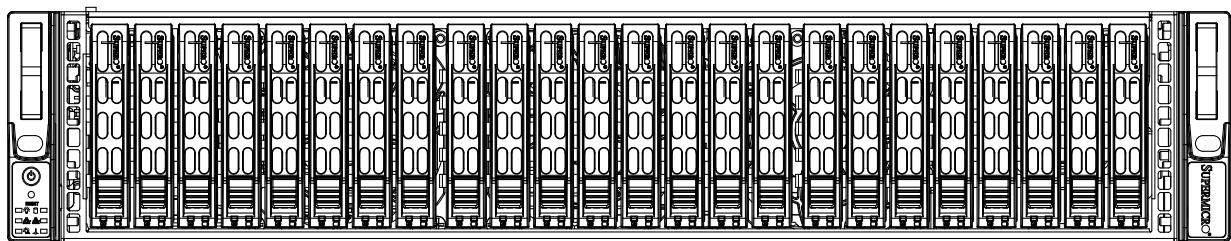




# A+ Server

## AS -2114S-WN24RT



**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 AS -2114S-WN24RT. Installation and maintenance should be performed by experienced technicians only.

Please refer to the AS -2114S-WN24RT 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: [www.supermicro.com/wdl/driver/AMD/SP3](http://www.supermicro.com/wdl/driver/AMD/SP3)
- Product safety info: [http://www.supermicro.com/about/policies/safety\\_information.cfm](http://www.supermicro.com/about/policies/safety_information.cfm)

If you have any questions, please contact our support team at:  
[support@supermicro.com](mailto:support@supermicro.com)

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

## Secure Data Deletion

A secure data deletion tool designed to fully erase all data from storage devices can be found at our website: [https://www.supermicro.com/about/policies/disclaimer.cfm?url=/wdl/utility/Lot9\\_Secure\\_Data\\_Deletion\\_Utility/](https://www.supermicro.com/about/policies/disclaimer.cfm?url=/wdl/utility/Lot9_Secure_Data_Deletion_Utility/)

## Warnings

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



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



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

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***Appendix B System Specifications***

***Appendix C 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 AS -2114S-WN24RT. The AS -2114S-WN24RT is based on the H12SSW-NTR motherboard and the CSE-216BTS-R1K23WBP 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
Passive Heatsink for 2U System	SNK-P0063P	1
8-cm System Fans	FAN-0203L4	3
Backplane	BPN-NVME4-216N-S24	1
Hot-swap Hard Drive Trays	MCP-220-00167-0B	24
Air Shroud	MCP-310-21605-0B	1
Riser Card (right side WIO riser)	RSC-W2R-88G4	1
Riser Card (left side riser with two PCIe x16 slots)	RSC-W2-66G4	1
Rack Rail Mounting Kit	MCP-290-00053-0N	1

**Notes:** A Quick Reference Guide can be found on the product page of the Supermicro website.

The following safety models associated with the AS -2114S-WN24RT have been certified as compliant with UL or CSA: 216-R12H12 and A216B-H12.

### 1.2 Unpacking the System

Inspect the box the SuperServer AS -2114S-WN24RT was shipped in and note if it was damaged in any way. If any equipment appears damaged, please file a damage claim with the carrier who delivered it.

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

## 1.3 System Features

The following table provides you with an overview of the main features of the AS -2114S-WN24RT. Please refer to Appendix B for additional specifications.

System Features	
<b>Motherboard</b>	H12SSW-NTR
<b>Chassis</b>	CSE-216BTS-R1K23WBP
<b>CPU</b>	Single EPYC 7002/7003 Series processor
<b>Socket Type</b>	SP3 socket
<b>Memory</b>	Supports up to 4TB of ECC DDR4 3200MHz RDIMM/LRDIMM/3DS/NVDIMM memory in 16 slots.
<b>Chipset</b>	System on Chip chipset
<b>Expansion Slots</b>	Two PCIe 4.0 x16 slot (w/ riser RSC-W2-66G4) Two PCIe 4.0 x8 slot (w/ riser RSC-W2R-88G4) M.2 Interface: two PCIe 4.0 x2 slots M.2 Form Factor: 2280, 22110 M.2 Key: M-key
<b>Hard Drives</b>	Twenty-four 2.5" hot-swap hard drive carriers for U.2 NVMe drives
<b>Power</b>	1200W redundant power supplies, Titanium Level (96%) (Full redundancy based on configuration and application load)
<b>Form Factor</b>	2U rackmount
<b>Dimensions</b>	(WxHxD) 17.2 x 3.5 x 24.8 in. (437 x 89 x 630 mm)

## 1.4 Server Chassis Features

### Control Panel

There are two buttons located on the front of the chassis: a power on/off button and a UID button. In addition there are five LEDs. The locations of these buttons and LEDs on the control panel are described below. See Chapter 4 for details on the control panel connections.

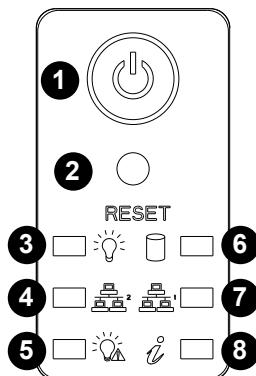


Figure 1-1. Control Panel View

Control Panel Features		
Item	Feature	Description
1	Power Button	The main power switch is used to apply or remove power to the server. Turning off system power with this button removes the main power but keeps standby power supplied to the system (you must unplug the AC power cord before servicing).
2	Reset Button	Resets (reboots) the system
3	Power LED	Indicates power is being supplied to the system's power supply units. This LED should normally be illuminated when the system is operating.
4	NIC2 LED	Indicates network activity on LAN2 when flashing.
5	Power Fail LED	Indicates a power supply fan failure. An alarm will also sound, which can be turned off with the reset switch on the back of the power supply.
6	HDD LED	Indicates hard drive activity when flashing.
7	NIC1 LED	Indicates network activity on LAN1 when flashing.
8	Universal Information LED	See the following table for the status shown by this LED.

Universal Information LED	
Status	Description
Continuously on and red	An overheat condition has occurred. (This may be caused by cable congestion.)
Blinking red (1 Hz)	Fan failure: check for an inoperative fan.
Blinking red (0.25 Hz)	Power failure: check for an inoperative power supply.
Solid blue	UID has been activated locally to locate the server in a rack environment.
Blinking blue (300 msec)	UID has been activated using IPMI to locate the server in a rack environment.

## Front Features

The CSE-216BTS-R1K23WBP is a 2U chassis. See the illustration below for the features included on the front of the chassis.

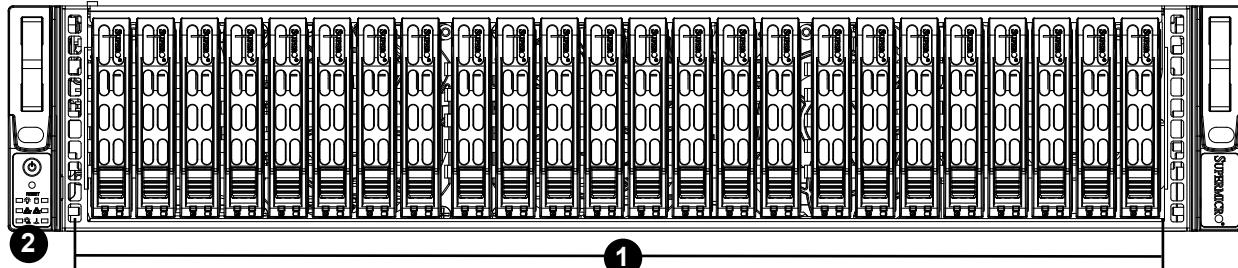


Figure 1-2. Chassis Front View

Front Chassis Features		
Item	Feature	Description
1	Drive Bays	Drive bays for 2.5" hot-swap NVMe drives
2	Control Panel	Server control panel. See the previous page for details.

## Rear Features

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

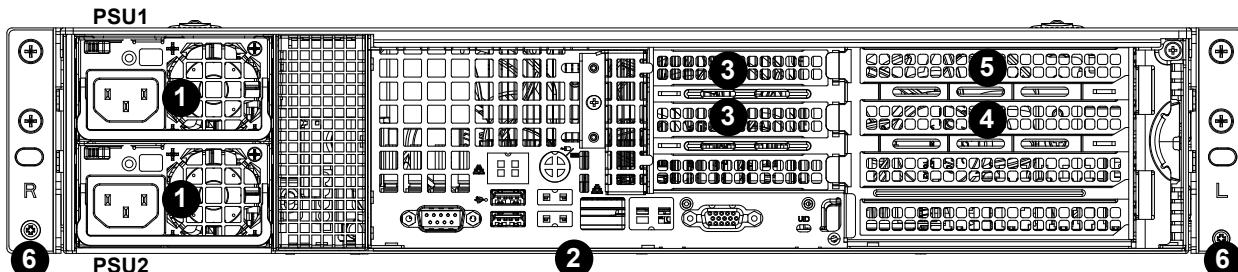


Figure 1-3. Chassis Rear View

Rear Chassis Features		
Item	Feature	Description
1	Power Supply	Redundant power supply modules
2	I/O Backpanel	Rear I/O ports (see Section 4.3)
3	Expansion Card Slots	Low-profile slots populated with Gen4 retimer cards
4	Expansion Card Slot	FHHL (full-height, half length) slot populated with Gen4 retimer cards
5	Expansion Card Slot	Gen4 x16 PCIe slot for FHHL expansion card (using pre-installed riser card)
6	Rack Ear Brackets	Secures the server chassis to the rack

**Note:** Unnumbered expansion slots cannot be populated.

## 1.5 Motherboard Layout

Below is a layout of the H12SSW-NTR 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.

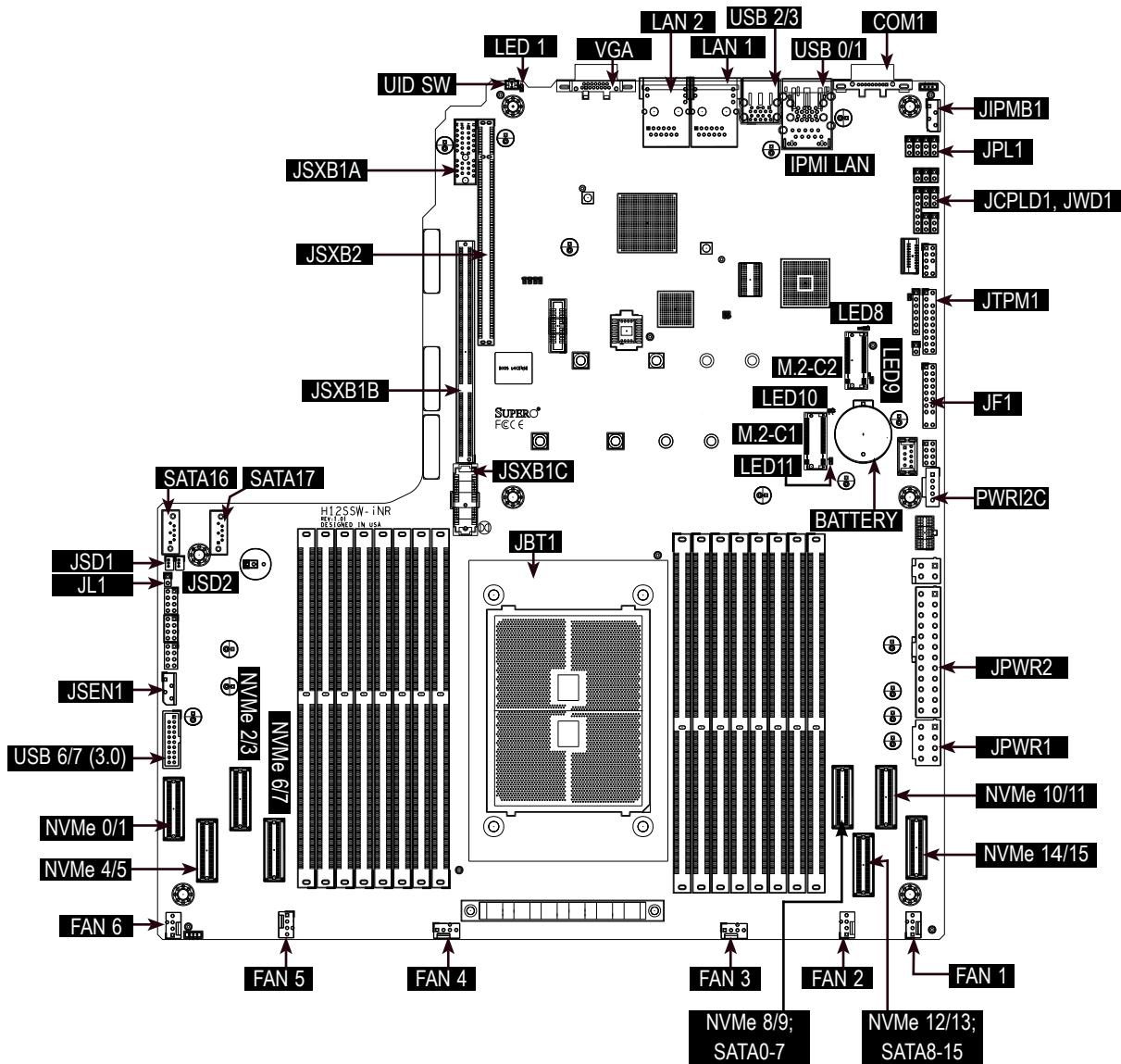
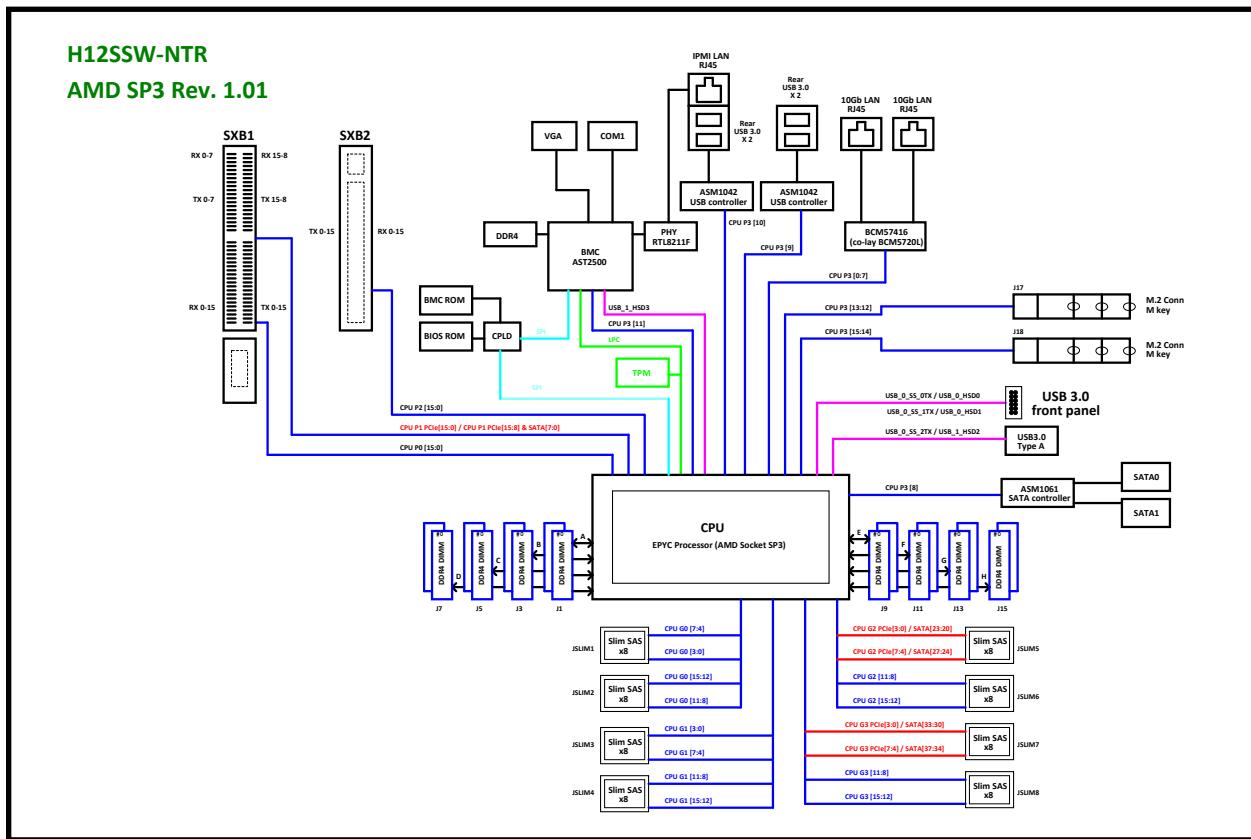


Figure 1-4. Motherboard Layout

## Quick Reference Table

<b>Jumper</b>	<b>Description</b>	<b>Default Setting</b>
GBT1	Clear CMOS	Open (Normal)
JPL1	LAN Enable/Disable	Pins 1-2 (Enabled)
JWD1	Watch Dog control	Pins 1-2 (Reset)
UID SW	Unit ID switch (push-button toggle switch ON/OFF)	Off
<b>LED</b>	<b>Description</b>	<b>Status</b>
LED1	UID LED	Blue: UID Activated
LED9	M.2-C2 Interface Detection	On: SATA; Off: PCIe
LED11	M.2-C1 Interface Detection	On: SATA; Off: PCIe
<b>Connector</b>	<b>Description</b>	
Battery (BT1)	Onboard CMOS battery	
COM 1	Rear panel COM port #1	
FAN 1~6	System cooling fan headers	
JF1	Front control panel	
JIPMI1	IPMI Header	
JL1	Chassis intrusion header	
JPWR1	12V 8-pin ATX CPU power connector	
JPWR2	24-pin ATX power supply connector	
JSD1, JSD2	SATA DOM power connector	
JSXB1A, JSXB2, JSXB1C	Riser slots	
JTPM1	Trusted Platform Module (TPM)/Port 80 connector	
LAN1, LAN2	Back panel LAN1, LAN2 connectors	
M.2-C1, M.2-C2	M.2 slots	
NVMe 0/1; 2/3; 4/5; 6/7; 8/9; 10/11; 12/13; 14/15	NVMe slots 1~15	
PWRI <sup>2</sup> C	Power supply SMBus I <sup>2</sup> C header	
SATA0-7; SATA8-15	SATA ports 0-7; 8-15	
SATA16, SATA17	Onboard SATA ports via Asmedia 1061	
USB 0/1 (3.0)	Back panel USB 3.0 ports (USB 0/1)	
USB 2/3 (3.0)	Back panel USB 3.0 ports (USB 2/3)	
USB 6/7 (3.0)	Internal USB 3.0 header (USB 6/7)	
VGA	Back panel VGA port	



**Figure 1-5. System on Chip Chipset: System Block Diagram**

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

# Chapter 2

## Server Installation

### 2.1 Overview

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

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

### 2.2 Preparing for Setup

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

#### Choosing a Setup Location

- The system should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated.
- Leave enough clearance in front of the rack so that you can open the front door completely (~25 inches) and approximately 30 inches of clearance in the back of the rack to allow sufficient space for airflow and access when servicing.
- This product should be installed only in a Restricted Access Location (dedicated equipment rooms, service closets, etc.).
- This product is not suitable for use with visual display workplace devices according to §2 of the German Ordinance for Work with Visual Display Units.

#### Rack Precautions

- Ensure that the leveling jacks on the bottom of the rack are extended to the floor so that the full weight of the rack rests on them.

- In single rack installations, stabilizers should be attached to the rack. In multiple rack installations, the racks should be coupled together.
- Always make sure the rack is stable before extending a server or other component from the rack.
- You should extend only one server or component at a time - extending two or more simultaneously may cause the rack to become unstable.

## Server Precautions

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

## Rack Mounting Considerations

### *Ambient Operating Temperature*

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

### *Airflow*

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

### *Mechanical Loading*

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

### ***Circuit Overloading***

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

### ***Reliable Ground***

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



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

- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.

## 2.3 Installing the Rails

There are a variety of rack units on the market, which may require a slightly different assembly procedure.

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

### Identifying the Rails

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

### Locking Tabs

Each inner rail has a locking tab. This tab locks the chassis into place when installed and pushed fully into the rack. These tabs also lock the chassis in place when fully extended from the rack. This prevents the server from coming completely out of the rack when the chassis is pulled out for servicing.

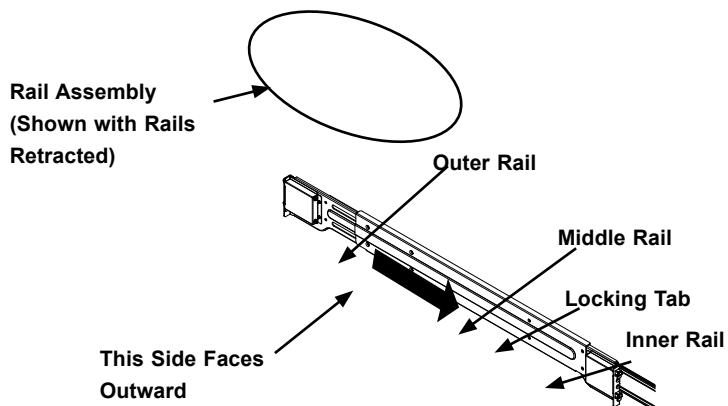


Figure 2-1. Identifying the Rail Sections



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



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

## Releasing the Inner Rail

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

1. Identify the left and right outer rail assemblies as described on the previous page.
2. Pull the inner rail out of the outer rail until it is fully extended as illustrated below.
3. Press the locking tab down to release the inner rail.
4. Repeat steps 1-3 for the second outer rail.

## Installing The Inner Rails on the Chassis

### *Installing the Inner Rails*

1. Confirm that the left and right inner rails have been correctly identified.
2. Place the inner rail firmly against the side of the chassis, aligning the hooks on the side of the chassis with the holes in the inner rail.
3. Slide the inner rail forward toward the front of the chassis until the rail clicks into the locked position, which secures the inner rail to the chassis.
4. Secure the inner rail to the chassis with the screws provided.
5. Repeat steps 1 through 4 above for the other inner rail.

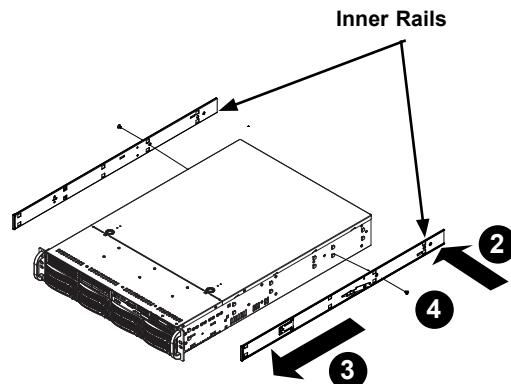


Figure 2-2. Installing the Rails

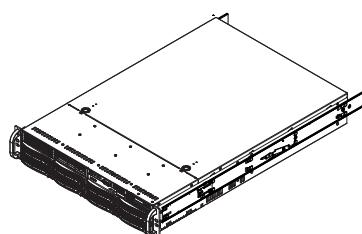
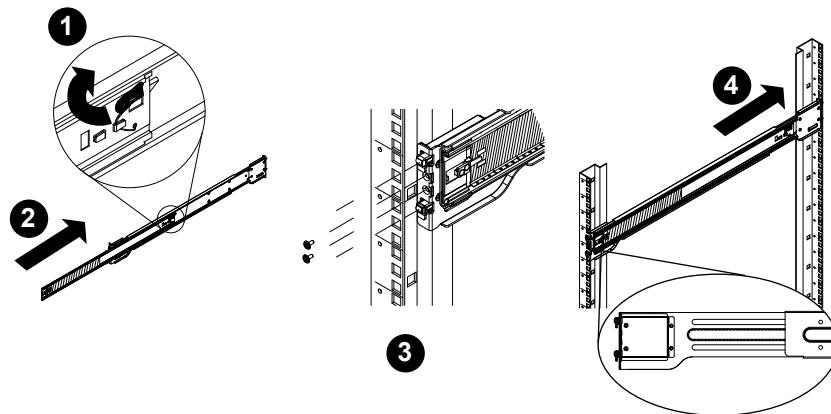


Figure 2-3. Inner Rails Installed on the Chassis

## Installing the Outer Rails on the Rack

### *Installing the Outer Rails*

1. Press upward on the locking tab at the rear end of the middle rail.
2. Push the middle rail back into the outer rail.
3. Hang the hooks of the front of the outer rail onto the slots on the front of the rack. If necessary, use screws to secure the outer rails to the rack, as illustrated above.
4. Pull out the rear of the outer rail, adjusting the length until it fits within the posts of the rack.
5. Hang the hooks of the rear portion of the outer rail onto the slots on the rear of the rack. If necessary, use screws to secure the rear of the outer rail to the rear of the rack.
6. Repeat steps 1-5 for the remaining outer rail.



**Figure 2-4. Extending and Releasing the Outer Rails**

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



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

## Standard Chassis Installation

### *Installing the Chassis into a Rack*

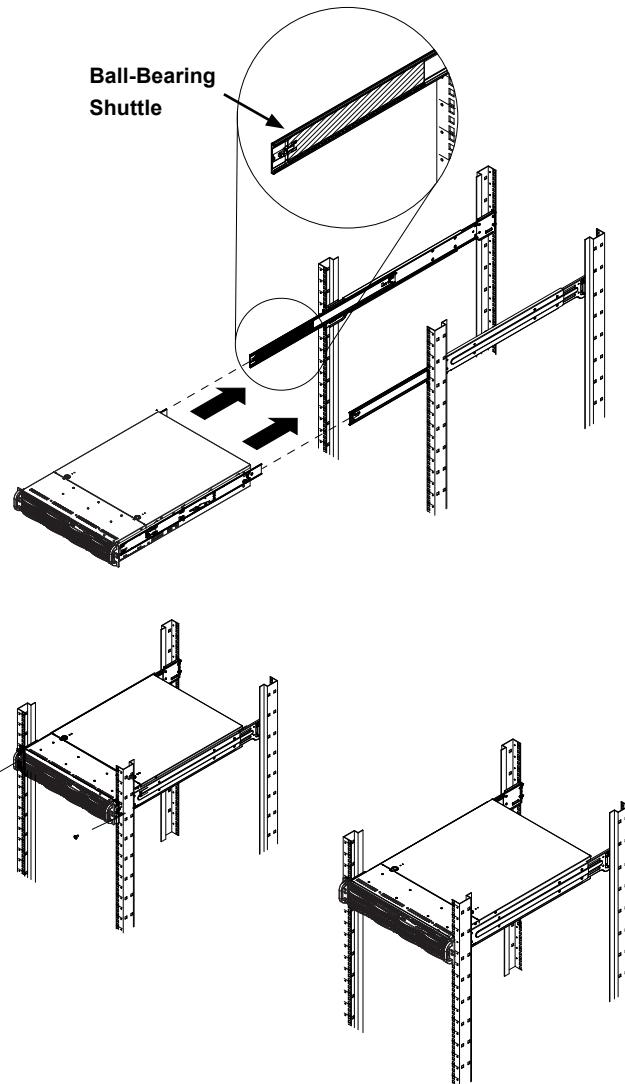
1. Confirm that the inner rails are properly installed on the chassis.
2. Confirm that the outer rails are correctly installed on the rack.
3. Pull the middle rail out from the front of the outer rail and make sure that the ball-bearing shuttle is at the front locking position of the middle rail.
4. Align the chassis inner rails with the front of the middle rails.
5. Slide the inner rails on the chassis into the middle rails, keeping the pressure even on both sides, until the locking tab of the inner rail clicks into the front of the middle rail, locking the chassis into the fully extended position.
6. Depress the locking tabs of both sides at the same time and push the chassis all the way into the rear of the rack.
7. If necessary for security purposes, use screws to secure the chassis handles to the front of the rack.

## Optional Quick Installation Method

The following quick installation method may be used to install the chassis onto a rack.

### *Installing the Chassis into a Rack*

1. Install the whole rail assembly onto the rack as described previously.
2. Release the inner rail without retracting the middle rail.
3. Install the inner rails on the chassis as previously described previously.
4. Install the chassis onto the middle rail as described in the previous section.



**Figure 2-5. Installing the Server into a Rack**

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

# Chapter 3

## Maintenance and Component Installation

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

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

### 3.1 Removing Power

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

1. Use the operating system to power down the system.
2. After the system has completely shut-down, disconnect the AC power cord(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 CSE-216BTS-R1K23WBP features a removable top cover, which allows easy access to the inside of the chassis.

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

1. Begin by removing power from the system as described in Section 3.1.
2. Remove the screws securing the cover to the chassis.
3. Slide the cover toward the rear of the chassis. See Figure 3-1.
4. Lift the cover from the chassis.

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

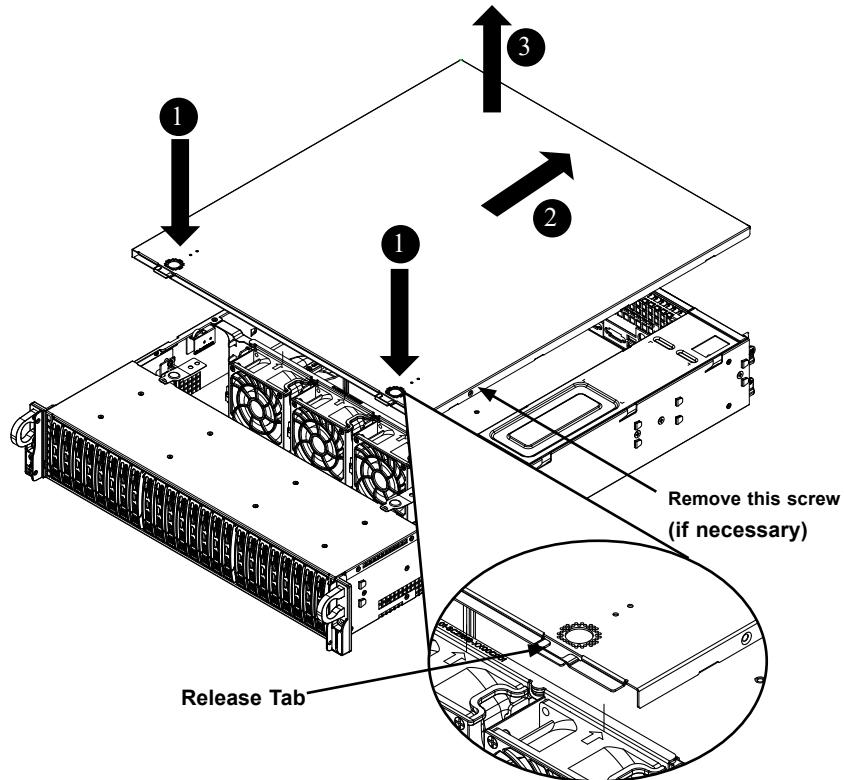


Figure 3-1. Removing the Chassis Cover

### 3.3 Motherboard Components

#### Processor Installation

The processor (CPU) and heatsink should be assembled together first to form the processor heatsink module (PHM), and then install the PHM into the CPU socket.

**Caution:** Use industry-standard anti-static equipment, such as gloves or wrist strap, and follow precautions to avoid damage caused by ESD. Do not touch the underside of the CPU. Improper installation or socket misalignment can cause serious damage to the CPU or socket which may require manufacturer repairs.

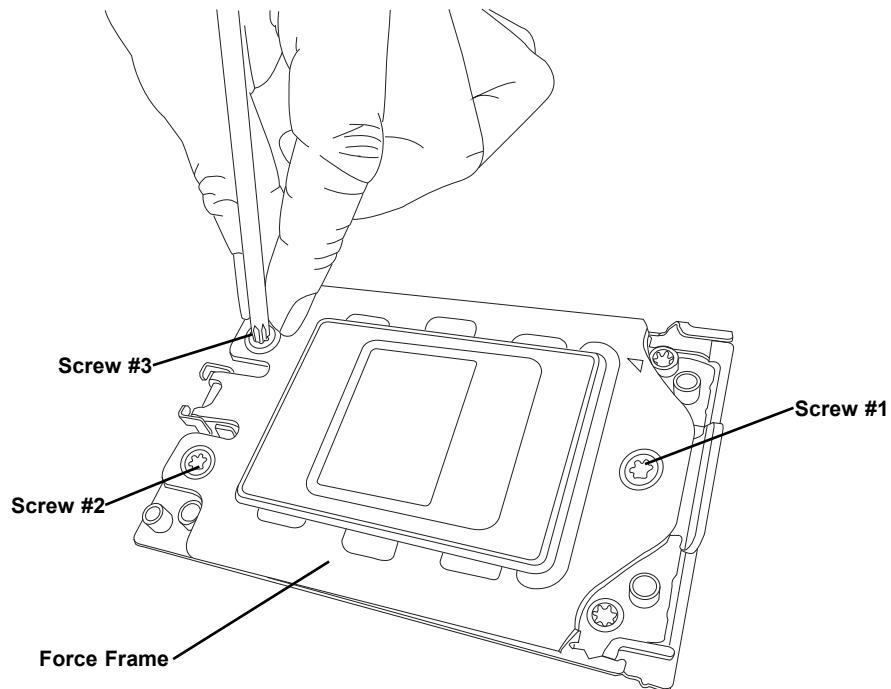
##### Notes:

- All power should be off, as described in Section 3.1, before installing the processors.
- When handling the processor package, avoid placing direct pressure on the label area of the CPU or socket.
- Check that the plastic socket dust cover is in place and none of the socket pins are bent—otherwise, contact your retailer.
- Refer to the Supermicro website for updates on CPU support.
- Graphics in this manual are for illustration. Your components may look slightly different.

### ***Installing the Processor***

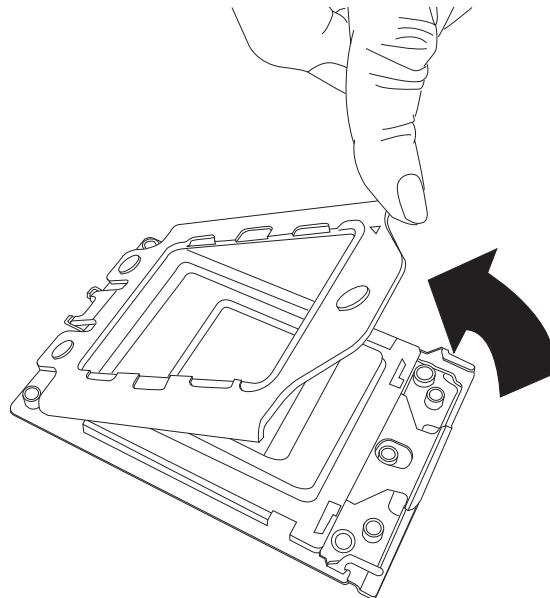
Begin by removing power from the system as described in Section 3.1.

1. Use a Torx T20 driver to loosen the screws holding down Force Frame in the sequence of 3-2-1. The screws are numbered on the Force Frame next to each screw hole.



**Figure 3-2. Removing the Processor Force Frame**

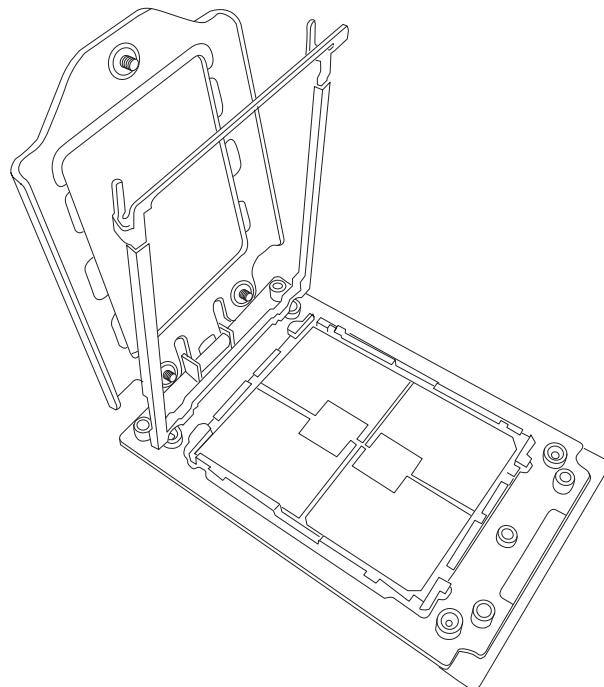
2. The spring-loaded Force Frame will raise up after the last screw (#1) is removed. Gently allow it to lift up to its stopping position.



**Figure 3-3. Raising the Force Frame**

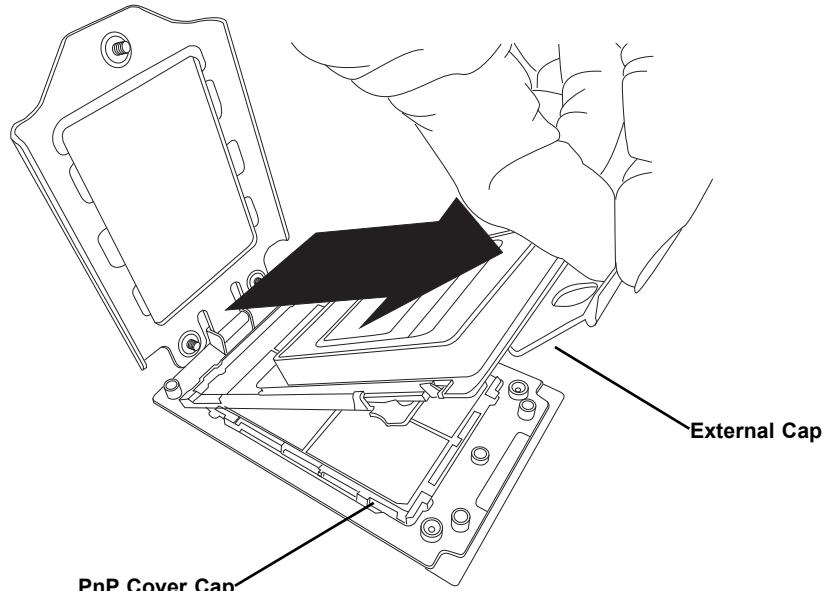
3. Lift the Rail Frame up by gripping the lift tabs near the front end of the rail frame. While keeping a secure grip of the Rail Frame, lift it to a position so you can do the next step of removing the External Cap.

**Note:** The Rail Frame is spring loaded, so keep a secure grip on it as you lift it so it does not snap up.



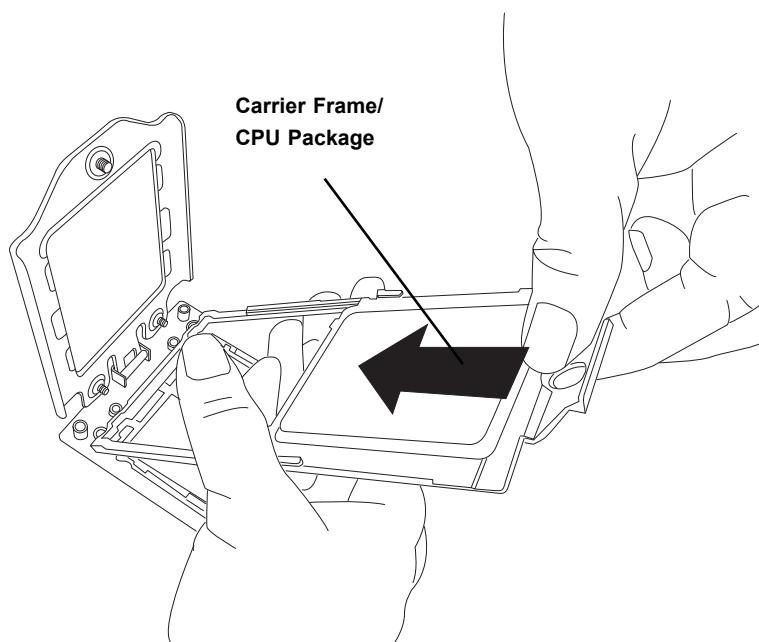
**Figure 3-4. Lifting the Rail Frame**

4. Remove the External Cap from the Rail Frame by pulling it upwards through the rail guides on the Rail Frame. Remove the PnP Cover Cap.



**Figure 3-5. Removing the External Cap**

5. The CPU Package is shipped from the factory with the blue Carrier Frame pre-assembled. Grip the handle of the Carrier Frame/CPU Package assembly from its shipping tray, and while gripping the handle, align the flanges of the Carrier Frame onto the rails of the Rail Frame so its pins will be at the bottom when the Rail Frame is lowered later.
6. Slide the Carrier Frame/CPU Package downwards to the bottom of the Rail Frame. Ensure the flanges are secure on the rails as you lower it downwards.



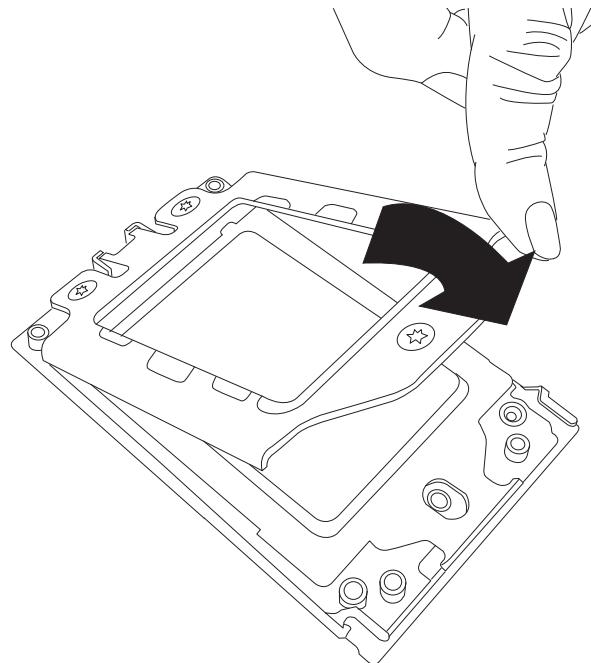
**Figure 3-6. Inserting the Carrier Frame/CPU Package**

**Note:** You can only install the CPU inside the socket in one direction with the handle at the top. Make sure that it is properly inserted into the CPU socket before closing the Rail Frame plate. If it doesn't close properly, do not force it as it may damage your CPU. Instead, open the Rail Frame plate again, and double-check that the CPU is aligned properly.

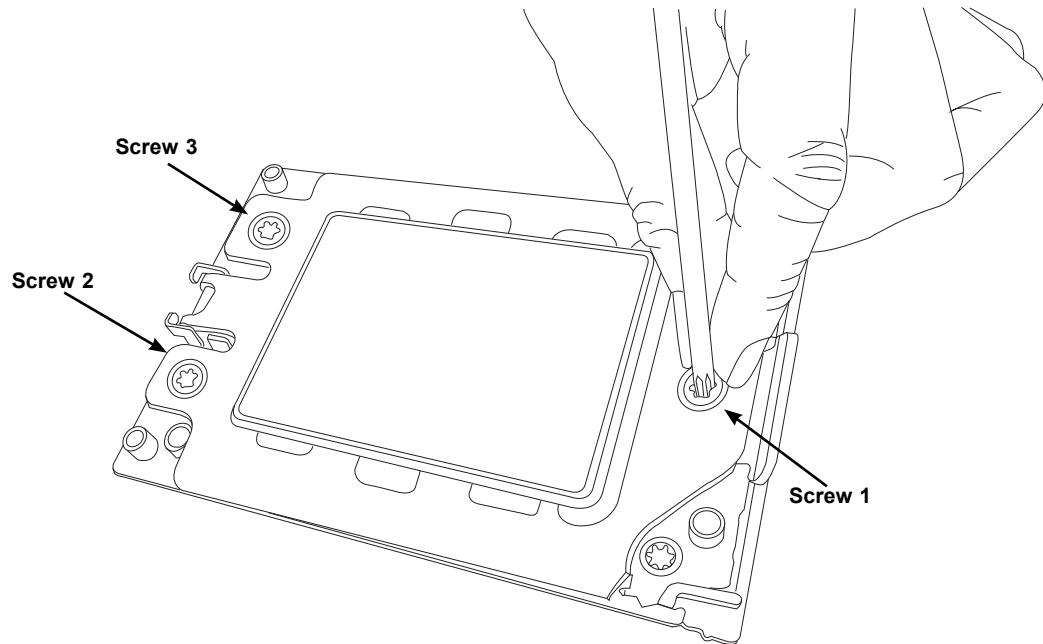
7. Lift up the Rail Frame till it securely rests in upright position. Then remove the PnP Cover Cap from the CPU socket below. Grip the two lift tabs marked "Remove" at the middle of the cap and pull vertically upwards to remove the PnP Cover Cap.

**Caution:** The exposed socket contacts are extremely vulnerable and can be damaged easily. Do not touch or drop objects onto the contacts and be careful removing the PnP Cover Cap and when placing the Rail Frame over the socket.

8. Gently lower the Rail Frame down onto the socket until the latches on the Rail Frame engage with the Socket housing. and it rests in place. Do not force it into place!
9. Gently lower the Force Frame down onto the Rail Frame and hold it in place until it is seated in the Socket housing. Note that the Force Frame is spring loaded and has to be held in place before it is secured.



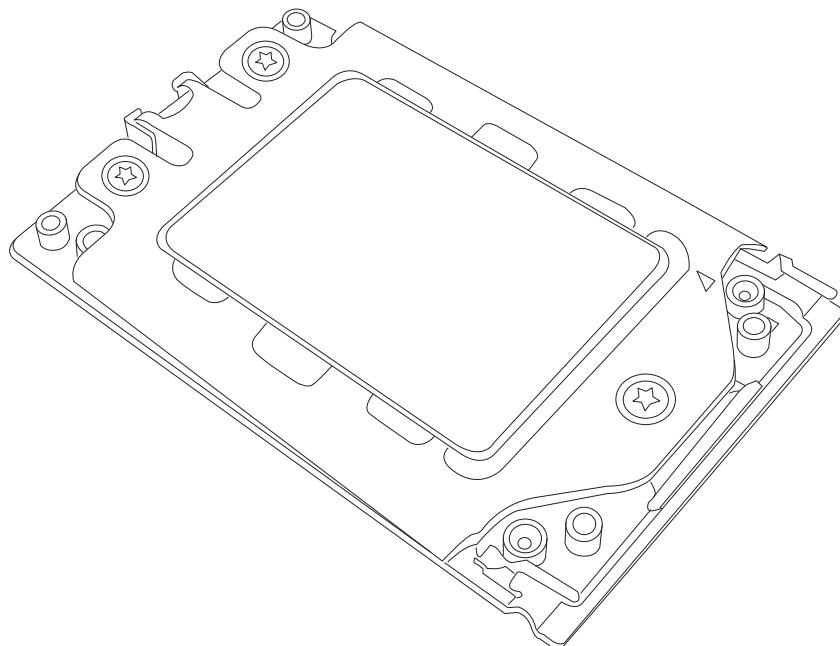
**Figure 3-7. Lowering the Force Frame**



**Figure 3-8. Securing the Force Frame**

10. Secure the screws in the order 1-2-3, tightening each to 16.1 kgf-cm (14 lbf-in) of torque using a Torx T20 driver. The Force Frame secures both the Rail Frame and CPU Package.

**Caution:** The screw tightening sequence of 1-2-3 must be executed in the proper sequence to avoid damage to the socket or CPU package.



**Figure 3-9. The Force Frame Secured**

### ***Un-installing the Processor and Heatsink***

1. Remove the heatsink.
2. Clean the thermal grease left by the heatsink on the CPU package lid to limit the risk of it contaminating the CPU package land pads or contacts in the socket housing.
3. Reverse the procedure for installing the force frame onto the socket, unscrewing the plate in the 3-2-1 screw order and lift the force frame to the vertical position.

**Caution:** The screw tightening sequence of 1-2-3 must be executed in the proper sequence to avoid catastrophic damage to the socket or CPU package.

4. Lift the rail frame using the lift tabs near the front end of the rail frame. Note that the rail frame is spring loaded, so be careful lifting it up into a vertical position.
5. Grip the handle of the carrier frame and pull upwards to extract it from the rail frame. Return the carrier frame/CPU package to its original shipping container.
6. Grip the handle on the external cap and return it to the rail frame sliding it downwards till it rests in the frame.
7. Gripping the rail frame, rotate it downwards till it rests above and locks over the socket housing in its horizontal position.
8. Push and rotate down the force frame till it is over the external cap and rail frame into a horizontal position.
9. While holding down the force frame, secure it back to the socket frame by securing screw 1 in place. Note that without a CPU package in place, it is not necessary to tighten down screws 2 and 3 at this time.

### 3.4 Memory Support and Installation

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

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

The H12SSW-NTR has 16 DIMM slots that support up to 2 TB of ECC DDR4 3200 MHz speed, RDIMM/LRDIMM/3DS memory in 16 slots. Refer to the table below for additional memory information.

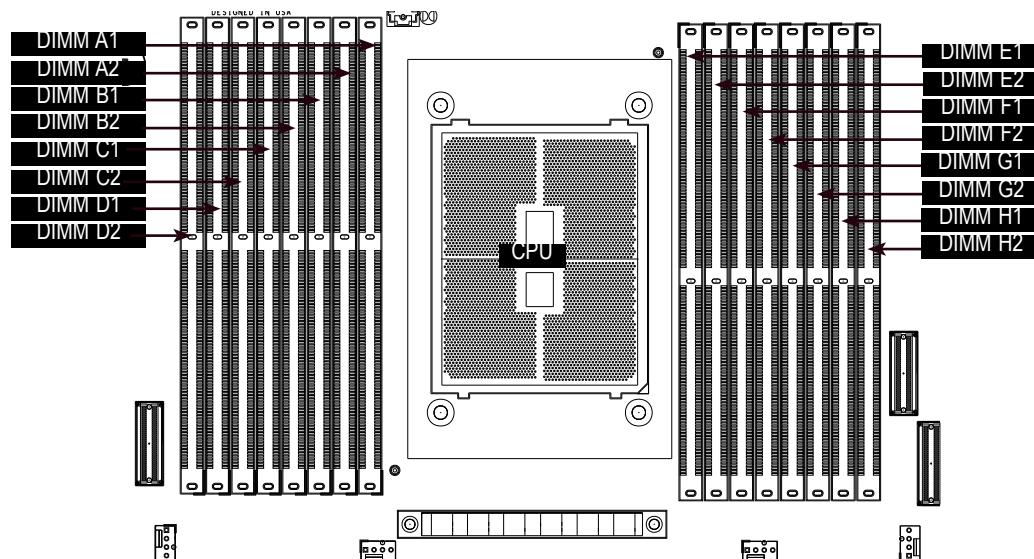
Populating RDIMM/RDIMM 3DS/LRDIMM/LRDIMM 3DS DDR4 Memory Modules with 7002/7003 Processors					
Type	DIMM Population		Maximum DIMM Capacity (GB)		Maximum Frequency (MHz)
	DIMM1	DIMM2	1 Channel	8 Channel	
RDIMM		1R	32GB	256GB	3200
	1R	1R	64GB	512GB	2933
		2R or 2DR	64GB	512GB	3200
	1R	2R or 2DR	96GB	768GB	2933
	2R or 2DR	2R or 2DR	128GB	1TB	2933
LRDIMM		2S2R	128GB	1TB	3200
		2S4R	256GB	2TB	2933
	2S2R	2S2R	256GB	2TB	2933
	2S4R	2S4R	512GB	4TB	2933
3DS RDIMM		2S2R	128GB	1TB	2933
	2S2R	2S2R	256GB	2TB	2666
		2S4R	256GB	2TB	2933
	2S4R	2S4R	512GB	4TB	2666

Processors and their Corresponding Memory Modules																		
Channel																		
CPU#	A1	A2	B1	B2	C1	C2	D1	D2	E1	E2	F1	F2	G1	G2	H1	H2		
1 DIMM (Not Recommended)																		
CPU1						V												
2 DIMMs (Not Recommended)																		
CPU1						V			V									
4 DIMMs																		
CPU1						V			V							V		V
6 DIMMs																		
Unbalanced and not recommended.																		
8 DIMMs																		
CPU1			V		V		V		V		V		V		V		V	
16 DIMMs																		
CPU1	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V

## DIMM Module Population

There is no specific order or sequence required when installing memory modules. However do keep the following in mind:

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



**Figure 3-10. DIMM Numbering**

**Note:** To achieve optimal memory performance, the minimum recommended is at least one DIMM for each channel pair in the system (e.g., A, C, E, G).

## DIMM Installation

1. Push the release tabs outwards on both ends of the DIMM slot to unlock it.
2. Align the key of the DIMM module with the receptive point on the memory slot.
3. Align the notches on both ends of the module against the receptive points on the ends of the slot.
4. Use two thumbs together to press both ends of the module straight down into the slot until the module snaps into place.
5. Press the release tabs to the lock positions to secure the DIMM module into the slot.

## DIMM Removal

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

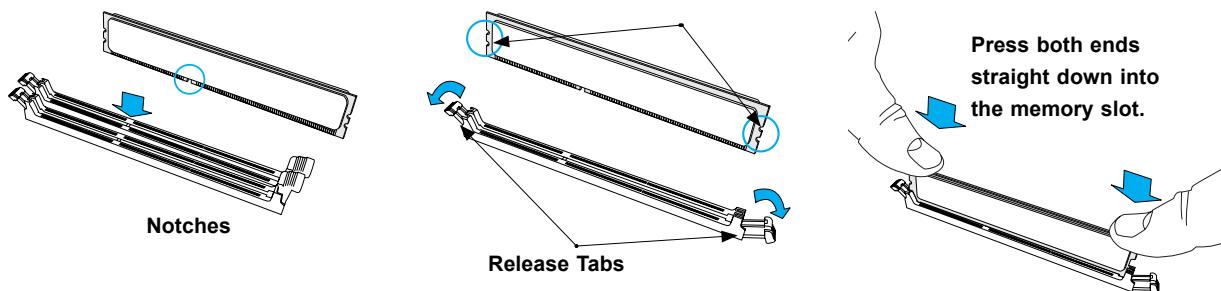


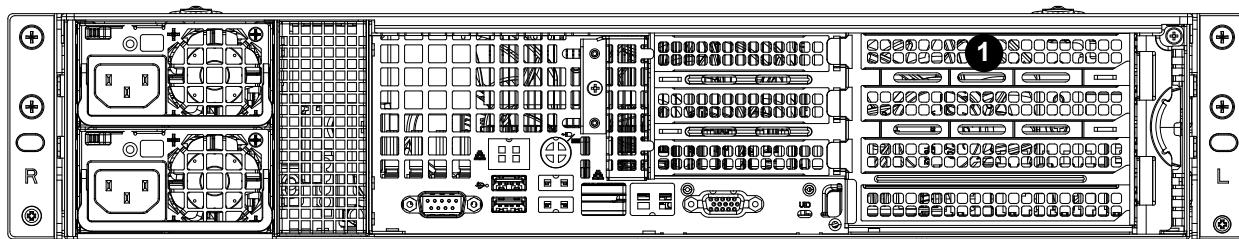
Figure 3-11. Installing DIMMs

## PCI Expansion Card Installation

The AS -2114S-WN24RT can accommodate one expansion card in the Gen4 x16 PCIe slot indicated below. The remaining slots are populated with Gen4 retimer cards by default.

### *Installing an Expansion Card*

1. Begin by removing power from the system.
2. Remove the screw on the right side of the slot as indicated in the figure below. Make sure that the card you are installing is supported by the slot.
3. With the screw removed, swing open the PCI shield bracket.
4. Fully seat the card into the slot on the riser card, pushing down with your thumbs evenly on both sides of the card.
5. Close the PCI shield bracket and secure it with the screw that was previously removed.



**Figure 3-12. Installing an Expansion Card**

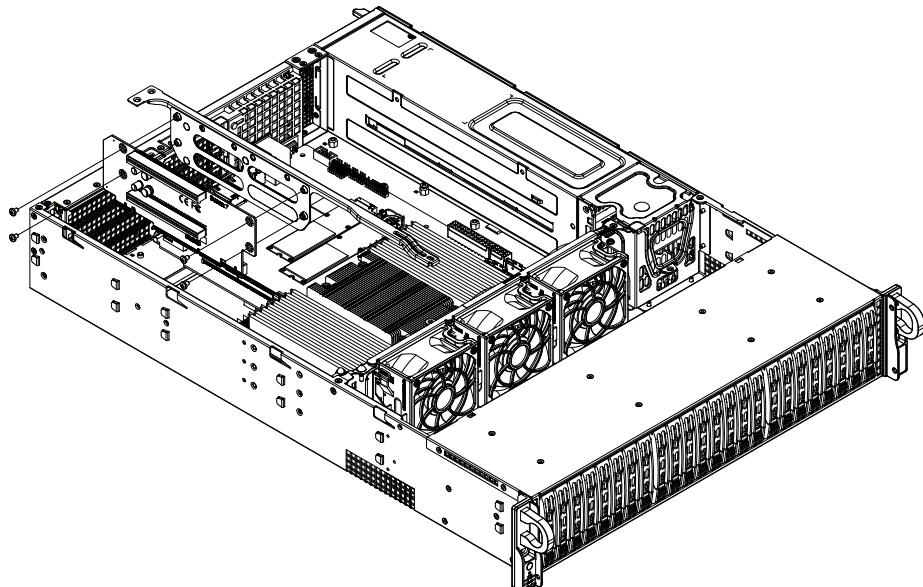


Figure 3-13. Installing Riser Card to Bracket

## Motherboard Battery

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

### *Replacing the Battery*

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

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

**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.

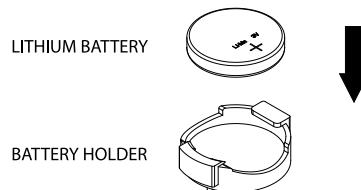


Figure 3-14. Installing the Onboard Battery

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

## 3.5 Chassis Components

### Hard Drives

Up to 24 hot-swap 2.5" hard drives are supported by the chassis.

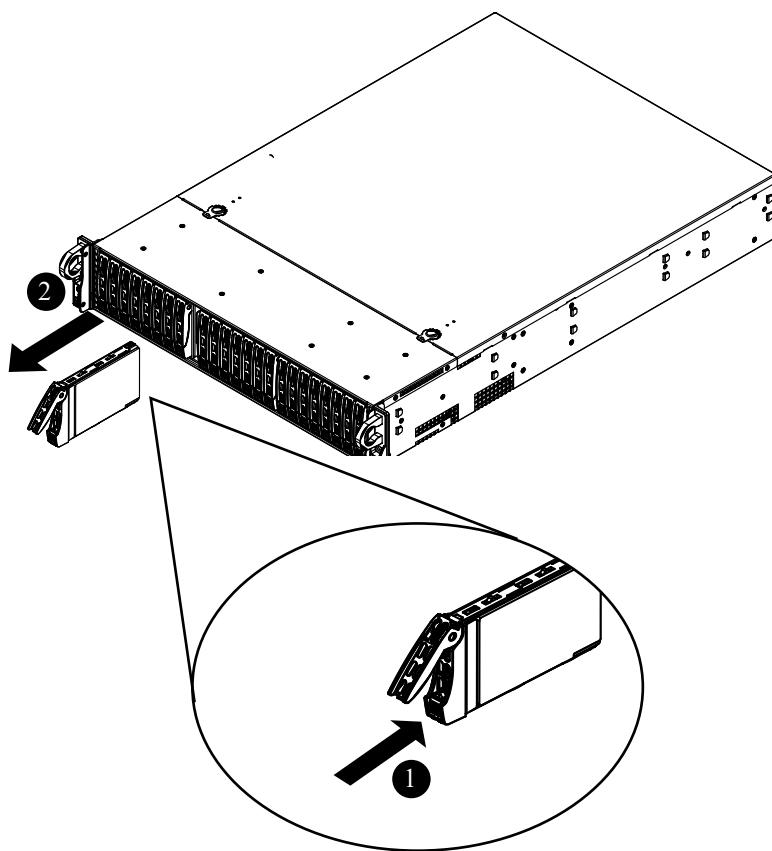
The hard drives are mounted in drive carriers to simplify their installation and removal from the chassis. (Both procedures may be done without removing power from the system.)

#### ***Removing a Hot-Swap Drive Carrier***

1. Push the release button on the carrier.
2. Swing the handle fully out.
3. Grasp the handle and use it to pull the drive carrier out of its bay.

#### ***Mounting a Drive in a Drive Carrier***

1. To add a new drive, install it into the carrier with the printed circuit board side facing down so that the mounting holes align with those in the carrier.
2. Secure the drive to the carrier with the screws provided, then push the carrier completely into the drive bay. You should hear a \*click\* when the drive is fully inserted.



**Figure 3-15. Removing a Drive Carrier from the System**

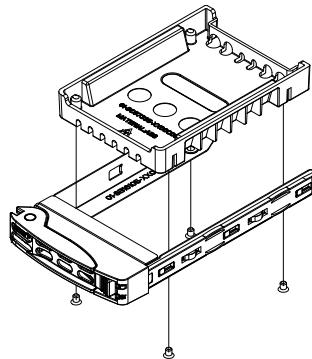
This indicates that the carrier has been fully seated and connected to the midplane, which automatically makes the power and logic connections to the hard drive.

#### ***Removing a Drive from a Drive Carrier***

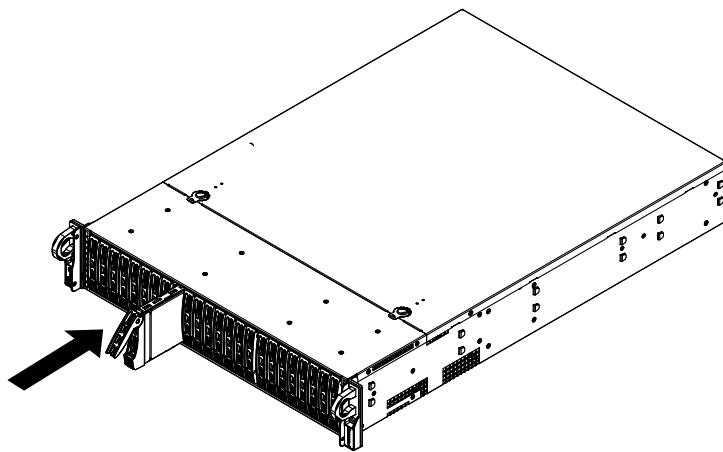
1. Remove the screws that secure the hard drive to the carrier and separate the hard drive from the carrier.
2. Replace the carrier back into the drive bay.

#### ***Hard Drive Carrier Indicators***

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

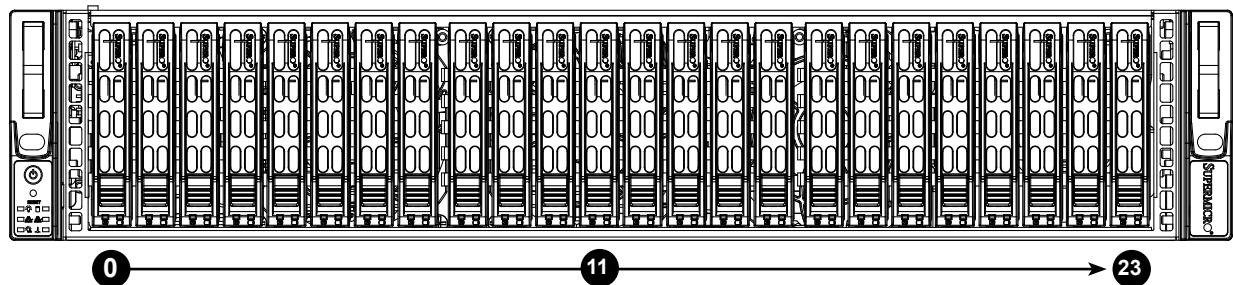


**Figure 3-16. Mounting a Drive in a Carrier**



**Figure 3-17. Installing a Drive Carrier into its Bay**

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



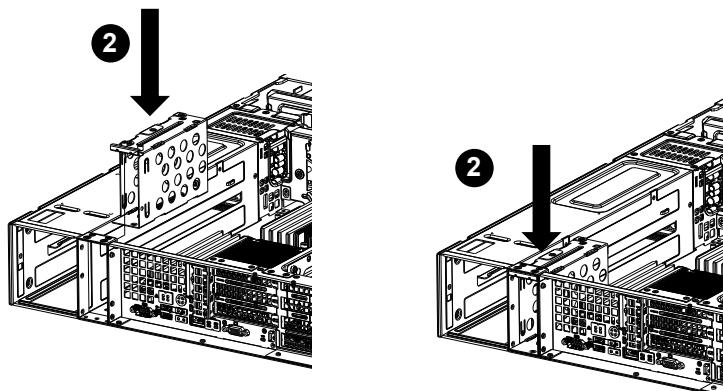
**Figure 3-18. Drive Bays: Logical Configuration**

### ***Installing the Rear 2.5" Hard Drive***

The CSE-216BTS model chassis supports an optional hard drive cage for two additional 2.5" hot-swappable hard drives. The hard drive cage installs in the rear of the chassis next to the power supply. Once the hard drive cage has been installed, the 2.5" hard drives may be removed without powering down the server.

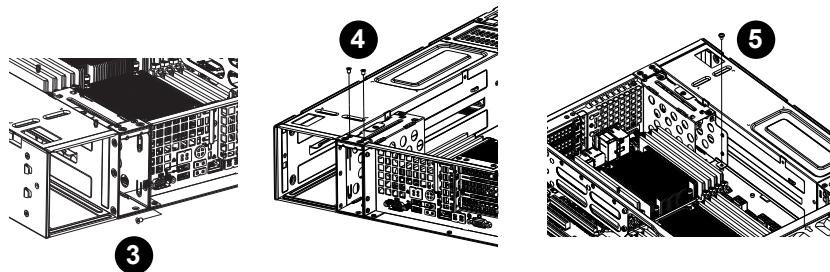
### ***Installing the 2.5" Rear Hard Drive Cage***

1. Power down the system as described in Section 3.1, lay the chassis on a flat, stable surface and remove the chassis cover as described in Section 3.2.
2. Orient the rear hard drive cage as shown (Figure 3-19), aligning the opening at the end of the cage with the opening at the back of the chassis.



**Figure 3-19. Installing the Rear 2.5" Hard Drive Cage**

3. Place the hard drive cage into the chassis. Secure the front of the hard drive cage to the chassis by fastening one screw inside the opening of the hard drive cage as illustrated.
4. Secure the top of the hard drive cage to the chassis frame with two screws, fastened at the upper edge of the hard drive cage above the opening of the hard drive cage.
5. Secure the back of the hard drive cage to the chassis with one screw as shown above.
6. Replace the power cords and power up the server.



**Figure 3-20. Securing the Hard Drive Cage in the Chassis**

## System Cooling

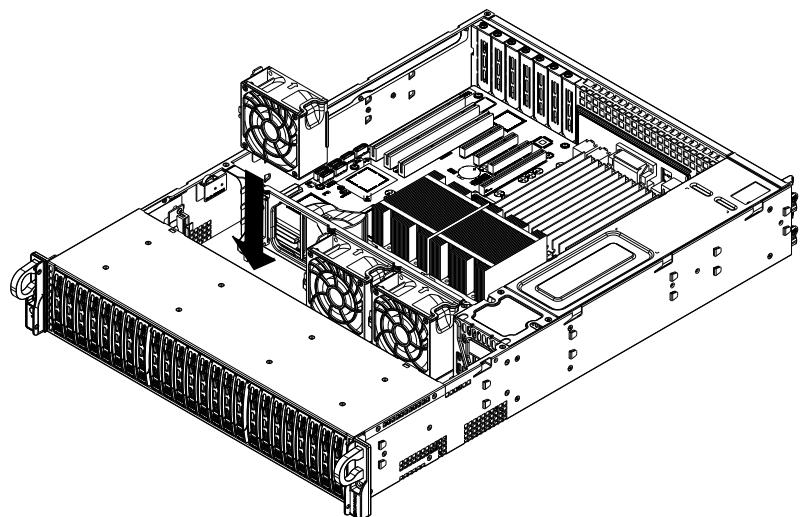
Three 8-cm hot-swap chassis fans provide the cooling for the AS -2114S-WN24RT. It is very important that the top cover of the chassis is properly installed in order for the cooling air to circulate properly through the chassis and cool the components.

### ***System Fan Failure***

Fan speed is controlled by system temperature via IPMI. If a fan fails, the remaining fans will ramp up to full speed and the overheat/fan fail LED on the control panel will turn on. Replace any failed fan at your earliest convenience with the same type and model (the system can continue to run with a failed fan). Remove the top chassis cover while the system is still running to determine which of the fans has failed.

### ***Replacing a System Fan***

1. Press the release tab to lift the failed fan and pull it completely out of the chassis.
2. Place the new fan into the vacant space in the housing while making sure the arrows on the top of the fan (indicating air direction) point in the same direction as those on the other fans. The fan will automatically begin running at the correct speed.



**Figure 3-21. Replacing a System Fan**

**Note:** Graphics in this manual are for illustration purposes only. Your components may look slightly different.

## Air Shrouds

Air shrouds concentrate airflow to maximize fan efficiency. The AS -2114S-WN24RT air shrouds do not require screws for installation.

### ***Installing the Main Air Shroud***

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

1. Lay the chassis on a flat, stable surface and remove the chassis cover as described in Section 3.2.
2. Ensure that the motherboard, CPUs, heatsink and memory are all properly installed.
3. If necessary, move any cables that interfere with the air shroud placement.
4. Place the air shroud in the chassis. The air shroud fits just behind the three fans. Slide the air shroud into the grooves just behind the fans.
5. The air shroud is designed with break-away pieces that may be removed to accommodate differing styles of motherboards.
6. An additional air shroud is required for high-powered CPUs to provide extra cooling. Install the additional air shroud if necessary.

### ***Installing the Additional Air Shroud***

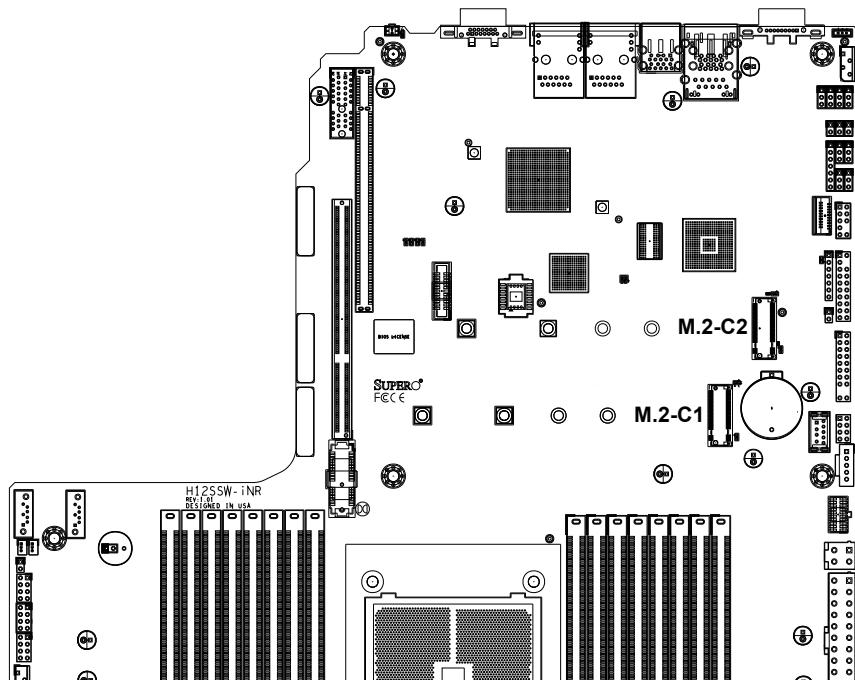
1. Remove the left side break-away piece of the main air shroud.
2. Slide the additional air shroud into the chassis before installing the main air shroud.
3. Install the main air shroud as directed above.

## Installing an M.2 Solid State Drive

**Note:** There are some thermal limitations with M.2 drives. Please contact Supermicro Support before installing an M.2 device.

The motherboard can accommodate an M.2 solid state drive (SSD). The M.2 socket supports NVMe PCIe 3.0 x2 (32 Gb/s) SSD cards in the 2280 or 22110 form factors. The 22110 form factor is recommended because the appropriate standoff comes pre-installed on the motherboard. To install a 2280 device, the motherboard must be removed to move the standoff, which incurs accompanying risks.

**Caution:** Use industry-standard anti-static equipment, such as gloves or wrist strap, and follow precautions to avoid damage caused by ESD.



**Figure 3-22. M.2 Slot Locations**

### ***Installing the M.2 SSD***

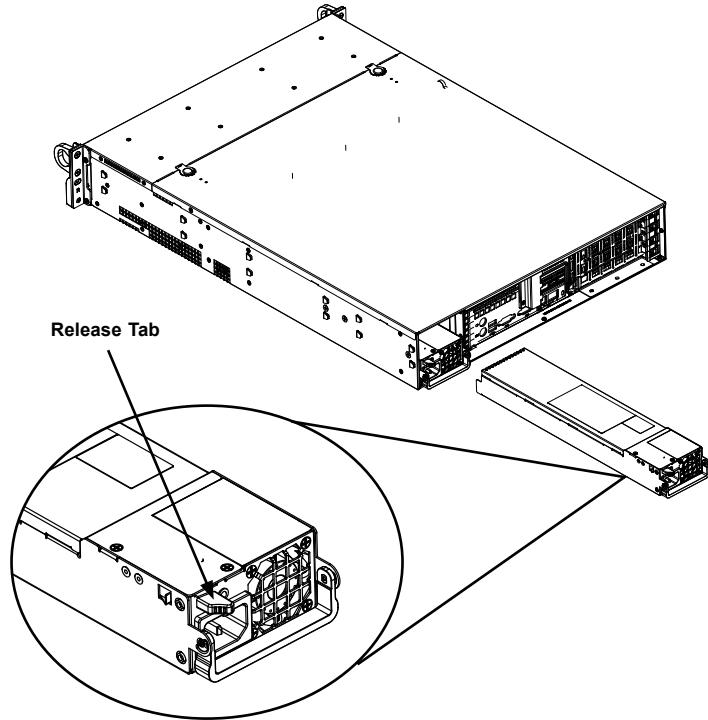
1. Power down the system as described in Section 3.1 then remove the top chassis cover as described in Section 3.2.
2. Insert the SSD into the socket (J2) on the motherboard, then push it flat against the standoff.
3. Secure the SSD by firmly inserting the standoff plug.
4. Replace the node into the chassis.

## Power Supply

The AS -2114S-WN24RT has two redundant, hot-plug 1200 Watt power supplies. The power modules are hot-swappable, enabling them to be replaced without powering down the system. These power supplies are auto-switching capable, allowing them to automatically sense and operate at a 100v to 240v input voltage. An amber light will be illuminated on the power supply when the power is off. An illuminated green light indicates that the power supply is operating normally. Logical numbering of the power supplies is PSU1 (top) and PSU2 (bottom).

### ***Replacing a Power Supply Module***

1. Determine which power supply module needs to be replaced and unplug the power cord to that module.
2. Push the release tab (on the back of the power supply) as illustrated, to release the power module from the chassis.
3. While holding down the release tab, pull the power supply out using the handle provided on the power module.
4. Replace the failed power module with the same model power supply.
5. Push the new power supply module into the power bay until the tab clicks into the locked position.
6. Plug the AC power cord back into the module and the replacement power module will automatically power-up.



**Figure 3-23. Replacing a Power Supply Module**

# 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 Chapter 3 before installing or removing components.

### 4.1 Power Connections

Two power connections on the H12SSW-NTR must be connected to the power supply. The wiring is included with the power supply.

#### Main Power Supply Connector (JPWR2)

The primary power supply connector (JPWR2) is an ATX power connector that the power supply plugs into directly.

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

## 12V 8-pin Auxiliary Power Connector (JPWR1)

JPWR1 is an 8-pin ATX power input to provide auxiliary power to the processor. Refer to the table below for pin definitions.

12V 8-pin Power Connector Pin Definitions	
Pins	Definition
1 through 4	Ground
5 through 8	+12V

**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.

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

Power System Management Bus (I<sup>2</sup>C) header monitors power supply, fan and system temperatures. See the table below for pin definitions.

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

## 4.2 Headers and Connectors

### Onboard Fan Headers (FAN1~FAN6)

There are six fan headers on the motherboard. These are 4-pin fan headers; pins 1-3 are backward compatible with traditional 3-pin fans. The onboard fan speeds are controlled by Thermal Management (via Hardware Monitoring) in the BMC. When using Thermal Management setting, please use all 4-pin fans.

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

### Disk-On-Module Power Connector (JSD1 & JSD2)

The Disk-On-Module (DOM) power connector at JSD1 provides 5V power to a solid-state DOM storage device connected to one of the SATA ports. See the table below for pin definitions.

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

### SATA (SATA16, SATA17)

The H12SSW-NTR has two available SATA 3.0 ports (SATA16 and SATA17) on the motherboard. These are standard SATA 3.0 ports via Asmedia 1061.

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

### NVMe Ports ( NVMe0~7, 10, 11, 14, 15)

The H12SSW-NTR has twelve NVMe ports (2 ports per 1 Slim SAS connector) on the motherboard. These ports provide high-speed, low-latency PCIe 4.0 x4 connections directly from the CPU to NVMe Solid State (SSD) drives. This greatly increases SSD data-throughput performance and significantly reduces PCIe latency by simplifying driver/software requirements resulting from direct PCIe interface from the CPU to the NVMe SSD drives.

### SATA/NVMe Hybrid Ports (SATA0-7/NVMe 8-9; SATA8-15/NVMe12-13)

Each SATA/NVMe hybrid port can support up to eight SATA 3.0 ports or 2x NVMe ports (PCIe 4.0 x4), for a total of sixteen SATA ports or four NVMe ports.

### TPM Header/Port 80 Connector (TPM Port)

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

Please go to the following link for more information on TPM: <http://www.supermicro.com/manuals/other/TPM.pdf>.

Trusted Platform Module Header Pin Definitions			
Pin#	Definition	Pin#	Definition
1	LCLK	2	GND
3	LFRAME#	4	Key
5	LRESET#	6	N/C
7	LAD3	8	LAD2
9	3.3V	10	LAD1
11	LAD0	12	GND
13	SMB_CLK (optional)	14	SMB_DAT (optional)
15	P3V3_STBY	16	SERIRQ
17	GND	18	LP_CLKRUN (optional)
19	LPC_PD (optional)	20	LPC_DRQ (optional)

### PCIe M.2 Connector (M.2-C1, M.2-C2)

The PCIe M.2 connectors are for devices such as memory cards, wireless adapters, etc. These devices must conform to the PCIe M.2 specifications (formerly known as NGFF). These particular PCIe M.2 supports M-Key (PCIe x2) storage cards. M.2-C1 and M.2-C2 can support a speed of PCIe x 2 per port.

### USB Ports (USB0~USB4, USB6/7)

There are a total of seven USB ports supported on the motherboard. Four are located on the back panel, USB0/1, and USB2/3 via ASM1042 (both are USB 3.0 compliant). There are also three ports located on the motherboard, two are on one header, USB6/7 (3.0) and the remaining one is on a 3.0 "Type A" connector (USB4).

Front Panel USB 3.0 Pin Definitions			
Pin#	Definition	Pin#	Definition
1	VBUS	19	Power
2	Stda_SSRX-	18	USB3_RN
3	Stda_SSRX+	17	USB3_RP
4	GND	16	GND
5	Stda_SSTX-	15	USB3_TN
6	Stda_SSTX+	14	USB3_TP
7	GND	13	GND
8	D-	12	USB_N
9	D+	11	USB_P
10	GND	x	x

### Expansion Slots

The motherboard features several expansion slots. The table below lists the type and speed of each slot.

Expansion Slots	
Name	Description
<b>JSXB1A</b>	Riser Slot
<b>JSXB1B</b>	Riser Slot (for CPU Slot1 PCIe 4.0 x16, Slot3, PCIe 4.0 x16)
<b>JSXB1C</b>	Riser Slot
<b>JSXB2</b>	Riser Slot (for CPU Slot2, PCIe 4.0 x16)

### Onboard Battery (BT1)

The onboard back up battery is located at BT1. The onboard battery provides backup power to the on chip CMOS, which stores the BIOS' setup information. It also provides power to the Real Time Clock (RTC) to keep it running.

### Chassis Intrusion (JL1)

A Chassis Intrusion header is located at JL1 on the motherboard. Attach the appropriate cable from the chassis to the header to inform you when the chassis is opened.

Chassis Intrusion Pin Definitions	
Pins	Definition
1	Ground
2	Intrusion Input

### IPMB System Management Bus Header (JIPMB1)

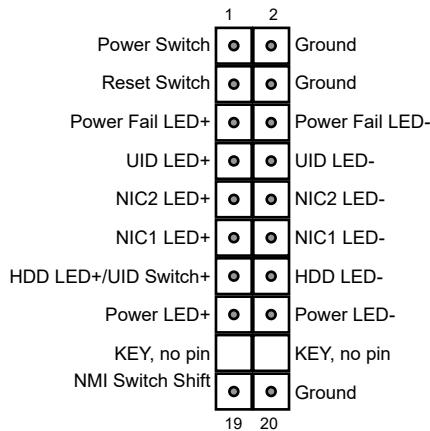
A System Management Bus header for IPMI 2.0 is located at JIPMB1. Connect the appropriate cable here to use the IPMB I<sup>2</sup>C connection on your system.

IPMB Header Pin Definitions	
Pin#	Definition
1	Data
2	Ground
3	Clock
4	No Connection

## Control Panel

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

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



**Figure 4-1. JF1: Control Panel Pins**

### Power Switch

The Power Switch connection is located on pins 1 and 2 of JF1. Attach it to a hardware power switch on the computer case to power on/off the system. To force the system to be powered off, press the button for at least 4 seconds. Refer to the table below for pin definitions.

Power Switch Pin Definitions (JF1)	
Pin#	Definition
1	Power Switch
2	Ground

### Reset Switch

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

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

## Power Fail LED

The Power Fail LED connection is located on pins 5 and 6 of JF1.

Power Fail LED Pin Definitions (JF1)	
Pin#	Definition
5	Power Fail LED+
6	Power Fail LED-

Power Fail LED Status	
LED State	Status
Solid on	Overheat
Fast Blinking	Fan Fail
Slow Blinking	Power Fail

## Unit Identifier Switch/UID LED Indicator

A Unit Identifier (UID) switch is located on the I/O backplane, and two UID LED indicators are located on the motherboard. The rear UID LED is located next to the UID switch. The front UID LED is located on pins 7 & 8 on the front control panel (JF1). When you press the UID switch, both rear and front UID LED indicators will be turned on. Press the UID switch again to turn off the LED indicators. The UID Indicators provide 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 <http://www.supermicro.com>.

UID LED Pin Definitions (JF1)	
Pin#	Definition
7	UID LED+
8	UID LED-

## NIC1/NIC2 (LAN1/LAN2)

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

LAN1/LAN2 LED Pin Definitions (JF1)	
Pin#	Definition
9	NIC2 LED+
10	NIC2 LED-
11	NIC1 LED+
12	NIC1 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	HDD LED+/UID Switch+
14	HDD LED-

### Power LED

The Power LED connection is located on pins 15 and 16 of JF1. Attach a cable to Pin 15 and Pin 16 to show system power status. Refer to the table below for pin definitions.

Power LED Pin Definitions (JF1)	
Pin#	Definition
15	Power LED+
16	Power LED-

### NMI Switch

The non-maskable interrupt switch header is located on pins 19 and 20 of JF1. Attach it to a hardware NMI switch on the computer case to trigger the NMI. Refer to the table below for pin definitions.

NMI Switch Pin Definitions (JF1)	
Pin#	Definition
19	NMI Switch
20	Ground

## 4.3 Rear I/O Ports

See the figure below for the locations and descriptions of the various I/O ports on the rear of the motherboard.

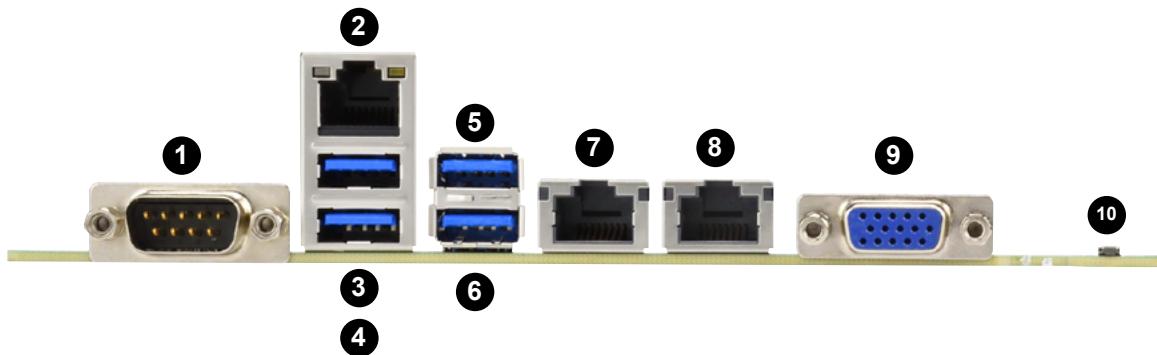


Figure 4-2. Rear I/O Ports

Rear I/O Ports					
#	Description	#	Description	#	Description
1	COM Port	5	USB 2 (3.0)	9	VGA Port
2	IPMI LAN Port	6	USB 3 (3.0)	10	UID Switch & UID LED
3	USB 0 (3.0)	7	LAN Port #1		
4	USB 1 (3.0)	8	LAN Port #2		

### COM Port

There is one serial communications port (COM1) on the rear I/O panel.

### IPMI LAN Port

One IPMI LAN port is located on the I/O back panel. This port accepts an RJ45 type cable.

### Universal Serial Bus (USB) Ports

There are four USB 3.0 ports (USB 0/1, 2/3) on the I/O back panel. These support the type A connector.

### **Gigabit LAN Ports**

There are two gigabit LAN ports located on the I/O back panel (LAN1 & LAN2). These ports accept an RJ45 type cable.

### **VGA Port**

There is one VGA port on the rear I/O panel.

### **UID Switch and UID LED Indicator**

A Unit Identifier (UID SW) switch and UID LED (LED1) are located on the I/O backpanel. The rear UID LED (LED1) is located next to the UID switch. When you press the UID switch, both rear and front UID LED indicators will turn on. Press the UID switch again to turn off the LED indicators. The UID Indicator provides easy identification of a system that may be in need of service. See page 36 for the front panel UID LED header location on JF1.

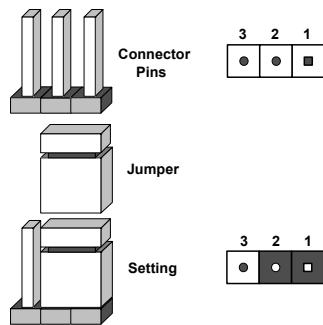
**Note:** UID can also be triggered via IPMI on the motherboard. For more information on IPMI, please refer to the IPMI User's Guide posted on our website at <http://www.supermicro.com>

## 4.4 Jumpers

### ***Explanation of Jumpers***

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

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



### **CMOS Clear**

GBT1 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.*



JBT1 contact pads

### Watch Dog (JWD1)

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, the user needs 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

### LAN Enable/Disable (JPL1)

Jumper JPL1 will enable or disable LAN1/LAN2. See below for jumper settings. The default setting is enabled. **Note:** This feature is only available on the H12SSW-NTR.

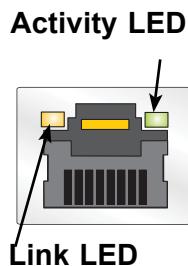
GLAN Enable Jumper Settings	
Pin#	Definition
1-2	Enabled (default)
2-3	Disabled

## 4.5 LED Indicators

### LAN Port LEDs

The motherboard's Ethernet ports has two LED indicators. The Activity LED is green and indicates connection and activity. The Link LED may be green, orange/amber, or off to indicate the speed of the connection. Refer to the tables below for more information.

Link LED, Connection Link, Speed Indicator		
LED Color	Definition	
Orange	1 Gb/s	
Green	10 Gb/s	
Activity LED		
Color	State	Definition
None	No Connection	
None	Off	Link
Green	Flashing	Active



### UID LED Indicator (LED1)

The rear LED1 is located next to the UID switch. The front UID LED is located on the front panel. When you press the UID switch, both rear LED1 and front UID LED indicators will turn on. Press the UID switch again to turn off the LED indicators. Use this UID Indicator to 'mark' the system, so the system can be easily identified whether on the front or back (e.g., a system rack with multiple units installed).

UID LED LED Indicator		
Color	State	Definition
Blue	Solid On	Unit Identified
None	Off	UID Off

### M.2 Error LED (LED9 and LED11)

The M.2 Interface Detection LED indicates that an M.2 interface was detected and working correctly on either M.2-C1 (LED9) or M.2-C2 (LED11). It will indicate whether a SATA or PCIe signal has been detected. Both M.2 not support SATA interface.

M.2 Active LED Indicator	
LED Color	Definition
Off	Off (Normal)
Green	On (SATA)

# Chapter 5

## Software

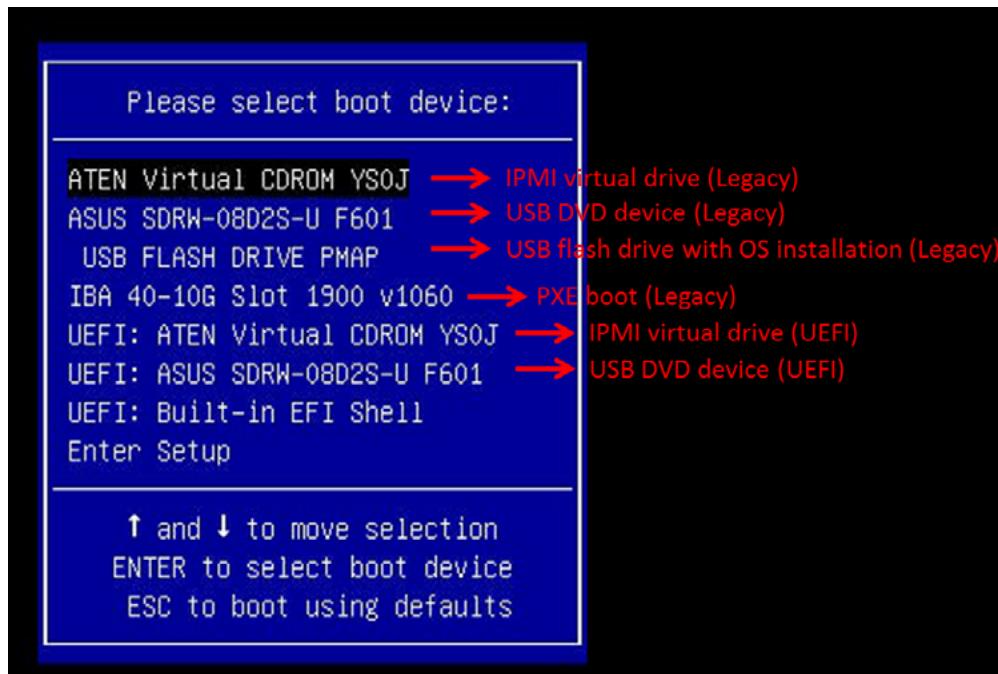
After the hardware has been installed, you can install the Operating System (OS), configure RAID settings and install the drivers.

### 5.1 Microsoft Windows OS Installation

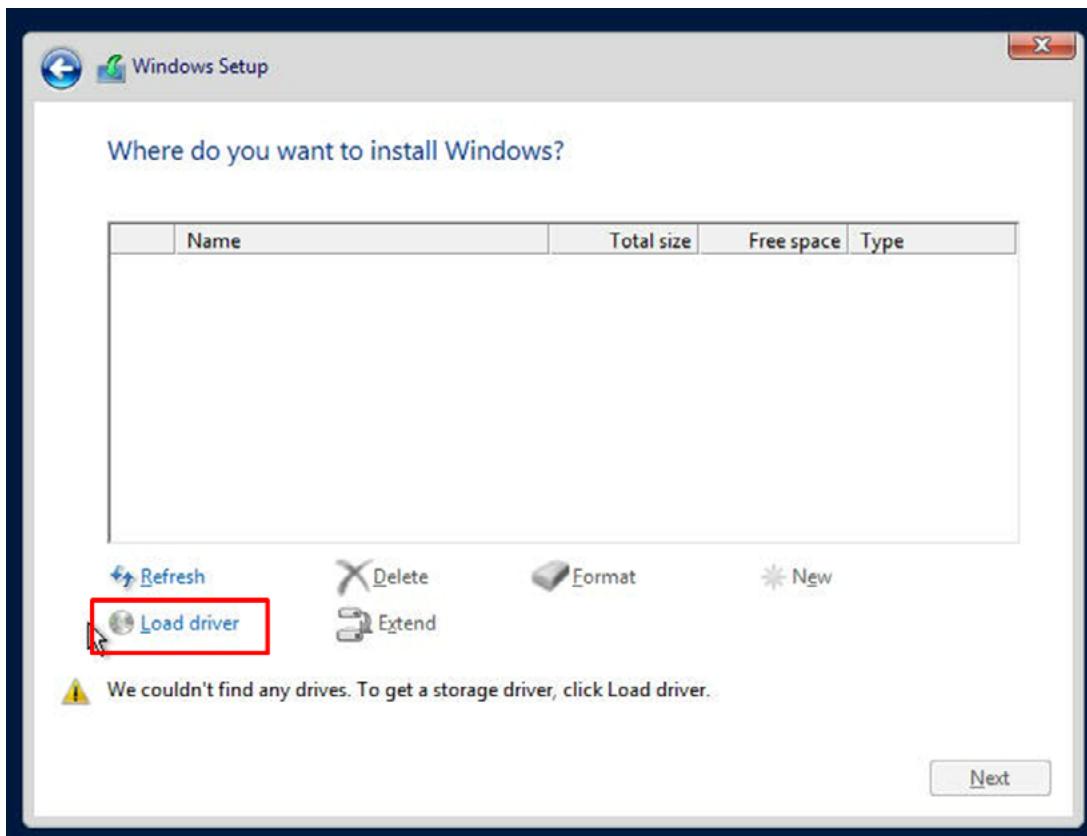
If you will be using RAID, you must configure RAID settings before installing the Windows OS and the RAID driver. Refer to the RAID Configuration User Guides posted on our website at [www.supermicro.com/support/manuals](http://www.supermicro.com/support/manuals).

#### *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. Go to the Supermicro web page for your motherboard and click on "Download the Latest Drivers and Utilities", select the proper driver, and copy it to a USB flash drive.
3. Boot from a bootable device with Windows OS installation. You can see a bootable device list by pressing **F11** during the system startup.



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

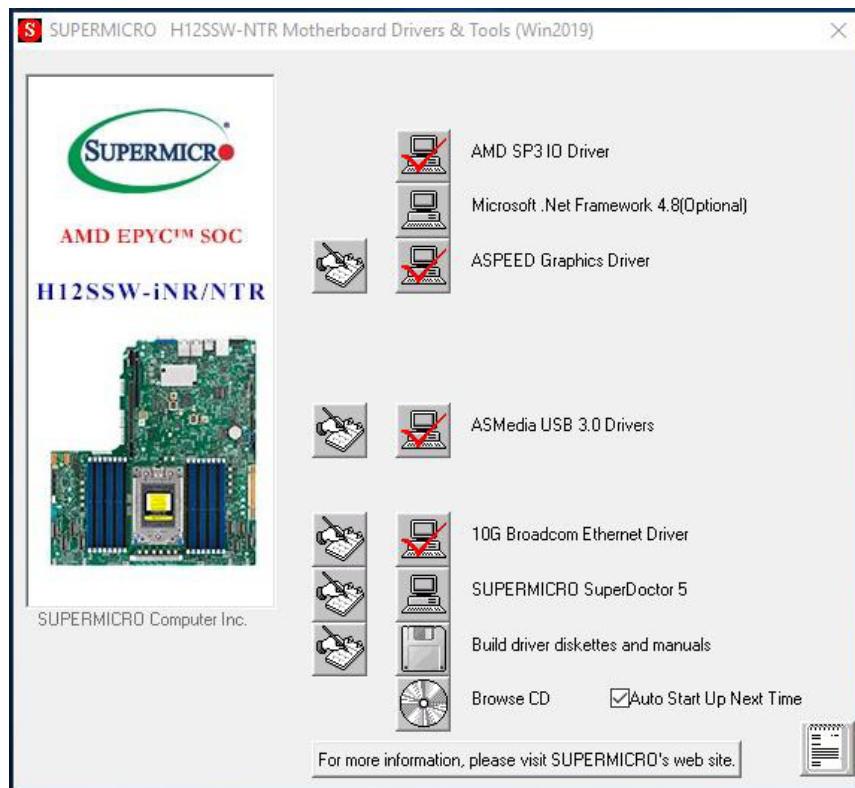
The Supermicro website contains drivers and utilities for your system at [www.supermicro.com/wdl/driver/AMD/SP3](http://www.supermicro.com/wdl/driver/AMD/SP3). Some of these must be installed, such as the chipset driver.

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 create a DVD of the drivers and utilities it contains. (You may also use a utility to extract the ISO file if preferred.)

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

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

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



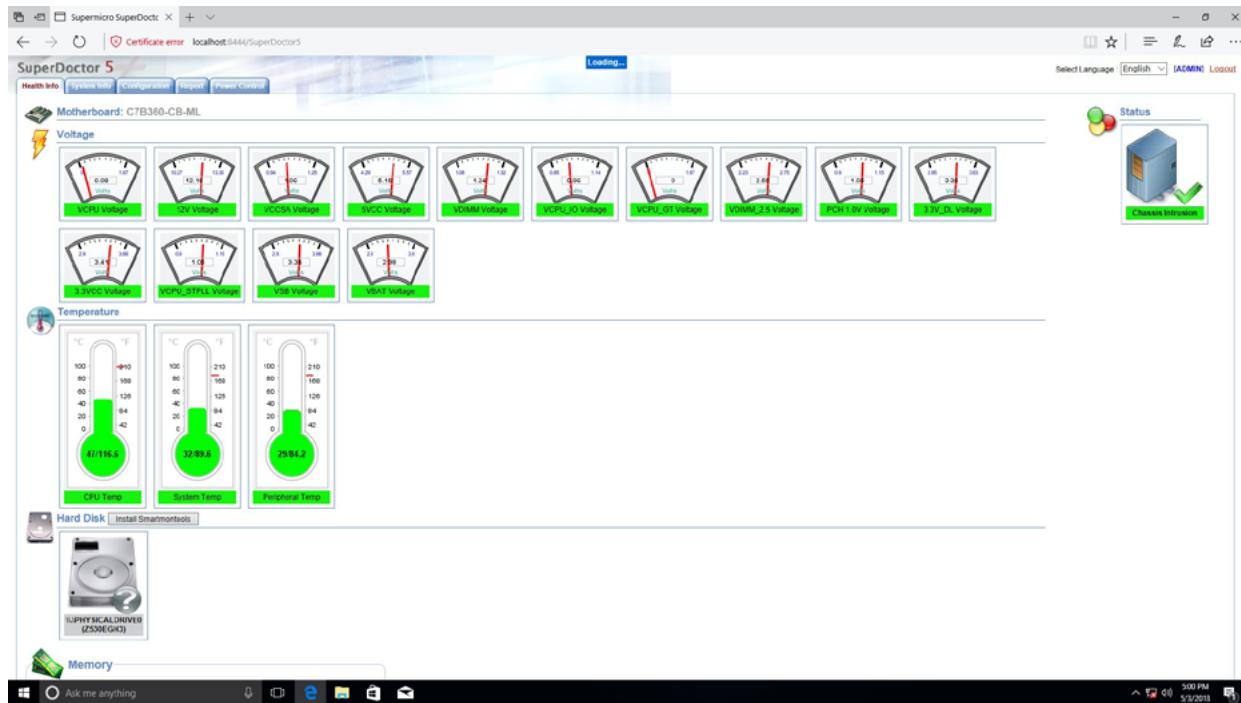
**Figure 5-1. Driver & Tool Installation Screen**

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

## 5.3 SuperDoctor® 5

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

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



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

## 5.4 IPMI

The H12SSW-NTR supports the Intelligent Platform Management Interface (IPMI). IPMI is used to provide remote access, monitoring and management. There are several BIOS settings that are related to IPMI.

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

# Chapter 6

## UEFI BIOS

### 6.1 Introduction

This chapter describes the AMIBIOS™ Setup utility for the H12SSW-NTR motherboard. The BIOS is stored on a chip and can be easily upgraded using a flash program.

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

#### Starting the Setup Utility

To enter the BIOS Setup Utility, 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.

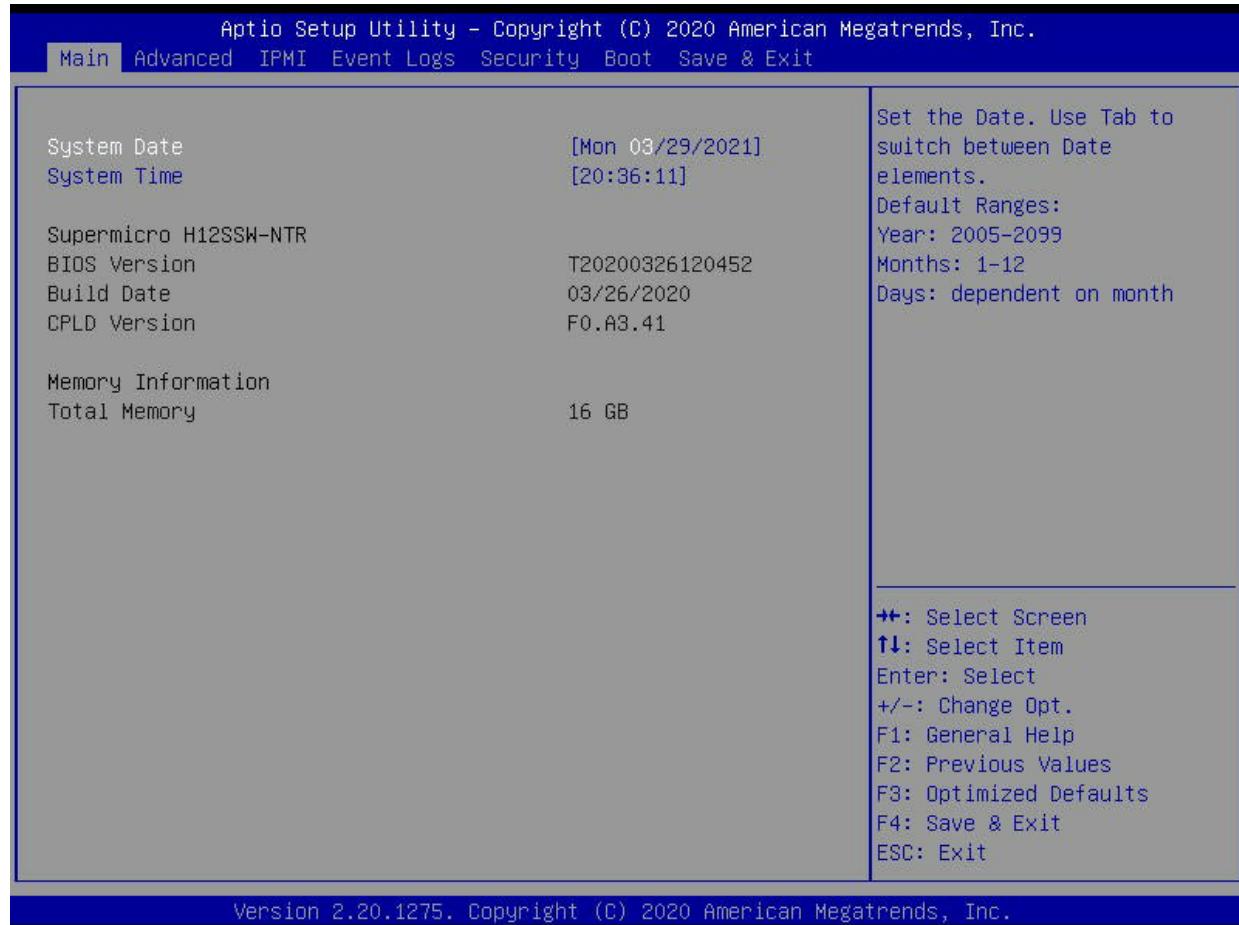
The Main BIOS screen has two main frames. The left frame displays all the options that can be configured. “Grayed-out” options cannot be configured. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is 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>**, **<F2>**, **<F3>**, **<Enter>**, **<ESC>**, **<Arrow>** keys, etc.) can be used at any time during the setup navigation process.

## 6.2 Main Setup

When you first enter the AMI BIOS setup utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab on the top of the screen. The Main BIOS setup screen is shown below. The following Main menu items 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 01/01/2015 after RTC reset.

### Supermicro H12SSW-NTR

#### BIOS Version

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

**Build Date**

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

**CPLD Version**

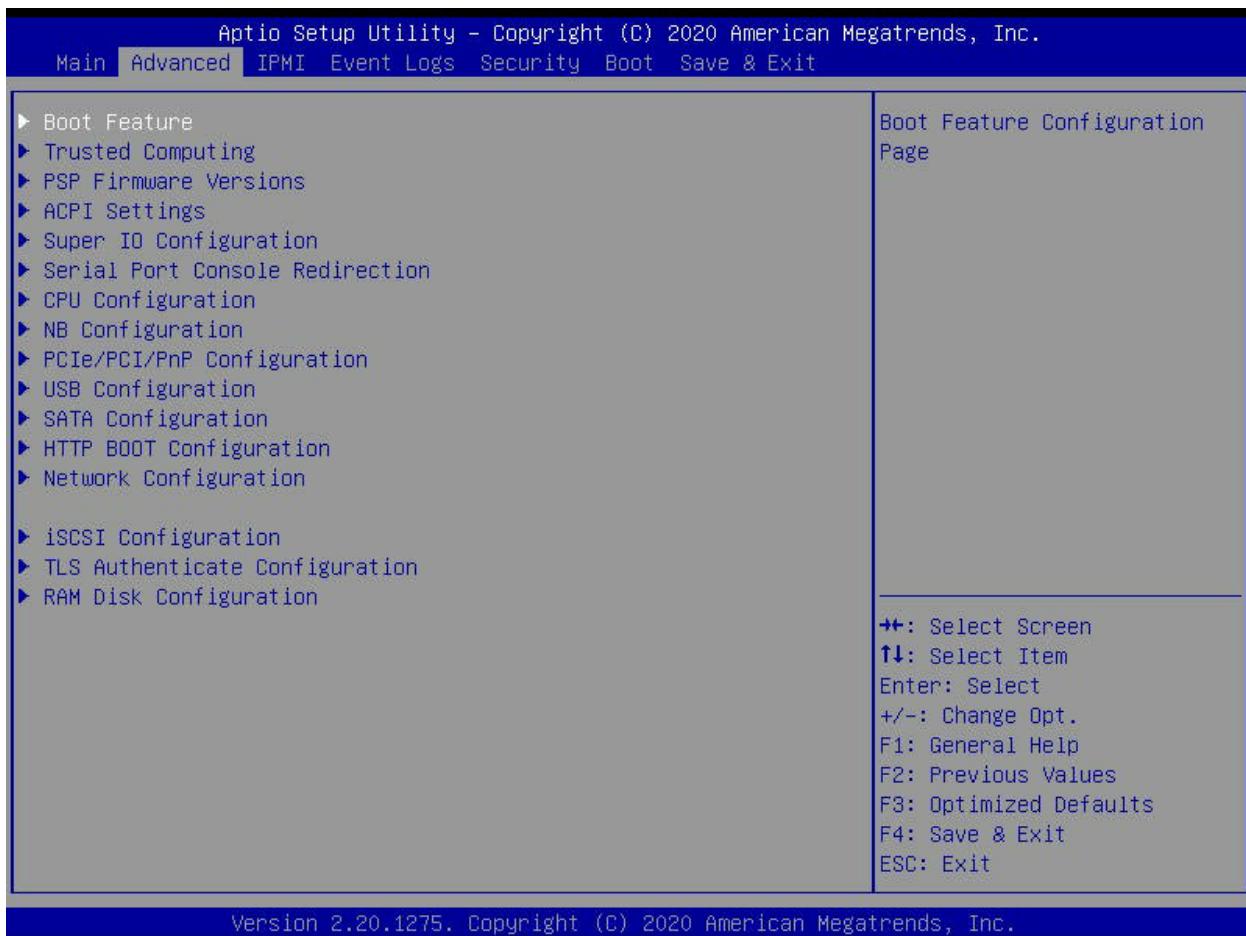
This item displays the CPLD version of the BIOS ROM used in the system.

**Memory Information****Total Memory**

This feature displays the total system memory detected.

## 6.3 Advanced

Use the arrow keys to select a top item and press <Enter> to access the submenu items.



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

### ►Boot Feature

#### Quiet Boot

Use this feature to select the screen display between the POST messages and the OEM logo upon 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 **On** and Off.

### **Wait For "F1" If Error**

Use this feature to force 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**.

### **Power Configuration**

#### **Watch Dog Function**

If enabled, the Watch Dog Timer will allow the system to reset or generate NMI based on jumper settings when it is expired for more than 5 minutes. The options are **Disabled** and **Enabled**.

#### **Restore on AC Power Loss**

Use this feature to set the power state after a power outage. Select **Stay-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**.

#### **Power Button Function**

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

## ►Trusted Computing

### Security Device Support

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

## ►PSP Firmware Versions

This section displays the Platform Security Processor (PSP) firmware versions.

### PSP Directory Level 1 (Fixed)

- PSP Recovery BL Ver
- SMU FW Version
- ABL Version

### PSP Directory Level 2 (Updateable)

- PSP Bootloader Version
- SMU FW Version
- ABL Version

## ► ACPI Settings

### PCI AER Support

Use this setting to enable/disable PCI AER Support. The options are Disabled and **Enabled**.

### High Precision Event Timer

The High Precision Event Timer (HPET) can produce periodic interrupts and is used to synchronize multimedia streams, providing smooth playback and reducing the need to use other timestamp calculations. The options are **Enabled** and Disabled.

### NUMA Nodes Per Socket

This feature specifies the number of desired Non-Uniform Memory Access (NUMA) nodes per socket. Setting this to zero will attempt to interleave the two sockets together. The options are NPS0, NPS1, NPS2, NPS4 and **Auto**.

### ACPI SRAT L3 Cache As NUMA Domain

Use this setting to enable/disable ACPI SRAT L3 Cache As NUMA Domain. The options are Disabled, Enabled and **Auto**.

## ►Super IO Configuration

The following Super IO information will display:

- Super IO Chip AST2500

## ►Serial Port 1 Configuration

### Serial Port

Select Enabled to enable the selected onboard serial port. The options are **Disabled** and **Enabled**.

### Device Settings

This item displays the status of a serial part specified by the user.

### Change Settings

This feature specifies the base I/O port address and the Interrupt Request address of a serial port specified by the user. Select Auto to allow the BIOS to automatically assign the base I/O and IRQ address. 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;).

## ►SOL Configuration

### Serial Port

Select Enabled to enable the selected onboard serial port. The options are **Disabled** and **Enabled**.

### Change Settings

This feature specifies the base I/O port address and the Interrupt Request address of a serial port specified by the user. Select Auto to allow the BIOS to automatically assign the base I/O and IRQ address. 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 console redirection support for a serial port specified by the user. The options are **Disabled** and **Enabled**.

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

## ►Console Redirection Settings

### 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** and **8**.

### 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 the settings for Function Keys and KeyPad used for Putty, which is a terminal emulator designed for the Windows OS. The options are **VT100**, **LINUX**, **XTERM**, **SC0**, **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 enable SOL console redirection support for a serial port specified by the user. The options are **Disabled** and **Enabled**.

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

## **►Console Redirection Settings**

### **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** and **8**.

### **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 the settings for Function Keys and KeyPad used for Putty, which is a terminal emulator designed for the Windows OS. The options are **VT100**, **LINUX**, **XTERM**, **SC0**, **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

### ► Legacy Console Redirection Settings

#### Redirection COM Port

For this setting, select a COM port to display redirection of Legacy OS and Legacy OPROM messages. Options include **COM1** and **SOL**.

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

#### Console Redirection

Select Enabled to enable EMS console redirection support for a serial port specified by the user. The options are **Enabled** and **Disabled**.

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

### ► Console Redirection Settings

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

### Data Bits

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

### 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**.

## ►CPU Configuration

### SMT Control

Use this setting to specify Simultaneous Multithreading. The options are **Disabled** and **Auto**.

### Core Performance Boost

This setting is used to configure for Core Performance Boost. Options include **Disabled** and **Auto**.

### Global C-state Control

This setting is used to configure for Global C-state Control. Options include **Disabled**, **Enabled**, and **Auto**.

### Local APIC Mode

This setting is used for Local APIC Mode. The options include **xAPIC**, **x2APIC**, and **Auto**.

### CCT Control

This setting is used for CCT Control. The options include **Auto**, **2 CCDS**, **3 CCDS**, **4 CCDS**, and **6 CCDS**.

### Core Control

This setting is used for Core Control. The options include **Auto**, **TWO (1 + 1)**, **FOUR (2 + 2)**, and **SIX (3 + 3)**.

### L1 Stream HW Prefetcher / L2 Stream HW Prefetcher

This setting is used to enable or disable the L1/L2 Stream Hardware Prefetcher. The options are **Disabled**, **Enabled**, and **Auto**.

### SVM Mode

This setting **Enables** or **Disables** CPU Virtualization.

### SMEE

This setting is used to enable or disable secure memory encryption control. The options include **Disabled** and **Enabled**.

## ►CPU Information

These sections are for informational purposes. They will display some details about the detected CPUs on the motherboard, such as:

- CPU Version
- Number of Cores Running
- Processor Family
- Processor Model
- Microcode Patch Level
- L1 Instruction Cache (Size/Method)
- L1 Data Cache (Size/Method)

- L2 Data Cache (Size/Method)
- L3 Cache per Scoket (Size/Method)

## ►NB Configuration

### North Bridge Configuration

#### Determinism Control

Use this setting to configure the Determinism Slider. The options include Manual and **Auto**.

#### cTDP Control

Use this setting to configure the cTDP Control. The options include Manual and **Auto**.

#### IOMMU

Use this setting to enable/disable IOMMU. The options include **Disabled**, Enabled, and Auto.

#### ACS Enable

Use this setting to enable/disable ACS. The options include Enabled, Disabled and **Auto**.

#### Package Power Limit Control

Use this setting to control package power limit. The options include Manual and **Auto**.

#### APBDIS

Use this setting to set APBDIS. The options include 0, 1, and **Auto**.

#### DF Cstates

Use this setting to enable/disable DF Cstates. The options include Disabled, Enabled, and **Auto**.

#### Preferred IO

Use this setting for Preferred IO. The options include Manual and **Auto**.

## ►Memory Configuration

### Memory Clock

This setting allows you to select different memory clock speed. Options include **Auto** and 2666 MHz, 2933 MHz, and 3200 MHz.

### Memory Interleaving

This setting controls fabric level memory interleaving. Note that the channel, die and socket have requirements on memory populations and it will be ignored if the memory doesn't support the selected option. The options are Disabled and **Auto**.

### **Memory Interleaving Size**

This setting controls the memory interleaving size. This determines the starting address of the interleave (bit 8, 9, 10 or 11). The options are 256 Bytes, 512 Bytes, 1 KB, 2 KB or **Auto**.

### **Chipset Interleaving**

This setting controls interleave memory blocks across the DRAM chip for node 0. The options are **Disabled** and **Auto**.

### **BankGroupSwap**

This setting controls the Bank Group Swap. The options are **Enabled**, **Disabled** and **Auto**.

### **DRAM Scrub Time**

This setting provides a value that is the number of hours to scrub memory. The options are **Disabled**, 1 hour, 4 hours, 8 hours, 16 hours, 24 hours, 48 hours, and **Auto**.

## **►CPU1 Memory Information**

These sections are for informational purposes. They will display some details about the detected memory according to each CPU on the motherboard, such as:

- Detected Size (per slot, in MB)
- Current Speed (MT/s)

## **►PCIe/PCI/PnP Configuration**

This menu provides PCIe/PCI/PnP configuration settings and information.

### **PCI Bus Driver Version**

### **PCI Devcies Common Settings:**

#### **Above 4G Decoding**

This setting **Disables** or **Enables** 64-bit capable devices ability to be decoded in above 4G address space (only if the system supports 64-bit PCI decoding).

#### **SR-IOV Support**

If the system has SR-IOV capable PCIe devices, this setting will **Disable** or **Enable** the Single Root IO Virtualization Support for the system.

#### **BME DMA Mitigatioin**

Use this setting to re-enable the Bus Master Attribute that was disabled during PCI enumeration for PCI bridges after SMM is locked. The options are **Disabled** and **Enabled**.

### PCIe ARI Support

Use this setting to enable/disable Alternative Routing-ID Interpretation (ARI). The options are **Disabled**, **Enabled** and **Auto**.

### PCIe Spread Spectrum

Use this setting to **Disable** or **Enable** PCIe Spread Spectrum for your system.

### Target Link Speed

If supported by hardware and set to Force to x.S GT/S (x being a value of 2.5, 5.0 or 8.0) for Downstream Ports, this sets an upper limit on Link Operational Speed by restricting the values advertised by the UPstream component in its training sequences. When **Auto** is selected, the HW initialized data will be used.

### VGA Priority

Use this setting to select between onboard or offboard VGA support. The options are **Onboard** and **Offboard**

### NVMe Firmware Source

Use this setting to select between the AMI Native firmware support or the device vendor-defined firmware support. The options are **Vendor Defined Firmware** and AMI Native Support.

### M.2 (AHCI) Firmware Source

Use this setting to select between the AMI Native firmware support or the device vendor-defined firmware support. The options are **Vendor Defined Firmware** and AMI Native Support.

### NVME8/9 SATA0-7

This setting is used for NVME8/9 SATA0-7. The options are **Auto**, NVME, and SATA.

### NVME12/13 SATA8-15

This setting is used for NVME12/13 SATA8-15. The options are **Auto**, NVME, and SATA.

#### M.2-C1 PCIe 4.0 X2 OPROM

#### M.2-C2 PCIe 4.0 X2 OPROM

This setting enables or disables the listed PCIe Slot OPROM option. The options are **Disabled**, **Legacy** or **EFI**.

### Onboard LAN1 Option ROM

Use this setting to select which option ROM is to be loaded for onboard LAN1 on the system. Options include **Disabled**, **Legacy** and **EFI**.

### Onboard LAN2 Option ROM

Use this setting to select which firmware function is to be loaded for onboard LAN2 on the system. The options include **Disabled** and **PXE**.

### Onboard Video Option ROM

Use this setting to select which firmware function is to be loaded for onboard LAN2 on the system. The options include **Disabled**, **Legacy** and **EFI**.

## ►Network Stack Configuration

### Network Stack

This setting allows you to **Disable** or **Enable** the UEFI Network Stack.

### IPv4 PXE Support

This setting allows you to **Disable** or **Enable** IPv4 PXE boot support. If disabled, IPv4 PXE boot support will not be available.

### IPv4 HTTP Support

This setting allows you to **Disable** or **Enable** IPv4 HTTP boot support. If disabled, IPv4 HTTP boot support will not be available.

### IPv6 PXE Support

This setting allows you to **Disable** or **Enable** IPv6 PXE boot support. If disabled, IPv6 PXE boot support will not be available.

### IPv6 HTTP Support

This setting allows you to **Disable** or **Enable** IPv6 HTTP boot support. If disabled, IPv6 HTTP boot support will not be available.

### PXE Boot Wait Time

This setting allows you to set in a number field the wait time to press the ESC key to abort the PXE boot. Default is **0**.

### Media Detect Count

This setting allows you set in a number field the number of times presence of media will be checked. Default is **1**.

## ►USB Configuration

### Legacy USB Support

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

### XHCI Hand-Off

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

### USB Mass Storage Driver Support

This setting will enable or disable support for USB mass storage drivers. The options are **Enabled**, and **Disabled**.

### Port 60/64 Emulation

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

## ►SATA Configuration

This section displays the detected SATA devices installed on the system.

### ►ASMedia SATA Controller

This setting enables or disables the on chip SATA controller. The options are **Enabled**, **Disabled** or **Auto**.

### Hot Plug

This setting enables or disables the on chip SATA hot plug feature. The options are **Enabled**, **Disabled**.

### ASPM Support

This setting enables or disables the ASPM (Active State Power Management) feature. The options are **Enabled**, **Disabled**.

## ►ASMedia SATA Information

This section displays information on the detected ASMedia SATA devices:

- SATA Mode

### SATA Configuration

#### SATA Enable

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

#### SATA Hotplug

This item enables or disables the onboard SATA controller's hot plug feature (PCH). The options are **Enabled** and **Disabled**.

#### SATA Information

This item displays information on the detected SATA devices connected and are detected.

## ►HTTP Boot Configuration

### HTTP Boot One Time

When the HTTP boot option is created, this option when enabled, will allow the system to boot via HTTP the first time and revert to the default boot after. The options are **Enabled** and **Disabled**.

#### Input Description

This option is an input field that, when the HTTP boot option is created, can be used to enter text to describe or identify the HTTP connection.

#### Boot URI

This option is an input field used to enter a web or network address to point to the HTTP boot files. This supports the HTTP or HTTPS protocols only.

## ►Network Configuration

***\*\*Available when EFI is selected in LAN OPROM after reboot.***

### VLAN Configuration (LAN1 and LAN2)

## ►Enter Configuration Menu

### Create New VLAN

#### VLAN ID

This option is an input field used to enter a unique numeric VLAN ID. The valid range is from 0~4096.

#### Priority

This option is an input field used to enter a unique numeric VLAN 802.1Q priority. The valid range is from 0~7.

#### Add VLAN

Click this option to create the new VLAN.

#### Configuration VLAN List

#### Remove VLAN

Click this option to remove an existing VLAN.

### IPv4 Network Configuration

#### Configure

Select Enabled to activate IPv4 network configuration. The options are Enabled and **Disabled**.

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

#### Enable DHCP

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

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

#### Local IP Address

This item sets and displays the Local IP address for this computer. This should be in decimal and in dotted quad form.

#### Local Net Mask

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

### Local Gateway

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

### Local DNS

This item sets the address for the local DNS servers for this computer. This should be in decimal and in dotted quad form (i.e., 172.31.0.1).

### Save Changes and Exit

Click this to save the changes above.

## IPV6 Network Configuration

This section displays configuration features for IPV6 support.

### IPV6 Support

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

### Configuration Address Source

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

***\*If the item "Configuration Address Source" above is set to Static, the following items will become available for configuration:***

- Station IPV6 Address
- Prefix Length
- IPV6 Router1 IP Address

## ►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 items.

#### ►Add an Attempt

#### ►Delete Attempts

**►Change Attempt Order****►TLS Authentication Configuration**

This submenu allows the user to configure Transport Layer Security (TLS) settings.

**►Server CA Configuration****►Enroll Certification****►Enroll Certification Using File**

Use this feature to enroll certification from a file.

**Certification GUID**

Use this feature to input the certification GUID.

**►Commit Changes and Exit**

Use this feature to save all changes and exit TLS settings.

**►Discard Changes and Exit**

Use this feature to discard all changes and exit TLS settings.

**Certification GUID****►Commit Changes and Exit**

Use this feature to save all changes and exit TLS settings.

**►Discard Changes and Exit**

Use this feature to discard all changes and exit TLS settings.

**►Delete Certification**

Use this feature to delete certification. The options are **Disabled** and **Enabled**.

**►RAM Disk Configuration**

This feature allows the user to configure the settings for the RAM disks installed in the system. When you select this submenu and press <Enter>, the following items will display:

- Disk Memory Type: This feature specifies the type of memory that is available for you to create a RAM disk. The options are **Boot Service Data** and **Reserved**.

## ►Create raw

This feature allows the user to create a raw RAM disk from all available memory modules in the system. When you select this submenu and press <Enter>, the following items will display:

- **Size (Hex):** Use this feature to set the size of the raw RAM disk. The default setting is 1.
- **Create & Exit:** Select this feature when you want to exit from this submenu after you've created a raw RAM disk.
- **Discard & Exit:** Select this feature when you want to abandon the changes you've made and to exit from the submenu.

## ►Create from file

This feature allows the user to create a RAM disk from a file specified by the user. Select this submenu and press <Enter>, the following items will display:

- **Create RAM Disk List:** Use this feature to create a RAM disk list.
- **Remove Selected RAM Disk(s):** Use this feature to delete the RAM disk(s) specified by the user.

## 6.4 IPMI

This tab allows you to configure the following IPMI settings for the system.



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

### BMC Firmware Revision

This item indicates the IPMI firmware revision used in your system.

### IPMI Status (Baseboard Management Controller)

This item 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 **Enabled** and **Disabled**.

## Erasing Settings

### Erase SEL

Select Yes, On next reset to erase all system event logs upon next system reboot. Select Yes, On every reset to erase all system event logs upon 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 decide 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

#### Update IPMI LAN Configuration

Select Yes to enable BMC Network Configuration.

#### IPMI LAN Selection

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

#### IPMI Network Link Status

This item displays the IPMI Network Link status. The default setting is **Shared 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 item above is set to Yes, the following item will become available for configuration:**

#### Configuration Address Source

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

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

**Station IP Address**

This item displays the Station IP address for this computer. This should be in decimal and in dotted quad form.

**Subnet Mask**

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

**Station MAC Address**

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

**Gateway IP Address**

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

**VLAN**

This item displays the virtual LAN settings. The options are Disable and Enable.

**Configure IPV6 Support**

This section displays configuration features for IPV6 support.

**IPV6 Support**

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

**Configuration Address Source**

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

***\*If the item "Configuration Address Source" above is set to Static, the following items will become available for configuration:***

- Station IPV6 Address
- Prefix Length
- IPV6 Router1 IP Address

## 6.5 Event Logs

This tab allows the user to configure the following event logs settings for the system.



### ►Change SMBIOS Event Log Settings

This feature allows the user to configure SMBIOS Event settings.

#### Enabling/Disabling Options

##### SMBIOS Event Log

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

#### Erasing Settings

##### Erase Event Log

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

### **MECI (Multiple Event Count Increment)**

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

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

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

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

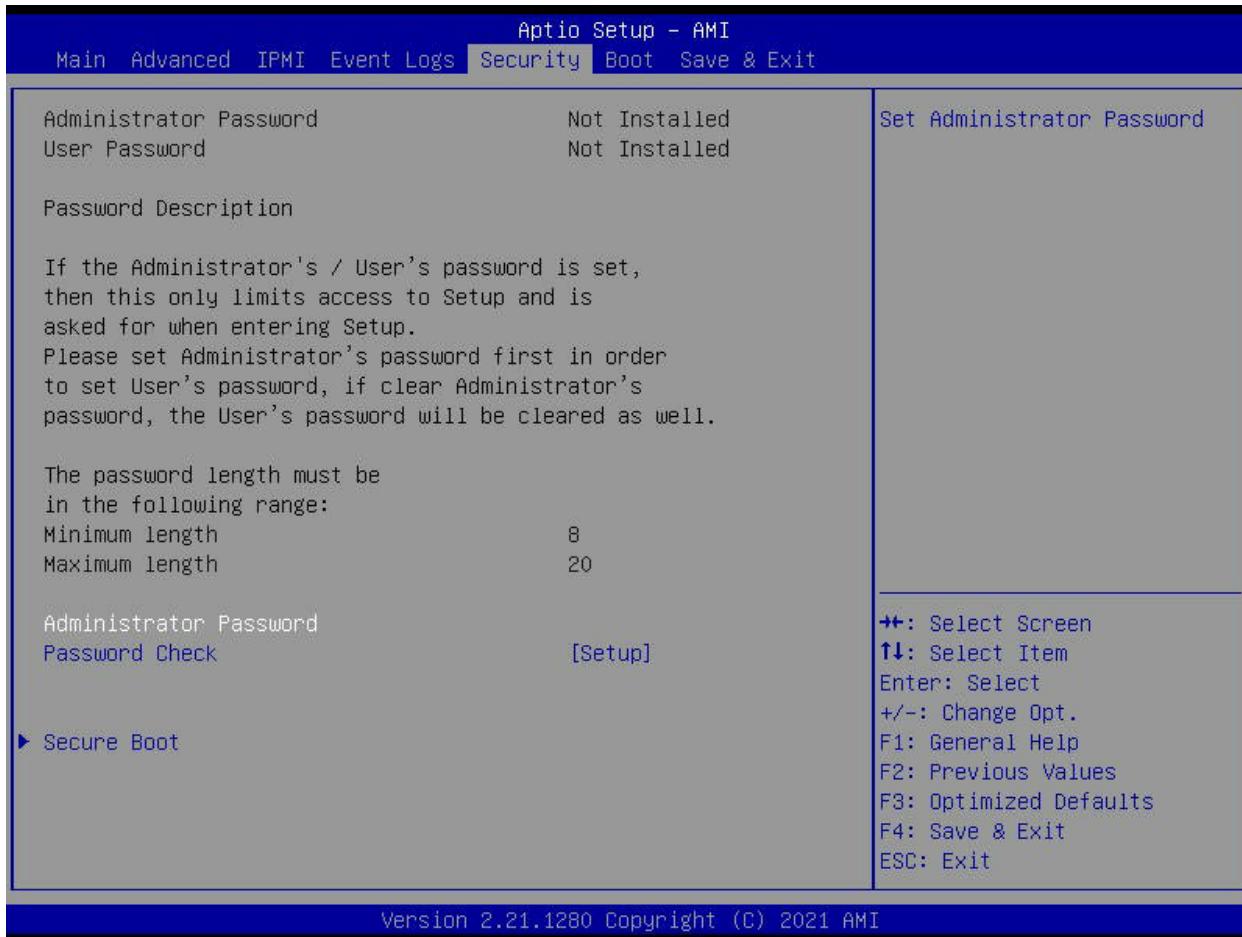
## **►View SMBIOS Event Log**

When Event Logging is on, this item allows the user to view the entries in the SMBIOS event log. The following categories are displayed:

### **Date/Time/Error Code/Severity**

## 6.6 Security

This tab allows you to configure the following security settings for the system.



### Administrator Password

Press Enter to create a new, or change an existing Administrator password. Note that if the Administrator Password is erased, the User Password will be cleared as well.

### 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

This section contains options and menus for securing your boot mode and for key management.

#### Secure Boot

This option allows you specify when the Platform Key (PK) is enrolled. When enabled, the System Mode is user deployed, and the CSM function is disabled. Options include **Disabled** and **Enabled** .

### **Secure Boot Mode**

Use this item to select the secure boot mode. The options are **Standard** and **Custom**.

### **CSM Support**

Select Enabled to support the EFI Compatibility Support Module (CSM), which provides compatibility support for traditional legacy BIOS for system boot. The options are **Disabled** and **Enabled**.

## **►Key Management**

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

### **Vendor Keys**

#### **Provision Factory Defaults**

This feature is to provision the default secure boot keys set by the manufacturer when system is in the Setup mode. The options are **Disabled** and **Enabled**.

#### **►Restore Factory Keys**

Select and press Yes to restore factory default secure boot keys and key variables. Also, it will reset the system to the User mode. The options are **Yes** and **No**.

#### **►Reset To Setup Mode (available when the System Mode is in User mode)**

Select and press Yes to clear all secure boot variables and reset the system to the Setup mode. The options are **Yes** and **No**.

#### **►Export Secure Boot variables**

Use this feature to export NVRAM content of secure boot variables to files in a root folder on a file system device.

#### **►Enroll EFI Image**

This feature is to enroll SHA256 hash of the binary into the Authorized Signature Database (DB) and to allow the image to run in the secure boot mode.

#### **Device Guard Ready**

#### **►Remove 'UEFI CA' from DB (available when the system is not in Device Guard Ready)**

Select and press Yes to remove Microsoft UEFI CA certificate from the DB. The options are **Yes** and **No**.

### ► **Restore DB defaults**

Select and press Yes to restore the DB variables to factory defaults. The options are **Yes** and No.

### ► **Platform Key (PK)**

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

#### **Set New Key**

Select Yes to load the new platform keys (PK) from the manufacturer's defaults. Select No to load the platform keys from a file. The options are **Yes** and No.

#### **Provision Factory Default Keys**

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

### ► **Key Exchange Keys**

#### **Set New Key**

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

#### **Append Key**

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.

### ► **Authorized Signatures**

#### **Set New Key**

Select Yes to load the database from the manufacturer's defaults. Select No to load the DB from a file. The options are Yes and No.

#### **Append Key**

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

### ► **Forbidden Signatures**

#### **Set New Key**

Select Yes to load the DBX from the manufacturer's defaults. Select No to load the DBX from a file. The options are Yes and No.

#### **Append Key**

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

## ►Authorized TimeStamps

### **Set New Key**

Select Yes to load the DBT from the manufacturer's defaults. Select No to load the DBT from a file. The options are Yes and No.

### **Append Key**

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.

## ►OsRecovery Signature

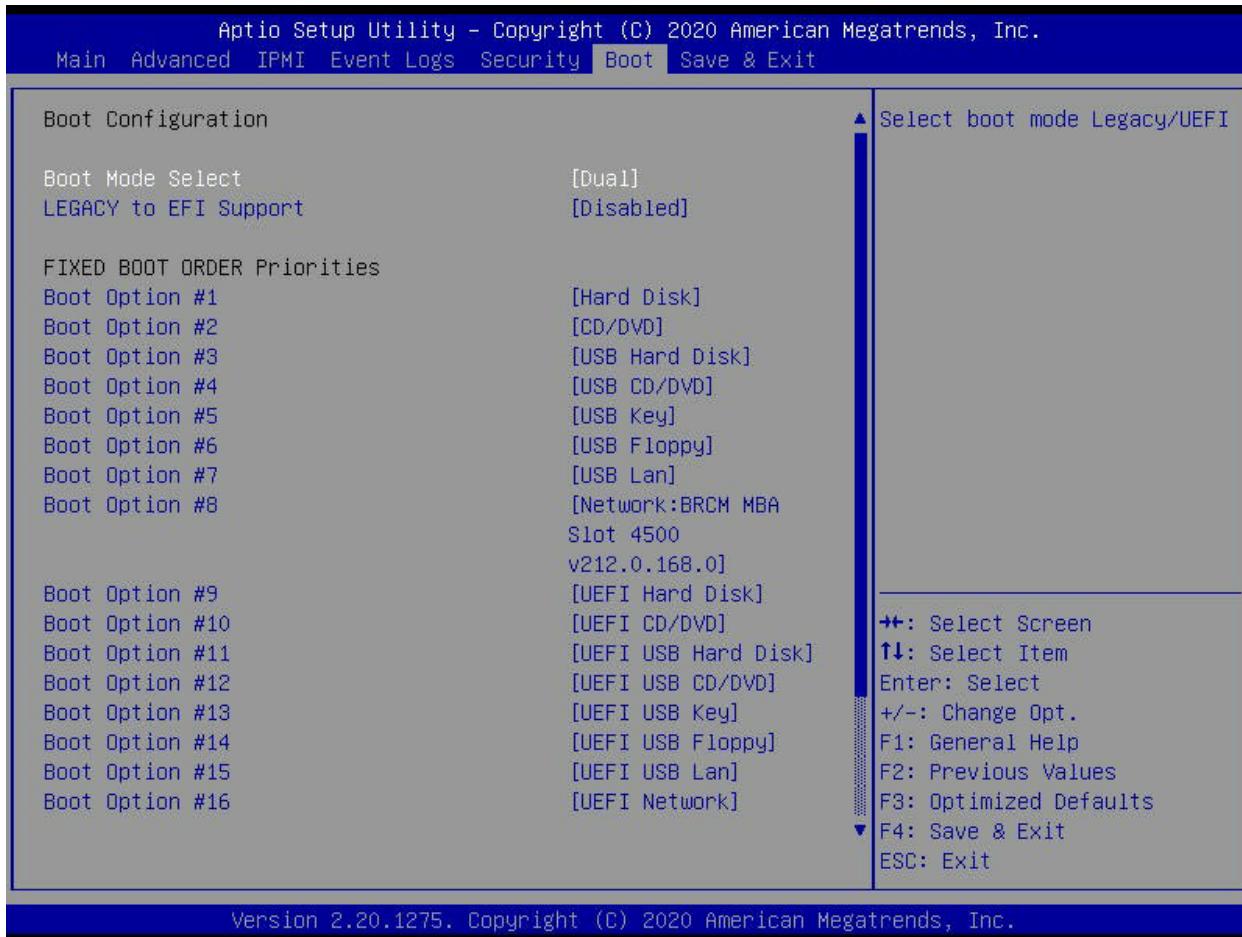
This item uploads and installs an OSRecovery Signature. You may select options for Update for a factory default key, or select Append to get it from a file. The file formats accepted are:

- 1) Public Key Certificate
  - a. EFI Signature List
  - b. EFI CERT X509 (DER Encoded)
  - c. EFI CERT RSA2048 (bin)
  - d. EFI SERT SHA256 (bin)
- 2) EFI Time Based Authenticated Variable

When prompted, select "Yes" to load Factory Defaults or "No" to load from a file.

## 6.7 Boot

Use this tab to configure Boot Settings:



### Boot Mode Select

Use this item to select the type of device that the system is going to boot from. The options are **LEGACY**, **UEFI**, and **DUAL**. The default setting is **DUAL**.

### Legacy to EFI Support

This option **Enables** or **Disables** the system to boot to an EFI OS after the boot failed from the legacy boot order.

### 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.

### ►Delete Boot Option

Use this feature to remove a pre-defined boot device from which the system will boot during startup. The settings are [any pre-defined boot device].

### ►UEFI Application Boot Priorities

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

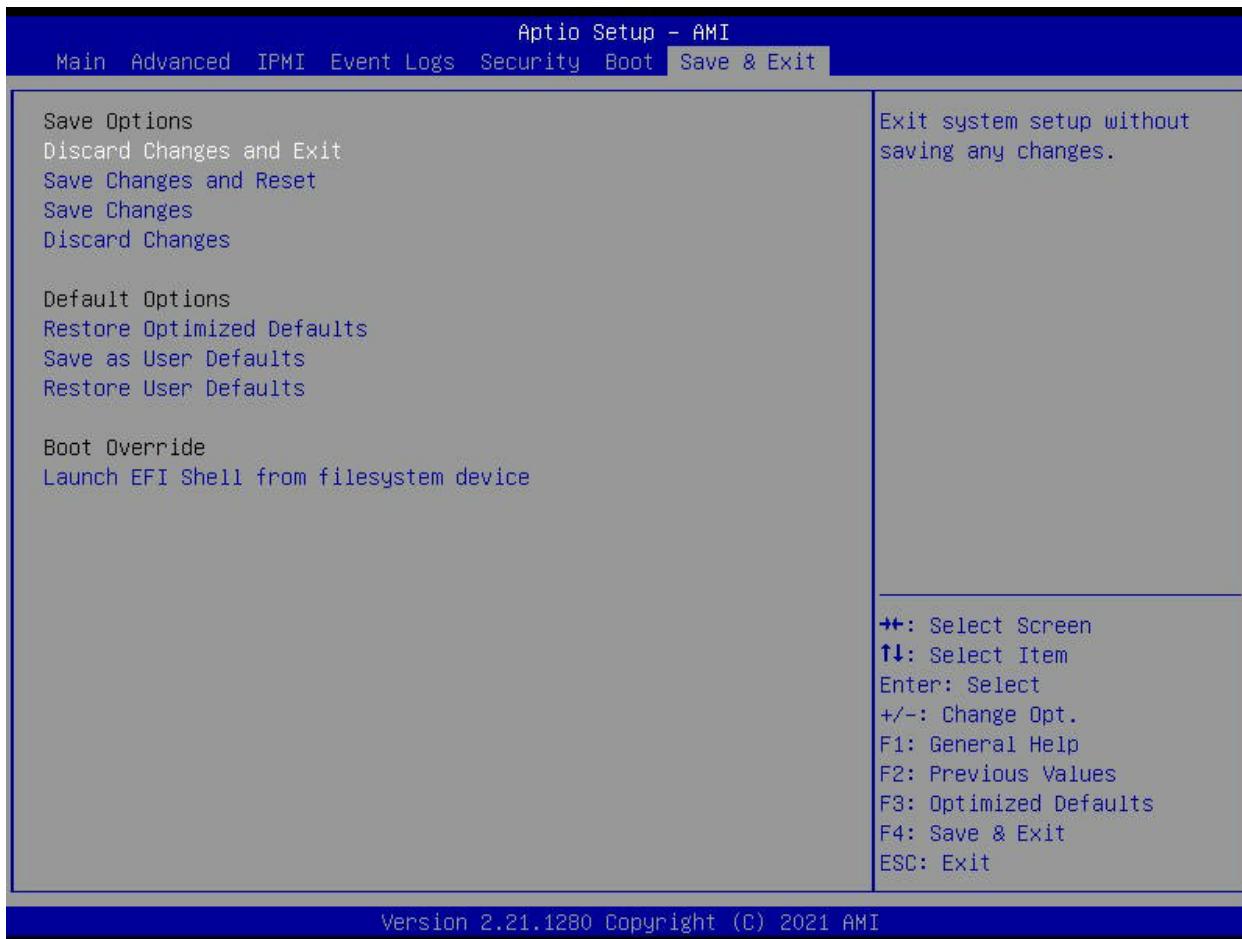
- UEFI Boot Order #1

### ►NETWORK Drive BBS Priorities

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

## 6.8 Save & Exit

Select the Save & Exit tab to enter the Save & Exit BIOS Setup screen.



### 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

Select this option to reset the system after saving the changes.

#### Save Changes

After completing the system configuration changes, select this option to save the changes you have 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 Optimized Defaults**

To set this feature, select Restore Defaults from the Save & Exit menu and press <Enter>. These are factory settings designed for maximum system stability, but not for maximum performance.

#### **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 Section**

Listed on this section are other boot options for the system (i.e., Built-in EFI shell). Select an option and press <Enter>. Your system will boot to the selected boot option.

## Appendix A

# Standardized Warning Statements for AC Systems

### About Standardized Warning Statements

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

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

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

### Warning Definition



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

警告の定義

この警告サインは危険を意味します。

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

此警告符号代表危险。

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

此警告符号代表危險。

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

## Warnung

### WICHTIGE SICHERHEITSHINWEISE

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

**BEWAHREN SIE DIESE HINWEISE GUT AUF.**

### INSTRUCCIONES IMPORTANTES DE SEGURIDAD

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

**GUARDE ESTAS INSTRUCCIONES.**

### IMPORTANTES INFORMATIONS DE SÉCURITÉ

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

**CONSERVEZ CES INFORMATIONS.**

תקנון הצהרות אזהרה

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

اًك ف حالة وُكي أي تتسبب ف اصابة جسد هـ هذا الزهز عـ خطز! تحد زـ .  
قبل أي تغول على أي هعذات،كي على علن بالوخطاطر الْأَجْوَةِ عي الذوائز  
الكهربائيه هـ

وَكَيْ عَلَى دَرَّةٍ بِالْوَوَارِسَاتِ الْقَائِمَةِ لَوْ عُوقَبَ أَيْ حِادَثٍ  
اسْتَعْذُمُ رَقْنَ الْبَأْيِ الْوَصُّصِ فَهَاهُ كُلُّ تَحْذِيرٍ لِلْعَشْرِ تَزْجُوْهَا

## 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 벅역문을 찾기 위해 각 경고의 마지막 부분에 제공된 경고문 번호를 참조하십시오.

## BELANGRIJKE VEILIGHEIDSINSTRUCTIES

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

## BEWAAR DEZE INSTRUCTIES

## Installation Instructions



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

## 設置手順書

システムを電源に接続する前に、設置手順書をお読み下さい。

## 警告

将此系统连接电源前,请先阅读安装说明。

## 警告

將系統與電源連接前，請先閱讀安裝說明。

### Warnung

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

### ¡Advertencia!

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

### Attention

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

יש לקרוא את הוראות התקינה לפני חיבור המערכת למקור מתח.

اقر إرشادات التركيب قبل توصيل النظام إلى مصدر للطاقة

시스템을 전원에 연결하기 전에 설치 안내를 읽어주십시오.

### Waarschuwing

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

## Circuit Breaker



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

### サーキット・ブレーカー

この製品は、短絡(過電流)保護装置がある建物での設置を前提としています。

保護装置の定格が250 V、20 Aを超えないことを確認下さい。

### 警告

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

### 警告

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

### Warnung

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

### ¡Advertencia!

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

### Attention

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

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

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

### 경고!

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

### Waarschuwing

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

## Power Disconnection Warning



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



### 電源切断の警告

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

### 警告

在你打开机箱并安装或移除内部器件前,必须将系统完全断电,并移除电源线。

### 警告

在您打開機殼安裝或移除內部元件前，必須將系統完全斷電，並移除電源線。

### Warnung

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

### ¡Advertencia!

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

### Attention

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

ازהרה מפני ניתוק חשמלי

ازהרה!

יש לנתק את המערכת מכל מקורות החשמל וייש להסיר את כבל החשמלי מהספק.  
לפניהם יש להסיר את המארז לצורכי התקנת או הסרת רכיבים.

يجب فصل جميع مصادر انطاقت وإزالت سلك انكهرباء من وحدة امداد  
انطاقت قبم

انصل إلى إمدادات الطاقة الداخلية نهيك عن تشريح أو إزالت مكونات 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, להחליפּ את הציוד או לחת שירות עבור הציוד.

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

### 경고!

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

### Waarschuwing

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

## Restricted Area



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

### アクセス制限区域

このユニットは、アクセス制限区域に設置されることを想定しています。

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

### 警告

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

### 警告

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

### Warnung

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

### ¡Advertencia!

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

### Attention

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

אזור עם גישה מוגבלת  
ゾーンに制限されたアクセスがあります

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

تحصيص هذه единице ترك بها في مناطق ممنوعة .  
يمكن التنصيب في مناطق ممنوعة فقط من خلال استخدام أدوات خاصة  
أو أوس هُت أخرى نلاًاما قفل و مفتاح

### 경고!

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

### Waarschuwing

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

## Battery Handling



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

### 電池の取り扱い

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

### 警告

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

### 警告

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

### Warnung

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

### Attention

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

### ¡Advertencia!

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

### אזהרה!

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

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

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

경고!

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

Waarschuwing

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

## Redundant Power Supplies



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

冗長電源装置

このユニットは複数の電源装置が接続されている場合があります。

ユニットの電源を切るためには、すべての接続を取り外さなければなりません。

警告

此部件连接的电源可能不止一个，必须将所有电源断开才能停止给该部件供电。

警告

此裝置連接的電源可能不只一個，必須切斷所有電源才能停止對該裝置的供電。

Warnung

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

**¡Advertencia!**

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

**Attention**

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

אם קיים יותר מספק אחד  
אוורה!

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

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

**경고!**

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

**Waarschuwing**

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

## Backplane Voltage



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

バックプレーンの電圧

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

修理する際には注意ください。

警告

当系统正在进行时，背板上有很危险的电压或能量，进行维修时务必小心。

警告

當系統正在進行時，背板上有危險的電壓或能量，進行維修時務必小心。

Warnung

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

¡Advertencia!

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

Attention

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

מתה בפנל האחורי

אוּהָרָה!

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

هناك خطر مه التيار الكهربائي أو الطاقة المبذدة على اللحمة  
عندما يكن النظام يعمل كه حذرا عند خدمة هذا الجهاز

경고!

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

Waarschuwing

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

## Comply with Local and National Electrical Codes



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

地方および国の電気規格に準拠

機器の取り付けはその地方および国の電気規格に準拠する必要があります。

警告

设备安装必须符合本地与本国电气法规。

警告

設備安裝必須符合本地與本國電氣法規。

Warnung

Die Installation der Geräte muss den Sicherheitsstandards entsprechen.

¡Advertencia!

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

Attention

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

תיאום חוקי החשמל הארצי

אוורה!

התקנת הציוד חייבת להיות توואמת לחוקי החשמל המקומיים והלאומיים.

تركيب المعدات الكهربائية يجب أن يمتثل للقوانين المحلية والدولية المتعلقة بالكهرباء.

경고!

현 지역 및 국가의 전기 규정에 따라 장비를 설치해야 합니다.

#### Waarschuwing

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

## Product Disposal



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

製品の廃棄

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

警告

本产品的废弃处理应根据所有国家的法律和规章进行。

警告

本產品的廢棄處理應根據所有國家的法律和規章進行。

Warnung

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

¡Advertencia!

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

## Attention

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

סילוק המוצר

ازהרה!

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

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

경고!

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

## Waarschuwing

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

## Hot Swap Fan Warning



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

## ファン・ホットスワップの警告

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

## 警告!

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

## 警告

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

### Warnung

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

### ¡Advertencia!

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

### Attention

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

### אזהרה!

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

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

### 경고!

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

### Waarschuwing

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

## Power Cable and AC Adapter



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

### 電源コードとACアダプター

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

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

### 警告

安装此产品时,请使用本身提供的或指定的或采购的连接线,电源线和电源适配器, 包含遵照当地法规和安全要求的合规的电源线尺寸和插头. 使用其它线材或适配器可能会引起故障或火灾。

除了Supermicro所指定的产品,电气用品和材料安全法律规定禁止

使用未经UL或CSA认证的线材。(线材上会显示UL/CSA符号)。

### 警告

安裝此產品時,請使用本身提供的或指定的或採購的連接線,電源線和電源適配器, 包含遵照當地法規和安全要求的合規的電源線尺寸和插頭. 使用其它線材或適配器可能會引起故障或火災。

除了Supermicro所指定的產品,電氣用品和材料安全法律規定禁止

使用未經UL或CSA認證的線材。(線材上會顯示UL/CSA符號)。

### Warnung

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

**¡Advertencia!**

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

**Attention**

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

AC ימאתו סילבך יילבכ  
הרזה!

רוצל ומאותה וא שכרנו רשא AC סימאתמו מיקפו, סילבכ שמתshall שי, רצומה תא מיניקתם רשאכ לבכ שומיש. עקתו לבכה לש הנוכנ הדימ לLOC, תויומקמה תוחיתבה תושירידל ומאותה רשאו, הנקתתה לשחה ירישכמב שומישה י��וחל מאתהב. יילmach רצק וא הלקטל סורגל לולע, רחא גוסם מאטם וא לבכ לש דוק מהילע עיפומ רשאכ) A-Cb ו-AUL -ב סיכמסומה סילבכ שמתshall רוסיא מיק, תוחיתבה י��וחה. דבלב Supermicro י"ע מאותה רשא רצומב קר אלא, רחא יילmach רצום לכ חובע (UL/CSA).

تالب اكلا ءارشب مق وأ ڏددحـمـلـاـ وـأـ ـقـرـفـوـتـمـلـاـ تـالـيـصـوـتـلـاـ مـاـدـخـتـسـابـ مقـ ،ـجـتـنـمـلـاـ بـيـكـرـتـ دـنـعـ  
ـكـلـذـ يـفـ اـمـبـ ئـيـلـحـمـلـاـ قـمـالـسـلـاـ تـابـلـطـتـمـوـ نـيـنـاـوـقـبـ مـاـزـتـلـالـاـ عـمـ دـدـرـتـمـلـاـ رـايـتـلـاـ رـايـتـلـاـ بـيـأـبـرـمـكـلـاـ  
ـقـيـرـحـ وـأـ لـطـعـ يـفـ بـبـسـتـيـ دـقـ ئـرـخـأـ تـالـوـحـمـوـ تـالـبـاـكـ يـأـ مـاـدـخـتـسـاـ.ـمـيـلـسـلـاـ سـبـاـقـلـاوـ لـصـوـمـلـاـ مـجـحـ  
ـوـأـ ULـ لـبـقـ نـمـ ڏـدـمـتـعـمـلـاـ تـالـبـاـكـلـاـ مـاـدـخـتـسـاـ تـادـعـمـلـاوـ ئـيـأـبـرـمـكـلـاـ ڦـرـهـجـأـلـلـ قـمـالـسـلـاـ نـوـنـاـقـ رـظـحـيـ  
ـلـبـقـ نـمـ ڏـدـدـحـمـلـاـ وـأـ ئـيـنـعـمـلـاـ تـاجـتـنـمـلـاـ رـيـغـ ئـرـخـأـ تـادـعـمـ يـأـ عـمـ (UL/CSA)ـ قـمـالـعـ لـمـحـتـ يـتـلـاوـ Supermicroـ.

### 전원 케이블 및 AC 어댑터

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

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

### Stroomkabel en AC-Adapter

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

# Appendix B

## System Specifications

### Processors

Single EPYC 7002/7003 Series processor in an SP3 socket

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

### Chipset

System on Chip chipset

### BIOS

128 Mb SPI AMI® BIOS Flash EEPROM

### Memory

Supports up to 4TB of ECC DDR4 3200MHz RDIMM/LRDIMM/3DS/NVDIMM memory in 16 slots.

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

### SATA Controller

On-chip (System on Chip) controller

### Drive Bays

Twenty-four 2.5" hot-swap drive bays

### PCI Expansion Slots

Two PCIe 4.0 x16 slot (w/ riser RSC-W2-66G4)

Two PCIe 4.0 x8 slot (w/ riser RSC-W2R-88G4)

M.2 Interface: two PCIe 4.0 x2 slots

M.2 Form Factor: 2280, 22110

M.2 Key: M-key

### Motherboard

H12SSW-NTR; Proprietary form factor (13.4 x 12.29 in. / 340 x 312 mm.)

### Chassis

CSE-216BTS-R1K23WBP; 2U Rackmount, (WxHxD) 17.2 x 3.5 x 24.8 in. (437 x 89 x 630 mm)

### System Cooling

Three 8-cm PWM fans

### Power Supply

Model: PWS-1K23A-1R (two power modules for redundancy)

AC Input Voltages: 100-240 VAC

Rated Input Current: 15-12A (100-120VAC) to 8.5-7A (240VAC)

Rated Input Frequency: 50-60 Hz

Rated Output Power: 1200W

Rated Output Voltages: +12V (83A at 100-127VAC, 100A at 200-240VAC), +5Vsb (4A)

### Operating Environment

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

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

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

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

**Regulatory Compliance**

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

**Applied Directives, Standards**

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

Electromagnetic Compatibility Regulations 2016

FCC Part 15 Subpart B

ICES-003

VCCI-CISPR 32

AS/NZS CISPR 32

EN 55032

EN 55035

CISPR 32

CISPR 24/CISPR 35

EN 61000-3-2

EN 61000-3-3

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

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

UL/CSA 62368-1 (USA and Canada)

Electrical Equipment (Safety) Regulations 2016

IEC/GB/EN 62368-1

Environment:

2011/65/EU (RoHS Directive)

EC 1907/2006 (REACH)

2012/19/EU (WEEE Directive)

California Proposition 65

**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 C

## 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. Doing so may cause a boot failure.

### C.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 clean, hands-off control to a computer system at bootup.

### C.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.

### C.3 Recovering the BIOS Block with a USB Device

If the BIOS file is corrupted and the system is not able to boot up, this feature will allow you to recover the BIOS image using a USB-attached device. A USB flash drive or a USB CD/DVD ROM drive may be used for this purpose. Please note that a USB hard disk drive is NOT supported. Follow the procedures on the next page to recover the BIOS.

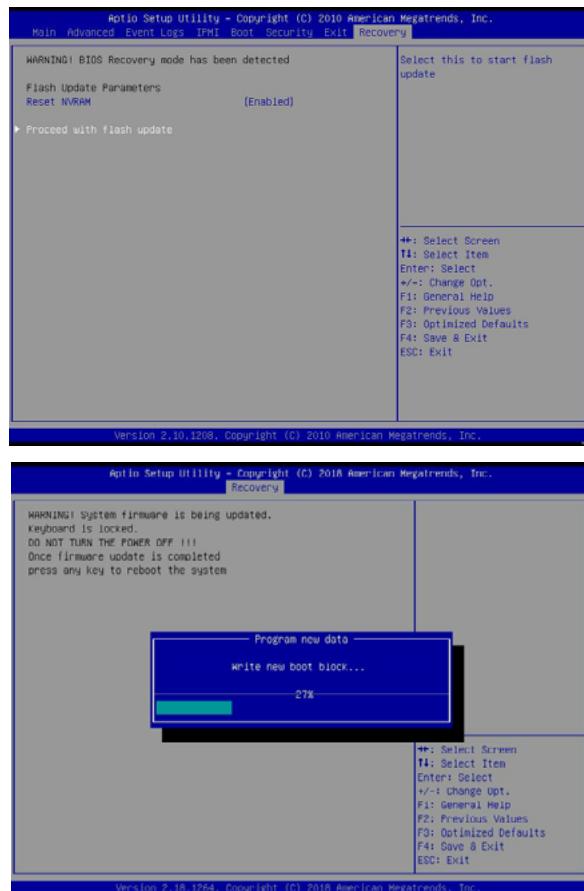
1. Using a different system, copy the standard BIOS binary image file into the root directory of a USB flash drive with FAT16 or FAT32 format and rename the file to SUPER.ROM.

**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 correct BIOS image into a USB flash device and rename it "SUPER.ROM".

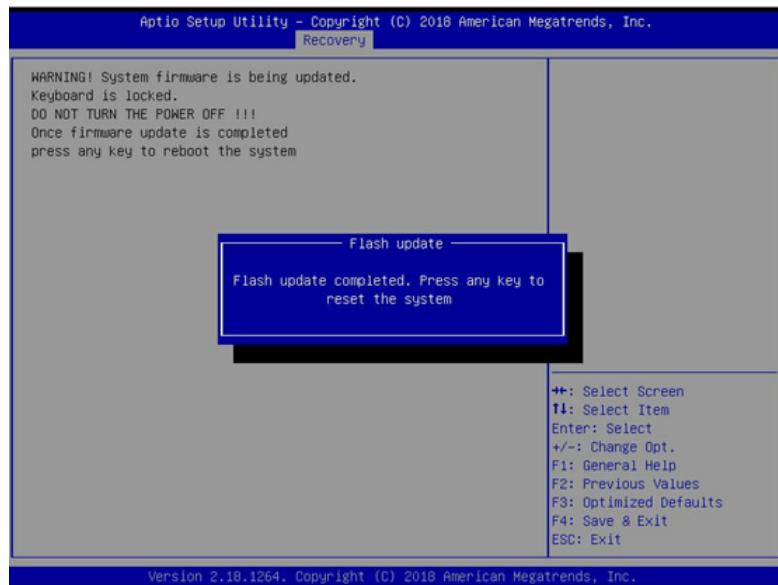
2. While the system is turned off, insert the USB device that contains the new BIOS binary image (SUPER.ROM).
3. Power on the system.



4. After the system is turned on, the system will enter the BIOS Recovery menu. Select "Proceed with flash update" to start the BIOS recovery process. DO NOT INTERRUPT THIS PROCESS UNTIL IT FINISHED!



5. After the Boot Sector Recovery Process is complete, press any key to reboot the system.



#### Notes:

- \* The BIOS recovery (SUPER.ROM) will not work if BIOS has a multi-block crash.
- \* If you have purchased an OOB license, you can do a BIOS flash again through BMC WebGUI or SUM. Please refer to these SUPERMICRO software-related videos:
  - Activate OOB license: [https://www.youtube.com/watch?v=V4spX\\_DOV7I](https://www.youtube.com/watch?v=V4spX_DOV7I)
  - SUPERMICO BIOS Update: <https://www.youtube.com/watch?v=S8z6iOEHGwY>
- \* If the BIOS flash recovery fails, contact our RMA Department to have the BIOS chip reprogrammed. This will require shipping the board to Supermicro for repair.

Submit your RMA request at <https://www.supermicro.com/support/rma>

Please make sure to follow all instructions when returning the motherboard.