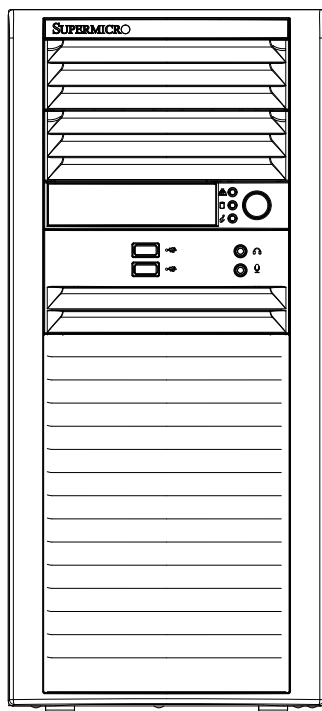




# SuperWorkstation® 7039A-I



USER'S MANUAL

Revision 2.0b

The information in this User's Manual has been carefully reviewed and is believed to be accurate. The vendor assumes no responsibility for any inaccuracies that may be contained in this document, and makes no commitment to update or to keep current the information in this manual, or to notify any person or organization of the updates. **Please Note: For the most up-to-date version of this manual, please see our website at [www.supermicro.com](http://www.supermicro.com).**

Super Micro Computer, Inc. ("Supermicro") reserves the right to make changes to the product described in this manual at any time and without notice. This product, including software and documentation, is the property of Supermicro and/or its licensors, and is supplied only under a license. Any use or reproduction of this product is not allowed, except as expressly permitted by the terms of said license.

IN NO EVENT WILL Super Micro Computer, Inc. BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, SPECULATIVE OR CONSEQUENTIAL DAMAGES ARISING FROM THE USE OR INABILITY TO USE THIS PRODUCT OR DOCUMENTATION, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN PARTICULAR, SUPER MICRO COMPUTER, INC. SHALL NOT HAVE LIABILITY FOR ANY HARDWARE, SOFTWARE, OR DATA STORED OR USED WITH THE PRODUCT, INCLUDING THE COSTS OF REPAIRING, REPLACING, INTEGRATING, INSTALLING OR RECOVERING SUCH HARDWARE, SOFTWARE, OR DATA.

Any disputes arising between manufacturer and customer shall be governed by the laws of Santa Clara County in the State of California, USA. The State of California, County of Santa Clara shall be the exclusive venue for the resolution of any such disputes. Supermicro's total liability for all claims will not exceed the price paid for the hardware product.

FCC Statement: This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause harmful interference with radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense.

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



WARNING: This product can expose you to chemicals including lead, known to the State of California to cause cancer and birth defects or other reproductive harm. For more information, go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

The products sold by Supermicro are not intended for and will not be used in life support systems, medical equipment, nuclear facilities or systems, aircraft, aircraft devices, aircraft/emergency communication devices or other critical systems whose failure to perform be reasonably expected to result in significant injury or loss of life or catastrophic property damage. Accordingly, Supermicro disclaims any and all liability, and should buyer use or sell such products for use in such ultra-hazardous applications, it does so entirely at its own risk. Furthermore, buyer agrees to fully indemnify, defend and hold Supermicro harmless for and against any and all claims, demands, actions, litigation, and proceedings of any kind arising out of or related to such ultra-hazardous use or sale.

Manual Revision 2.0b

Release Date: September 13, 2019

Unless you request and receive written permission from Super Micro Computer, Inc., you may not copy any part of this document. Information in this document is subject to change without notice. Other products and companies referred to herein are trademarks or registered trademarks of their respective companies or mark holders.

Copyright © 2019 by Super Micro Computer, Inc.

All rights reserved.

**Printed in the United States of America**

# Preface

## About this Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of the SuperWorkstation 7039A-I. Installation and maintenance should be performed by experienced technicians only.

Please refer to the 7039A-I 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/driver>
- Product safety info: [http://www.supermicro.com/about/policies/safety\\_information.cfm](http://www.supermicro.com/about/policies/safety_information.cfm)

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

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

## Warnings

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



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



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

# Table of Contents

## ***Chapter 1 Introduction***

1.1 Overview.....	7
1.2 Unpacking the System .....	7
1.3 System Features .....	8
1.4 Server Chassis Features.....	9
Control Panel .....	9
Front Features.....	10
Rear Features .....	11
1.5 Motherboard Layout .....	12
Quick Reference Table.....	13

## ***Chapter 2 Workstation Setup***

2.1 Overview.....	16
2.2 Preparing for Setup .....	16
Choosing a Setup Location.....	16
General Precautions .....	16

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

3.1 Removing Power .....	17
3.2 Accessing the System.....	17
3.3 Motherboard Components.....	18
Processor and Heatsink Installation.....	18
The Xeon Scalable Processor.....	19
Assembling the Processor Package.....	19
Assembling the Processor Heatsink Module (PHM) .....	21
Removing the Dust Cover from the CPU Socket.....	22
Installing the Processor Heatsink Module (PHM) .....	22
Removing the Processor Heatsink Module from the Motherboard .....	23
Memory Support.....	24
Memory Population Guidelines.....	26
Memory Population Sequence .....	26
Installing Memory.....	29
Motherboard Battery .....	30
3.4 Chassis Components .....	31



3.5" Hard Drives .....	31
Removing Hard Drives from the Carriers .....	33
2.5" Hard Drives .....	33
Installing a 3.5" Device .....	35
System Cooling .....	36
Power Supply .....	38
<b>Chapter 4 Motherboard Connections</b>	
4.1 Power Connections .....	39
4.2 Headers and Connectors .....	40
Control Panel .....	43
4.3 Ports .....	45
Rear I/O Ports.....	46
4.4 Jumpers.....	48
Explanation of Jumpers.....	48
4.5 LED Indicators.....	50
<b>Chapter 5 Software</b>	
5.1 Microsoft Windows OS Installation.....	52
5.2 Driver Installation.....	54
5.3 SuperDoctor® 5.....	55
5.4 IPMI .....	55
<b>Chapter 6 BIOS</b>	
6.1 Introduction.....	56
6.2 Main Setup .....	57
6.3 Advanced Setup Configurations.....	59
6.5 IPMI .....	84
6.7 Boot .....	90
6.8 Save & Exit.....	93
<b>Appendix A BIOS Codes</b>	
<b>Appendix B Standardized Warning Statements for AC Systems</b>	
<b>Appendix C System Specifications</b>	
<b>Appendix D UEFI BIOS Recovery</b>	

## Contacting Supermicro

### Headquarters

Address: Super Micro Computer, Inc.  
980 Rock Ave.  
San Jose, CA 95131 U.S.A.

Tel: +1 (408) 503-8000

Fax: +1 (408) 503-8008

Email: [marketing@supermicro.com](mailto:marketing@supermicro.com) (General Information)  
[support@supermicro.com](mailto:support@supermicro.com) (Technical Support)

Website: [www.supermicro.com](http://www.supermicro.com)

### Europe

Address: Super Micro Computer B.V.  
Het Sterrenbeeld 28, 5215 ML  
's-Hertogenbosch, The Netherlands

Tel: +31 (0) 73-6400390

Fax: +31 (0) 73-6416525

Email: [sales@supermicro.nl](mailto:sales@supermicro.nl) (General Information)  
[support@supermicro.nl](mailto:support@supermicro.nl) (Technical Support)  
[rma@supermicro.nl](mailto:rma@supermicro.nl) (Customer Support)

Website: [www.supermicro.nl](http://www.supermicro.nl)

### Asia-Pacific

Address: Super Micro Computer, Inc.  
3F, No. 150, Jian 1st Rd.  
Zhonghe Dist., New Taipei City 235  
Taiwan (R.O.C)

Tel: +886-(2) 8226-3990

Fax: +886-(2) 8226-3992

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

Website: [www.supermicro.com.tw](http://www.supermicro.com.tw)

# Chapter 1

## Introduction

### 1.1 Overview

This chapter provides a brief outline of the functions and features of the 7039A-I SuperWorkstation. The 7039A-I is based on the X11DAi-N motherboard and the SC732D3-1200B chassis.

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

Main Parts List		
Description	Part Number	Quantity
Fans (12-cm rear exhaust)	FAN-0124L4	2
Internal 3.5" HDD Drive Trays	MCP-220-73101-0B	4

### 1.2 Unpacking the System

Inspect the box the SuperServer 7039A-I was shipped in and note if it was damaged in any way. If any equipment appears damaged, please file a damage claim with the carrier who delivered it.

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

## 1.3 System Features

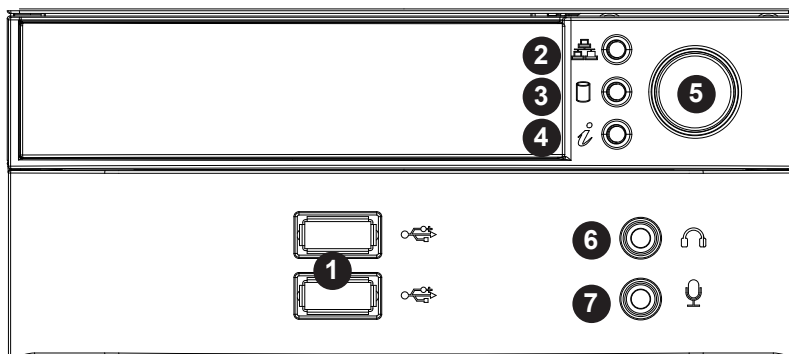
The following table provides you with an overview of the main features of the 7039A-I. Please refer to Appendix C for additional specifications.

System Features
<b>Motherboard</b>
X11DAi-N
<b>Chassis</b>
SC732D3-1200B
<b>CPU</b>
Dual Intel Xeon 81xx/61xx/51xx/41xx/31xx Series processors
<b>Socket Type</b>
SKX
<b>Memory</b>
Up to 2048 GB of 3DS RDIMM/3DS LRDIMM/LRDIMM/RDIMM/NVDIMM DDR4 ECC 2666/2400/2133 MHz memory in 16 memory slots.
<b>Chipset</b>
C621 chipset
<b>Expansion Slots</b>
Four PCI-Express 3.0 x16 slots (Slot1/Slot2 supported by CPU1, Slot3/Slot5 supported by CPU2) Two PCI-Express 3.0 x8 slots (Slot4/Slot6 supported by CPU2)
<b>Hard Drives</b>
Up to four 3.5" hard drives
<b>Power</b>
Single 1200W power supply
<b>Form Factor</b>
Mid-tower
<b>Dimensions</b>
(WxHxD) 7.6 x 16.7 x 20.68 in. (193 x 424 x 525.3 mm)

## 1.4 Server Chassis Features

### Control Panel

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



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

Control Panel Features		
Item	Feature	Description
1	USB 3.0 Ports	Front access USB 3.0 ports (2x)
2	NIC LED	Indicates network activity on the LAN port when flashing.
3	HDD LED	Indicates activity on the hard drive when flashing.
4	Information LED	See table below
5	Power Button	The main power button is used to apply or remove power from the power supply to the server. Turning off system power with this button removes the main power but maintains standby power. To perform many maintenance tasks, you must also unplug system before servicing
6	Line Out	Line out jack
7	Mic	Microphone jack

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

## Front Features

The SC732D3-1200B is a mid-tower chassis. See the illustration below for the features included on the front of the chassis.

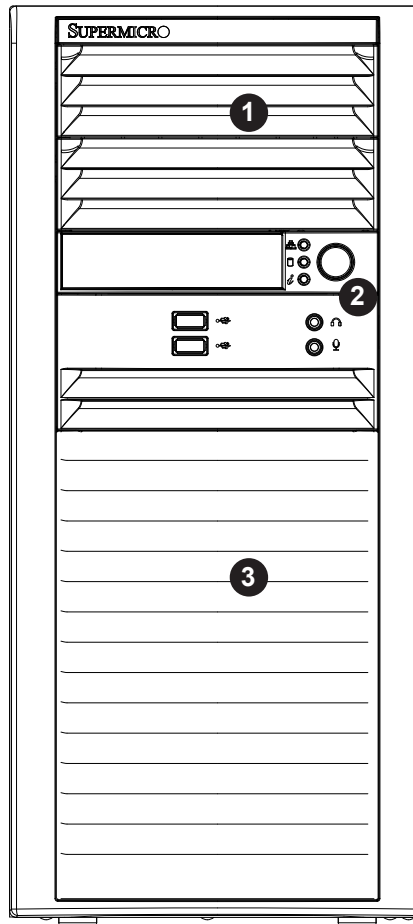


Figure 1-2. Chassis Front View

Front Chassis Features		
Item	Feature	Description
1	Fixed Drive Area	Supports two fixed 5.25" drives (such as a DVD-ROM or HDD)
2	Control Panel	Front control panel (see preceding page)
3	Internal HDD Cage (behind bezel)	Supports four 3.5" hard drives in a rotatable cage

## Rear Features

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

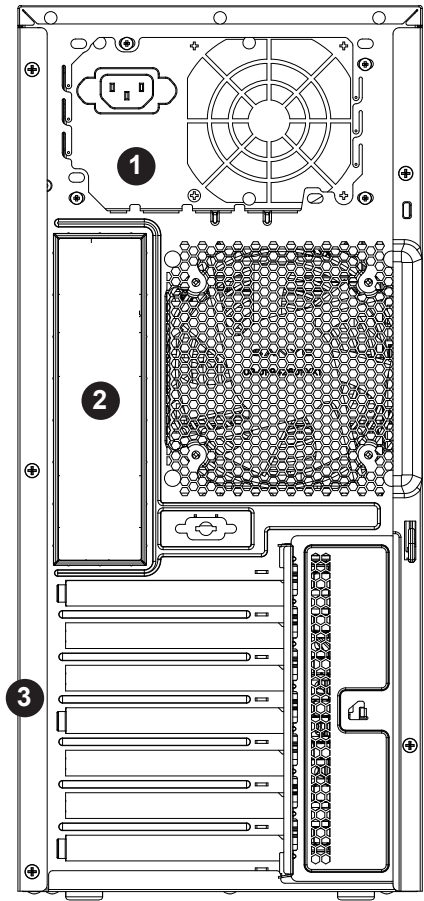
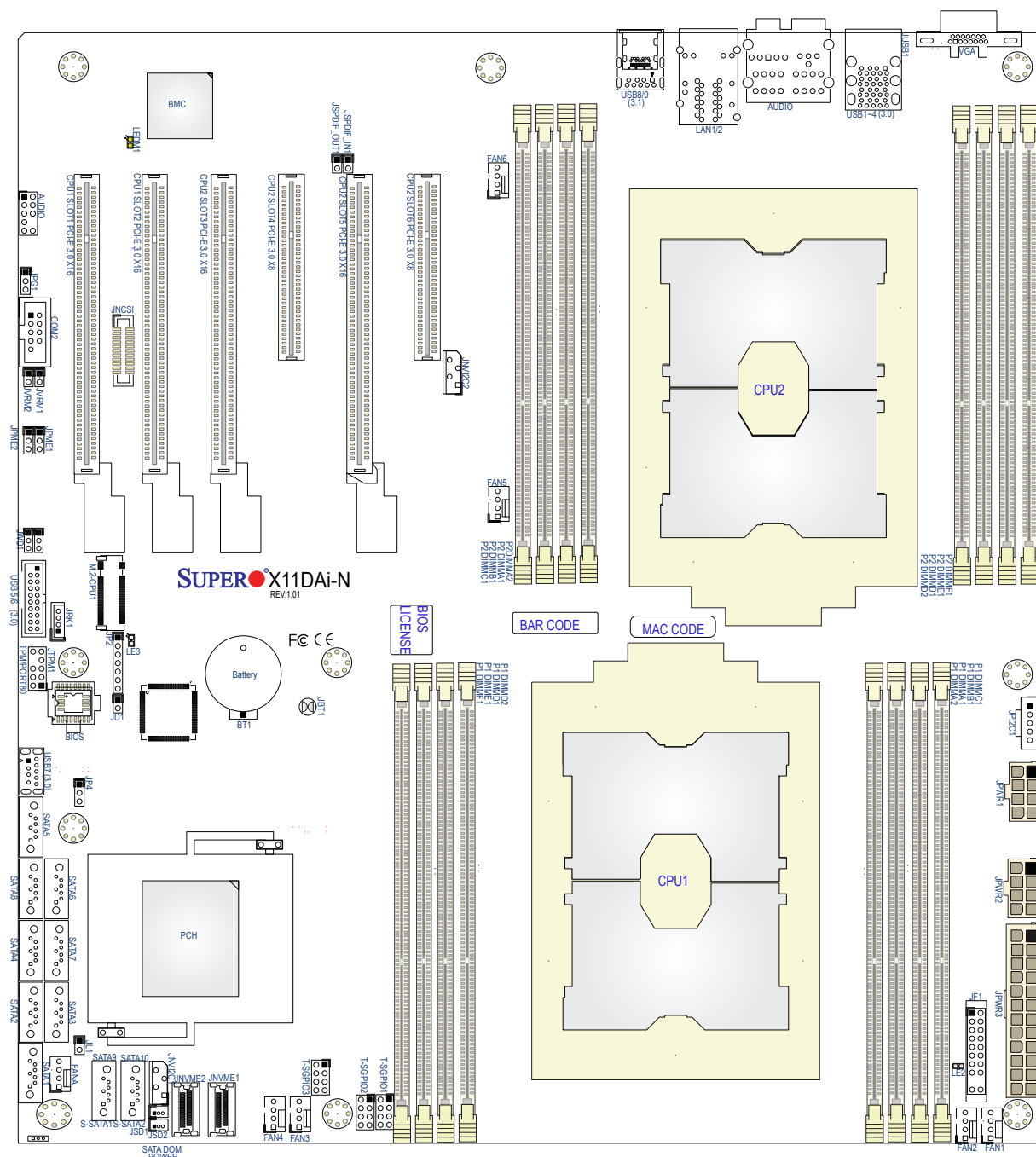


Figure 1-3. Chassis Rear View

Rear Chassis Features		
Item	Feature	Description
1	Power Supply	1200W power supply (p/n PWS-1K25P-PQ)
2	I/O Backpanel	Rear I/O ports (see Section 4.3)
3	PCI Slots	Supports seven full-height, full-length PCI expansion cards

## 1.5 Motherboard Layout

Below is a layout of the X11DAi-N with jumper, connector and LED locations shown. See the table on the following page for descriptions. For detailed descriptions, pinout information and jumper settings, refer to Chapter 4.





## Quick Reference Table

Jumper	Description	Default Setting
JBT1	CMOS Clear	Open (Normal)
JPG1	VGA Enable/Disable	Pins 1-2 (Enabled)
JPME1	ME Recovery	Pins 1-2 (Normal)
JPME2	Manufacturing Mode Select	Pins 1-2 (Normal)
JVRM1	VRM SMB Clock to BMC	Pins 1-2 (Normal)
JVRM2	VRM SMB Data to BMC	Pins 1-2 (Normal)
JWD1	Watch Dog Timer	Pins 1-2 (Reset)

Connector	Description
Audio (JA1)	Audio connector for front access
Audio (JAUDIO1)	Audio port on the I/O back panel
BT1	Onboard CMOS battery
COM2 (JCOM2)	COM/serial port header for front access
FAN1-6, FANA	System cooling fan headers (FAN1-FAN6, FAN A)
JD1	Internal speaker/buzzer
JF1	Control panel header
JIPMB1	4-pin BMC external I <sup>2</sup> C header (for an IPMI card)
JL1	Chassis intrusion header
JNCSI	NCSI header
JNVI <sup>2</sup> C1/2	NVMe I <sup>2</sup> C headers 1/2
JNVME1/2	NVMe slots 1/2
JP2	Complex-Programmable Logical Device (CPLD) header
JP4	5V/5V AUX switch
JSD1/JSD2	SATA DOM (Disk-on-Module) power connectors 1/2
JPI <sup>2</sup> C1	Power supply SMBbus I <sup>2</sup> C header
JPWR1/JPWR2	8-pin power supply connectors
JPWR3	24-pin ATX main power supply connector
JRK1	VROC RAID key header for onboard NVMe devices
JSPDIF_In/JSPDIF_Out	SPDIF (Sony/Philips Digital Interconnect Format) Audio In/Out connectors
JTPM1	Trusted Platform Module/Port 80 connector
LAN1/LAN2	Gigabit LAN (1G LAN) Ethernet ports on the IO back panel
M.2-CPU1	M.2 Slot supported by CPU1
SATA1~4, 5~8	SATA 3.0 connection headers supported by the Intel PCH
S-SATA1/2 (SuperDOM)	S-SATA connection headers w/power-pins built-in and supported by the Intel SCU
(CPU1) Slot1/Slot2	PCI-Express 3.0 x16 slots supported by CPU1
(CPU2) Slot3/Slot5	PCI-Express 3.0 x16 slots supported by CPU2
(CPU2) Slot4/Slot6	PCI-Express 3.0 x8 slots supported by CPU2

Connector	Description
T-SGPIO1/2/3	General Purpose Serial I/O ports 1/2/3 (T-SGPIO1: SATA1~4, T-SGPIO2: SATA5~8, T-SGPIO3: S-SATA1/2)
USB1/2/3/4 (3.0)	Backpanel USB 3.0 ports 1/2/3/4
USB7 (3.0)	Front Accessible USB 3.0 Type A connector (USB 7)
USB5/6 (3.0)	USB 3.0 connections 5/6 for front access
USB8/9 (3.1)	Back panel USB 3.1 ports 8/9
VGA	VGA port on the I/O back panel

LED	Description	Status
LE2	Onboard Power LED	On: Onboard Power Present
LE3	M.2 LED	Blinking Green: Device Working
LEDM1	BMC Heartbeat LED	Blinking Green: BMC normal



---

15

# Chapter 2

## Workstation Setup

### 2.1 Overview

This chapter provides advice setting up your system. If your system is not already fully integrated with processors, system memory etc., refer to Chapter 4 for details on installing those specific components.

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

### 2.2 Preparing for Setup

#### 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.
- 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.

#### General Precautions

- Review the electrical and general safety precautions in Appendix B.
- Use a regulating uninterruptible power supply (UPS) to protect the server from power surges and voltage spikes and to keep your system operating in case of a power failure.
- Allow any drives and power supply modules to cool before touching them.
- When not servicing, always keep all covers/panels on the system closed to maintain proper cooling.

## Chapter 3

# Maintenance and Component Installation

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

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

### 3.1 Removing Power

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

1. Use the operating system to power down the system.
2. After the system has completely shut-down, disconnect the AC power cord from the power strip or outlet.
3. Disconnect the power cord from the power supply module.

### 3.2 Accessing the System

The SC732D3-1200B features two removable side covers, allowing easy access to the chassis interior.

#### ***Removing the Side Cover***

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

1. Remove the two screws securing the left side cover to the chassis.
2. Slide the left cover toward the rear of the chassis.
3. Lift the left cover from the chassis.
4. Remove the three screws securing the right side cover to the chassis.
5. Slide the right cover toward the rear of the chassis
6. Lift the right cover from the chassis.

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

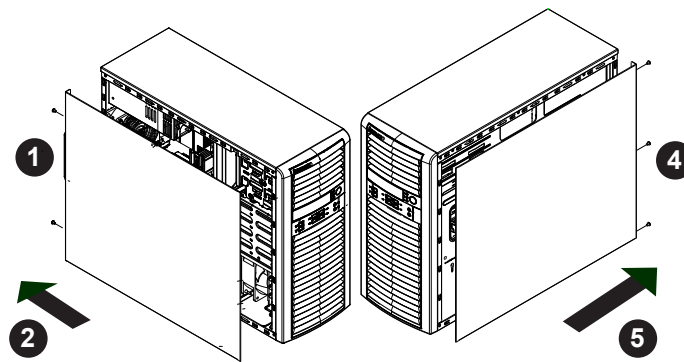


Figure 3-1. Accessing the System

## 3.3 Motherboard Components

### Processor and Heatsink Installation

The Intel Xeon 8100/6100/5100/4100/3100 processor series comes in two models: Fabric (F model) and Non-Fabric (Non-F model). Only the Non-Fabric model is supported for this system.

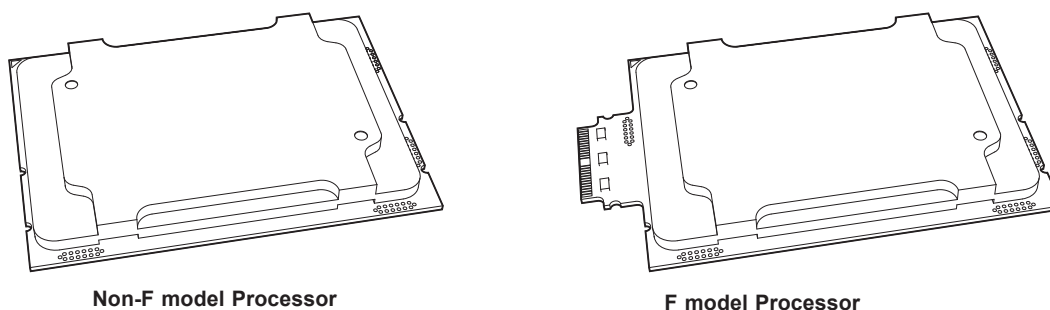
The processor (CPU) and heatsink should be assembled together first to form the processor heatsink module (PHM), and then install the PHM into the CPU socket.

**Caution:** Use ESD protection. Do not touch the underside of the CPU. Improper installation or socket misalignment can cause serious damage to the CPU or socket which may require manufacturer repairs.

**Notes:**

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

## ***The Xeon Scalable Processor***



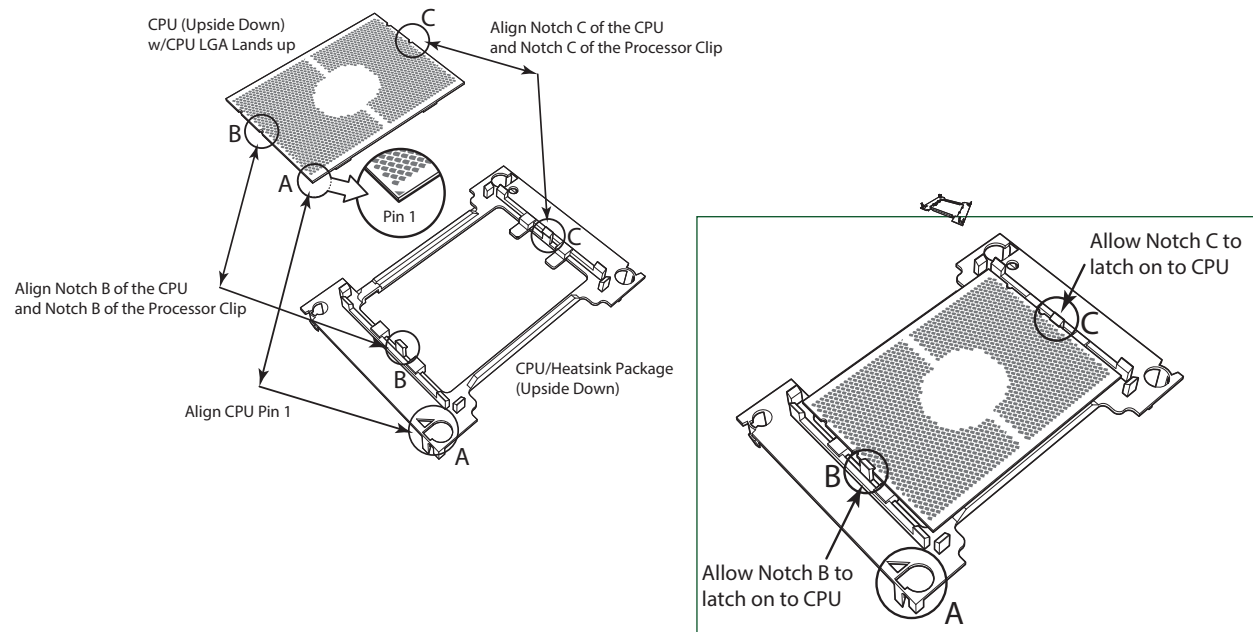
**Figure 3-2. Xeon Scalable Processors**

### ***Assembling the Processor Package***

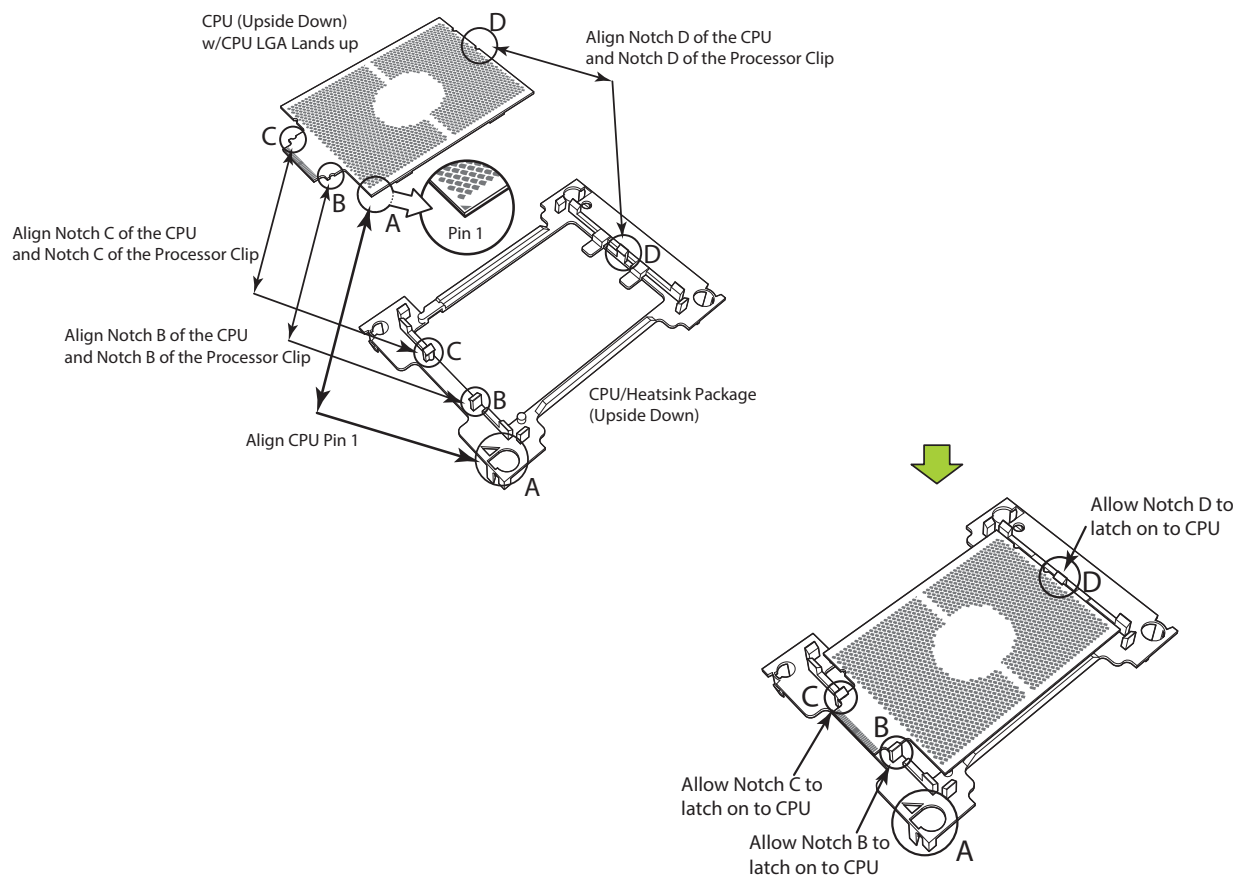
Attach the processor to the thin processor clip to create the processor package.

1. On the top corner of the CPU, locate pin 1 (A), marked by a triangle. Also, locate notch B and notch C (and notch D for F models) on the CPU as shown below.
2. On the top of the processor clip, locate the corner marked by a hollow triangle as the position for pin 1. Also locate notch B and notch C (and D for F models) on the processor clip.
3. Align pin 1 of the CPU with its proper position on the processor clip and carefully insert the CPU into the processor clip. Slide notch B of the CPU into tab B of the processor clip, and slide notch C of the CPU into tab C of the processor clip (and D for F models) until the processor clip tabs snap onto the CPU.
4. Examine all corners to ensure that the CPU is properly seated and secure on the processor clip.

The processor package assembly is created.



**Figure 3-2. Processor Package Assembly for the non-F Model Processors**



**Figure 3-3. Processor Package Assembly for the F Model Processors**

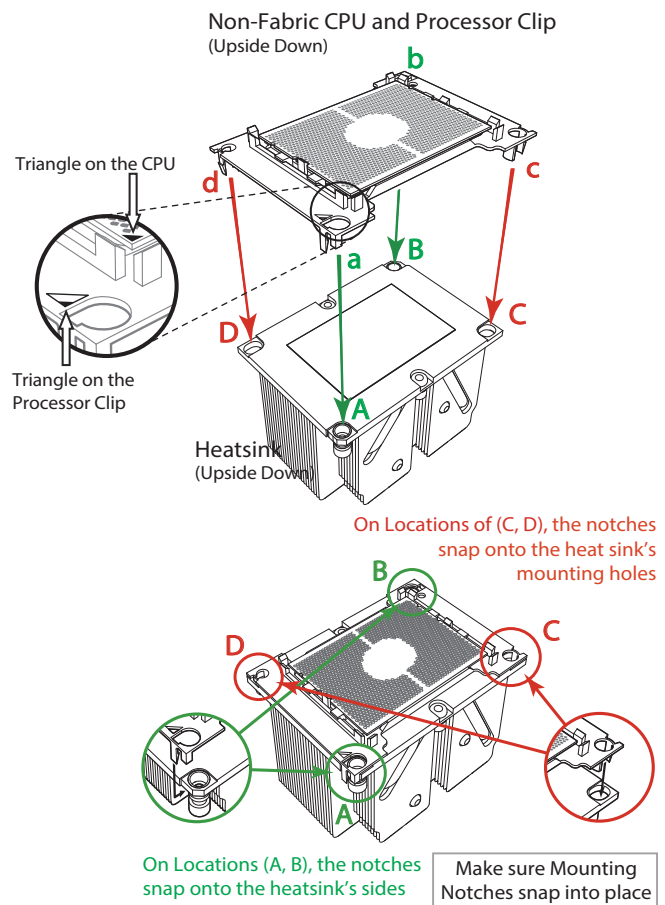


### Assembling the Processor Heatsink Module (PHM)

After creating the processor package assembly, mount it onto the heatsink to create the processor heatsink module (PHM).

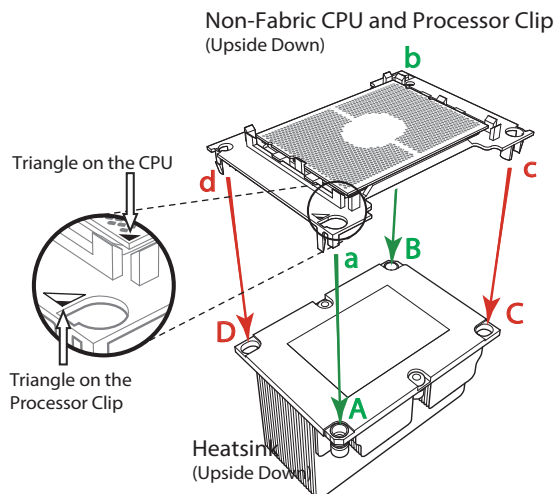
1. On the heatsink label, locate "1" and the corner next to it. Turn the heatsink upside down with the thermal grease side facing up, keeping track of the "1" corner.
2. Remove the protective thermal film if present. If this is a new heatsink, the necessary thermal grease has been pre-applied in the factory. If the heatsink is not new, apply the proper amount of the thermal grease.
3. In the plastic processor clip, locate the hollow triangle at the corner ("a" in the drawing below) next to a hole and plastic mounting clips. There is a similar hole and mounting clips at the diagonal corner of the of the processor clip ("b" in the drawing).
4. With the underside of heatsink and the underside of the processor package facing up, align the "1" corner on the heatsink ("A" in the drawing) against the mounting clips next to the hollow triangle ("a") on the processor package.
5. Also align the corner ("B") at the diagonal side of the heatsink with the corresponding clips on the processor package ("b").
6. Once aligned, press the processor package assembly onto the heatsink until the mounting clips (at a, b, c, and d) snap into place.

The processor heatsink module is assembled.



**Figure 3-4. Assembling the Processor Heatsink Module**

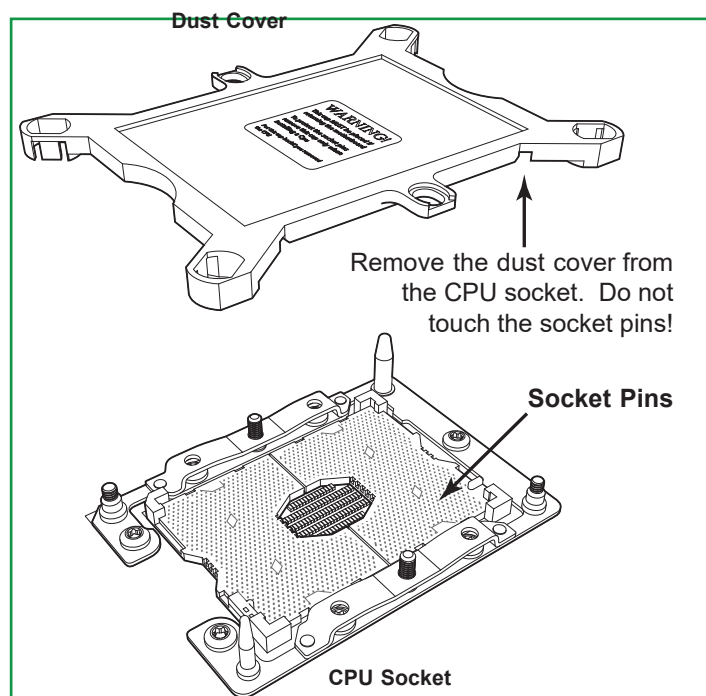
**Note:** the heatsink displayed may be different than the one used in the 7039A-I.



### ***Removing the Dust Cover from the CPU Socket***

Remove the dust cover from the CPU socket, exposing the socket pins as shown below.

**Caution:** Do not touch the socket pins.



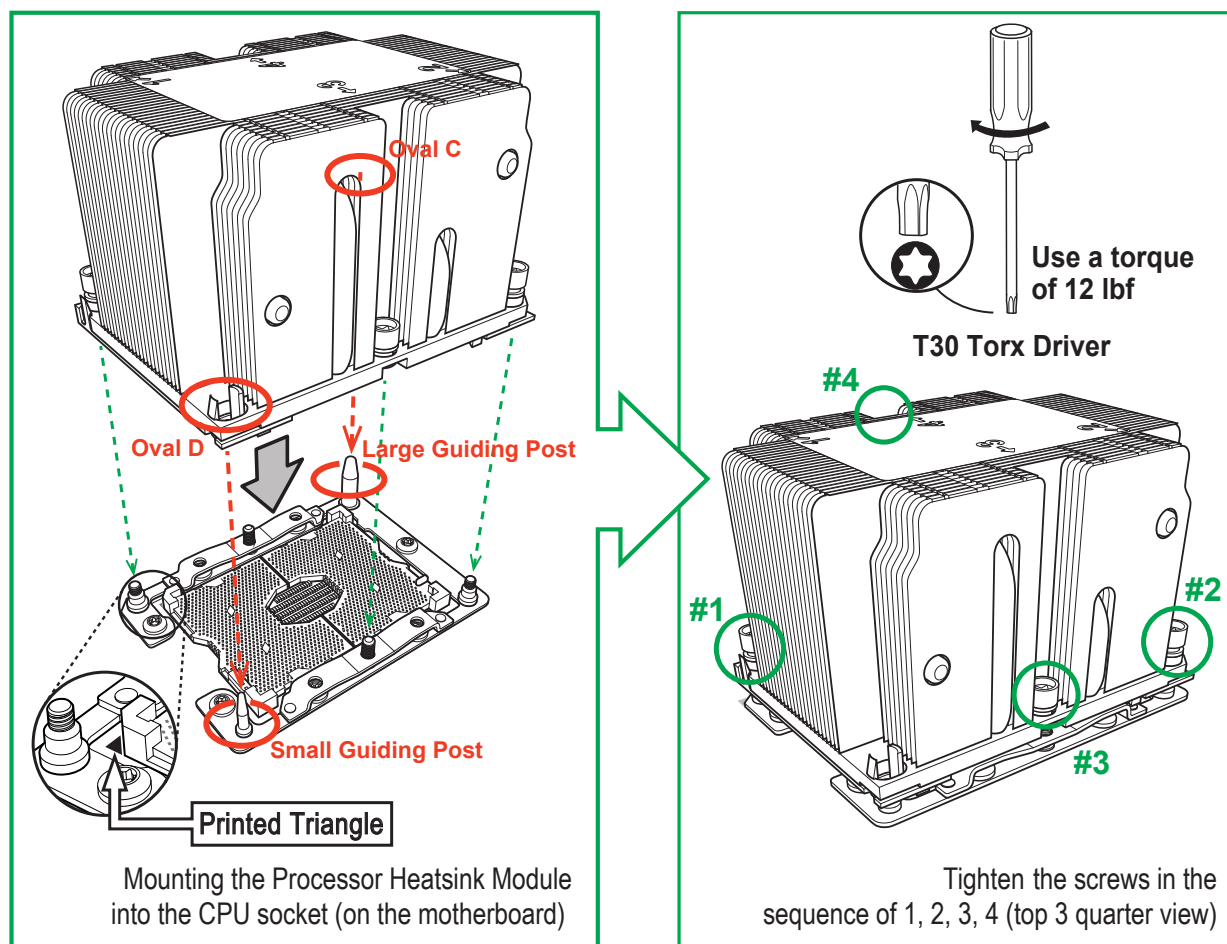
**Figure 3-5. Removing the Socket Dust Cover**

### ***Installing the Processor Heatsink Module (PHM)***

1. Locate the triangle (pin 1) on the CPU socket. Also locate the pin 1 corner of the PHM that is closest to "1" on the heatsink label. To confirm, look at the underside of the PHM and note the hollow triangle in the processor clip and printed triangle on the CPU located next to a screw at the corner.
2. Align the pin 1 corner of the PHM over the pin 1 corner on the CPU socket.

3. Align the two holes at diagonal corners of the PHM onto the two guide posts on the socket bracket and carefully lower the PHM onto the socket.
4. Use a T30 Torx-bit screwdriver to install four screws into the mounting holes on the socket to securely attach the PHM onto the motherboard in the sequence of 1, 2, 3, and 4, as marked on the heatsink label. Gradually tighten each to assure even pressure.

**Note:** Use only 12 foot-pounds of torque when tightening the screws to avoid damaging the processor or the socket.

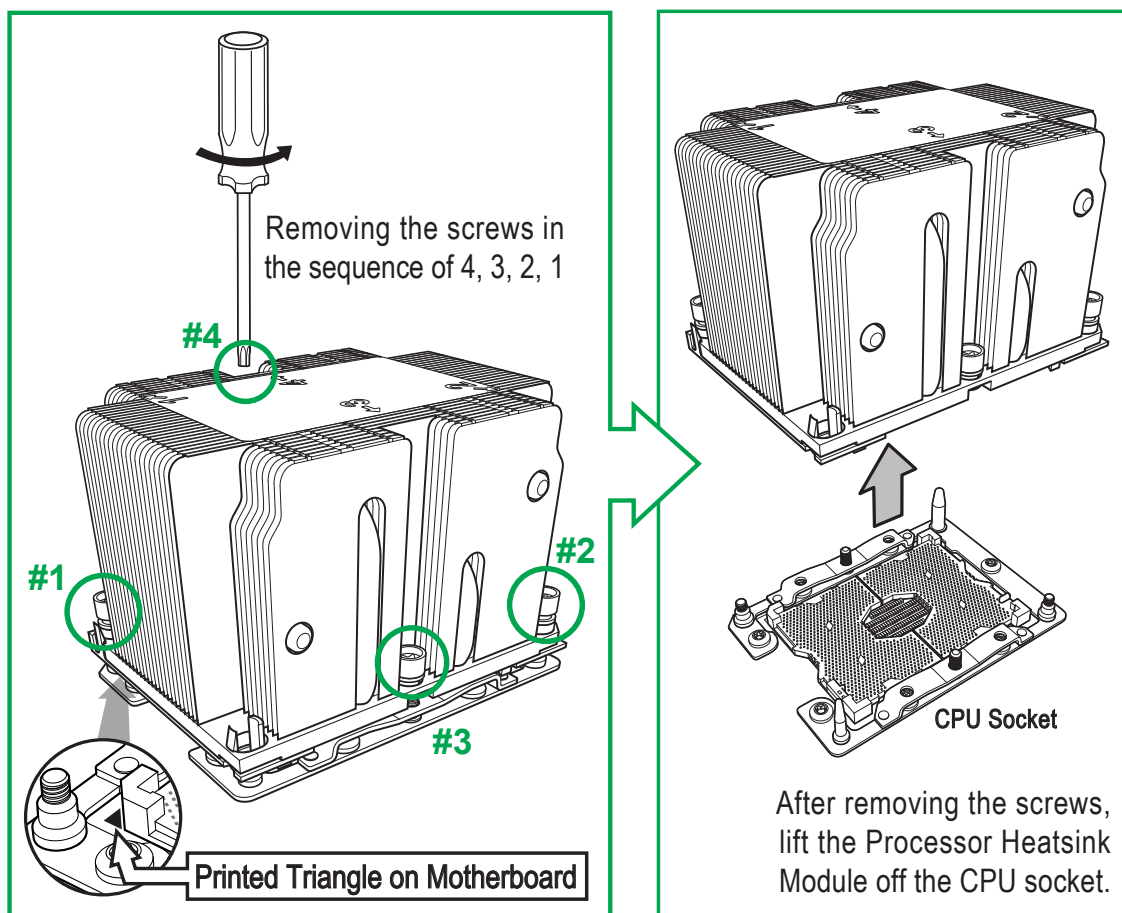


**Figure 3-6. Installing the Processor Heatsink Module**

### ***Removing the Processor Heatsink Module from the Motherboard***

Before removing the processor heatsink module (PHM), power down as described in Section 3.1.

1. Using a T30 Torx-bit screwdriver, loosen and remove the screws on the PHM from the socket, starting with the screw marked #4, in the sequence of 4, 3, 2, 1.
2. Pull up the PHM while releasing the small snap tabs on two corners of the socket.



**Figure 3-7. Removing the Processor Heatsink Module**

## Memory Support

The X11DAi-N supports up to 2048 GB of 3DS RDIMM/3DS LRDIMM/LRDIMM/RDIMM/NVDIMM DDR4 ECC 2666/2400/2133 MHz memory in 16 memory slots. Populating these DIMM modules

with a pair of memory modules of the same type and size will result in interleaved memory, which will improve memory performance.

**Notes:** 1. Be sure to use memory modules of the same type and speed on the motherboard. Mixing memory modules of different types and speeds is not allowed. 2. Memory modules for the X11 UP/DP/MP motherboards are populated using the "Fill First" method. The blue memory slot of each channel is considered the "first DIMM module." When installing DIMMs, be sure to populate the blue memory slot of a memory channel, and then populate the remaining DIMM modules on the black memory slots..

DDR4 Memory Support for Two Slots per Channel					
Type	Ranks Per DIMM and Data Width	DIMM Capacity (GB)		Speed (MT/s)	
				Two Slots per Channel	
				One DIMM per Channel	Two DIMMs per Channel
		4 Gb	8 Gb	1.2 Volts	1.2 Volts
RDIMM	SRx4	8 GB	16 GB	2666	2666
	SRx8	4 GB	8 GB	2666	2666
	DRx8	8 GB	16 GB	2666	2666
	DRx4	16 GB	32 GB	2666	2666
RDIMM 3Ds	QRX4	N/A	2H-64GB	2666	2666
	8RX4	N/A	4H-128GB	2666	2666
LRDIMM	QRx4	32 GB	64 GB	2666	2666
LRDIMM 3Ds	QRX4	N/A	2H-64GB	2666	2666
	8Rx4	N/A	4H-128 GB	2666	2666

DDR4 Memory Support for One Slot per Channel				
Type	Ranks Per DIMM and Data Width	DIMM Capacity (GB)		Speed (MT/s)
				One Slot per Channel
				One DIMM per Channel
		4 Gb	8 Gb	1.2 Volts
RDIMM	SRx4	8 GB	16 GB	2666
	SRx8	4 GB	8 GB	2666
	DRx8	8 GB	16 GB	2666
	DRx4	16 GB	32 GB	2666
RDIMM 3Ds	QRX4	N/A	2H-64GB	2666
	8RX4	N/A	4H-128GB	2666
LRDIMM	QRx4	32 GB	64 GB	2666
LRDIMM 3Ds	QRX4	N/A	2H-64GB	2666
	8Rx4	N/A	4H-128 GB	2666

Check the Supermicro website for possible updates to memory support.

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

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

#### *Guidelines Regarding Mixing DIMMs*

- Populating slots with a pair of DIMM modules of the same type and size results in interleaved memory, which improves memory performance.
- Use memory modules of the same type and speed, as mixing is not allowed.
- x4 and x8 DIMMs can be mixed in the same channel.
- Mixing of LRDIMMs and RDIMMs is not allowed in the same channel, across different channels, and across different sockets.
- Mixing of non-3DS and 3DS LRDIMM is not allowed in the same channel, across different channels, and across different sockets.

#### *DIMM Construction*

- RDIMM (*non-3DS*) Raw Cards: A/B (2Rx4), C (1Rx4), D (1Rx8), E (2Rx8)
- 3DS RDIMM Raw Cards: A/B (4Rx4)
- LRDIMM (*non-3DS*) Raw Cards: D/E (4Rx4)
- 3DS LRDIMM Raw Cards: A/B (8Rx4)

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

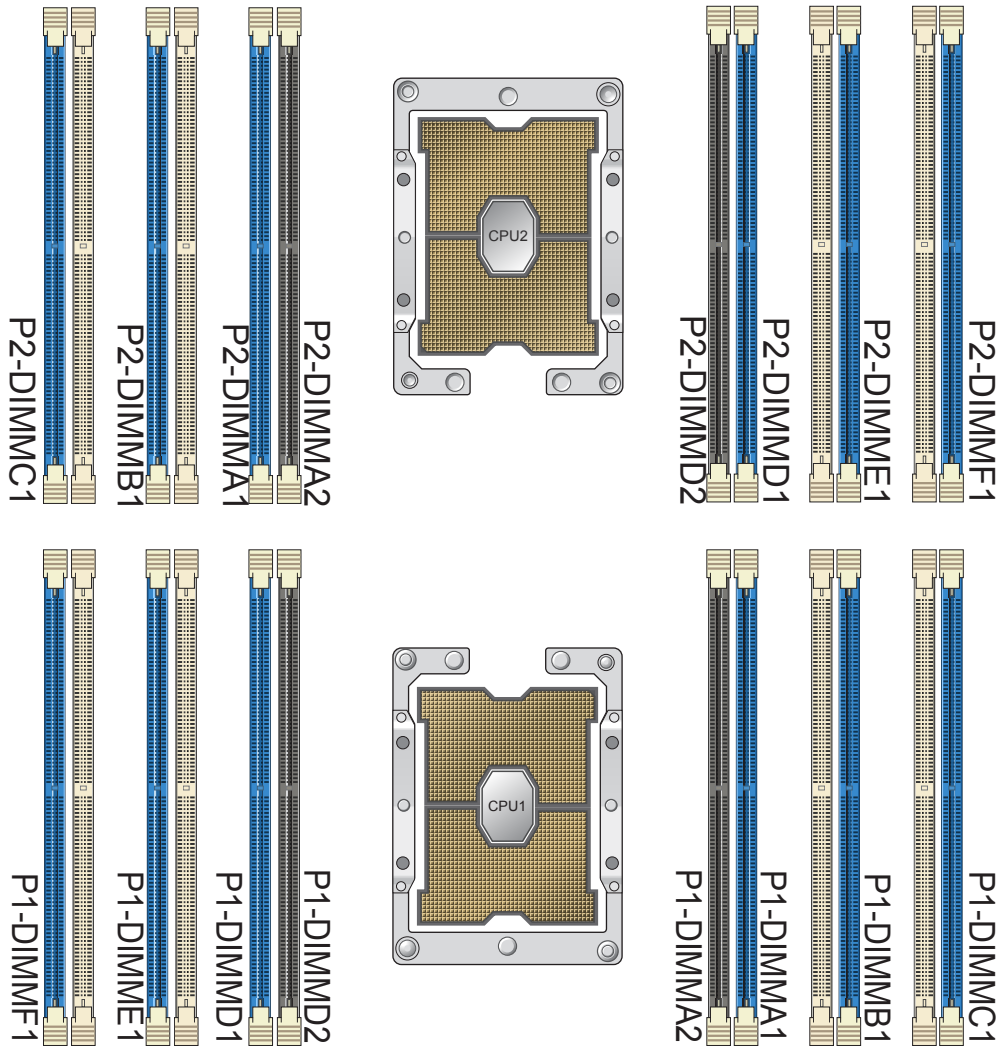
**Blue slots versus black slots:** Install the first DIMM in the blue memory slot, which is the first of a memory channel. Then, if using two DIMMs per channel, install the second DIMM in the black slot.

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

Memory Population for X11 DP Motherboard, 16 DIMM Slots	
When 1 CPU is used:	Memory Population Sequence
1 CPU & 1 DIMM	CPU1: P1-DIMMA1
1 CPU & 2 DIMMs	CPU1: P1-DIMMA1/P1-DIMMD1
1 CPU & 3 DIMMs	CPU1: P1-DIMMC1/P1-DIMMB1/P1-DIMMA1
1 CPU & 4 DIMMs	CPU1: P1-DIMMB1/P1-DIMMA1/P1-DIMMD1/P1-DIMME1
1 CPU & 5 DIMMs (Unbalanced: not recommended)	CPU1: P1-DIMMC1/P1-DIMMB1/P1-DIMMA1/P1-DIMMD1/P1-DIMME1
1 CPU & 6 DIMM	CPU1: P1-DIMMC1/P1-DIMMB1/P1-DIMMA1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1
1 CPU & 7 DIMMs (Unbalanced: not recommended)	CPU1: P1-DIMMC1/P1-DIMMB1/P1-DIMMA1/P1-DIMMA2/P1-DIMMD1/P1-DIMME1/ P1-DIMMF1
1 CPU & 8 DIMMs (Unbalanced: not recommended)	CPU1: P1-DIMMC1/P1-DIMMB1/P1-DIMMA1/P1-DIMMA2/P1-DIMMD2/P1-DIMMD1/ P1-DIMME1/P1-DIMMF1
When 2 CPUs are used:	Memory Population Sequence
2 CPUs & 2 DIMMs	CPU1: P1-DIMMA1 CPU2: P2-DIMMA1
2 CPUs & 4 DIMMs	CPU1: P1-DIMMA1/P1-DIMMD1 CPU2: P2-DIMMA1/P2-DIMMD1
2 CPUs & 6 DIMMs	CPU1: P1-DIMMC1/P1-DIMMB1/P1-DIMMA1 CPU2: P2-DIMMC1/P2-DIMMB1/P2-DIMMA1
2 CPUs & 8 DIMMs	CPU1: P1-DIMMB1/P1-DIMMA1/P1-DIMMD1/P1-DIMME1 CPU2: P2-DIMMB1/P2-DIMMA1/P2-DIMMD1/P2-DIMME1
2 CPUs & 10 DIMMs	CPU1: P1-DIMMC1/P1-DIMMB1/P1-DIMMA1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1 CPU2: P2-DIMMB1/P2-DIMMA1/P2-DIMMD1/P2-DIMME1
2 CPUs & 12 DIMMs	CPU1: P1-DIMMC1/P1-DIMMB1/P1-DIMMA1/P1-DIMMD1/P1-DIMME1/P1-DIMMF1 CPU2: P2-DIMMC1/P2-DIMMB1/P2-DIMMA1/P2-DIMMD1/P2-DIMME1/P2-DIMMF1
2 CPUs & 14 DIMMs (Unbalanced: not recommended)	CPU1: P1-DIMMC1/P1-DIMMB1/P1-DIMMA1/P1-DIMMA2/P1-DIMMD1/P1-DIMME1/ P1-DIMMF1 CPU2: P2-DIMMC1/P2-DIMMB1/P2-DIMMA1/P2-DIMMA2/P2-DIMMD1/P2-DIMME1/ P2-DIMMF1
2 CPUs & 16 DIMMs (Unbalanced: not recommended)	CPU1: P1-DIMMC1/P1-DIMMB1/P1-DIMMA1/P1-DIMMA2/P1-DIMMD2/P1-DIMMD1/ P1-DIMME1/P1-DIMMF1 CPU2: P2-DIMMC1/P2-DIMMB1/P2-DIMMA1/P2-DIMMA2/P2-DIMMD2/P2-DIMMD1/ P2-DIMME1/P2-DIMMF1

(diagram on next page)







## Installing Memory

### ESD Precautions

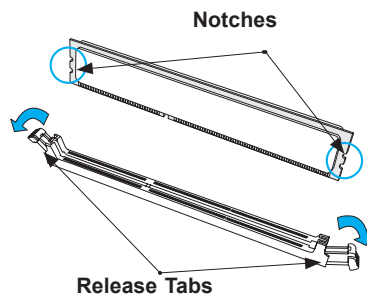
Electrostatic Discharge (ESD) can damage electronic components including memory modules. To avoid damaging DIMM modules, it is important to handle them carefully. The following measures are generally sufficient.

- Use a grounded wrist strap designed to prevent static discharge.
- Handle the memory module by its edges only.
- Put the memory modules into the antistatic bags when not in use.

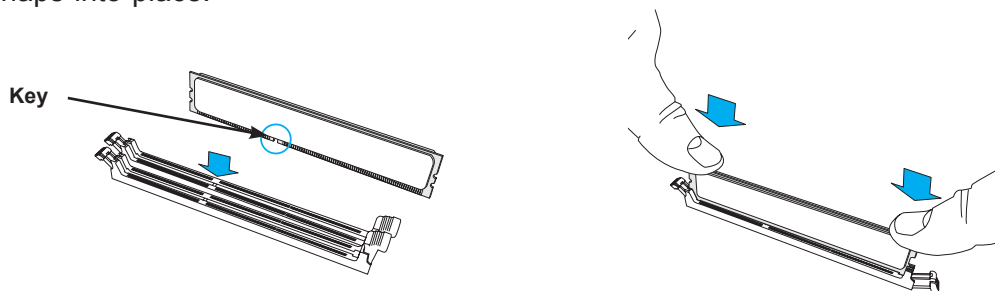
### Installing Memory

Begin by removing power from the system as described in Section 3.1. Follow the memory population sequence in the table above.

1. Push the release tabs outwards on both ends of the DIMM slot to unlock it.



2. 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.



3. Press the release tabs to the locked position to secure the DIMM module into the slot.

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

### Removing Memory

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

## Motherboard Battery

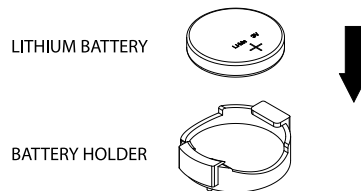
The motherboard uses non-volatile memory to retain system information when system power is removed. This memory is powered by a lithium battery residing on the motherboard.

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

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

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

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



**Figure 3-9. 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

### 3.5" Hard Drives

3.5" SATA drives may be installed into the chassis. In order to access and install 3.5" hard drives, it is necessary to rotate the hard drive cage. Note that the 7039A-I must be powered down before hard drives can be installed or removed

#### ***Rotating the Hard Drive Cage***

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

1. To rotate the hard drive cage, lift the release tab (A) as shown in Figure 3-10.
2. Rotate the hard disk drive cage (B) outward.

#### ***Installing Hard Drives to the Hard Drive Cage***

1. Press the release tab on the side of the hard drive carrier that is to be removed from the hard drive cage as shown in Figure 3-11.
2. Gently slide the hard drive carrier out of the hard drive cage.
3. Insert a new hard drive into a hard drive tray by sliding it towards the back of the the hard drive cage until it clicks into a locked position. To remove a hard drive already present, see the next section.
4. Connect the power and data cables to the hard drive.
5. Rotate the hard drive cage 90 degrees inward, returning it to the closed, operational position in the chassis.
6. If desired, each hard drive may be further secured to the drive cage with an additional (optional) screw at the middle of the drive.)

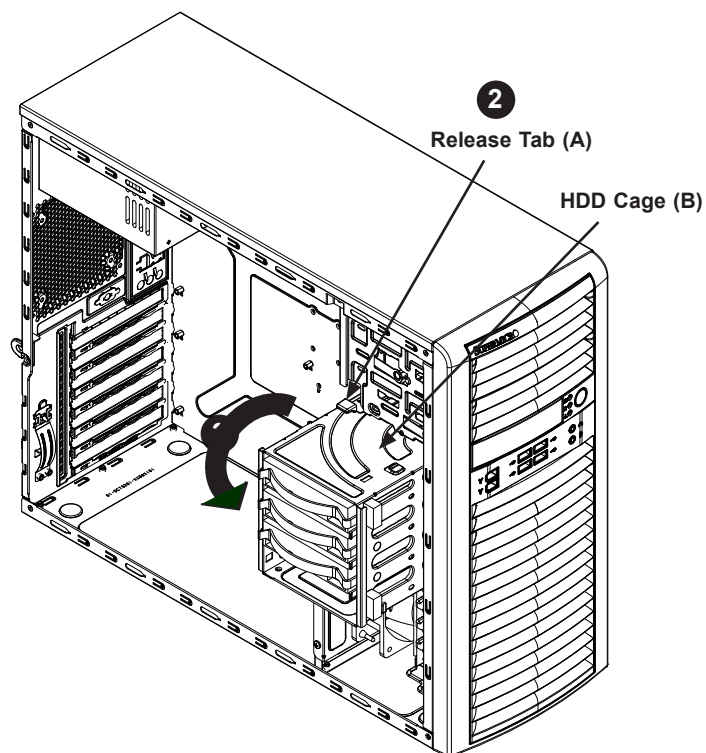


Figure 3-10. Rotating the Hard Drive Cage

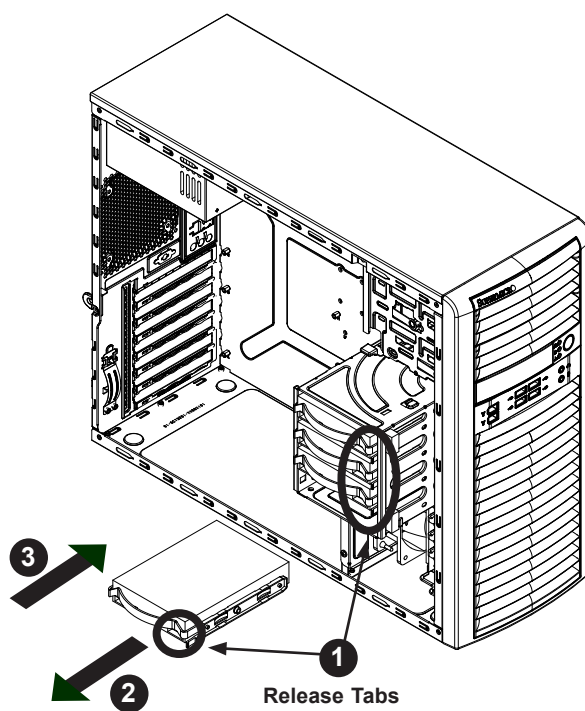


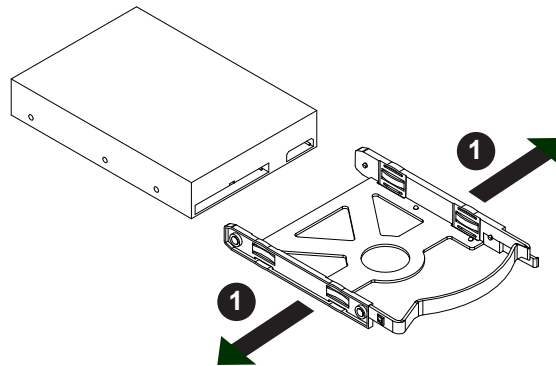
Figure 3-11. Installing Drives in the Hard Drive Cage

## Removing Hard Drives from the Carriers

### *Installing an Optional Device*

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

1. If a hard drive is already present, remove it by carefully pulling the sides of the hard drive carrier outward.
2. Remove the hard drive from the hard drive carrier.
3. Insert the new hard drive into the hard drive carrier.
4. Insert the hard drive carrier into the hard drive cage, sliding it towards the back of the the hard drive cage until it clicks into a locked position.
5. If desired, each hard drive carrier may be secured to the exterior of the hard drive cage using one optional screw.
6. Rotate the hard drive cage 90 degrees inward, returning it to the closed, operational position in the chassis.



**Figure 3-12. Removing a 3.5" Hard Drive from a Drive Carrier**

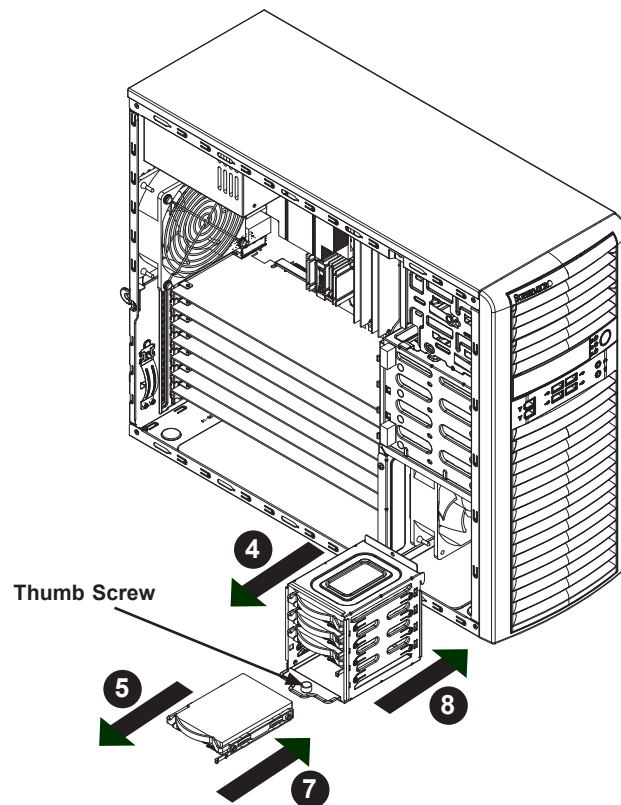
## 2.5" Hard Drives

2.5" SATA drives may be installed into the chassis (using an optional HDD cage: p/n MCP-220-73201-0N). The SC732D3-1200B chassis must be powered-down before hard drives can be removed from the hard drive carriers.

### ***Removing and Installing 2.5" Hard Drives***

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

1. Disconnect the chassis from any power source.
2. Loosen the thumb screw securing the 2.5" hard drive cage to the chassis.
3. Disconnect all cables from the hard drive.



**Figure 3-13. Installing a 2.5" Hard Drive from a Drive Carrier**

4. Slide the 2.5" hard drive cage out of the chassis.
5. If a hard drive is already present, remove it by carefully pulling the sides of the hard drive carrier outward.
6. Remove the hard drive from the hard drive carrier.
7. Insert the new hard drive into the hard drive carrier.
8. Insert the hard drive carrier into the hard drive cage, sliding it towards the back of the the hard drive cage until it clicks into a locked position.

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

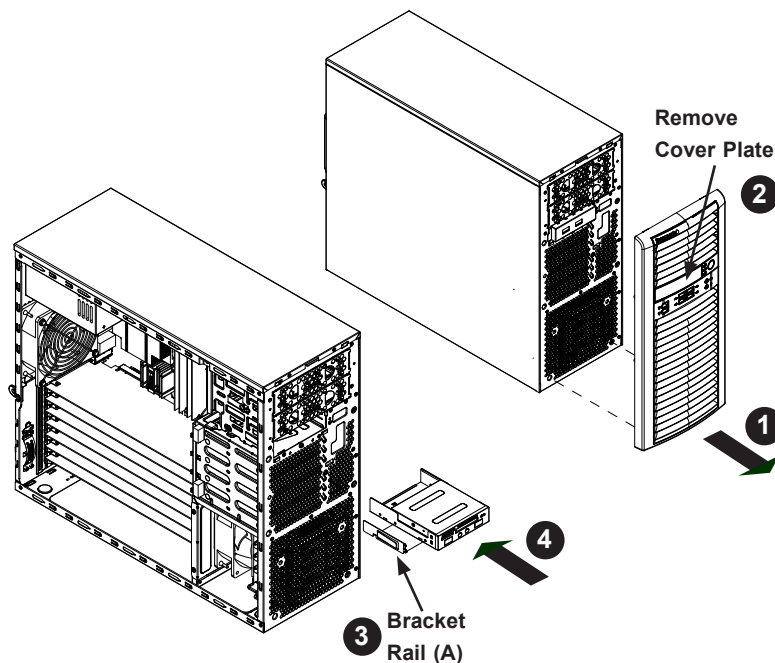
## Installing a 3.5" Device

The SC732D3-1200B chassis has one 3.5" device slot, which supports an optional device such as an all-in-one card reader.

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

### *Installing a 3.5" Device*

1. Remove the front bezel from the chassis by lifting it upwards from the bottom, and pulling off the front of the chassis.
2. Remove the cover plate from the 3.5" device slot on the front of the chassis.
3. Install the bracket rail (A) onto one side of the 3.5" device, by inserting the pins of the bracket into the mounting holes on the sides of the optical device.
4. Slide the 3.5" device into the chassis.



**Figure 3-14. Installing a 3.5" Device**

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

## System Cooling

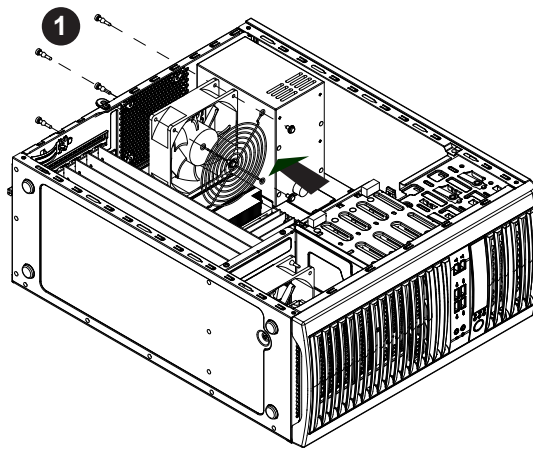
The SC732D3-1200B includes a super quiet system fan that provides cooling for the chassis. No tools or screws are required to install the system fan.

If the chassis fan fails, the system must be powered down before replacing it. If the power supply fan fails, the power supply itself must be replaced.

### ***Installing the Rear Exhaust Fan***

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

1. Insert the four rubber pins into the four mounting holes surrounding the fan grill on the rear of the chassis.
2. Pull the rubber pins through the mounting holes of the fan to secure the fan to the chassis.
3. Connect the fan cable to the serverboard.



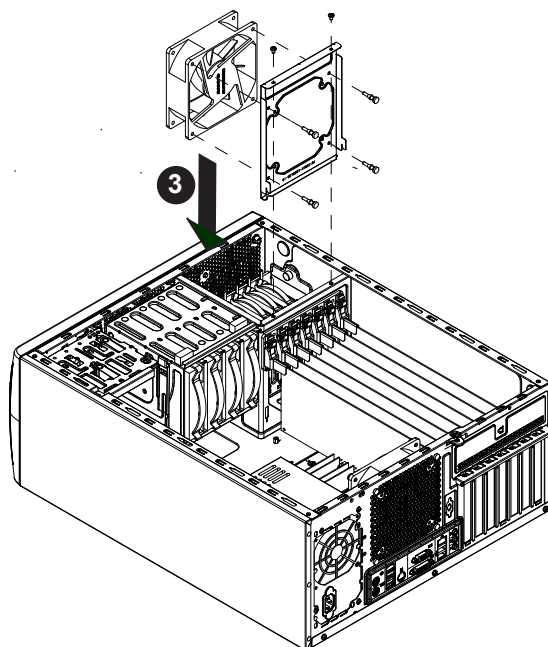
**Figure 3-15. Replacing the System Fan**



***Installing the Front Cooling Fan (Optional)***

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

1. Insert the four rubber pins through the front fan bracket and into the mounting holes in the front fan.
2. Pull the rubber pins through the mounting holes of the system fan to secure the fan to the chassis.
3. Lower the fan into the chassis, aligning the holes at the top of the front fan bracket with the holes in the chassis.
4. Secure the fan to the chassis using the two screws provided.
5. Connect the fan cable to the serverboard.



**Figure 3-16. Installing the Front Cooling Fan (Optional)**

## Power Supply

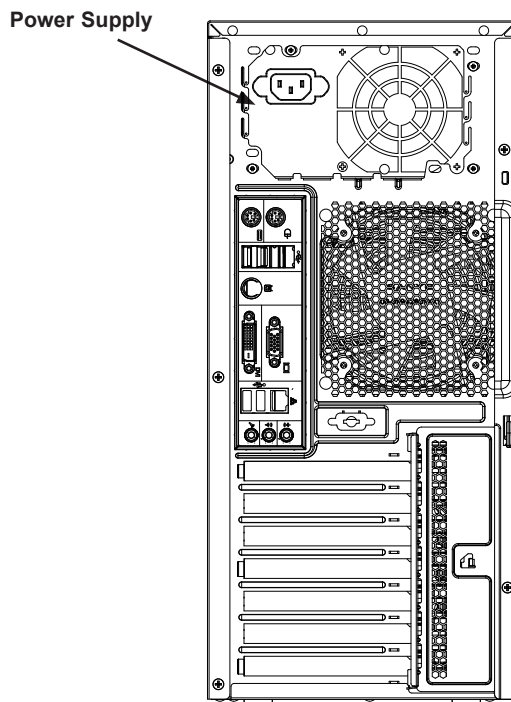
The SC732D3-1200B chassis includes a single 1200 Watt power supply. In the event that it becomes necessary to replace the power supply, follow the instructions below.

### ***Changing the Power Supply***

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

1. Disconnect the cables from the serverboard to the power supply.
2. Remove the screws securing the power supply to the chassis, which are located on the rear of the chassis. Set these screws aside for later use.
3. Gently lift the power supply out of the chassis.
4. Replace the failed power supply with an identical power supply model.
5. Secure the new power supply using the screws previously set aside.
6. Plug the AC power cord back into the module and power-up the system.

**Note:** IPMI will detect power supply status when the server is powered on, but the power supply will not support the standby mode for PMBus. This means when the system is turned on about a minute after plugging in the AC, the BMC will not be able to access the power supply information.



**Figure 3-17. Removing the Power Supply**

# Chapter 4

## Motherboard Connections

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

Please review the Safety Precautions in Chapter 3 before installing or removing components.

### 4.1 Power Connections

Two power connections on the X11DAi-N must be connected to the power supply. The wiring is included with the power supply.

- 24-pin Primary ATX Power (JPWR3)
- 8-pin Processor Power (JPWR1/JPWR2)

#### Main ATX Power Connector

The primary power connector (JPWR3) meets the ATX SSI EPS 24-pin specification. You must also connect the 8-pin (JPWR1/2) processor power connectors to your power supply..

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

Required Connection

#### ATX and CPU Power Connectors

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

## 12V 8-pin CPU Power Connectors

JPWR1 and JPWR2 are the 8-pin 12V DC power input for the CPU or alternative single power source for a special enclosure when the 24-pin ATX power is not in use. Refer to the table below for pin definitions.

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

## 4.2 Headers and Connectors

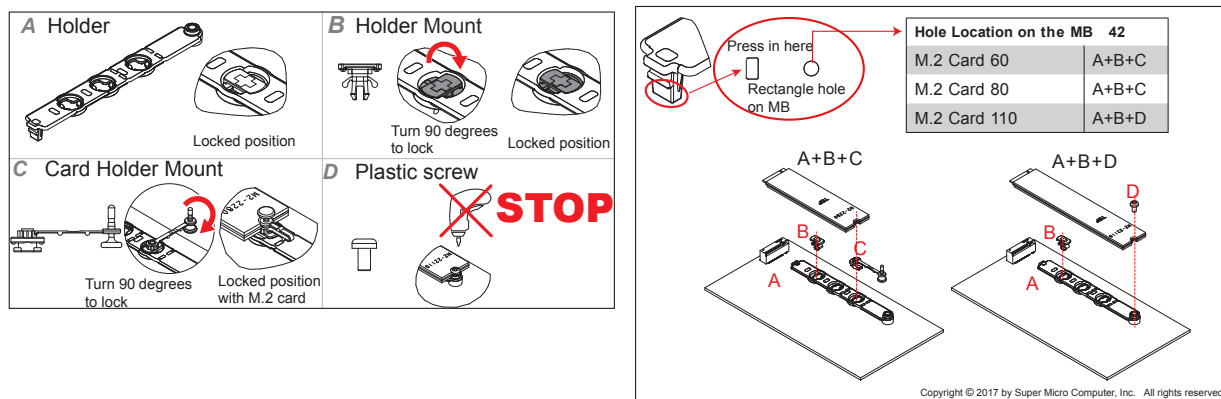
### Fan Headers

There are seven fan headers on the motherboard. These are 4-pin fan headers; pins 1-3 are backward compatible with traditional 3-pin fans. The onboard fan speeds are controlled by Thermal Management in BIOS. When using Thermal Management setting, please use all 3-pin fans or all 4-pin fans.

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

### M.2-CPU1 Slot

The X11DAi-N has one M.2 slot that is supported by CPU1 (M.2-CPU1). M.2 was formerly called Next Generation Form Factor (NGFF) and are used to replace mini PCI-E. M.2 supports a variety of card sizes with increased functionality and spatial efficiency. The M.2 socket on the motherboard supports PCI-E 3.0 x4 (32 Gb/s) SSD cards in the 2280 and 22110 form factors.



### SPDIF\_In/ SPDIF\_Out Headers

The SPDIF\_In (JSPDIF\_In) and SPDIF\_Out (JSPDIF\_Out) headers are located next to PCI-E Slot 5 on the motherboard. Place a cap on each header for audio support. You will also need to have a cable to use each connection.

SPDIF_In Pin Definitions		SPDIF_Out	
Pin#	Definition	Pin#	Definition
1	SPDIF_In	1	SPDIF_Out
2	Ground	2	Ground

### TPM Header

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

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

### Disk-On-Module Power Connector

The Disk-On-Module (DOM) power connectors at JSD1 and JSD2 provide 5V power to solid-state DOM storage devices connected to the SATA ports. See the table below for pin definitions.

DOM PWR Pin Definitions	
Pin#	Definition
1	+5V
2	Ground
3	Ground

### Serial Port

There is a COM header (COM2) on the motherboard. The COM port and header provide serial communication support. See the table below for pin definitions.

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

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

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

### VROC RAID Key Header

A RAID Key header is located at JRK1 on the motherboard. The RAID key is used to support onboard NVMe connections.

### T-SGPIO 1/2/3 Headers

The T-SGPIO (Serial General Purpose Input/Output) headers are used for the onboard SATA devices to communicate with the enclosure management chip on the backplane. See the table below for more information.

T-SGPIO 1/2/3 Headers Pin Definitions				T-SGPIO 1/2/3 Headers Corresponding SATA Device Support	
Pin#	Definition	Pin#	Definition	T-SGPIO#	SATA Devices Supported
1	NC	2	NC	T-SGPIO1	SATA1-6
3	Ground	4	DATA Out	T-SGPIO2	SATA7/8 (SATADOM's)
5	Load	6	Ground	T-SGPIO2	S-SATA1/2
7	Clock	8	NC		

NC = No Connection

### 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

### Speaker Header

A speaker header is located on JD1. Close pins 1-2 of JD1 to use the onboard speaker.

### NVMe I<sup>2</sup>C 1/2 Headers

Connector JNVI<sup>2</sup>C1/2 are management headers for the Supermicro AOC NVMe PCI-E peripheral cards. Please connect the I<sup>2</sup>C cables to these connectors for system management support.

### NVMe Slots

Use these two NVMe slots (JNVME1 and JNVME2) for high-speed PCI-E storage device support.

### Control Panel

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

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

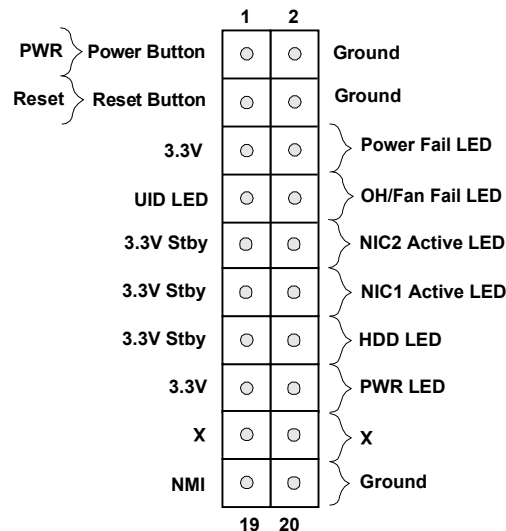


Figure 4-1. JF1: Control Panel Pins

### Power Button

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

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

## Reset Button

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

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

## Power Fail LED

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

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

## Overheating and Fan Fail LED

Connect an LED cable to pins 7 and 8 of the Front Control Panel to use the Overheat/Fan Fail LED connections. The LED on pin 8 provides warnings of overheating

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

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

## NIC1/NIC2 (LAN1/LAN2)

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

LAN1/LAN2 LED Pin Definitions (JF1)	
Pin#	Definition
9	NIC 2 Activity LED
11	NIC 1 Activity LED



### HDD LED

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

HDD LED Pin Definitions (JF1)	
Pins	Definition
13	3.3V Stdbby
14	HDD Active

### Power LED

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

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

### NMI Button

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

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

## 4.3 Ports

### I-SATA 3.0 and S-SATA 3.0 Ports

The X11DAi-N has eight SATA 3.0 ports (SATA1-4, 5-8) supported by the Intel PCHC620 and two S-SATA (S-SATA1/2) supported by the Intel SCU. S-SATA1/2 can be used with Supermicro SuperDOMs, which are yellow SATA DOM connectors with power pins built in, and do not require external power cables. Supermicro SuperDOMs are backward-compatible with regular SATA HDDs or SATA DOMs that need external power cables.

**Front Accessible Audio Header**

A 10-pin audio header, located next to PCI-E Slot 1, allows you to use the onboard sound for audio playback. Connect an audio cable to the audio header to use this feature.

**Rear I/O Ports**

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

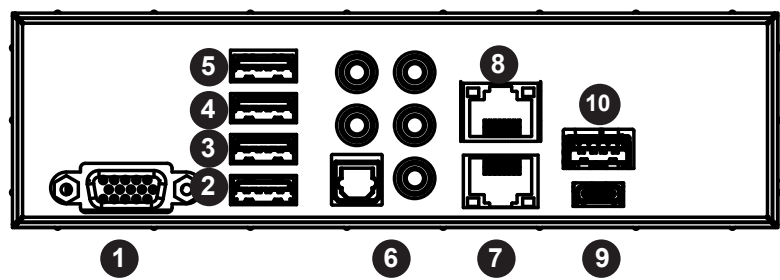


Figure 4-2. Rear I/O Ports

Rear I/O Ports			
#	Description	#	Description
1.	VGA	6.	7.1 HD Audio
2.	USB 1 (USB 3.0)	7.	GLAN1
3.	USB 2 (USB 3.0)	8.	GLAN2
4.	USB 3 (USB 3.0)	9.	USB 8 (USB 3.1) type C
5.	USB 4 (USB 3.0)	10.	USB 9 (USB 3.1) type A

**Ethernet Ports**

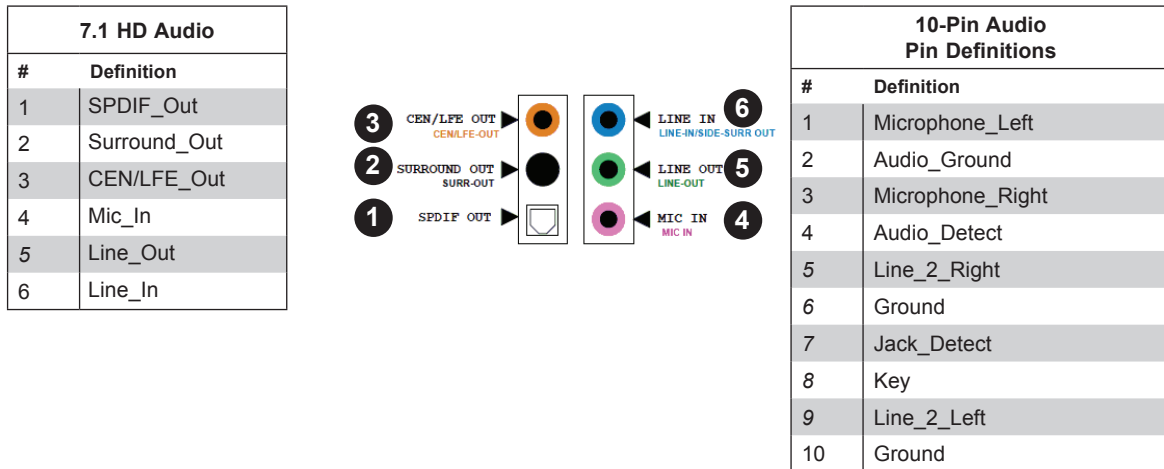
Two Ethernet ports (LAN1, LAN2) are located on the I/O backplane. These Ethernet ports support 1 GbE LAN connections on the X11DAi-N. These Ethernet ports accept RJ45 type cables. Please refer to the LED Indicator section for LAN LED information.

**VGA Port**

The onboard VGA port is located next to USB 3.0 ports on the I/O back panel. Use this connection for VGA display.

## 7.1 HD (High-Definition) Audio

This motherboard features a 7.1 Channel High-Definition Audio (HDA) codec that provides 8 DAC channels. The HD audio supports multiple-streaming 7.1 sound playback through the front\_panel stereo output via the subwoofer speakers. Download the appropriate software from our website to enable this function.



## Universal Serial Bus (USB) Ports

There are four USB 3.0 ports (USB 1-4) and two USB 3.1 ports (USB 8/9) on the I/O back panel. Another USB 3.0 header, located next to the TPM/Port 80 header, also provides two USB 3.0 connections (USB 5/6) for front access. In addition, a Type A USB connector (USB 7) can be used for front side USB 3.0 access with a cable (not included).

Back Panel USB 1-4 (3.0) Pin Definitions			
Pin#	Definition	Pin#	Definition
A1	VBUS	B1	Power
A2	D-	B2	USB_N
A3	D+	B3	USB_P
A4	GND	B4	GND
A5	StdA_SSRX-	B5	USB3_RN
A6	StdA_SSRX+	B6	USB3_RP
A7	GND	B7	GND
A8	StdA_SSTX-	B8	USB3_TN
A9	StdA_SSTX+	B9	USB3_TP

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

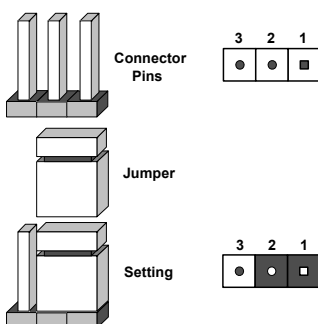
Front Panel USB 5/6 (3.0) Pin Definitions			
Pin#	Definition	Pin#	Definition
1	VBUS	19	Power
2	StdA_SSRX-	18	USB3_RN
3	StdA_SSRX+	17	USB3_RP
4	GND	16	GND
5	StdA_SSTX-	15	USB3_TN
6	StdA_SSTX+	14	USB3_TP
7	GND	13	GND
8	D-	12	USB_N
9	D+	11	USB_P
10		x	

## 4.4 Jumpers

### *Explanation of Jumpers*

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

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



### **CMOS Clear**

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

#### ***To Clear CMOS***

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

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

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



JBT1 contact pads

### VGA Enable/Disable

JPG1 allows you to enable or disable the VGA port using the onboard graphics controller. The default setting is Enabled.

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

### Management Engine (ME) Recovery

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

Manufacturer Mode Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Normal
Pins 2-3	ME Recovery

### Watch Dog

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

The default setting is Reset.

**Note:** When Watch Dog is enabled, the user needs to write their own application software to disable it.

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

## I<sup>2</sup>C Bus for VRM

Jumpers JVRM1 and JVRM2 allow the VRM SMB Clock and Data to access the Baseboard Management Controller (BMC).

JVRM1 (VRM SMB Clock to BMC) Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Enable
Pins 2-3	Disable

JVRM1 (VRM SMB Data to BMC) Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Enable
Pins 2-3	Disable

## Manufacturing Mode Select

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

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

## 4.5 LED Indicators

### LAN LEDs

The LAN ports are located on the I/O backplane on the motherboard. Each Ethernet LAN port has two LEDs. The yellow LED on the left side of the LAN port indicates activity. The Link LED located on the right may be green, amber or off to indicate the speed of the connection. See the table at right for more information.

LAN1/2 LED (Connection Speed Indicator)	
LED Color	Definition
Off	No Connection, 100 Mb/s or 10 Mb/s
Amber	1 Gb/s

### BMC Heartbeat LED

LED M1 is the BMC heartbeat LED. When the LED is blinking green, BMC is functioning normally.

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

### Onboard Power LED

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

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

### LE3

A power LED indicator is located at LE3. When this LED is on, system power is on.

## Chapter 5

### Software

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

#### 5.1 Microsoft Windows OS Installation

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

##### *Installing the OS*

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

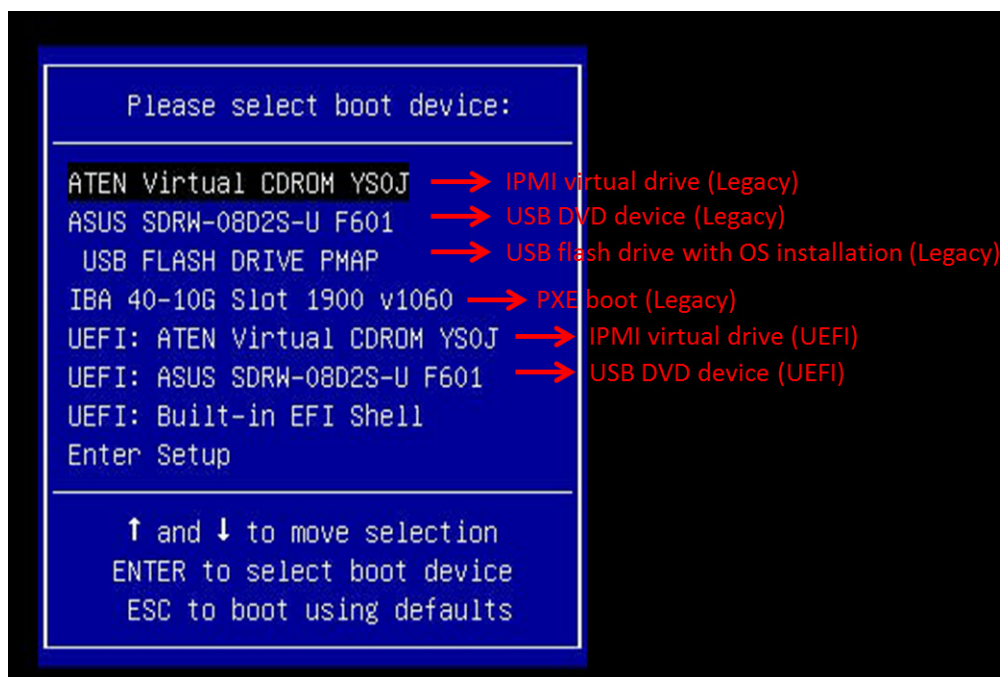
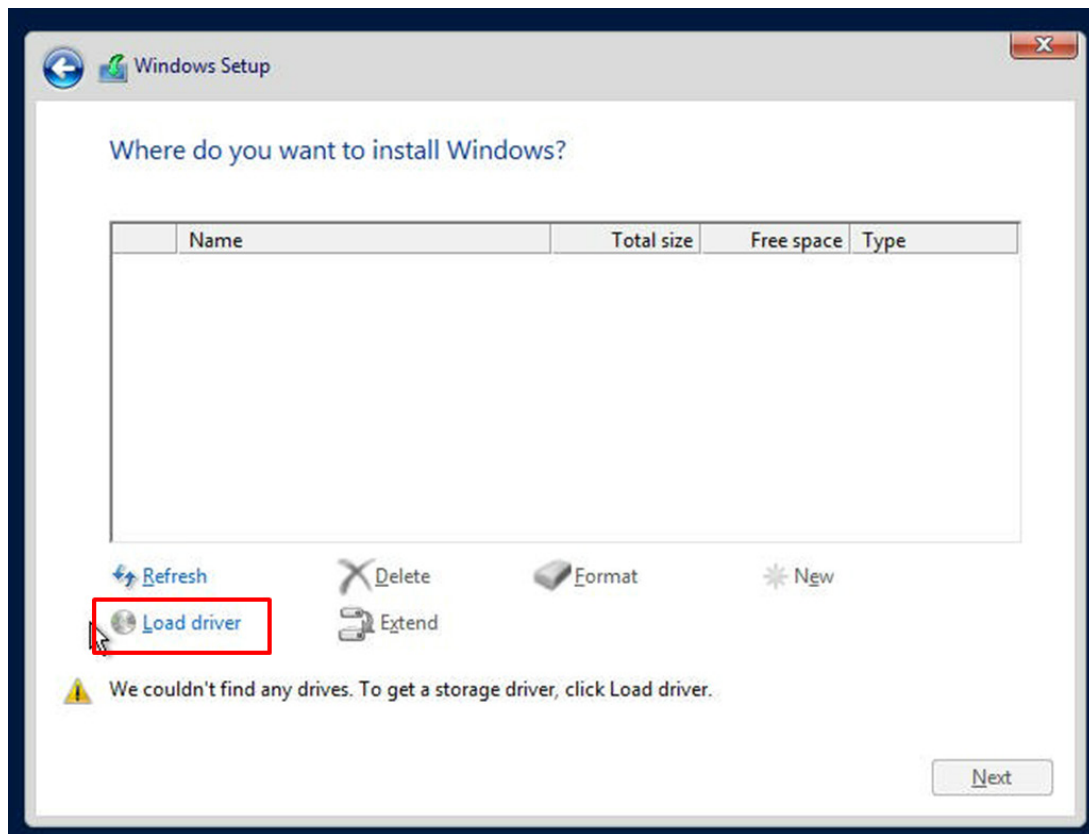


Figure 5-1. Select Boot Device



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



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

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

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

## 5.2 Driver Installation

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

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

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

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

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

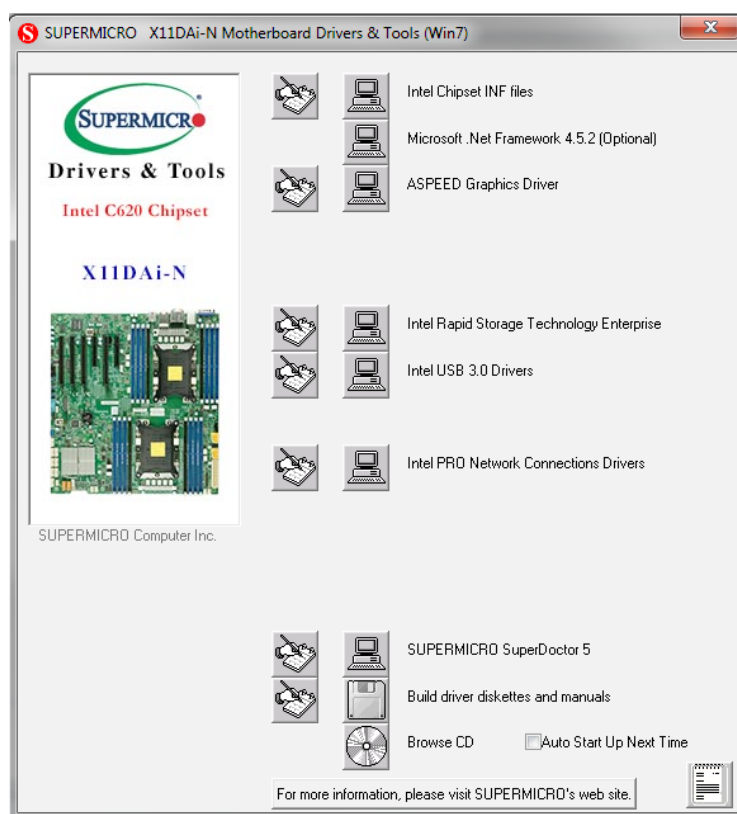


Figure 5-3. Driver & Tool Installation Screen

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

## 5.3 SuperDoctor® 5

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

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

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

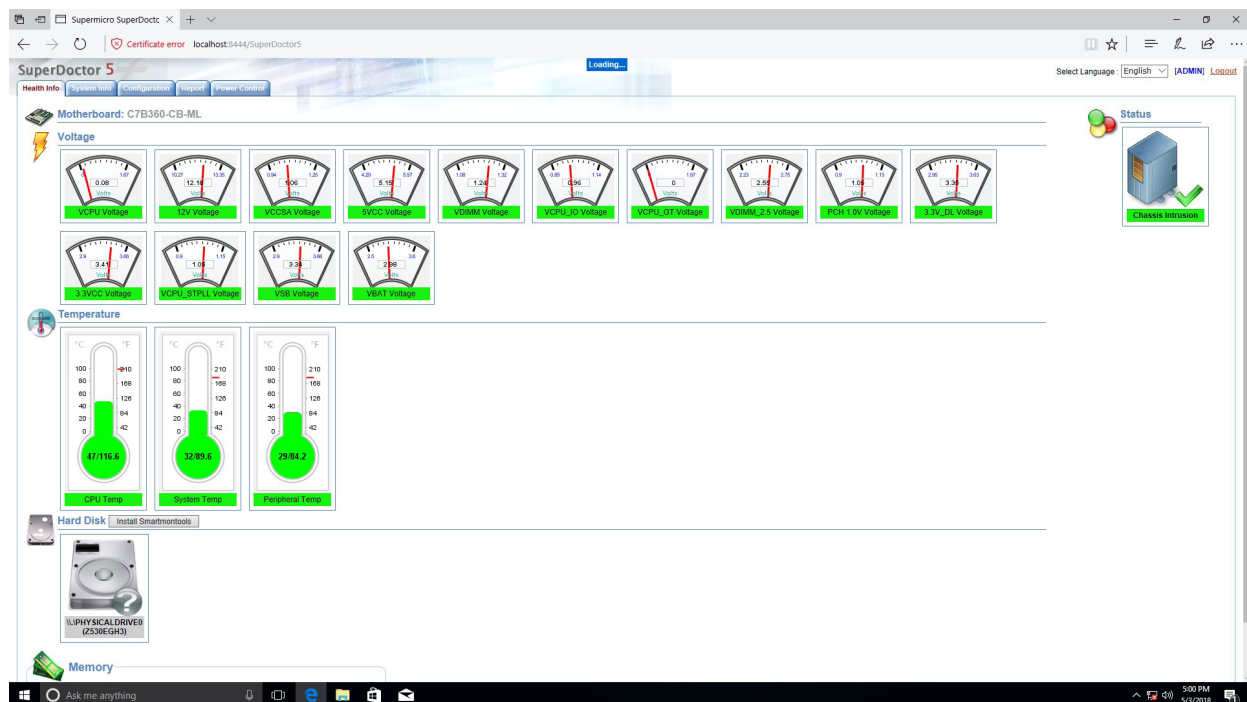


Figure 5-4. SuperDoctor 5 Interface Display Screen (Health Information)

## 5.4 IPMI

The X11DAi-N supports the Intelligent Platform Management Interface (IPMI). IPMI is used to provide remote access, monitoring and management. There are several BIOS settings that are related to IPMI.

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

## Chapter 6

# BIOS

### 6.1 Introduction

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

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

#### Starting the Setup Utility

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

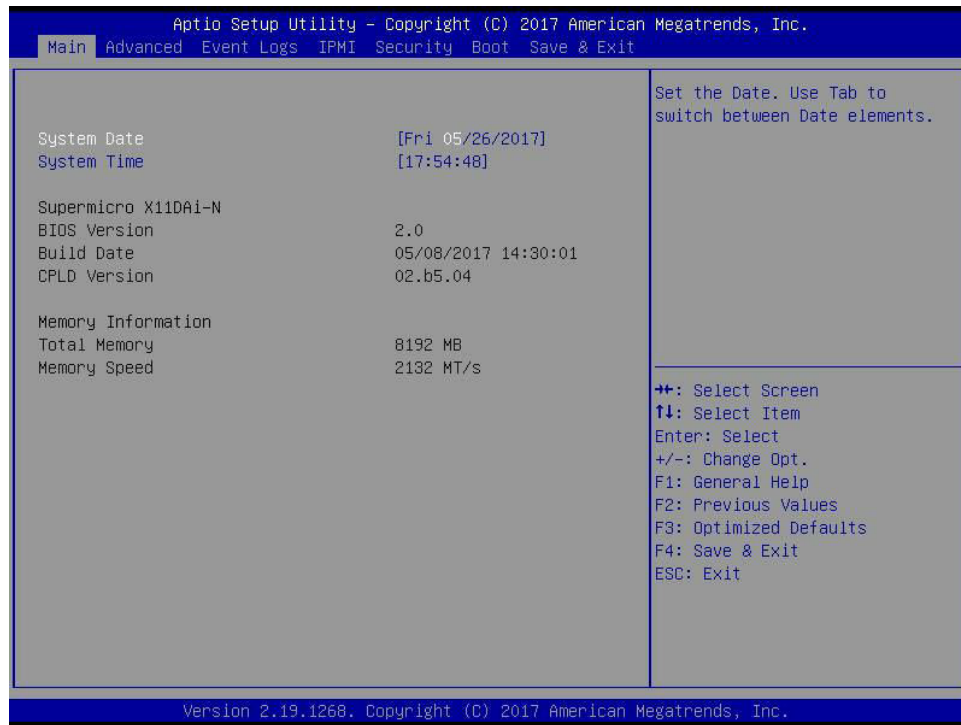
The Main BIOS screen has two main frames. The left frame displays all the options that can be configured. "Grayed-out" options cannot be configured. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is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

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

The BIOS setup utility uses a key-based navigation system called hot keys. Most of these hot keys (<F1>, <F2>, <F3>, <Enter>, <ESC>, <Arrow> keys, etc.) can be used at any time during the setup navigation process.

## 6.2 Main Setup

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



### System Date/System Time

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

**Note:** The time is in the 24-hour format. For example, 5:30 P.M. appears as 17:30:00. The date's default value is 01/01/2015 after RTC reset.

### Supermicro X11DAi-N

#### BIOS Version

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

#### Build Date

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

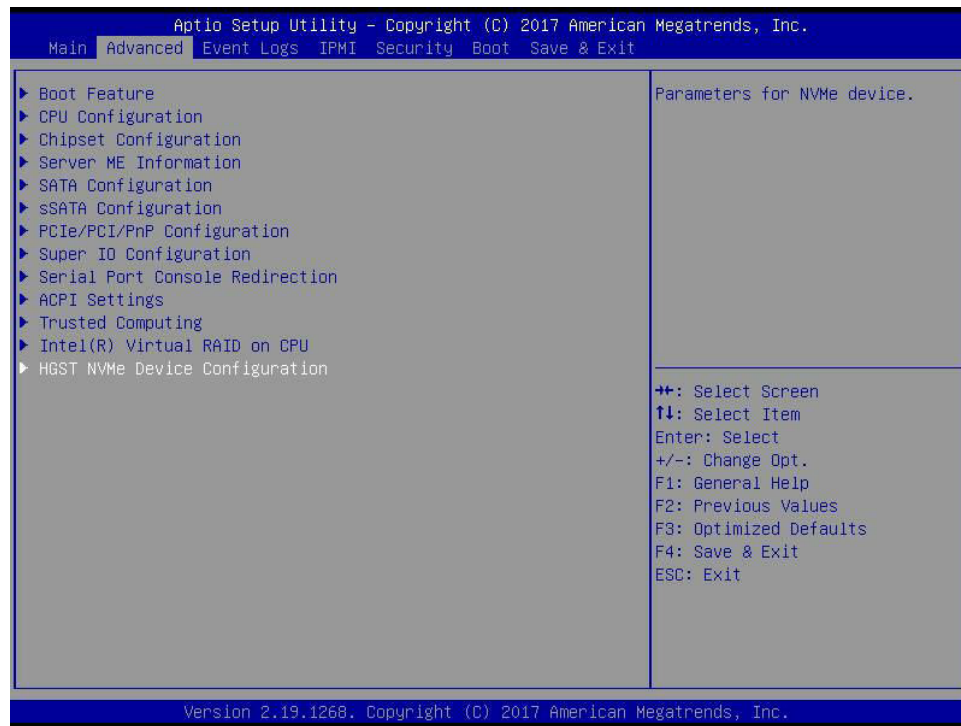
## **Memory Information**

### **Total Memory**

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

## 6.3 Advanced Setup Configurations

Use the arrow keys to select Boot Setup and press <Enter> to access the submenu items.



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

### ► Boot Feature

#### Quiet Boot

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

#### Option ROM Messages

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

#### Bootup NumLock State

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

**Wait For "F1" If Error**

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

**INT19 (Interrupt 19) Trap Response**

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

**Re-try Boot**

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

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

If enabled, the Watch Dog Timer will allow the system to reset or generate NMI based on jumper settings when it is expired for more than 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 4 seconds or longer. Select Instant Off to instantly power off the system as soon as the user presses the power button. The options are **Instant Off** and 4 Seconds Override.

**Restore on AC Power Loss**

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



## ►CPU Configuration

### Processor 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
- Processor 1 Version

### Hyper-Threading (ALL) (Available when supported by the CPU)

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

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

Select Enabled to enable the Execute-Disable Bit 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 an attack. The default is **Enable**. (Refer to the Intel® and Microsoft® websites for more information.)

### Intel Virtualization Technology

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

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

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

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

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

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

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

**Extended APIC**

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

**AES-NI**

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

**►Advanced Power Management Configuration****►CPU P State Control**

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

### **Speedstep (Pstates)**

Intel SpeedStep Technology allows the system to automatically adjust processor voltage and core frequency to reduce power consumption and heat dissipation. The options are Disabled and **Enabled**.

### **EIST PSD Funtion**

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

Options available: HW\_ALL/SW\_ALL/SW\_ANY. Default setting is HW\_ALL.

### **Turbo Mode**

This feature will enable dynamic control of the processor, allowing it to run above stock frequency.

### **► Hardware PM State Control**

#### **Hardware P-States**

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

### **► 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.

#### **CPU C6 Report**

Select Enabled 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 and **Enable**.

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

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

## ► Package C State Control

### Package C State

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

## ► CPU T State Control

### Software Controlled T-States

Enabling this feature allows the OS to choose a T-State. The options are Enable and **Disable**.

## ► Chipset Configuration

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

## ► North Bridge

This feature allows the user to configure the following North Bridge settings.

### ► UPI Configuration

### ► UPI General Configuration

#### UPI Status

The following UPI information will display:

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

**Degrade Precedence**

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

**Link L0p Enable**

Select Enable for Link L0p support. The options are **Enable** and Disable.

**Link L1 Enable**

Select Enable for Link L1 support. The options are **Enable** and Disable.

**IO Directory Cache (IODC)**

IO Directory Cache is an 8-entry cache that stores the directory state of remote IIO writes and memory lookups, and saves directory updates. Use this feature to lower cache to cache (C2C) transfer latencies. The options are Disable, **Auto**, Enable for Remote Invltom Hybrid Push, Invltom AllocFlow, Enable for Remote Invltom Hybrid AllocNonAlloc, and Enable for Remote Invltom and Remote WViLF.

**Isoc Mode**

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

**►Memory Configuration****Enforce POR**

Select Enable to enforce POR restrictions on DDR4 frequency and voltage programming. The options are Enabled and Disable.

**Memory Frequency**

Use this feature to set the maximum memory frequency for onboard memory modules. The options are Auto, 1333, 1400, 1600, 1800, 1867, 2000, 2133, 2200, and 2400.

**Data Scrambling for NVDIMM**

Use this feature to enable or disable data scrambling for non-volatile DIMM (NVDIMM) memory. The options are Auto, Disable, and Enable.

**Enable ADR**

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

## ►Memory Topology

This feature displays DIMM population information.

## ►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.

### Memory Rank Sparing

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

### Correctable Error Threshold

Use this item 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 **10**.

### SDDC

Single device data correction (SDDC) organizes data in a single bundle (x4/x8 DRAM). If any or all the bits become corrupted, corrections occur. The x4 condition is corrected on all cases. The x8 condition is corrected only if the system is in Lockstep Mode.

### 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 Scrubbing 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 item is set to Enable, the IO hub will read and write back one cache line every 16K cycles, if there is no delay caused by internal processing. By using this method, roughly 64 GB of memory behind the IO hub will be scrubbed every day. The options are Disable and **Enable**.

### **Patrol Scrub Interval**

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**

## **►CPU1 Configuration**

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

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

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

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

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

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

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

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

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

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

**►Socket 0 PcieBr0D00F0 - Port 0/DMI/Socket 0 PcieBr1D00F0 - Port 1A/  
Socket 0 PcieBr2D00F0 - Port 2A/Socket 0 PcieBr3D00F0 - Port 3A/Socket  
0 PcieBr3D01F0 - Port 3B/Socket 0 PcieBr3D02F0 - Port 3C/Socket 0  
PcieBr3D03F0 - Port 3D/Socket 0 PcieBr4D00F0 - MCP 0/Socket 0 PcieBr5D00F0  
- MCP 1**

### **Link Speed**

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

### PCI-E Port Max Payload Size

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

### ►IOAT Configuration

#### Disable TPH

Transparent Hugepages 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**.

#### Prioritize TPH

Use this feature to enable Prioritize TPH support. The options are **Enable** and **Disable**.

#### Relaxed Ordering

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

### Interrupt Remapping

**Select **Enable** for Interrupt Remapping support to enhance system performance.**

The options are **Enable** and **Disable**.

### PassThrough DMA

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



### **ATS**

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

### **Posted Interrupt**

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

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

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

## **► Intel® VMD Technology**

### **► Intel® VMD for Onboard NVMe**

#### **Onboard NVMe Mode**

This feature selects Legacy Mode or VMD Mode for Onboard NVMe. The options are **Legacy Mode** and VMD Mode.

#### **PCIe Hot Plug**

This feature Enables or **Disables** PCIe Hot Plug capability globally. The options are Enable or **Disable**.

#### **PCIe Completion Timeout (Global)**

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

## **► South Bridge**

### **Legacy USB Support**

This feature enables support for USB 2.0 and older. The options are **Enabled** and Disabled. Default setting is **Enabled**.

### **XHCI Hand-off**

When disabled, the motherboard will not support USB 3.0. Options are Enabled and **Disabled**. Default setting is **Disabled**.

**Port 60/64 Emulation**

This feature allows legacy I/O support for USB devices like mice and keyboards. The options are **Enabled** and disabled. Default setting is **Enabled**.

**Port 61h bit-4 Emulation**

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

**Install Windows 7 USB Support**

Enable this feature to use the USB keyboard and mouse during the Windows 7 installation, since the native XHCI driver support is unavailable. Use a SATA optical drive as a USB drive, and USB CD/DVD drives are not supported. Disable this feature after the XHCI driver has been installed in Windows. The options are **Disabled** and Enabled.

**► Server ME (Management Engine) Configuration**

This feature displays the following system ME configuration settings.

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

**► SATA Configuration**

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

**SATA Controller**

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

**Configure SATA as**

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

**SATA HDD Unlock**

This feature allows the user to remove any password-protected SATA disk drives.

**Aggressive Link Power Management**

When this item is set to Enabled, 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 Disabled and **Enabled**.

***\*If the item above "Configure SATA as" is set to RAID, the following items will display:***

**SATA Port 0 ~ Port 7**

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

- Model number of drive and capacity
- Software Preserve Support

**Port 0 ~ Port 7 Hot Plug**

Set this item to Enabled for hot-plugging support, which will allow the user to replace a SATA drive without shutting down the system. The options are Disabled and **Enabled**.

**Port 0 ~ Port 6 Spin Up Device**

On an edge detect from 0 to 1, set this item to allow the PCH to initialize the device. The options are **Disabled** and Enabled.

**Port 0 ~ Port 6 SATA Device Type**

Use this item 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 items:

### sSATA Controller

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

### Configure sSATA as

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

### SATA HDD Unlock

This feature allows the user to remove any password-protected SATA disk drives.

### Aggressive Link Power Management

When this item is set to Enabled, 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 Disabled and **Enabled**.

***\*If the item above "Configure SATA as" is set to RAID, the following items will display:***

### sSATA Port 0 ~ Port 2

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

- Model number of drive and capacity
- Software Preserve Support

### Port 0 ~ Port 2 Hot Plug

Set this item to Enabled for hot-plugging support, which will allow the user to replace a SATA drive without shutting down the system. The options are Disabled and **Enabled**.

**Port 0 ~ Port 2 Spin Up Device**

On an edge detect from 0 to 1, set this item to allow the PCH to initialize the device. The options are **Disabled** and Enabled.

**Port 0 ~ Port 2 SsATA Device Type**

Use this item 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.

**MMIOHBase**

Use this item to select the base memory size according to memory-address mapping for the IO hub. The options are **56 TB**, 40 TB, 24 TB, 3 TB, 2 TB, and 1 TB.

**MMIO High Granularity Size**

Use this item to select the high memory size according to memory-address mapping for the IO hub. The options are **256 GB**, 128 GB, 512 GB, and 1024 GB.

**PCI PERR/SERR Support**

Select Enabled to allow a PCI device to generate a PERR/SERR number for a PCI Bus Signal Error Event. The options are Enabled and **Disabled**.

**Maximum Read Request**

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

**MMCFG Base**

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

**VGA Priority**

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

**PCI Devices Option Rom Setting****Onboard NVMe1 Option ROM**

This feature Enables or Disables NVME1 OPRM option. The options are **EFI**, Legacy, and Disabled.

**Onboard NVMe2 Option ROM**

This feature Enables or Disables NVME2 OPRM option. The options are **EFI**, Legacy, and Disabled.

**CPU SLOT1 PCI-E 3.0 X16 OPRM**

Select Enabled to enable Option ROM support to boot the computer using a device installed on the slot specified by the user. The options are Disabled, Legacy and EFI. Use this feature to select which firmware type to be loaded for the add-on card in this slot. The options are Disabled, **Legacy**, and EFI.

**CPU SLOT2 PCI-E 3.0 X16 OPRM**

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

**CPU SLOT3 PCI-E 3.0 X16 OPRM**

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

**CPU SLOT4 PCI-E 3.0 X8 OPROM**

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

**CPU SLOT5 PCI-E 3.0 X16 OPROM**

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

**CPU SLOT6 PCI-E 3.0 X8 OPROM**

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

**M.2 PCI-E 3.0 X4 OPROM**

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

**Onboard Video Option ROM**

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

**Onboard LAN1 Option ROM**

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

**Onboard LAN2 Option ROM**

Use this feature to select which firmware function to be loaded for LAN Port2 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 "Network Stack" is set to Enabled, the following items will display:***

**Ipv4 PXE Support**

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

**Ipv6 PXE Support**

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

**Ipv6 HTTP Support**

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

**PXE Boot Wait Time**

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

**Media Detect Count**

Use this feature to select the wait time in seconds to detect LAN media. The default is 1.

**► Super IO Configuration**

The following Super IO information will display:

- Super IO Chip 2500

**Serial Port 2**

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

**Device Settings**

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

**Note:** This item is hidden when Serial Port 1 is set to Disabled.

**Change Port 2 Settings**

This feature specifies the base I/O port address and the Interrupt Request address of Serial Port 1 or Serial Port 2. Select **Auto** for the BIOS to automatically assign the base I/O and IRQ address to a serial port specified.

The options for Serial Port 2 are **Auto**, (IO=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 Attribute

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

## ► Serial Port Console Redirection

### COM0 Console Redirection

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

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

## ► COM2/SOL Console Redirection Settings

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

### Terminal Type

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

### Bits per second

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

### Data Bits

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

### Parity

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

**Stop Bits**

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

**Flow Control**

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

**VT-UTF8 Combo Key Support**

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

**Recorder Mode**

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

**Resolution 100x31**

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

**Legacy OS Redirection Resolution**

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

**Putty KeyPad**

This feature selects the settings for Function Keys and KeyPad used for Putty, which is a terminal emulator designed for the Windows OS. The options are **VT100**, LINUX, XTERMR6, SC0, ESCN, and VT400.

**Redirection After BIOS POST**

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

## ►Legacy Console Redirection Settings

### Legacy Serial Redirection Port

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

## ►EMS Console Redirection Settings

### EMS Console Redirection

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

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

#### Terminal Type

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

#### Bits Per Second

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

#### Flow Control

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

#### Data Bits

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

#### Parity

A parity bit can be sent along with regular data bits to detect data transmission errors. Select Even if the parity bit is set to 0, and the number of 1's in data bits is even. Select

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

### **Stop Bits**

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

## **►ACPI Settings**

### **Numa**

This setting **Enables** or Disables Non-Uniform Memory Access (NUMA), a feature that improves memory-to-processor communication and performance. The options are **Enabled** or Disabled.

### **WHEA Support**

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

### **High Precision Timer**

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

## **►Trusted Computing**

### **Configuration**

#### **Device Select**

This feature allows the user to select which TPM firmware the system will support. TPM 1.2 will restrict support to TPM 1.2 devices, TPM 2.0 will restrict support to 2.0 devices. **Auto** will support both, with the default set to TPM 2.0 devices if not found. The options are **Auto**, TPM 1.2, and TPM 2.0.

## **Current Status Information**

### **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 to disable TXT Support. The options are Disabled and Enabled.

### **►Intel(R) Virtual RAID on CPU**

Intel(R) VROC with VMD Technology 5.0.0.1205

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

### **Dynamic NVMe Device Setting**

This setting is dependent on the NVMe device that is plugged into the associated port.

## 6.4 Event Logs

Use this feature to configure Event Log settings.



### ► Change SMBIOS Event Log Settings

#### Enabling/Disabling Options

##### SMBIOS Event Log

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

#### Erasing Settings

##### Erase Event Log

If No is selected, data stored in the event log will not be erased. Select Yes, Next Reset, data in the event log will be erased upon next system reboot. Select Yes, Every Reset, data in the event log will be erased upon every system reboot. The options are **No**, Yes, Next reset, and Yes, Every reset.

##### When Log is Full

Select Erase Immediately for all messages to be automatically erased from the event log when the event log memory is full. The options are **Do Nothing** and Erase Immediately.

##### SMBIOS Event Long Standard Settings

### Log System Boot Event

This option toggles the System Boot Event logging to enabled or disabled. The options are **Disabled** and **Enabled**.

### MECI

The Multiple Event Count Increment (MECI) counter counts the number of occurrences that a duplicate event must happen before the MECI counter is incremented. This is a numeric value. The default value is **1**.

### METW

The Multiple Event Time Window (METW) defines number of minutes must pass between duplicate log events before MECI is incremented. This is in minutes, from 0 to 99. The default value is **60**.

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

### Custom Options

#### Log OEM Codes

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

#### Convert OEM Codes

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

### ►View SMBIOS Event Log

This section displays the contents of the SMBIOS Event Log.

## 6.5 IPMI

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



### BMC Firmware Revision

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

### IPMI Status (Baseboard Management Controller)

This item indicates the status of the IPMI firmware installed in your system.

### ► System Event Log

#### Enabling/Disabling Options

##### SEL Components

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

##### Erasing Settings

##### Erase SEL

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



### When SEL is Full

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

### Custom EFI Logging Options

#### Log EFI Status Codes

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

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

## ►BMC Network Configuration

### BMC Network Configuration

#### IPMI LAN Selection

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

#### IPMI

#### Network Link Status

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

#### Update IPMI LAN Configuration

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

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

#### Configuration Address Source

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

#### Configuration Address Source

This item displays the current configuration address for this computer.

**Station IP Address**

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

**Subnet Mask**

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

**Station MAC Address**

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

**Gateway IP Address**

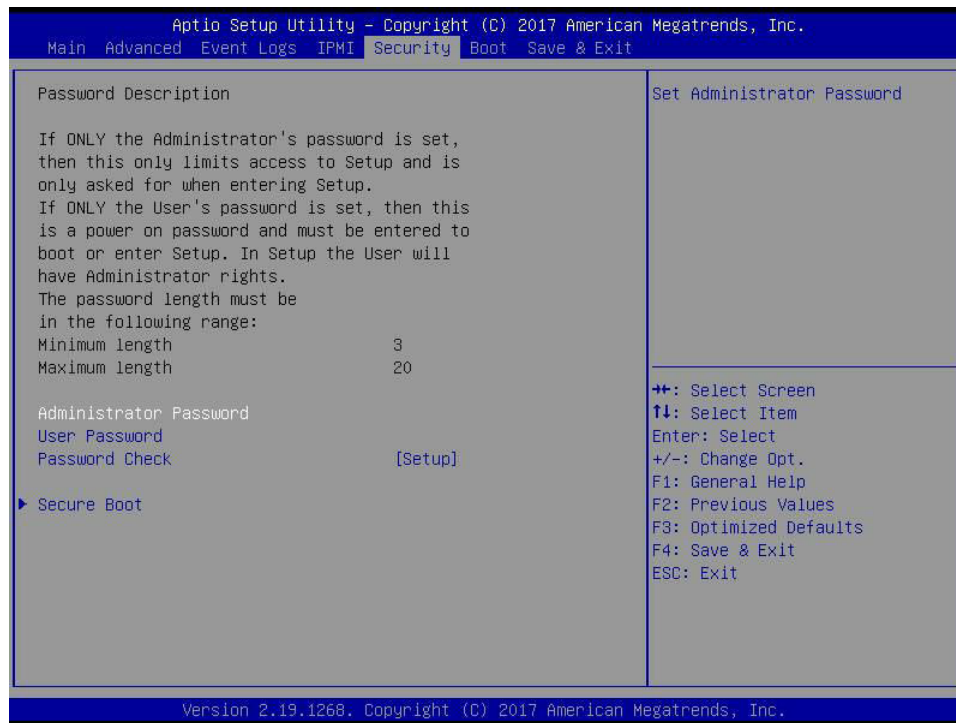
This item displays the Gateway IP address for this computer. This should be in decimal and in dotted quad form (i.e., 172.31.0.1).

**VLAN**

This item displays the virtual LAN settings.

## 6.6 Security

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



### Administrator Password

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

### User Password

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

### Password Check

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

### ► Secure Boot Menu

This section displays the contents of the following secure boot features:

- System Mode
- Secure Boot
- Vendor Keys

## Secure Boot

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

## CSM Support

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

### ► Key Management

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

#### Provision Factory Default Keys

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

#### ► Enroll All Factory Default Keys

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

#### Save All Secure Boot Variables

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

#### ► Platform Key (PK)

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

#### Set New Key

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

#### ► Key Exchange Key

#### Set New Key

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

#### Append Key

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

#### ► Authorized Signatures

#### Set New Key

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

**Append Key**

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

**►Forbidden Signatures****Set New Key**

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

**Append Key**

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

**►Authorized TimeStamps****Set New Key**

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

**Append Key**

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

**►OsRecovery Signature**

This item uploads and installs an OSRecovery Signature. You may insert a factory default key or load from a file. The file formats accepted are:

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

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

**Delete OSRecovery Signatures**

This item deletes a previously installed OS Recovery Signature.

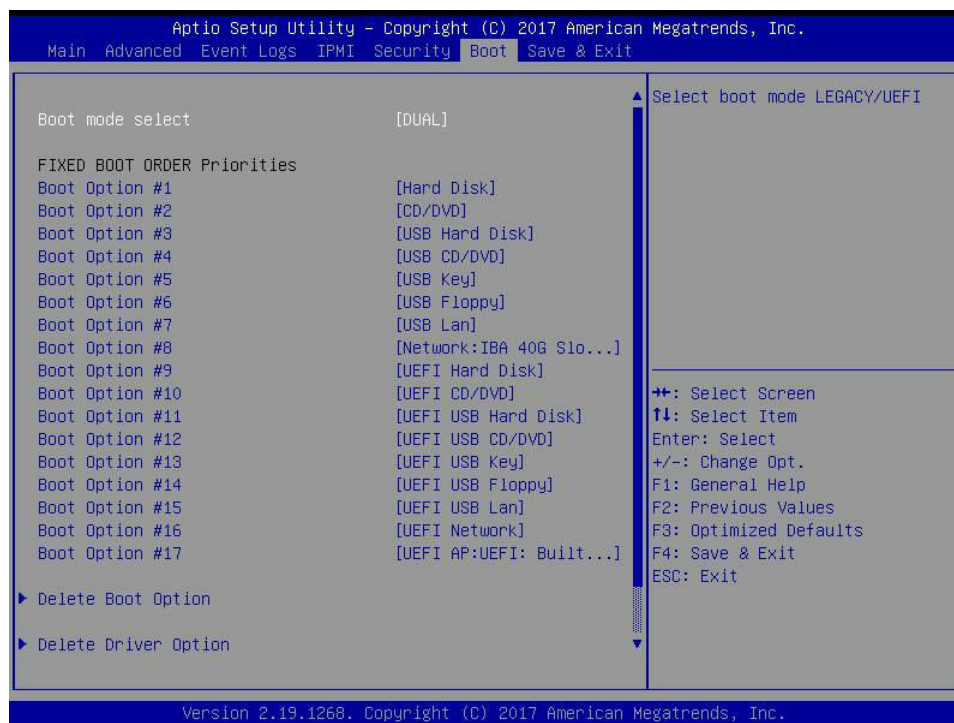
**Append OsRecovery Signature**

This item uploads and adds an OSRecovery Signature into the Key Management. You may insert a factory default key or load from a file. When prompted, select "Yes" to load Factory Defaults or "No" to load from a file.

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.

## 6.7 Boot

Use this feature to configure Boot settings.



### Boot Mode Select

Use this item to select the type of device that the system is going to boot from. The options are Legacy, UEFI, and **Dual**.

### 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 boots from. Press <Enter> on each entry from top to bottom to select devices.

***\*If the item "Boot Mode Select" above is set to Legacy, UEFI, or Dual, the following items will be displayed:***

- Legacy/UEFI/Dual Boot Option #1
- Legacy/UEFI/Dual Boot Option #2

- Legacy/UEFI/Dual Boot Option #3
- Legacy/UEFI/Dual Boot Option #4
- Legacy/UEFI/Dual Boot Option #5
- Legacy/UEFI/Dual Boot Option #6
- Legacy/UEFI/Dual Boot Option #7
- Legacy/UEFI/Dual Boot Option #8
- Legacy/UEFI/Dual Boot Option #9
- Legacy/UEFI/Dual Boot Option #10
- Legacy/UEFI/Dual Boot Option #11
- Legacy/UEFI/Dual Boot Option #12
- Legacy/UEFI/Dual Boot Option #13
- Legacy/UEFI/Dual Boot Option #14
- Legacy/UEFI/Dual Boot Option #15
- Legacy/UEFI/Dual Boot Option #16
- Legacy/UEFI/Dual Boot Option #17

### ► **Delete Boot Option**

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

#### **Delete Boot Option**

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

### ► **Delete Driver Option**

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

#### **Add Boot Option**

Use this item to specify the name for the new boot option.

### **Path for Boot Option**

Use this item to enter the path for the new boot option in the format fsx:\path\filename.efi.

### **Boot Option File Path**

Use this item to specify the file path for the new boot option.

### **Create**

Use this item to set the name and the file path of the new boot option.

## **►UEFI Application Boot Priorities**

This feature sets the system boot order of detected devices.

- Boot Option #1

## **►NETWORK Drive BBS Priorities**

This feature sets the system boot order of detected devices.

- Boot Option #1



## 6.8 Save & Exit

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



### Save Options

#### Discard Changes and Exit

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

#### Save Changes and Reset

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

### Save Changes

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

### Discard Changes

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

## **Default Options**

### **Restore Defaults**

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

### **Save As User Defaults**

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

### **Boot Override**

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

# Appendix A

## BIOS Codes

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

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

**Non-fatal errors** are those which, in most cases, allow the system to continue the 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 Beep (POST) Codes		
Beep Code	Error Message	Description
1 beep	Refresh	Circuits have been reset (Ready to power up)
5 short, 1 long	Memory error	No memory detected in system
5 short	Display memory read/write error	Video adapter missing or with faulty memory
1 long continuous	System OH	System overheat condition

## A.2 Additional BIOS POST Codes

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

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

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

## Appendix B

# Standardized Warning Statements for AC Systems

### B.1 About Standardized Warning Statements

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

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

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

#### Warning Definition



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

#### 警告の定義

この警告サインは危険を意味します。

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

此警告符号代表危險。

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

此警告符號代表危險。

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

## Warnung

## WICHTIGE SICHERHEITSHINWEISE

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

BEWAHREN SIE DIESE HINWEISE GUT AUF.

## INSTRUCCIONES IMPORTANTES DE SEGURIDAD

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

GUARDE ESTAS INSTRUCCIONES.

## IMPORTANTES INFORMATIONS DE SÉCURITÉ

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

CONSERVEZ CES INFORMATIONS.

## תקנון הזהרות אזהרה

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

اَكْ فِ حَالَةٍ وُكِي اَيُّ تَتَسَبَّبُ فِ اَصَابَةِ جَسَدٍ هَذَا الزَّهْرُ عُ خَطَرٌ! تَحْذَرُ .  
 قَبْلَ اَيُّ تَعْوَلُ عَلَى اَيُّ هَعْدَاتٍ، كِي عَلَى عِلْنِ بِالْوَخَاطِزِ اَلْ اُجُوَّةِ عِي الذَّوَائِرِ  
 الْكَهْزِبَائِيَّةِ  
 وَكِي عَلَى دَرَاةٍ بِالْوَوَارِسَاتِ الْبَقَائِيَّةِ لَوْ عُ وَقَعَ اَيُّ حَادِثٍ  
 اسْتَخْذَمَ رَقْنِ الْبِ اَيُّ الْوَصُصِ فِ هَآءِ كُلِّ تَحْذَرُ لِلْعَشْرِ تَرْجُوْتَهَا

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 chassis 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 قېم  
انصل إلى امناطق انداخھيت نهھيكم نتشيج أو إزانت مكنناث 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 للموظفيه المؤهليه

경고!

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

**Waarschuwing**

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

**Restricted Area**

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

**アクセス制限区域**

このユニットは、アクセス制限区域に設置されることを想定しています。

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

**警告**

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

**警告**

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

### Warnung

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

### ¡Advertencia!

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

### Attention

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

אזור עם גישה מוגבלת

אזהרה!

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

تخصيص هذه انحدزة نترك بُها ف مناطق محظورة تم .  
ممكن اننصل إن منطقت محظورة فقط من خلال استخذاو أداة خاصت  
أو أ وس هُت أخري نلاأمما 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荐的功能相当的電池更換原有電池。請按制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 اسحبذال البطارية بطريقة غير صحيحة فعلى  
اسحبذال البطارية  
فقط بنفس النوع أو ما يعادلها مما أوصت به الشركة المصنعة  
جخلص من البطاريات المسحمة 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

此裝置連接的電源可能不只一個，必須切斷所有電源才能停止對該裝置的供電。

Warnung

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

**¡Advertencia!**

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

**Attention**

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

אם קיים יותר מספק אחד

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，背板上有危險的電壓或能量，進行維修時務必小心。

### Warnung

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

### ¡Advertencia!

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

### Attention

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

מתח בפנל האחורי

אזהרה!

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

هناك خطر من التيار الكهربائي أو الطاقة المبددة على الساحة  
عندما يمكن النظام يعمل كه حذرا عند خدمة هذا الجهاز

경고!

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

Waarschuwing

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

## Comply with Local and National Electrical Codes



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

地方および国の電気規格に準拠

機器の取り付けはその地方および国の電気規格に準拠する必要があります。

警告

设备安装必须符合本地与本国电气法规。

警告

設備安裝必須符合本地與本國電氣法規。

Warnung

Die Installation der Geräte muss den Sicherheitsstandards entsprechen.

¡Advertencia!

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

Attention

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

תיאום חוקי החשמל הארצי

אזהרה!

התקנת הציוד חייבת להיות תואמת לחוקי החשמל המקומיים והארציים.

تركيب المعدات الكهربائية يجب أن يمثل للقايه المحلية والطية المتعلقة  
بالكهرباء

경고!

현 지역 및 국가의 전기 규정에 따라 장비를 설치해야 합니다.

Waarschuwing

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

## Product Disposal



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

製品の廃棄

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

警告

本产品的废弃处理应根据所有国家的法律和规章进行。

警告

本產品的廢棄處理應根據所有國家的法律和規章進行。

Warnung

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

¡Advertencia!

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

## Attention

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

סילוק המוצר

אזהרה!

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

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

경고!

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

## Waarschuwing

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

## Hot Swap Fan Warning



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

## ファン・ホットスワップの警告

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

警告!

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

警告

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

**Warnung**

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

**¡Advertencia!**

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

**Attention**

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

**אזהרה!**

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

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

**경고!**

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

**Waarschuwing**

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

## Power Cable and AC Adapter



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

### 電源コードとACアダプター

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

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

### 警告

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

### 警告

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

### Warnung

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

### ¡Advertencia!

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

### Attention

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

AC כבלים חשמליים ומתאמי

אזהרה!

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

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

### 전원 케이블 및 AC 어댑터

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

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

### Stroomkabel en AC-Adapter

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



# Appendix C

## System Specifications

### Processors

Dual Intel Xeon 81xx/61xx/51xx/41xx/31xx Series processors in an SKX type socket

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

### Chipset

Intel C621 chipset

### BIOS

128 Mb AMI® Flash ROM

### Memory

Sixteen 240-pin DIMM slots that can support up to 2048 GB of 3DS RDIMM/3DS LRDIMM/LRDIMM/RDIMM/NVDIMM DDR4 ECC 2666/2400/2133 MHz memory in 16 memory slots.

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

### SATA Controller

On-chip (C621) controller

### Drive Bays

Eight 3.5" hot-swap drive bays to house eight SATA drives

### PCI Expansion Slots

Four PCI-Express 3.0 x16 slots (Slot1/Slot2 supported by CPU1, Slot3/Slot5 supported by CPU2)

Two PCI-Express 3.0 x8 slots (Slot4/Slot6 supported by CPU2)

### Motherboard

X11DAi-N; ATX form factor (12 x 13 in. / 304.8 x 330.2 mm.)

### Chassis

SC732D3-1200B: mid-tower, 7.6 x 16.7 x 20.68 in. / 193 x 424 x 525.3 mm. (W x H x D)

### System Cooling

One 12-cm low-noise exhaust fan and (optional) one 12-cm low-noise front cooling fan

### Power Supply

Model: PWS-1K25P-PQ

AC Input Voltages: 100-240 VAC

Rated Input Current: 8A (115V) to 12A (240V)

Rated Input Frequency: 50-60 Hz

Rated Output Power: 1200W

Rated Output Voltages: +3.3V (20A), +5V (20A), +12V (99A), -12V (0.3A), +5Vsb (3A)

Efficiency Rating: 94% (peak)

### Operating Environment

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

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

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

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

### **Regulatory Compliance**

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

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

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

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

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

### **Perchlorate Warning**

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

## Appendix D

### UEFI BIOS Recovery

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

#### D.1 Overview

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

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

A UEFI BIOS flash chip consists of a recovery BIOS block and a main BIOS block (a main BIOS image). The boot block contains critical BIOS codes, including memory detection and recovery codes for the user to flash a new BIOS image if the original main BIOS image is corrupted. When the system power is first turned on, the boot block codes execute first. Once this process is completed, 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 boot crashes.

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

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

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

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

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

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

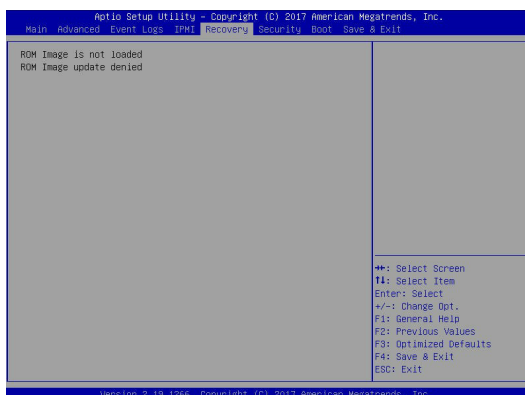
**Note:** If you cannot locate the "Super.ROM" file in your driver disk, visit our website at [www.supermicro.com](http://www.supermicro.com) to download the BIOS image into a USB flash device and rename it "Super.ROM" for BIOS recovery use.

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

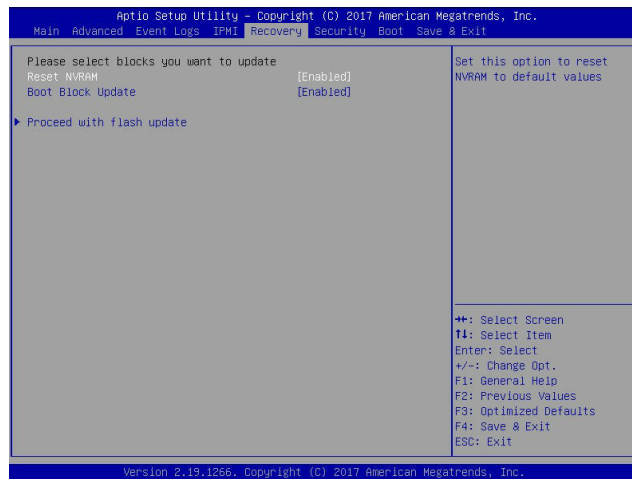
**Warning:** Please **stop** pressing the <Ctrl> and <Home> keys immediately when you see the screen (or a similar screen) below; otherwise, it will trigger a system reboot.



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



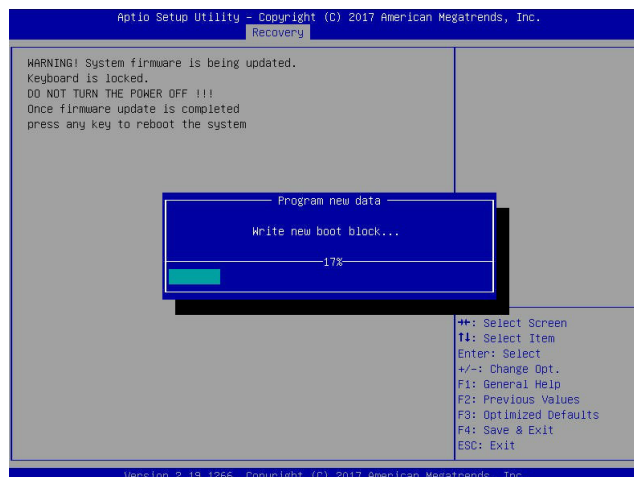
4. After locating the new BIOS binary image, the system will enter the BIOS Recovery menu as shown below.



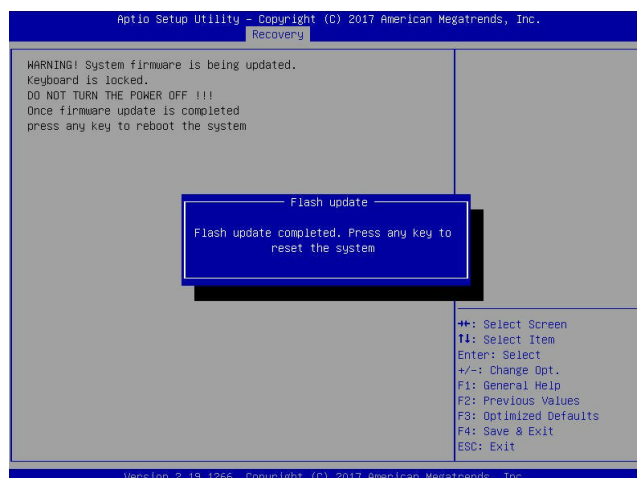
**Note:** At this point, you may decide if you want to start the BIOS recovery. If you decide to proceed with BIOS recovery, follow the procedures below.

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

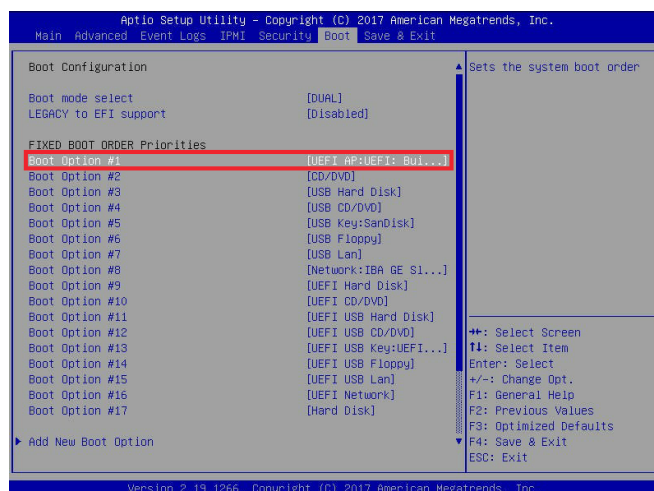
**Note:** Do not interrupt the BIOS flashing process until it has completed.



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



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



9. 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 7. Enter `flash.nsh BIOSname.###` at the prompt to start the BIOS update process.

```

UEFI Interactive Shell v2.1
EDK II
UEFI V2.50 (American Megatrends, 0x0005000C)
Mapping table
  FS0: Alias(s):HD(0:0):BLK1:
        PciRoot(0x0)/Pci(0x14,0x0)/USB(0x11,0x0)/HD(1,MBR,0x37901072,0x800,0x1
CR3992)
  BLK0: Alias(s):
        PciRoot(0x0)/Pci(0x14,0x0)/USB(0x11,0x0)
Press F8 in 1 seconds to skip startup.nsh or any other key to continue.
Shell> fs0:
FS0:\> cd AFUDOS
FS0:\AFUDOS> cd SNJPME2_03162017
FS0:\AFUDOS\SNJPME2_03162017> flash.nsh X10PU7.314

```

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

```

Done.
[ Access Cmos Port Ex ]
<Read>
Index 0x51: 0x10

Done.
*****
*
* Program BIOS and ME (including FDT) regions...
*****
| AMT Firmware Update Utility v5.09.01.1317 |
| Copyright (C)2017 American Megatrends Inc. All Rights Reserved. |
|-----|
CPUID = 50652

Reading flash ..... done
- ME Data Size checking - ok
- FFS checksums ..... ok
- Check RomLayout ..... OK
Erasing Boot Block ..... done
Updating Boot Block ..... done
Verifying Boot Block ..... done
Erasing Main Block ..... 0x00132000 (0x)

```

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

```

Verifying MBR Block ..... done
- Update success for FDR
- Update success for IE
- Successful Update Recovery Loader to OPRx!!
- Successful Update MFSB!!
- Successful Update FFWx!!
- Successful Update MFS, IVB1 and IVB2!!
- Successful Update FLOG and UTDK!!
- ME Entire image update success !!
WARNING : System must power-off to have the changes take effect!
Moving FS0:\AFUDOS\SNJPME2_03162017\fdt\64.efi -> FS0:\AFUDOS\SNJPME2_03162017\fdt\smc
- [ok]
Moving FS0:\AFUDOS\SNJPME2_03162017\afuefi\64.efi -> FS0:\AFUDOS\SNJPME2_03162017\afuefi\smc
- [ok]
*****
* Please ignore this 'Shell: Cannot read from file - Device Error'
* warning message due to it does not impact flashing process.
*****
Deleting 'FS0:\AFUDOS\SNJPME2_03162017\afuefi\64.efi'
Delete successful.
FS0:\>

```

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