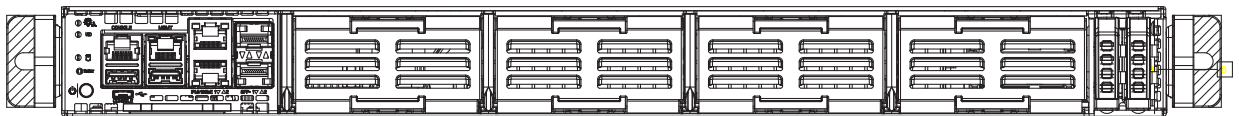




SuperServer[®]
1019D-FRN5TP
1019D-12C-FRN5TP
1019D-14C-FRN5TP
1019D-16C-FRN5TP



USER'S MANUAL

Revision 1.0b

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Manual Revision 1.0b

Release Date: November 21, 2019

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

Please refer to the 1019D-FRN5TP, 1019D-12C-FRN5TP, 1019D-14C-FRN5TP, or 1019D-16C-FRN5TP server specifications page on our website for updates on supported memory, processors, and operating systems (<http://www.supermicro.com>).

Notes

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

- Supermicro product manuals: <http://www.supermicro.com/support/manuals/>
- Product drivers and utilities: <https://www.supermicro.com/wftp>
- Product safety info: http://www.supermicro.com/about/policies/safety_information.cfm

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.

Warnings

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



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



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

Contents

Chapter 1 Introduction

1.1 Overview.....	8
1.2 Unpacking the System	10
1.3 System Features	11
1.4 Chassis Features	13
Control Panel	13
Front Features.....	15
1.5 Motherboard Layout	16
Quick Reference Table for X11SDS-8C/12C/14C/16C	17
Quick Reference Table for AOM-SMF-TP4F.....	18

Chapter 2 Installation in a Rack

2.1 Overview.....	20
2.2 Preparing for Setup	20
Choosing a Setup Location.....	20
Rack Precautions	20
Server Precautions.....	21
Rack Mounting Considerations	21
Ambient Operating Temperature.....	21
Reduced Airflow	21
Mechanical Loading.....	21
Circuit Overloading	22
Reliable Ground.....	22
2.3 Installing the Rails	23
Identifying the Sections of the Rack Rails	23
Locking Tabs	23
Installing the Inner Rails	24
Installing the Outer Rack Rails	25
2.4 Installing the Chassis into a Rack.....	26

Chapter 3 Maintenance and Component Installation

3.1 Removing Power	27
3.2 Accessing the System.....	28
Removing the Chassis Cover	28
3.3 Motherboard Components.....	29

Memory Installation	29
Memory Support	29
DIMM Module Population Configuration	29
DIMM Module Population Sequence	30
Install Procedure	31
Removal Procedure	31
Motherboard Battery	32
3.4 Chassis Components	33
AIOM and EDSFF "Ruler" Device Bays	33
Replacing Fans	37
Checking the Airflow	38
Checking the Server's Airflow	38
Power Supply	39
Installing an Optional Hard Drive	40
Chapter 4 Motherboard Connections	
4.1 Power Connections	42
4.2 Headers and Connectors	43
4.3 Jumpers	47
Explanation of Jumpers	47
4.4 LED Indicators	50
Chapter 5 Software	
5.1 Driver Installation	51
5.2 SuperDoctor® 5	53
5.3 IPMI	54
Chapter 6 UEFI BIOS	
6.1 Introduction	55
Starting the Setup Utility	55
6.2 Main Menu	56
6.3 Advanced	58
6.4 IPMI	86
6.5 Security	90
6.6 Event Logs	94
6.7 Boot	96
6.8 Save & Exit	98

Appendix A BIOS Error Codes

Appendix B Standardized Warning Statements for AC Systems

Appendix C UEFI BIOS Recovery Instructions

Appendix D System Specifications

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Chapter 1

Introduction

1.1 Overview

The 1019D-(12C/14C/16C-)FRN5TP is a SuperServer system in the SC103-R407B chassis, containing an X11SDS-8C, X11SDS-12C, X11SDS-14C, or X11SDS-16C motherboard.

Main Parts List		
Description	Part Number	Quantity
Power supply	PWS-407-1R	2
Fans	FAN-0157L4	5
CPU Passive Heatsink	SNK-C0111PL	1
I/O Slots	AOM-SMF-TP4F AIOM Modules	1 4 (sold separately)
Rail Kits	MCP-290-00102-0N MCP-290-00108-0B	2 sets

SuperServer Model Variation Table		
SuperServer Model	Motherboard Model	Processor Name
1019D-FRN5TP	X11SDS-8C	D-2146NT
1019D-12C-FRN5TP	X11SDS-12C	D-2163IT
1019D-14C-FRN5TP	X11SDS-14C	D-2173IT
1019D-16C-FRN5TP	X11SDS-16C	D-2183IT

Motherboard Model Variation Table				
Motherboard Model Name	X11SDS-8C	X11SDS-12C	X11SDS-14C	X11SDS-16C
Processor Name	Intel Xeon D-2146NT	Intel Xeon D-2163IT	Intel Xeon D-2173IT	Intel Xeon D-2183IT
Number of Cores	8	12	14	16
Number of Threads	16	24	24	32
Cache	11MB	17MB	19MB	22MB
Processor Base Frequency	2.3GHz	2.1GHz	1.7GHz	2.2GHz
Max Turbo Frequency	3.0GHz	3.0GHz	3.0GHz	3.0GHz
Intel Turbo Boost Technology	Yes	Yes	Yes	Yes
SoC Max TDP	80W	75W	70W	100W
Maximum Memory Speed	2133MHz	2133MHz	2133MHz	2400MHz
Embedded Options Available	Yes	Yes	Yes	Yes
Intel Hyper-Threading Technology	Yes	Yes	Yes	Yes
Intel Virtualization Technology (VT-x)	Yes	Yes	Yes	Yes
Intel Virtualization Technology for Directed I/O (VT-d)	Yes	Yes	Yes	Yes
Intel TSX-NI with Extended Page Table	Yes	Yes	Yes	Yes
Instruction Set	64-bit	64-bit	64-bit	64-bit
Instruction Set Extensions	Intel® AVX2, Intel AVX-512	Intel® AVX2, Intel AVX-512	Intel® AVX2, Intel AVX-512	Intel® AVX2, Intel AVX-512
Number of AVX-512 FMA Units	1	1	1	1
Integrated Intel QuickAssist Technology	Yes	No	No	No
Intel AES New Instructions	Yes	Yes	Yes	Yes
Intel Trusted Execution Technology	Yes	Yes	Yes	Yes

1.2 Unpacking the System

Inspect the box in which the server was shipped and note if it was damaged in any way. If any equipment appears damaged, file a damage claim with the carrier who delivered it.

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

1.3 System Features

The table below provides you with an overview of the main features of the 1019D-(12C/14C/16C-)FRN5TP. Refer to Appendix D for additional specifications.

System Features
Motherboard
X11SDS-8C for 1019D-FRN5TP X11SDS-12C for 1019D-12C-FRN5TP X11SDS-14C for 1019D-14C-FRN5TP X11SDS-16C for 1019D-16C-FRN5TP
Chassis
SC103-R407B
CPU
Intel Xeon D-2146NT up to 80W for 1019D-FRN5TP Intel Xeon D-2163IT up to 75W for 1019D-12C-FRN5TP Intel Xeon D-2173IT up to 70W for 1019D-14C-FRN5TP Intel Xeon D-2183IT up to 100W for 1019D-16C-FRN5TP
Socket Type
FCBGA2518
Memory
Supports up to 256GB of ECC RDIMM or 512GB of ECC LRDIMM DDR4 memory Speed of up to 2133MHz for 1019D-FRN5TP, 1019D-12C-FRN5TP, and 1019D-14C-FRN5TP Speed of up to 2400MHz for 1019D-16C-FRN5TP
Chipset
System on Chip
Expansion Slots
Two M.2 M-Key 2280/22110 (one 2.5" drive bay space shared with M.2) One M.2 E-Key 2230 One M.2 B-Key 2242/3042 Four PCI-E 3.0 x8 for Advanced I/O Module (AIOM) (AIOM is sold separately)
Hard Drives
Two EDSFF and two internal 2.5" drives OR two M.2 and one internal 2.5" drive

Note: The System Features table continues on the next page.

System Features
Power
400W AC-DC, 80+ Platinum level
Cooling
Five 40 x 40 x 56 mm 13K-11K RPM counter-rotating fans
Form Factor
1U rackmount
Dimensions
(WxHxD) 17.2 x 1.7 x 15 in. (437 x 43 x 381 mm)

1.4 Chassis Features

Note: The following parts are not included as part of the chassis, but are required as part of the system to function:

- up to four AIOM modules (chassis comes with four dummy covers)
- up to two EDSFF modules (chassis comes with two dummy trays)

Control Panel

Power switches and status LEDs are located on the control panel on the front of the chassis. It is connected to the I/O board (AOM-SMF-TP4F) through the included ribbon cable. See Chapter 4 for details on the control panel connections.

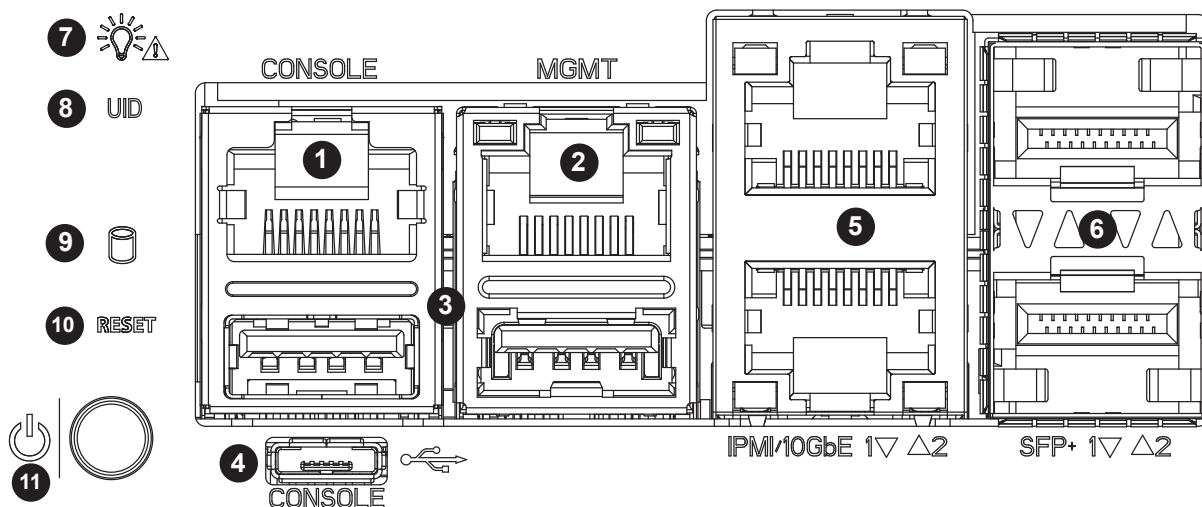


Figure 1-1. Control Panel and Front Ports

Control Panel and Front Ports Features		
Item	Feature	Description
1	Console	Used to connect to text-based terminal or a terminal application such as PuTTY to manage the system via a shell (e.g., bash). The system must be on for this feature to work.
2	MGMT	Used to manage the system remotely using an Ethernet Management Port. The system must be on for this feature to work.
3	USB3.0 Ports	Two USB3.0 ports for I/O applications.
4	Micro USB Console	One micro USB port for console interface.
5	10G GbE Ports 1 and 2	One 10G GbE ports that can function as IPMI ports to access the system. The system <u>does not</u> need to be turned on for this feature.
6	SFP+ Ports 1 and 2 (Small Form-factor Pluggable)	The SFP+ port connects to Fiber Channel and Gigabit Ethernet (GbE) optical fiber cables using a transceiver.
7	Informational LED	Indicates one of multiple conditions, see the Informational Table on the following page.
8	UID LED	Use IPMI to switch/turn on/turn off UID LED.
9	HDD LED	Hard Drive indicator
10	Reset LED	Reset indicator
11	Power Button with LED	Solid green: Power on Blinking amber: Standby mode

Caution: If the operating temperature exceeds 30° C and the system fans are not active, a LAN component may become overheated.

Informational LED	
LED Appearance	Description
Solid Green	The node is powered on and operating normally.
Blinking Green	The node is in the process of shutting down.
Solid Red	The node is detecting an overheated condition.
1Hz Blinking Red	The node is detecting a fan failure.
.25Hz Blinking Red	The node is detecting a power failure.
Solid Blue	The node local UID is on.
1Hz Blinking Blue	The node remote UID is on.
No Illumination	The node is powered down.

Front Features

The SC103-R407B is a 1U chassis containing four AIOMs to provide highest density of networking interface.

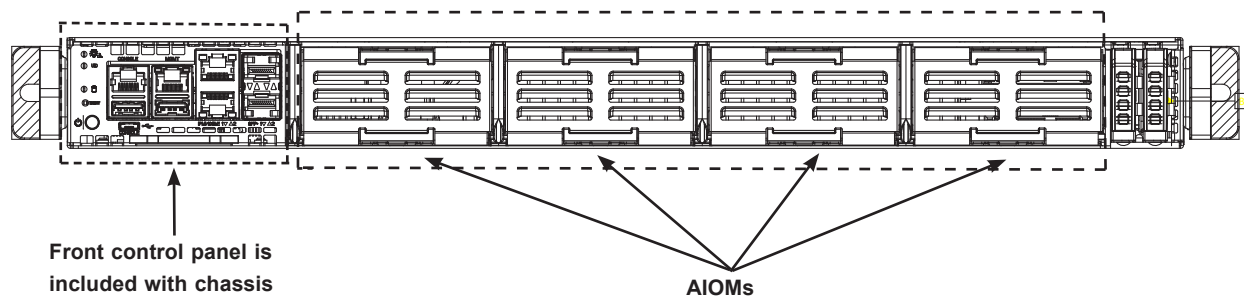


Figure 1-2. Chassis Front View

1.5 Motherboard Layout

Below is a layout of the X11SDS-8C with the 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.

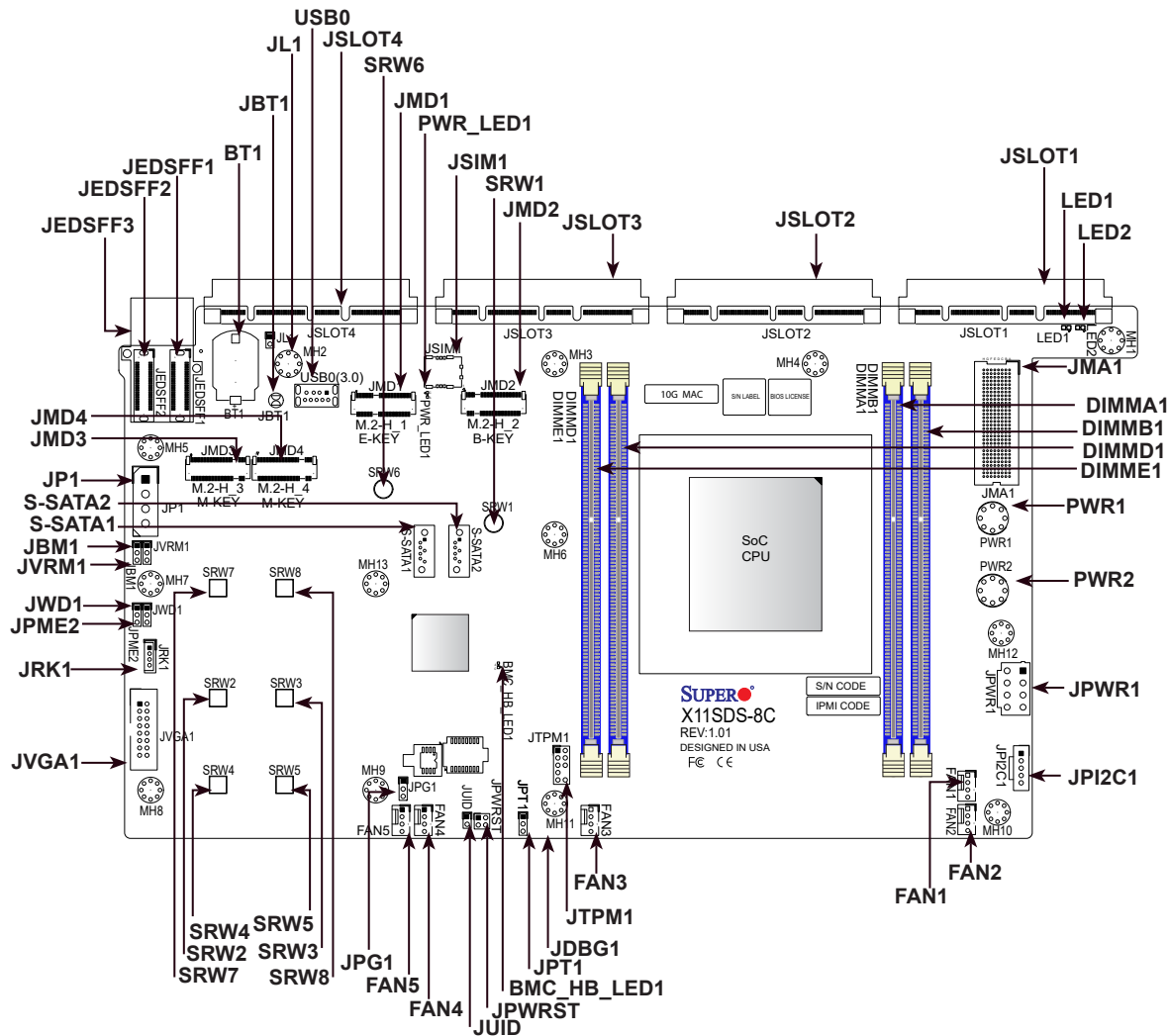


Figure 1-3. Motherboard Layout

Notes:

- "■" indicates the location of pin 1.
- Jumpers/LED indicators not indicated are used for testing only.
- Use only the correct type of onboard CMOS battery as specified by the manufacturer. Do not install the onboard battery upside down to avoid possible explosion.

Quick Reference Table for X11SDS-8C/12C/14C/16C

Jumper	Description	Default Setting
JBM1	IPMI Shared LAN Enable/Disable	Pins 1-2 (Enabled)
JBT1	CMOS Clear	Open: Normal
JPG1	Onboard VGA Enable/Disable	Pins 1-2 (Enabled)
JPT1	Onboard TPM 2.0 Enable/Disable	Pins 2-3 (Disabled)
JPME2	Manufacturing Mode Select	Pins 1-2 (Normal)
JVRM1	VRM SMB Data (to BMC or PCH)	Pins 1-2 (Normal)
JWD1	Watch Dog Timer	Pins 1-2 (Reset)

LED	Description	Status
BMC_HB_LED1	BMC Heartbeat	Blinking Green: BMC Normal
PWR_LED1	Power LED	Solid Green: Power On
LED1	UID LED	Solid Blue: Unit Identified
LED2	Overheat/PWR Fail/Fan Fail	Solid Red: Overheat Blinking Red: PWR Fail or Fan Fail

Connector	Description
BT1	Onboard Battery
FAN1 - FAN5	CPU/System Fan Headers
JEDSFF1, JEDSFF2	EDSFF Short Header (Shared with M.2 M-Keys)
JL1	Chassis Intrusion Header
JMA1	Receptacle for AOM-SMF-TP4F
JMD1	M.2 Slot E-Key 2230 (PCI-E 3.0 x2/USB2.0)
JMD2	M.2 Slot B-Key 2242/3042 (PCI-E 3.0 x2/SATA3.0/USB3.0)
JMD3	M.2 Slot M-Key 2242/80/110 (PCI-E 3.0 x4/SATA3.0) Shared with JEDSFF1
JMD4	M.2 Slot M-Key 2242/80/110 (PCI-E 3.0 x4/SATA3.0) Shared with JEDSFF2
JP1	4-pin Power Connector for HDD use
JPI2C1	Power I ² C System Management Bus (Power SMB) Header
JPWR1	8-pin +12V DC Power Connector
JPWRST	Power and Reset Button
JRK1	Intel RAID Key Header (supporting AIOM Slots)
JSIM1	Nano SIM Card Socket
JSLOT1 - JSLOT4	Supermicro Advanced I/O Module (AIOM) *Please unplug power before removing/installing module cards
JTPM1	Trusted Platform Module (TPM)/Port 80 Connector
JUID	UID Switch Header
JVGA1	VGA Header
PWR1 - PWR2	Bus Bar Connector (to AOM-SMF-TP4F)
S-SATA1 - S-SATA2	SATA 3.0 Ports
SRW1 - SRW8	M.2 Holding Screws
USB0	USB3.0 Gen 1 Type A Header

Quick Reference Table for AOM-SMF-TP4F

Jumper	Description	Default Setting
JPTG1	10G LAN Enable/Disable	Pins 1-2 (Enabled)

LED	Description	Status
LED1	Power LED	Solid Green: Power On

Connector	Description
J1	Front Control Panel Cable Header
JCOM1	Serial Console Port and USB 3.0 Port
JLAN1	1G RJ45 Port and USB 3.0 Port
JLAN2	Dual 10G RJ45 Ports
JMA1	Receptacle for X11SDS-8C/16C
JSFP1	Dual 10G SFP+ Ports
JUSB1	Micro USB Serial Console Port (Shared with Serial Console Port)
PWR1 - PWR2	Bus Bar Connector

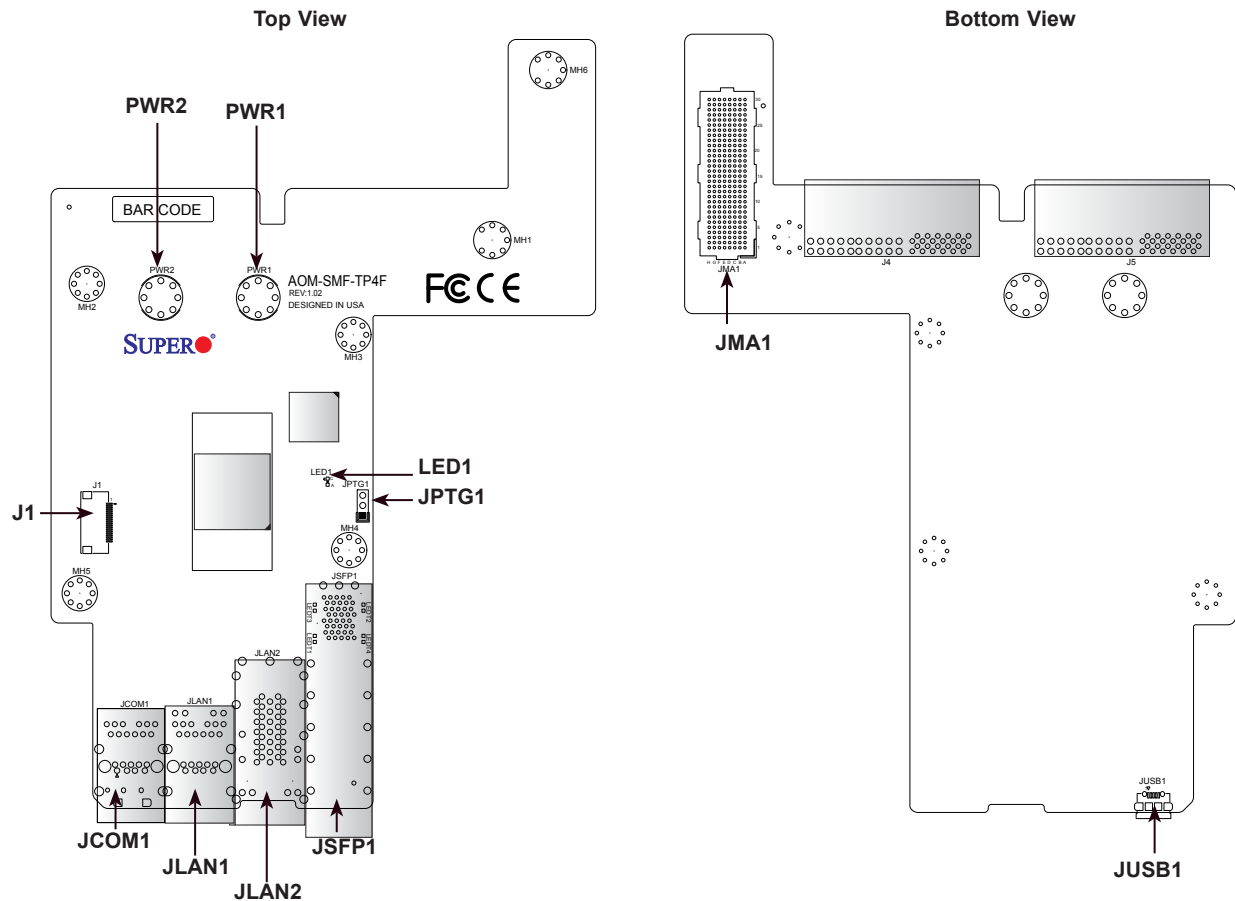


Figure 1-4. AOM-SMF-TP4F Add-on Card Layout
(not drawn to scale)

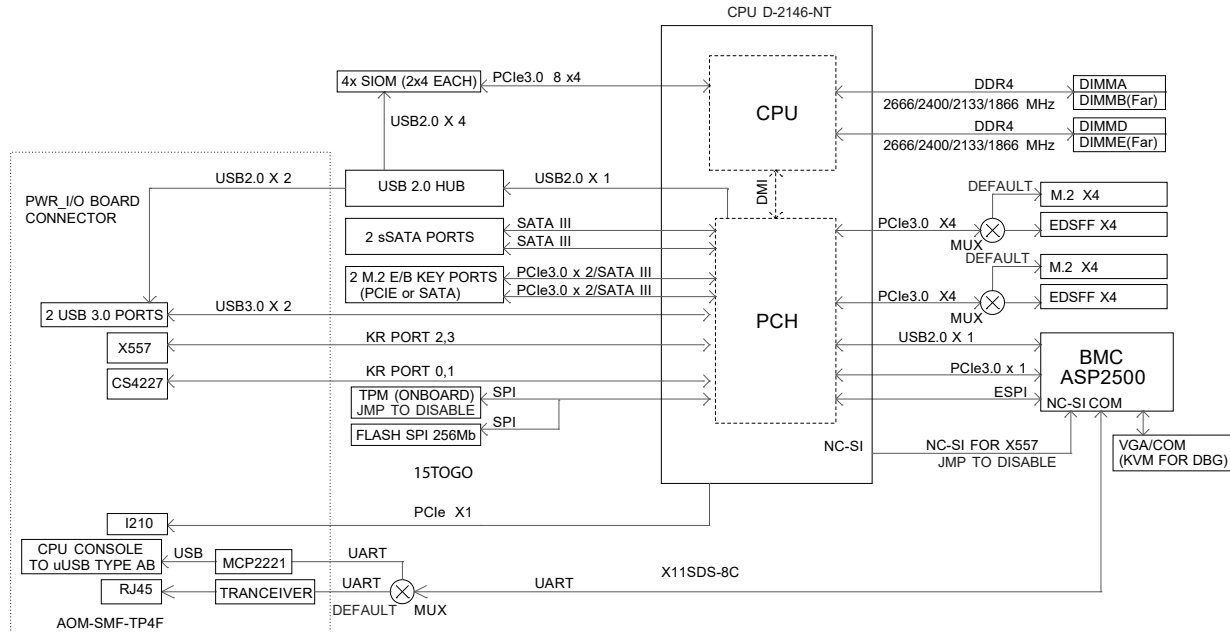


Figure 1-5. System on Chip Chipset: System Block Diagram

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

Chapter 2

Installation in a Rack

2.1 Overview

This chapter provides advice and instructions for mounting your system in a rack.



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 hardware needed to install it into the rack. Please note the precautions in this chapter and Appendix B.

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. It will also require a grounded AC power outlet nearby.
- Leave enough clearance in front of the rack so that you can open the front door completely (~25 inches) and approximately 30 inches of clearance in the back of the rack to allow sufficient space for airflow and access when servicing.
- This product should be installed only in a Restricted Access Location (dedicated equipment rooms, service closets, etc.).
- This product is not suitable for use with visual display workplace devices according to §2 of the German Ordinance for Work with Visual Display Units.

Rack Precautions

- Ensure that the leveling jacks on the bottom of the rack are extended to the floor so that the full weight of the rack rests on them.
- In single rack installations, stabilizers should be attached to the rack.

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

Server Precautions

- Review the electrical and general safety precautions in Appendix B.
- Determine the placement of each component in the rack *before* you install the rails.
- Install the heaviest server components at the bottom of the rack first 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 supplies 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 (T_{mra}).

Reduced 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 (e.g., the use of power strips, etc.).



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

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

2.3 Installing the Rails

There are a variety of rack units on the market, which may require a slightly different assembly procedure. Also refer to the installation instructions that came with the rack.

This rail set fits a rack between 26" and 33.5" deep.

Identifying the Sections of the Rack Rails

The chassis package includes two rack rail assemblies in the rack mounting kit. Each assembly consists of two sections: an inner fixed chassis rail that secures directly to the server chassis and an outer fixed rack rail that secures directly to the rack itself.

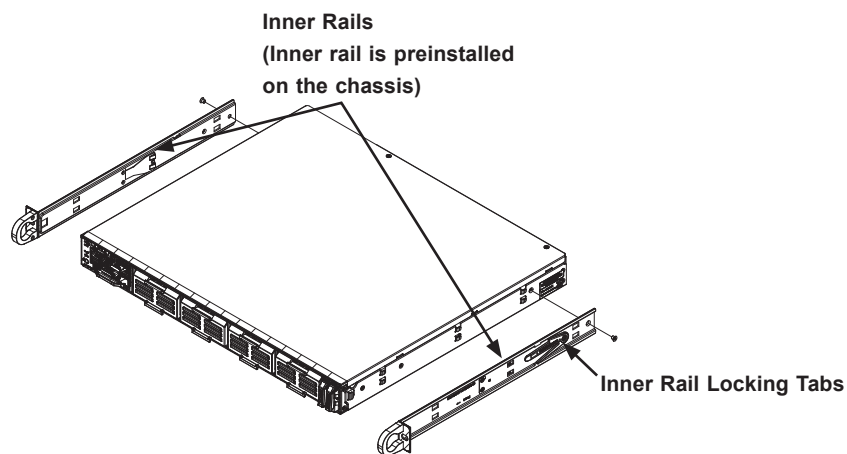


Figure 2-1. Identifying the Sections of the Inner Rails

Locking Tabs

Both chassis rails have a locking tab. The tabs lock the server into place when installed and pushed fully into the rack. 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.

Installing the Inner Rails

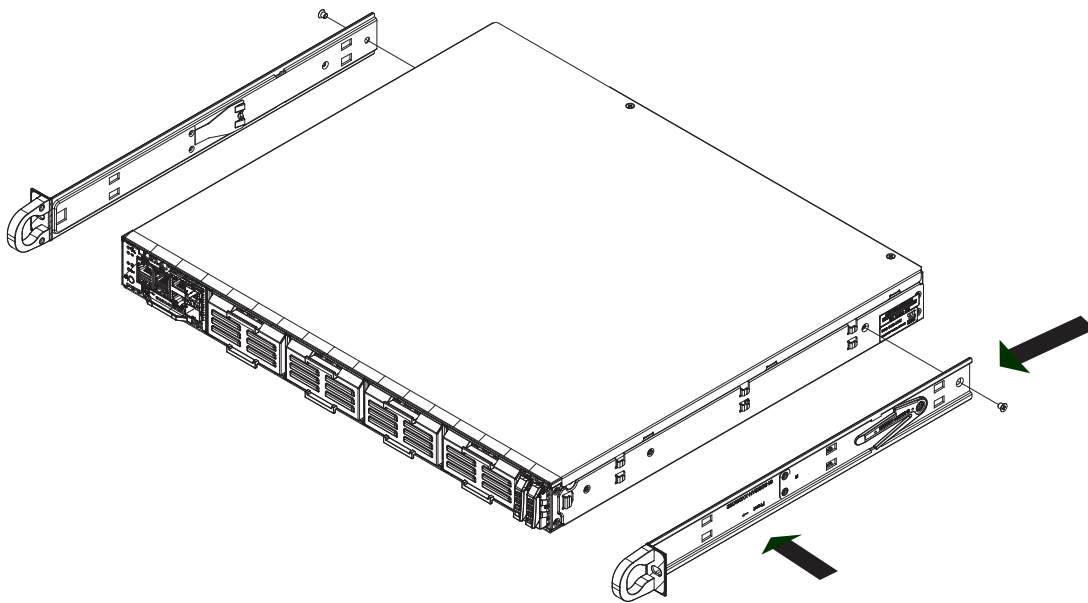
The inner rails are pre-attached to the chassis, but should the need arise to remove them, reinstallation of the rails is simple and can be accomplished with a standard head screwdriver.

Installing the Inner Rails

1. Place the inner rail on the side of the chassis aligning the hooks of the chassis with the inner rail holes.
2. Slide the extension toward the front of the chassis.
3. Secure the chassis with one screw as illustrated. Repeat steps 1-3 for the other inner rail.



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



**Figure 2-2. Installing the Inner Rails
(Right side inner rail shown)**

Installing the Outer Rack Rails

Outer rails attach to the server rack and hold the server in place. The outer rails for the SC103-R407B chassis extend between 30 inches and 33 inches.

Installing the Outer Rails to the Rack

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

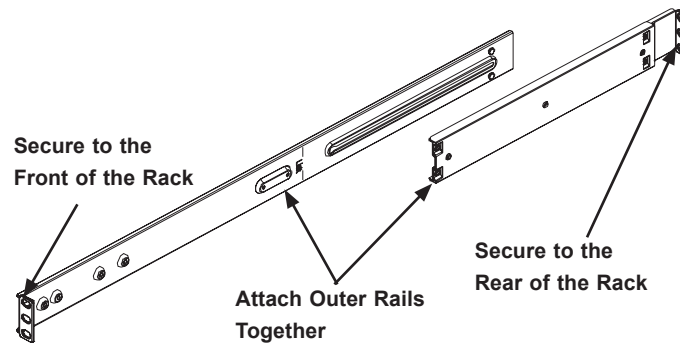



Figure 2-3. Assembling the Outer Rails

2.4 Installing the Chassis into a Rack

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

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

Installing the Chassis into a Rack

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

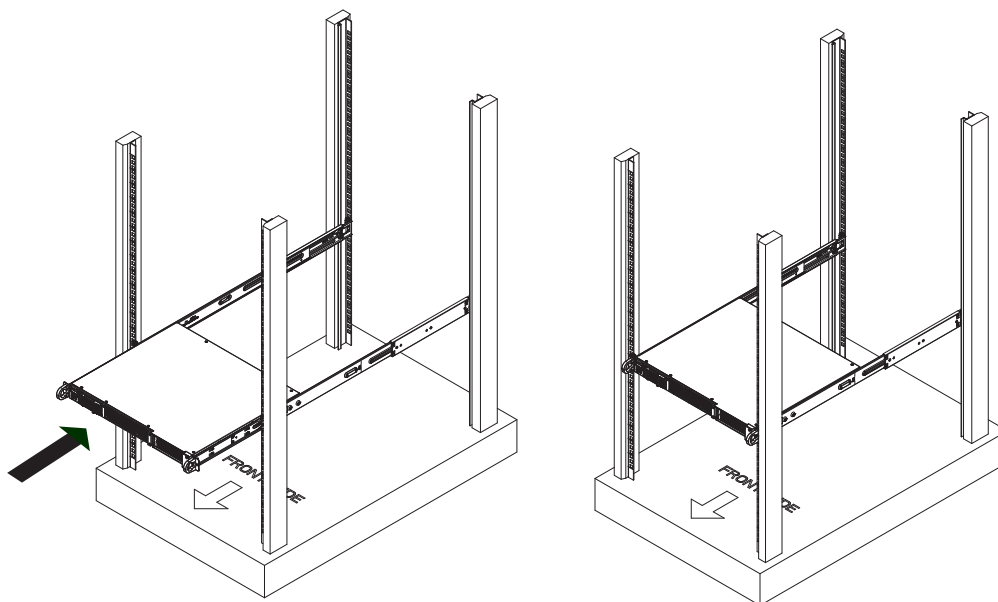


Figure 2-4. Installing the Server into a Rack

Note: The figures above are for illustrative purposes only and may differ from your actual unit. Always install servers into racks from the bottom up.



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.

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.

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 supplies.)
3. Disconnect the power cord(s) from the power supply/supplies.

3.2 Accessing the System

Removing the Chassis Cover

You can access some chassis components, such as fans, by removing the cover.

Removing the Top Cover

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



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

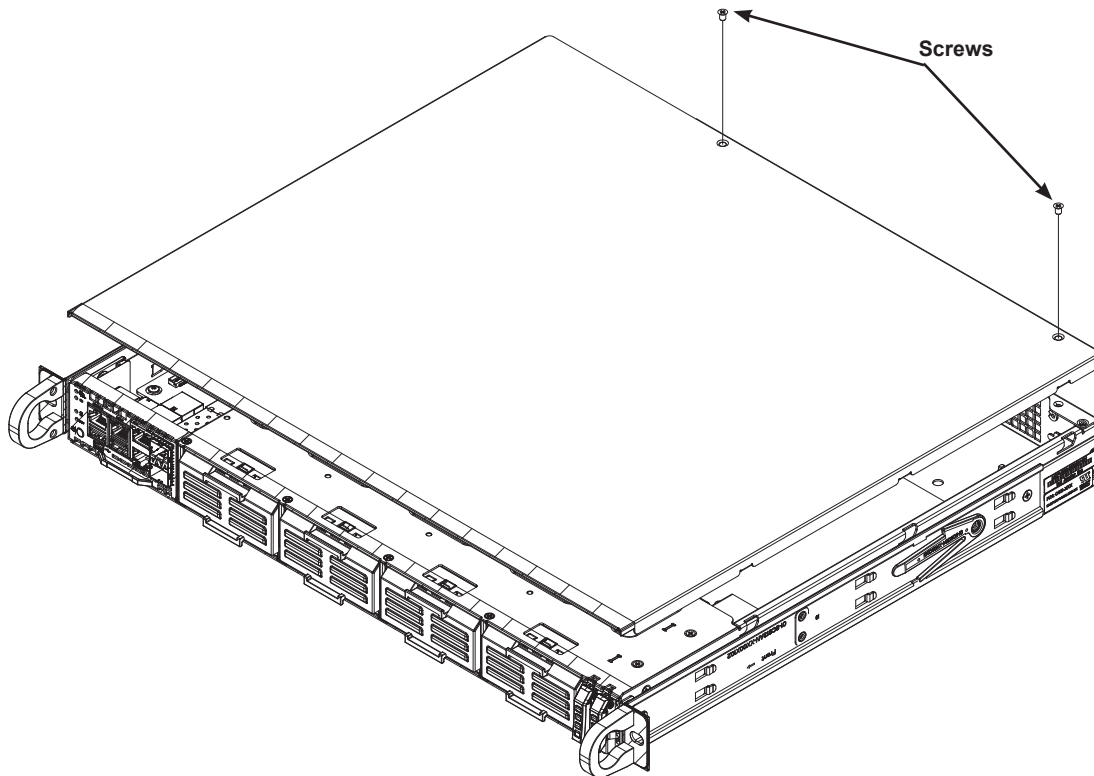


Figure 3-1. Removing the Chassis Cover

3.3 Motherboard Components

Memory Installation

Memory Support

The X11SDS-8C/12C/14C/16C motherboard supports up to 512GB of ECC LRDIMM or 256GB ECC RDIMM (with DDR4 speeds up to 2133MHz for X11SDS-8C, X11SDS-12C, and X11SDS-14C and up to 2400MHz for X11SDS-16C) in four memory slots. Populating these DIMM slots with memory modules of the same type and size will result in interleaved memory, which will improve memory performance.

Check the Supermicro website for possible updates to memory support.

DIMM Module Population Configuration

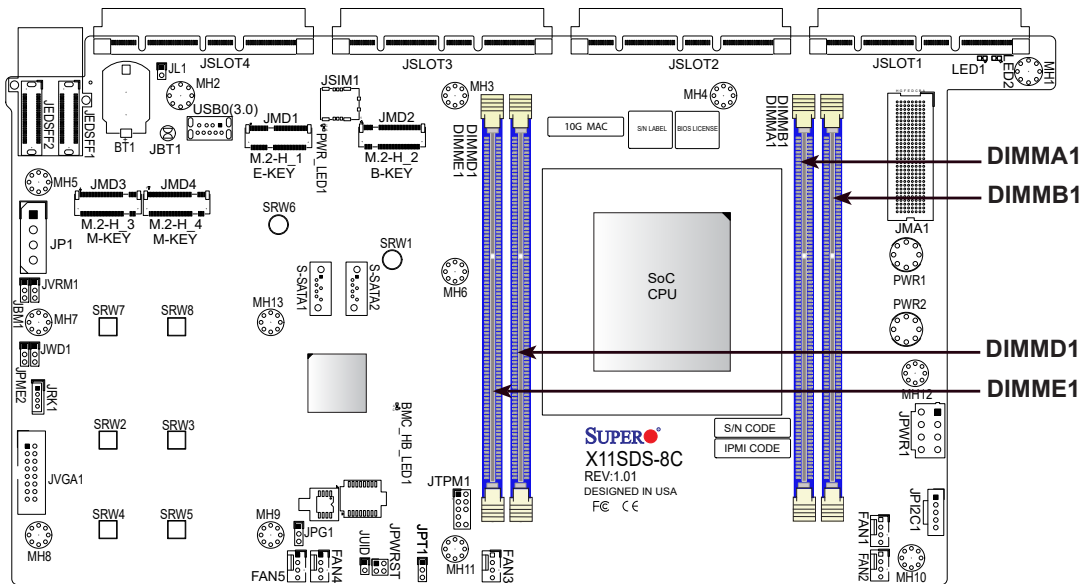
For optimal memory performance, follow the table below when populating memory.

Memory Population (Balanced)				
DIMMA1	DIMMB1	DIMMD1	DIMME1	Total System Memory
4GB	4GB			8GB
8GB				8GB
8GB	8GB			16GB
4GB	4GB	4GB	4GB	16GB
8GB	8GB	8GB		24GB
8GB	8GB	8GB	8GB	32GB
16GB	16GB			32GB
16GB	16GB	16GB		48GB
16GB	16GB	16GB	16GB	64GB
32GB	32GB			64GB
32GB	32GB	32GB		96GB
32GB	32GB	32GB	32GB	128GB
64GB	64GB			128GB
64GB	64GB	64GB		192GB
64GB	64GB	64GB	64GB	256GB
126GB	128GB			256GB
128GB	128GB	128GB	128GB	512GB

DIMM Module Population Sequence

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

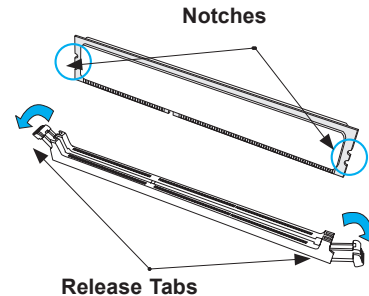
- Always use DDR4 DIMM modules of the same type and speed.
- Mixed DIMM speeds can be installed. However, all DIMMs will run at the speed of the slowest DIMM.
- The motherboard will support odd-numbered modules (one or three modules installed). However, for best memory performance, install DIMM modules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



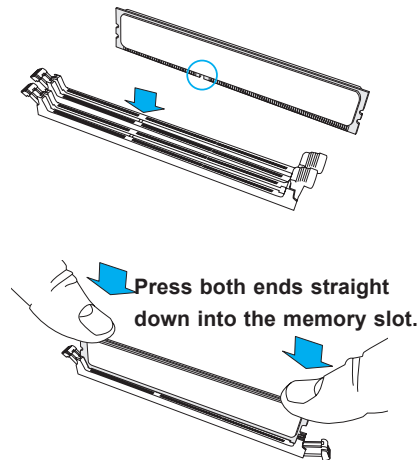
Install Procedure

Installing Memory

1. Remove the power from the system as described in Section 3.1.
2. Insert the desired number of DIMMs into the memory slots, starting with DIMMA1, DIMMB1, then DIMMD1, DIMME1. For best performance, please use the memory modules of the same type and speed. Push the release tabs outwards on both ends of the DIMM slot to unlock it.



3. Align the key of the DIMM with the receptive point on the memory slot and with your thumbs on both ends of the module, press it straight down into the slot until the module snaps into place.



4. Push the release tabs to the locked position to secure the DIMM module into the slot.
5. Repeat the procedure for the remaining DIMM modules in the order detailed in the previous section.



Caution: Exercise extreme caution when installing or removing memory modules to prevent damage to the DIMMs or slots.

Note: Visit the product page on the Supermicro website for possible updates to memory support (www.supermicro.com).

Removal Procedure

To remove a DIMM module, unlock the release tabs then pull the module from the slot.

Motherboard Battery

The motherboard uses CMOS memory to retain BIOS settings when system power is removed. This memory is powered by a lithium battery residing on the motherboard.

Replacing the Battery

1. Remove power from the system as described in section 3.1 and remove the node from the chassis.
2. Push aside the small clamp that covers the edge of the battery. When the battery is released, lift it out of the holder.
3. To insert a new battery, slide one edge under the lip of the holder with the positive (+) side facing up. Then push the other side down until the clamp snaps over it.

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

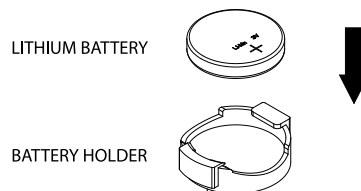


Figure 3-2. Installing the Onboard Battery

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

3.4 Chassis Components

AIOM and EDSFF "Ruler" Device Bays

The SC103 supports four AIOM modules (Advanced I/O Module) and two EDSFF (Enterprise and Datacenter SSD Form Factor) drives, also referred to as a "ruler". These devices may be purchased separately from the chassis. This section explains how to insert the AIOM and EDSFF in the chassis.

Removing the Dummy Device from the Chassis

1. Remove the dummy AIOM insert from the front side of the chassis by holding the lever and gently pulling the insert out from the chassis.
2. A Supermicro AIOM network module (such as AOC-AG-i8, sold separately) may now be installed into the slot.

Caution: The AIOM slot and device are NOT hot-swappable. Please disconnect the power from the system before attempting to install or remove any AIOM network adapter.

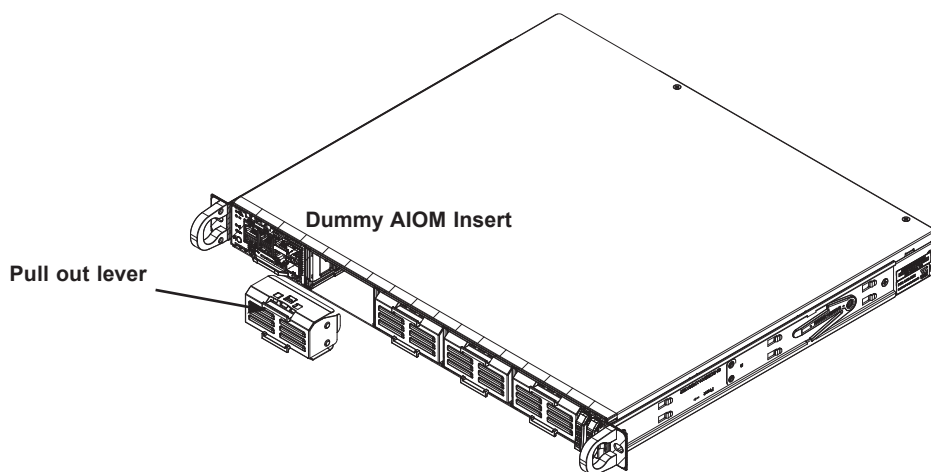


Figure 3-3. Removing the Dummy AIOM Insert

Inserting the AIOM Module

1. Power down the system as described in section 3-1. Once the dummy AIOM insert is removed, the Supermicro AIOM network module may be installed.
2. Gently slide the AIOM module into the slot by aligning the PCB edge into the chassis rail.
3. Once the AIOM module is inserted, gently push the module by the metal bracket, until the module is fully engaged into the chassis.

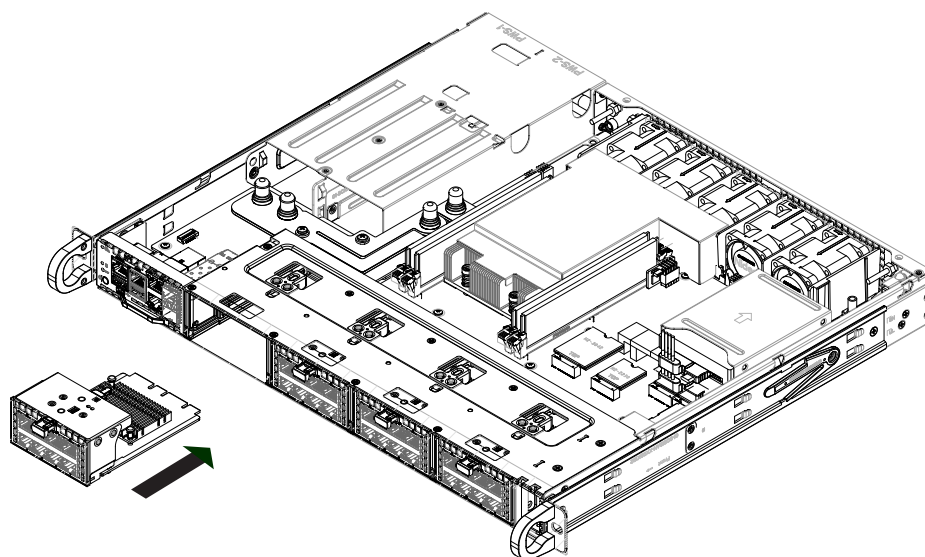


Figure 3-4. Inserting the AIOM Module

4. The module has a spring loaded push pin. Push the pin inward to engage with the chassis.
5. Slide the lock on the metal bracket to the right. This prevents the push pin from accidental release.
6. Optional: Secure the AIOM module with screws. **Note:** There are two screws per AIOM module.

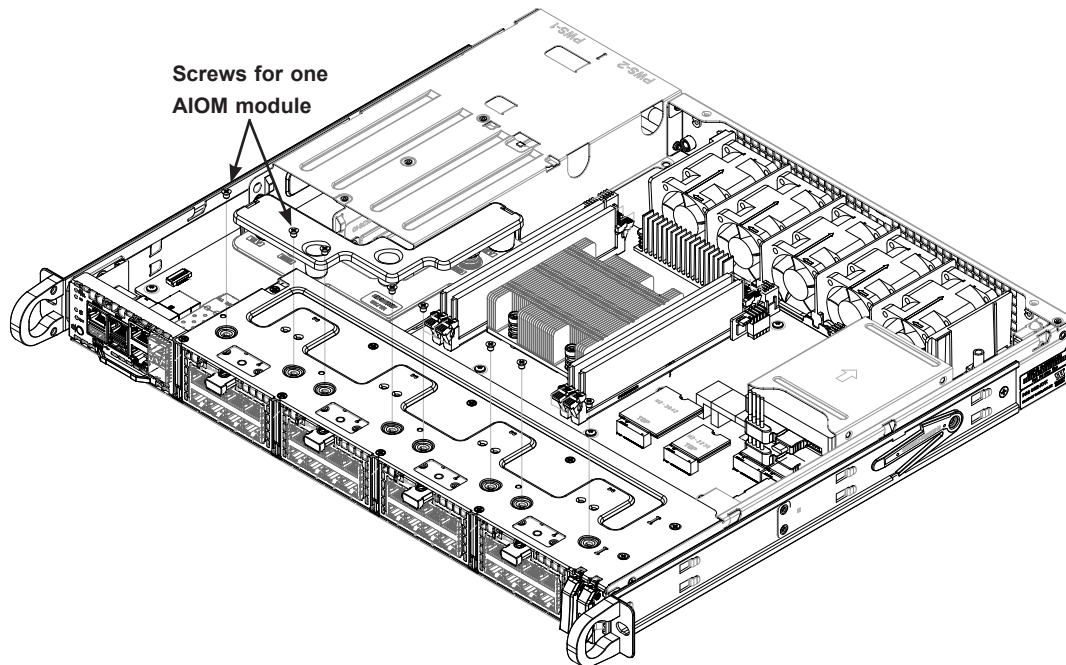


Figure 3-5. Securing the AIOM Module with Screws

Inserting the EDSFF Module

1. Power down the system as described in section 3-1. Once the dummy EDSFF insert is removed, the Supermicro EDSFF network module may be installed.
2. Gently slide the EDSFF module into the slot.
3. Once the EDSFF module is inserted, gently push the module into the slot for connector engagement, then rotate/press down on the latch to lock it in place.

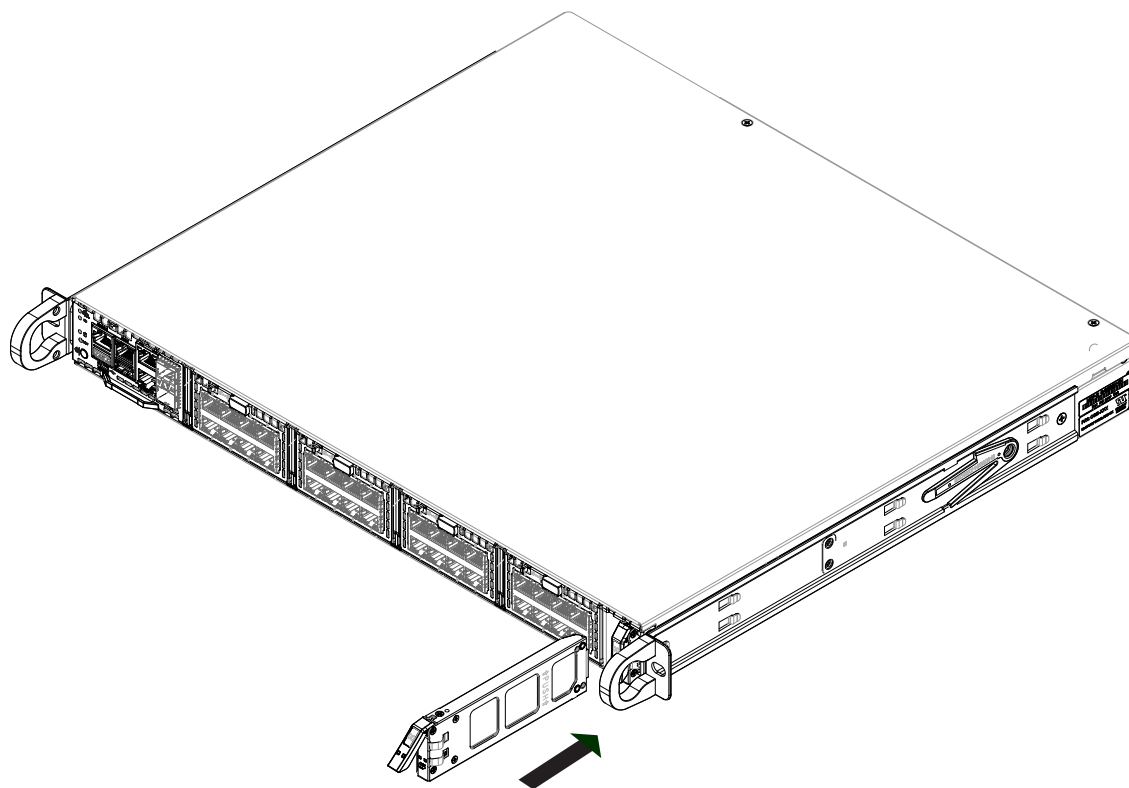


Figure 3-6. Inserting the EDSFF Module

Replacing Fans

Five counter-rotating fans circulate air through the chassis to lower the internal temperature. These fans are designed to be easily changed, with no tools required and no need to remove any other parts inside the chassis.

Replacing a System Fan

1. If necessary, open the chassis cover as described in section 3.2 while the power is running to determine which fan requires changing. (Never run the server for an extended period of time with the chassis open.)
2. Power down the system as described in section 3.1.
3. Remove the failed fan's cable from the connector on the motherboard.
4. Place the new fan into the housing. Make sure that the arrows on the sides of the fan (indicating air direction) point in the same direction as the arrows on the other fans.

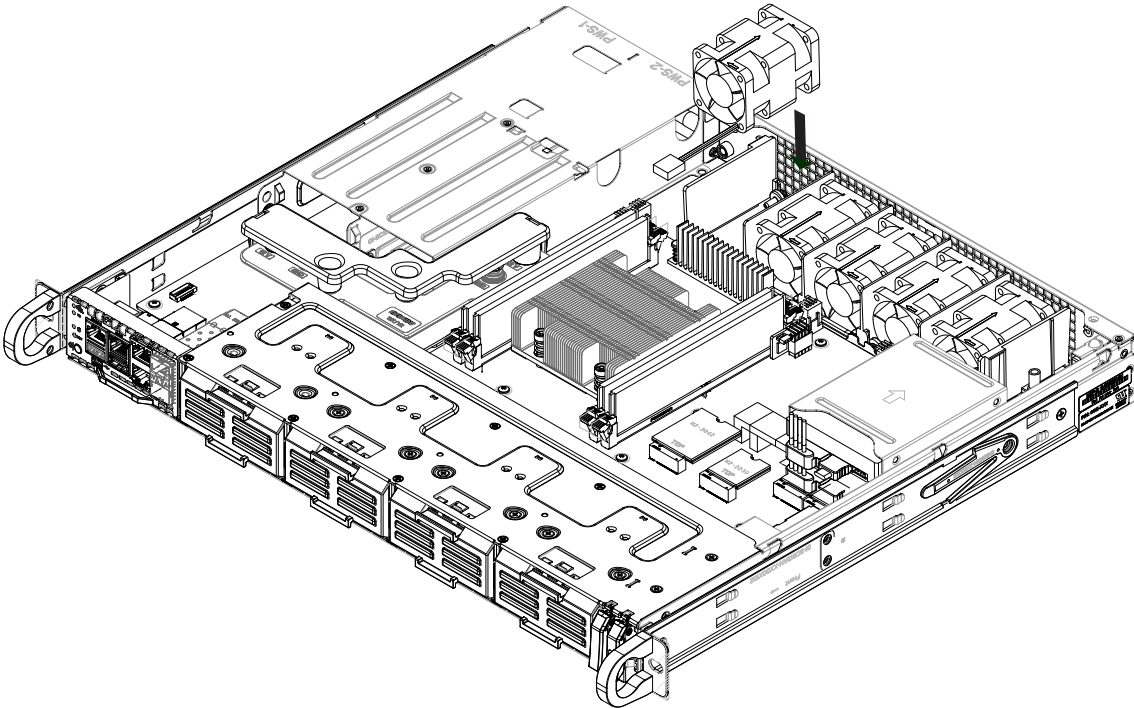


Figure 3-7. Replacing System Fans

5. Plug the fans' cables into the connectors on the motherboard.
6. Plug the power cord into the rear of the power supply, power up the system, and check that the fan is working properly. Then, power off the system before replacing the top cover.

Checking the Airflow

Checking the Server's Airflow

- Make sure there are no objects to obstruct airflow in and out of the server.
- Do not operate the server without the AIOM module or AIOM dummy insert, and EDSFF drives or EDSFF dummy insert. Use only recommended parts.
- Make sure no wires or foreign objects obstruct airflow through the chassis. Pull all excess cabling out of the airflow path or use shorter cables.

Caution: If the operating temperature exceeds 30° C and the system fans are not active, a LAN component may become overheated.

Power Supply

The chassis features two high-efficiency redundant AC power supplies rate at 400W. They are hot-swappable, meaning they can be changed without powering down the system. They are also auto-switching capable. This feature enables them to automatically sense the input voltage and operate at a 100-240v input voltage. An amber light will be illuminated on the power supply when the power is off. An illuminated green light indicates that the power supply is operating. New units can be ordered directly from Supermicro or authorized distributors.

Changing One of the Two Redundant Power Supplies

1. Identify the power supply to be removed, then remove the power cord from the strip and power supply.
2. Remove the power supply by pressing on the latch to unlock, then gently slide it out.
3. Insert the replacement power supply into the empty bay, then gently slide and push in to engage.

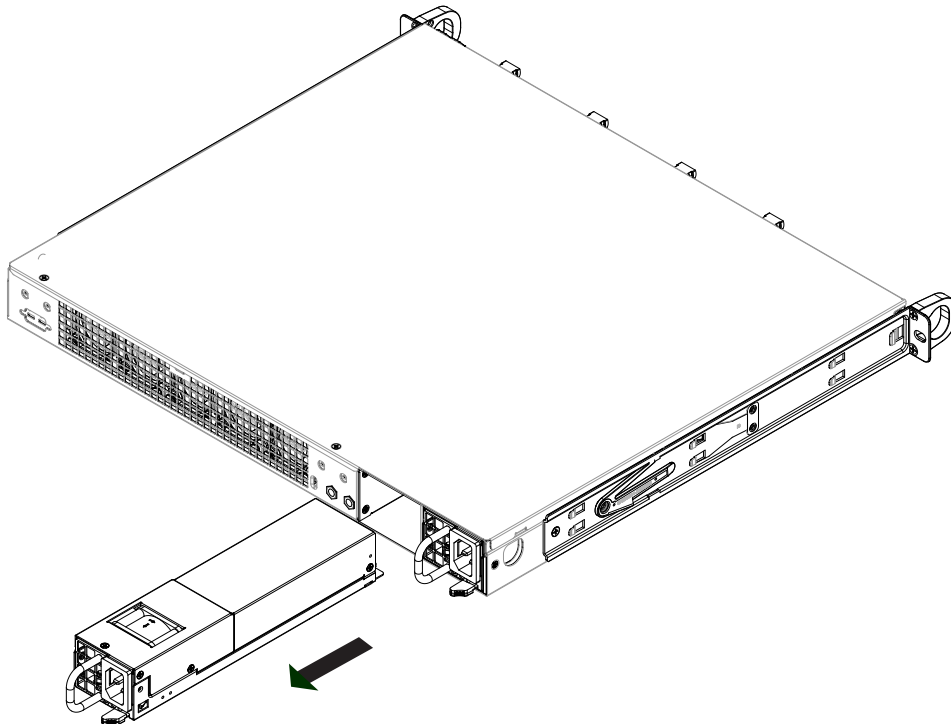


Figure 3-8. Removing One of the Two Redundant Power Supplies

Installing an Optional Hard Drive

Installing an Optional 2.5" Hard Disk Drive with a Fixed Enclosure

1. Obtain the mounting enclosure and secure the drive(s) to the enclosure with four screws.
2. Secure the HDD enclosure to the top side of the motherboard.
3. Connect HDD cabling.

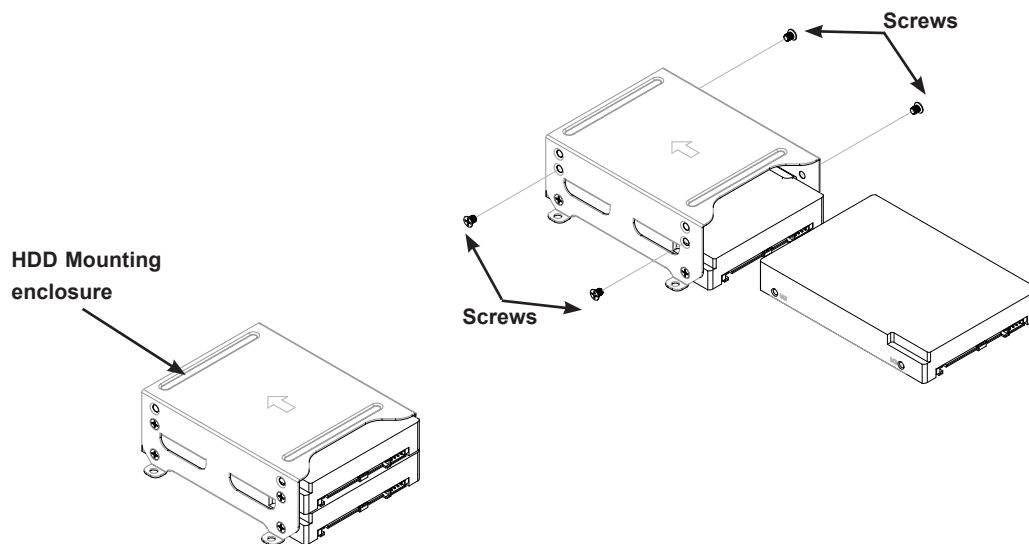


Figure 3-9. Inserting a 2.5" Hard Drive to the Mounting Enclosure

Note: In lieu of the bottom hard drive, up to two M.2 devices may be installed on the motherboard. The M.2 devices will take up the space of the bottom hard drive.

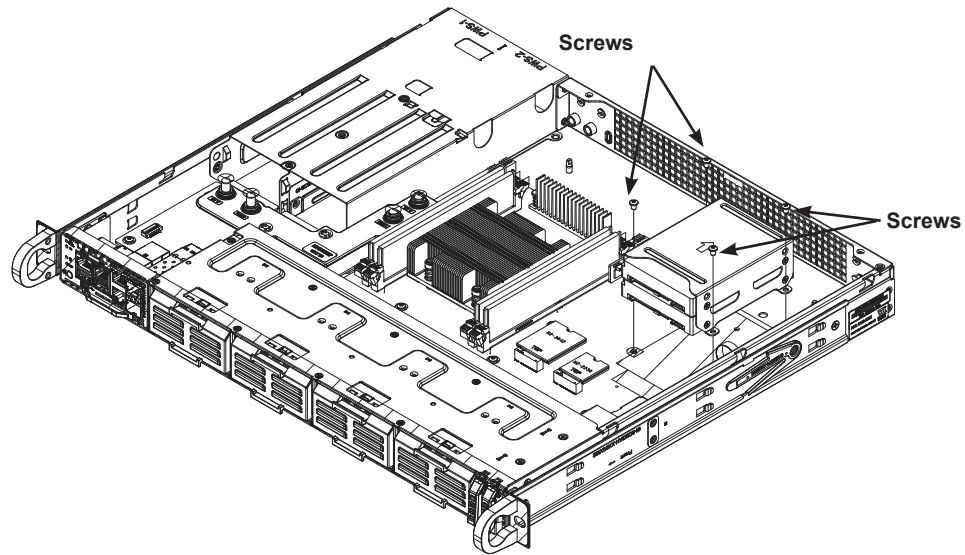


Figure 3-10. Securing the Mounting Enclosure with Hard Drive to the top side of the Motherboard



Caution: Do not unplug or pull the cables around the drive bay when the enclosure screws are not secured to the system. Unplugging or pulling the cables may cause the motherboard to shift or be lifted up.

Chapter 4

Motherboard Connections

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

Please review the safety precautions in Appendix B before installing or removing components.

4.1 Power Connections

12V Power Connector

JPWR1 is the 12V DC power connector that provides power to the motherboard if used individually. Alternatively, if X11SDS series is used in conjunction with PN: AOM-SMF-TP4F, power will be provided from the AOM via the bus bar connectors (PWR1/PWR2).

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

4-pin HDD Power Connector

JP1 is a 4-pin HDD power connector that provides power to onboard hard disk drives.

4-pin HDD Power Pin Definitions	
Pins	Definition
1	12V
2-3	Ground
4	5V

4.2 Headers and Connectors

Fan Headers

The X11SDS series has five 4-pin fan headers (FAN1 - FAN5). These headers are backwards-compatible with the traditional 3-pin fans. However, fan speed control is available for 4-pin fans only by Thermal Management via the IPMI 2.0 interface. Refer to the table below for pin definitions.

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

Chassis Intrusion

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

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

SATA 3.0 Ports

The X11SDS series motherboard has two S-SATA 3.0 ports. Refer to the table below for pin definitions.

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

M.2 Slot

The X11SDS series motherboard has four M.2 slots. M.2 was formerly known as Next Generation Form Factor (NGFF) and serves to replace mini PCI-E. M.2 allows for a variety of card sizes, increased functionality, and spatial efficiency. The M.2 slot at JMD1 is an E-Key that supports PCI-E3.0 x2 and USB 2.0 interfaces in a 2230 form factor, whereas the M.2 slot at JMD2 is a B-Key that supports PCI-E3.0 x2, SATA3.0, and USB3.0 interfaces in a 2242/3042 form factor. The other two M.2 slots at JMD3 and JMD4 are M-Keys that support PCI-E3.0 x4 and SATA3.0 interfaces in a 2242/2280/22110 form factor. Please note JMD3/JMD4 are shared with JEDSFF1/JEDSFF2 and usages are restricted to one device at a time.

Universal Serial Bus (USB) Ports

The motherboard has one front access USB 3.0 Gen 1 Type A header (USB0). Two additional USB3.0 ports are available on PN: AOM-SMF-TP4F.

USB0 (USB 3.0 Gen 1 Type A) Pin Definitions			
Pin#	Definition	Pin#	Definition
1	VBUS	5	SSRX-
2	USB_N	6	SSRX+
3	USB_P	7	GND
4	GND	8	SSTX-
		9	SSTX+

Power SMB (I²C) Header

The Power System Management Bus (I²C) connector (JPI²C1) monitors the power supply, fan, and system temperatures. Refer to the table below for pin definitions.

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

TPM/Port 80 Header

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

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

Receptacle for AOM Card

Use the JMA1 connector to connect the AOM-SMF-TP4F add-on module. The module provides four 10G LAN ports (two 10G RJ45/two SFP+), one 1G LAN port, two USB 3.0 ports, IPMI shared access via 10G LAN3, and a serial connection via the serial console or micro-USB port. It will also provide power to the motherboard via bus bar on PWR1/PWR2.

VGA Header

Connect an IDC 16-pin VGA extension cable to JVGA1 for a VGA connection (PN: CBL-CDAT-0850).

EDSFF Short Header

EDSFF Short is a new form factor designed to overcome thermal and capacity shortcomings of previous PCI-E storage technologies. When used with a right-angle connector, the EDSFF Short device allows better airflow in a 1U server set-up. JEDSFF1/JEDSFF2 each offers PCI-E3.0 x4 lanes for the latest low latency NVMe storage module. Please note that JEDSFF1/JEDSFF2 are not hot pluggable and are shared with JMD3/JMD4 (M.2 M-Keys), so usage are restricted to one device at a time.

JSIM1

The JSIM1 slot supports a Nano SIM card.

JSLOT1 - JSLOT4

Supermicro introduces the Advanced I/O Module (AIOM), the latest expansion card feature offering PCI-E3.0 x8 lanes in each slot which can be utilized to offer additional LAN ports, VPU, storage devices, etc. on the motherboard. Please visit the Supermicro website for all available module options. Please also keep in mind that it is mandatory that power be unplugged prior to removing or installing an AIOM module card to any of these four expansion slots.

Unit Identifier Switch/UID LED Indicator

A Unit Identifier (UID) LED indicator is located on the control panel and motherboard, and the switch is only located on the motherboard

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

UID Switch Pin Definitions	
Pin#	Definition
1	UID_LED
2	Ground

UID LED Pin Definitions	
Color	Status
Blue: On	Unit Identified

Intel RAID Key Header

Use the JRK1 header to enable RAID support for devices plugged to the AIOM slots (JS1ot1/2/3/4). Refer to the table below for pin definitions.

Intel RAID Key Pin Definitions	
Pin#	Definition
1	GND
2	PU 3.3V Stdby
3	GND
4	PCH RAID KEY

Power and Reset

JPWRST is the power and reset button. Refer to the table below for pin definitions.

Power and Reset Pin Definitions	
Pins	Definition
1	Ground
2	Power Signal
3	Ground
4	Reset Signal

Bus Bar Connectors

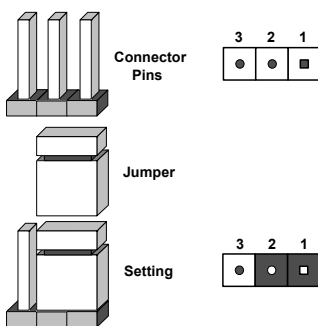
Use the connectors at PWR1 and PWR2 to connect the AOM-SMF-TP4F module to provide power to the motherboard.

4.3 Jumpers

Explanation of Jumpers

To modify the operation of the motherboard, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. See the diagram below for an example of jumping pins 1 and 2. Refer to the motherboard layout page for jumper locations.

Note: On two-pin jumpers, Closed means the jumper is on the pins and Open means the jumper is off.



CMOS Clear

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

Note: Shut down the system and then short JBT1 to clear the 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.

Note: Clearing CMOS will also clear all passwords.

Do not use the PW_ON connector to clear CMOS.



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 (Default)
Pins 2-3	Disabled

Manufacturing Mode Select

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

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

I²C Bus for VRM

JVRM1 allows the BMC or the PCH to access CPU and memory VRM controllers. Refer to the table below for jumper settings. This is reserved for manufacturing use only.

JVRM1 Jumper Settings	
Jumper Setting	Definition
Pins 1-2	BMC (Normal)
Pins 2-3	PCH

Watch Dog

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

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

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

IPMI LAN Port Enable/Disable

Use the JBM1 jumper to enable or disable the IPMI Shared LAN port on LAN3.

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

TPM Enable/Disable

Use JPT1 to enable or disable support for the TPM module. Refer to the table below for jumper settings.

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

4.4 LED Indicators

BMC Heartbeat LED

BMC_HB_LED1 is the BMC Heartbeat LED. When the LED is blinking green, the BMC is functioning normally. Refer to the table below for more information.

BMC Heartbeat LED Indicator	
LED Color	Definition
Green: Blinking	BMC: Normal

Power LED

PWR_LED1 is the Power LED. When this LED is lit, it means power is present on the motherboard. In suspend mode, this LED will blink on and off. Be sure to turn off the system and unplug the power cord(s) before removing or installing components.

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

Overheat/PWR Fail/Fan Fail LED

An Overheat/PWR/Fail Fan Fail LED is located at LED2. Refer to the table below for the LED status.

Overheat/PWR Fail/Fan Fail LED Indicator	
LED Color	Definition
Solid Red	Overheat
Blinking Red	PWR Fail or Fan Fail

Chapter 5

Software

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

5.1 Driver Installation

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

After accessing the website, go into the CDR_Images (in the parent directory of the above link) and locate the ISO file for your motherboard. Download this file to create a DVD of the drivers and utilities it contains. (You may also use a utility to extract the ISO file if preferred.)

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

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

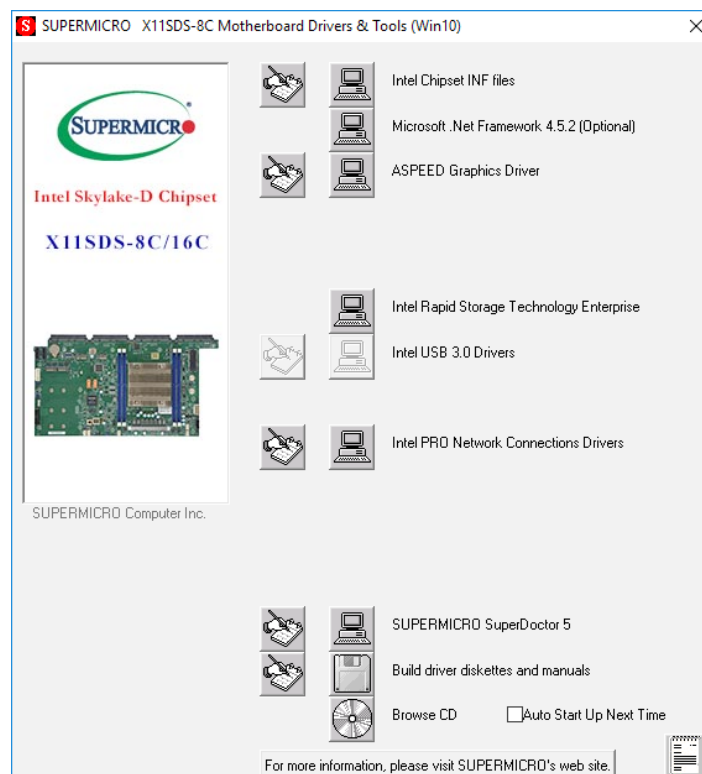


Figure 5-1. Driver & Tool Installation Screen

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

When making a storage diskette by booting into a driver DVD, please set the SATA Configuration to "Compatible Mode" and configure SATA as IDE in the BIOS Setup. After making the driver diskette, be sure to change the SATA settings back to your original settings.

5.2 SuperDoctor® 5

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

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

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

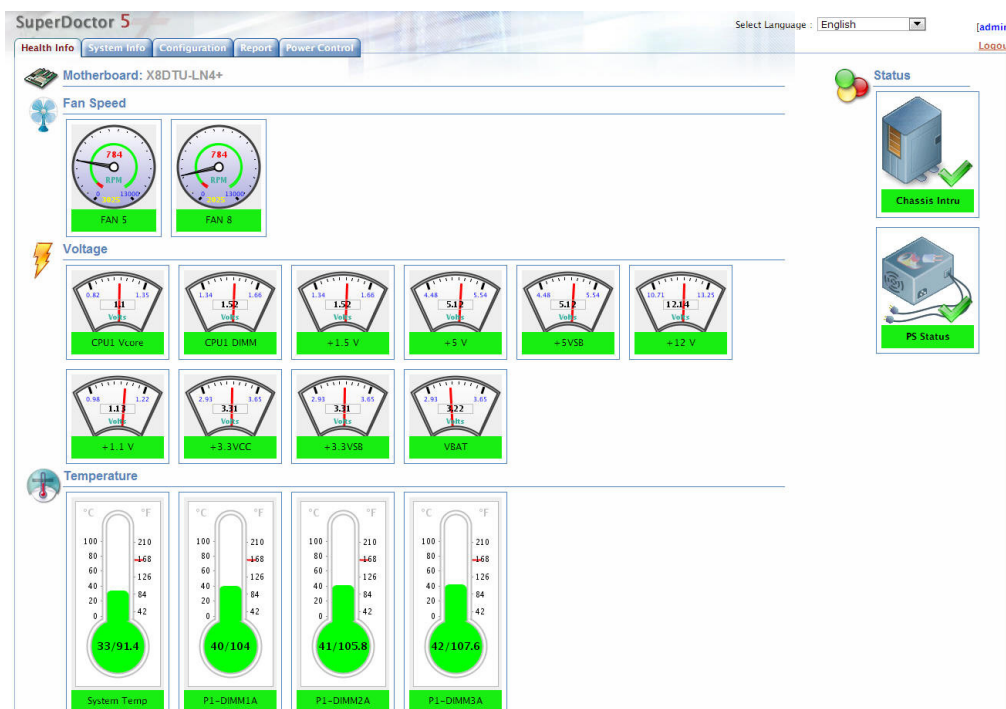


Figure 5-2. SuperDoctor 5 Interface Display Screen (Health Information)

Note: The SuperDoctor 5 program and user's manual can be downloaded from the Supermicro website at http://www.supermicro.com/products/nfo/sms_sd5.cfm.

5.3 IPMI

The X11SDS-8C/12C/14C/16C supports the Intelligent Platform Interface (IPMI). IPMI is used to provide remote access, monitoring, and management. There are several BIOS settings that are related to IPMI.

IPMI management is supported when the lower 10G LAN port is connected (Figure 1-1).

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

Chapter 6

UEFI BIOS

6.1 Introduction

This chapter describes the AMIBIOS Setup utility for the X11SDS series motherboard. The BIOS is stored in a flash 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.

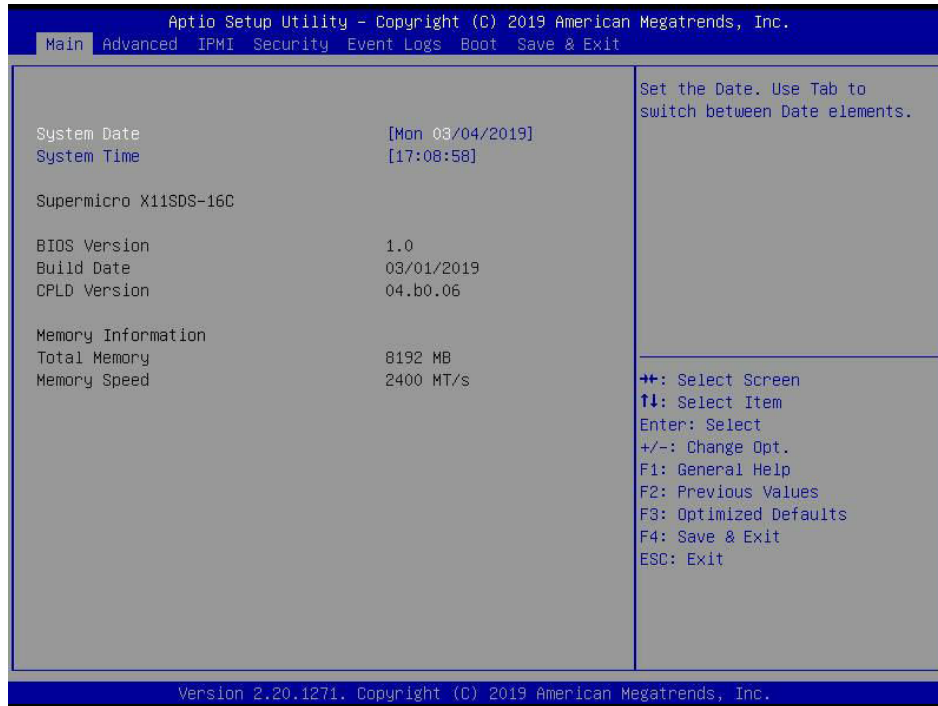
The Main BIOS screen has two main frames. The left frame displays all the options that can be configured. "Grayed-out" options cannot be configured. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is 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>, <F10>, <Enter>, <ESC>, <Arrow> keys, etc.) can be used at any time during the setup navigation process.

6.2 Main Menu

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



System Date/System Time

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

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

Supermicro X11SDS series

BIOS Version

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

Build Date

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

CPLD Version

This feature displays the CPLD version.

Memory Information

Total Memory

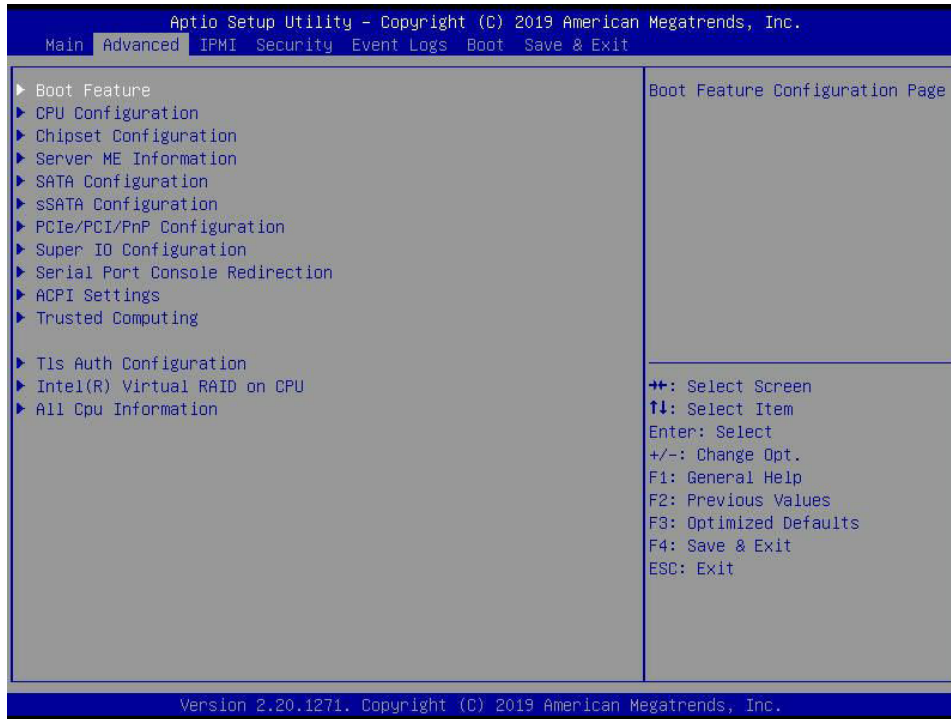
This feature displays the total size of memory available in the system.

Memory Speed

This feature displays the speed of the memory detected by the system.

6.3 Advanced

Use this menu to configure advanced settings.



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

► Boot Feature

Quiet Boot

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

Option ROM Messages

Use this feature to set the display mode for the Option ROM. The options are **Force BIOS** and Keep Current.

Bootup NumLock State

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

Wait For "F1" If Error

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

Interrupt 19 Capture

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

Re-try Boot

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

Port 61h bit-4 Emulation

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

► Power Configuration

Watch Dog Function

If enabled, the Watch Dog timer will allow the system to reboot when it is inactive for more than five minutes. The options are **Disabled** and Enabled.

Power Button Function

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

Restore on AC Power Loss

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

Throttle on Power Fail

Use this feature to decrease system power by throttling CPU frequency when one power supply has failed. The options are **Disabled** and Enabled.

► CPU Configuration

The following CPU information will display:

- Processor BSP Revision

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

Hyper-Threading (ALL)

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

Cores Enabled

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

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

Set to Enable for Execute Disable Bit support, which will allow the processor to designate areas in the system memory where an application code can execute and where it cannot, thus preventing a worm or a virus from flooding illegal codes to overwhelm the processor or damage the system during a virus attack. The options are Disable and **Enable**.

Intel Virtualization Technology

Use this feature to enable the Vanderpool Technology. This technology allows the system to run several operating systems simultaneously. The options are Disable and **Enable**.

PPIN Control

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

Hardware Prefetcher (Available when supported by the CPU)

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

Adjacent Cache Prefetch (Available when supported by the CPU)

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

DCU Streamer Prefetcher (Available when supported by the CPU)

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

DCU IP Prefetcher (Available when supported by the CPU)

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

LLC Prefetch

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

Extended APIC

Select Enable to activate APIC (Advanced Programmable Interrupt Controller) support. The options are **Disable** and Enable.

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

Force x2APIC IDs

Select Enable to force the system to use 8-bit APIC IDs. The options are **Disable** and Enable.

AES-NI

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

► Advanced Power Management Configuration

Power Technology

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

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

Power Performance Tuning

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

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

ENERGY_PERF_BIAS_CFG Mode

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

► CPU P State Control

Use this submenu to configure the following CPU power settings:

SpeedStep (Pstates)

Intel SpeedStep Technology allows the system to automatically adjust processor voltage and core frequency to reduce power consumption and heat dissipation. The options are Disable and **Enable**. This feature must be set to Enable to be able to configure the next two features.

EIST PSD Function

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

Turbo Mode

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

► Hardware PM State Control

Hardware P-States

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

► CPU C State Control

Autonomous Core C-State

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

CPU C6 report

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

Enhanced Halt State (C1E)

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

► Package C State Control

Package C State

This feature allows you to set the limit on the C State package register. The options are C0/C1 State, C2 State, C6 (Non Retention) State, C6 (Retention) State, No Limit, and **Auto**.

► CPU T State Control

Software Controlled T-States

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

► Chipset Configuration

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

► North Bridge Configuration

► Memory Configuration

Enforce POR

Select POR (Plan of Record) to enforce POR restrictions on DDR4 frequency and voltage programming. The options are **POR** and Disable.

Memory Frequency

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

Data Scrambling for DDR4

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

tCCD_L Relaxation

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

2X REFRESH

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

► Memory Topology

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

► Memory RAS Configuration

Static Virtual Lockstep Mode

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

Mirror Mode

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

****If the feature above is set to Enable Mirror Mode, Multi Rank Sparing ADDDC Sparing will not be available for configuration:***

Memory Rank Sparing

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

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

Multi Rank Sparing

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

Correctable Error Threshold

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

SDDC

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

ADDDC Sparing

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

Patrol Scrub

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

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

Patrol Scrub Interval

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

► IIO Configuration

EV DFX Features

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

► CPU Configuration

IOU0 (IIO PCIe Br1)

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

IOU1 (IIO PCIe Br2)

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

► Socket0 PcieBr0D00F0 - Port 0/DMI

Link Speed

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

PCI-E Port Link Status

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

PCI-E Port Link Max

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

PCI-E Port Link Speed

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

PCI-E Port Max Payload Size

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

ECRC

Use this feature to enable or disable Error Capabilities and Control Register (ECRC). The options are **Disable** and Enable.

► IOAT Configuration

Disable TPH

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

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

Prioritize TPH

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

Relaxed Ordering

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

► Intel® VT for Directed I/O (VT-d)

Intel® VT for Directed I/O (VT-d)

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

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

Interrupt Remapping

Use this feature to enable Interrupt Remapping support, which detects and controls external interrupt requests. The options are **Enable** and Disable.

PassThrough DMA

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

ATS

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

Posted Interrupt

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

Coherency Support (Non-Isoch)

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

► Intel® VMD Technology

Note: After you've enabled VMD on a PCI-E slot of your choice, this PCI-E slot will be dedicated for NVMe storage devices use only, and it will no longer support PCI-E devices of other functionalities. To re-activate this slot for PCI-E use, please disable VMD.

► Intel® VMD for Volume Management Device on CPU**VMD Config for PStack0****Intel® VMD for Volume Management Device**

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

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

VMD port 1A - 1D (Available when detected by the system)

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

Hot Plug Capable

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

CfgBar size

Use this feature to set up the VMD configuration BAR size. The default is **25**.

CfgBar attribute

Use this feature set up the VMD configuration BAR attribute. The default option is **64-bit prefetchable**.

MemBar1 size

Use this feature to set up the VMD memory BAR1 size. The default is **25**.

MemBar1 attribute

Use this feature set up the VMD configuration BAR attribute. The options are **32-bit prefetchable**, 64-bit non-prefetchable, and 64-bit prefetchable.

MemBar2 size

Use this feature to set up the VMD memory BAR2 size. The default is **20**.

MemBar2 attribute

Use this feature set up the VMD configuration BAR attribute. The options are 32-bit prefetchable, **64-bit non-prefetchable**, and 64-bit prefetchable.

VMD Config for PStack1**Intel® VMD for Volume Management Device**

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

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

VMD port 2A - 2D (Available when detected by the system)

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

Hot Plug Capable

Use this feature to enable hot plug support for PCIe root ports 2A~2D. The options are **Disable** and Enable.

CfgBar size

Use this feature to set up the VMD configuration BAR size. The default is **25**.

CfgBar attribute

Use this feature set up the VMD configuration BAR attribute. The default option is **64-bit prefetchable**.

MemBar1 size

Use this feature to set up the VMD memory BAR1 size. The default is **25**.

MemBar1 attribute

Use this feature set up the VMD configuration BAR attribute. The options are **32-bit prefetchable**, 64-bit non-prefetchable, and 64-bit prefetchable.

MemBar2 size

Use this feature to set up the VMD memory BAR2 size. The default is **20**.

MemBar2 attribute

Use this feature set up the VMD configuration BAR attribute. The options are 32-bit prefetchable, **64-bit non-prefetchable**, and 64-bit prefetchable.

VMD Config for PStack2

Intel® VMD for Volume Management Device

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

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

VMD port 3A - 3D (Available when detected by the system)

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

Hot Plug Capable

Use this feature to enable hot plug support for PCIe root ports 3A~3D. The options are **Disable** and Enable.

CfgBar size

Use this feature to set up the VMD configuration BAR size. The default is **25**.

CfgBar attribute

Use this feature set up the VMD configuration BAR attribute. The options are 32-bit prefetchable, 64-bit non-prefetchable, and **64-bit prefetchable**.

MemBar1 size

Use this feature to set up the VMD memory BAR1 size. The default is **25**.

MemBar1 attribute

Use this feature set up the VMD configuration BAR attribute. The options are **32-bit prefetchable**, 64-bit non-prefetchable, and 64-bit prefetchable.

MemBar2 size

Use this feature to set up the VMD memory BAR2 size. The default is **20**.

MemBar2 attribute

Use this feature set up the VMD configuration BAR attribute. The options are **64-bit non-prefetchable**, and 64-bit prefetchable.

PCI-E Completion Timeout Disable

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

►South Bridge Configuration

The following South Bridge information will display:

- USB Module Version
- USB Devices

Legacy USB Support

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

XHCI Hand-off

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

Port 60/64 Emulation

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

► Server ME Configuration

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

► SATA Configuration

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

SATA Controller

Use this feature to enable or disable the onboard SATA controller supported by the Intel PCH chip. The options are Disable and **Enable**.

****If the feature above is set to Enable, SATA HDD Unlock is available for configuration:***

Configure sSATA as

Select AHCI to configure an sSATA drive specified by the user as an AHCI drive. Select RAID to configure an sSATA drive specified by the user as a RAID drive. The options are **AHCI** and RAID.

****If the feature above is set to RAID, SATA RSTe Boot Into and SATA RAID Option ROM/UEFI Driver are available for configuration:***

SATA HDD Unlock

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

SATA RSTe Boot Info

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

Aggressive Link Power Management

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

sSATA RAID Option ROM/UEFI Driver

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

SATA Port 0/4

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

- Model number of drive and capacity
- Software Preserve Support

SATA Port 0/4 Hot Plug

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

SATA Port 0/4 Spin Up Device

Set this feature to enable or disable the PCH to initialize the device. The options are **Disable** and Enable.

SATA Port 0/4 SATA Device Type

Use this feature to specify if the SATA port specified by the user should be connected to a Solid State Drive or a Hard Disk Drive. The options are **Hard Disk Drive** and Solid State Drive.

► sSATA Configuration

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

sSATA Controller

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

Configure sSATA as

Select AHCI to configure an sSATA drive specified by the user as an AHCI drive. Select RAID to configure an sSATA drive specified by the user as a RAID drive. The options are **AHCI** and RAID.

SATA HDD Unlock

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

**If the feature "Configure sSATA as" above is set to RAID, sSATA RSTe Boot Into and sSATA RAID Option ROM/UEFI Driver are available for configuration:*

sSATA RSTe Boot Info

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

Aggressive Link Power Management

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

sSATA RAID Option ROM/UEFI Driver

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

sSATA Port 2/4/5

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

- Model number of drive and capacity
- Software Preserve Support

Port 2/4/5 Hot Plug

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

Port 2/4/5 Spin Up Device

Set this feature to enable or disable the PCH to initialize the device. The options are **Disable** and Enable.

Port 2/4/5 sSATA Device Type

Use this feature to specify if the SATA port specified by the user should be connected to a Solid State Drive or a Hard Disk Drive. The options are **Hard Disk Drive** and Solid State Drive.

► PCIe/PCI/PnP Configuration

The following information will display:

- PCI Bus Driver Version
- PCI Devices Common Settings:

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

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

SR-IOV Support

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

MMIO High Base

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

MMIO High Granularity Size

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

PCI PERR/SERR Support

Use this feature to enable or disable the runtime event for PCI errors. The options are **Disabled** and Enabled.

Maximum Read Request

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

MMCFG Base

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

VGA Priority

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

JSLOT1 ~ JSLOT4 OPROM

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

Onboard Video Option ROM

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

Onboard 1G LAN OPROM

Use this feature to select which firmware type to be loaded for onboard 1G LAN devices. The options **Legacy** and EFI.

Onboard 10G LAN OPROM

Use this feature to select which firmware type to be loaded for onboard 1G LAN devices. The options **Legacy** and EFI.

Onboard LAN1 OPROM

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

Onboard LAN2 OPROM

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

Onboard LAN3 OPROM

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

Onboard LAN4 OPROM

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

► Network Stack Configuration

Network Stack

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

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

Ipv4 PXE Support

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

Ipv4 HTTP Support

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

Ipv6 PXE Support

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

Ipv6 HTTP Support

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

PXE boot wait time

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

Media detect count

Use this feature to specify the number of times media will be checked. Press "+" or "-" on the keyboard to change the value. The default setting is **1**.

► Super IO Configuration**Super IO Chip AST2500****► Serial Port 1 Configuration****Serial Port 1**

Select Enabled to enable the onboard serial port specified by the user. The options are Disabled and **Enabled**. Enable this feature for the next two features to display and only the Change Settings feature is available for configuration.

Device Settings

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

Change Settings

This feature specifies the base I/O port address and the Interrupt Request address of Serial Port 1. Select **Auto** for the BIOS to automatically assign the base I/O and IRQ address to a serial port specified. The options are **Auto**, (IO=3F8h; IRQ=4); (IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12); (IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12); (IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12); and (IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12).

► Serial Port 2 Configuration

Serial Port 2

Select Enabled to enable the onboard serial port specified by the user. The options are Disabled and **Enabled**. Enable this feature for the next two features to display and only the Change Settings feature is available for configuration.

Device Settings

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

Change Settings

This feature specifies the base I/O port address and the Interrupt Request address of Serial Port 1. Select **Auto** for the BIOS to automatically assign the base I/O and IRQ address to a serial port specified. The options are **Auto**, (IO=2F8h; IRQ=3); (IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12); (IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12); (IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12); and (IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12).

Serial Port 2 Attribute

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

► Serial Port Console Redirection

COM1

Console Redirection

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

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

► Console Redirection Settings

Terminal Type

This feature allows you 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**.

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

COM2/SOL

Console Redirection

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

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

► Console Redirection Settings

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

COM2/SOL

Terminal Type

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

Bits per second

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

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

Legacy Console Redirection**Redirection COM Port**

Use this feature to select a COM port to display redirection of Legacy OS and Legacy OPROM messages. The options are COM1 and **COM2/SOL**.

Legacy OS Redirection Resolution

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

Redirection After BIOS POST

Use this feature to enable or disable legacy console redirection after BIOS POST. When set to BootLoader, legacy console redirection is disabled before booting the OS. When set to Always Enable, legacy console redirection remains enabled when booting the OS. The options are **Always Enable** and BootLoader.

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

This submenu allows you to configure Console Redirection settings to support Out-of-Band Serial Port management.

Console Redirection

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

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

► Console Redirection Settings

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

Out-of-Band Mgmt Port

The feature selects a serial port in a client server to be used by the Microsoft Windows Emergency Management Services (EMS) to communicate with a remote host server. The options are **COM1** and SOL/COM2.

Terminal Type

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

Bits per second

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

Flow Control

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

Data Bits

Parity

Stop Bits

► **ACPI Settings**

WHEA Support

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

High Precision Event Timer

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

► **Trusted Computing**

The X11SDS Series supports TPM 1.2 and 2.0. The following Trusted Platform Module (TPM) information will display if a TPM 2.0 module is detected:

TPM20 Device Found

Vendor:

Firmware Version:

Security Device Support

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

- Active PCR banks
- Available PCR banks

Pending operation

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

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

Platform Hierarchy

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

Storage Hierarchy

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

Endorsement Hierarchy

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

PH Randomization

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

TXT Support

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

► Tls Auth Configuration

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

► Server CA Configuration

► Enroll Cert

Enroll Cert Using File

Use this feature to enroll certification from a file.

Cert 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 Cert

Use this feature to delete certification.

► Intel(R) Virtual RAID on CPU

Intel(R) VROC with VMD Technology 5.4.0.1039

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

Note: After you've enabled VMD on a PCI-E slot of your choice, this PCI-E slot will be dedicated for NVMe storage devices use only, and it will no longer support PCI-E devices of other functionalities. To reactivate this slot for PCI-E use, please disable VMD.

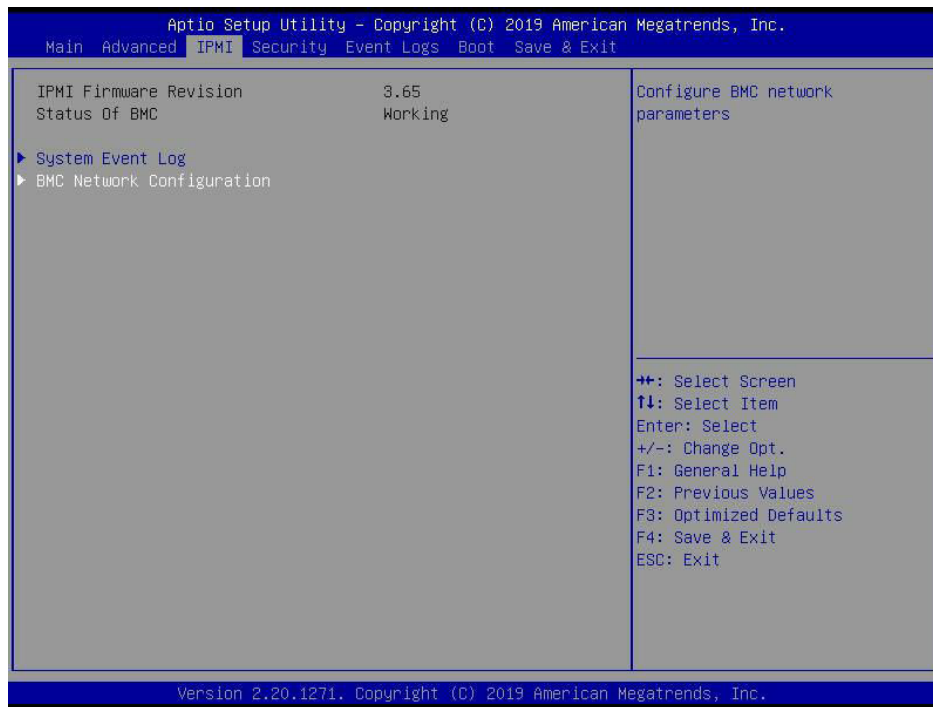
► All Cpu Information

The total number of CPUs for this motherboard is 32. The information shown below is for to CPU0 through CPU31.

- Total CPU Number:
- CPU0
- CPUID:
- Stepping:
- MicroCodeRev:
- PlatformID:
- CpuCoreFreq (MHz):
- ActualCpuFreq (MHz):

6.4 IPMI

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



This feature displays the IPMI firmware revision in your system.

Status of BMC

This feature displays 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 boot up. The options are Disabled and Enabled.

Erasing Settings

Erase SEL

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

When SEL is Full

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

Note: Reboot the system for the changes to take effect.

► BMC Network Configuration

- IPMI LAN Selection
- IPMI Network Link Status
- Station MAC address
- VLAN
- IPv4 Address Source
- Station IP Address
- Subnet mask
- Gateway IP address
- IPV6 address status
- Station IPV6 address
- IPV6 Router IP Address
- Prefix Length
- IPV6 Router IP Address

Update IPMI LAN Configuration

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

****If the feature above is set to Yes, the features below are available for configuration:***

IPMI LAN Selection

Use this feature to select the IPMI LAN mode. The options are Dedicated LAN, **Share LAN**, and Failover.

VLAN

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

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

VLAN ID

Use this feature to select a value for VLAN ID.

Configuration Address Source

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

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

Station IP Address

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

Subnet Mask

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

Gateway IP Address

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

Configure IPV6 support

IPV6 Support

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

****If the feature above is set to Enable, the features below are available for configuration:***

Configuration Address Source

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

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

Station IPV6 Address

Use this feature to enter the IPV6 address.

Prefix Length

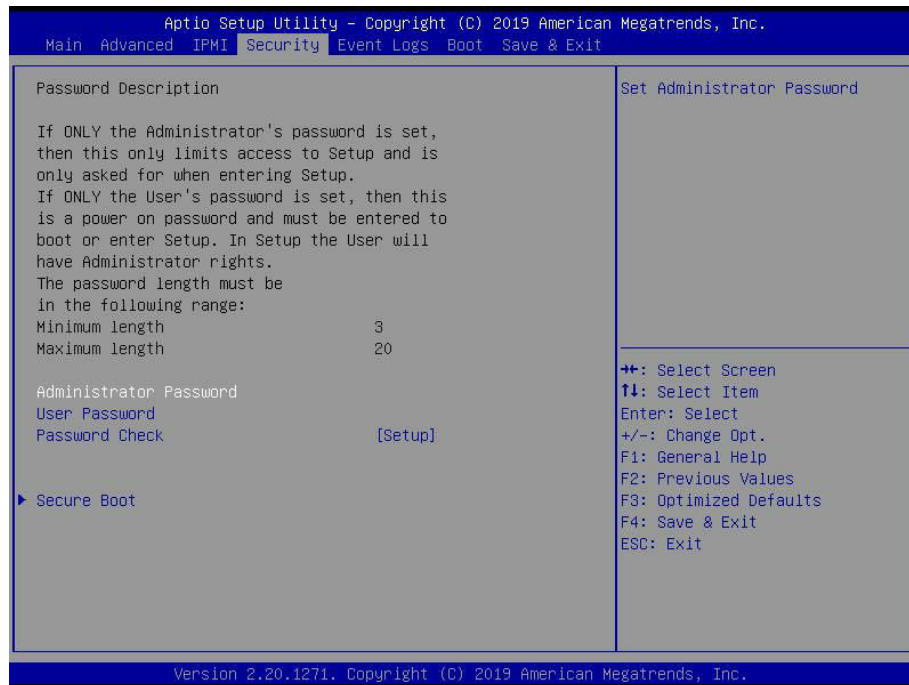
Use this feature to change the prefix length.

IPV6 Router1 IP Address

Use this feature to change the IPV6 Router1 IP address.

6.5 Security

Use this menu to configure the security settings.



Administrator Password

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

User Password

Use this feature to set the user password to enter the BIOS setup utility.

Password Check

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

▶ Secure Boot

System Mode

Secure Boot

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

Secure Boot Mode

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

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

CSM Support

This feature is for manufacturing debugging purposes.

▶ Restore Factory Keys

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

▶ Reset to Setup Mode

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

▶ Key Management

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

Factory Key Provision

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

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

▶ Restore Factory Keys

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

▶ Reset to Setup Mode

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

▶ Export Secure Boot variables

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

▶ Enroll Efi Image

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

Device Guard Ready

▶ Remove 'UEFI CA' from DB

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

▶ **Restore DB defaults**

Select Yes to restore the DB defaults.

▶ **Platform Key (PK)**

Update

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

▶ **Key Exchange Keys (KEK)**

Update

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

Append

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

▶ **Authorized Signatures**

Update

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

Append

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

▶ **Forbidden Signatures**

Update

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

Append

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

▶ **Authorized TimeStamps**

Update

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

Append

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

► **OsRecovery Signatures**

Update

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

Append

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

6.6 Event Logs

Use this feature to configure Event Log settings.



► Change SMBIOS Event Log Settings

Enabling/Disabling Options

Smbios Event Log

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

Erasing Settings

Erase Event Log

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

When Log is Full

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

Smbios Event Log Standard Settings

Log System Boot Event

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

MECI (Multiple Event Count Increment)

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

METW (Multiple Event Count Time Window)

This feature is used to determine how long (in minutes) 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: Reboot the system for the changes to take effect.

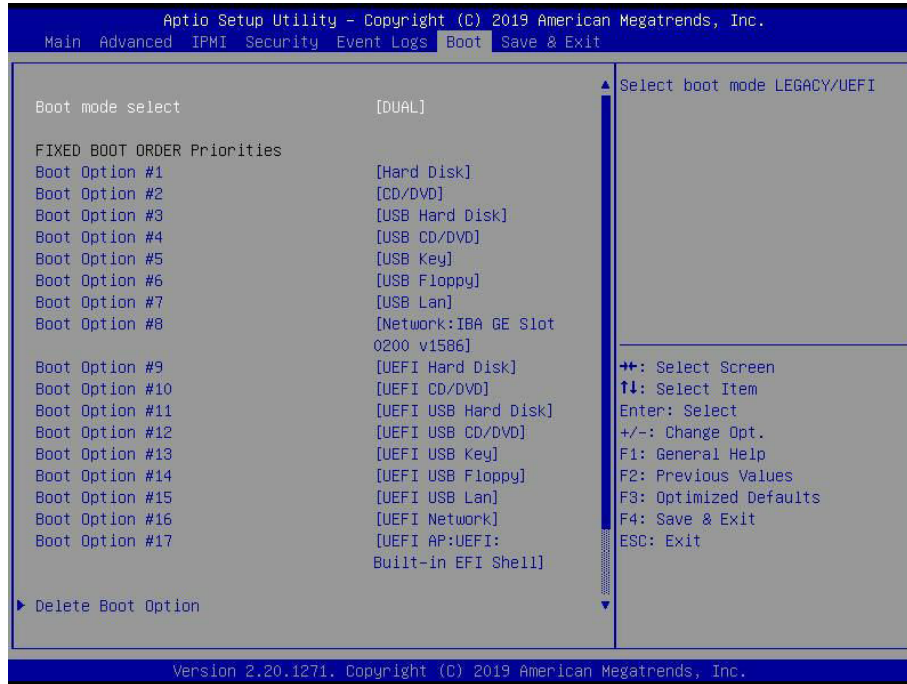
►View Smbios Event Log

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

DATE/TIME/ERROR CODE/SEVERITY

6.7 Boot

Use this menu to configure boot settings:



Boot mode select

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

LEGACY to EFI Support

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

Fixed BOOT ORDER Priorities

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

- Boot Option #1
- Boot Option #2
- Boot Option #3
- Boot Option #4
- Boot Option #5
- Boot Option #6
- Boot Option #7

- Boot Option #8
- Boot Option #9
- Boot Option #10
- Boot Option #11
- Boot Option #12
- Boot Option #13
- Boot Option #14
- Boot Option #15
- Boot Option #16
- Boot Option #17

▶ **Delete Boot Option**

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

▶ **Delete Driver Option**

Use this feature to remove an EFI driver option from the driver order.

▶ **UEFI Application Boot Priorities**

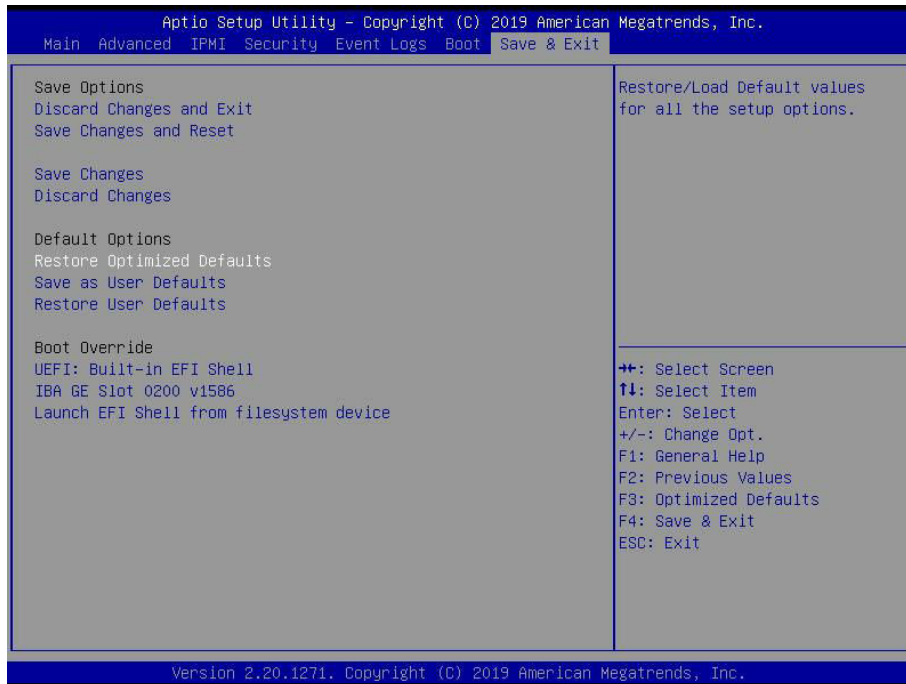
- Boot Option # - This feature sets the system boot order of detected devices. The options are **[the list of detected boot device(s)]** and Disabled.

▶ **NETWORK Drive BBS Priorities**

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

6.8 Save & Exit

Use this menu to configure save and exit settings.



Save Options

Discard Changes and Exit

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

Save Changes and Reset

When you have completed the system configuration changes, select this option to save all changes made and reset the system.

Save Changes

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

Discard Changes

Select this feature 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 Optimized Defaults and press <Enter>. These are factory settings designed for maximum system performance but not for maximum stability.

Save as User Defaults

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

Restore User Defaults

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

Boot Override

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

UEFI: Built-in EFI Shell

IBA GE Slot 0200 v1586

Launch EFI Shell from filesystem device

Appendix A

BIOS Error Codes

A.1 BIOS Error Beep (POST) Codes

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

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

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

These fatal errors are usually communicated through a series of audible beeps. The table below lists some common errors and their corresponding beep codes encountered by users.

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

A.2 Additional BIOS POST Codes

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

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

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

Appendix B

Standardized Warning Statements for AC Systems

About Standardized Warning Statements

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

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

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

Warning Definition



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

警告の定義

この警告サインは危険を意味します。

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

此警告符号代表危險。

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

此警告符號代表危險。

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

Warnung

WICHTIGE SICHERHEITSHINWEISE

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

BEWAHREN SIE DIESE HINWEISE GUT AUF.

INSTRUCCIONES IMPORTANTES DE SEGURIDAD

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

GUARDE ESTAS INSTRUCCIONES.

IMPORTANTES INFORMATIONS DE SÉCURITÉ

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

CONSERVEZ CES INFORMATIONS.

תקנון הזהרות אזהרה

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

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

안전을 위한 주의사항

경고!

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

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

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

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

BEWAAR DEZE INSTRUCTIES

Installation Instructions



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

設置手順書

システムを電源に接続する前に、設置手順書をお読み下さい。

警告

将此系统连接电源前,请先阅读安装说明。

警告

將系統與電源連接前，請先閱讀安裝說明。

Warnung

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

¡Advertencia!

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

Attention

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

יש לקרוא את הוראות התקנה לפני חיבור המערכת למקור מתח.

اقرأ إرشادات التركيب قبل توصيل النظام إلى مصدر للطاقة

시스템을 전원에 연결하기 전에 설치 안내를 읽어주십시오.

Waarschuwing

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

Circuit Breaker



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

サーキット・ブレーカー

この製品は、短絡(過電流)保護装置がある建物での設置を前提としています。

保護装置の定格が250 V、20 Aを超えないことを確認下さい。

警告

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

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

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

경고!

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

Waarschuwing

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

Power Disconnection Warning



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

電源切斷の警告

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

警告

在你打开机箱并安装或移除内部器件前,必须将系统完全断电,并移除电源线。

警告

在您打開機殼安裝或移除內部元件前，必須將系統完全斷電，並移除電源線。

Warnung

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

¡Advertencia!

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

Attention

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

אזהרה מפני ניתוק חשמלי

אזהרה!

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

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

경고!

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

Waarschuwing

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

Equipment Installation



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

機器の設置

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

警告

只有经过培训且具有资格的人员才能进行此设备的安装、更换和维修。

警告

只有經過受訓且具資格人員才可安裝、更換與維修此設備。

Warnung

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

¡Advertencia!

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

Attention

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

אזהרה!

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

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

경고!

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

Waarschuwing

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

Restricted Area

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

アクセス制限区域

このユニットは、アクセス制限区域に設置されることを想定しています。

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

警告

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

Cet appareil doit être 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 النحذة نترك بُها ف مناطق محظورة تم .
ممكن اننصل إن منطقت محظورة فقط من خلال استخذاو أداة خاصت
أو أ وس هُت أخري نلالأمما ققم ومفتاح

경고!

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

Waarschuwing

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

Battery Handling



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

電池の取り扱い

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

警告

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

警告

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

Warnung

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

Attention

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

¡Advertencia!

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

אזהרה!

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

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

경고!

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

Waarschuwing

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

Redundant Power Supplies



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

冗長電源装置

このユニットは複数の電源装置が接続されている場合があります。

ユニットの電源を切るためには、すべての接続を取り外さなければなりません。

警告

此部件连接的电源可能不止一个，必须将所有电源断开才能停止给该部件供电。

警告

此装置连接的电源可能不只一个，必须切断所有电源才能停止对该装置的供电。

Warnung

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

¡Advertencia!

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

Attention

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

אם קיים יותר מספק אחד

אזהרה!

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

قد يكون لهذا الجهاز عدة اتصالات بوحدات امداد الطاقة .

يجب إزالة كافة الاتصالات لعسل الوحدة عن الكهرباء

경고!

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

Waarschuwing

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

Backplane Voltage



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

バックプレーンの電圧

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

修理する際には注意ください。

警告

当システム正在进行时，背板上有很危险的电压或能量，进行维修时务必小心。

警告

當系統正在進行時，背板上危險的電壓或能量，進行維修時務必小心。

Warnung

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

¡Advertencia!

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

Attention

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

מתח בפנל האחורי

אזהרה!

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

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

경고!

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

Waarschuwing

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

Comply with Local and National Electrical Codes



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

地方および国の電気規格に準拠

機器の取り付けはその地方および国の電気規格に準拠する必要があります。

警告

设备安装必须符合本地与本国电气法规。

警告

設備安裝必須符合本地與本國電氣法規。

Warnung

Die Installation der Geräte muss den Sicherheitsstandards entsprechen.

¡Advertencia!

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

Attention

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

תיאום חוקי החשמל הארצי

אזהרה!

התקנת הציוד חייבת להיות תואמת לחוקי החשמל המקומיים והארציים.

تركيب المعدات الكهربائية يجب أن يمتثل للقوايه المحلية والبطية المتعلقة
بالكهرباء

경고!

현 지역 및 국가의 전기 규정에 따라 장비를 설치해야 합니다.

Waarschuwing

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

Product Disposal



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

製品の廃棄

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

警告

本产品的废弃处理应根据所有国家的法律和规章进行。

警告

本產品的廢棄處理應根據所有國家的法律和規章進行。

Warnung

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

¡Advertencia!

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

Attention

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

סילוק המוצר

אזהרה!

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

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

경고!

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

Waarsch+uwing

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

Hot Swap Fan Warning



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

ファン・ホットスワップの警告

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

警告!

警告! 危險的可移動性零件。請務必與轉動的風扇葉片保持距離。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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

אזהרה!

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

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

경고!

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

Waarschuwing

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

Power Cable and AC Adapter



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

電源コードとACアダプター

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

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

警告

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

AC ימאתמו מיילמשח מילבכ

!הרהזא

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

תאלבאלא אארשב מק וא עדדחמלא וא ערפוטמלא תאליטוטלא מאדחטסאב מק, גתנמלא בייקרת דנע לכלז יפאמב עילחמלא עמאלסלא תאבלטתמו נינאווקב מאזתלאלא עמ דדרתמלא ראיטלא תאלוחמו עיילברמלא קיירח וא לטע יפאבבסטטי דקיירחא תאלוחמו תאלבאלא יא מאדחטסא. מילסלא סבאלאו ולסומלא מייח CSA ואל UL לביק נמ ענדמתעמלא תאלבאלא מאדחטסא תאדעמלאו עיילברמלא עזהאלל עמאלסלא נונאק רזחי Supermicro לביק נמ עדדחמלאו עיילעמלא תאגתנמלא רייג יירחא תאדעמ יא עמ (UL/CSA) עמאלע למחתיטלאו

전원 케이블 및 AC 어댑터

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

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

Stroomkabel en AC-Adapter

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

Appendix C

UEFI BIOS Recovery Instructions

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

C.1 An Overview to the UEFI BIOS

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

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 recovery block contains critical BIOS codes, including memory detection and recovery codes for the user to flash a healthy BIOS image if the original main BIOS image is corrupted. When the system power is turned on, the recovery block codes execute first. Once this process is complete, the main BIOS code will continue with system initialization and the remaining POST (Power-On Self-Test) routines.

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

Note 2: When the BIOS recovery block crashes, you will need to follow the procedures to make a Returned Merchandise Authorization (RMA) request. (For a RMA request, please see section 3.5 for more information). Also, you may use the Supermicro Update Manager (SUM) Out-of-Band (OOB) (https://www.supermicro.com.tw/products/nfo/SMS_SUM.cfm) to reflash the BIOS.

C.3 To Recover the Main BIOS Block Using a USB-Attached Device

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

The file system supported by UEFI is FAT (including FAT12, FAT16, and FAT32) installed on a bootable or non-bootable USB-attached device. However, the BIOS might need several minutes to locate the SUPER.ROM file if the media size becomes too large because it contains too many folders and files.

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

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

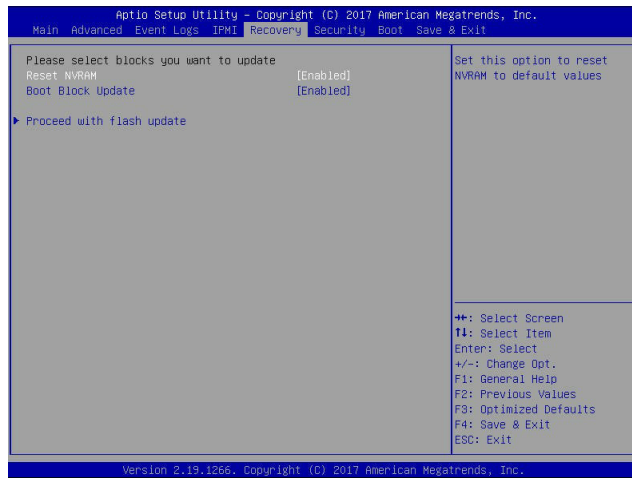
Note: If you cannot locate the "Super.ROM" file in your driver disk, visit our website at www.supermicro.com to download the BIOS image into a USB flash device and rename it "Super.ROM" for BIOS recovery use.

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

2. Insert the USB device that contains the new BIOS image ("Super.ROM") into your USB drive and power on the system



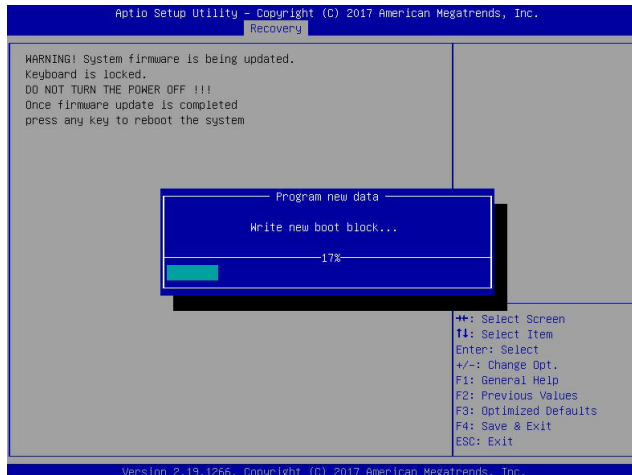
3. After locating the healthy BIOS binary image, the system will enter the BIOS Recovery menu as shown below.



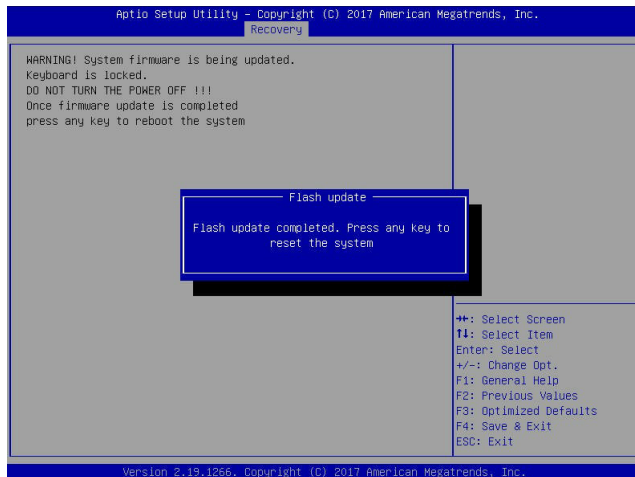
Note: At this point, you may decide if you want to start the BIOS recovery. If you decide to proceed with BIOS recovery, follow the procedures below.

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

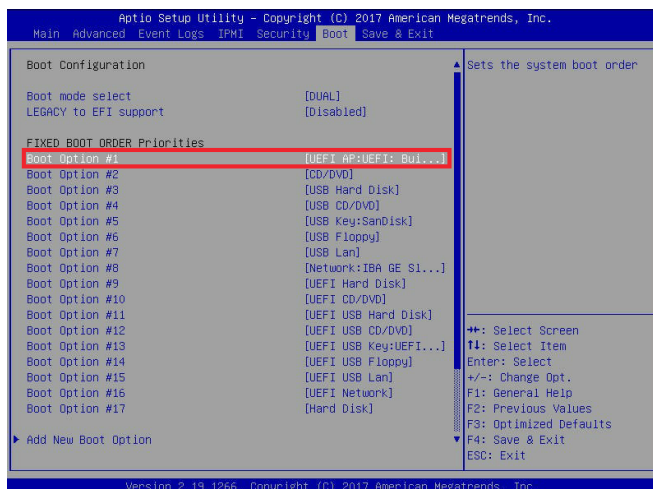
Note: Do not interrupt the BIOS flashing process until it has completed.



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



6. Using a different system, extract the BIOS package into a USB flash drive.
7. Press continuously during system boot to enter the BIOS Setup utility. From the top of the tool bar, select Boot to enter the submenu. From the submenu list, select Boot Option #1 as shown below. Then, set Boot Option #1 to [UEFI AP:UEFI: Built-in EFI Shell]. Press <F4> to save the settings and exit the BIOS Setup utility.



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

```

UEFI Interactive Shell v2.1
EDK II
UEFI v2.50 (American Megatrends, 0x0005000C)
Mapping table
FS0: Alias(s):HD(0):MB:BLK1:
      PciRoot(0x0)/Pci(0x14,0x0)/USB(0x11,0x0)/HD(1,MBR,0x37901072,0x800,0x1
CR9592)
      BLK0: Alias(s):
      PciRoot(0x0)/Pci(0x14,0x0)/USB(0x11,0x0)
Press F8P in 1 seconds to skip startup.nsh or any other key to continue.
Shell> fs0:
FS0:\> cd \AFUDOS
FS0:\AFUDOS> cd SHUPME2_03162017
FS0:\AFUDOS\SHUPME2_03162017> flash.nsh X110PU7_314
    
```

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

```

Done.
[ Access Cmos Port Ex ]
<Read>
Index 0x51: 0x1B
Done.
*****
* Program BIOS and ME (including FDT) regions...
*****
| AMI Firmware Update Utility v8.09.01.1317
| Copyright (C)2017 American Megatrends Inc. All Rights Reserved.
*****
CPUID = 50652
Reading flash ..... done
- ME Data Size checking - ok
- FFS Checksums ..... ok
- Check RomLayout ..... Ok
Erasing Boot Block ..... done
Updating Boot Block ..... done
Verifying Boot Block ..... done
_Erasing Main Block ..... 0x00132000 (0x)
    
```

- The screen above indicates that the BIOS update process is complete. When you see the screen above, unplug the AC power cable from the power supply, clear CMOS, and plug the AC power cable in the power supply again to power on the system.

```

Verifying NCB Block ..... done
- Update success for FDR
- Update success for IE.
- Successful Update Recovery Loader to OPR!!
- Successful Update MFSB!!
- Successful Update FTR!!
- Successful Update MFS, IVB1 and IVB2!!
- Successful Update FLOG and UTOK!!
- ME Entire Image update success !!
WARNING : System must power-off to have the changes take effect!
Moving F80:\AFUDOS\SHUPME2_03162017\afuefix64.efi -> F80:\AFUDOS\SHUPME2_03162017\
dt.smc
- [ok]
Moving F80:\AFUDOS\SHUPME2_03162017\afuefix64.efi -> F80:\AFUDOS\SHUPME2_0316201
7\afuef1.smc
- [ok]
*****
* Please ignore this 'Shell: Cannot read from file - Device Error'
* warning message due to it does not impact flashing process.
*****
Deleting .....
Delete Successful.
FS0:\>
    
```

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

Appendix D

System Specifications

Processors

Single Intel Xeon D-2146NT with speeds of up to 80W for 1019D-FRN5TP in an H4 LGA1151 type socket
Single Intel Xeon D-2163IT with speeds of up to 75W for 1019D-12C-FRN5TP in an H4 LGA1151 type socket
Single Intel Xeon D-2173IT with speeds of up to 70W for 1019D-14C-FRN5TP in an H4 LGA1151 type socket
Single Intel Xeon D-2183IT with speeds of up to 100W for 1019D-16C-FRN5TP in an H4 LGA1151 type socket
Note: Please refer to the motherboard specifications pages on our website for updates to supported processors.

Chipset

System on Chip

BIOS

256Mb AMI BIOS SPI Flash BIOS
Plug and Play (PNP), ACPI 6.2, UEFI 2.7, BIOS rescue hot-key, SMBIOS 2.8 and 3.2, PCI F/W 3.1, RTC Wakeup

Memory

Supports up to 256GB of ECC RDIMM or 512GB of ECC LRDIMM DDR4 memory
Operating speed up to 2133MHz for 1019D-FRN5TP, 1019D-12C-FRN5TP, and 1019D-14C-FRN5TP
Operating speed up to 2400MHz for 1019D-16C-FRN5TP

SATA Controller

On-chip (System on Chip) controller

Hard Drives

Two EDSFF and two internal 2.5" drives
OR two M.2 and one internal 2.5" drive

PCI Expansion Slots

Two M.2 M-Key 2280/22110 (one 2.5" drive bay space shared with M.2)
One M.2 E-Key 2230
One M.2 B-Key 2242/3042
Four PCI-E 3.0 x8 for Advanced I/O Module (AIOM) (AIOM is sold separately)

Motherboard

X11SDS-8C for 1019D-FRN5TP
X11SDS-12C for 1019D-12C-FRN5TP
X11SDS-14C for 1019D-14C-FRN5TP
X11SDS-16C for 1019D-16C-FRN5TP
Dimensions: 7.24" x 13.75" (183.90 x 349.25 mm)

Chassis

SC103-R407B; 1U rackmount,
Dimensions: (WxHxD) 17.2 x 1.7 x 15 in. (437 x 43 x 382 mm)

Weight

Net: 26.9 lbs (12.2 kg)
Gross: 15.9 lbs (7.21 kg)

System Cooling

Five 40x40x56 mm 13K-11K RPM counter-rotating fans

Power Supply

Model: PWS-407P-1R (x2), 80 Plus level Platinum

Total Output Power: 400W

AC Input Voltages: 100-240V, 200-240V

Rated Input Frequency: 50-60Hz

Max: 33A & Min: 0.5A

5V SB:

Max: 3A / Min: 0A

Output Type:

Gold Finger Connector Mating with Molex 45984-4343

Operating Environment

Operating Temperature: 0° to 45° C (32° to 113° F)

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

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

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

Regulatory Compliance

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

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

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

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

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

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"