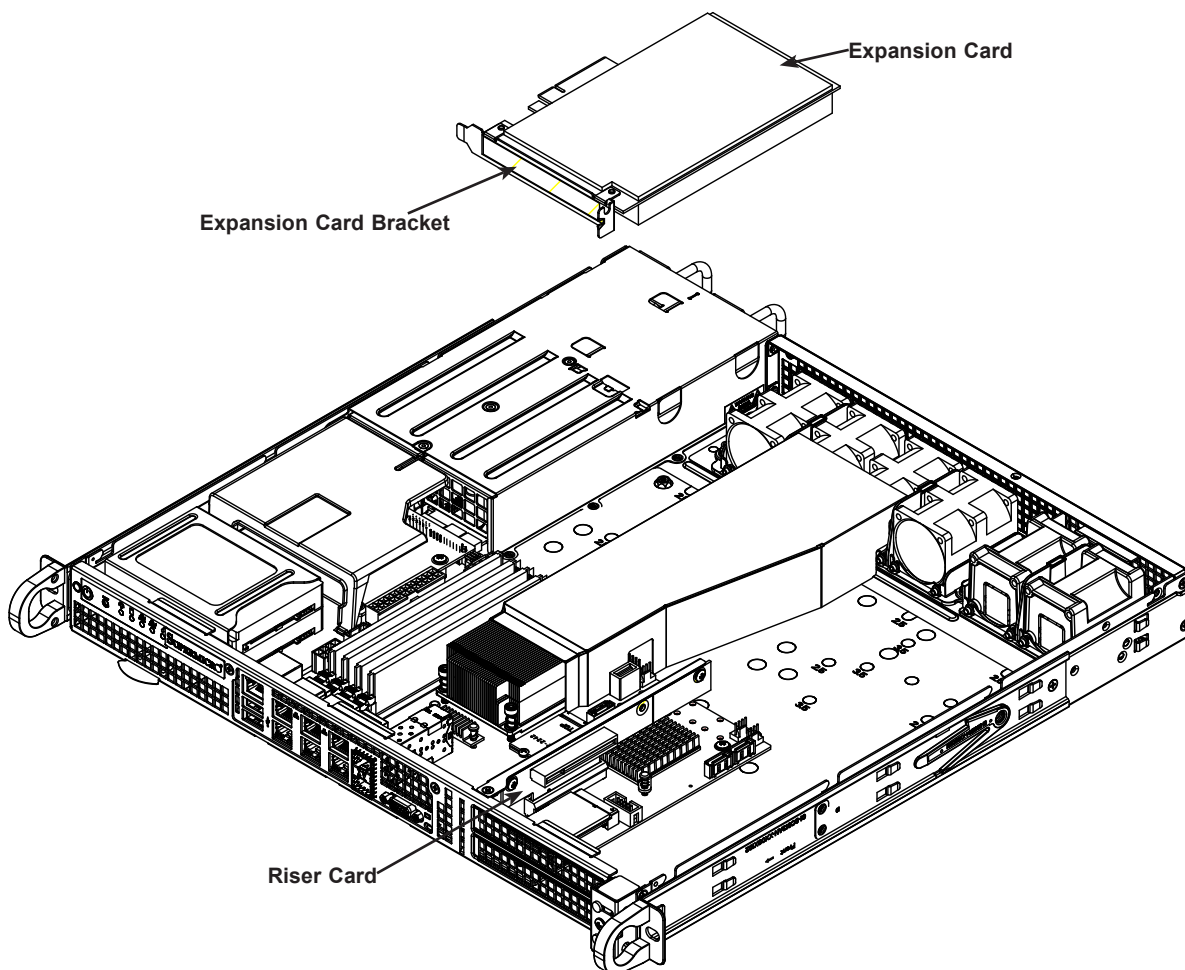


**Figure 3-6. Installing System Fans**

## Installing Expansion Cards

### *Installing an Expansion Card*

1. Confirm that you have the correct riser card for your chassis model and that the expansion card includes a standard bracket.
2. Power down the system and open the chassis cover as described in Section 3.1.
3. Remove the riser card bracket from the chassis.
4. Attach the riser card to the riser card bracket with screws.
5. Insert the expansion card(s) into the riser card slot(s).
6. Insert the riser card into the serverboard's expansion slot while aligning the expansion card bracket with the openings in the rear of the chassis.
7. Secure the riser card bracket to the chassis and the expansion card bracket to the rear of the chassis.
8. Replace the chassis cover and power up the system.



**Figure 3-7. Installing an Expansion Card with Bracket**

## Power Supply

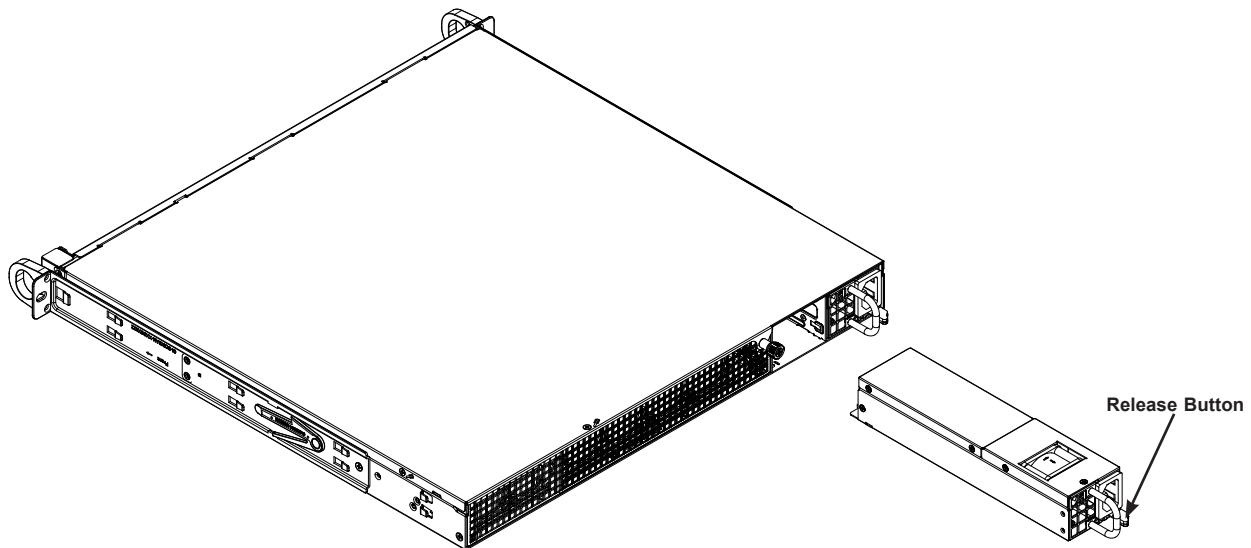
The SC515-R407 chassis has a redundant (two) 400W hot-swappable power supplies. The power supplies are auto-switching capable. This enables it to automatically sense and operate at a 100v to 240v input voltage. If your system has a fixed power supply, it will be necessary to shut down the system in order to change the power supply. If your system includes a redundant power supply, it is hot-swappable and can be changed without powering down the system.

### ***Changing a Redundant Hot-Swap Power Supply***

In the event that one of the power supplies fails, the redundant power supply will take over. Replacing the power supply is simple and requires no tools.

#### ***Replacing the Power Supply***

1. Push the release button on the failed power supply.
2. Pull the power supply out using the handle.
3. Replace the power supply with another of the same model and push it into the chassis until it clicks into the locked position.



**Figure 3-8. Removing a Hot-Swap Redundant Power Supply**



# 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 X11SDV-8C-TP8F must be connected to the power supply. The wiring is included with the power supply.

- 24-pin Primary ATX Power (JPW1)
- 8-pin Processor Power (JPV1)
- HDD Power Connection (JPH1)

#### Main ATX Power Supply Connector

The primary power supply connector (JPW1) meets the ATX SSI EPS 12V specification.

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

#### 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.

## Secondary Power Connector

JPV1 must also be connected to the power supply. This connector is used to power the process and provides alternative power for special enclosure when the 24-pin ATX power is not in use.

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

Required Connection

## HDD Power Connector

JPH1 is a 4-pin power connector for HDD use. It provides power from the motherboard to the onboard HDD.

+12V 4-pin Power Pin Definitions	
Pin#	Definition
1	12V
2-3	GND
4	5V

## 4.2 Headers and Connectors

### Fan Headers

The X11SDV-16C/-12C/-8C-TP8F has six 4-pin fan headers (FAN1 ~ FAN4, FANA, FANB). These headers are backwards compatible with the traditional 3-pin fans. However, fan speed control is available for 4-pin fans only by Thermal Management via the IPMI 2.0 interface. Refer to the table below for pin definitions.

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

### Power LED/Buzzer Header

On the JD1 header, pins 1-4 are for the Power LED and pins 5-7 are for the buzzer.

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

### Chassis Intrusion

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

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

### General Purpose I/O Header

The JGP1 (General Purpose Input/Output) header is a general purpose I/O expander on a pin header via the SMBus. Refer to the table below for pin definitions.

SGPIO Header Pin Definitions			
Pin#	Definition	Pin#	Definition
1	+5V Power	2	GND
3	GP0	4	GP1
5	GP2	6	GP3
7	GP5	8	GP5
9	GP6	10	GP7

### Serial General Purpose I/O Header

One S-SGPIO (Serial Link General Purpose Input/Output) header is at S-SGPIO1 on the motherboard. Refer to the table below for pin definitions.

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

NC = No Connection

### NVMe I<sup>2</sup>C Header

JNVI2C1 is a management header for the Supermicro AOC NVMe PCI-E peripheral cards. Connect a corresponding I<sup>2</sup>C cable to this header. Refer to the table below for pin definitions.

I <sup>2</sup> C Header Pin Definitions	
Pin#	Definition
1	PE_HP_SCL
2	Ground
3	PE_HP_SDA
4	PVCCIO

### Standby Power

The +5V Standby Power header is located at JSTBY1 on the motherboard. You must have a card with a Standby Power connector and a cable to use this feature. Refer to the table below for pin definitions.

Standby Power Pin Definitions	
Pin#	Definition
1	+5V Standby
2	Ground
3	NC

### Disk On Module Power Connector

One power connector for a SATA DOM (Disk On Module) device is located at JSD1. Connect the appropriate cable here to provide power support for your Serial Link DOM device.

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

### SMBus Header

A System Management Bus header for IPMI 2.0 is located at JIPMB1. Connect the appropriate cable here to use the IPMB I<sup>2</sup>C connection on your system. Refer to the table below for pin definitions.

External I <sup>2</sup> C Header Pin Definitions	
Pin#	Definition
1	Data
2	GND
3	Clock
4	NC

### Power SMB (I<sup>2</sup>C) Header

The Power System Management Bus (I<sup>2</sup>C) connector (JPI<sup>2</sup>C1) monitors the power supply, fan, and system temperatures. Refer to the table below for pin definitions.

Power SMB Header Pin Definitions	
Pin#	Definition
1	Clock
2	Data
3	PMBUS_Alert
4	Ground
5	+3.3V

### TPM/Port 80 Header

A Trusted Platform Module (TPM)/Port 80 header is located at JTPM1 to provide TPM support and a Port 80 connection. Use this header to enhance system performance and data security. Refer to the table below for pin definitions.

Trusted Platform Module Header 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 Stby	10	SPI_IRQ#

### System Management Bus Header

A System Management Bus header for additional slave devices or sensors is located at JSMB1. See the table below for pin definitions.

External I <sup>2</sup> C Header Pin Definitions	
Pin#	Definition
1	Data
2	Ground
3	Clock
4	NC

### COM Header

One COM header (COM1) is located on the motherboard. Refer to the table below for pin definitions.

COM Header 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

### Nano SIM Slot

The JSIM1 slot supports a Nano SIM card.

### Mini PCI-E x1 Connector

This connector can support storage devices such as a mini PCI-E SSD hard drive.

## LAN Activity Header

JLANLED1 is the activity LED header for LAN1 through LAN4.

LAN Activity LED Pin Definitions	
Pin#	Definition
1	3V3 Stby
2	LAN3_ACT_N
3	3V3 Stby
4	LAN4_ACT_N

## LAN Activity LED Headers

JTGLED1 is the activity LED header for LAN7 and LAN8, and JTGLED2 is the activity header for LAN5 and LAN6.

LAN Activity LED Pin Definitions	
Pin#	Definition
1	3V3 Stby
2	LAN5_ACT_N
3	3V3 Stby
4	LAN6_ACT_N

LAN Activity LED Pin Definitions	
Pin#	Definition
1	3V3 Stby
2	LAN7_ACT_N
3	3V3 Stby
4	LAN8_ACT_N

## SATA Ports

Twelve SATA 3.0 ports, supported by the Intel SoC chipset, are provided on the X11SDV-16C/-12C/-8C-TP8F motherboard. These SATA ports support RAID 0, 1, 5, and 10. SATA ports provide serial-link signal connections. Two additional SATA connections are available via the M.2 connector. Refer to the table below for pin definitions.

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

## M.2 Connection

The X11SDV-16C/-12C/-8C-TP8F board has two M.2 connectors at JMD1 and JMD2. JMD1 supports M-Key 2280 and is mux with S-SATA5 while JMD2 supports B-Key 3042 and is mux with S-SATA4. M.2 was formerly Next Generation Form Factor (NGFF) and serves to replace mini PCI-E and mSATA. M.2 allows for a greater variety of card sizes, increased functionality, and spatial efficiency.

### 4.3 Rear I/O Ports

See Figure 4-1 below for the locations and descriptions of the various I/O ports on the rear of the motherboard.

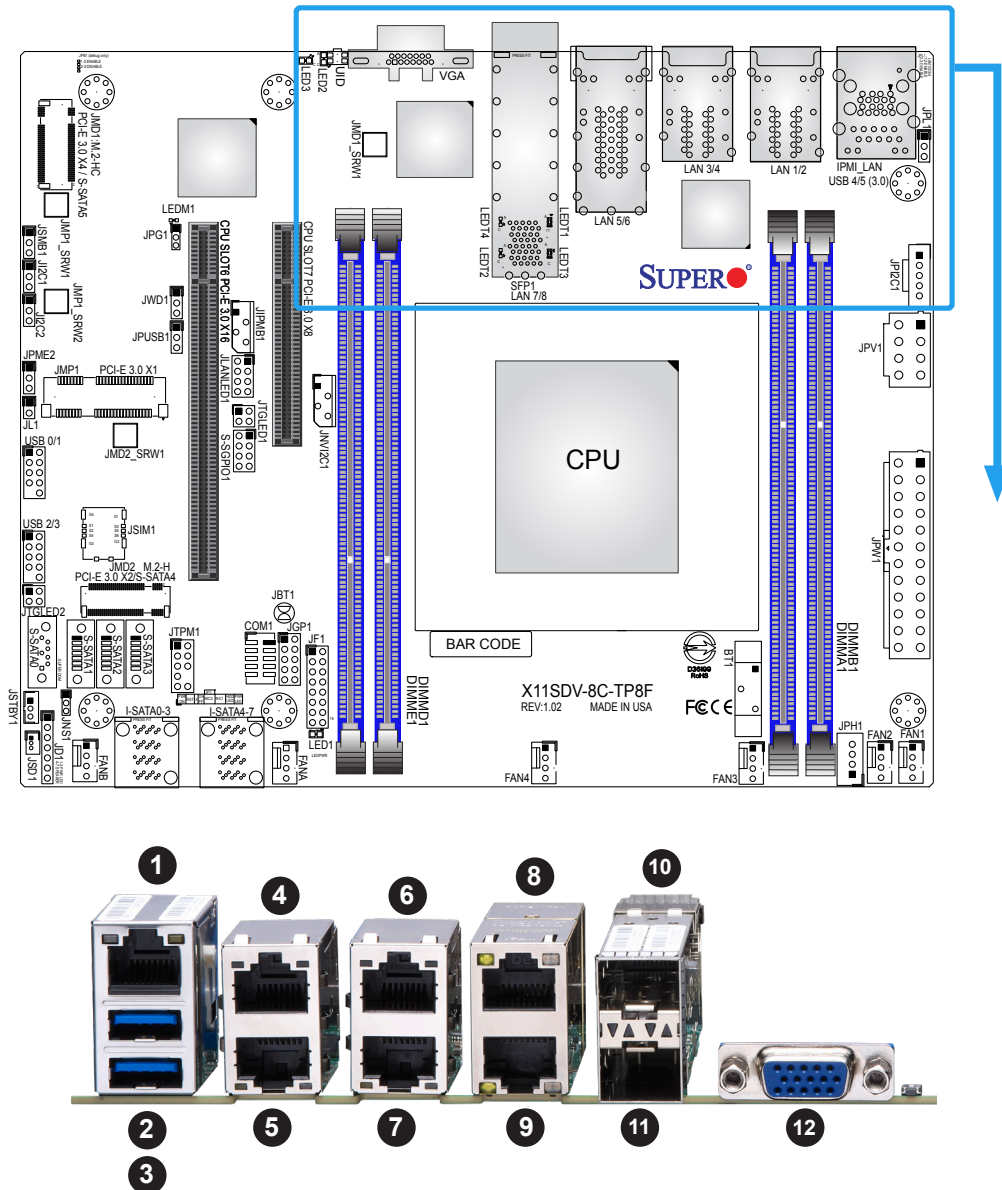


Figure 4-1. I/O Port Locations and Definitions

#	Description	#	Description	#	Description
1	IPMI LAN	5	LAN1	9	LAN5
2	USB5 3.0 ports	6	LAN4	10	SFP LAN8
3	USB4 3.0 ports	7	LAN3	11	SFP LAN7
4	LAN2	8	LAN6	12	VGA

## VGA Port

A VGA video port is located near LAN ports 7/8 on the I/O back panel.

## LAN Ports

There are eight LAN ports located on the I/O back panel of the motherboard. LAN1 - LAN4 are RJ45 1GbE Ethernet ports, LAN5 - LAN6 are 10GbE ports, and LAN7 - LAN8 are 10G SFP+ ports. The motherboard also offers one IPMI LAN port.

LAN Port Pin Definitions			
Pin#	Definition	Pin#	Definition
1	TX_D1+	5	BI_D3-
2	TX_D1-	6	RX_D2-
3	RX_D2+	7	BI_D4+
4	BI_D3+	8	BI_D4-

## Universal Serial Bus (USB) Ports

There are two USB 3.0 ports (USB4/5) on the I/O back panel. The motherboard also has two front access USB 2.0 headers (USB0/1, USB2/3). The onboard headers can be used to provide front side USB access with a cable (not included).

Back Panel USB 4/5 (3.0) 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

Front Panel USB 0/1, 2/3 (2.0) Pin Definitions			
Pin#	Definition	Pin#	Definition
1	+5V	2	+5V
3	USB_N	4	USB_N
5	USB_P	6	USB_P
7	Ground	8	Ground
9	Key	10	NC



### Unit Identifier Button/UID LED Indicator

A Unit Identifier (UID) button and an LED indicator are located on the motherboard. The UID button is located next to the VGA port on the back panel. The UID LED is located at LED2, next to the UID button. When you press the UID button, the UID LED will be turned on. Press the UID button again to turn off the LED indicator. The LED indicator provides easy identification of a system unit that may be in need of service.

**Note:** UID can also be triggered via IPMI on the motherboard. For more information on IPMI, please refer to the IPMI User's Guide posted on our website at <https://www.supermicro.com/support/manuals/>.

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

UID LED Pin Definitions	
Color	Status
Blue: On	Unit Identified

## 4.4 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.

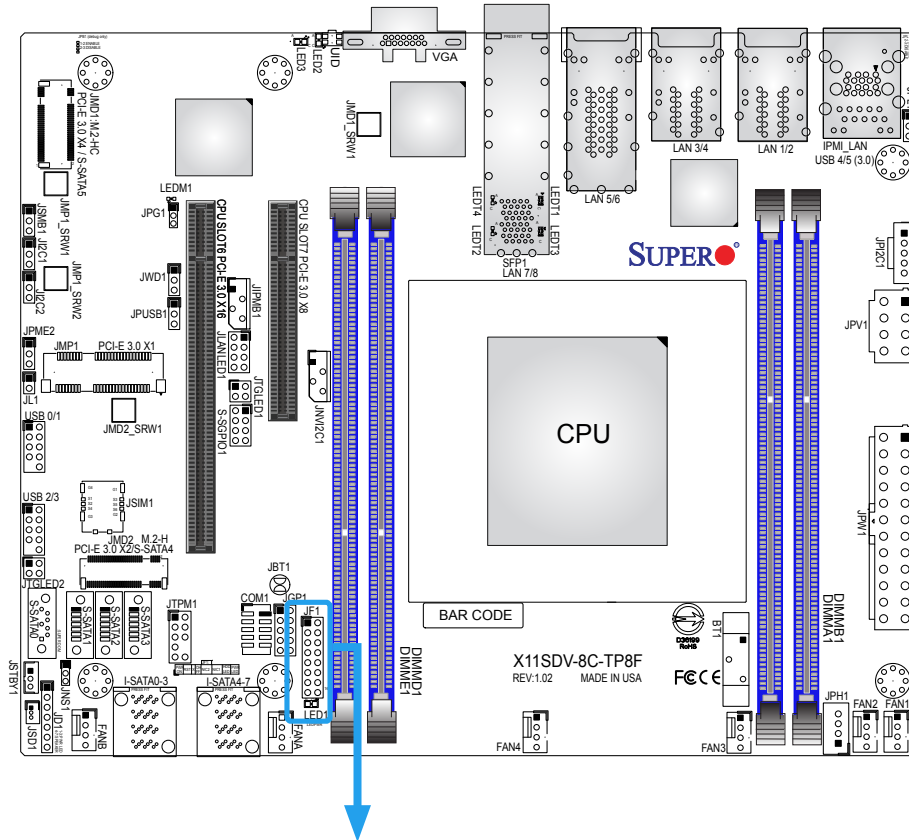


Figure 4-2. JF1 Header Pins

	1	2	
PWR } Power Button	○	○	Ground
Reset } Reset Button	○	○	Ground
3.3V	○	○	PWR Fail LED
UID	○	○	OH/Fan Fail LED
3.3V Stby	○	○	NIC2 Activity LED
3.3V Stby	○	○	NIC1 Activity LED
3.3V Stby	○	○	HDD LED
3.3V	○	○	PWR LED
	15	16	

## 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 6). To turn off the power when the system is in suspend mode, press the button for 4 seconds or longer. Refer to the table below for pin definitions.

Power Button Pin Definitions (JF1)	
Pin#	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. Refer the table below for pin definitions.

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

## Power Fail LED

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

Power Fail LED Pin Definitions (JF1)	
Pins	Definition
5	3.3V
6	PWR Supply Fail

## Overheat (OH)/Fan Fail

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

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

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

### NIC1/NIC2 Activity LED

The NIC (Network Interface Controller) LED connection for LAN port 1 is located on pins 11 and 12 of JF1, and the LED connection for 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 Pin Definitions (JF1)	
Pin#	Definition
9	Pull up to +3.3 Stby
10	NIC2 Activity LED
11	Pull up to +3.3 Stby
12	NIC1 Activity LED

### HDD LED/UID Switch

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

HDD LED Pin Definitions (JF1)	
Pin#	Definition
13	3.3V Stby/UID_SW
14	HDD Active

### Power LED

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

Power LED Pin Definitions (JF1)	
Pin#	Definition
15	3.3V
16	PWR LED

### NMI Button

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

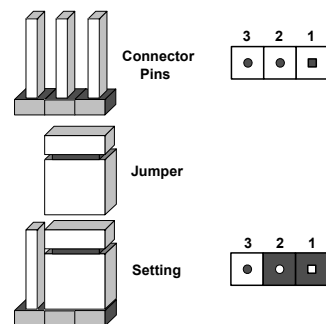
NMI Button Pin Definitions (JF1)	
Pins	Definition
19	Control
20	Ground

## 4.5 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**

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

#### **To Clear CMOS**

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



### LAN Port Enable/Disable

Use jumper JPL1 to enable or disable LAN1 - LAN4. Refer to the table below for jumper settings.

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

### Manufacturing Mode Select

Close pins 2-3 of jumper JPME2 to bypass SPI flash security and force the system to operate in the manufacturing mode, which will allow the user to flash the system firmware from a host server for system setting modifications. Refer to the table below for jumper settings.

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

### VGA Enable/Disable

Use jumper JPG1 to enable the onboard VGA connector. Refer to the table below for jumper settings.

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

### Watch Dog

JWD1 controls the Watch Dog function. Watch Dog is a monitor that can reboot the system when a software application hangs. Jumping pins 1-2 will cause Watch Dog to reset the system if an application hangs. Jumping pins 2-3 will generate a non-maskable interrupt signal for the application that hangs. Watch Dog must also be enabled in BIOS. The default setting is Reset.

**Note:** When Watch Dog is enabled, users need to write their own application software to disable it.

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

### SMBus to PCI-E Slots

Use jumpers JI2C1 and JI2C2 to enable PCI-E SMB (System Management Bus) support to improve system management for the onboard PCI-E slot.

SMBus to PCI-E Slots Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Enabled
Pins 2-3	Disabled (Default)

### Mini-SAS HDD NVMe/SATA Mode Select

Use jumper JNS1 to select the Mini-SAS hard disk drive mode as either NVMe or SATA.

SMBus to PCI-E Slots Jumper Settings	
Jumper Setting	Definition
Pins 1-2	SATA (Default)
Pins 2-3	NVMe

### USB Wake Up

Use the JPU1B1 jumper to enable system wake up via a USB device. This jumper allows you to wake up the system by pressing a key on the USB keyboard or by clicking the USB mouse. Enable the jumper to activate this function. When the USB Wake Up function is enabled, it will be active on all USB ports.

USB Wake Up Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Enabled (Default)
Pins 2-3	Disabled

## 4.6 LED Indicators

### LAN LEDs

Eight LAN ports (LAN1 - LAN8) are located on the I/O back panel. Each Ethernet LAN port has two LEDs. The green LED indicates activity, while the other Link LED may be green, amber, or off to indicate the speed of the connection. Refer to the tables below for more information.

LAN Link LEDs (Left) LED State	
LED Color	Definition
Off	No Connection/10 Mbps/100 Mbps
Amber	1 Gbps
Green	10 Gbps

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

### Power LED

LED1 is an Onboard Power LED. When this LED is lit, it means power is present on the motherboard. In suspend mode, this LED will blink on and off. Be sure to turn off the system and unplug the power cord(s) before removing or installing components.

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

### BMC Heartbeat LED

LEDM1 is the BMC heartbeat LED. When the LED is blinking green, BMC is working. Refer to the table below for the LED status.

Onboard Power LED Indicator	
LED Color	Definition
Blinking Green	BMC Normal

### Overheat/PWR Fail/Fan Fail LED

LED3 is the Overheat/Power Fail/Fan Fail LED.

Onboard Power LED Indicator	
LED Color	Definition
Solid Red	System overheat
Blinking Red	PWR Fail or Fan Fail



# Chapter 5

## Software

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

### 5.1 Microsoft Windows OS Installation

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

#### *Installing the OS*

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

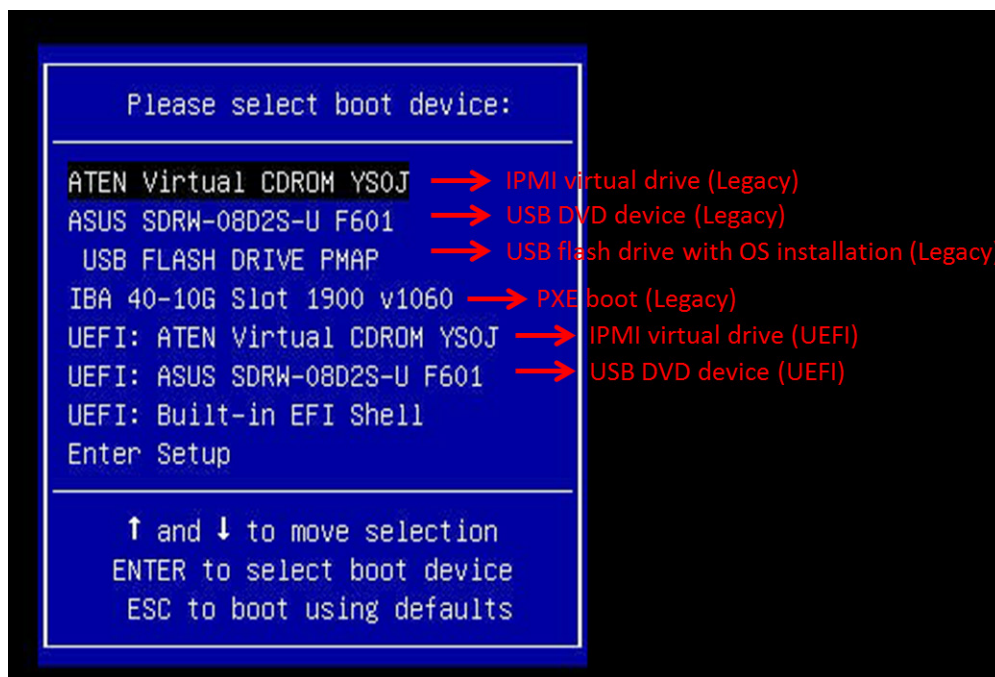
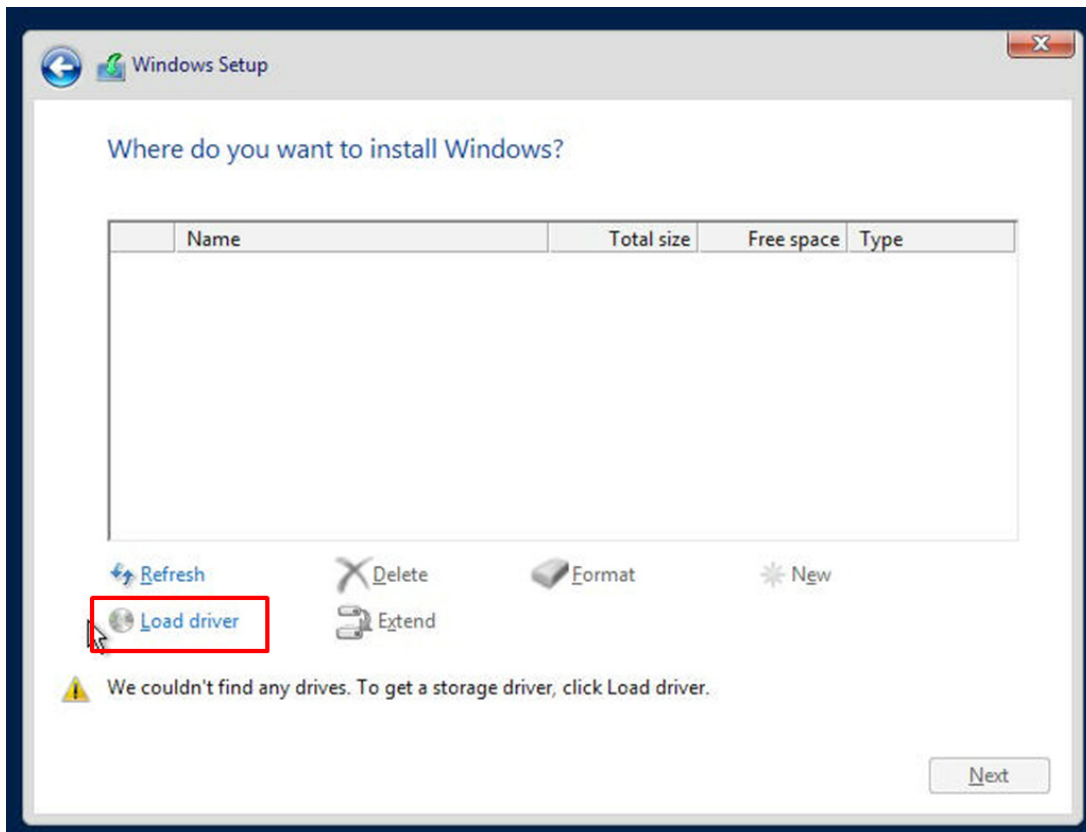


Figure 5-1. Select Boot Device

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



**Figure 5-2. Load Driver Link**

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

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

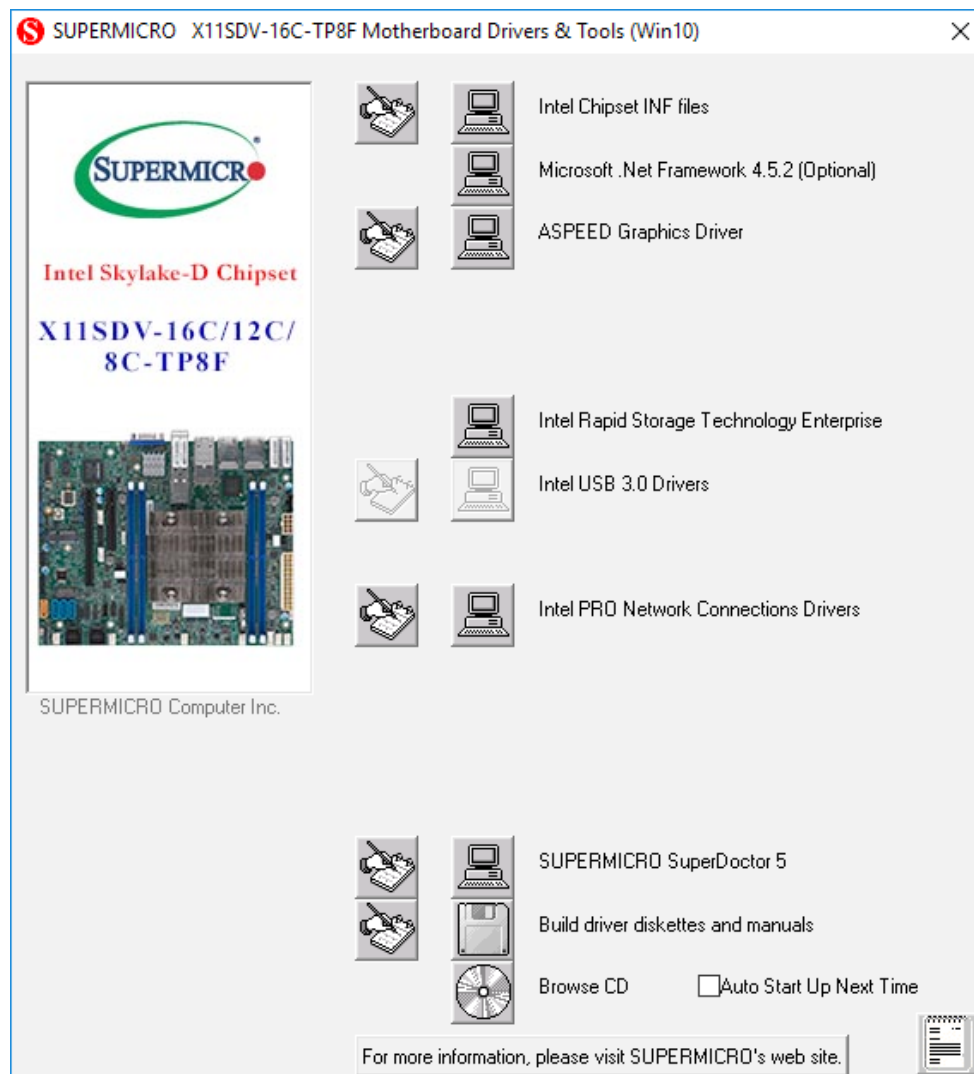
## 5.2 Driver Installation

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

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

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

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



**Figure 5-3. Driver & Tool Installation Screen**

**Note:** Click the icons showing a hand writing on paper to view the readme files for each item. Click the computer icons to the right of these items (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.

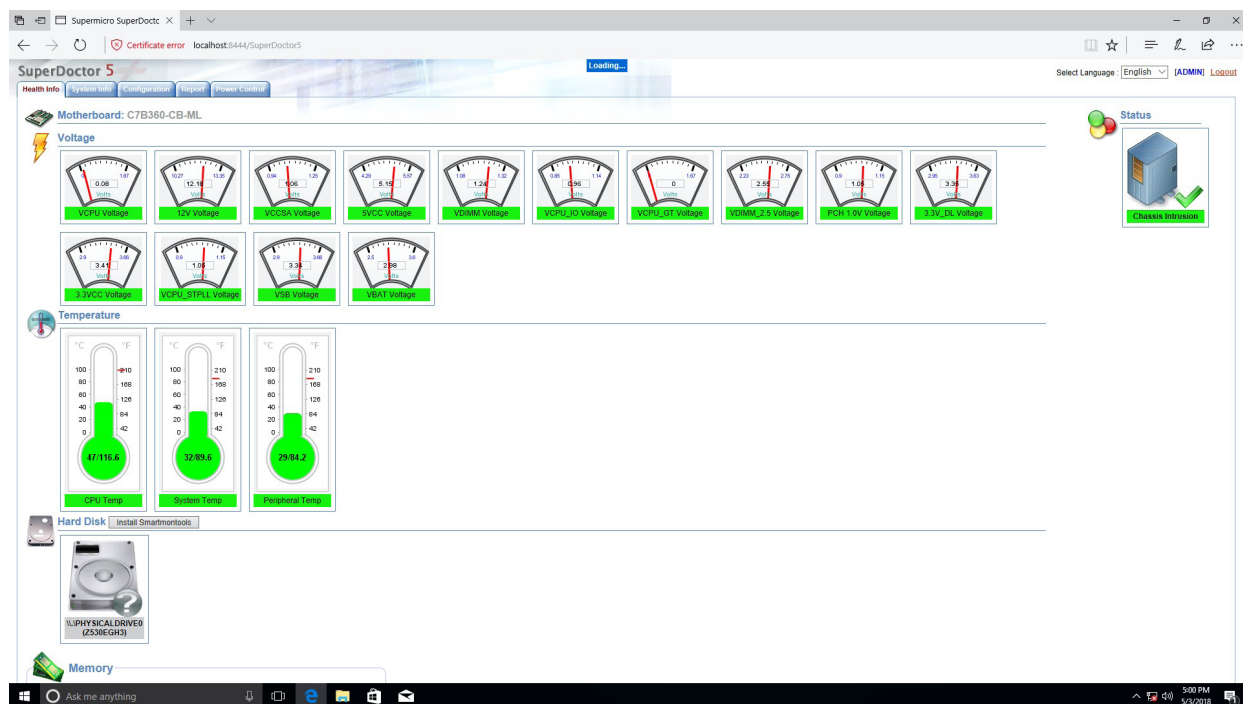


Figure 5-4. SuperDoctor 5 Interface Display Screen (Health Information)

## 5.4 IPMI

The X11SDV-8C-TP8F 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/nfo/IPMI.cfm>.

## Chapter 6

# UEFI BIOS

### 6.1 Introduction

This chapter describes the UEFI BIOS Setup utility for the X11SDV-8C-TP8F motherboard(s). The is stored in a flash chip and can be easily upgraded using a floppy disk-based 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 UEFI BIOS Setup Utility, hit 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 and the following features will be displayed:

### **System Date/System Time**

Use this option 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 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 the BIOS build date after RTC reset.

### **Supermicro X11SDV-16C-TP8F**

#### **BIOS Version**

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

#### **Build Date**

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

#### **Memory Information**

##### **Total Memory**

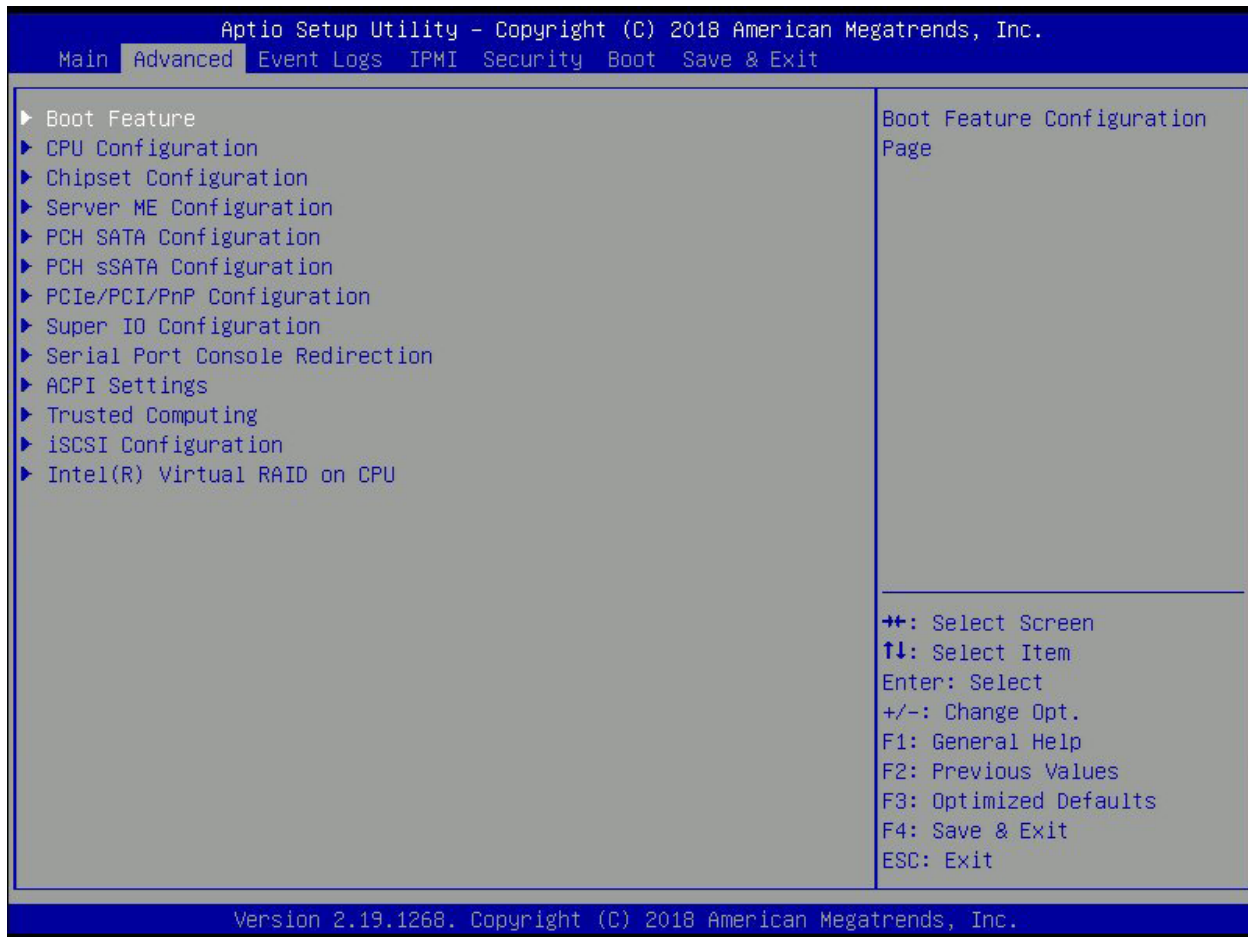
This feature displays the total size of memory available in the system.

##### **Memory Speed**

This feature displays the default speed of the memory modules installed in the system.

## 6.3 Advanced Settings Menu

Use this menu to configure advanced settings.



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

### ▶ Boot Feature

#### Quiet Boot

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

#### Option ROM Messages

Use this feature to set the display mode for the Option ROM. Select Keep Current to display the current AddOn ROM setting. Select Force BIOS to use the Option ROM display 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**

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

**INT19 (Interrupt 19) 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**

If this item is enabled, the BIOS will automatically reboot the system from a specified boot device after its initial boot failure. The options are **Disabled**, Legacy Boot, and EFI Boot.

**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**.

**Power Configuration****Watch Dog Function**

If enabled, the Watch Dog timer will allow the system to reboot when it is inactive for more than five 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 four seconds or longer. Select Instant Off to instantly power off the system as soon as the user presses the power button. The options are 4 Seconds Override and **Instant Off**.

**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 Stay Off, Power On, and **Last State**.

## ► CPU Configuration

The following CPU information will display:

- 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

### **Hyper-Threading (ALL)**

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

### **Cores Enabled**

Set a numeric value to enable the number of cores. Refer to Intel's website for more information. Enter **0** to enable all cores.

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

Set to Enable for 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 or 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**

Use this feature to enable the Vanderpool Technology. This technology allows the system to run several operating systems simultaneously. The options 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 set to Enable, the hardware prefetcher will prefetch streams of data and instructions from the main memory to the L2 cache to improve CPU performance. The options are Disable and **Enable**.

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

The CPU prefetches the cache line for 64 bytes if this feature is set to Disabled. The CPU prefetches both cache lines for 128 bytes as comprised if this feature is set to Enable. The options are **Enable** and Disable.

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

Select Enable to enable the DCU (Data Cache Unit) Streamer Prefetcher which will stream and prefetch data and send it to the Level 1 data cache to improve data processing and system performance. The options are Disable and **Enable**.

**DCU IP Prefetcher (Available when supported by the CPU)**

Select Enable for DCU (Data Cache Unit) IP Prefetcher support, which will prefetch IP addresses to improve network connectivity and system performance. The options are **Enable** and Disable.

**LLC Prefetch**

If set to Enable, the hardware prefetcher will prefetch streams of data and instructions from the main memory to the L3 cache to improve CPU performance. The options are **Disable** and Enable.

**Extended APIC**

Select Enable to activate APIC (Advanced Programmable Interrupt Controller) support. 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**

This feature allows the user to configure CPU power management settings. The options are Disable, **Energy Efficient**, and Custom.

***\*If the feature above is set to Custom, the following features will be available for configuration:***

### Power Performance Tuning

This feature allows the user to set whether the operating system or the BIOS controls the Energy Performance BIAS (EPB). The options are **OS Controls EPB** and BIOS Controls EPB.

*\*If the feature above is set to BIOS Controls EPB, the following features will be available for configuration:*

#### ENERGY\_PERF\_BIAS\_CFG Mode

The Energy Performance BIAS (EPB) feature allows the user to configure CPU power and performance settings. Select Maximum Performance to set the highest performance. Select Performance to optimize performance over energy efficiency. Select Balanced Performance to prioritize performance optimization while conserving energy. Select Balanced Power to prioritize energy conservation while maintaining good performance. Select Power to optimize energy efficiency over performance. The options are Maximum Performance, Performance, **Balanced Performance**, Balanced Power, and Power.

#### ► CPU P State Control

This feature allows the user to configure the following CPU power settings:

##### SpeedStep (Pstates)

Intel SpeedStep Technology allows the system to automatically adjust processor voltage and core frequency to reduce power consumption and heat dissipation. The options are Disable and **Enable**. If this feature is set to Disabled, the next two features are not available for configuration.

##### EIST PSD Funtion

This feature allows the user to choose between Hardware and Software to control the processor's frequency and performance (P-state). In HW\_ALL mode, the processor hardware is responsible for coordinating the P-state, and the OS is responsible for keeping the P-state request up to date on all Logical Processors. In SW\_ALL mode, the OS Power Manager is responsible for coordinating the P-state, and must initiate the transition on all Logical Processors. In SW\_ANY mode, the OS Power Manager is responsible for coordinating the P-state and may initiate the transition on any Logical Processors. The options are **HW\_ALL**, SW\_ALL, and SW\_ANY.

##### Turbo Mode

This feature will enable dynamic control of the processor, allowing it to run above stock frequency. The options are Disable and **Enable**.

## ► Hardware PM State Control

### Hardware P-States

This setting allows the user to select between OS and hardware-controlled P-states. Selecting Native Mode allows the OS to choose a P-state. Selecting Out of Band Mode allows the hardware to autonomously choose a P-state without OS guidance. Selecting Native Mode with No Legacy Support functions as Native Mode with no support for older hardware. 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

Enabling this setting allows the hardware to autonomously choose to enter a C-state based on power consumption and clock speed. The options are **Disable** and Enable. This feature must be set to Disable to be able to configure the next two features.

### 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, the power to all cache is turned off. The options are Disable, Enable, and **Auto**.

### Enhanced Halt State (C1E)

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

## ► Package C State Control

### Package C State

This feature allows the user 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**.

## ► CPU T State Control

### Software Controlled T-States

Use this feature to enable Software Controlled T-States. The options are Disable and **Enable**.

## ► Chipset Configuration

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

## ► North Bridge Configuration

### ► UPI Configuration

The following UPI information will display:

- 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 set degrade precedence when system settings are in conflict. Select Topology Precedence to degrade Features. Select Feature Precedence to degrade Topology. The options are **Topology Precedence** and Feature Precedence.

### Link L0p Enable

Select Enable for the QPI to enter the L0p state for power saving. The options are Disable, Enable, and **Auto**.

### Link L1 Enable

Select Enable for the QPI to enter the L1 state for power saving. The options are Disable, Enable, and **Auto**.

### IO Directory Cache (IODC)

IO Directory Cache is an 8-entry cache that stores the directory state of remote IIO writes and memory lookups, and saves directory updates. Use this feature to lower cache to cache (C2C) transfer latencies. 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 WViLF.

## 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.

## Isoc Mode

Isochronous (Isoc) mode allows time-sensitive processes to be given priority. The options are Disable, Enable, and **Auto**.

## ► Memory Configuration

### Enforce POR

Select POR (Plan of Record) to enforce POR restrictions on DDR4 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**, 2133, 2400, and 2666.

### Data Scrambling for DDR4

Use this feature to enable or disable data scrambling for DDR4 memory. The options are **Auto**, Disable, and Enable.

### tCCD\_L Relaxation

Select Auto to get TCDD settings from SPD (Serial Presence Detect) and implement into memory RC code to improve system reliability. Select Disable for TCCD to follow Intel POR. The options are Disable and **Auto**.

### Enable ADR

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

### 2X REFRESH

Use this feature to select the memory controller refresh rate to 2x refresh mode. The options are **Auto** and Enable.

## ► Memory Topology

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

## ► Memory RAS Configuration

### Static Virtual Lockstep Mode

Select Enable to run the system's memory channels in lockstep mode to minimize memory access latency. The options are **Disable** and Enable.

### Mirror mode

This feature allows memory to be mirrored between two channels, providing 100% redundancy. The options are **Disable**, Mirror Mode 1LM, and Mirror Mode 2LM.

### Memory Rank Sparing

Select Enable to enable memory-sparing support for memory ranks to improve memory performance. The options are **Disable** and Enable.

***\*If the feature above is set to Enable, Multi Rank Sparing will be available for configuration:***

### Multi Rank Sparing

Use this feature to indicate how many memory ranks to reserve in case of memory failure. The options are One Rank and **Two Rank**.

### Correctable Error Threshold

Use this feature to specify the threshold value for correctable memory error logging, which sets a limit on the maximum number of events that can be logged in the memory error log at a given time. The default setting is **100**.

### SDDC

Single device data correction +1 (SDDC Plus One) organizes data in a single bundle (x4/x8 DRAM). If any or all the bits become corrupted, corrections occur. The x4 condition is corrected on all cases. The x8 condition is corrected only if the system is in Lockstep Mode. The options are **Disable** and Enable.

### ADDDC Sparing

Adaptive Double Device Data Correction (ADDDC) Sparing detects when the predetermined threshold for correctable errors is reached, copying the contents of the failing DIMM to spare memory. The failing DIMM or memory rank will then be disabled. The options are **Disable** and Enable.



### Patrol Scrub

Patrol Scrub is a process that allows the CPU to correct correctable memory errors detected on a memory module and send the correction to the requestor (the original source). When this feature is 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**.

***\*If the feature above is set to Enable, Patrol Scrub Interval will be available for configuration:***

### Patrol Scrub Interval

This feature allows you to decide how many hours the system should wait before the next complete patrol scrub is performed. Use the keyboard to enter a value from 0-24. The default setting is **24**.

## ► IIO Configuration

### EV DFX Features

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

## ► CPU Configuration

### IOU0 (IIO PCIe Br1)

Use this feature configures the PCI-E port Bifuraction setting for a PCI-E port specified by the user. The options are x4x4x4x4, x4x4x8, x8x4x4, x8x8, x16, and **Auto**.

### IOU1 (IIO PCIe Br2)

Use this feature configures the PCI-E port Bifuraction setting for a PCI-E port specified by the user. The options are x4x4x4x4, x4x4x8, x8x4x4, x8x8, x16, and **Auto**.

### IOU2 (IIO PCIe Br3)

Use this feature configures the PCI-E port Bifuraction setting for a PCI-E port specified by the user. The options are x4x4x4x4, x4x4x8, x8x4x4, x8x8, x16, and **Auto**.

## ► CPU SLOT6 PCI-E 3.0 X16

### Link Speed

Use this feature to select the link speed for this port. The options are **Auto**, Gen 1 (2.5 GT/s), Gen 2 (5GT/s), and Gen 3 (GT/s).

#### **PCI-E Port Link Status**

This feature shows the status of the device plugged into this slot.

#### **PCI-E Port Link Max**

This feature shows the status of the device plugged into this slot.

#### **PCI-E Port Link Speed**

This feature shows the status of the device plugged into this slot.

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

Use this feature to select the maximum payload size for this port. The options are 128B, 256B, and **Auto**.

### **► CPU SLOT7 PCI-E 3.0 X8**

#### **Link Speed**

Use this feature to select the link speed for this port. The options are **Auto**, Gen 1 (2.5 GT/s), Gen 2 (5GT/s), and Gen 3 (GT/s).

#### **PCI-E Port Link Status**

This feature shows the status of the device plugged into this slot.

#### **PCI-E Port Link Max**

This feature shows the status of the device plugged into this slot.

#### **PCI-E Port Link Speed**

This feature shows the status of the device plugged into this slot.

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

Use this feature to select the maximum payload size for this port. The options are 128B, 256B, and **Auto**.

### **► IOAT Configuration**

#### **Disable TPH**

Transparent Huge Pages (TPH) is a Linux memory management system that enables communication in larger blocks (pages). Enabling this feature will increase performance. The options are **No** and Yes.

***\*If the feature above is set to No, Relaxed Ordering will be available for configuration:***

**Prioritize TPH**

Use this feature to enable Prioritize TPH support. 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 bus for a transaction to be completed prior to other transactions that have already been queued. 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 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 **Enable** and Disable.

***\*If the feature above is set to Enable, the five features below will be available for configuration:***

**Interrupt Remapping**

Use this feature to enable Interrupt Remapping support, which detects and controls external interrupt requests. 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-Isoch VT-d engine to pass through DMA to enhance system performance. The options are **Enable** and Disable.

## ► Intel® VMD Technology

### ► Intel® VMD for Volume Management Device on CPU

#### VMD Config for PStack0

##### Intel® VMD for Volume Management Device

Select Enable to use the Intel Volume Management Device Technology for this stack. The options are **Disable** and Enable.

*\*If the feature above is set to Enable, the following features will be available for configuration:*

#### CPU SLOT6 PCI-E 3.0X16 VMD

Use this feature to enable or disable Volume Management Device (VMD) Technology for this port. The options are Disable and **Enable**.

#### Hot Plug Capable (Available when the device is detected by the system)

Use this feature to enable hot plug support for PCIe root ports 1A~1D. The options are **Disable** and Enable.

#### PCI-E Completion Timeout Disable

Use this feature to enable PCI-E Completion Timeout support for electric tuning. The options are Yes, **No**, and Per-Port.

## ► South Bridge Configuration

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 settings 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**.

### ► Server ME Configuration

- General ME Configuration
- Oper. Firmware Version
- Backup Firmware Version
- Recovery Firmware Version
- ME Firmware Status #1
- ME Firmware Status #2
- Current State
- Error Code

### ► PCH 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 features:

#### SATA Controller

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

#### Configure SATA as

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.

#### SATA HDD Unlock

This feature allows the user to remove any password-protected SATA disk drives. The options are **Enable** and Disable.

#### Aggressive Link Power Management

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

*\*If the feature "Configure SATA as" above is set to RAID, the following features will be available for configuration:*

#### **SATA RSTe Boot Info**

Select Enable to provide full int13h support for the devices attached to SATA controller. The options are Disable and **Enable**.

#### **SATA RAID Option ROM/UEFI Driver**

Select UEFI 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 0/4/5/6/7**

This feature displays the information detected on the installed SATA drive on the particular SATA port.

- Model number of drive and capacity
- Software Preserve Support

#### **Port 0~7 Hot Plug**

Set this feature to Enable for hot plug support, which will allow the user to replace a SATA drive without shutting down the system. The options are Disable and **Enable**.

#### **Port 0~7 Spin Up Device**

On an edge detect from 0 to 1, set this feature to allow the PCH to initialize the device. The options are **Disable** and Enable.

#### **Port 0~7 SATA Device Type**

Use this feature to specify if the SATA 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.

### **► PCH sSATA 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 features:

#### **sSATA Controller**

This feature enables or disables the onboard sSATA controller supported by the Intel PCH chip. 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.

### SATA HDD Unlock

This feature allows the user to remove any password-protected SATA disk drives. The options are Disable and **Enable**.

### Aggressive Link Power Management

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

***\*If the feature "Configure sSATA as" above is set to RAID, the following features will display:***

### sSATA RSTe Boot Info

Select Enable to provide full int13h support for the devices attached to sSATA controller. The options are Disable and **Enable**.

### sSATA RAID Option ROM/UEFI Driver

Select UEFI 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 ~ Port 5

This feature displays the information detected on the installed sSATA drive on the particular sSATA port.

- Model number of drive and capacity
- Software Preserve Support

### Port 0 ~ Port 5 Hot Plug

Set this feature to Enable for hot plug support, which will allow the user to replace a SATA drive without shutting down the system. The options are Disable and **Enable**.

### Port 0 ~ Port 5 Spin Up Device

On an edge detect from 0 to 1, set this feature to allow the PCH to initialize the device. The options are **Disable** and Enable.

### Port 0 ~ Port 5 sSATA Device Type

Use this feature to specify if the SATA 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

### ► PCIe/PCI/PnP Configuration

The following information will display:

- 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**

Use this feature to enable or disable Single Root IO Virtualization Support. The options are **Disabled** and Enabled.

#### **MMIO High Base**

Use this feature to select the base memory size according to memory-address mapping for the IO hub. The options are **56T**, 40T, 24T, 16T, 4T, and 1T.

#### **MMIO High Granularity Size**

Use this feature 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.

#### **Maximum Read Request**

Use this feature to select the Maximum Read Request size of the PCI-Express device, or select Auto to allow the System BIOS to determine the value. The options are **Auto**, 128 Bytes, 256 Bytes, 512 Bytes, 1024 Bytes, 2048 Bytes, and 4096 Bytes.

#### **MMCFG Base**

Use this feature to select the low base address for PCIE adapters to increase base memory. The options are 1G, 1.5G, 1.75G, **2G**, 2.25G. and 3G.

#### **NVMe Firmware Source**

Use this feature to select the NVMe firmware to support booting. The options are **Vendor Defined Firmware** and AMI Native Support. The default option, Vendor Defined Firmware, is pre-installed on the drive and may resolve errata or enable innovative functions for the drive. The other option, AMI Native Support, is offered by the BIOS with a generic method.



**VGA Priority**

Use this feature to select VGA priority when multiple VGA devices are detected. Select Onboard to give priority to your onboard video device. Select Offboard to give priority to your graphics card. The options are **Onboard** and Offboard.

**CPU SLOT6 PCI-E 3.0 X16 OPROM**

Use this feature to select which firmware type to be loaded for the add-on card in this slot. The options are Disabled, **Legacy**, and EFI.

**CPU SLOT7 PCI-E 3.0 X8 OPROM**

Use this feature to select which firmware type to be loaded for the add-on card in this slot. The options are Disabled, **Legacy**, and EFI.

**JMD1: M.2-HC PCI-E 3.0 X4 OPROM**

Use this feature to select which firmware type to be loaded for the add-on card in this slot. The options are Disabled, **Legacy**, and EFI.

**JMD2: M.2-H PCI-E 3.0 X2 OPROM**

Use this feature to select which firmware type to be loaded for the add-on card in this slot. The options are Disabled, **Legacy**, and EFI.

**PCI-E 3.0 X1 OPROM**

Use this feature to select which firmware type to be loaded for the add-on card in this slot. The options are Disabled, **Legacy**, and EFI.

**Onboard LAN Option ROM Type**

Use this feature to select which firmware type to be loaded for onboard LAN devices. The options **Legacy** and EFI. Select Legacy to display and configure the Onboard LAN1 ~ LAN8 Option ROM features.

**Onboard LAN1 Option ROM**

Use this feature to select which firmware function to be loaded for LAN Port1 used for system boot. The options are Disabled, **PXE**, and iSCSI.

**Onboard LAN2 ~ LAN4 Option ROM**

Use this feature to select which firmware function to be loaded for the specified LAN ports used for system boot. The options are **Disabled** and PXE.

**Onboard LAN5 ~ LAN8 Option ROM**

Use this feature to select which firmware function to be loaded for the specified LAN ports used for system boot. The options are **Disabled** and Legacy.

**Onboard Video Option ROM**

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

## ► 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 **Enabled** and Disabled.

*\*If the feature above is set to Enabled, the next six features will be available for configuration:*

### Ipv4 PXE Support

Select Enabled to enable IPv4 PXE boot support. The options are Disabled and **Enabled**.

### Ipv4 HTTP Support

Select Enabled to enable IPv4 HTTP boot support. The options are **Disabled** and Enabled.

### Ipv6 PXE Support

Select Enabled to enable IPv6 PXE boot support. The options are **Disabled** and Enabled.

### Ipv6 HTTP Support

Select Enabled to enable IPv6 HTTP boot support. The options are **Disabled** and Enabled.

### PXE Boot Wait Time

Use this option to specify the wait time to press the ESC key to abort the PXE boot. Press "+" or "-" on your keyboard to change the value. The default setting is **0**.

### Media Detect Count

Use this option to specify the number of times media will be checked. Press "+" or "-" on your keyboard to change the value. The default setting 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 **Enabled** and Disabled. Enable this feature for the next two features to display and only the Change Settings feature is available for configuration.

##### Device Settings

This feature 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 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 **Enabled** and Disabled. Enable this feature for the next two features to display and only the Change Settings feature is available for configuration.

### **Device Settings**

This feature 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 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 Console Redirection**

### **COM1**

#### **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 feature above is set to Enabled, the following features will become available for configuration:***

## ► Console Redirection Settings

### Terminal Type

This feature allows the user 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 set to BootLoader, legacy console redirection is disabled before booting the OS. When set to Always Enable, legacy console redirection remains enabled when booting the OS. The options are **Always Enable** and BootLoader.

**SOL Console Redirection**

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

***\*If the feature above is set to Enabled, the following features are available for configuration:***

**► Console Redirection Settings**

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.

**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**

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 set to BootLoader, legacy console redirection is disabled before booting the OS. When set to Always Enable, legacy console redirection remains enabled when booting the OS. The options are **Always Enable** and BootLoader.

### **Legacy Console Redirection**

#### **Redirection COM Port**

Use this feature to select a COM port to display redirection of Legacy OS and Legacy OPROM messages. The options are **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.

#### **EMS (Emergency Management Services) Console Redirection**

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

***\*If the feature above is set to Enabled, the following features are available for configuration:***

#### **► Console Redirection Settings**

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

#### **Out-of-Band Mgmt Port**

The feature selects a serial port in a client server to be used by the Microsoft 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 the host computer and the client computer. A lower transmission speed may be required for long and busy lines. The options are 9600, 19200, 57600, and **115200** (bits per second).

### **Flow Control**

Use this 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**, Hardware RTS/CTS, and Software Xon/Xoff.

### **Data Bits**

### **Parity**

### **Stop Bits**

## **►ACPI Settings**

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

### **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 Event Timer**

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



## ► Trusted Computing

*\*The features in the Trusted Computing section on this page are displayed if a TPM 1.2 module is detected:*

### Configuration

#### Security Device Support

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

#### TPM State

Select Enabled to use TPM (Trusted Platform Module) settings to enhance system data security. Please reboot your system for any change on the TPM state to take effect. The options are Disabled and **Enabled**.

#### Pending Operation

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

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

#### Device Select

Use this feature to select the TPM version. TPM 1.2 will restrict support to TPM 1.2 devices. TPM 2.0 will restrict support for TPM 2.0 devices. Select Auto to enable support for both versions. The default setting is **Auto**.

#### Current Status Information

This feature displays the status of the TPM support on this motherboard.

- TPM Enabled Status
- TPM Active Status
- TPM Owner Status

#### SMCI BIOS-Based TPM Provision Support

Use feature to enable the Supermicro TPM Provision support. The options are Disabled and Enabled.

## **TXT Support**

Intel TXT (Trusted Execution Technology) helps protect against software-based attacks and ensures protection, confidentiality and integrity of data stored or created on the system. Use this feature to enable or disable TXT Support. The options are **Disabled** and **Enabled**.

*\*The features in the Trusted Computing section on this page and the next are displayed if a TPM 2.0 module is detected:*

## **TPM20 Device Found**

**Vendor: IFX**

**Firmware Version: 7.62**

## **Security Device Support**

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

The following TPM information will be displayed:

- Active PCR banks
- Available PCR banks

*\*If the feature "Security Device Support" is enabled, the following features are available for configuration:*

## **SHA256 PCR Bank**

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

## **Pending operation**

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

## **Platform Hierarchy**

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

## **Storage Hierarchy**

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

### **Endorsement Hierarchy**

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

### **PH Randomization**

Use this feature to disable or enable Platform Hierarchy (PH) Randomization. The options are **Disabled** and Enabled.

### **SMCI BIOS-Based TPM Provision Support**

Use feature to enable the Supermicro TPM Provision support. The options are **Disabled** and Enabled.

### **TXT Support**

Intel TXT (Trusted Execution Technology) helps protect against software-based attacks and ensures protection, confidentiality and integrity of data stored or created on the system. Use this feature to enable or disable TXT Support. The options are **Disabled** and Enabled.

## **► iSCSI Configuration**

### **iSCSI Initiator Name**

This feature allows the user to enter the unique name of the iSCSI Initiator in IQN format. Once the name of the iSCSI Initiator is entered into the system, configure the proper settings for the following features.

► **Add an Attempt**

► **Delete Attempts**

► **Change Attempt Order**

## **► Intel(R) Virtual RAID on CPU**

Intel(R) VROC with VMD Technology 5.2.4.1000

RAID volumes and Intel VMD Controllers information will be displayed if they are detected by the system.

## 6.4 Event Logs

Use this menu to configure event log settings.



### ▶ Change SMBIOS Event Log Settings

#### Enabling/Disabling Options

##### SMBIOS Event Log

Change this feature to enable or disable all features of the SMBIOS Event Logging during system boot. The options are **Enabled** and Disabled.

#### 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, and 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 feature 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.

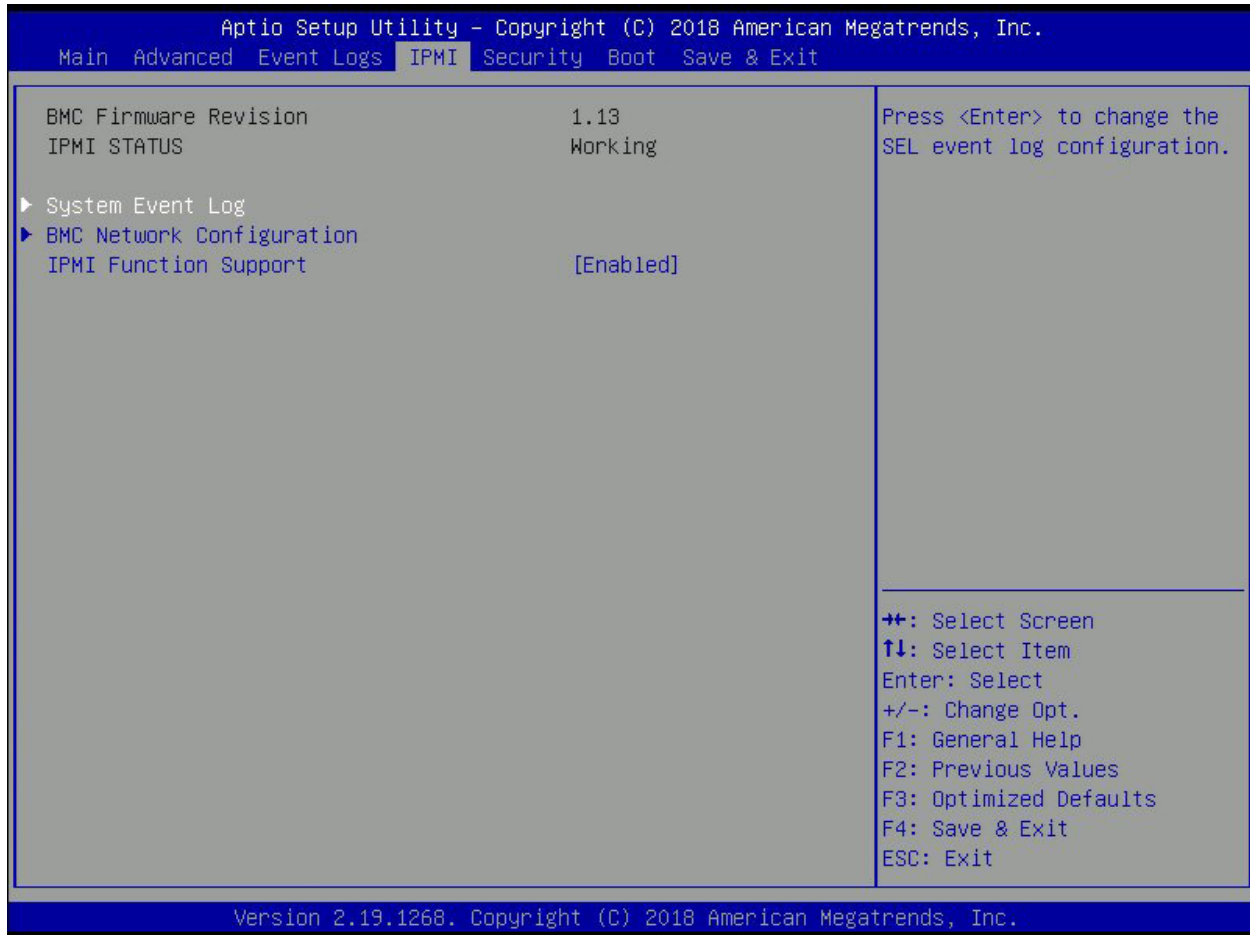
**►View SMBIOS Event Log**

This feature allows the user to view the event in the SMBIOS event log. The following categories are displayed:

**DATE/TIME/ERROR CODE/SEVERITY**

## 6.5 IPMI

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



### BMC Firmware Revision

This feature indicates the IPMI firmware revision in your system.

### IPMI STATUS

This feature indicates the status of the IPMI firmware 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, and 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.

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

## ► BMC Network Configuration

### BMC network configuration

#### Configure IPV4 support

#### IPMI LAN Selection

This feature displays the IPMI LAN setting. The default setting is **Failover**.

#### IPMI Network Link Status

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

#### 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 feature above is set to Yes, the Configuration Address Source and VLAN features are available for configuration:***

#### Configuration Address Source

Use this feature 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.

***\*If the feature above is set to Static, the Station IP Address/Subnet Mask/Gateway IP Address features are available for configuration:***

#### Station IP Address

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

### **Gateway IP Address**

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

### **VLAN**

This feature is configurable if the Update IPMI LAN Configuration feature is set to Yes. Use this feature to enable or disable the IPMI VLAN function. The options are **Disable** and **Enable**.

***\*If the feature above is set to Enable, the VLAN ID feature below is available for configuration:***

### **VLAN ID**

Use this feature to select a value for VLAN ID.

### **Configure IPV6 support**

#### **IPV6 Support**

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

#### **Configuration Address Source**

Use this feature 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 Unspecified, Static, and **DHCP**.

***\*If the feature above is set to Static, the Station IP Address/Prefix Length/IPV6 Router1 IP Address features are available for configuration:***

#### **Station IPV6 Address**

Use this feature to enter the IPV6 address.

#### **Prefix Length**

Use this feature to change the prefix length.

#### **IPV6 Router1 IP Address**

Use this feature to change the IPV6 Router1 IP address.

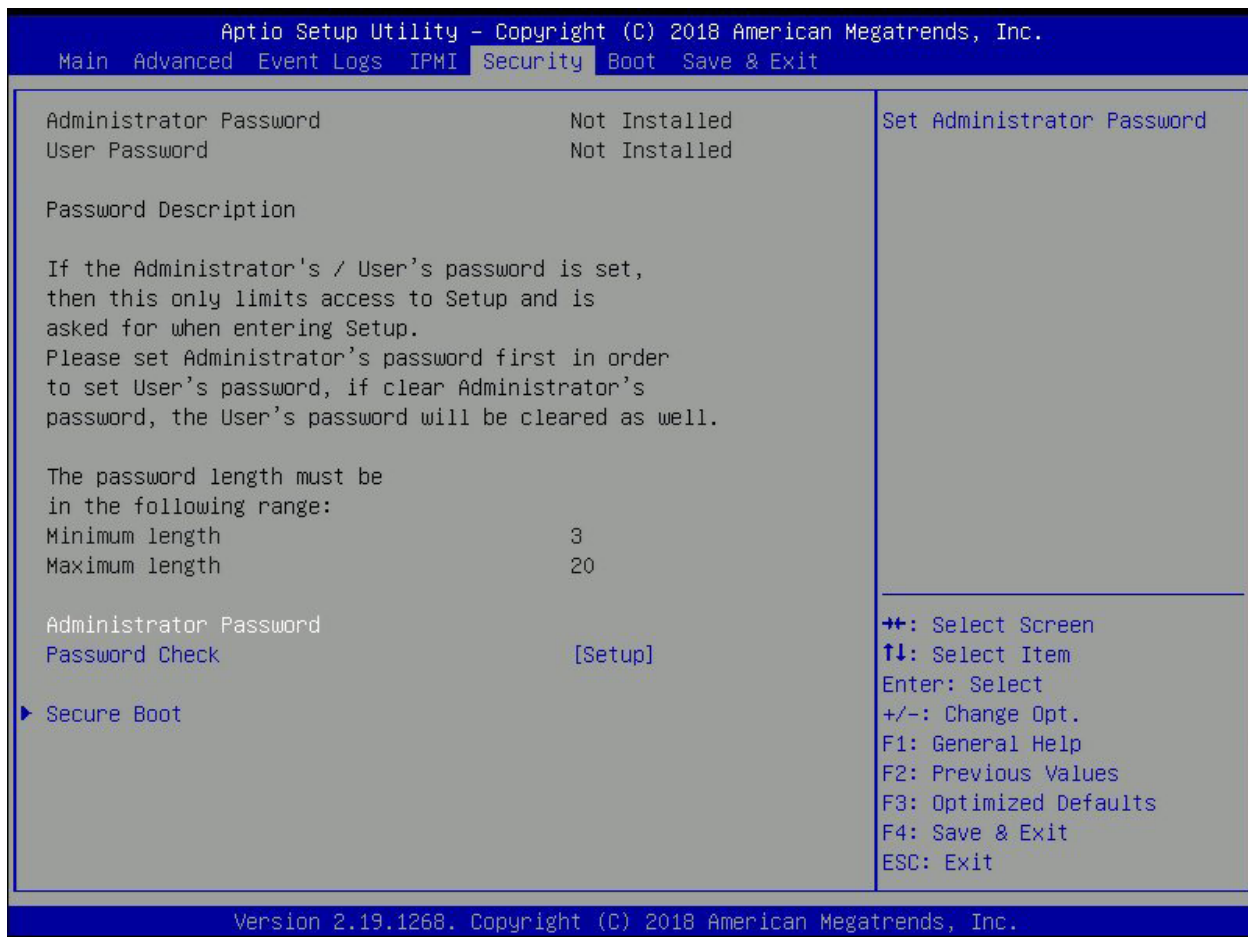


## IPMI Function Support

Use this feature to enable IPMI support. The options are **Enabled** and Disabled. When Disabled, the system powers on quickly by removing BIOS support for extended IPMI features. The Disable option is for applications that require faster power on time without using Supermicro Update Manager (SUM) or extended IPMI features. The BMC network configuration in the BIOS setup is also invalid when IPMI Function Support is disabled. The general BMC function and motherboard health monitor such as fan control are still functioning even when this option is disabled.

## 6.6 Security

Use this menu to configure the 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.

## 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

### System Mode

### Vendor Keys

### Secure Boot Enable

Select Enable for secure boot support to ensure system security at bootup. The options are **Disabled** and **Enabled**.

### Secure Boot Mode

This feature allows the user to select the desired secure boot mode for the system. The options are **Standard** and **Custom**.

***\*If Secure Boot Mode is set to Customized, Key Management features are available for configuration:***

### CSM Support

This feature is for manufacturing debugging purposes.

## ▶ Key Management

This submenu allows the user to configure the following Key Management settings.

### Factory Key Provision

Select Enabled to install the default Secure Boot keys set by the manufacturer. The options are **Disabled** and **Enabled**.

***\*If the feature above is set to Enabled, the next four features are available for configuration:***

### ▶ Restore Factory Keys

Select Yes to restore all factory keys to the default settings. The options are **Yes** and **No**.

### ▶ Reset to Setup Mode

Select Yes to delete all Secure Boot key databases and force the system to Setup Mode. The options are **Yes** and **No**.

### ▶ Export Secure Boot variables

Use this feature to copy the NVRAM contents of the secure boot variables to a file.

**► Enroll Efi Image**

This feature allows the image to run in Secure Boot mode.

**Device Guard Ready****► Remove 'UEFI CA' from DB**

Use this feature to remove the Microsoft UEFI CA certificate from the database. The options are Yes and No.

**► Restore DB defaults**

Select Yes to restore all DBs to the default settings. The options are Yes and No.

**► Save All Secure Boot Variables**

This feature allows the user to decide if all secure boot variables should be saved.

**► Platform Key (PK)**

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

**Details**

Select this feature to view the details of the Platform Key.

**Export**

Select Yes to export a PK from a file on an external media.

**Update**

Select Yes to load a factory default PK or No to load from a file on an external media.

**Delete**

Select Ok to remove the PK and then the system will reset to Setup/Audit Mode.

**► Key Exchange Keys (KEK)****Details**

Select this feature to view the details of the Key Exchange Key.

**Export**

Select Yes to export a KEK from a file on an external media.

**Update**

Select Yes to load a factory default KEK or No to load from a file on an external media.

**Append**

Select Yes to add the KEK from the manufacturer's defaults list to the existing KEK. Select No to load the KEK from a file. The options are Yes and No.

**Delete**

Select Ok to remove the KEK and then the system will reset to Setup/Audit Mode.

▶ **Authorized Signatures**

**Details**

Select this feature to view the details of the db.

**Export**

Select Yes to export a db from a file on an external media.

**Update**

Select Yes to load a factory default db or No to load from a file on an external media.

**Append**

Select Yes to add the db from the manufacturer's defaults list to the existing db. Select No to load the db from a file. The options are Yes and No.

**Delete**

Select Ok to remove the db and then the system will reset to Setup/Audit Mode.

▶ **Forbidden Signatures**

**Details**

Select this feature to view the details of the dbx.

**Export**

Select Yes to export a dbx from a file on an external media.

**Update**

Select Yes to load a factory default dbx or No to load from a file on an external media.

**Append**

Select Yes to add the dbx from the manufacturer's defaults list to the existing dbx. Select No to load the dbx from a file. The options are Yes and No.

**Delete**

Select Ok to remove the dbx and then the system will reset to Setup/Audit Mode.

▶ **Authorized TimeStamps**

**Details**

Select this feature to view the details of the dbt.

**Export**

Select Yes to export a dbt from a file on an external media.

**Update**

Select Yes to load a factory default dbt or No to load from a file on an external media.

**Append**

Select Yes to add the dbt from the manufacturer's defaults list to the existing dbt. Select No to load the dbt from a file. The options are Yes and No.

**Delete**

Select Ok to remove the dbt and then the system will reset to Setup/Audit Mode.

**► OsRecovery Signatures****Details**

Select this feature to view the details of the dbr.

**Export**

Select Yes to export a dbr from a file on an external media.

**Update**

Select Yes to load a factory default dbr or No to load from a file on an external media.

**Append**

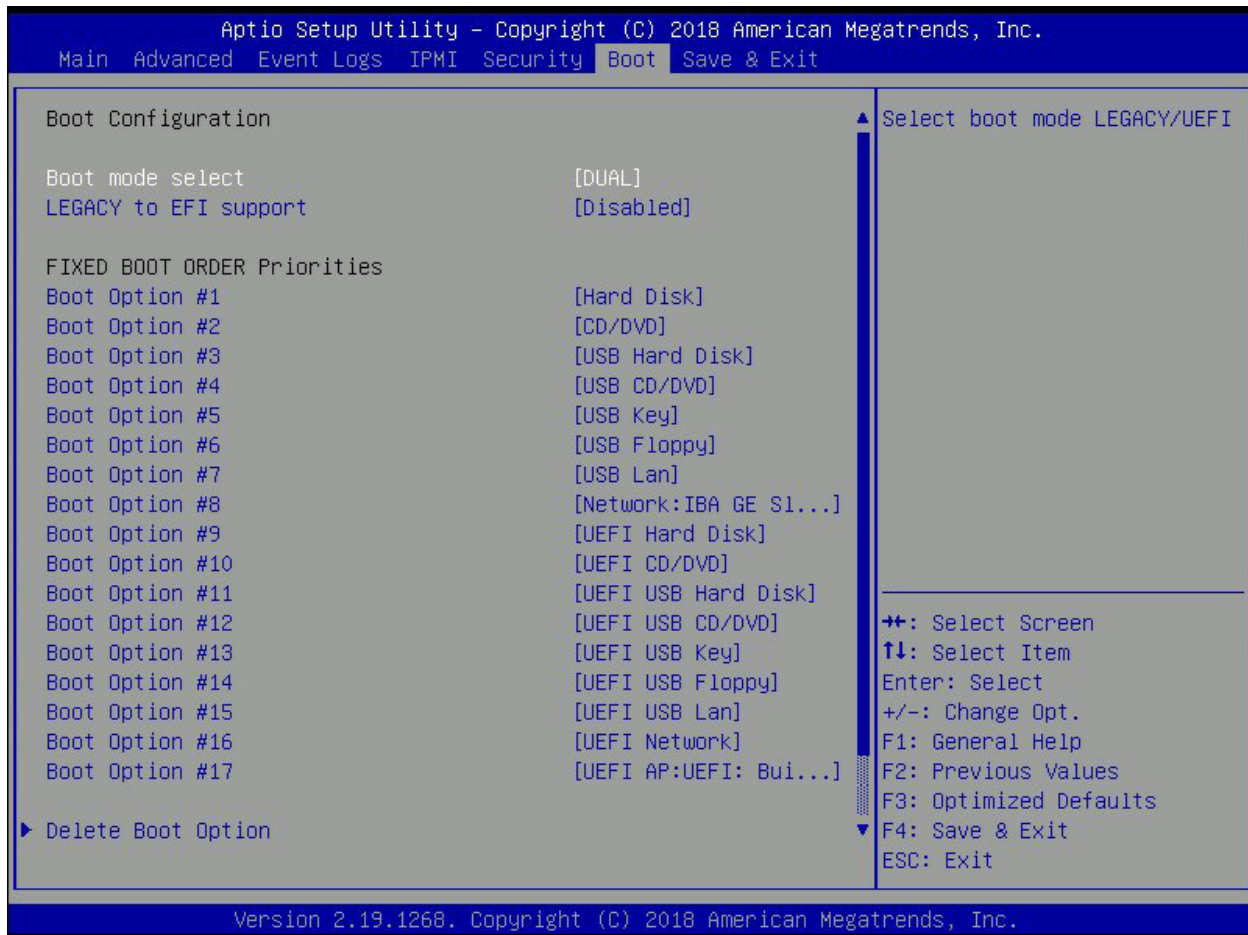
Select Yes to add the dbr from the manufacturer's defaults list to the existing dbr. Select No to load the dbr from a file. The options are Yes and No.

**Delete**

Select Ok to remove the dbr and then the system will reset to Setup/Audit Mode.

## 6.7 Boot

Use this menu to configure boot settings:



### Boot mode select

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

### Legacy to EFI Support

Select Enabled to boot EFI OS support after Legacy boot order has failed. The options are **Disabled** and Enabled.

### Fixed BOOT ORDER Priorities

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

- Boot Option #1
- Boot Option #2
- Boot Option #3
- Boot Option #4
- Boot Option #5
- Boot Option #6
- Boot Option #7
- Boot Option #8
- Boot Option #9
- Boot Option #10
- Boot Option #11
- Boot Option #12
- Boot Option #13
- Boot Option #14
- Boot Option #15
- Boot Option #16
- Boot Option #17

#### ► Delete Boot Option

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

#### ► UEFI Application Boot Priorities

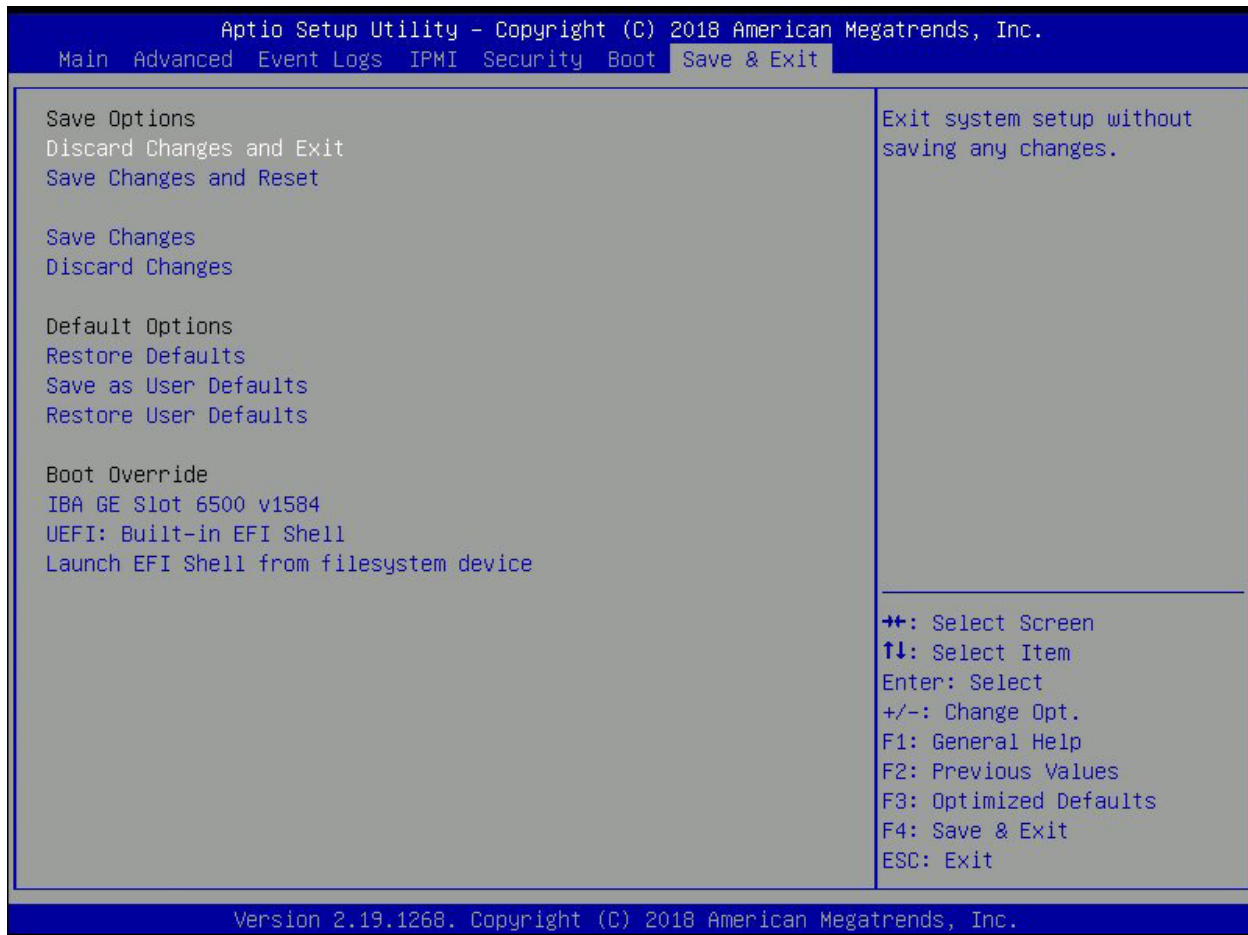
- Boot Option # - This feature sets the system boot order of detected devices. The options are **[the list of detected boot device(s)]** and Disabled.

#### ► NETWORK Drive BBS Priorities

- Boot Option # - This feature sets the system boot order of detected devices. The options are **[the list of detected boot device(s)]** and Disabled.

## 6.8 Save & Exit

Use this menu to configure save and exit settings.



### 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 save all changes made and reset the system.

#### 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 Utility Program.



**Default Options****Restore Defaults**

To set this feature, select Restore Optimized Defaults and press <Enter>. These are factory settings designed 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**

Other boot options are listed in this section. The system will boot to the selected boot option.

**IBA GE Slot 6500 v1584****UEFI: Built-in EFI Shell****Launch EFI Shell from filesystem device**

# Appendix A

## BIOS Codes

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

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

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

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

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

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

## A.2 Additional BIOS POST Codes

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

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

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

## Appendix B

# Standardized Warning Statements for AC Systems

### B.1 About Standardized Warning Statements

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

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

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

#### Warning Definition



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

#### 警告の定義

この警告サインは危険を意味します。

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

此警告符号代表危險。

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

此警告符號代表危險。

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

## Warnung

## WICHTIGE SICHERHEITSHINWEISE

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

BEWAHREN SIE DIESE HINWEISE GUT AUF.

## INSTRUCCIONES IMPORTANTES DE SEGURIDAD

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

GUARDE ESTAS INSTRUCCIONES.

## IMPORTANTES INFORMATIONS DE SÉCURITÉ

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

CONSERVEZ CES INFORMATIONS.

תקנון הזהרות אזהרה

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

اَكْ ف حالة وُكِي اَي تتسبب ف اصابة جسدهُ هذا الزهز عْ خطر! تحذُرُ .  
قبل اَي تعول على اَي هعدات، كي على علن بالوخاطز ال اُجوة عي الذوائر  
الكهزبائِة  
وكي على دراةُ بالووارسات النقاائِة لو عْ وقع اَي حادث  
استخدم رِقن الب اِي الو صُص ف هَاةُ كل تحذُرُ للعشر تزجوتها

안전을 위한 주의사항

경고!

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

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

## BELANGRIJKE VEILIGHEIDSINSTRUCTIES

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

BEWAAR DEZE INSTRUCTIES

## Installation Instructions



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

設置手順書

システムを電源に接続する前に、設置手順書をお読み下さい。

警告

将此系统连接电源前,请先阅读安装说明。

警告

將系統與電源連接前，請先閱讀安裝說明。

Warnung

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

¡Advertencia!

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

Attention

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

יש לקרוא את הוראות התקנה לפני חיבור המערכת למקור מתח.

اقرأ إرشادات التركيب قبل توصيل النظام إلى مصدر للطاقة

시스템을 전원에 연결하기 전에 설치 안내를 읽어주십시오.

Waarschuwing

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

## Circuit Breaker



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

サーキット・ブレーカー

この製品は、短絡(過電流)保護装置がある建物での設置を前提としています。

保護装置の定格が250 V、20 Aを超えないことを確認下さい。

警告

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

警告

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

### Warnung

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

### ¡Advertencia!

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

### Attention

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

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

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

### 경고!

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

### Waarschuwing

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



## Power Disconnection Warning



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

### 電源切斷の警告

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

### 警告

在你打开机箱并安装或移除内部器件前,必须将系统完全断电,并移除电源线。

### 警告

在您打開機殼安裝或移除內部元件前，必須將系統完全斷電，並移除電源線。

### Warnung

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

### ¡Advertencia!

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

### Attention

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

אזהרה מפני ניתוק חשמלי

אזהרה!

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

يجب فصل انظاؤ من جميع مصادر انطاقت وإزانت سهك انكهرباء من وحدة امداد  
انطاقت قيم  
انصل إني امنطاق انداخهيت نههيكم نتشيج أو إزانت مكناث الجهاز

경고!

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

Waarschuwing

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

## Equipment Installation



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

機器の設置

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

警告

只有经过培训且具有资格的人员才能进行此设备的安装、更换和维修。

警告

只有經過受訓且具資格人員才可安裝、更換與維修此設備。

Warnung

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

¡Advertencia!

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

**Attention**

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

אזהרה!

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

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

경고!

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

**Waarschuwing**

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

**Restricted Area**

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

**アクセス制限区域**

このユニットは、アクセス制限区域に設置されることを想定しています。

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

**警告**

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

**警告**

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

### Warnung

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

### ¡Advertencia!

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

### Attention

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

אזור עם גישה מוגבלת

אזהרה!

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

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

### 경고!

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

### Waarschuwing

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

## Battery Handling



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

### 電池の取り扱い

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

### 警告

電池更換不當會有爆炸危險。請只使用同類電池或制造商推薦的功能相當的電池更換原有電池。請按製造商的說明處理廢舊電池。

### 警告

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

### Warnung

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

### Attention

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

### ¡Advertencia!

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

אזהרה!

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

هناك خطر من انفجار في حالة اسبدال البطارية بطريقة غير صحيحة فعلى  
اسبدال البطارية  
فقط بنفس النوع أو ما يعادلها مما أوصت به الشركة المصنعة  
جخلص من البطاريات المسحومة وفقا لعمليات الشركة الصانعة

경고!

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

Waarschuwing

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

## Redundant Power Supplies



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

冗長電源装置

このユニットは複数の電源装置が接続されている場合があります。

ユニットの電源を切るためには、すべての接続を取り外さなければなりません。

警告

此部件连接的电源可能不止一个，必须将所有电源断开才能停止给该部件供电。

警告

此装置连接的电源可能不只一个，必须切断所有电源才能停止对该装置的供电。

Warnung

Dieses Gerät kann mehr als eine Stromzufuhr haben. Um sicherzustellen, dass der Einheit kein Strom zugeführt wird, müssen alle Verbindungen entfernt werden.

¡Advertencia!

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

Attention

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

אם קיים יותר מספק אחד

אזהרה!

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

قد يكون لهذا الجهاز عدة اتصالات بوحدات امداد الطاقة .

يجب إزالة كافة الاتصالات لعسل الوحدة عن الكهرباء

경고!

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

Waarschuwing

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

## Backplane Voltage



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

### バックプレーンの電圧

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

修理する際には注意ください。

### 警告

当システム正在进行时，背板上有很危险的电压或能量，进行维修时务必小心。

### 警告

當系統正在進行時，背板上危險的電壓或能量，進行維修時務必小心。

### Warnung

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

### ¡Advertencia!

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

### Attention

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

מתח בפנל האחורי

אזהרה!

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



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

경고!

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

Waarschuwing

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

## Comply with Local and National Electrical Codes



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

地方および国の電気規格に準拠

機器の取り付けはその地方および国の電気規格に準拠する必要があります。

警告

设备安装必须符合本地与本国电气法规。

警告

設備安裝必須符合本地與本國電氣法規。

Warnung

Die Installation der Geräte muss den Sicherheitsstandards entsprechen.

¡Advertencia!

La instalación del equipo debe cumplir con las normas de electricidad locales y nacionales.

Attention

L'équipement doit être installé conformément aux normes électriques nationales et locales.

תיאום חוקי החשמל הארצי

אזהרה!

התקנת הציוד חייבת להיות תואמת לחוקי החשמל המקומיים והארציים.

تركيب المعدات الكهربائية يجب أن يمتثل للقوايه المحلية والبطية المتعلقة

بالكهرباء

경고!

현 지역 및 국가의 전기 규정에 따라 장비를 설치해야 합니다.

Waarschuwing

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

## Product Disposal



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

製品の廃棄

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

警告

本产品的废弃处理应根据所有国家的法律和规章进行。

警告

本產品的廢棄處理應根據所有國家的法律和規章進行。

Warnung

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

¡Advertencia!

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

## Attention

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

סילוק המוצר

אזהרה!

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

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

## 경고!

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

## Waarschuwing

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

## Hot Swap Fan Warning



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

## ファン・ホットスワップの警告

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

## 警告!

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

## 警告

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

### Warnung

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

### ¡Advertencia!

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

### Attention

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

### אזהרה!

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

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

### 경고!

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

### Waarschuwing

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

## Power Cable and AC Adapter



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

### 電源コードとACアダプター

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

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

### 警告

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

### 警告

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

### Warnung

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

### ¡Advertencia!

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

### Attention

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

AC כבלים חשמליים ומתאמי

אזהרה!

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

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

### 전원 케이블 및 AC 어댑터

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

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

### Stroomkabel en AC-Adapter

Waarschuwing! Bij het aansluiten van het Product uitsluitend gebruik maken van de geleverde Kabels of een andere geschikte aan te schaffen Aansluitmethode, deze moet altijd voldoen aan de lokale voorschriften en veiligheidsnormen, inclusief de juiste kabeldikte en stekker. Het gebruik van niet geschikte Kabels en/of Adapters kan een storing of brand veroorzaken. Wetgeving voor Elektrische apparatuur en Materiaalveiligheid 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 Intel® Xeon® D-2146NT SoC with a TDP of up to 80W embedded processor

### Chipset

System on a Chip

### BIOS

512Mb AMI BIOS® SPI Flash BIOS

### Memory

Supports up to 256 GB of ECC RDIMM or 512 GB of ECC LRDIMM DDR4 memory with speeds of up to 2133 MHz and up to 128 GB size at 1.2V in four slots

### SATA Controller

Processor on-chip controller

### Drive Bays

Up to two (2) 2.5" internal drive bays

### PCI Expansion Slots

The motherboard supports the following expansion slots:

- One (1) PCI-E 3.0 x16 slot
- One (1) PCI-E 3.0 x8 slot
- One (1) Mini PCI-E 3.0 x1 slot
- One (1) M.2 PCI-E 3.0 x4 slot
- One (1) M.2 PCI-E 3.0 x2 slot

**Note:** Only the first two slots are accessible through the chassis.

### Motherboard

X11SDV-8C-TP8F; Micro ATX form factor (9.6 x 9.6 in. / 244 x 244 mm.)

### Chassis

SC515-R407 (1U rackmount), (WxHxD) 17.2 x 1.7 x 9.8 in. (437 x 43 x 249 mm)

### System Cooling

Up to four 40x28mm 13K RPM 4-Pin PWM fans

### Power Supply

Model: PWS-407P-1R

AC Input Voltages: 100-240 VAC

Rated Input Current: 6 - 3A (100-140V) to 3.4 - 3.2A (200-240V)

Rated Input Frequency: 50-60 Hz

Rated Output Power: 400W

Rated Output Voltages: +12V (max. 33A, min. 0.5A), +5Vsb (max. 3A, min. 0A)

### Operating Environment

Operating Temperature: 5° to 35° C (41° to 95° F)

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

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



### **Regulatory Compliance**

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

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 for add-on card initialization to allow the UEFI OS loader, which is stored in the add-on card, to boot the system. The UEFI offers a clean, hands-off control to a computer system at bootup.

#### D.2 Recovering the UEFI BIOS Image

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

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

**Note 2:** When the BIOS boot block crashes, you will need to follow the procedures to make a Returned Merchandise Authorization (RMA) request (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 BIOS Block with a USB Device

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

The file system supported by UEFI is FAT (including FAT12, FAT16, and FAT32) 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 because it contains too many folders and files.

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

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

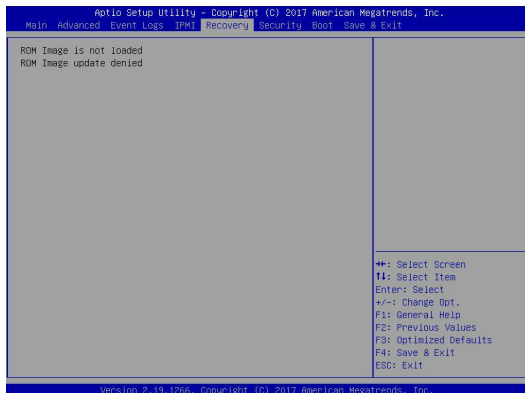
**Note:** If you cannot locate the "Super.ROM" file in your driver disk, visit our website at [www.supermicro.com](http://www.supermicro.com) to download the BIOS image into a USB flash device and rename it "Super.ROM" for BIOS recovery use.

2. Insert the USB device that contains the new BIOS image ("Super.ROM") into your USB drive and power on the system
3. While powering on the system, please keep pressing <Ctrl> and <Home> simultaneously on your keyboard *until the following screen (or a screen similar to the one below) displays.*

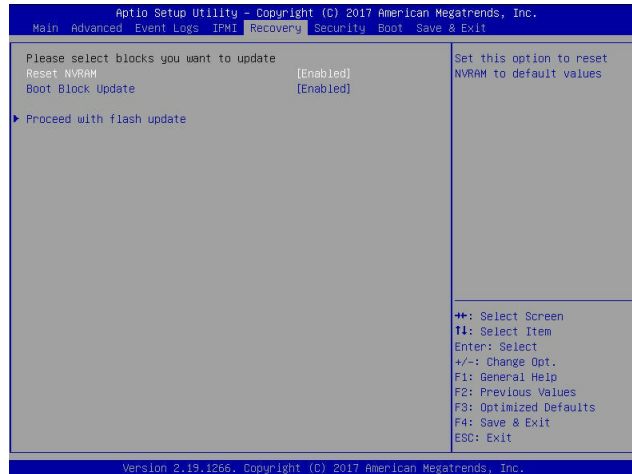
**Warning:** Please **stop** pressing the <Ctrl> and <Home> keys immediately when you see the screen (or a similar screen) below; otherwise, it will trigger a system reboot.



**Note:** On the other hand, if the following screen displays, please load the "Super.ROM" file to the root folder and connect this folder to the system. (You can do so by inserting a USB device that contains the new "Super.ROM" image to your machine for BIOS recovery.)



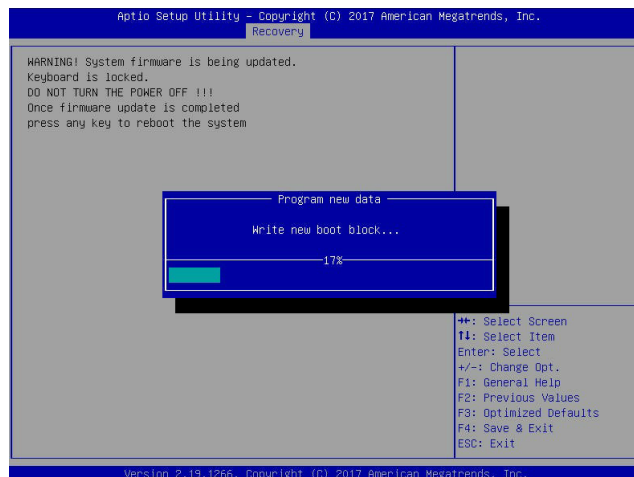
- After locating the new BIOS binary image, the system will enter the BIOS Recovery menu as shown below.



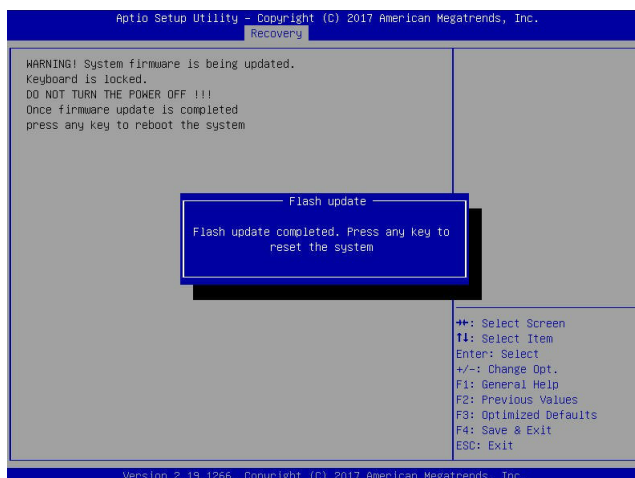
**Note:** At this point, you may decide if you want to start the BIOS recovery. If you decide to proceed with BIOS recovery, follow the procedures below.

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

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

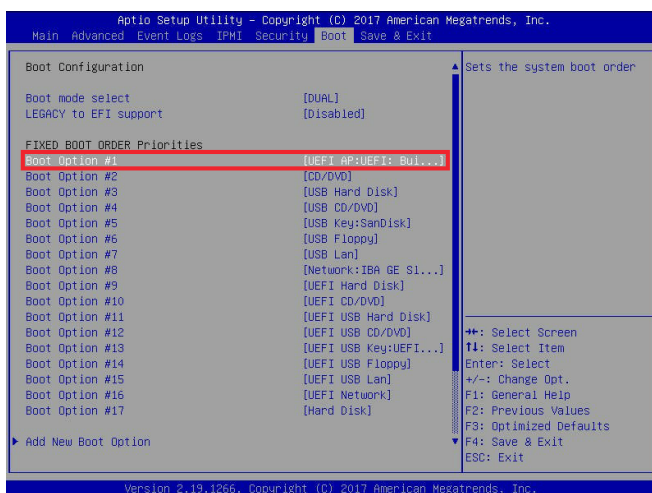


6. After the BIOS recovery process is completed, press any key to reboot the system.



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

8. Press <Del> continuously to enter the BIOS setup utility. Set the item, 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 which contains the BIOS package extracted earlier from Step 7. 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, 0x0005000C)
Mapping table
FS0: Alias(s): HD0:0b1:BLK1:
      PciRoot(0x0)/Pci(0x14,0x0)/USB(0x11,0x0)/HD1:Mbr,0x37901D72,0x800,0x1
      DN3992)
BLK0: Alias(s):
      PciRoot(0x0)/Pci(0x14,0x0)/USB(0x11,0x0)
Press ESC to 1 seconds to skip startup.nsh or any other key to continue.
Shell) fs0:
FS0:\> cd \FUDOS
FS0:\FUDOS> cd SMTPE2_03162017
FS0:\FUDOS\SMTPE2_03162017> flash.nsh X110PU7.314
    
```

**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 v5.09.01.1317
| Copyright (C)2017 American Megatrends Inc. All Rights Reserved.
|
-----
CPUID = 50652

Reading flash ..... done
- ME Data Size checking . ok
- FFS Checksums ..... ok
- Check Rom layout ..... Ok
Erasing Boot Block ..... done
Updating Boot Block ..... done
Verifying Boot Block ..... done
Erasing Main Block ..... 0x00152000 (0%)
    
```

- The screen above indicates that the BIOS update process is completed. 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 MBR Block ..... done
- Update success for FDR
- Update success for IE. -
- Successful Update Recovery Loader to OPRX!!
- Successful Update MFS0!!
- Successful Update MFS1!!
- Successful Update MFS, IVB1 and IVB2!!
- Successful Update FLOS and UTDK!!
- ME Entire Image update success !!
WARNING * System must power-off to have the changes take effect!
Moving FSD:\FUDOS\SMTPE2_03162017\fdt\k64.efi -> FSD:\FUDOS\SMTPE2_03162017\fdt\smc
- [ok]
Moving FSD:\FUDOS\SMTPE2_03162017\afuef1\k64.efi -> FSD:\FUDOS\SMTPE2_03162017\afuef1\smc
- [ok]
*****
* Please ignore this 'Shell: Cannot read from file - Device Error'
* warning message due to it does not impact flashing process.
*****
Deleting '
Delete successful.
FS0:\>
    
```

- 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.