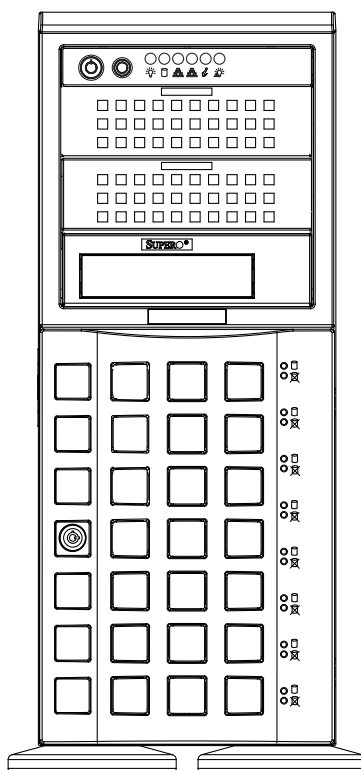# A+ Server
# AS -4023S-TRT

# USER'S MANUAL

Revision 1.0c

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Manual April 09, 2020

Release Date: Revision 1.0c

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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 A+ Server AS -4023S-TRT. Installation and maintenance should be performed by experienced technicians only.

Please refer to the AS -4023S-TRT server specifications page on our website for updates on supported memory, processors and operating systems (http://www.supermicro.com).

## Notes

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

- Supermicro product manuals: http://www.supermicro.com/support/manuals/

- Product drivers and utilities: www.supermicro.com/wftp/driver/AMD/SP3

- Product safety info: http://www.supermicro.com/about/policies/safety_information.cfm

If you have any questions, please contact our support team at:
support@supermicro.com

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

## Secure Data Deletion

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

## Warnings

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

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

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

# Contents

## Chapter 4 Motherboard Connections

## Chapter 5 Software

## Chapter 6 BIOS (EPYC 7001 Series)

## Chapter 7 BIOS (EPYC 7002 Series)

## Appendix A Standardized Warning Statements for AC Systems

## 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 -4023S-TRT. The AS -4023S-TRT is based on the H11DSi-NT motherboard and the SC745BTS-R1K28BP2 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 4U System | SNK-P0063P | 2 |
| 8-cm Rear Exhaust Fans | FAN-0180L4 | 2 |
| 8-cm Mid-Chassis Cooling Fan | FAN-0182L4 | 3 |
| Backplane | BPN-SAS3-743A-N4 | 1 |
| Hot-swap Hard Drive Trays | MCP-220-00092-0B | 8 |
| Air Shroud | MCP-310-49001-0N | 1 |

## 1.2 Unpacking the System

Inspect the box the A+ Server AS -4023S-TRT 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 -4023S-TRT. Please refer to Appendix B for additional specifications.

| System Features |
|---|
| **Motherboard** |
| H11DSi-NT |
| **Chassis** |
| SC745BTS-R1K28BP2 |
| **CPU** |
| Dual EPYC 7001/7002 series processors (AMD EPYC 7002 series drop-in support requires board revision 2.x) |
| **Socket Type** |
| Socket SP3 |
| **Memory** |
| Supports up to 2TB of ECC DDR4-2666 or 4TB of ECC DDR4-3200 RDIMM/LRDIMM/3DS/NVDIMM memory in 16 slots (board revision 2.x required) |
| **Chipset** |
| AMD SoC (System on Chip) |
| **Expansion Slots** |
| Two PCI-E 3.0 x16 slots<br>Three PCI-E 3.0 x8 slots<br>Two internal NVMe ports (PCI-E 3.0 x4)<br>M.2 interface: 1 SATA/PCI-E 3.0 x2<br>M.2 form factor: 2280, 22110<br>M.2 key: M-Key |
| **Hard Drives** |
| Eight 3.5" hot-swap drive bays for SATA3 with optional SAS3/NVMe support |
| **Power** |
| Redundant 1200W hot-swap power supply modules (PWS-1K28P-SQ) |
| **Form Factor** |
| Tower/4U rackmount |
| **Dimensions (as Tower)** |
| WxHxD: 7 x 17.8 x 25.5 in. (178 x 452 x 647 mm) |

# 1.4 Server Chassis Features

## Control Panel

The switches and LEDs located on the control panel are described below. See Chapter 4 for details on the control panel connections.
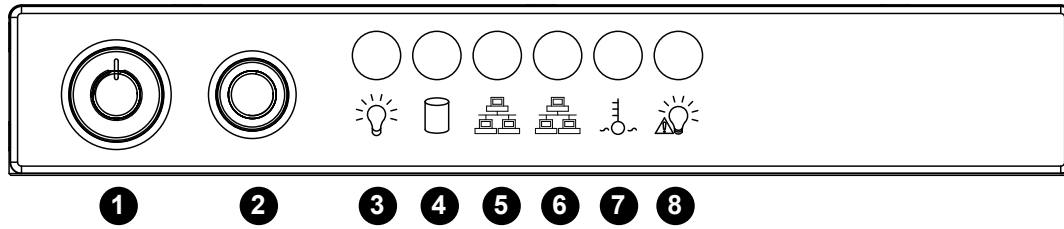


**Figure 1-1. Control Panel View**

| Control Panel Features | | |
|---|---|---|
| **Item** | **Feature** | **Description** |
| 1 | Power Button | Main power button to apply or remove power from the system. |
| 2 | Reset Button | Used to reboot the system. |
| 3 | Power LED | Indicates power is being supplied to the system. |
| 4 | HDD LED | Indicates hard drive activity when flashing. |
| 5 | NIC2 LED | Indicates network activity on the LAN2 port when flashing. |
| 6 | NIC1 LED | Indicates network activity on the LAN1 port when flashing. |
| 7 | System Overheat LED | Indicates a system overheat condition when flashing. |
| 8 | Power Fail LED | Indicates one of the redundant power modules has failed when flashing. |

# Front Features

The SC745BTS-R1K28BP2 is a tower chassis that may also be configured as a 4U rackmount. See the illustration below for the features included on the front of the chassis.
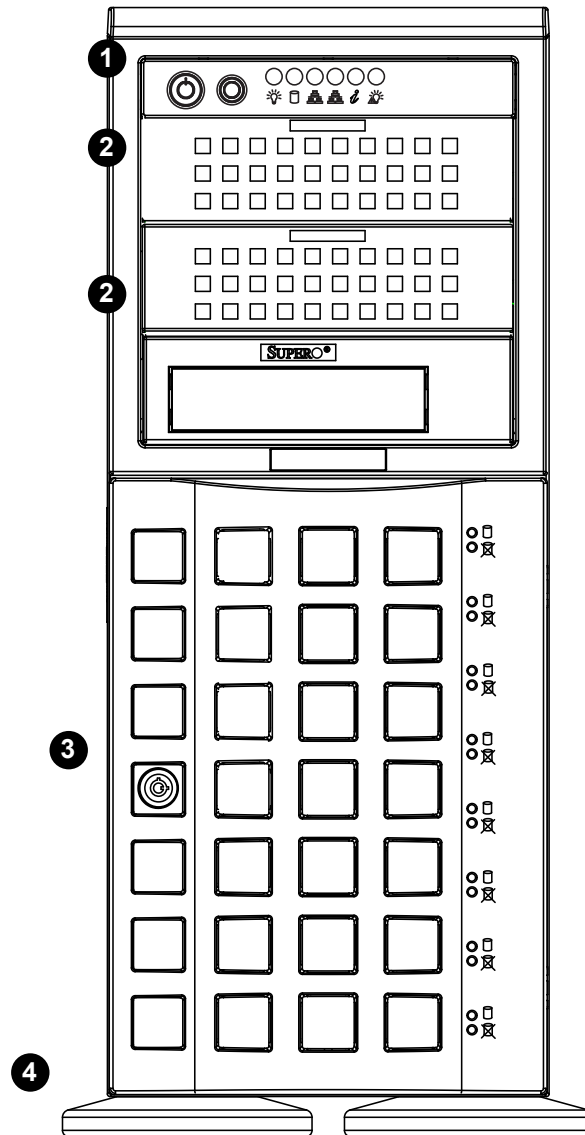
**Figure 1-2. Chassis Front View**

| Front Chassis Features | | |
|---|---|---|
| **Item** | **Feature** | **Description** |
| 1 | Control Panel | Front control panel with LEDs and buttons (see preceding page) |
| 2 | 5.25" Drive Bay | For optional HDD or DVD-ROM drive |
| 3 | 3.5" Hard Drive Bays | Eight hot-swap HDD bays behind locking bezel |
| 4 | Feet | Removable feet (when using system in a 4U rackmount configuration) |

## Rear Features

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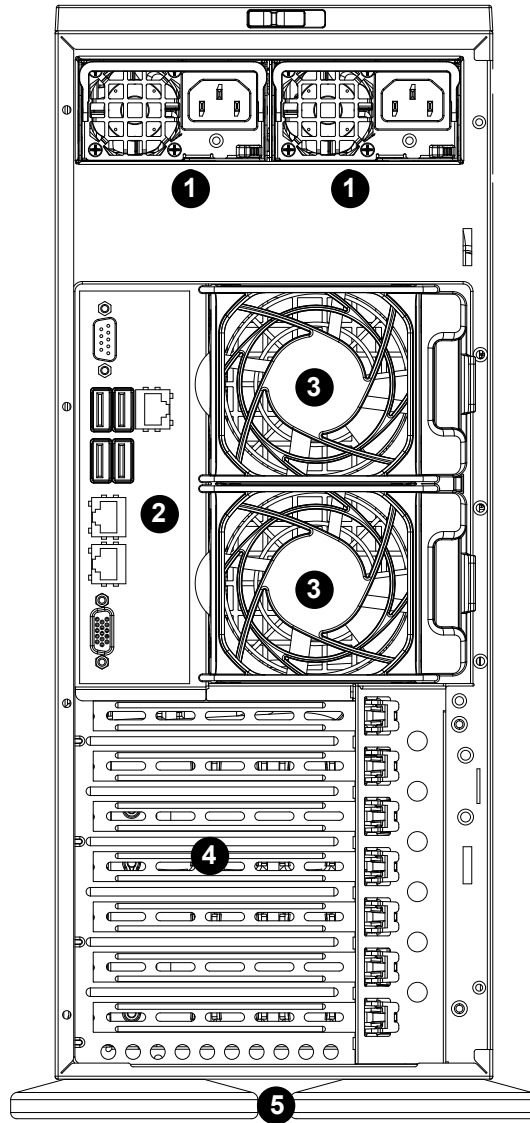


**Figure 1-3. Chassis Rear View**

| Rear Chassis Features | | |
|---|---|---|
| **Item** | **Feature** | **Description** |
| 1 | Power Supply Module | 1200W power supply module (2x for redundancy) |
| 2 | I/O Backpanel | Rear I/O ports (see Section 4.3) |
| 3 | Fan | 8-cm exhaust fan |
| 4 | Expansion Card Slots | Slots for seven standard size add-on cards |
| 5 | Feet | Removable feet (when using system in a 4U rackmount configuration) |

## 1.5 Motherboard Layout

Below is a layout of the H11DSi-NT with jumper, connector and LED locations shown. See the table on the following page for descriptions. For detailed descriptions, pinout information and jumper settings, refer to Chapter 4.
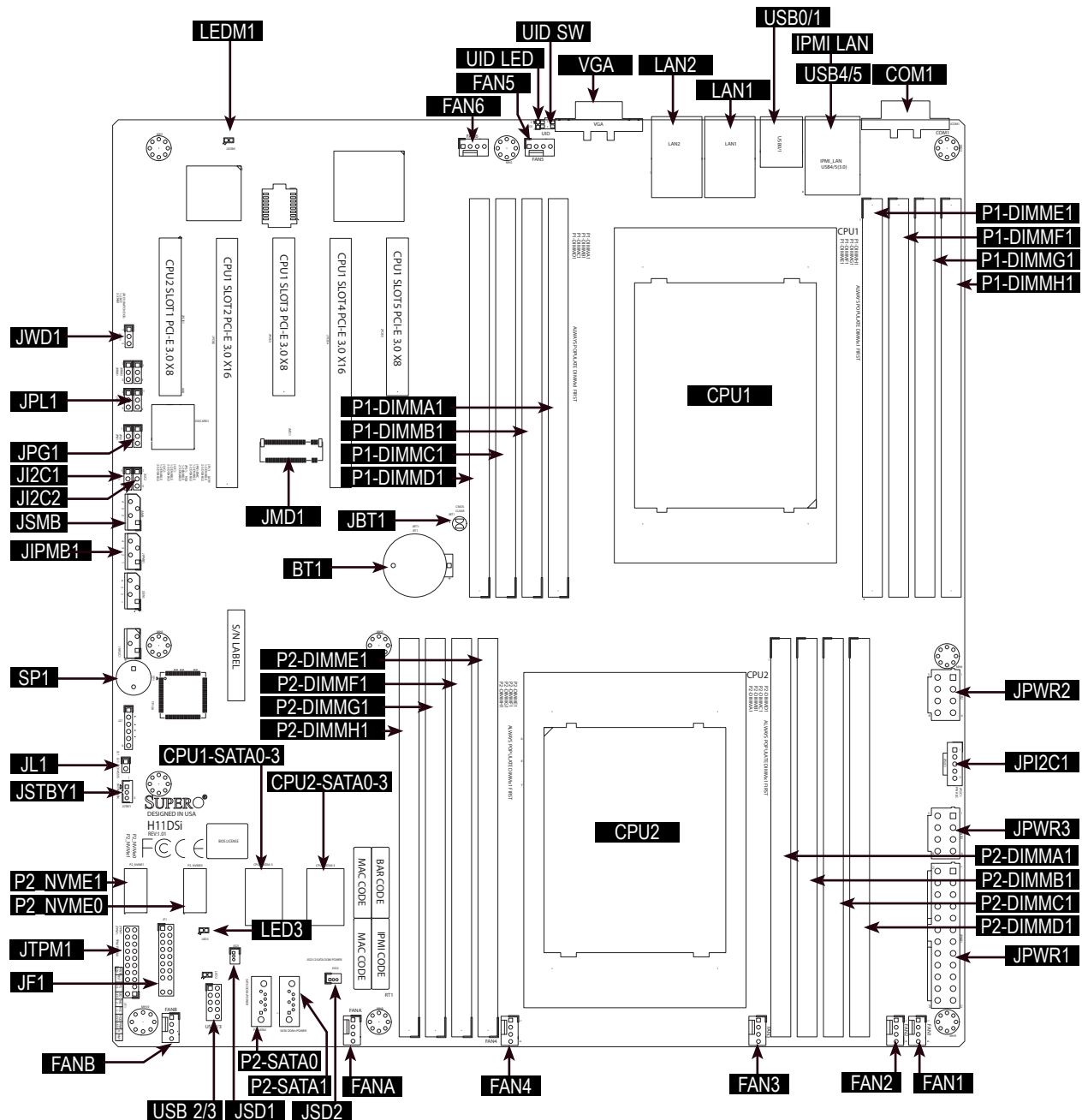


**Figure 1-4. Motherboard Layout**

**Notes:**

- Jumpers and components not documented are for internal testing only.

- "▪" indicates the location of pin 1.

13

## Quick Reference Table

| Jumper | Description | Default Setting |
|---|---|---|
| UID SW | Unit ID Switch | Off |
| JI2C1 / JI2C2 | PCI-E Slot SMB Enable/Disable | Pins 2-3 (Disabled) |
| JBT1 | CMOS Clear | Open (Normal) |
| JPG1 | VGA Enable/Disable | Pins 1-2 (Enabled) |
| JPL1 | LAN Enable/Disable | Pins 1-2 (Enabled) |
| JWD1 | Watch Dog | Pins 1-2 (Reset) |

| LED | Description | Status |
|---|---|---|
| UID LED | Unit ID LED | Solid Blue: UID Switched to ON |
| LED3 | Onboard Power LED | Off: Sytsem Off, Solid Green: System ON |
| LEDM1 | BMC Heartbeat LED | Blinking Green: Normal |

| Connector | Description |
|---|---|
| JIPMB1 | System Management Bus Header |
| COM1 | COM Port |
| FANA, FANB, FAN1~FAN6 | 4-pin System/CPU Fan Headers |
| P2-SATA0, P2-SATA1 | SATA 3.0 Ports for SATA/DOM (with integrated power) |
| CPU1-SATA0-3, CPU2-SATA0-3 | Connectors for SATA0~3, use iPass breakout cable (4 ports each) |
| JF1 | Front Control Panel Header |
| JL1 | Chassis Intrusion Header |
| LAN1/LAN2 | RJ45 LAN Port |
| IPMI LAN | Gigabit LAN (RJ45) Port for IPMI |
| JPWR1 | 24-pin Main Power Connector |
| JPWR2/JPWR3 | 8-pin Auxilliary Power Connectors |
| JSD1/JSD2 | SATA DOM (Device on Module) Power Connectors 1/2 |
| JMD1 | M.2 Connector with integrated SATA/PCI-E signals |
| JTPM1 | Trusted Platform Module/Port 80 Connector |
| USB0/1, USB4/5 | Back Panel USB Type A Ports for USB0/USB1 (2.0) and USB4/USB5 (3.0) |
| USB2/3 | Front Panel USB Header for USB2/USB3 (2.0) |
| P2-NVME0/1 | CPU2 NVMe Ports 0/1 for NVMe Hard Disk Drives |
| JSTBY1 | Stand-by Power Header |
| SP1 | Internal Audio Speaker/Buzzer |
| BT1 | CMOS Backup Battery |
| VGA | Legacy VGA Video Port |

| Connector | Description |
| --- | --- |
| P1-DIMMA1~P1-DIMMH1 | DIMM slots for CPU1 |
| P2-DIMMA1~P2-DIMMH1 | DIMM slots for CPU2 |
| CPU2 SLOT 1 | x8 PCI-E 3.0 Slot via CPU2 |
| CPU1 SLOT 2, SLOT 4 | x16 PCI-E 3.0 Slot via CPU1 |
| CPU1 SLOT 3, SLOT 5 | x8 PCI-E 3.0 Slot via CPU1 |
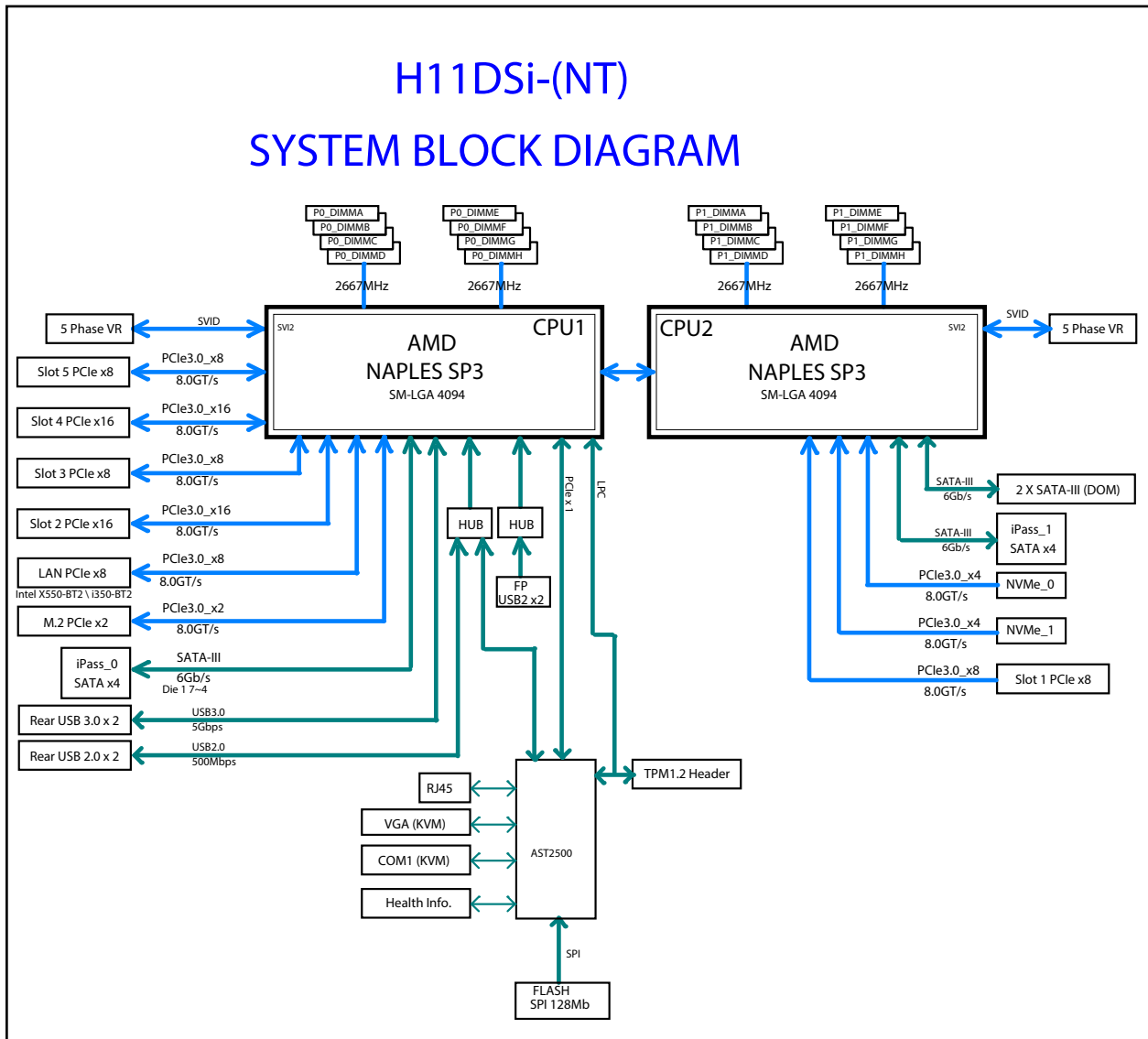
**Figure 1-5. AMD SoC (System on Chip) Chipset: System Block Diagram**

**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

The AS -4023S-TRT is designed to be used as a tower but may be installed into a server rack as a 4U server unit. This chapter provides advice and instructions for mounting to 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 should include the rackmount hardware needed to install it into the rack. Please read this section in its entirety before you begin the installation.

### Choosing a Setup Location

- The system should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated.

- Leave enough clearance in front of the rack so that you can open the front door completely (~25 inches) and approximately 30 inches of clearance in the back of the rack to allow sufficient space for airflow and access when servicing.

- This product should be installed only in a Restricted Access Location (dedicated equipment rooms, service closets, etc.).

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

### Rack Precautions

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

- In single rack installations, stabilizers should be attached to the rack. In multiple rack in- stallations, 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 simul- taneously 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.

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

# 2.3 Installing the System into a Rack

This section provides information on installing the system into a rack unit. Rack installation requires the use of the optional rackmount kit. If the system has already been mounted into a rack or if you are using it as a tower, you can skip ahead to Sections 2-5 and 2-6.

There are a variety of rack units on the market, which may mean the assembly procedure will differ slightly. The following is a guideline for installing the A+ Server AS -4023S-TRT into a rack with the rack rails provided. You should also refer to the installation instructions that came with the rack unit you are using.

## Identifying the Sections of the Rack Rails

The optional rackmount kit includes two rack rail assemblies. Each of these assemblies consist of three sections: an inner fixed chassis rail that secures to the chassis, an outer rack rail that secures directly to the rack itself and two rail brackets, which also attach to the rack (see Figure 2-1.) The inner and outer rails must be detached from each other to install.

To remove the inner chassis rail, pull it out as far as possible - you should hear a "click" sound as a locking tab emerges from inside the rail assembly and locks the inner rail. Depress the locking tab to pull the inner rail completely out. Do this for both assemblies (one for each side).
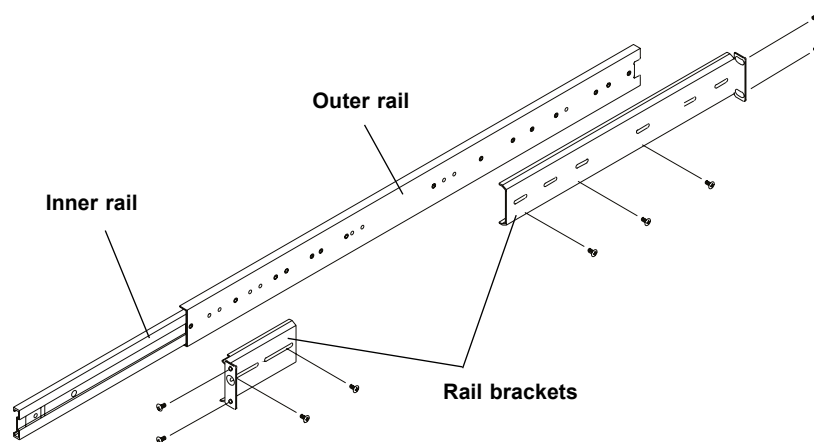
**Figure 2-1. Identifying the Sections of the Rack Rails**

## Installing the Chassis Rails

You will need to remove the top cover and the feet to add rack rails to the chassis. First, remove the top and right covers (top and left covers when standing as a tower chassis) by first removing the screws that secure them to the chassis. Depress the button on the top (side if tower) of the chassis to release the cover and then pull the cover off. Then unscrew the four feet and remove them from the chassis (see Figure 2-2).

You can now attach rack rails to the top and bottom (now the sides) of the chassis. First add the rack handles. Then position the inner chassis rail sections you just removed along the side of the chassis making sure the screw holes line up. Note that these two rails are left/right specific. Screw the rail securely to the side of the chassis (see Figure 2-3). Repeat this procedure for the other rail on the other side of the chassis. The system should not be installed into a telco rack.

Locking Tabs: As mentioned, the chassis rails have a locking tab, which serves two functions. The first is to lock the server into place when installed and pushed fully into the rack, which is its normal position. Secondly, these tabs also lock the server in place when fully extended from the rack. This prevents the server from coming completely out of the rack when you pull it out for servicing.
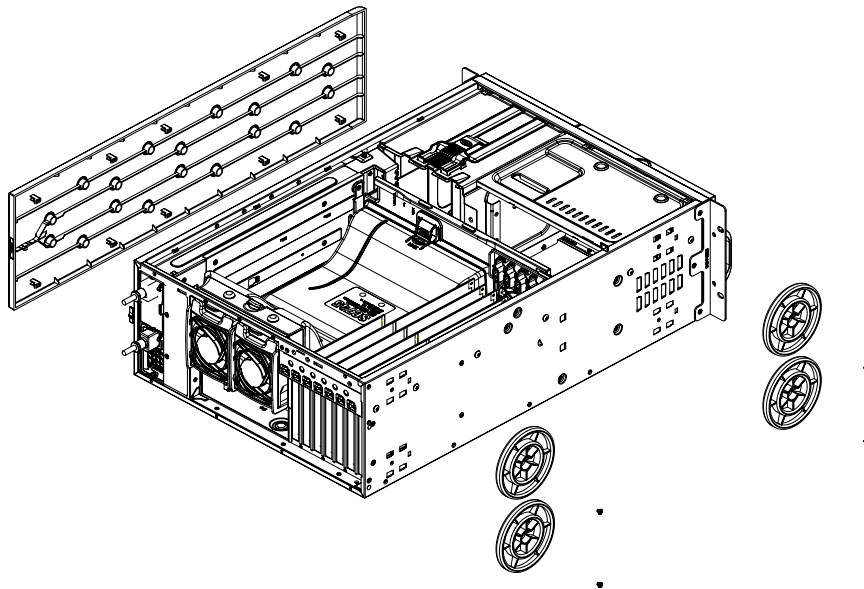


**Figure 2-2. Preparing to Install the Chassis Rails**

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

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

## Installing the Rack Rails

Determine where you want to place the AS -4023S-TRT in the rack. (See Rack and Server Precautions in Section 2-3.) Position the fixed rack rail/sliding rail guide assemblies at the desired location in the rack, keeping the sliding rail guide facing the inside of the rack. Screw the assembly securely to the rack using the brackets provided. Attach the other assembly to the other side of the rack, making sure both are at the exact same height and with the rail guides facing inward.
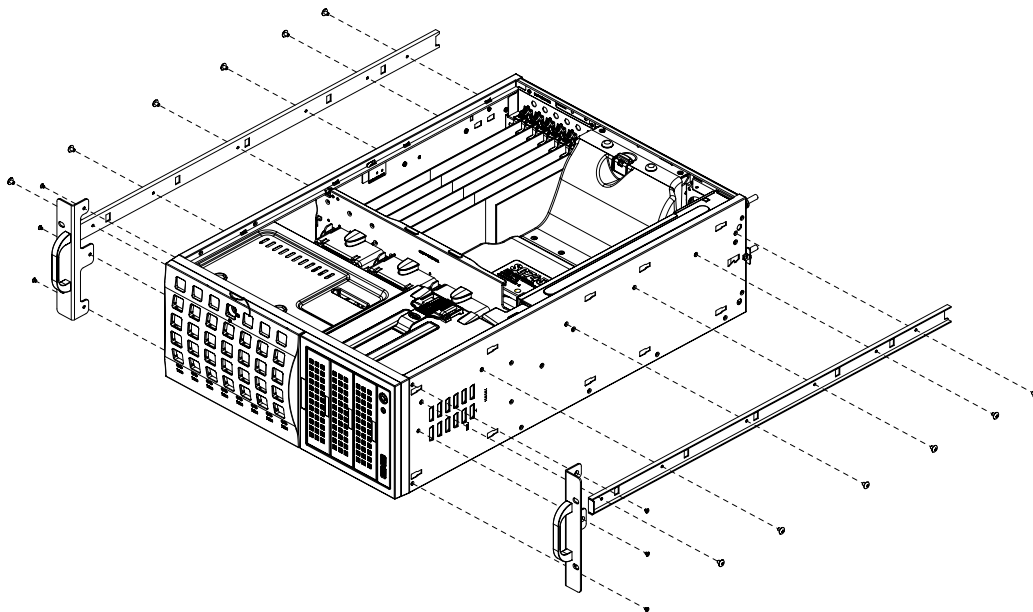
**Figure 2-3. Installing the Rails to the Chassis**

## Installing the Server into the Rack

You should now have rails attached to both the chassis and the rack unit. The next step is to install the server into the rack. You should have two brackets in the rack mount kit. Install these first keeping in mind that they are left/right specific (marked with "L" and "R"). Then, line up the rear of the chassis rails with the front of the rack rails. Slide the chassis rails into the rack rails, keeping the pressure even on both sides (you may have to depress the locking tabs when inserting).

When the server has been pushed completely into the rack, you should hear the locking tabs "click". Finish by inserting and tightening the thumbscrews that hold the front of the server to the rack (see Figure 2-4).
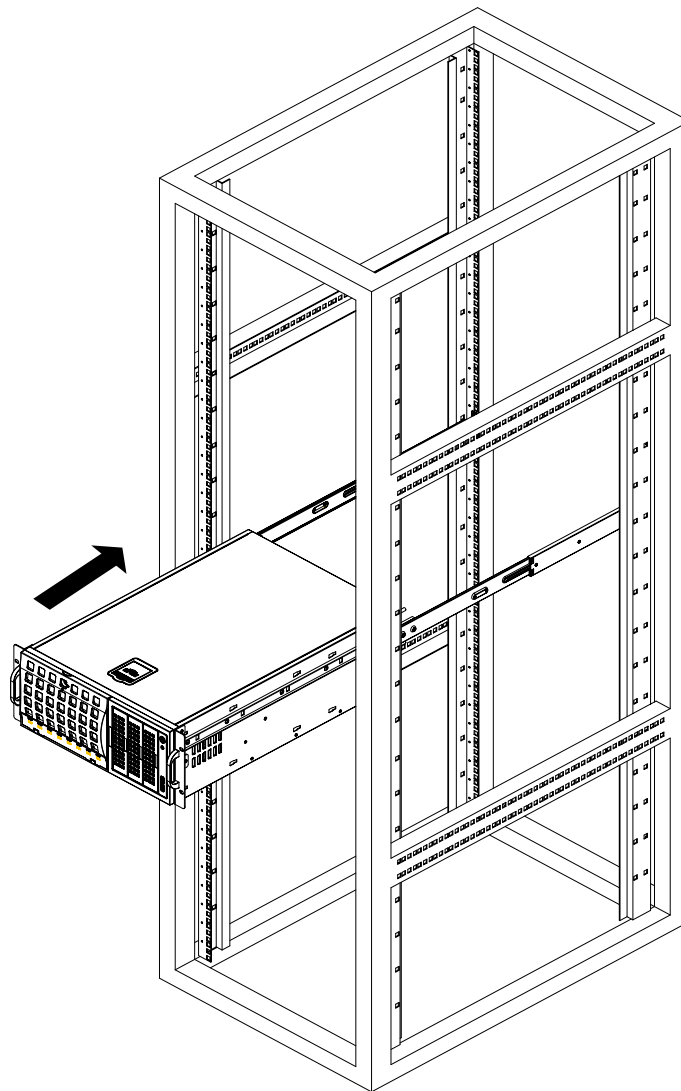
**Figure 2-4. Installing the Server into a Rack**

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

## 2.4 Control Panel Orientation

The server can be configured for either tower or server rack orientation. It is shipped in tower mode and can be immediately used as desktop server. To use it in a rack, rotate the module that contains the control panel and the three drive trays (**1** in Figure 2-5) 90 degrees.

Note that two of the 5.25" drives may be replaced by a *mobile rack* containing eight 2.5" storage drives.
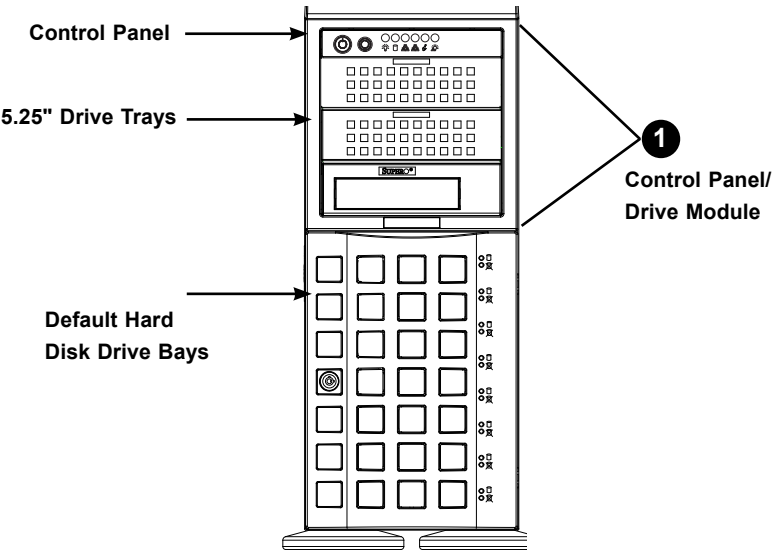
**Figure 2-5. Chassis in Tower Mode** (Default Configuration)
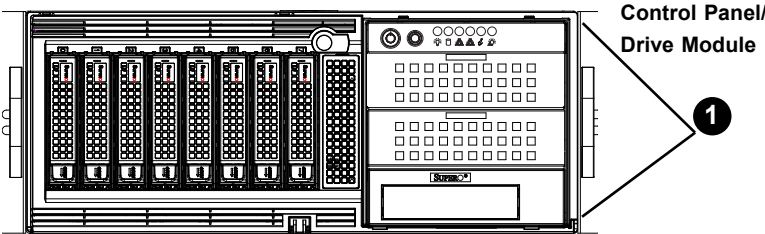
**Figure 2-6. Chassis in Rackmount Mode**

### *Rotating the Control Panel/Drive Module for Rack Mounting*

1. Power down the system as described in section 3.1 and open the chassis cover.

2. Disconnect any cables from the back of the Control Panel/Drive Module.

3. Push the module release lever to unlock the module.

**Control Panel/
Drive Module
in Rack Mount
Orientation**

**❸**

**Module Release Lever**
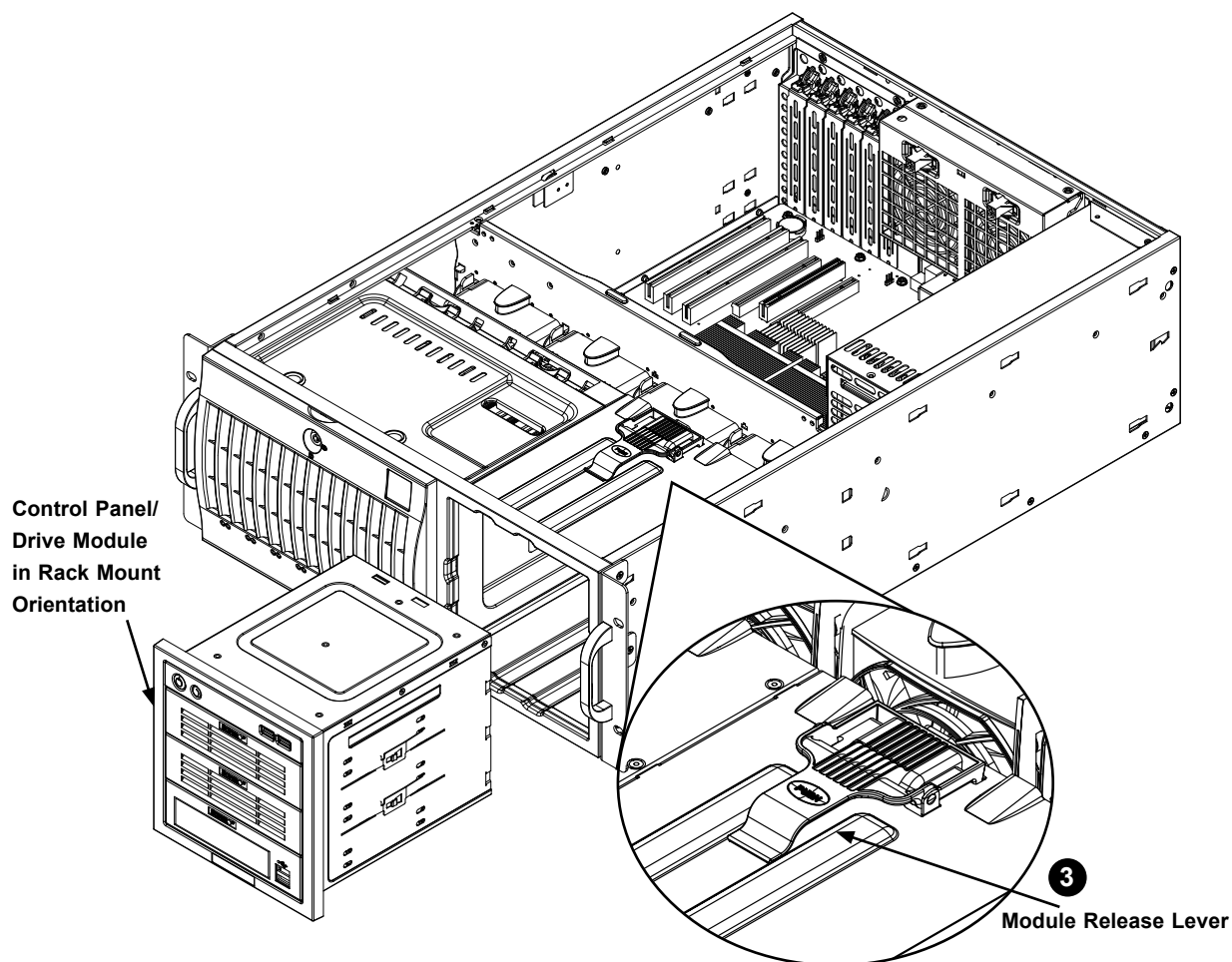
**Figure 2-7. Rotating the Control Panel/Drive Module**

4. Grasp the edges of the module and pull it from the chassis.

5. Rotate the module 90 degrees so that the control panel is on top.

6. Reinsert the module into the chassis and reconnect the cables.

**Caution:** Use caution when working around the backplane. Do not touch the module backplane with any metal objects and make sure no ribbon cables touch the backplane or obstruct the holes, which aid in proper airflow.

# 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 SC745BTS-R1K28BP2 has removable side and front covers for interior access.
***Removing the Side Cover***

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

2. Push the cover latch button to release the latch handle.

3. Pull the cover off the chassis using the latch handle.

***Removing the Front Cover***

The front cover houses up to eight hot-swappable hard drives. The cover can be locked to prevent unauthorized access. The key to this lock is shipped with the system.

4. Unlock the front cover using the key shipped with the system.

5. Pull the cover open using the handle near the lock.

**Warning**: Except for short periods of time, do not operate the server without the cover in place. The chassis cover must be in place to allow for proper airflow and to prevent overheating.
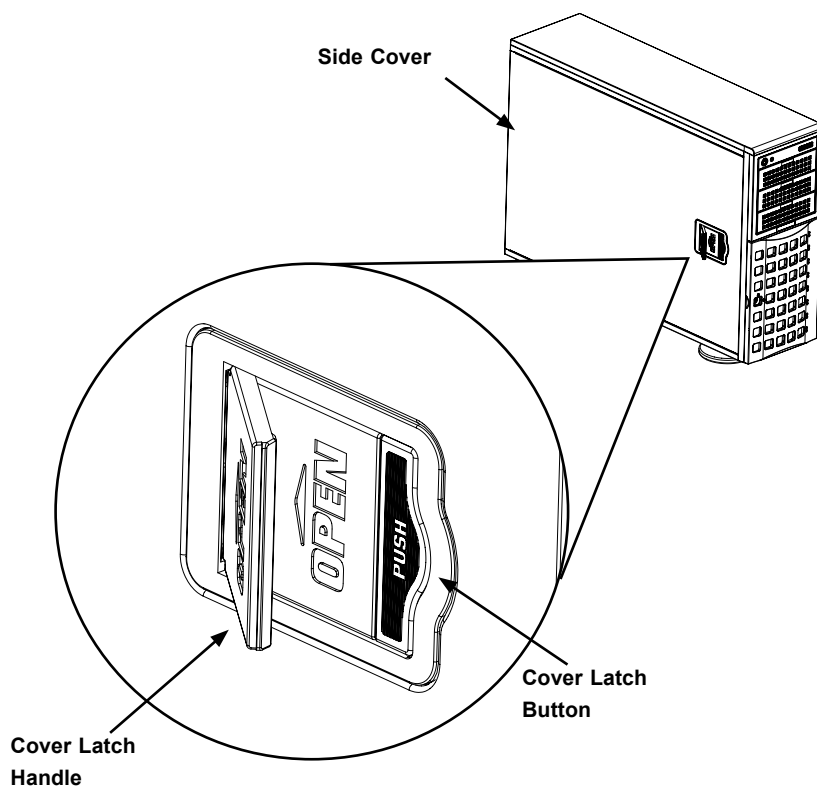
**Figure 3-1. Removing the Side Cover**

# 3.3 Motherboard Components

## Processor and Heatsink Installation

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

• For the processor/heatsink installation you need to use a T20 screwdriver when opening/ closing the CPU socket.

• When receiving a motherboard without a processor pre-installed, make sure that the plastic CPU socket cap is in place and none of the socket pins are bent; otherwise, contact your retailer immediately.

• Refer to the Supermicro website for updates on CPU support.

### Installing the Processor and Heatsink

1. Using a Torx T20 screwdriver, unscrew the screws holding down the force frame in the sequence of 3-2-1. The screws are numbered on the force frame next to each screw hole.
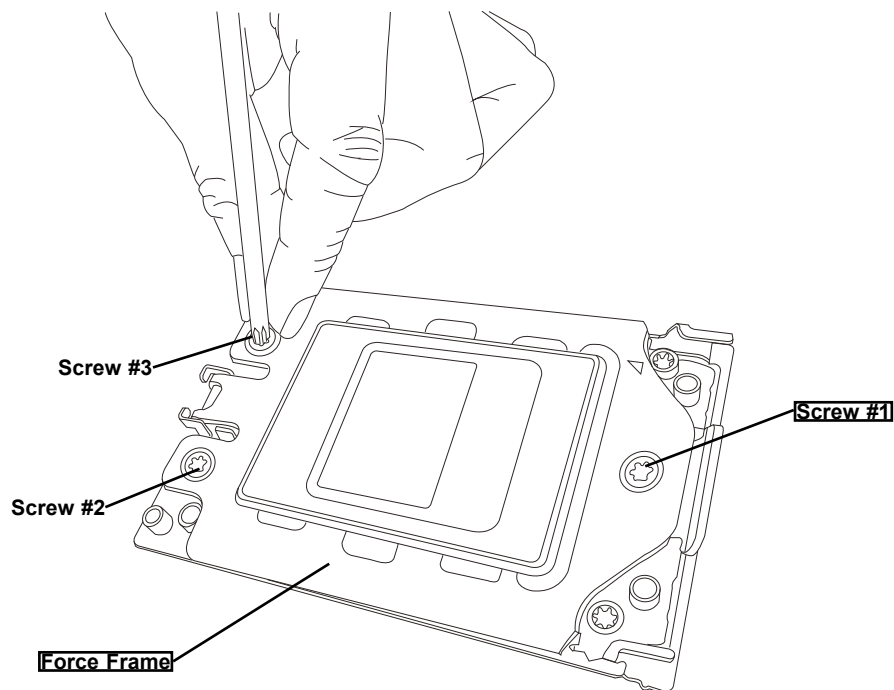


2. The spring-loaded force frame will raise up after the last screw securing it (#1) is removed. Gently allow it to lift up to its stopping position.
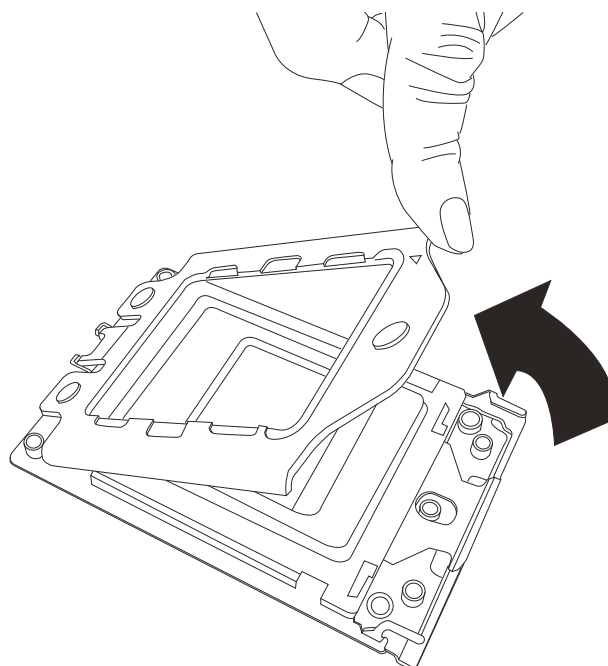
3. Lift the rail frame by gripping the lift tabs near its front end. Keeping a secure grip on the frame, lift it to a position so you can do the next step of removing the external cap.

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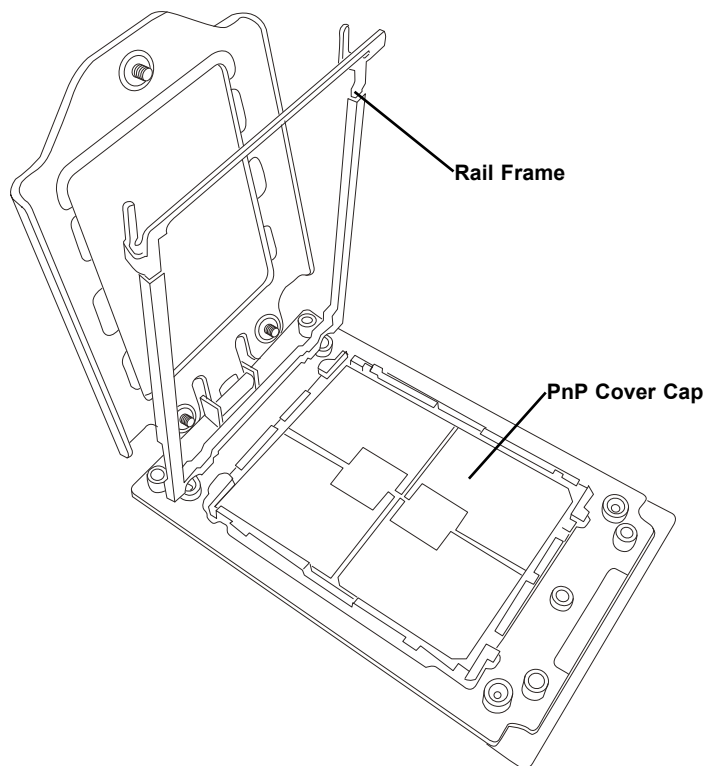


4. Remove the external cap from the rail frame by pulling it upwards through the rail guides on the rail frame.
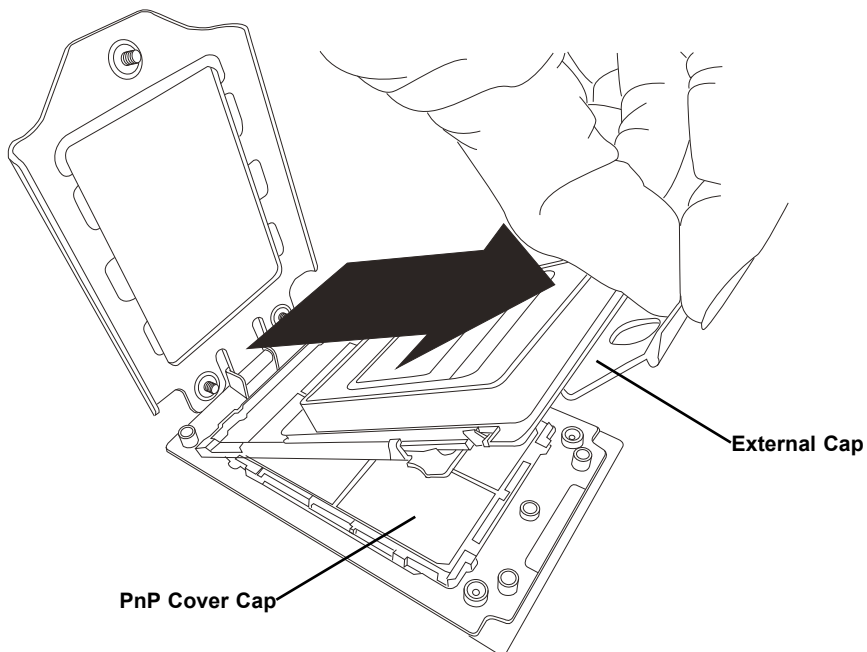
5. The CPU package is shipped from the factory with the blue carrier frame pre-assembled. While gripping the handle of the carrier frame/CPU package assembly from its shipping tray, align the flanges of the carrier frame onto the rails of the rail frame so its pins will be at the bottom when the rail 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.
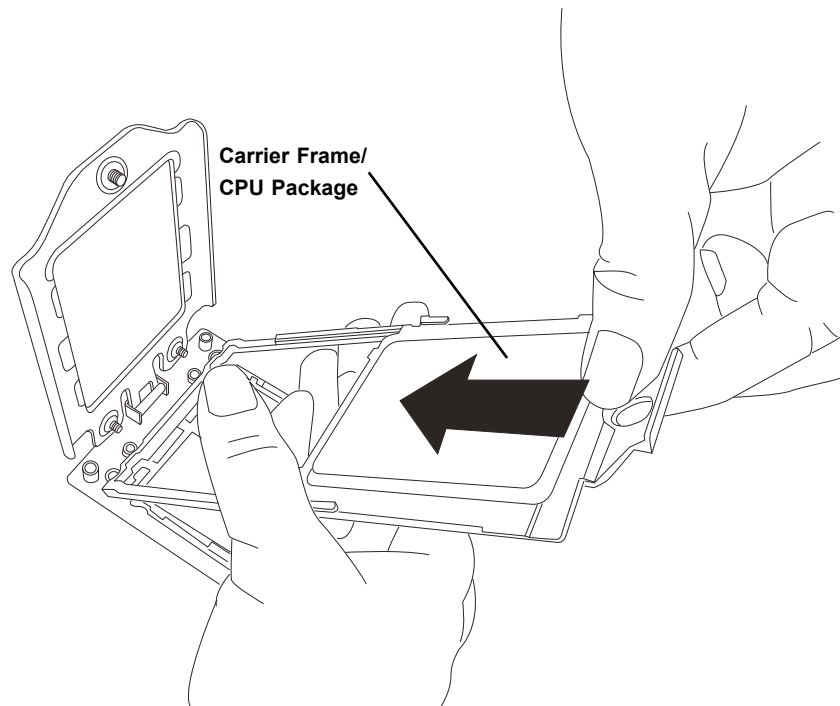


**Note:** You can only install the CPU inside the socket in one direction with the handle at the top. Make sure that it is properly inserted into the CPU socket before closing the rail frame plate. If it doesn't close properly, do not force it as it may damage your CPU. Instead, open the rail frame plate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

**Warning!** 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 fame 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!
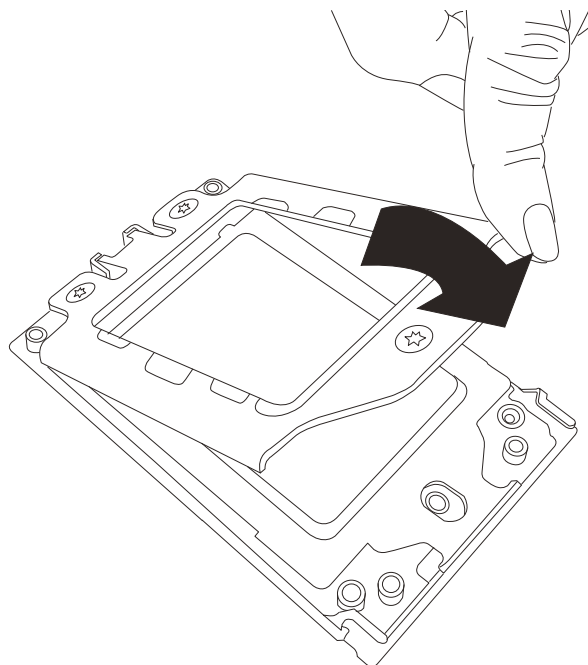
9. Gently lower the force frame down onto the rail frame and hold it in place until it is seated in the socket housing. Note that the force frame is spring loaded and has to be held in place before it is secured.
**Important:** Use a torque screwdriver set at 16.1 kgf-cm (14.0 lbf-in) with a Torx T20 screw head bit to prevent damage to the CPU.
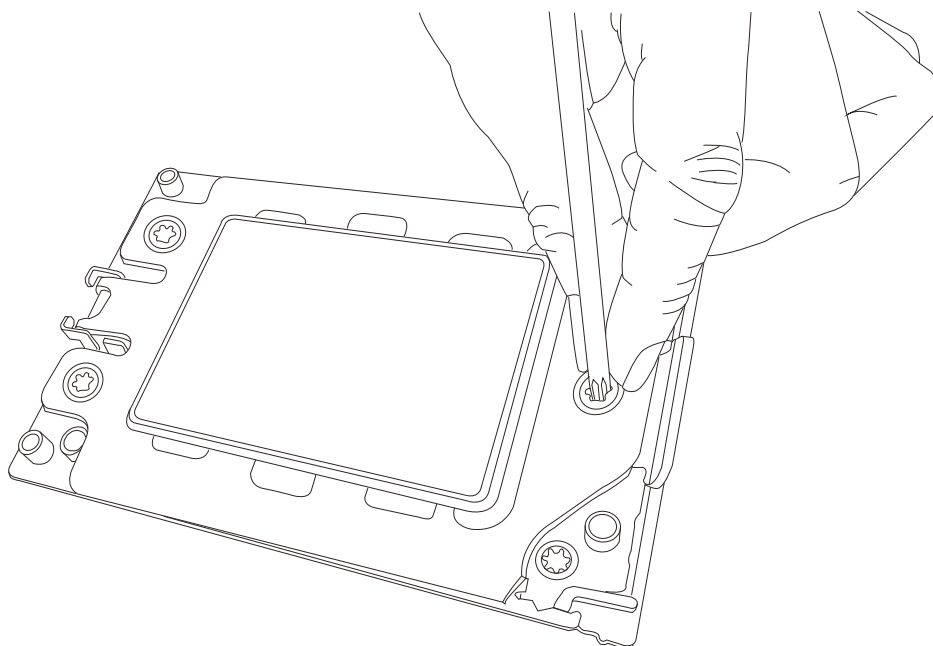
10. Place and re-screw the screws in the reverse order to the way you removed them (holes 1-2-3 in order). When finished, the force frame will be secure over both the rail frame and the CPU package.

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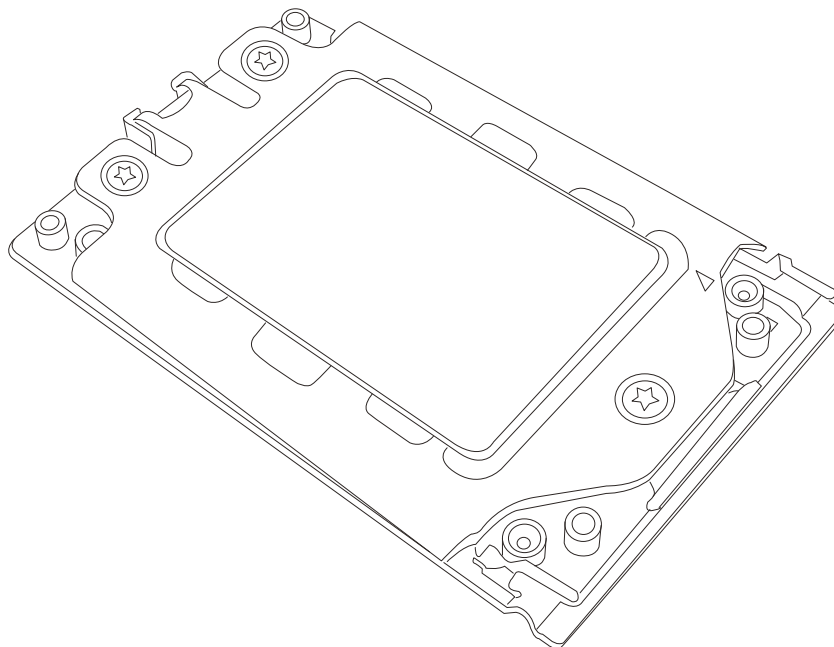


11. After the force frame is secured and the CPU package is in place, now you must install the heatsink to the frame. Lower the heatsink down till it rests securely over the four screw holes on the CPU package on the socket frame.
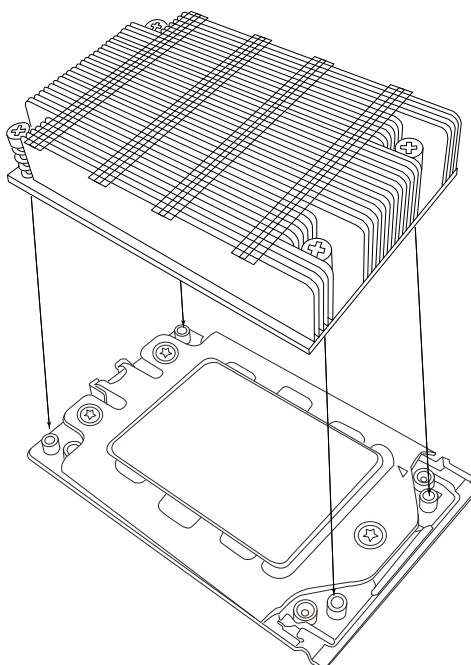
12. Using a diagonal pattern, tighten the four screws down on the heatsink in a clockwise fashion until secure. Use the same the torque screw driver setting at 16.1 kgf-cm (14.0 lbf-in) and a Torx T20 screwdriver to install the heatsink onto the Socket Actuation Mechanism. The heatsink will now be secured and you have finished installing the processor and heatsink onto the motherboard. Repeat this procedure for any remaining CPU sockets on the motherboard.

**#1 Screw**

**#3 Screw**

**#4 Screw**

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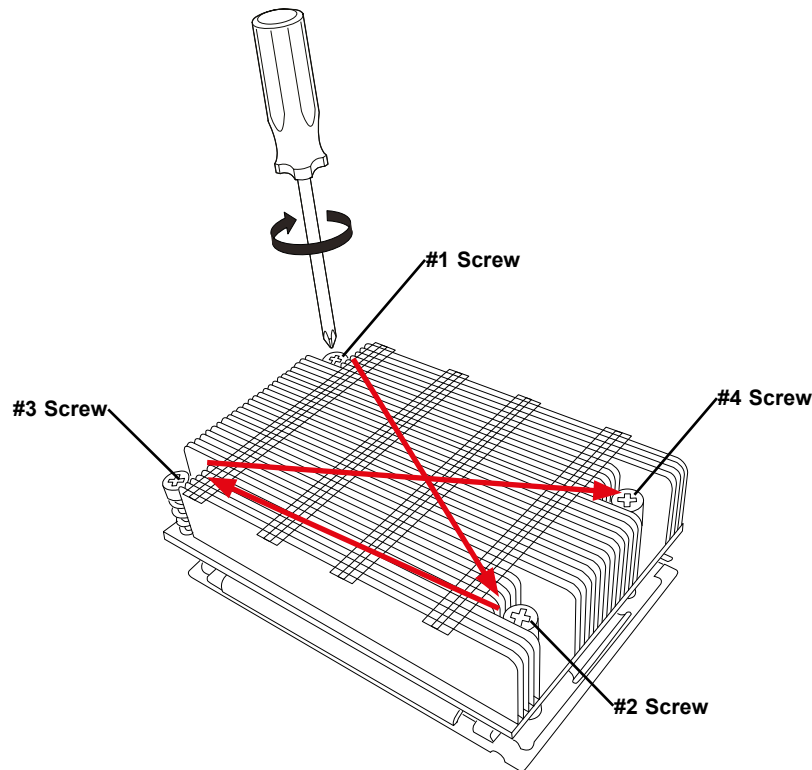
### Un-installing the Processor and Heatsink

1. Remove the heatsink attached to the top of the CPU package by reversing the installation procedure.

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.

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 until it rests in the frame.

7. Gripping the rail frame, rotate it downwards until it rests above and locks over the socket housing in its horizontal position.

8. Push and rotate down the force frame until 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.

## 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.

### *Memory Support*

The H11DSi-NT 2 TB of ECC DDR4 2666 MHz speed / 4TB of ECC DDR4 3200 MHz speed (board reversion 2.x required), RDIMM/LRDIMM/3DS/NVDIMM memory in 16 slots. Refer to the tables below for additional memory information.

| Processors and their Corresponding Memory Modules | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| CPU# | Channel | | Channel | | Channel | | Channel | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| **4 DIMMS** | | | | | | | | |
| CPU1 | | B1 | | D1 | | F1 | | H1 |
| **8 DIMMS** | | | | | | | | |
| **CPU1** | A1 | B1 | C1 | D1 | E1 | F1 | G1 | H1 |
| **8 DIMMS** | | | | | | | | |
| **CPU1** | | B1 | | D1 | | F1 | | H1 |
| **CPU2** | | B1 | | D1 | | F1 | | H1 |
| **16 DIMMS** | | | | | | | | |
| **CPU1** | A1 | B1 | C1 | D1 | E1 | F1 | G1 | H1 |
| **CPU2** | A1 | B1 | C1 | D1 | E1 | F1 | G1 | H1 |

| Populating RDIMM/RDIMM 3DS/LRDIMM/LRDIMM 3DS DDR4 Memory Modules with 7001 Processor | | | | |
|---|---|---|---|---|
| **Type** | **DIMM Population** | **Maximum DIMM Capacity (GB)** | | **Maximum Frequency (MHz)** |
| | **DIMM1** | **1 Channel** | **8 Channel** | |
| **RDIMM** | 1R | 16GB | 128GB | 2666 |
| | 2R | 64GB | 512GB | 2666 |
| **LRDIMM 3DS** | 4R | 64GB | 512GB | 2666 |
| | 8R | 128GB | 1TB | 2666 |
| **3DS RDIMM** | 2R2H | 64GB | 512TB | 2666 |
| | 2R4H | 128GB | 1TB | 2666 |

| Populating RDIMM/RDIMM 3DS/LRDIMM/LRDIMM 3DS DDR4 Memory Modules with 7002 Processor | | | | |
|---|---|---|---|---|
| **Type** | **DIMM Population** | **Maximum DIMM Capacity (GB)** | | **Maximum Frequency (MHz)** |
| | **DIMM1** | **1 Channel** | **8 Channel** | |
| **RDIMM** | 1R | 32GB | 256GB | 3200 |
| | 2R or 2DR | 64GB | 512GB | 3200 |
| **LRDIMM 3DS** | 2S2R | 128GB | 1TB | 3200 |
| | 2S4R | 256GB | 2TB | 3200 |
| **3DS RDIMM** | 2S2R | 128GB | 1TB | 3200 |
| | 2S4R | 256GB | 2TB | 3200 |

## 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.
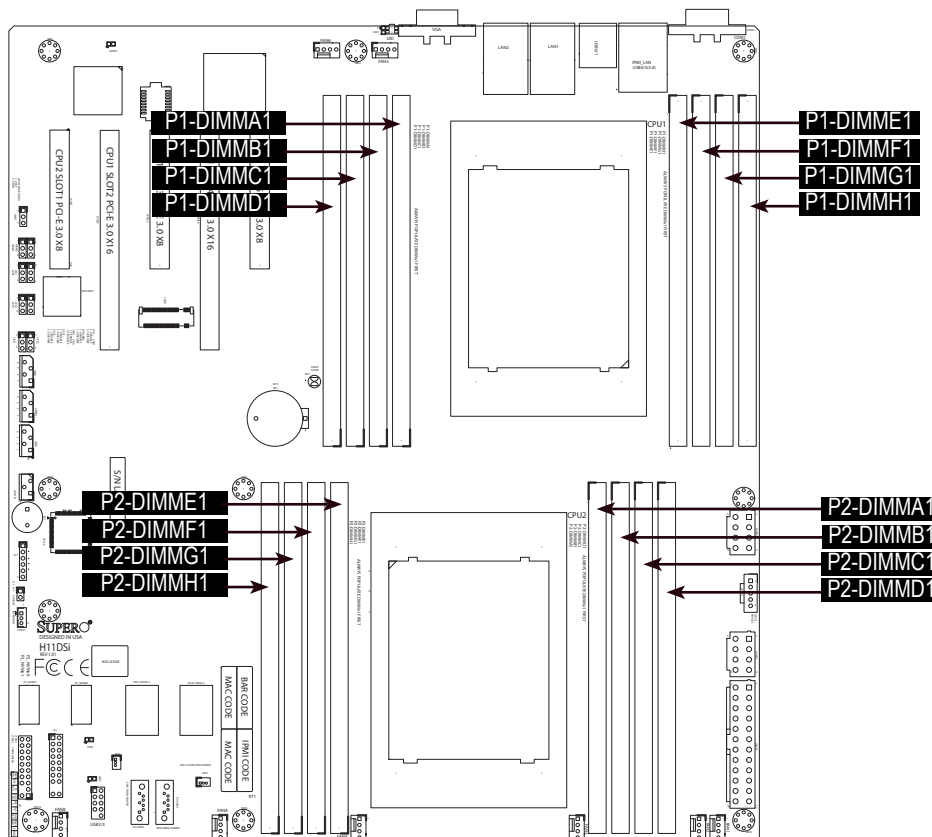


**Figure 3-2. DIMM Numbering**

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## DIMM Installation

1. Insert the desired number of DIMMs into the memory slots, there is no specific sequence or order required.

2. Push the release tab outwards on one end of the DIMM slot to unlock it.

3. Align the key of the DIMM with the receptive point on the memory slot.

4. Align one notch on one end of the DIMM against the notch catch of the socket (this is the end without a release tab). Insert this end first, then follow with the other end, making sure the receptive point and the key are aligned.

5. With one end of the DIMM secure into the notch catch, press the opposite end (with the lever) into the slot until the module snaps securely into place.

6. Lock the release tab to the locked position to secure the DIMM in the slot.
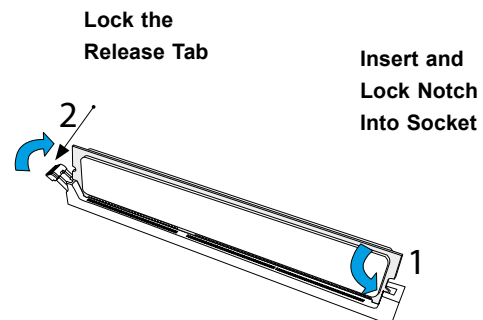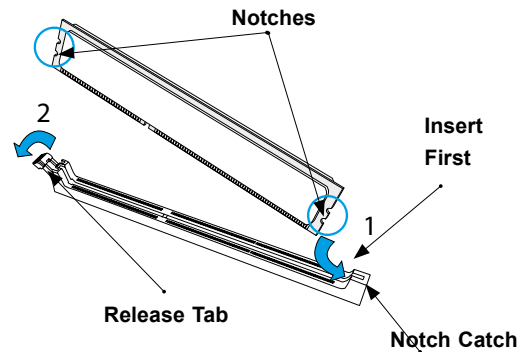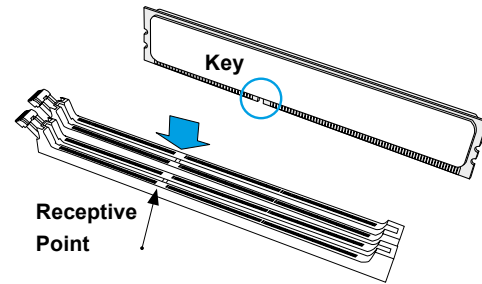
## DIMM Removal

Press the release tab on one end of the DIMM to unlock it. Once the DIMM is loose, remove it from the memory slot by gently puling this end upwards.

**Key**

**Receptive Point**

**Notches**

**Insert First**

**Release Tab**

**Notch Catch**

**Lock the Release Tab**

**Insert and Lock Notch Into Socket**

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## PCI Expansion Card Installation

After the motherboard has been installed, expansion cards may be installed.

### *Installing Expansion Cards*

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

2. Locate the release tab on the top of the PCI slot bracket.

3. Gently apply pressure in the middle of the release tab to unlock the PCI slot bracket.

4. Pull the release tab upward.

5. Remove the screw holding the bracket in place and pull the bracket from the chassis.

6. Install your PCI card or other add-on card into the PCI slot bracket and motherboard. To do this, slide the PCI card (with "L" bracket) into the PCI slot and secure the card to the motherboard.

7. Push the PCI bracket release tab down until it locks into place with an audible "click".

8. Secure the PCI card with the screw previously removed from the chassis.

9. Repeat this process with each PCI card you want to install into the chassis.

**Press the Middle of the Release Tab**

**Lift the Release Tab**
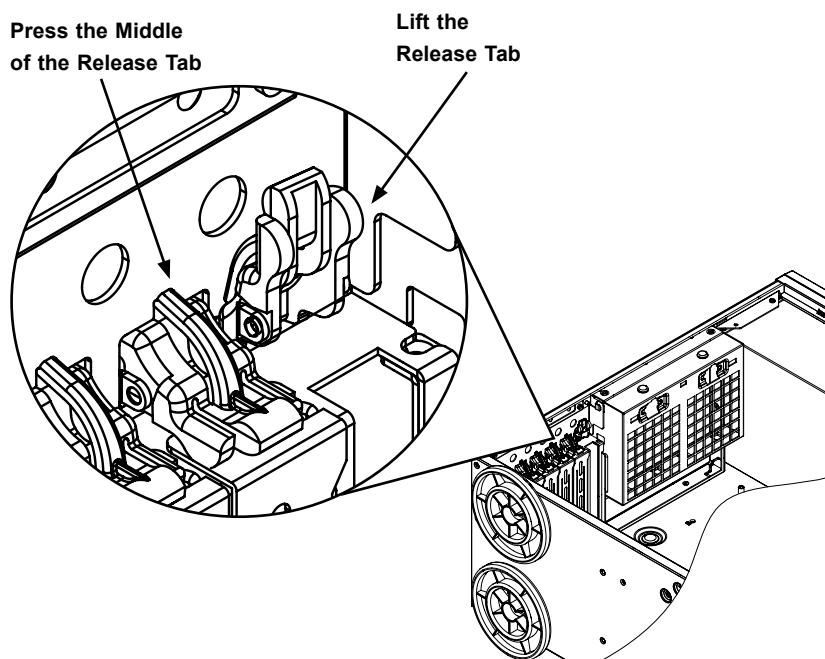
**Figure 3-3. Installing Add-on Cards**

## 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 remove the side 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.

LITHIUM BATTERY

BATTERY HOLDER
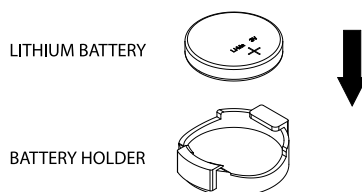
**Figure 3-4. Installing the Onboard Battery**

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

# 3.4 Chassis Components

## Hard Drives

A total of 16 hard drives may be housed in the SC745BTS-R1K28BP2 chassis (eight 3.5" drives in the chassis and eight 2.5" drives in the optional mobile rack unit, which replaces two of the 5.25" bays). Two NVMe drives are supported with optional cables (CBL-SAST-0818).

The drive IDs are preconfigured as 0 through 7 in order from bottom to top (or from left to right depending if rackmounted). A bezel covers the drive area but does not need to be removed to access the drives; simply swing open the bezel. If you wish to remove the bezel piece, push on the three tabs on the inside of the left lip of the front chassis cover. Then slightly swing out the same (left) side of the cover - about ½ inch only. Remove by pushing on the open side of the cover to remove it from the chassis (do not try to swing or pull it straight out after opening the left side).

The drives are mounted in drive carriers to simplify their installation and removal from the chassis. These drives are hot-swappable, meaning they can be removed and installed without powering down the system. The carriers also work to promote proper airflow for the system. For this reason, even carriers without drives must remain in the server.

### *Installing/Removing Hard Drives*

1. To remove a carrier, first open the front bezel.

2. Push the release button located beside the drive LEDs.

3. Swing the handle fully out and then use it to pull the unit straight out.

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

1. Insert the drive 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 four screws.
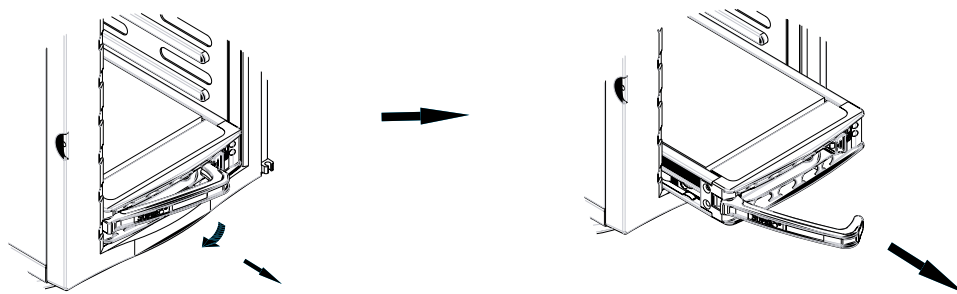


**Figure 3-5. Removing a Drive Carrier**

step 1.    step 2.    step 3.
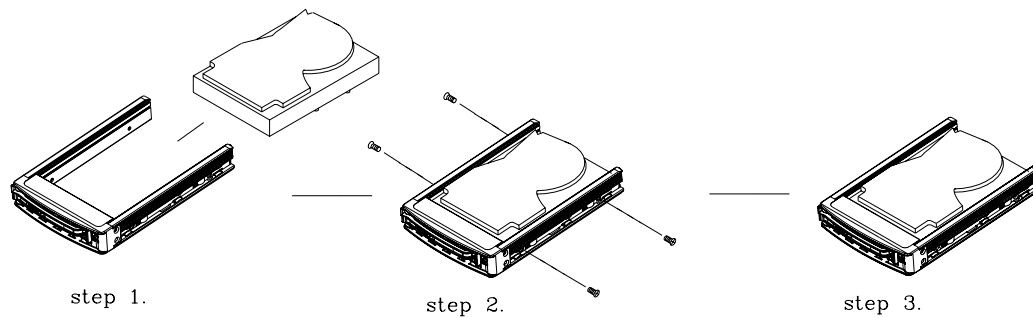
**Figure 3-6. Mounting a Drive into a Carrier**

**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

## Installing Components in the 5.25" Drive Bay

The AS -4023S-TRT has one 5.25" drive bay into which a DVD-ROM drive may be installed.

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

2. With the cover off, remove the two or four screws that secure the drive carrier to the chassis (one side only) then push the entire empty drive carrier out from the back.

## Adding a DVD-ROM Drive

1. Remove the guide plates (one on each side) from the empty drive carrier and screw them into both sides of the DVD-ROM drive using the holes provided.

2. Slide the DVD-ROM into the bay and secure it to the chassis with the drive carrier screws you first removed.

3. Attach the power and data cables to the drive.

4. Replace the top/left chassis cover before restoring power to the system.

## Mobile Rack (Optional Storage Module)

The chassis accepts an optional Supermicro mobile rack (pn CSE-M28SABP) in place of two 5.25" bays. This adds eight hot-swap 2.5" SAS or SATA drives. An optional expansion card and cables are also required.
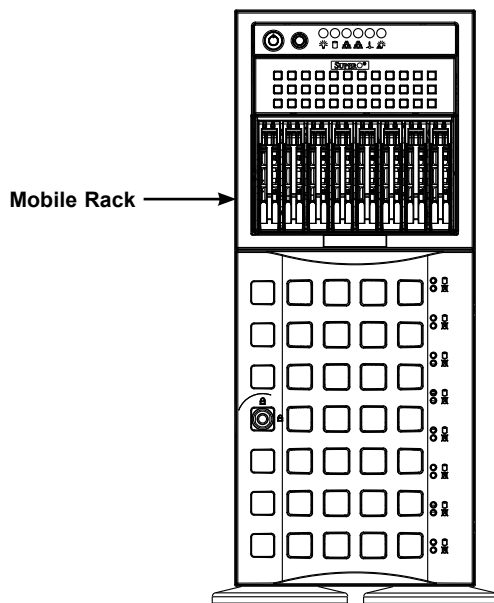
**Figure 3-7. Chassis with a Mobile Rack Installed**

*Installing the Mobile Rack*

1. Remove two adjacent trays from the drive bays.

2. Remove the drive tray rails.

3. Install a drive tray rail onto each side of the mobile rack. Make sure the arrow on the rail points toward the front of the chassis.

4. Slide the mobile rack into the chassis.

5. Connect the data and power cables.
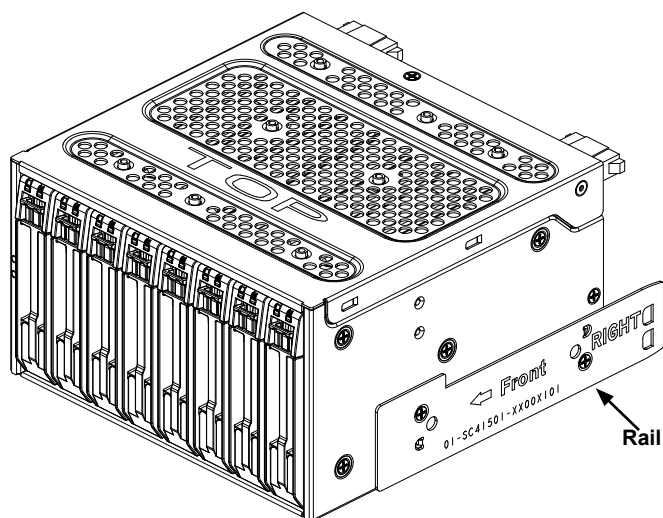


**Figure 3-8. Mobile Rack with Drive Tray Rails**

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### *Rotating the Mobile Rack*

If the system is to be used in a rack configuration, you must rotate the mobile rack enclosure module 90 degrees. This can be done before, during, or after setup. Although the drives in the mobile rack may be hot-swapped, the system must be shut down to rotate the mobile rack.

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

2. Disconnect any cables from the back of the mobile rack.

3. Lift the mobile rack release levers to unlock the mobile rack (levers are located at the top and bottom of the rear of the mobile rack).

4. Grasp the edges of the mobile rack and pull it from the chassis.

5. Turn the module 90 degrees (as illustrated).

6. Reinsert the module into the enclosure and reconnect the cables.

7. Reconnect the power cords to the power supplies and turn the system on.

**Mobile Rack Enclosure**

**Mobile Rack**

**Enclosure Release Lever**
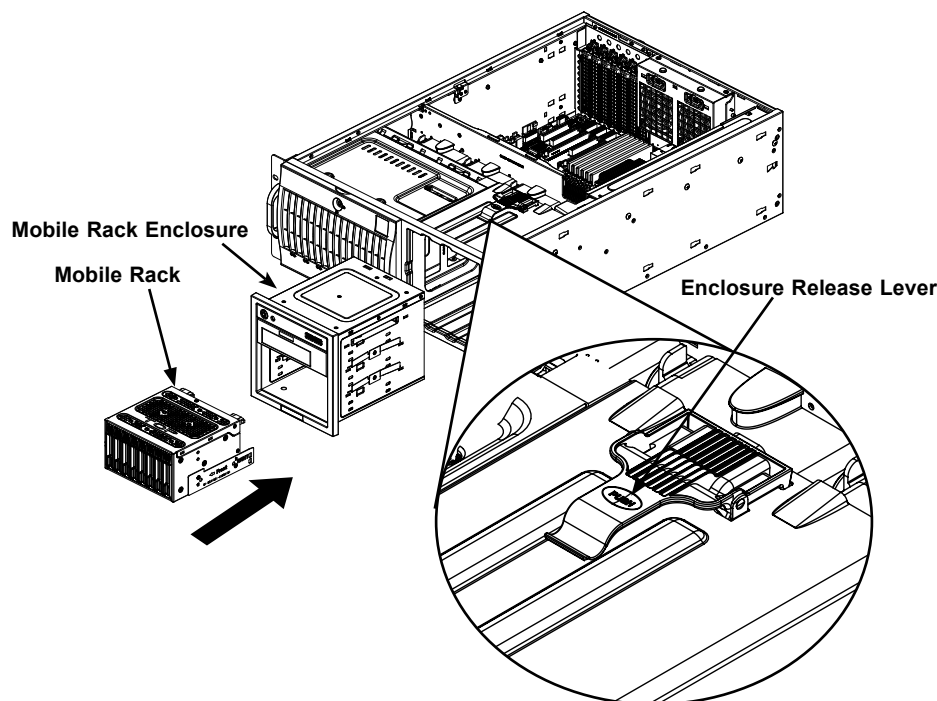
**Figure 3-9. Rotating the Mobile Rack**

## System Cooling

Three 8-cm chassis cooling fans (located in the center of the chassis) provide cooling airflow while two 8-cm exhaust fans expel hot air from the chassis. The chassis is also fitted with an air shroud to concentrate the flow of cooling air over the areas of highest generated heat. The fans should all be connected to headers on the serverboard. Each power supply module also has a cooling fan.

### Fan Failure

Under normal operation, all three chassis fans, both exhaust fans and the power supply fans run continuously. The chassis fans and the exhaust fans are hot-swappable and can be replaced without powering down the system.

### Replacing Chassis Cooling Fans

1. Begin by removing the side cover as described in section 3.2.

2. Depress the locking tab on the failed fan: on a chassis fan, push the tab on the side of the housing inward, on the exhaust fan push down on the colored tab. With the tab depressed, pull the unit straight out. The wiring for these fans has been designed to detach automatically.

3. Replace the failed fan with an identical one. Install it in the same position and orientation as the one you removed; it should click into place when fully inserted. Check that the fan is working then replace the top/left side chassis panel.
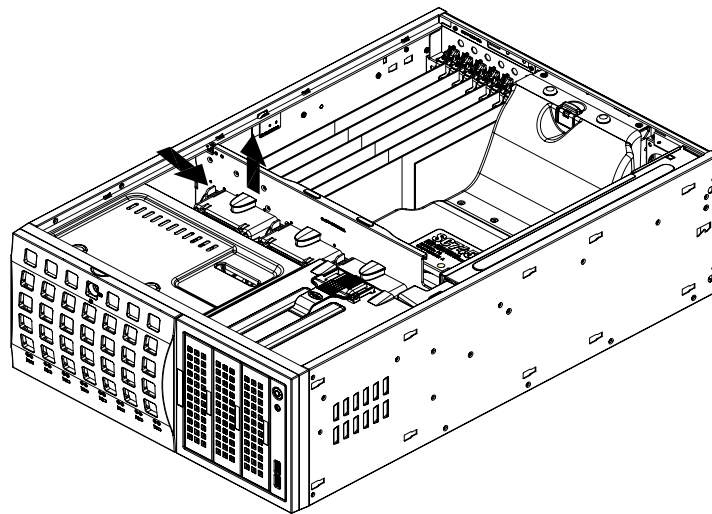


**Figure 3-10. Replacing System Fans**

### *Air Shroud*

Under most circumstances you will not need to remove the air shroud to perform any service on the system. However, if you wish to temporarily remove it (the air shroud should always be in place when the system is operating), please follow this procedure.

### *Removing the Air Shroud*

1. Begin by depressing the tabs at the front and rear of the shroud to unlock it.

2. Lift the air shroud up and out of the chassis.

3. To reinstall, simply position the air shroud in its proper place and push it in until you hear it click.
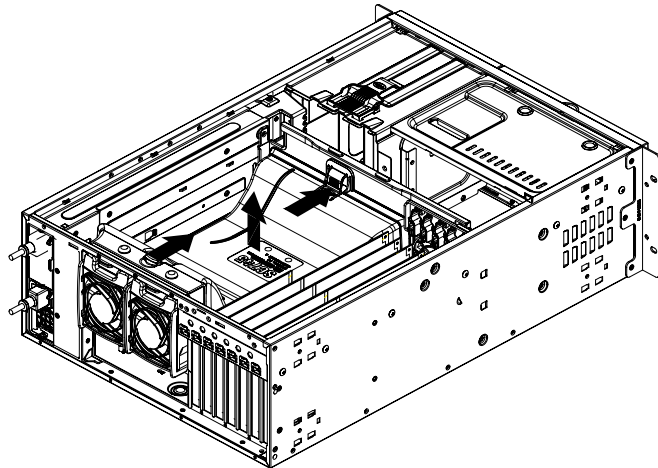


**Figure 3-11. Removing the Air Shroud**

# 3.5 Power Supply

The AS -4023S-TRT has a redundant, hot-plug 1200 watt power supply consisting of two power modules. Each power supply module has an auto-switching capability, which enables it to automatically sense and operate at a 100V - 240V input voltage.

## Power Supply Failure

If either of the two power supply modules fail, the other module will take the full load and allow the system to continue operation without interruption. The Power Fail LED will illuminate and remain on until the failed unit has been replaced. Replacement units can be ordered directly from Supermicro. The hot-swap capability of the power supply modules allows you to replace the failed module without powering down the system.

### *Replacing the Power Supply*

You do not need to shut down the system to replace a power supply module. The redundant feature will keep the system up and running while you replace the failed hot-swap unit.

1. Unplug the AC power cord from the failed power supply module.

2. Remove the chassis left-top cover as described in Section 3.2.

3. Remove the screws that secure the power module to the chassis, then pull it completely out.

4. Replace the failed unit with another unit of the exact same part number (PWS-1K28P-SQ).

5. Gently but firmly push the new unit all the way into the open bay.

6. Secure it to the chassis using the screws you previously removed.

7. Finish by replacing the chassis left/top cover and then plugging the AC power cord back into the new module you just added.

# 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 serverboard 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 H11DSi-NT must be connected to the power supply. The wiring is included with the power supply.

- 24-pin Primary ATX Power (JPWR3)

- 8-pin Processor Power (JPWR1/JPWR2)

**Main ATX Power Connector**

JPWR1 is the 24-pin ATX main power supply connector. This primary power supply connector meets the ATX SSI EPS 24-pin specification. You must also connect the 8-pin (JPWR2 and JPWR3) CPU power connectors to your power supply.

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

**Required Connection**

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

**12V 8-pin CPU Power Connectors**

JPWR2 and JPWR3 are the 8-pin 12V DC power input for the CPU or alternative single power source for a special enclosure when the 24-pin ATX power is not in use. Refer to the table below for pin definitions.

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

**Required Connection**

# 4.2 Headers and Connectors

### Fan Headers

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 BIOS. When using the Thermal Management setting, please use all 3-pin fans or all 4-pin fans.

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

### Chassis Intrusion

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 |

### System Management Bus (SMB) Header

System Management Bus headers for additional slave devices or sensors is located at JSMB and JSMB1.

## TPM Header/Port 80 Connector

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 | 5V |
| 7 | LAD3 | 8 | LAD2 |
| 9 | 3.3V | 10 | LAD1 |
| 11 | LAD0 | 12 | GND |
| 13 | SMB_CLK4 (X) | 14 | SMB_DAT4 (X) |
| 15 | P3V3_STBY | 16 | SERIRQ |
| 17 | GND | 18 | LP_CLKRUN_L |
| 19 | P3V3_STBY | 20 | NC |

## NVM Express Connections

Two NVM Express ports are located on the motherboard (one for each processor). These ports provide high-speed, low-latency PCI-Exp. 3.0 x4 connections directly from the CPU to NVMe Solid State (SSD) drives. This greatly increases SSD data-throughput performance and significantly reduces PCI-E latency by simplifying driver/software requirements resulted from direct PCI-E interface from the CPU to the NVMe SSD drives.

## PCI-E M.2 Connector

The PCI-E M.2 connector is for devices such as memory cards, wireless adapters, etc. These devices must conform to the PCI-E M.2 specifications (formerly known as NGFF). This particular PCI-E M.2 supports M-Key (PCI-E x2) storage cards only.

## SATA Ports

The H11DSi-NT has eight available SATA 3.0 ports (CPU1-SATA0~3, CPU2-SATA0~3) on two iPASS connectors that are supported by CPU1 and CPU2. These use an iPASS breakout cable to support 4 ports per connector. There are also two SATA ports (P2-SATA0, P2-SATA1) that are supported by CPU2 and also provides integrated DOM (Disc On Module) power.

**TPM Header**

The JTPM1 header is used to connect a Trusted Platform Module (TPM)/Port 80, which is available from a third-party vendor. A TPM/Port 80 connector is a security device that supports encryption and authentication in hard drives. It allows the motherboard to deny access if the TPM associated with the hard drive is not installed in the system. See the table below for pin definitions.

| Trusted Platform Module/Port 80 Header Pin Definitions | | | |
|------|------------|------|----------|
| Pin# | Definition | Pin# | Definition |
| 1 | +3.3V | 2 | SPI_CS# |
| 3 | RESET# | 4 | SPI_MISO |
| 5 | SPI_CLK | 6 | GND |
| 7 | SPI_MOSI | 8 | |
| 9 | +3.3V Stdby | 10 | SPI_IRQ# |

**Disk-On-Module Power Connector**

The Disk-On-Module (DOM) power connectors at JSD1 and JSD2 provide 5V power to a solid-state DOM storage 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 |

**Onboard Speaker**

The motherboard's onboard speaker or buzzer is at location SP1. This emits audible signals for diagnostics and error messages.

**USB 2/3**

The USB 2/3 header contains a header for USB ports #2 and #3. If the chassis supports this feature, connect the Front Panel cable to this header to access USB ports #2 and #3 directly from the chassis front panel.

| Front Panel USB 2.0 Header Pin Definitions | | | |
|------|------------|------|----------|
| Pin# | Definition | Pin# | Definition |
| 1 | +5V | 2 | +5V |
| 3 | USB_PN2 | 4 | USB_PN3 |
| 5 | USB_PP2 | 6 | USB_PP3 |
| 7 | Ground | 8 | Ground |
| 9 | Key | 10 | Ground |

### *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.

| | 20 | 19 | |
|---|---|---|---|
| Ground | ⊙ | ⊙ | NMI |
| X | ⊙ | ⊙ | X |
| FP PWR LED | ⊙ | ⊙ | 3.3V Stby |
| | ⊙ | ⊙ | 3.3V Stby |
| NIC1 Activity LED | ⊙ | ⊙ | 3.3V Stby |
| NIC2 Activity LED | ⊙ | ⊙ | 3.3V Stby |
| OH/Fan  Fail LED | ⊙ | ⊙ | UID LED |
| Power Fail LED | ⊙ | ⊙ | 3.3V |
| Ground | ⊙ | ⊙ | Reset Button |
| Ground | ⊙ | ⊙ | Power Button |
| | 2 | 1 | |
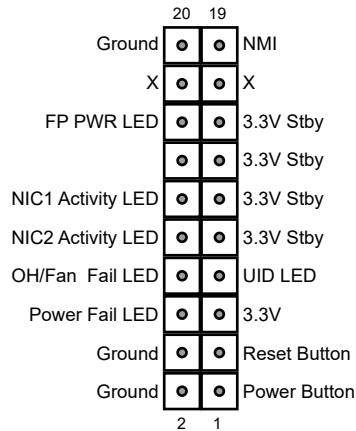
**Figure 4-1. JF1: Control Panel Pins**

**Power Button**

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

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

**Reset Button**

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

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

**Power Fail LED**

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

| Power Fail LED Pin Definitions (JF1) | |
|---|---|
| Pin# | Definition |
| 5 | 3.3V |
| 6 | PWR Supply Fail |

**OH/Fan Fail Indicator**

The Overheat (OH) / Fan Fail LED is located on pin 8 on the front control panel (JF1). When this is on, it indicates that there is a system overheat or the internal fan(s) have failed.

**UID LED Indicator**

A Unit Identifier (UID) switch and UID LED are located on the I/O backpanel, one UID LED indicator header is located on JF1. The rear UID LED (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. Use this UID Indicator system to 'mark' the system, so the system can be easly identified whether on the front or back (e.g., a system rack with multiple units installed).

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

| OH/Fan Fail/UID Pin Definitions (JF1) | |
|---|---|
| Pin# | Definition |
| 7 | UID Signal |
| 8 | OH/Fan Fail |

| UID LED Status | |
|---|---|
| Color/State | Status |
| Blue: On | Unit Identified |

**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 Activity LED |
| 10 | NIC2 Link LED |
| 11 | NIC1 Activity LED |
| 12 | NIC1 Link LED |

**Power LED**

The Power LED connection is located on pins 15 and 16 of JF1.

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

**NMI Button**

The non-maskable interrupt button header is located on pins 19 and 20 of JF1.

| NMI Button Pin Definitions (JF1) | |
|---|---|
| Pin# | Definition |
| 19 | Control |
| 20 | Ground |

# 4.3 Ports

### *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.
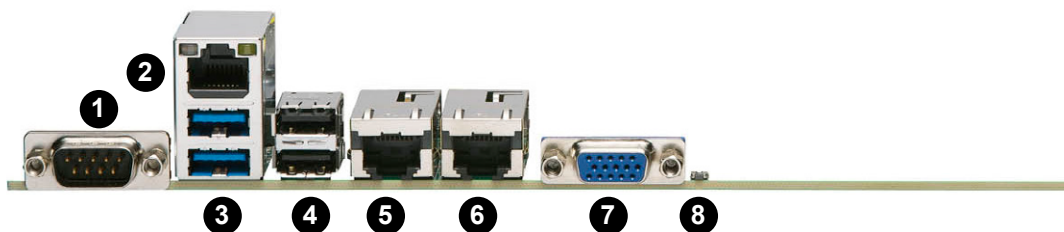


| Rear I/O Ports | | | | | |
|---|---|---|---|---|---|
| # | Description | # | Description | # | Description |
| 1. | COM Port #1 | 4. | USB 0/1 | 7. | VGA Port |
| 2. | IPMI LAN Port | 5. | LAN Port#1 | 8. | UID Switch/LED |
| 3 | USB 4/5 | 6. | LAN Port#2 | | |

### VGA Port

A video (VGA) port is located next to LAN Port#2 on the I/O back panel. Use this to connect to a to a monitor that supports legacy VGA video signals.

### IPMI LAN Port

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

### LAN1, LAN2 Ports

Two LAN ports are located on the I/O back panel. These ports accept an RJ45 type cable.

### COM Ports

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

### Universal Serial Bus (USB) Ports

There are two USB 2.0 ports (USB0/1) and two USB 3.0 ports (USB4/5) on the I/O back panel.

### UID Switch and LED Indicator

A Unit Identifier (UID) switch and UID LED are located on the I/O backpanel, one UID LED indicator header is located on JF1. 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 turn on. Press the UID switch again to turn off the LED indicators. Use this UID Indicator system to 'mark' the system, so the system can be easly identified whether on the front or back (e.g., a system rack with multiple units installed).

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

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

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

# 4.4 Jumpers

### *Explanation of Jumpers*

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

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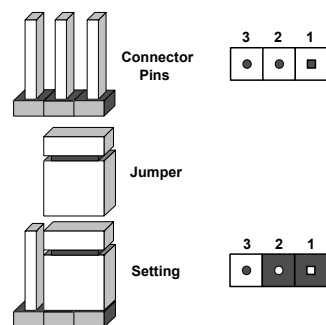


**CMOS Clear**

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

### *To Clear CMOS*

1. First power down the system and unplug the power cord(s).

2. Remove the cover of the chassis to access the motherboard.

3. Remove the onboard battery from the motherboard.

4. Short the CMOS pads with a metal object such as a small screwdriver for at least four seconds.

5. Remove the screwdriver (or shorting device).

6. Replace the cover, reconnect the power cord(s) and power on the system.

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

*Do not use the PW_ON connector to clear CMOS.*



JBT1 contact pads

**VGA Enable/Disable**

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

The default setting is Enabled.

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

**Watch Dog**

JWD 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 |
| Pins 2-3 | NMI |
| Open | Disabled |

**PCI Slot SMB Enable (JI2C1/JI2C2)**

Use Jumpers JI2C1/JI2C2 to enable PCI SMB (System Management Bus) support to improve system management for the PCI slots. See the table on the right for jumper settings.

The default setting is Enabled.

| PCI Slot SMB Enable/Disable Jumper Settings | |
|---|---|
| **Jumper Setting** | **Definition** |
| Pins 1-2 | Enabled |
| Pins 2-3 | Disabled |

**LAN1/2 Enable/Disable**

Change the setting of jumper JPL1 to enable or disable the LAN1 and LAN2 Ethernet ports..

The default setting is Enabled.

| LAN1/2 Enable/Disable Jumper Settings | |
|---|---|
| **Jumper Setting** | **Definition** |
| Pins 1-2 | Enabled |
| Pins 2-3 | Disabled |

# 4.5 LED Indicators

**LAN LEDs**

Each LAN port has two LED indicators. The yellow LED indicates activity, while the link LED may be green, amber, or off to indicate the speed of the connection. See the table below for more information.

| LAN1/2 LED (Connection Speed Indicator) | |
| --- | --- |
| **LED Color** | **Definition** |
| Off | 10 Mb/s |
| Green | 100 Mb/s or 10Gb/s (X550) |
| Amber | 1 Gb/s |

| Activity Indicator | | |
| --- | --- | --- |
| **Color** | **Status** | **Definition** |
| Off | No Connection | |
| Yellow | Flashing | Active |

**BMC Heartbeat LED**

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

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

**Onboard Power LED**

The Onboard Power LED is located at LED3 on the motherboard. When this LED is lit, it means power is present on the motherboard. In suspend mode, this LED will blink on and off. Turn off the system and unplug the power cord before removing or installing components.

Refer to the table below for more information.

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

# Chapter 5

# Software

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

## 5.1 Microsoft Windows OS Installation

### 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.
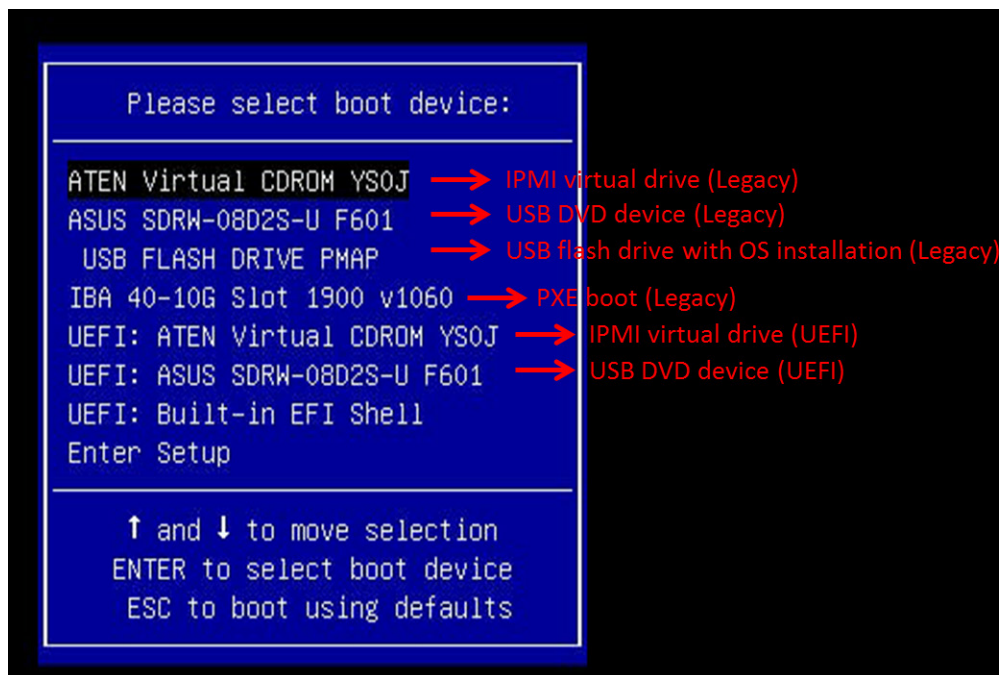


**Figure 5-1. Windows Installation**

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.
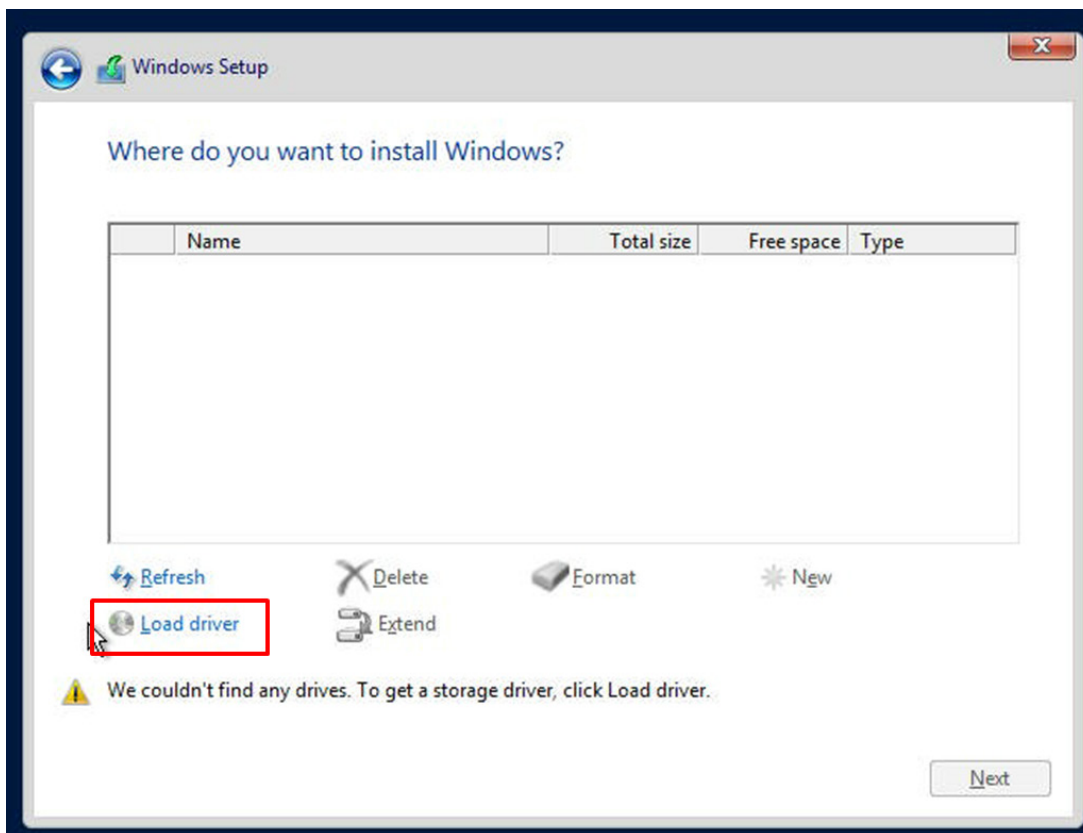


**Figure 5-2. Load Driver Link**

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

- 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/wftp/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 5-3 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/.
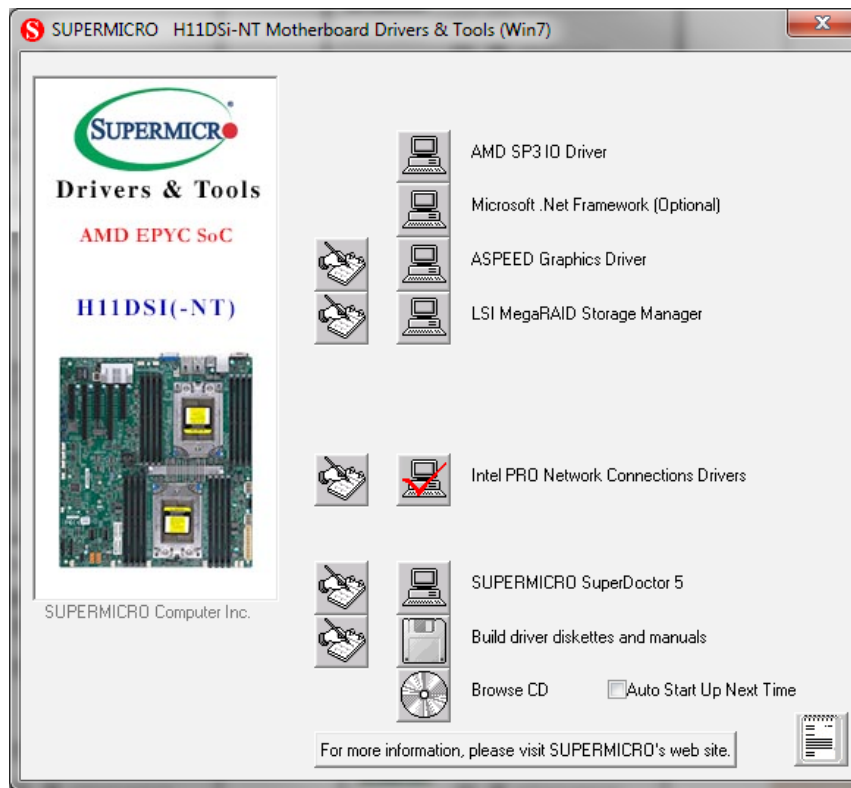


**Figure 5-3. Driver & Tool Installation Screen**

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

## 5.3 SuperDoctor® 5

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

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

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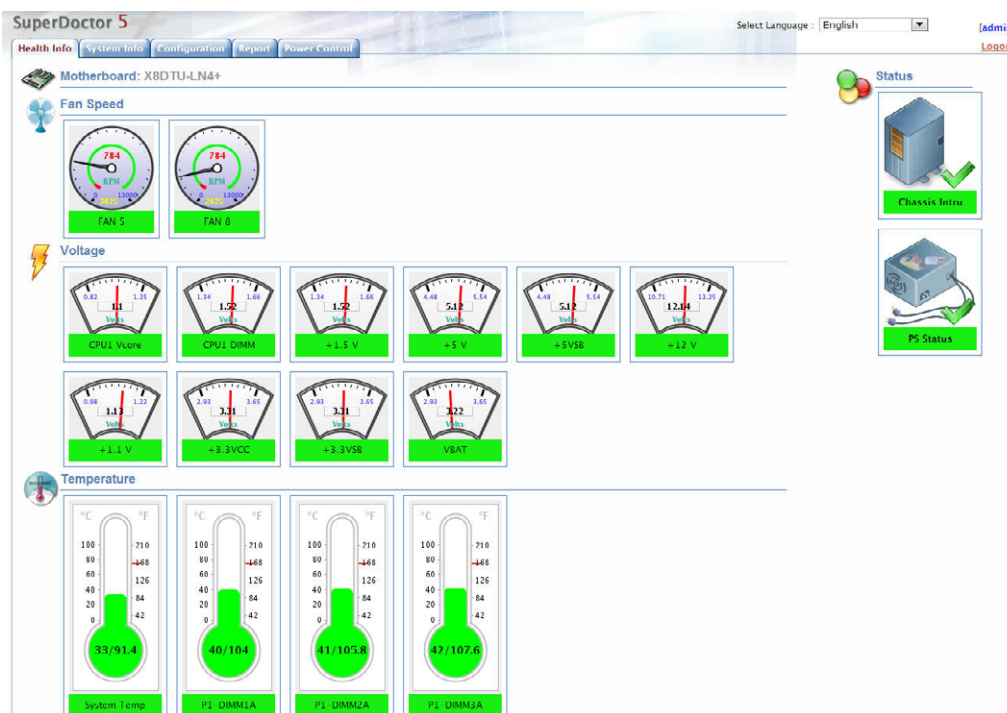


**Figure 5-4. SuperDoctor 5 Interface Display Screen (Health Information)**

## 5.4 IPMI

The H11DSi-NT support the Intelligent Platform Management Interface (IPMI). IPMI is used to provide remote access, monitoring and management. There are several BIOS settings that are related to IPMI.

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

# Chapter 6

# BIOS

# (EPYC 7001 Series)

## 6.1 Introduction

This chapter describes the AMIBIOS™ Setup utility for the H11DSi-NT 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:

```
          Aptio Setup Utility - Copyright (C) 2018 American Megatrends, Inc.
    Main  Advanced  IPMI  Event Logs  Security  Boot  Save & Exit

                                                            Set the Date. Use Tab to
                                                            switch between Date
  System Date                    [Mon 07/16/2018]           elements.
  System Time                    [15:35:18]                 Default Ranges:
                                                            Year: 2005-2099
                                                            Months: 1-12
  Supermicro H11DSi-NT                                      Days: dependent on month
  BIOS Version                   1.1a
  Build Date                     05/02/2018
  CPLD Version                   04.00.14

  Memory Information
  Total Memory                   256 GB

                                                            ➔←: Select Screen
                                                            ↑↓: Select Item
                                                            Enter: Select
                                                            +/-: Change Opt.
                                                            F1: General Help
                                                            F2: Previous Values
                                                            F3: Optimized Defaults
                                                            F4: Save & Exit
                                                            ESC: Exit

          Version 2.18.1264. Copyright (C) 2018 American Megatrends, Inc.
```

**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 H11DSi-NT**

**BIOS Version**

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

**Build Date**

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

### CPLD Version

This item displays the version of the CPLD firmware used in the system.

### Memory Information

### Total Memory

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

# 6.3 Advanced

Use the arrow keys to select Boot Setup and press <Enter> to access the submenu items.
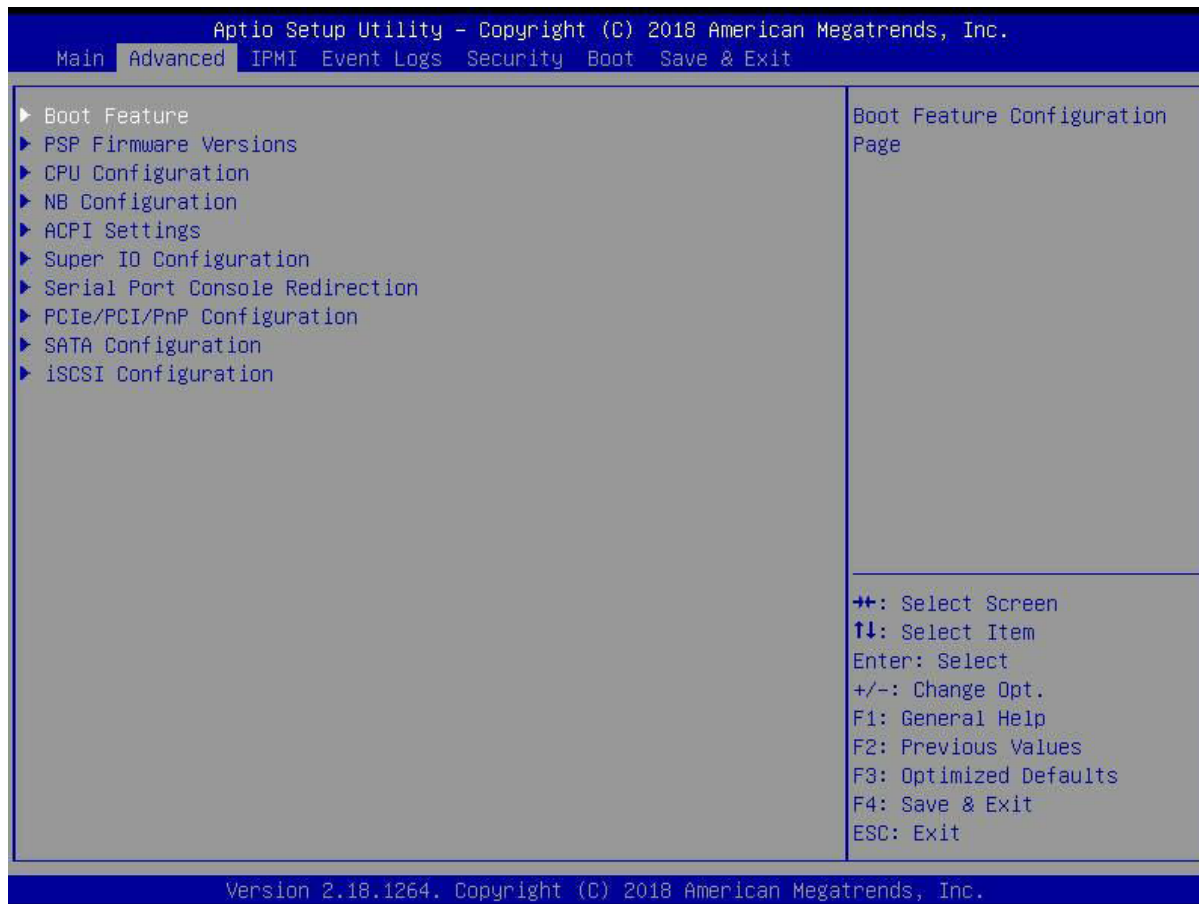
```
           Aptio Setup Utility - Copyright (C) 2018 American Megatrends, Inc.
    Main  Advanced  IPMI  Event Logs  Security  Boot  Save & Exit

  ▶ Boot Feature                                          Boot Feature Configuration
  ▶ PSP Firmware Versions                                 Page
  ▶ CPU Configuration
  ▶ NB Configuration
  ▶ ACPI Settings
  ▶ Super IO Configuration
  ▶ Serial Port Console Redirection
  ▶ PCIe/PCI/PnP Configuration
  ▶ SATA Configuration
  ▶ iSCSI Configuration




                                                          ←→: Select Screen
                                                          ↑↓: Select Item
                                                          Enter: Select
                                                          +/-: Change Opt.
                                                          F1: General Help
                                                          F2: Previous Values
                                                          F3: Optimized Defaults
                                                          F4: Save & Exit
                                                          ESC: Exit

           Version 2.18.1264. Copyright (C) 2018 American Megatrends, Inc.
```

**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 manufacture 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 **Enabled** and Disabled.

### Option ROM Messages

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

**Bootup NumLock State**

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

**Wait For "F1" If Error**

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.

# ▶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

- APCB Version

- APOB Version

- APPB Version

**PSP Directory Level 2 (Updateable)**

- PSP Bootloader Version

- SMU FW Version

- ABL Version

- APCB Version

- APOB Version

- APPB Version

# ▶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 Disable and **Enable**.

**TPM State**

This software switch will enable or disable the installed security device. The options are Disable and **Enable**.

**Pending Operation**

This feature wil schedule an operation for the the security device, select TPM Clear to clear any pending operation. The options are **None** and TPM Clear

**Device Select**

Selecting TPM 1.2 will restrict support to TPM 1.2 devices, TPM 2.0 to TPM 2.0 devices and Auto will auto-select according to the version of the device installed, with the default set to TPM 2.0. The options are TPM 1.2, TPM 2.0 and **Auto**.

## ▶CPU Configuration

### SMT Mode

Use this setting to specify Simultaneous Multithreading. Options include Off for 1T single thread and **Auto** for 2T two-thread if your system is capable of it.

### Core Performance Boost

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

### Global C-state Control

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

### Downcore Control

This sets the number of cores to be used by your system. Once this option has been used to remove any cores, a power cycle is required in order for the future selections to take effect. Options include TWO (1+1), Two (2 + 0), Three (3 + 0), Four (2 + 2), Four (4+0), Six (3 + 3) and **Auto**.  If unsure, leave this to Auto.

### 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 **Auto**, Disabled and Enabled.

### SVM Mode

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

### SMEE

This setting **Enables** or Disables secure memory encryption control.

## ▶CPU1/CPU2 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
- Clock speed
- 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

### Determinism Slider

Use this setting to configure the Determinism Slider. Options include **Auto**, Power and Performance.

### cTDP Control

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

### IOMMU

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

### ACS Enable

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

## ▶Memory Configuration

### Memory Clock

This setting allows you to select different memory clock speed. Options include **Auto** and speed settings from 1333Mhz to 2666Mhz.

### 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. Options include None, Channel, Die, Socket 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). Options include 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**.

## ▶CPU1/CPU2 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)

## ▶ ACPI Settings

### 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.

## ▶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 Enabled and **Disabled**.

*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**.

### 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, XTERMR6, SC0, ESCN, and VT400.

### SOL

### Console Redirection

Select Enabled to enable SOL 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

### 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**.

**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, XTERMR6, SC0, ESCN, and VT400.

**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.

**Resolution**

For Legacy OS systems, use this setting to specify the number of Rows and Columns supported for redirection. Options include **80x24** and 80x25.

**Redirect After Post**

For this setting, when the Bootloader is selected, then the Legacy Console Redirection is disabled before booting to the legacy OS. If you select Always Enable, then the Legacy Console Redirection is enabled for legacy OS systems. Default option for this system is **Always Enable**.

**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,** COM2 (Disabled), and AMT 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

### Parity

### Stop Bits

# ▶PCIe/PCI/PnP Configuration

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

### PCI Bus Driver Version

### Above 4G Decoding

This setting **Enables** or Disables 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 PCI-E devices, this setting will Enable or **Disable** the Single Root IO Virtualization Support for the system.

### PCIe Spread Spectrum

Use this setting to Enable or **Disable** PCI-E 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 AMI Native Support and **Vendor Defined Firmware.**

### 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 AMI Native Support and **Vendor Defined Firmware.**

### CPU2 Slot 1 PCI-E 3.0 x8 OPROM

This setting enables or disables the listed PCI/PCIX/PCIe Slot OPROM option. Options include Disabled, **Legacy** or EFI.

### CPU1 Slot 2 PCI-E x16 OPROM

This setting enables or disables the listed PCI/PCIX/PCIe Slot OPROM option. Options include Disabled, **Legacy** or EFI.

### CPU1 Slot 3 PCI-E x8 OPROM

This setting enables or disables the listed PCI/PCIX/PCIe Slot OPROM option. Options include Disabled, **Legacy** or EFI.

### CPU1 Slot 4 PCI-E x16 OPROM

This setting enables or disables the listed PCI/PCIX/PCIe Slot OPROM option. Options include Disabled, **Legacy** or EFI.

### CPU1 Slot 5 PCI-E x8 OPROM

This setting enables or disables the listed PCI/PCIX/PCIe Slot OPROM option. Options include Disabled, **Legacy** or EFI.

### M.2 PCI-E x2 OPROM

This setting enables or disables the listed M.2 PCI-E OPROM option. Options include Disabled, **Legacy** or EFI.

### Onboard LAN Option ROM Type

Use this setting to select which firmware type to be loaded for onboard LAN on the system. Options include **Legacy** and EFI.

### Onboard LAN1 Option ROM

Use this setting to select which firmware function is to be loaded for onboard LAN1 on the system. Options include Disabled, **PXE** and iSCSI.

**Onboard LAN2 Option ROM**

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

**P2_NVMe0 OpROM**

Use this setting to select which firmware function is to be loaded for P2_NVMe0 OpROM on the system. Options include Disabled, and **EFI**.

**P2_NVMe1 OpROM**

Use this setting to select which firmware function is to be loaded for P2_NVMe1 OpROM on the system. Options include Disabled, and **EFI**.

**Onboard Video Option ROM**

This setting selects which onboard video firmware type to be selected. Options include Disabled, **Legacy** and EFI.

**CPU2 Slot 1 PCI-E 3.0 x8 Bifurcation**

This setting selects the bifurcation configuration for this particular PCI-E slot. The options **Auto,** and x4x4.

**CPU1 Slot 2 PCI-E 3.0 x16 Bifurcation**

This setting selects the bifurcation configuration for this particular PCI-E slot. The options **Auto,** x8x8 and x4x4x4x4.

**CPU1 Slot 3 PCI-E 3.0 x8 Bifurcation**

This setting selects the bifurcation configuration for this particular PCI-E slot. The options **Auto,** and x4x4.

**CPU1 Slot 4 PCI-E 3.0 x16 Bifurcation**

This setting selects the bifurcation configuration for this particular PCI-E slot. The options **Auto,** x8x8 and x4x4x4x4.

**CPU1 Slot 5 PCI-E 3.0 x8 Bifurcation**

This setting selects the bifurcation configuration for this particular PCI-E slot. The options **Auto,** and x4x4.

## ▶Network Stack Configuration

**Network Stack**

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

**Ipv4 PXE Support**

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

**Ipv4 HTTP Support**

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

**Ipv6 PXE Support**

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

**Ipv6 HTTP Support**

This setting allows you to Enable or **Disable** 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**.

## ▶SATA Configuration

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

**SATA Controller**

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

**SATA Hot Plug**

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

### ▶SATA Information

This section displays information on the detected SATA devices:

- CPU1 SATA0 ~ CPU1 SATA7

## ▶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

## 6.4 IPMI

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

```
            Aptio Setup Utility - Copyright (C) 2018 American Megatrends, Inc.
      Main  Advanced  IPMI  Event Logs  Security  Boot  Save & Exit

   BMC Firmware Revision              1.34                  Press <Enter> to change the
   IPMI STATUS                        Working               SEL event log configuration.

 ▶ System Event Log
 ▶ BMC Network Configuration




                                                            ++: Select Screen
                                                            ↑↓: Select Item
                                                            Enter: Select
                                                            +/-: Change Opt.
                                                            F1: General Help
                                                            F2: Previous Values
                                                            F3: Optimized Defaults
                                                            F4: Save & Exit
                                                            ESC: Exit

            Version 2.18.1264. Copyright (C) 2018 American Megatrends, Inc.
```

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

**Configure IPV4 Support**

This section displays static configuration features for IPV4 support.

**IPMI LAN Selection**

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

**IPMI Network Link Status**

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

*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 configures the virtual LAN settings. The options are **Disabled** 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

- IPV6 Address Status

- IPV6 DHCP Algorithm

# 6.5 Event Logs

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

```
             Aptio Setup Utility - Copyright (C) 2018 American Megatrends, Inc.
      Main  Advanced  IPMI  Event Logs  Security  Boot  Save & Exit

   ▶ Change SMBIOS Event Log Settings                    Press <Enter> to change the
   ▶ View SMBIOS Event Log                               SMBIOS Event Log
                                                         configuration.




                                                         ➜←: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit

             Version 2.18.1264. Copyright (C) 2018 American Megatrends, Inc.
```
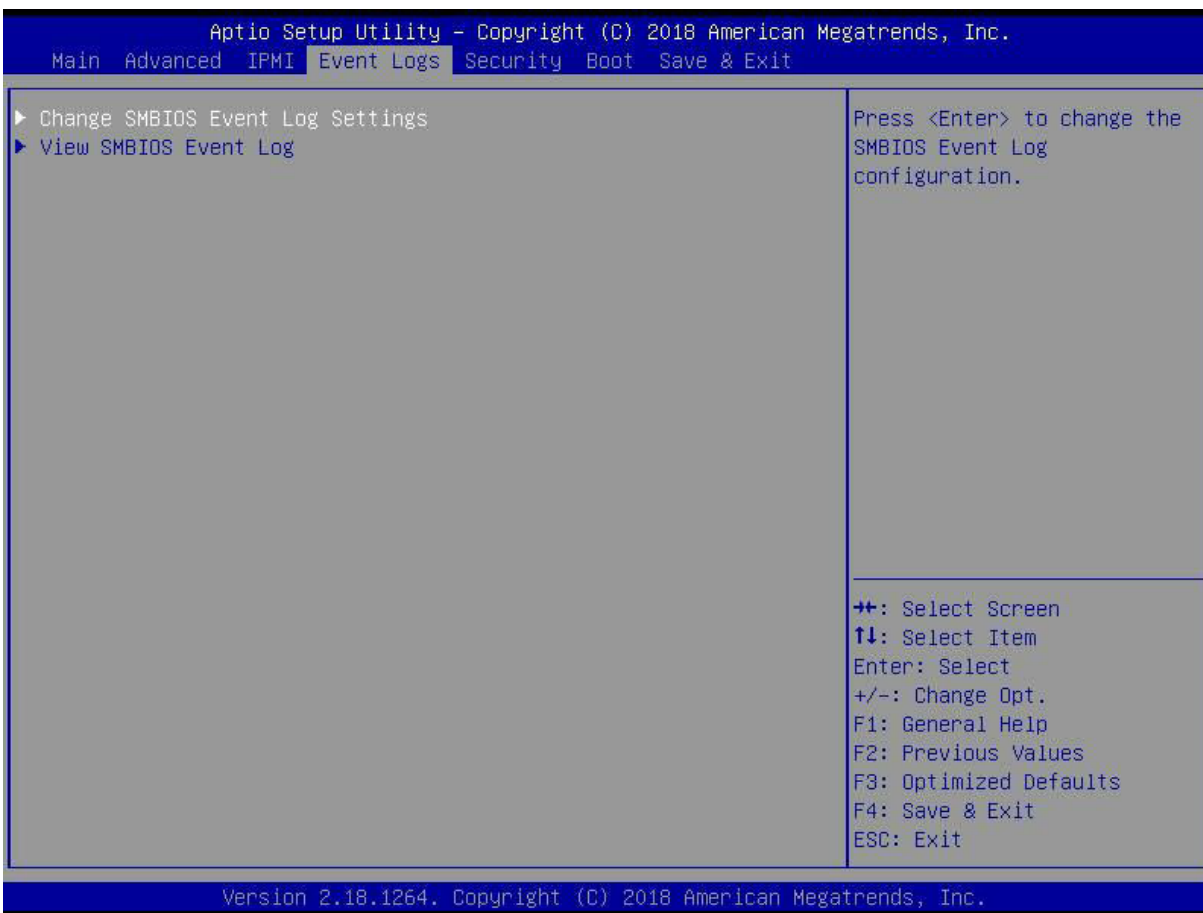
## ▶Change SMBIOS Event Log Settings

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.

```
             Aptio Setup Utility - Copyright (C) 2018 American Megatrends, Inc.
      Main  Advanced  IPMI  Event Logs  Security  Boot  Save & Exit

    Administrator Password                 Not Installed        Set Administrator Password
    User Password                          Not Installed

    Password Description

    If the Administrator's / User's password is set,
    then this only limits access to Setup and is
    asked for when entering Setup.
    Please set Administrator's password first in order
    to set User's password, if clear Administrator's
    password, the User's password will be cleared as well.

    The password length must be
    in the following range:
    Minimum length                             3
    Maximum length                             20

    Administrator Password                                      →←: Select Screen
    Password Check                         [Setup]              ↑↓: Select Item
                                                                Enter: Select
    ▶ Secure Boot                                               +/-: Change Opt.
                                                                F1: General Help
                                                                F2: Previous Values
                                                                F3: Optimized Defaults
                                                                F4: Save & Exit
                                                                ESC: Exit

             Version 2.18.1264. Copyright (C) 2018 American Megatrends, Inc.
```

**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.

**User Password**

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

**Password Check**

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

## ▶Secure Boot

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 Enabled and **Disabled**.

**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.

### ▶Enroll All Factory Default Keys

Select Yes to install all default secure keys set by the manufacturer. The options are **Yes** and No.

### ▶Enroll EFI Image

This allows the image to run in Secure Boot Mode, and enroll SHA256 hash of the binary into an Authorized Signature Database (db).

### ▶Save All Secure Boot Variables

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

### ▶Platform Key (PK)

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

**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 Set New 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:

```
           Aptio Setup Utility - Copyright (C) 2018 American Megatrends, Inc.
     Main  Advanced  IPMI  Event Logs  Security  Boot  Save & Exit

   Boot Configuration                                    ▲ Select boot mode LEGACY/UEFI

   Boot mode select                      [DUAL]
   LEGACY to EFI support                 [Disabled]

   FIXED BOOT ORDER Priorities
   Boot Option #1                        [Hard Disk]
   Boot Option #2                        [CD/DVD]
   Boot Option #3                        [USB Hard Disk]
   Boot Option #4                        [USB CD/DVD]
   Boot Option #5                        [USB Key]
   Boot Option #6                        [USB Floppy]
   Boot Option #7                        [USB Lan]
   Boot Option #8                        [Network]
   Boot Option #9                        [UEFI Hard Disk]
   Boot Option #10                       [UEFI CD/DVD]
   Boot Option #11                       [UEFI USB Hard Disk]
   Boot Option #12                       [UEFI USB CD/DVD]        ↦↤: Select Screen
   Boot Option #13                       [UEFI USB Key]           ↑↓: Select Item
   Boot Option #14                       [UEFI USB Floppy]        Enter: Select
   Boot Option #15                       [UEFI USB Lan]           +/-: Change Opt.
   Boot Option #16                       [UEFI Network]           F1: General Help
   Boot Option #17                       [UEFI AP:UEFI:           F2: Previous Values
                                          Built-in EFI Shell]    F3: Optimized Defaults
                                                               ▼ F4: Save & Exit
                                                                 ESC: Exit

            Version 2.18.1264. Copyright (C) 2018 American Megatrends, Inc.
```

**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 Section**

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

▶**Hard Disk Drive BBS Priorities**

This feature allows the user to specify which hard disk drive devices are boot devices.

# 6.8 Save & Exit

Select the Save & Exit tab to enter the Save & Exit BIOS Setup screen.
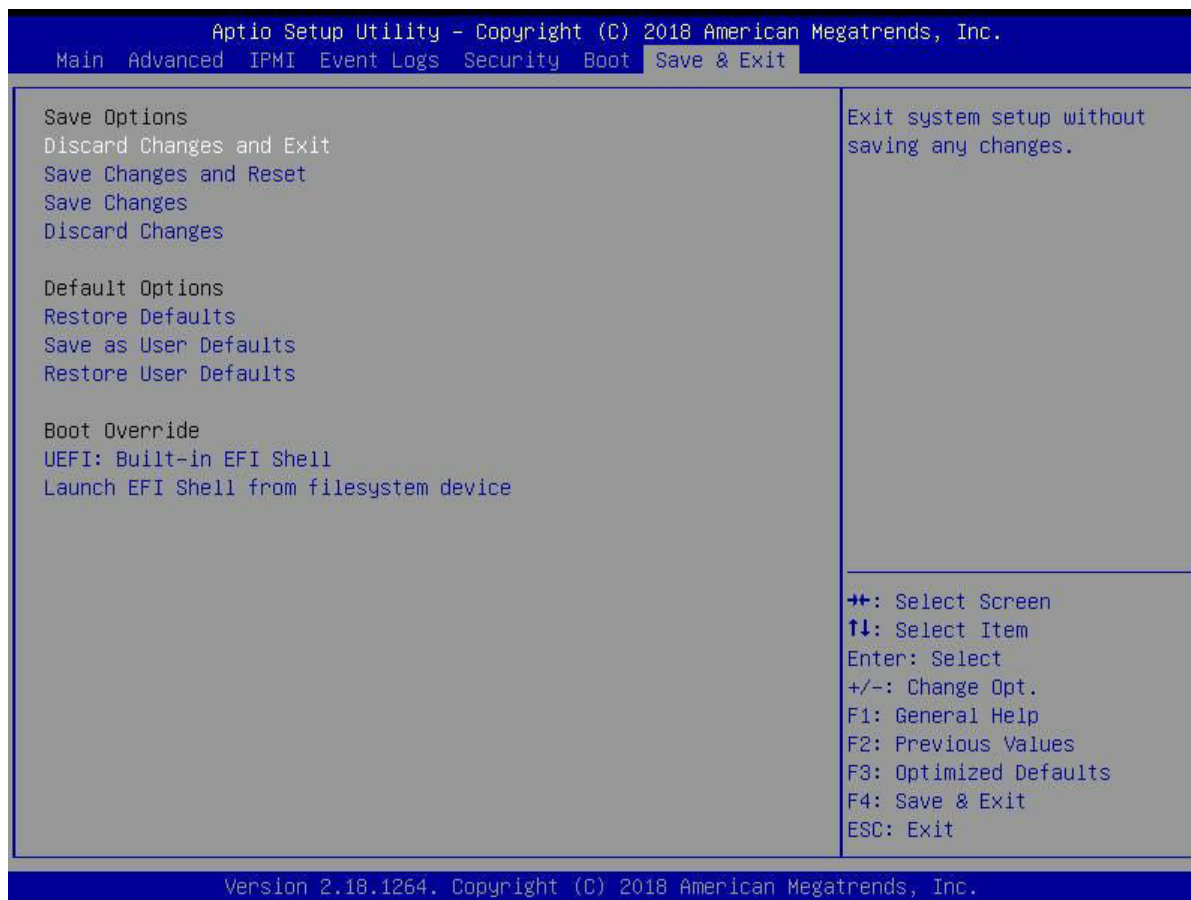
```
          Aptio Setup Utility - Copyright (C) 2018 American Megatrends, Inc.
   Main  Advanced  IPMI  Event Logs  Security  Boot  Save & Exit

  Save Options                                    Exit system setup without
  Discard Changes and Exit                        saving any changes.
  Save Changes and Reset
  Save Changes
  Discard Changes

  Default Options
  Restore Defaults
  Save as User Defaults
  Restore User Defaults

  Boot Override
  UEFI: Built-in EFI Shell
  Launch EFI Shell from filesystem device

                                                  →←: Select Screen
                                                  ↑↓: Select Item
                                                  Enter: Select
                                                  +/-: Change Opt.
                                                  F1: General Help
                                                  F2: Previous Values
                                                  F3: Optimized Defaults
                                                  F4: Save & Exit
                                                  ESC: Exit

          Version 2.18.1264. Copyright (C) 2018 American Megatrends, Inc.
```

**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 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.

# 6.9 Updating BIOS with IPMI

If necessary, the system BIOS can be updated using IPMI.

1. Download the BIOS file using the link on the server web page. Unzip and save it.

2. Type in the IP address to access the web interface (for example, 172.31.47.171).

3. Type in the default user name/password: ADMIN/ADMIN

4. Click the **Maintenance** tab, then **BIOS Update**.**Browse** to select the saved BIOS file and click **Open**.

5. Click the **Upload BIOS** button. The message, "Uploading image & checking BIOS information… Please wait. This may take a while." appears



6. Please make sure the following three checkboxes (as shown below) are unchecked and verify the BIOS date you uploaded.

7. Click the **Start Upgrade** button.

# Chapter 7

# BIOS

# (EPYC 7002 Series)

## 7.1 Introduction

This chapter describes the AMIBIOS™ Setup utility for the H11DSi-NT 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 <Enter> 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.

## 7.2 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:

```
            Aptio Setup Utility - Copyright (C) 2018 American Megatrends, Inc.
    Main  Advanced  IPMI  Event Logs  Security  Boot  Save & Exit

                                                        Set the Date. Use Tab to
                                                        switch between Date
    System Date              [Mon 07/16/2018]           elements.
    System Time              [15:35:18]                 Default Ranges:
                                                        Year: 2005-2099
    Supermicro H11DSi-NT                                Months: 1-12
    BIOS Version            1.1a                         Days: dependent on month
    Build Date             05/02/2018
    CPLD Version           04.00.14

    Memory Information
    Total Memory           256 GB

                                                        →←: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F2: Previous Values
                                                        F3: Optimized Defaults
                                                        F4: Save & Exit
                                                        ESC: Exit

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```

**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 H11DSi-NT**

**BIOS Version**

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

**Build Date**

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

**CPLD Version**

This item displays the version of the CPLD firmware used in the system.

**Memory Information**

**Total Memory**

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

# 7.3 Advanced

Use the arrow keys to select a top item and press <Enter> to access the submenu items.
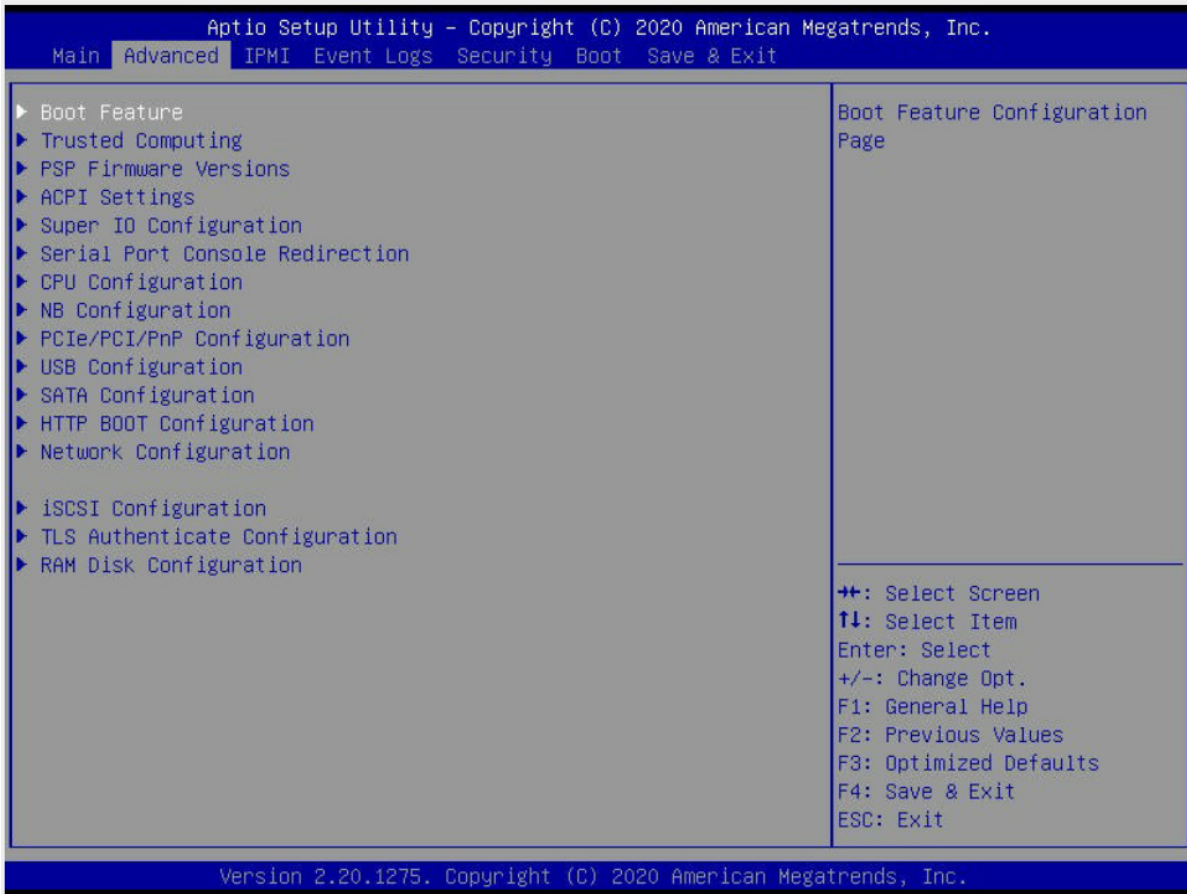
```
Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
  Main  Advanced  IPMI  Event Logs  Security  Boot  Save & Exit

▶ Boot Feature                                      Boot Feature Configuration
▶ Trusted Computing                                 Page
▶ PSP Firmware Versions
▶ ACPI Settings
▶ Super IO Configuration
▶ Serial Port Console Redirection
▶ CPU Configuration
▶ NB Configuration
▶ PCIe/PCI/PnP Configuration
▶ USB Configuration
▶ SATA Configuration
▶ HTTP BOOT Configuration
▶ Network Configuration

▶ iSCSI Configuration
▶ TLS Authenticate Configuration
▶ RAM Disk Configuration
                                                    →←: Select Screen
                                                    ↑↓: Select Item
                                                    Enter: Select
                                                    +/-: Change Opt.
                                                    F1: General Help
                                                    F2: Previous Values
                                                    F3: Optimized Defaults
                                                    F4: Save & Exit
                                                    ESC: Exit

     Version 2.20.1275. Copyright (C) 2020 American Megatrends, Inc.
```

**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 manufacture 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.

# ▶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 Tmber

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 Disabled and **Enabled**.

### 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 enabe/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

## ▶Serial Port 1 Configuration

### Serial Port

Select 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; IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12;

## Sol Configurationf

### Serial Port

The options are Disabled and **Enabled**.

### Device Settings

### Change Settings

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; 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-UTFB** 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-UTFB 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**.

**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, XTERMR6, SC0, ESCN and VT400.

**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-UTFB** 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-UTFB 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**.

### 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, XTERMR6, SC0, ESCN and VT400.

## 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. The options are **COM1** and SOL.

### Resolution

For Legacy OS systems, use this setting to specify the number of Rows and Columns supported for redirection. The options are **80x24** and 80x25.

### Redirect After POST

For this setting, when the Bootloader is selected, then the Legacy Console Redirection is disabled before booting to the legacy OS. If you select Always Enable, then the Legacy Console Redirection is enabled for legacy OS systems. The options are **Always Enable** and BootLoader.

## 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 **Disabled** and Enabled.

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*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**, COM2 (Disabled), and AMT 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. Options include Disabled for 1T single thread and **Auto** for 2T two-thread if your system is capable of it.

### 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**.

### Core Control

This sets the number of cores to be used by your system. Once this option has been used to remove any cores, a power cycle is required in order for the future selections to take effect. Options include **Auto**, TWO (1+1), Four (2 + 2) and Six (3 + 3). If unsure, leave this to Auto.

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

### SMEE

This setting enables or disables secure memory encryption control. The options are **Disabled** and Enabled.

## ▶CPU1 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

- Clock speed

- Processor Family

- Processor Model

- Microcode Patch Level

- L1 Instruction Cache (Size/Method)

- L1 Data Cache (Size/Method)

- L2 Cache (Size/Method)

- L3 Cache per Scoket (Size/Method)

## ▶CPU2 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

- Clock speed

- Processor Family

- Processor Model

- Microcode Patch Level

- L1 Instruction Cache (Size/Method)

- L1 Data Cache (Size/Method)

- L2 Cache (Size/Method)

- L3 Cache per Scoket (Size/Method)

## ▶NB Configuration

**Determinism Control**

Use this setting to configure the Determinism Slider. Options include **Auto**, Power and Performance.

**cTDP Control**

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

**IOMMU**

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

**ACS Enable**

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

**Package Power Limit Control**

Use this setting for Package Power Limit Control. Options include Manual and Auto.

**APBDIS**

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

**DF Cstates**

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

**4-link xGMI max speed**

Use this setting to adjust 4-link xGMI max speed. Options include **10.667Gbps**, **13Gbps, 16Gbps, 18Gbps and Auto.**

**Preferred IO**

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

## ▶Memory Configuration

### Memory Clock

This setting allows you to select different memory clock speed. The options include **Auto** and speed settings.

### 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 include 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 include 256 Bytes, 512 Bytes, 1 KB, 2 KB or **Auto**.

### Chipselect 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)

# ▶CPU2 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**

**Above 4G Decoding**

This setting **Enables** or Disables 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 PCI-E devices, this setting will Enable or **Disable** the Single Root IO Virtualization Support for the system.

**PCIe Spread Spectrum**

Use this setting to Enable or **Disable** PCI-E 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 AMI Native Support and **Vendor Defined Firmware.**

### 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 AMI Native Support and **Vendor Defined Firmware.**

### CPU2 Slot 1 PCI-E 3.0 x8 OPROM

This setting enables or disables the listed PCI/PCIX/PCIe Slot OPROM option. Options include Disabled, **Legacy** or EFI.

### CPU1 Slot 2 PCI-E x16 OPROM

This setting enables or disables the listed PCI/PCIX/PCIe Slot OPROM option. Options include Disabled, **Legacy** or EFI.

### CPU1 Slot 3 PCI-E x8 OPROM

This setting enables or disables the listed PCI/PCIX/PCIe Slot OPROM option. Options include Disabled, **Legacy** or EFI.

### CPU1 Slot 4 PCI-E x16 OPROM

This setting enables or disables the listed PCI/PCIX/PCIe Slot OPROM option. Options include Disabled, **Legacy** or EFI.

### CPU1 Slot 5 PCI-E x8 OPROM

This setting enables or disables the listed PCI/PCIX/PCIe Slot OPROM option. Options include Disabled, **Legacy** or EFI.

### M.2 PCI-E x2 OPROM

This setting enables or disables the listed M.2 PCI-E OPROM option. Options include Disabled, **Legacy** or EFI.

### Onboard LAN Option ROM Type

Use this setting to select which firmware type to be loaded for onboard LAN on the system. Options include **Legacy** and EFI.

### Onboard LAN1 Option ROM

Use this setting to select which firmware function is to be loaded for onboard LAN1 on the system. Options include Disabled, **PXE** and iSCSI.

**Onboard LAN2 Option ROM**

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

**P2_NVMe0 OpROM**

Use this setting to select which firmware function is to be loaded for P2_NVMe0 OpROM on the system. Options include Disabled, and **EFI**.

**P2_NVMe1 OpROM**

Use this setting to select which firmware function is to be loaded for P2_NVMe1 OpROM on the system. Options include Disabled, and **EFI**.

**Onboard Video Option ROM**

This setting selects which onboard video firmware type to be selected. Options include Disabled, **Legacy** and EFI.

**CPU2 Slot 1 PCI-E 3.0 x8 Bifurcation**

This setting selects the bifurcation configuration for this particular PCI-E slot. The options **Auto,** and x4x4.

**CPU1 Slot 2 PCI-E 3.0 x16 Bifurcation**

This setting selects the bifurcation configuration for this particular PCI-E slot. The options **Auto,** x8x8 and x4x4x4x4.

**CPU1 Slot 3 PCI-E 3.0 x8 Bifurcation**

This setting selects the bifurcation configuration for this particular PCI-E slot. The options **Auto,** and x4x4.

**CPU1 Slot 4 PCI-E 3.0 x16 Bifurcation**

This setting selects the bifurcation configuration for this particular PCI-E slot. The options **Auto,** x8x8 and x4x4x4x4.

**CPU1 Slot 5 PCI-E 3.0 x8 Bifurcation**

This setting selects the bifurcation configuration for this particular PCI-E slot. The options **Auto,** and x4x4.

## ▶Network Stack Configuration

**Network Stack**

This setting allows you to enable or disable the UEFI Network Stack. The options are Disabled and **Enabled**.

### IPv4 PXE Support

This setting allows you to enable or disable IPv4 PXE boot support. If disabled, IPv4 PXE boot support will not be available. The options are Disabled and **Enabled**.

### IPv4 HTTP Support

This setting allows you to enable or disable IPv4 HTTP boot support. If disabled, IPv4 HTTP boot support will not be available. The options are **Disabled** and Enabled.

### IPv6 PXE Support

This setting allows you to enable or disable IPv6 PXE boot support. If disabled, IPv6 PXE boot support will not be available. The options are Disabled and **Enabled**.

### IPv6 HTTP Support

This setting allows you to enable or disable IPv6 HTTP boot support. If disabled, IPv6 HTTP boot support will not be available. The options are **Disabled** and Enabled.

### PXE boot wait time

This setting allows you to set in a number field the wait time to press <ESC> 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 include **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 include **Enabled** and Disabled.

### USB Mass Storage Driver Support

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

**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 include Disabled and **Enabled**.

## ▶SATA Configuration

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

### SATA Enable

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

### SATA Hotplug

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

### 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 include **Disabled** and Enabled.

### Input the 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

*If EFI is selected in LAN OPROM after reboot, the following items will become available for configuration.*

## ▶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 Authenticate 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.

#### ▶Delete Certification

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

# 7.4 IPMI

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

```
        Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
  Main  Advanced  IPMI  Event Logs  Security  Boot  Save & Exit

  BMC Firmware Revision              1.52.00           Press <Enter> to change the
  IPMI STATUS                        Working           SEL event log configuration.

▶ System Event Log
▶ BMC Network Configuration




                                                       ↔: Select Screen
                                                       ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit

        Version 2.20.1275. Copyright (C) 2020 American Megatrends, Inc.
```

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

**Configure IPV4 Support**

This section displays static configuration features for IPV4 support.

**IPMI LAN Selection**

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

**IPMI Network Link Status**

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

*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 Static and **DHCP**.

*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 configures the virtual LAN settings. The options are **Disabled** 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 **DHCP** and Static.

*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

# 7.5 Event Logs

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

```
            Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
      Main  Advanced  IPMI  Event Logs  Security  Boot  Save & Exit

   ▶ Change SMBIOS Event Log Settings                    Press <Enter> to change the
   ▶ View SMBIOS Event Log                               SMBIOS Event Log
                                                         configuration.



















                                                         ↔: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit

            Version 2.20.1275. Copyright (C) 2020 American Megatrends, Inc.
```

## ▶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 Disabled and **Enabled**.

**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.

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### When Log is Full

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

## SMBIOS Event Log Standard Settings

### Log System Boot Event

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

### MECI (Multiple Event Count Increment)

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

### METW (Multiple Event Count Time Window)

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

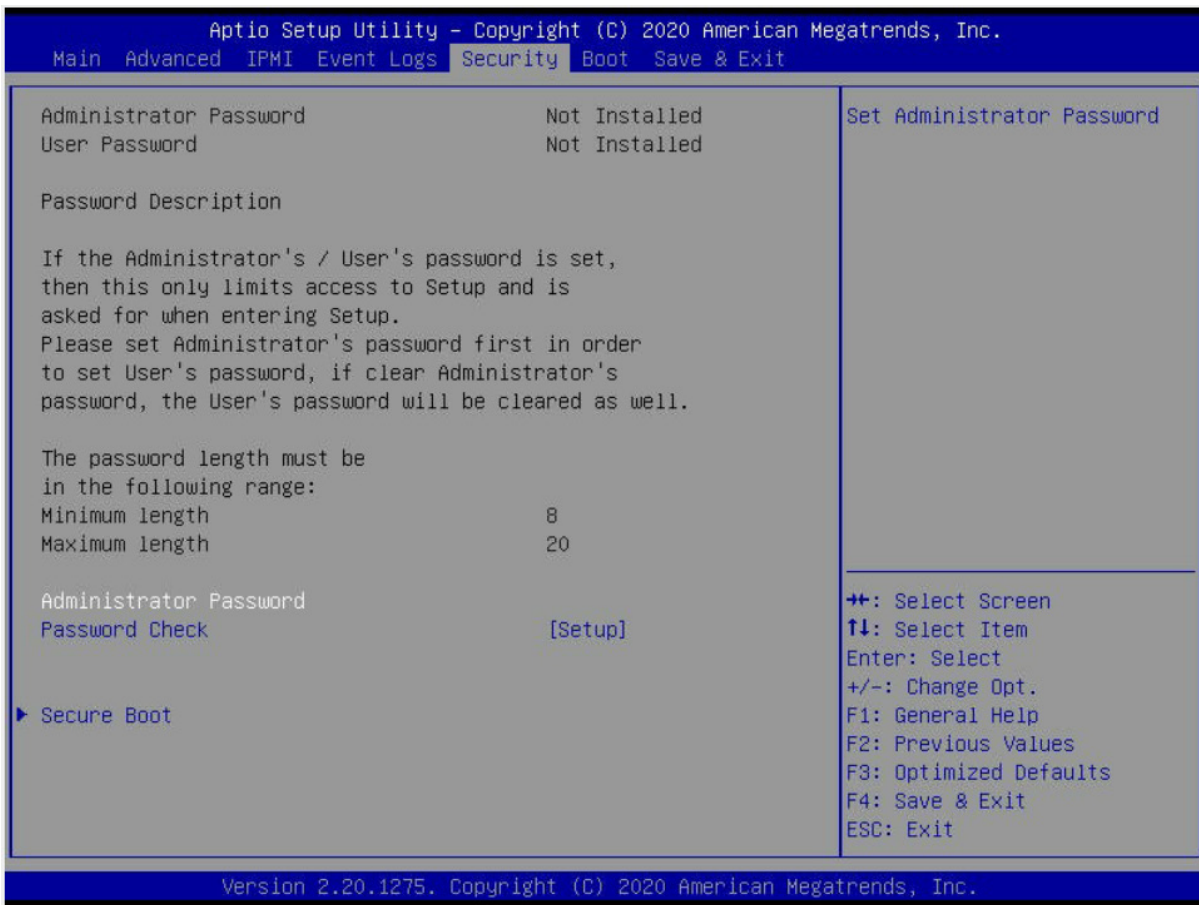**Note**: Please reboot the system for these changes to take effect.

## ▶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**

## 7.6 Security

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

```
          Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
    Main  Advanced  IPMI  Event Logs  Security  Boot  Save & Exit

  Administrator Password                Not Installed        Set Administrator Password
  User Password                         Not Installed

  Password Description

  If the Administrator's / User's password is set,
  then this only limits access to Setup and is
  asked for when entering Setup.
  Please set Administrator's password first in order
  to set User's password, if clear Administrator's
  password, the User's password will be cleared as well.

  The password length must be
  in the following range:
  Minimum length                           8
  Maximum length                           20

  Administrator Password
  Password Check                        [Setup]              →←: Select Screen
                                                             ↑↓: Select Item
                                                             Enter: Select
▶ Secure Boot                                                +/-: Change Opt.
                                                             F1: General Help
                                                             F2: Previous Values
                                                             F3: Optimized Defaults
                                                             F4: Save & Exit
                                                             ESC: Exit

           Version 2.20.1275. Copyright (C) 2020 American Megatrends, Inc.
```

**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.

**User Password**

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

**Password Check**

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

## ▶Secure Boot

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

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**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.

### Provision Factory Defaults

Install factory default Secure Boot keys after the platform reset and while the system is in Setup mode. The options include **Disabled** and Enabled.

### ▶Restore Factory Keys

Select Yes to install all default secure keys set by the manufacturer. The options are **Yes** and No.

### ▶Enroll EFI Image

This allows the image to run in Secure Boot Mode, and enroll SHA256 hash of the binary into an Authorized Signature Database (db).

### ▶Secure Boot Variable

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

### ▶Platform Key (PK)

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

### Update

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.

### ▶Key Exchange Keys

### Update

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**

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**

**Update**

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**

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**

**Update**

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**

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**

**Update**

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**

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 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

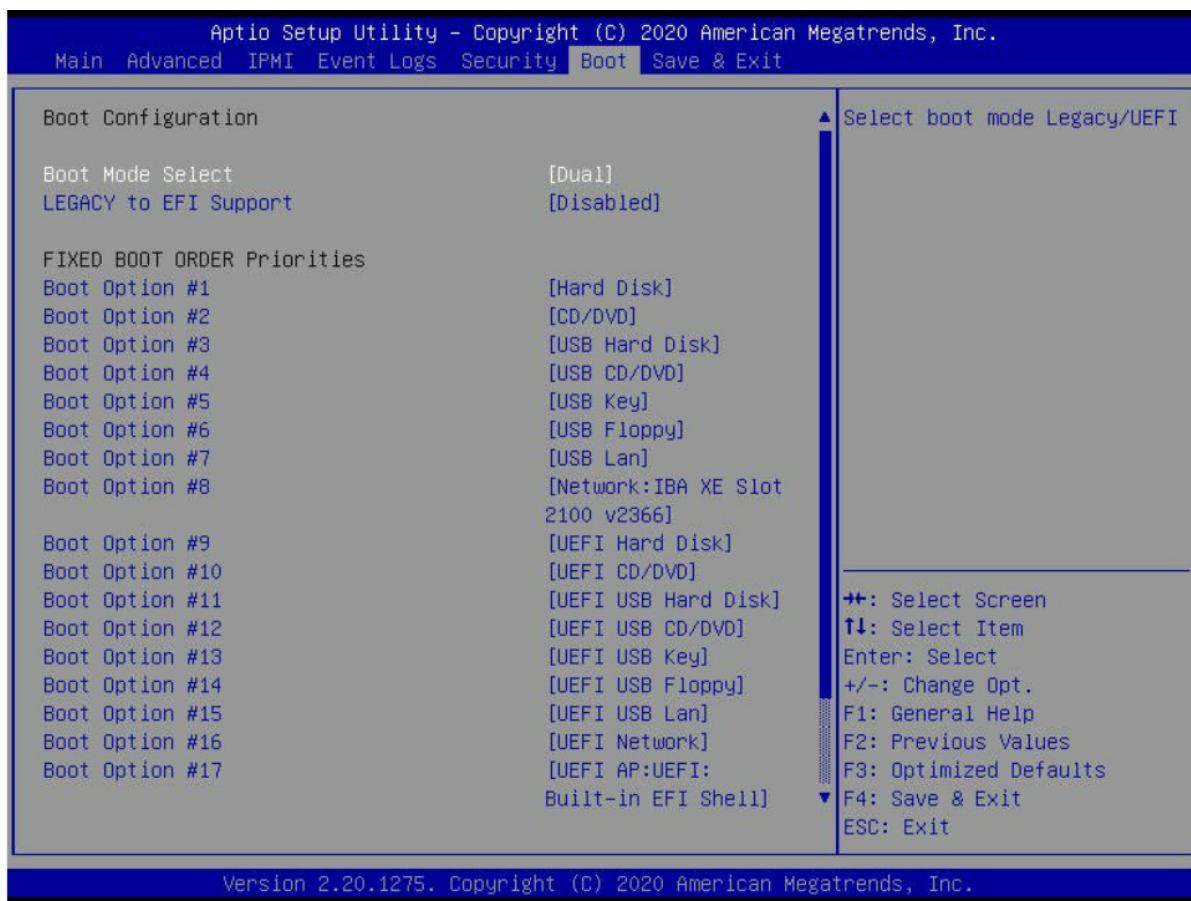When prompted, select "Yes" to load Factory Defaults or "No' to load from a file.

## 7.7 Boot

Use this tab to configure Boot Settings:

```
              Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
     Main  Advanced  IPMI  Event Logs  Security  Boot  Save & Exit

  Boot Configuration                                      ▲ Select boot mode Legacy/UEFI

  Boot Mode Select                    [Dual]
  LEGACY to EFI Support               [Disabled]

  FIXED BOOT ORDER Priorities
  Boot Option #1                      [Hard Disk]
  Boot Option #2                      [CD/DVD]
  Boot Option #3                      [USB Hard Disk]
  Boot Option #4                      [USB CD/DVD]
  Boot Option #5                      [USB Key]
  Boot Option #6                      [USB Floppy]
  Boot Option #7                      [USB Lan]
  Boot Option #8                      [Network:IBA XE Slot
                                       2100 v2366]
  Boot Option #9                      [UEFI Hard Disk]
  Boot Option #10                     [UEFI CD/DVD]
  Boot Option #11                     [UEFI USB Hard Disk]   ↔: Select Screen
  Boot Option #12                     [UEFI USB CD/DVD]      ↑↓: Select Item
  Boot Option #13                     [UEFI USB Key]         Enter: Select
  Boot Option #14                     [UEFI USB Floppy]      +/-: Change Opt.
  Boot Option #15                     [UEFI USB Lan]         F1: General Help
  Boot Option #16                     [UEFI Network]         F2: Previous Values
  Boot Option #17                     [UEFI AP:UEFI:         F3: Optimized Defaults
                                       Built-in EFI Shell] ▼ F4: Save & Exit
                                                              ESC: Exit

              Version 2.20.1275. Copyright (C) 2020 American Megatrends, Inc.
```

**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. The options include **Disabled** and Enabled.

**FIXED BOOT ORDER Priorities Section**

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 setting is [Select one to Delete].

---

### ▶UEFI Application Boot Priorities

This feature allows the user to specify which UEFI devices are boot devices.
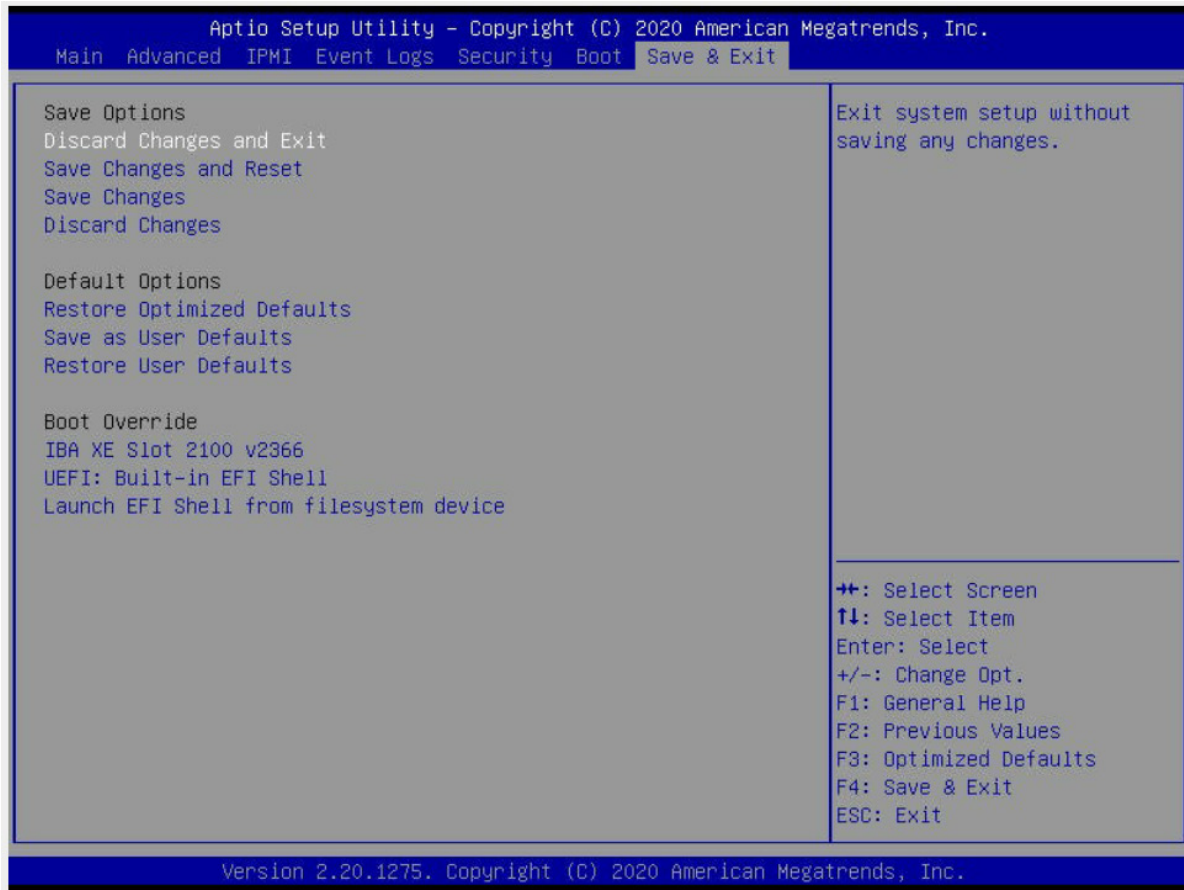
• Boot Option #1

### ▶Hard Disk Drive BBS Priorities

This feature allows the user to specify which hard disk drive devices are boot devices.

### ▶NETWORK Drive BBS Priorities

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

# 7.8 Save & Exit

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

```
          Aptio Setup Utility - Copyright (C) 2020 American Megatrends, Inc.
   Main   Advanced   IPMI   Event Logs   Security   Boot   Save & Exit

   Save Options                                        Exit system setup without
   Discard Changes and Exit                            saving any changes.
   Save Changes and Reset
   Save Changes
   Discard Changes

   Default Options
   Restore Optimized Defaults
   Save as User Defaults
   Restore User Defaults

   Boot Override
   IBA XE Slot 2100 v2366
   UEFI: Built-in EFI Shell
   Launch EFI Shell from filesystem device

                                                       ++: Select Screen
                                                       ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit

          Version 2.20.1275. Copyright (C) 2020 American Megatrends, Inc.
```

**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.

# 7.9 Updating BIOS with IPMI

If necessary, the system BIOS can be updated using IPMI.

1. Download the BIOS file using the link on the server web page. Unzip and save it.

2. Type in the IP address to access the web interface (for example, 172.31.47.171).

3. Type in the default user name/password: ADMIN/ADMIN

4. Click the **Maintenance** tab, then **BIOS Update**.**Browse** to select the saved BIOS file and click **Open**.

5. Click the **Upload BIOS** button. The message, "Uploading image & checking BIOS information… Please wait. This may take a while." appears



6. Please make sure the following three checkboxes (as shown below) are unchecked and verify the BIOS date you uploaded.

7. Click the **Start Upgrade** button.

# Appendix A

# Standardized Warning Statements for AC Systems

## A.1 About Standardized Warning Statements

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

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

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

### Warning Definition

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

警告の定義

この警告サインは危険を意味します。

人身事故につながる可能性がありますので、いずれの機器でも動作させる前に、

電気回路に含まれる危険性に注意して、標準的な事故防止策に精通して下さい。

此警告符号代表危险。

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。

此警告符號代表危險。

您目前所處的工作環境可能讓您受傷。在您使用任何設備之前，請注意觸電的危險，並且要熟悉預防事故發生的標準工作程序。請依照每一注意事項後的號碼找到相關的翻譯說明內容。

Warnung

WICHTIGE SICHERHEITSHINWEISE

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

BEWAHREN SIE DIESE HINWEISE GUT AUF.


INSTRUCCIONES IMPORTANTES DE SEGURIDAD

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

GUARDE ESTAS INSTRUCCIONES.


IMPORTANTES INFORMATIONS DE SÉCURITÉ

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

CONSERVEZ CES INFORMATIONS.


תקנון הצהרות אזהרה

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

יש לקרוא את הנספח במלואו לפני התקנת או הגדרת הרכיבים במארזי סופרמיקרו.

احذَر! خطرٌ عُ الزهز هذا ةٌ جسدَ اصابة ف تتسبب أى وُيِ حالة ف اً كَ.

قبل أى تعول على أي هعذات،كي على علن بالوخاطز ال اُجوة عي الذوائز الكهزبائٌ ةٍ

وكِ على درا ةٌ بالوواارسات القائٌ ةٍ لو عٌ وقع أي حادث

استخذم رقن الب اٍى الو صُص ف هَا ةٌ كل تحذ زٌ للعشر تزجوتها

안전을 위한 주의사항

경고!

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

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

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

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

BEWAAR DEZE INSTRUCTIES

## Installation Instructions

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

設置手順書

システムを電源に接続する前に、設置手順書をお読み下さい。

警告

将此系统连接电源前,请先阅读安装说明。

警告

將系統與電源連接前，請先閱讀安裝說明。

Warnung

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

¡Advertencia!

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

Attention

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

יש לקרוא את הוראות התקנה לפני חיבור המערכת למקור מתח.

اقر إرشادات التركيب قبل توصيل النظام إلى مصدر للطاقة

시스템을 전원에 연결하기 전에 설치 안내를 읽어주십시오.

Waarschuwing

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

## Circuit Breaker

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

サーキット・ブレーカー

この製品は、短絡（過電流）保護装置がある建物での設置を前提としています。
保護装置の定格が250 V、20 Aを超えないことを確認下さい。

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

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

Warnung

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

¡Advertencia!

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

Attention

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

מוצר זה מסתמך על הגנה המותקנת במבנים למניעת קצר חשמלי. יש לוודא כי המכשיר המגן מפני הקצר החשמלי הוא לא יותר מ-20A, 60VDC

هذا المنتج يعتمد على معداث الحمايت مه الدوائرالقصيرة التي تم تثبيتها في المبنى
تأكد من أن تقييم الجهاز الوقائي ليس أكثر من : 20A, 250V

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

Waarschuwing

Dit product is afhankelijk van de kortsluitbeveiliging (overspanning) van uw electrische installatie. Controleer of het beveiligde aparaat 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 chassis pour installer ou enlever des composants de systéme.

אזהרה מפני ניתוק חשמלי

אזהרה!

יש לנתק את המערכת מכל מקורות החשמל ויש להסיר את כבל החשמלי מהספק

לפני גישה לחלק הפנימי של המארז לצורך התקנת או הסרת רכיבים.

131

يجب فصم اننظاو من جميع مصادر انطاقت وإزانت سهك انكهرباء من وحدة امداد انطاقت قبم

انصل إنى اﻤناطق انداخهيت نههيكم نتثبيج أو إزانت مكناث الجهاز

경고!

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

Waarschuwing

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

## Equipment Installation

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

機器の設置

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

警告
只有经过培训且具有资格的人员才能进行此设备的安装、更换和维修。

警告
只有經過受訓且具資格人員才可安裝、更換與維修此設備。

Warnung

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

¡Advertencia!

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

Attention

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


אזהרה!

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


والمدربيه لتزكيب واستبدال أو خدمة هذا الجهاس يجب أن يسمح فقط للمنظفيه المؤهليه

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


Waarschuwing

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


## Restricted Area

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


アクセス制限区域

このユニットは、アクセス制限区域に設置されることを想定しています。

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

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

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

Warnung

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

¡Advertencia!

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

Attention

Cet appareil doit être 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

אזהרה!

יש להתקין את היחידה באזורים שיש בהם הגבלת גישה. הגישה ניתנת בעזרת

כלי אבטחה בלבד (מפתח, מנעול וכד.)'

تخصيص هذه انحذة نترك بُها ف مناطق محظورة تم .

مَكن انصبل إن منطقت محظورة فقط من خلال استخذاو أداة خاصت،

أو أ وس هُت أخري نلالأمما قفم ومفتاح

경고!

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

Waarschuwing

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

## Battery Handling

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

電池の取り扱い

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

警告

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 יצרן מומלצת.
סילוק הסוללות המשומשות יש לבצע לפי הוראות היצרן.

<div dir="rtl">

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

اسحبذال البطارية

فقط بنفس النع أو ما يعادلها مما أوصث به الشرمة المصنعة

جخلص من البطاريات المسحعملة وفقا لحعليمات الشرمة الصانعة

</div>

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 trom zugeführt wird, müssen alle Verbindungen entfernt werden.

¡Advertencia!

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

Attention

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

אם קיים יותר מספק אחד

אזהרה!

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 لعسل الوحدة عن الكهرباء

경고!

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

Waarschuwing

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

## Backplane Voltage

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

バックプレーンの電圧

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

修理する際には注意ください。


警告

当系統正在进行时，背板上有很危险的电压或能量，进行维修时务必小心。

警告

當系統正在進行時，背板上有危險的電壓或能量，進行維修時務必小心。


Warnung

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


¡Advertencia!

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


Attention

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


מתח בפנל האחורי

אזהרה!

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

העבודה.

هناك خطز مه التيار الكهزبائي أوالطاقة المجددة على اللحة
عندما يكىن النظام يعمل كه حذرا عند خدمة هذا الجهاس

경고!

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

Waarschuwing

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

## Comply with Local and National Electrical Codes

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

地方および国の電気規格に準拠

機器の取り付けはその地方および国の電気規格に準拠する必要があります。

警告

设备安装必须符合本地与本国电气法规。

警告

設備安裝必須符合本地與本國電氣法規。

Warnung

Die Installation der Geräte muss den Sicherheitsstandards entsprechen.

¡Advertencia!

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

Attention

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

תיאום חוקי החשמל הארצי

אזהרה!

התקנת הציוד חייבת להיות תואמת לחוקי החשמל המקומיים והארציים.

تركيب المعدات الكهربائية يجب أن يمتثل للقاويه المحلية والطية المتعلقة
بالكهرباء

경고!

현 지역 및 국가의 전기 규정에 따라 장비를 설치해야 합니다.

Waarschuwing

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

## Product Disposal

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

製品の廃棄

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

警告

本产品的废弃处理应根据所有国家的法律和规章进行。

警告

本產品的廢棄處理應根據所有國家的法律和規章進行。

Warnung

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

¡Advertencia!

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

Attention

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

סילוק המוצר

אזהרה!

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

التخلص النهائي من هذا المنتج ينبغي التعامل معه وفقا لجميع القانين واللائح الطنية عند

경고!

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

Waarschuwing

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

## Hot Swap Fan Warning



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

ファン・ホットスワップの警告

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

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

警告
危险的可移动性零件。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 ell montaje del ventilador del chasis. Mandtenga los dedos, los destornilladores y todos los objetos lejos de las aberturas del ventilador

Attention

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

אזהרה!

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

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

경고!

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

Waarschuwing

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

## Power Cable and AC Adapter

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

電源コードとACアダプター

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

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

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

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

Warnung

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

¡Advertencia!

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


Attention

Lors de l'installation du produit, utilisez les cables de connection fournis ou désigné ou achetez des cables, cables de puissance et adaptateurs respectant les normes locales et les conditions de securite y compris les tailles de cables et les prises electriques appropries. L'utilisation d'autres cables et adaptateurs peut provoquer un dysfonctionnement ou un incendie. Appareils électroménagers et la Loi sur la Sécurité Matériel interdit l'utilisation de câbles certifies- 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.


כבלים חשמליים ומתאמי AC

אזהרה!

כאשר מתקינים את המוצר, שי להשתמש בכבלים, ספקים ומתאמים אשר נרכשו או ותאמו AC לצרור ורוכש או שכרנ . עקתהו לבכה לש הנוכנ הדימ ללוכ, תוימוקמה תוחיטבה תושירדל ומאתוה רשאו, הנקתהה למשחה ירישכמב שומישה יקוחל םאתהב. ילמשחל רצקל וא הלקתל םורגל לולע, רחא גוסמ םאתמ וא לבכ לש דוק םהילע עיפומ רשאכ) CSA-ב וא UL -ב םיכמסומה םילבכב שמתשהל רוסיא םייק, תוחיטבה יקוחו דבלב Supermicro י"ע םאתוה רשא רצומב קר אלא, רחא ילמשח רצומ לכ רובע UL/CSA).


عند تركيب المنتج، قم باستخدام التوصيلات الصوصية المتوفرة أو قم بشراء الكابلات كذلك في امب ةيلحملا ةمالسلا تابلطتمو نيناوقب مازتلالا عم ددرتملا رايتلا تالوحمو ةيئابرهكلا .قيرح وأ لطع يف ببستي دق ىرخأ تالوحمو تالباك يأ مادختسا. ميلسلا سباقلاو لصوملا مجح CSA وأ UL لبق نم ةدمتعملا تالباكلا مادختسا تادعملاو ةيئابرهكلا ةزهجألل ةمالسلا نوناق رظحي Supermicro. لبق نم ةددحملاو ةينعملا تاجتنملا ريغ ىرخأ تادعم يأ عم (UL/CSA) ةمالع لمحت يتلاو

전원 케이블 및 AC 어댑터

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

다른 케이블이나 어댑터를 사용하면 오작동이나 화재가 발생할 수 있습니다. 전기 용품 안전법은 UL 또는 CSA 인증 케이블 (코드에 UL / CSA가 표시된 케이블)을 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**

Dual EPYC 7001/7002 series processors in a Socket SP3 type socket

**Notes:** AMD EPYC 7002 series processor drop-in support requires board revision 2.x. Please refer to the motherboard specifications pages on our website for updates to supported processors.

**Chipset**

AMD SoC (System on Chip) chipset

**BIOS**

128 Mb SPI AMI® BIOS (board Rev. 1.x); 256Mb SPI AMI BIOS (board Rev. 2.x)

ACPI 6.1, SMBIOS 3.1.1, Plug-and-Play (PnP), RTC (Real Time Clock) wake up, Riser Card Auto-Detection Support

**Memory**

Supports up to 2TB of ECC DDR4-2666 or 4TB of ECC DDR4-3200 RDIMM/LRDIMM/3DS/NVDIMM memory in 16 slots (board revision 2.x required)

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

**SATA Controller**

On-chip (AMD SoC (System on Chip)) controller

**Drive Bays**

Eight 3.5" hot-swap drive bays for SATA3 with optional SAS3/NVMe support

**PCI Expansion Slots**

Two PCI-E 3.0 x16 slots

Three PCI-E 3.0 x8 slots

Two internal NVMe ports (PCI-E 3.0 x4)

M.2 interface: 1 SATA/PCI-E 3.0 x2

M.2 form factor: 2280, 22110

M.2 key: M-Key

**Motherboard**

H11DSi-NT; ATX form factor (13.05 x 12 in. / 331 x 305 mm.)

**Chassis**

SC745BTS-R1K28BP2; Tower/4U Rackmount, 7 x 19 x 27 in. (178 x 483 x 686 mm). (W x H x D)

**System Cooling**

Two 8-cm exhaust and three 8-cm mid-chassis fans

**Power Supply**

Model: PWS-1K28P-SQ

AC Input Voltages: 100-240 VAC

Rated Input Current: 1000W output at 100-140V: 8 to 12A / 1280W output at 180-240V: 6 to 8A

Rated Input Frequency: 50-60 Hz

Rated Output Power: 1000-1200W

Rated Output Voltages: 1000W: +5Vsb (4A), +12V (83A) / 1200W: +5Vsb (4A), +12V (106.7A)

**Operating Environment**

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

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

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

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

**Regulatory Compliance**

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

Electromagnetic Immunity: EN 55024/CISPR 24, (EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11), CNS14336-1, CNS13438, GB4943.1-2011, GB9254-2008(Class A) and GB17625.1-2012

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

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

Environmental: Directive 2011/65/EU and Delegated Directive (EU) 2015/863 and Directive 2012/19/EU

**Perchlorate Warning**

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

# 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 below 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 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!





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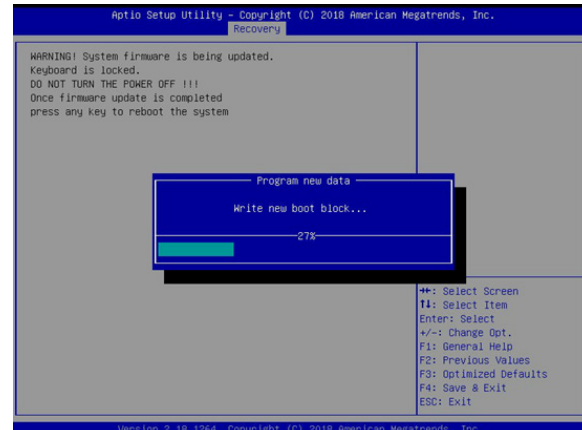
5.  After the Boot Sector Recovery Process is complete, press any key to reboot the system.
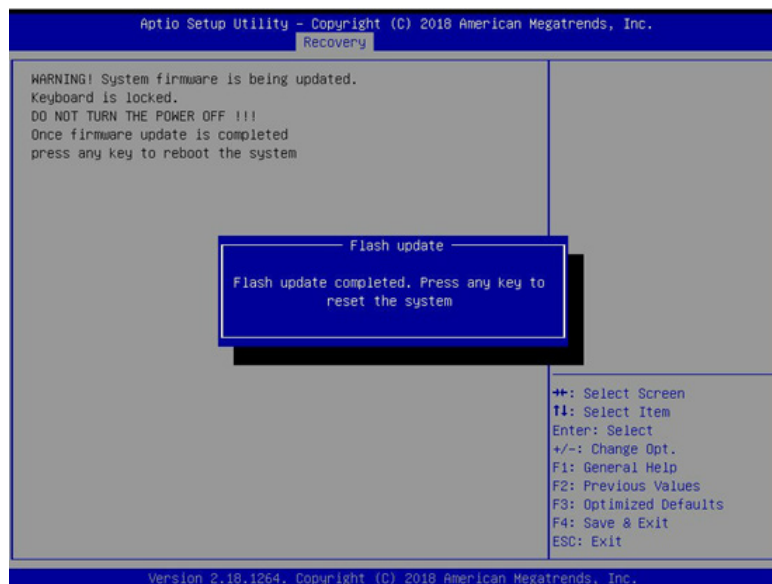


**Notes:**

* 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

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.