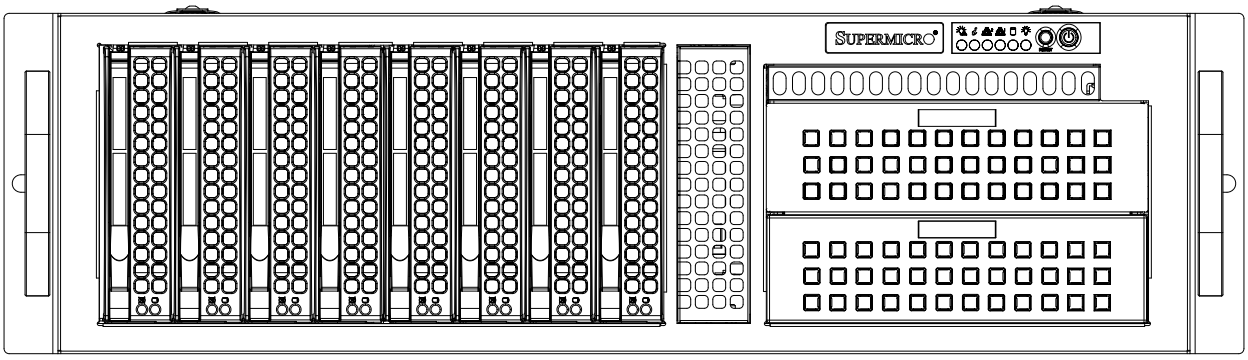
SuperServer®
6039P-TXRT



USER'S MANUAL

Revision 1.0

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Manual Revision 1.0

Release Date: December 03, 2018

Preface

About this Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of the SuperServer 6039P-TXRT. Installation and maintenance should be performed by experienced technicians only.

Please refer to the 6039P-TXRT 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

If you have any questions, please contact our support team at:
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This manual may be periodically updated without notice. Please check the Supermicro website for possible updates to the manual revision level.

Warnings

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

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

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

Contents

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 (General Information) support@supermicro.com (Technical Support)
Website:	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 (General Information) support@supermicro.nl (Technical Support) rma@supermicro.nl (Customer Support)
Website:	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
Website:	www.supermicro.com.tw

Chapter 1

Introduction

1.1 Overview

This chapter provides a brief outline of the functions and features of the 6039P-TXRT. The 6039P-TXRT is based on the X11DPX-T motherboard and the SC835XTQ-R982B 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**
8-cm rear exhaust fan	FAN-0125L4	1
8-cm system fans	FAN-0118L4	3
Air shroud	MCP-310-83504-0B	1
2U passive CPU heatsinks	SNK-P0068PS	2
Rack rail unit	MCP-290-00053-0N	1

1.2 Unpacking the System

Inspect the box the SuperServer 6039P-TXRT was shipped in and note if it was damaged in any way. If any equipment appears damaged, please file a damage claim with the carrier who delivered it.

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

1.3 System Features

The following table provides you with an overview of the main features of the 6039P-TXRT. Please refer to Appendix C for additional specifications.

System Features
Motherboard
X11DPX-T
Chassis
SC835XTQ-R982B
CPU
Intel® Xeon® Scalable Processor
Socket Type
Dual Socket P (LGA 3647)
Memory
16 DIMM slots Up to 2TB ECC 3DS LRDIMM, 512GB ECC RDIMM, DDR4 up to 2666MHz
Chipset
Intel®C621 chipset
Expansion Slots
Two PCI-E 3.0 x16 slots Two PCI-E 3.0 x16 slots (or 4 PCI-E 3.0 x8 by MUX) Four PCI-E 3.0 x8 slots One PCI-E 3.0 x4 (in x8 slot)
Hard Drives
Eight Hot-swap 3.5" drive bays Two 5.25" drive bays One slim DVD-ROM drive bay One FDD bay
Power
850W/980W high-efficiency (94%+) AC-DC Redundant power supplies with PMBus
Form Factor
SC835XTQ-R982B; 3U Rackmount, 17.2 x 5.2 x 25.5 in. / 437 x 132 x 648 mm. (W x H x D)
Dimensions
17.2 x 5.2 x 25.5 in. / 437 x 132 x 648 mm.

1.4 Server Chassis Features

Control Panel

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

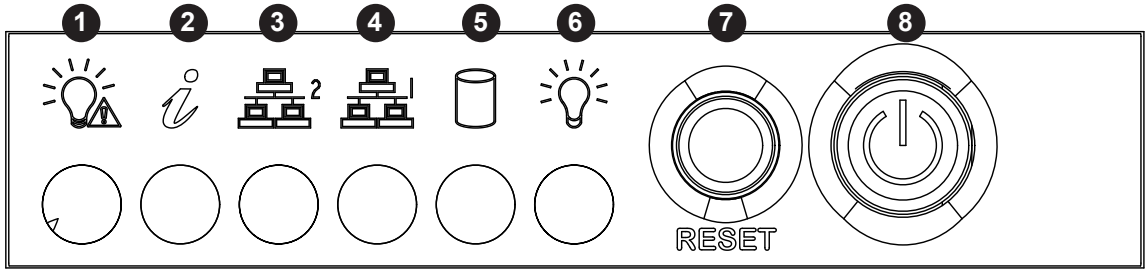


Figure 1-1. Control Panel View

Control Panel Features		
Item	**Feature**	**Description**
1	Power Failure	When this LED flashes, it indicates a power failure in the power supply.
2	Alert	This LED is illuminated when an alert condition occurs.
3	NIC2	Indicates network activity on LAN2 when flashing.
4	NIC1	Indicates network activity on LAN1 when flashing.
5	HDD	Indicates IDE channel activity. SAS/SATA drive and/or DVD-ROM drive activity when flashing.
6	Power	Indicates power is being supplied to the system's power supply units. This LED should normally be illuminated when the system is operating.
7	Reset Button	The reset button is used to reboot the system.
8	Power Button	The main power switch is used to apply or remove power from the power supply to the server system. Turning off system power with this button removes the main power but keeps standby power supplied to the system. Therefore, you must unplug system before servicing.

Front Features

The SC835XTQ-R982B is a 3U chassis See the illustration below for the features included on the front of the chassis.

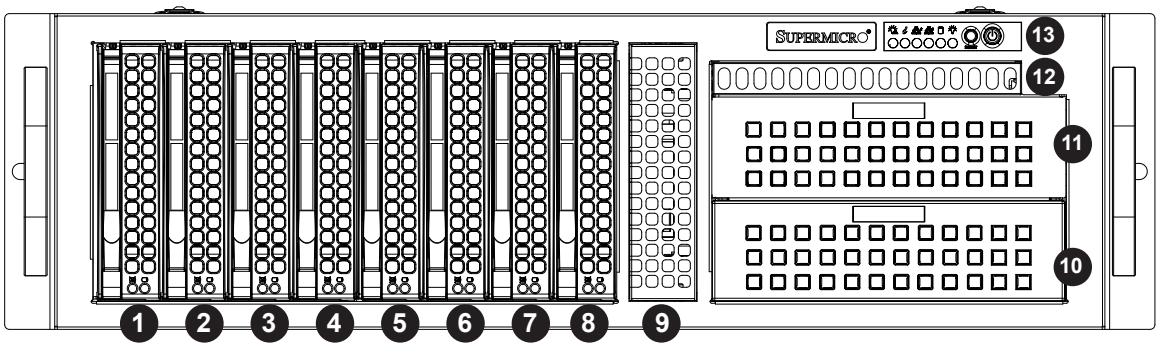


Figure 1-2. Chassis Front View

Front Chassis Features		
Item	**Feature**	**Description**
1~8	Hot-swap Drive Bay	Eight 3.5" hot-swap SAS3/SATA3 Drive Bays
9	FDD Tray	One FDD tray
10~11	Drive Bay	Two 5.25" drive bays
12	DVD Tray	One slim DVD-ROM Drive
13	Control Panel	For details see the previous section.

Rear Features

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

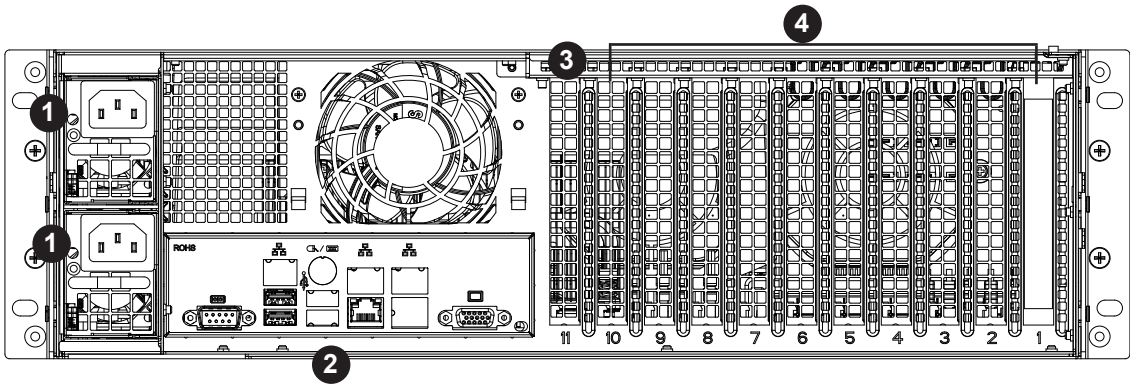


Figure 1-3. Chassis Rear View

Rear Chassis Features		
Item	**Feature**	**Description**
1	Power Supplies	Redundant 850W/ 980W high-efficiency (94%+) AC-DC power supplies (with PMBus)
2	I/O Ports	I LAN, USB, LAN, VGA (described in Chapter 4)
3	PCI-E 3.0 Slot	PCI-E 3.0 x4 (in x8 slot)
4	PCI-E 3.0 Slots	PCI-E 3.0 x8 and x16 slots (described in Chapter 3)

1.5 Motherboard Layout

Jumper, connector and LED locations are shown below with brief descriptions on the following pages. Detailed descriptions are found in Chapter 4.

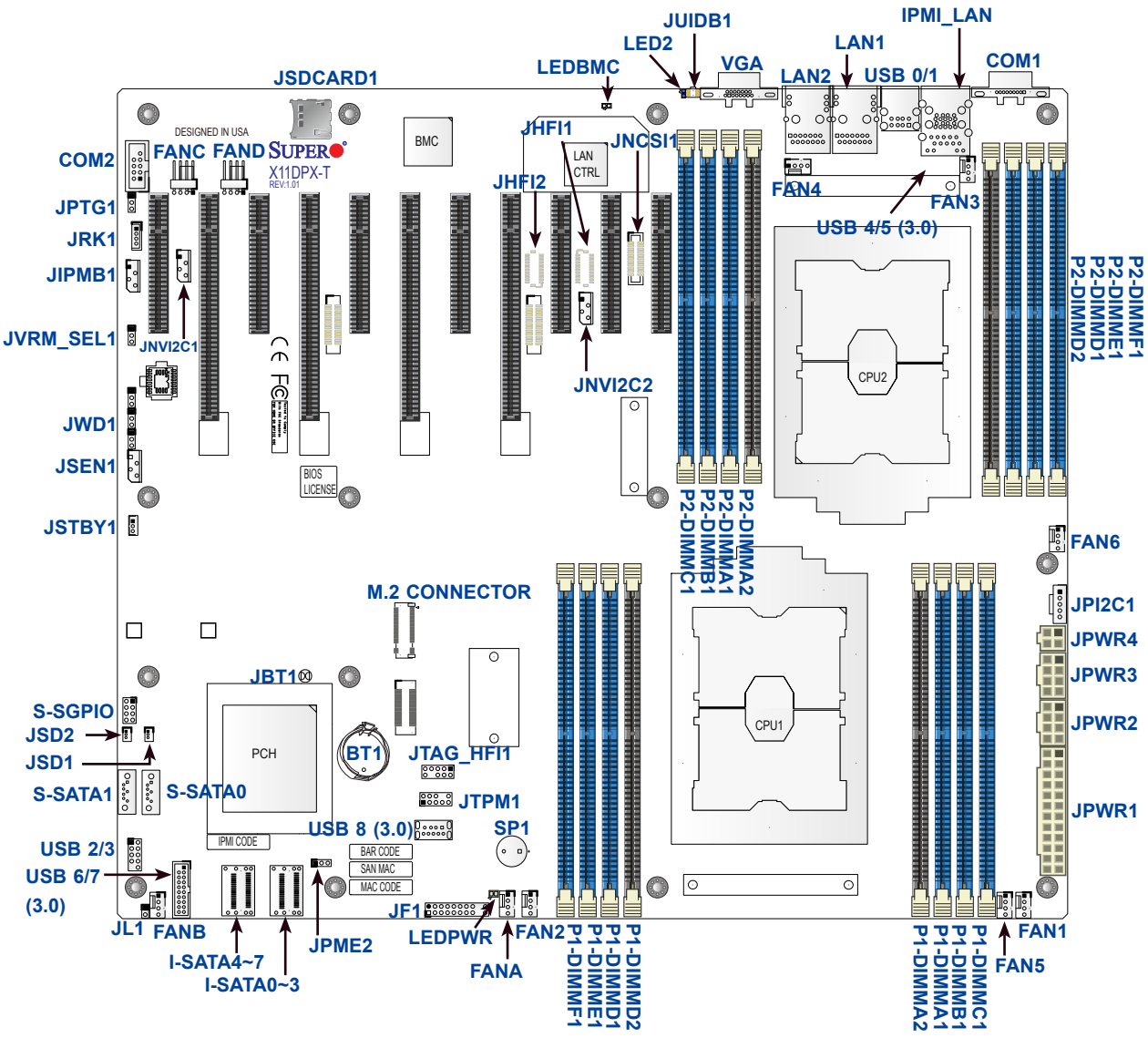


Figure 1-4. Motherboard Layout

Notes:

- "■" indicates the location of Pin 1.
- Components/jumpers/LED indicators not documented are reserved for internal testing only.

Quick Reference Table

Jumper	Description	Default Setting
JBT1	CMOS Clear	Open (Normal)
JPME2	ME Manufacturing Mode	Pins 1-2 (Normal)
JPTG1	Onboard 10Gb LAN1/2 Enable/Disable	Pins 1-2 (Enabled)
JVRM_SEL1	VRM_I2C Jumper	Pins 1-2 (Normal)
JWD1	Watch Dog Timer Reset	Pins 1-2 (Reset)

Connector	Description
BT1	Onboard Battery
COM1	COM Port (COM1) on the I/O Backplane
COM2	COM Header
FAN1 ~ FAN6, FANA, FANB, FANC, FAND	System/CPU Fan Headers (FAN5: CPU1 Fan, FAN6: CPU2 Fan)
IPMI_LAN	Dedicated IPMI LAN Port
I-SATA0~3, I-SATA4~7	Intel® PCH SATA 3.0 Ports (0-3, 4-7)
JF1	Front Control Panel Header
JHFI1/JHFI2 (*Notes below)	Host Fabric Interface (HFI) Sideband Connection Headers Used for the HFI Carrier Card (when the F model processor is used) (JHFI1: for CPU1, JHFI2: for CPU2)
JIPMB1	4-pin BMC External IC Header (for an IPMI card)
JL1	Chassis Intrusion Header
JNCSI1	NC-SI Header for IPMI Support
JNVI2C1	NVMe SMBus (I^2C) headers used for PCI-E hot-plug SMBus clock & data connections, and for the NVMe Add-on Card on PCI-E Slot 9 (an SMCI-proprietary NVMe add-on card and cable are required; available for a Supermicro complete system only)
JNVI2C2	NVMe SMBus (I^2C) headers used for PCI-E hot-plug SMBus clock & data connections, and for the NVMe Add-on Card on PCI-E Slot 10 (an SMCI-proprietary NVMe add-on card and cable are required; available for a Supermicro complete system only)
JPI2C1	Power Supply SMBus I^2C Header
JPWR1	24-pin ATX Power Connector
JPWR2/JPWR3	12V 8-pin CPU Power Connectors
JPWR4	12V 4-pin Power Connector
JRK1	RAID_Key for NVMe SSD
JSD1/JSD2	SATA DOM Power Connectors 1/2
JSDCARD1	Micro SD Card Slot (reserved by manufacturer)
JSEN1	Inlet Sensor Header
JSTBY1	Standby Power Connector
JTAG_HFI1	HFI Debug Port for Fabric CPU

Connector	Description
JTPM1	Trusted Platform Module/Port 80 Connector
JUIDB1	UID (Unit Identifier) Switch
LAN1/2	LAN Ports
M.2 CONNECTOR	PCI-E M.2 Connector, small form factor devices and other portable devices for High speed NVMe SSDs
S-SATA0/S-SATA1	SATA 3.0 Ports with Power-pin Built-in w/support of SuperDOM (Disk-On-Module)
S-SGPIO	Serial Link General Purpose I/O Header
SP1	Internal Speaker/Buzzer
USB 0/1	Back Panel USB 2.0 Ports
USB 2/3	Front Access USB 2.0 Headers
USB 4/5	Back Panel USB 3.0 Ports
USB 6/7	Front Access USB 3.0 Headers
USB 8	USB 3.0 Type A Header
VGA	VGA Port (Back Panel)

LED	Description	Status
LED2	UID (Unit Identifier) LED	Solid Blue: Unit Identified
LEDBMC	BMC Heartbeat LED	Blinking Green: BMC Normal
LEDPWR	Onboard Power LED	Solid Green: Power On

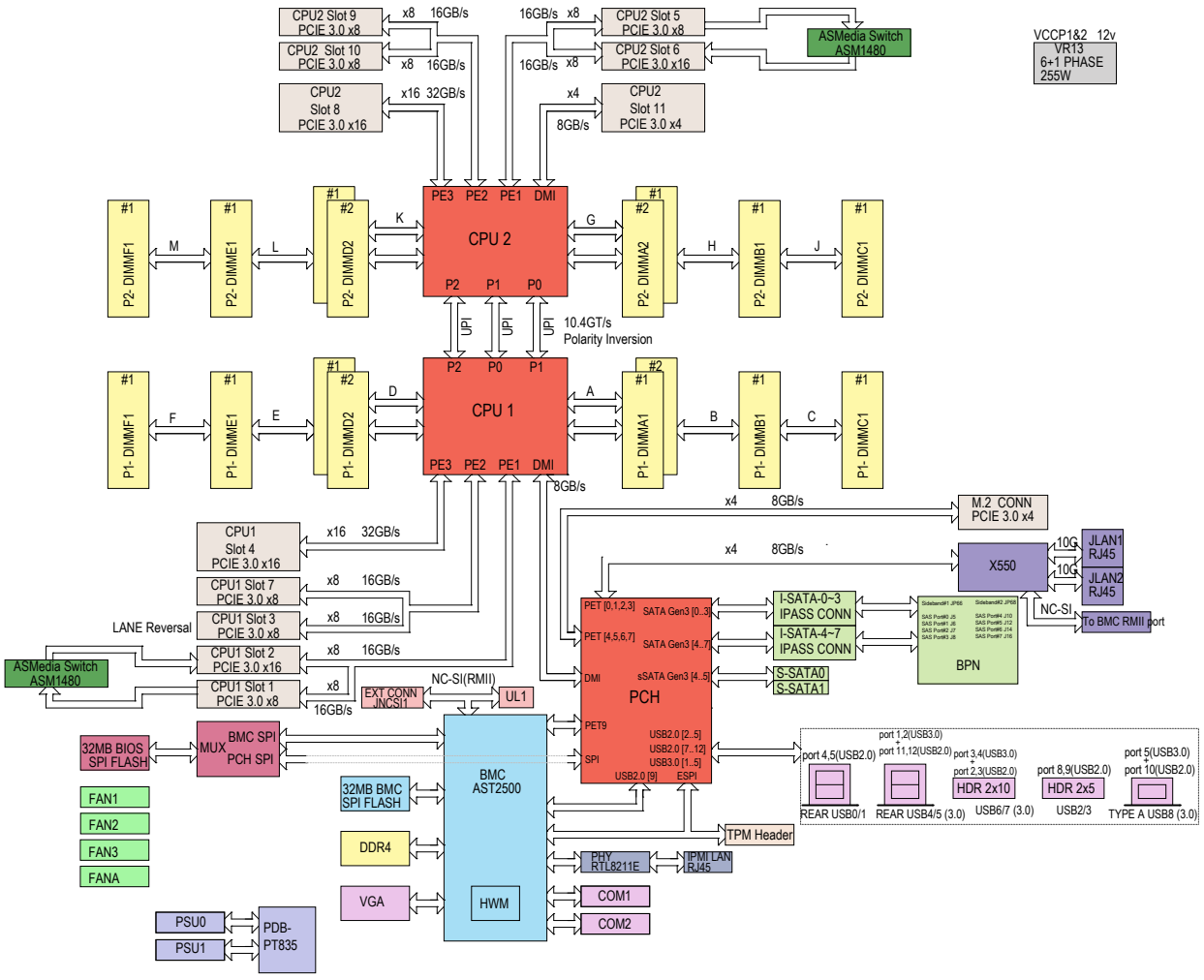


Figure 1-5. Intel®C621 Chipset: System Block Diagram

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

Chapter 2

Server Installation

2.1 Overview

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

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

2.2 Preparing for Setup

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

Choosing a Setup Location

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

Rack Precautions

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

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

Server Precautions

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

Rack Mounting Considerations

Ambient Operating Temperature

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

Airflow

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

Mechanical Loading

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

Circuit Overloading

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

Reliable Ground

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

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

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

2.3 Installing the Rails

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

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

Identifying the Rails

The rack rails and the related hardware should have been included with the system. Refer to Figure 2-1 to identify the rail sections. Note that these rails are left/right specific

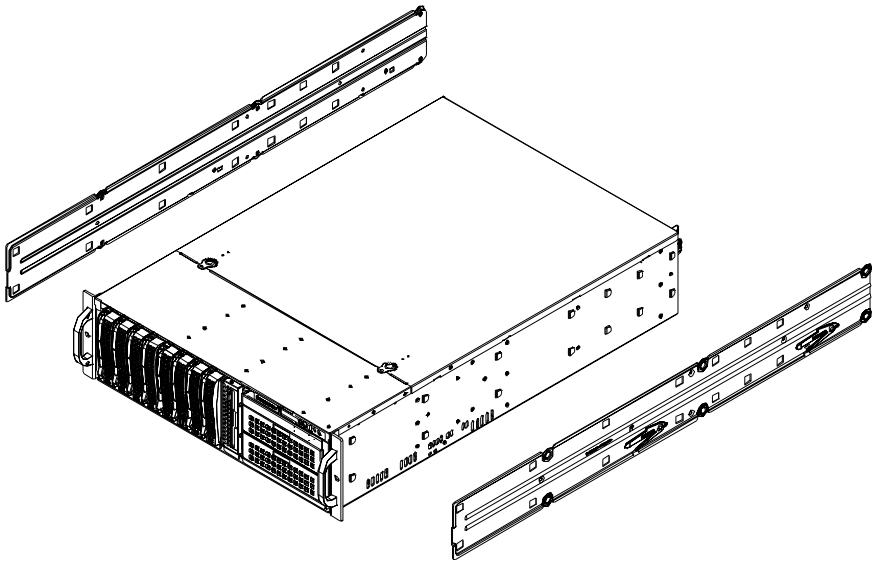


Figure 2-1. Identifying the Rail Sections

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

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

2.4 Installing the System into a Rack

This section provides information on installing the SC835 chassis into a rack unit with the quick-release rails provided. There are a variety of rack units on the market, which may mean the assembly procedure will differ slightly. You should also refer to the installation instructions that came with the rack unit you are using.

Installing the Inner Rack Rails

Installing the Inner Rails

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

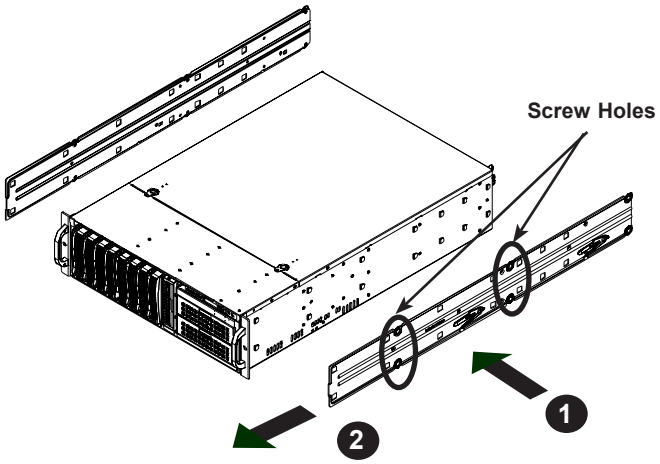


Figure 2-2. Installing the Inner Rack Rails

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

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

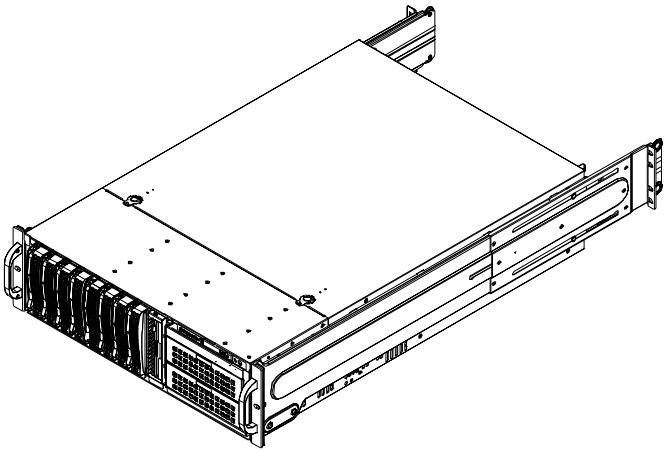


Figure 2-3. Inner Rack Rails Installed

Installing the Outer Rack Rails

Outer rails attach to the server rack and hold the server in place. The outer rails for the SC835 chassis extend between 30 inches and 33 inches.

Installing the Outer Rails

1. Begin by measuring the distance from the front rail to the rear rail of the rack
2. Attach a short bracket to the front side of the right outer rail and a long bracket to the rear side of the right outer rail.
3. Adjust both the short and long brackets to the proper distance so that the rail can fit snugly into the rack.
4. Secure the short bracket to the front side of the outer rail with two screws and the long bracket to the rear side of the outer rail with three screws.
5. Repeat these steps for the left outer rail.

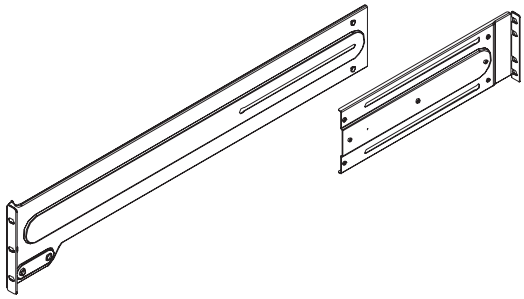


Figure 2-4. Outer Rack Rails

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

Installing the Chassis into a Rack

Installing into a Rack

1. Confirm that the inner and outer rails are installed on the rack.
2. Line chassis rails with the front of the rack rails.
3. Slide the chassis rails into the rack rails, keeping the pressure even on both sides (you may have to depress the locking tabs when inserting). When the server has been pushed completely into the rack, you should hear the locking tabs "click" into position.
4. (Optional) Insert and tighten the thumbscrews that hold the front of the server to the rack.

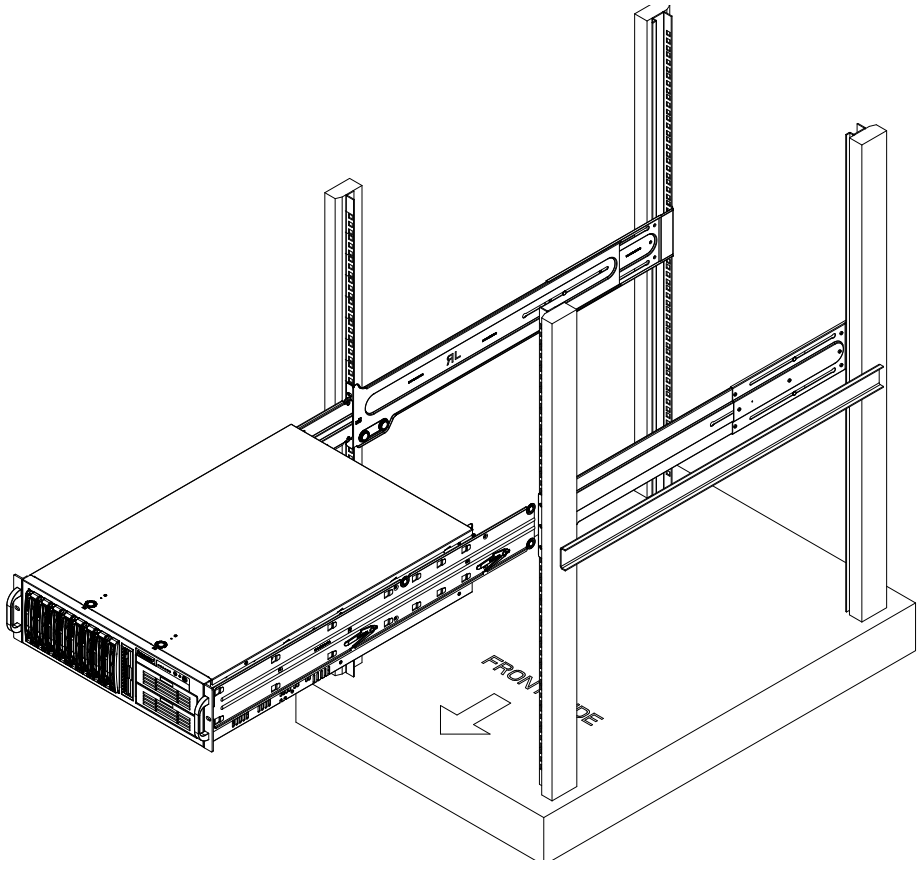


Figure 2-5. Installing the Chassis into the Rack

Note: The figure above is for illustrative purposes only. Always install servers to the bottom of the rack first.

Chapter 3

Maintenance and Component Installation

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

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

3.1 Removing Power

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

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

3.2 Accessing the System

The SC835XTQ-R982B features a removable top cover, which allows easy access to the inside of the chassis.

Removing the Top Cover

1. Begin by removing power from the system as described in Section 3.1.
2. Press the release tabs to remove the cover from the locked position. Press both tabs at the same time. If necessary, you may need to remove the chassis cover screw.
3. Once the top cover is released from the locked position, slide the cover toward the rear of the chassis and lift the cover from the chassis.

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

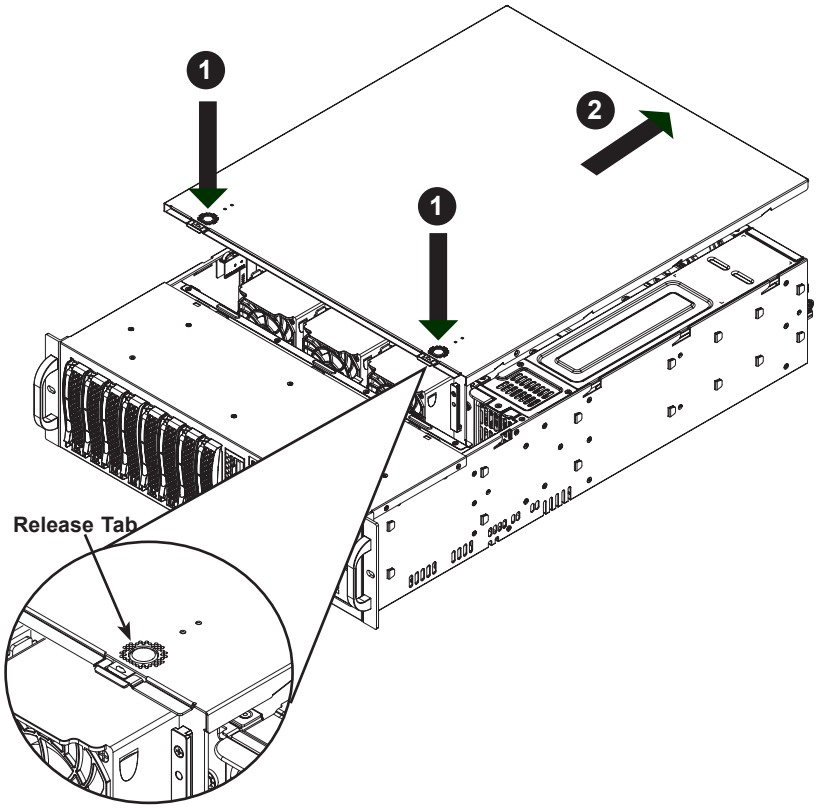


Figure 3-1. Removing the Chassis Cover

3.3 Motherboard Components

Processor and Heatsink Installation

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

Notes:

- All power shoumemld 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.
- The processor and heatsink should be assembled together first to form the Processor
- Heatsink Module (PHM), and then install the entire PHM into the CPU socket.
- When receiving a motherboard without a processor pre-installed, make sure that the plastic CPU socket cap is in place and none of the socket pins are bent; otherwise, contact your retailer immediately.
- Refer to the Supermicro website for updates on CPU support.When receiving a motherboard without a processor pre-installed, make sure that the plastic CPU socket cap is in place and none of the socket pins are bent; otherwise, contact your retailer immediately.
- Refer to the Supermicro website for updates on CPU support..

Assembling the Processor Package

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

Caution: Exercise extreme caution when handling the CPU. Do not touch the underside of the CPU to avoid damaging it. Be sure to wear ESD gloves when handling components.

1. Locate pin 1 (A), which is the triangle on the top of the narrow processor clip. Also locate notch B and notch C (and D for -F models) on the processor clip.
2. Locate pin 1 (A), which is the triangle on the underside of the CPU. Also, locate notch B and notch C (and notch D for -F models) on the CPU as shown below.
3. Align pin 1 of the CPU with pin 1 of the narrow processor clip. Once they are aligned, carefully insert the CPU into the processor clip by sliding notch B of the CPU into notch B of the processor clip, and sliding notch C of the CPU into notch C of the processor clip (and D for -F models).
4. Examine all corners of the CPU to ensure that it is properly seated and secure on the processor clip.

The processor package assembly is created.

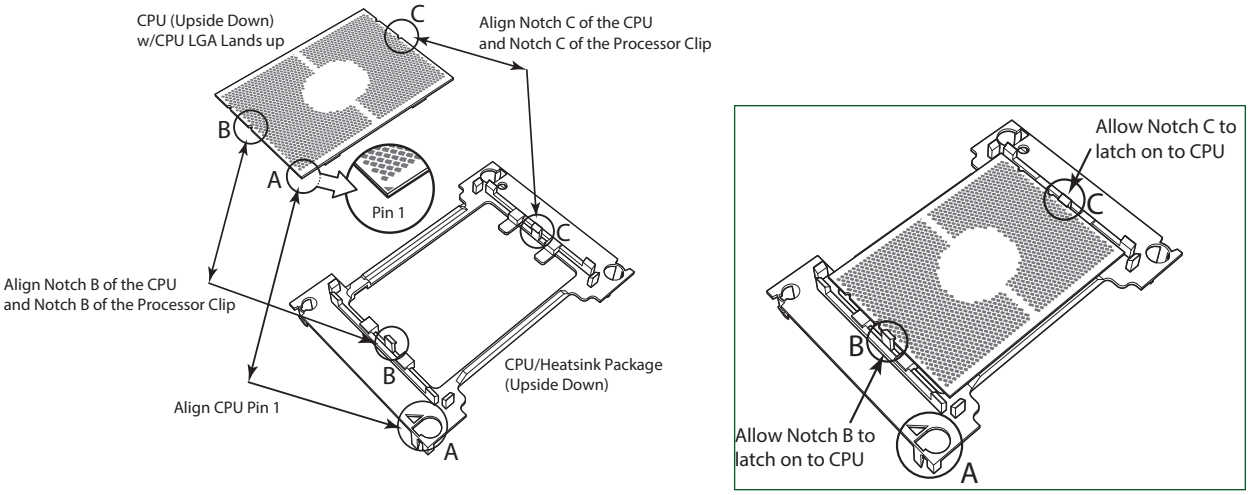


Figure 3-3. Processor Package Assembly for the non-F Model Processors (with CPU mounted on the Processor Clip)

Preparing the CPU Socket for Installation

This motherboard comes with the CPU socket assembled in the factory. It includes a dust cover, a socket bracket, the CPU socket (Dual Socket P (LGA 3647)), and a back plate.

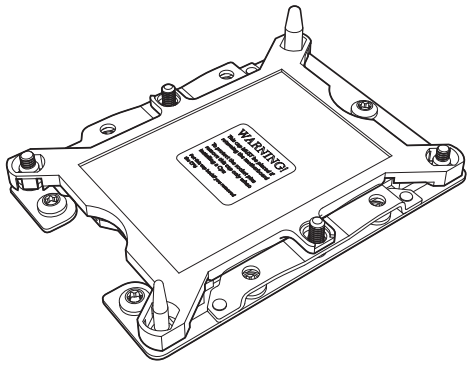


Figure 3-4. CPU Socket with Dust Cover On

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.

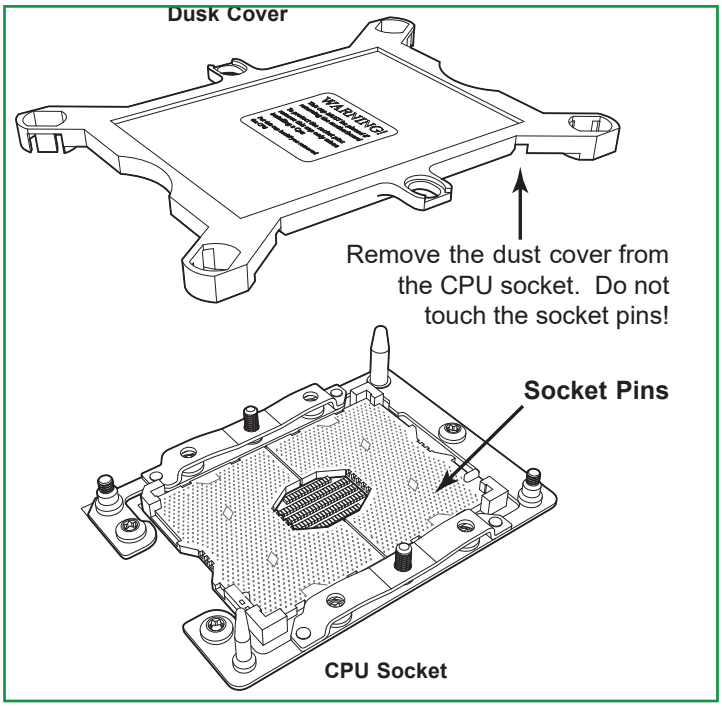


Figure 3-5. Removing the Socket Dust Cover

Installing the Processor Heatsink Module (PHM)

Note: For CPU1, install the SNK-P0068PS heatsink with the side with short fins facing the power supply modules.

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.

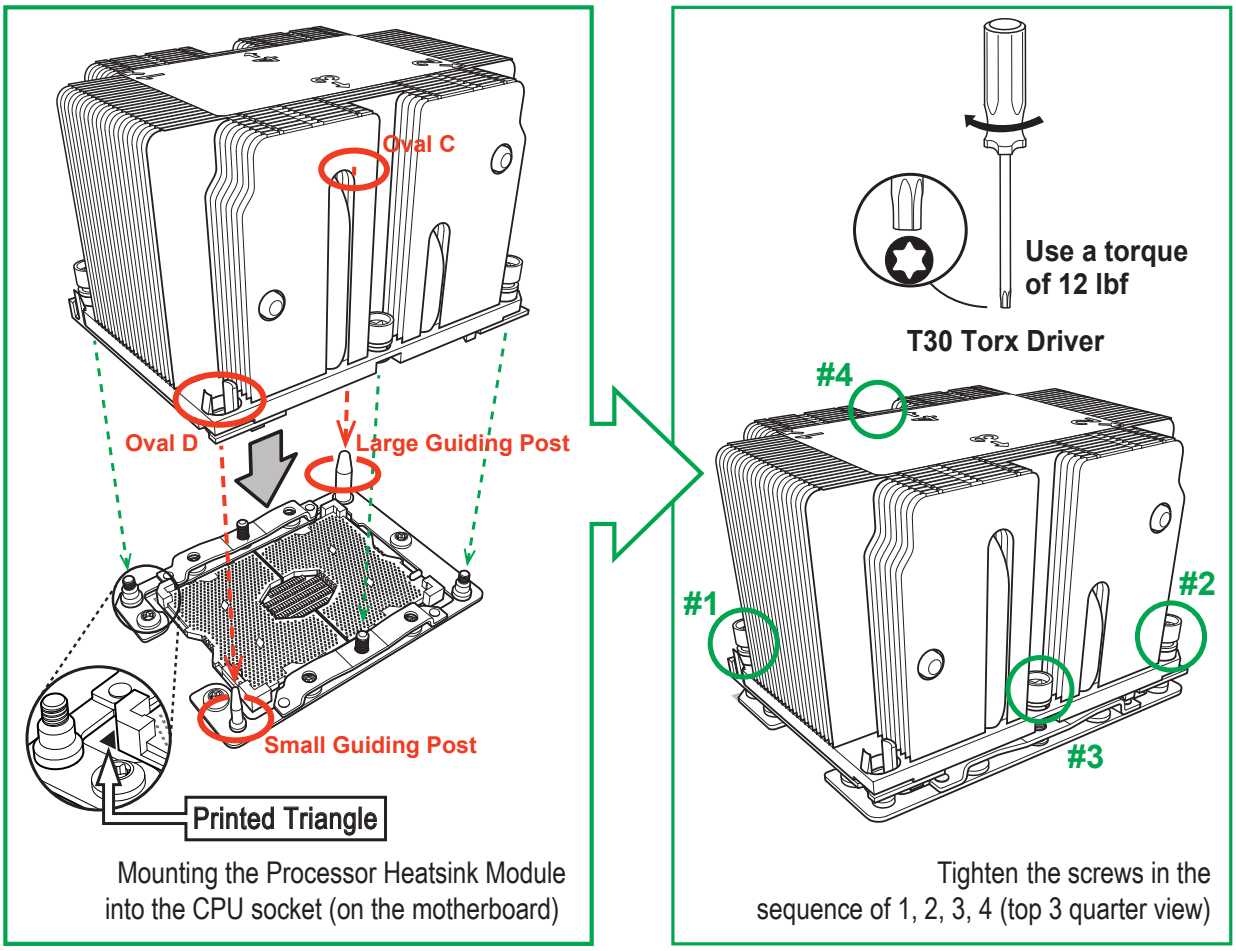


Figure 3-6. Installing the Processor Heatsink Module

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.

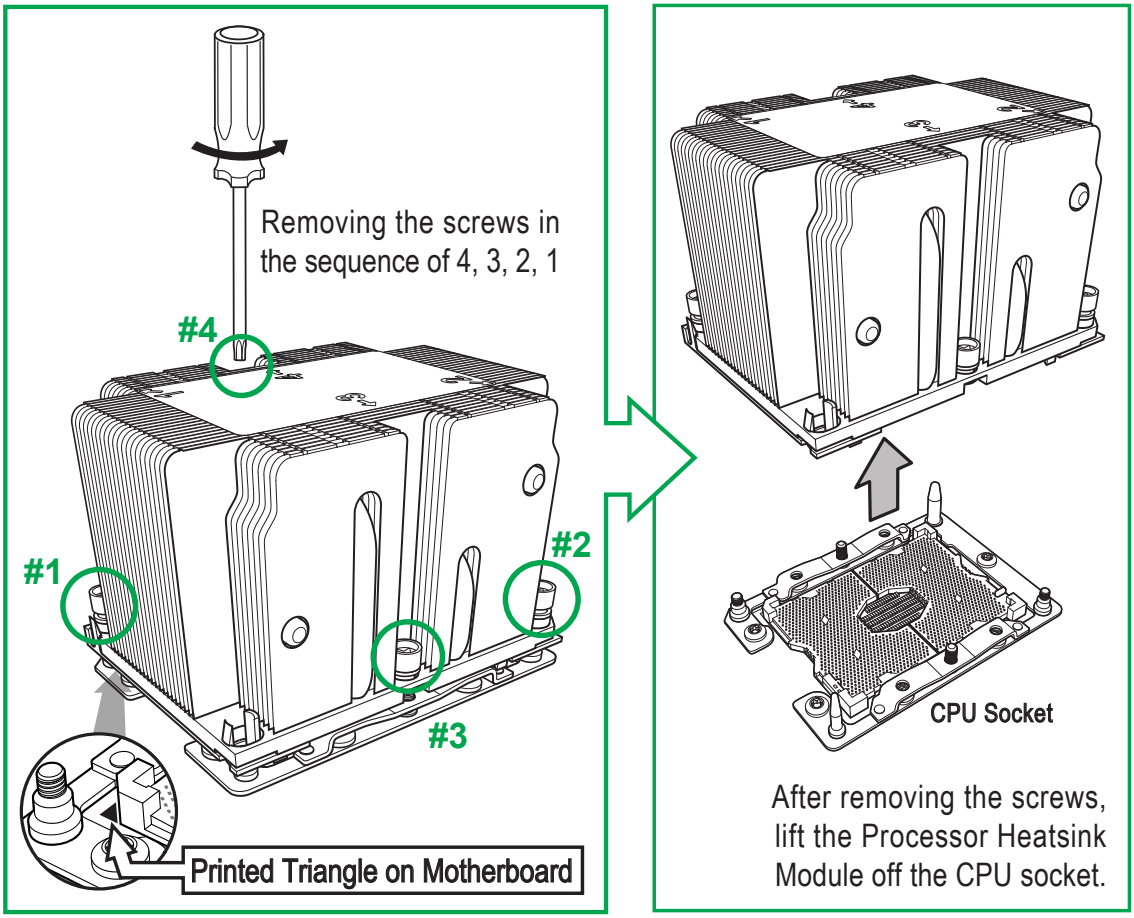


Figure 3-7. Removing the Processor Heatsink Module

Removing a Heatsink

We do not recommend removing the heatsink. If necessary, please follow the instructions below to prevent damage to the CPU or the CPU socket.

1. Unscrew and remove the heatsink screws from the motherboard in the sequence as show in the figure above.
2. Hold and gently pivot the heatsink back and forth to loosen it from the CPU. (Do not use excessive force when dislodging the heatsink!)

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)

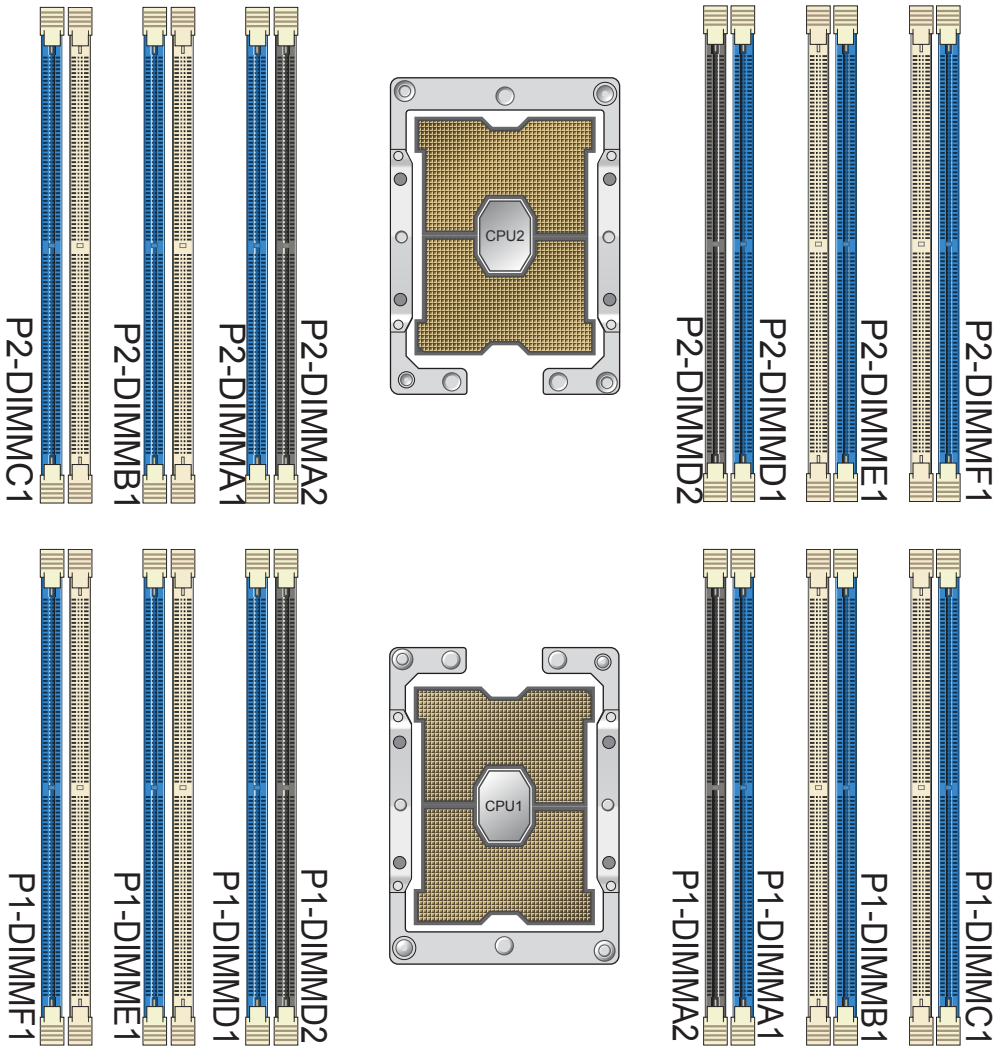
Memory Population Sequence

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.

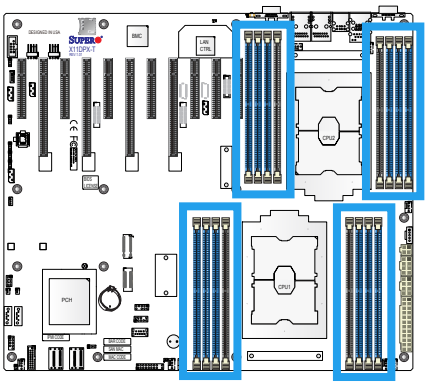
The following memory population sequence table was created based on guidelines provided by Intel to support Supermicro motherboards. The diagram is for illustrative purposes; your motherboard may look different.

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

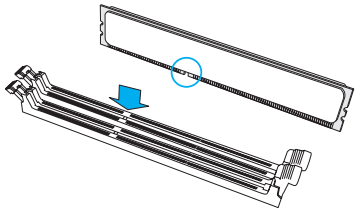
(diagram on next page)

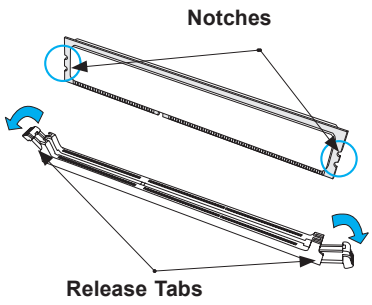

P2-DIMMF1
P2-DIMME1
P2-DIMMD1
P2-DIMMD2
CPU2
P2-DIMMA2
P2-DIMMA1
P2-DIMMB1
P2-DIMMC1
P1-DIMMC1
P1-DIMMB1
P1-DIMMA1
P1-DIMMA2
CPU1
P1-DIMMD2
P1-DIMMD1
P1-DIMME1
P1-DIMMF1

DIMM Installation



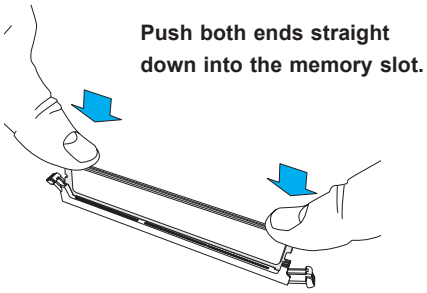
1. Insert the desired number of DIMMs into the memory slots, starting with P1-DIMM A1. For the system to work properly, please use memory modules of the same type and speed on the motherboard.
2. Push the release tabs outwards on both ends of the DIMM slot to unlock it.
3. Align the key of the DIMM module with the receptive point on the memory slot.
4. Align the notches on both ends of the module against the receptive points on the ends of the slot.
5. Use two thumbs together to push both ends of the module straight down into the slot until the module snaps into place.
6. Press the release tabs to the lock positions to secure the DIMM module into the slot.





DIMM Removal

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



Peripheral Drive Installation

The chassis includes a 5.25' bay for a variety of peripheral drive options, including a slim DVD drive or an additional hard disk drive. For a complete listing of peripheral drive options, visit the Supermicro website.

Installing or Replacing a Peripheral Drive

1. Power down the system and remove the cover.
2. Unplug the power and data cables from the serverboard and/or backplane.
3. **If you are adding a new drive:** Remove the dummy tray from the drive bay The minibezel can be removed by pulling out the hard drive beneath the drive bay, then pulling the mini-bezel forward.

   If you are replacing a drive: Locate the locking tab at the rear (left hand side when viewed from the front) of the peripheral drive. Push the tab toward the drive and push the drive unit out the front of the chassis.
4. Re-use the side rails or install the side rails onto the peripheral drive.
5. Insert the new drive unit in the slot until the tab locks in place.
6. Reconnect the data and power cables.
7. Replace the chassis cover and power up the system.

Installing Expansion Cards

The 6039P-TXRT system includes eleven slots for expansion cards. The serverboard must be installed before expansion cards.

Installing an Expansion Card for an LP Model Chassis

1. Power down the system and remove the cover.
2. Begin by removing the shield for the PCI slot you wish to populate. Make sure that the card you are installing is supported by the slot (see the table below).
3. In the rear of the chassis, remove the blank PCI shield that is pre-installed covering the expansion slot.
4. Slide the expansion card into the expansion slot on the serverboard while aligning it with the chassis slot in the rear of the chassis.

5. Secure the expansion card shield onto the rear of the chassis with a screw.

PCIe Slot	Processor Connection	Link Width	Slot Width	BIOS Setting
Slot1	CPU1	x8	x8 (open-ended)	Configure the option IOU0 (IIO PCIe Br1) in CPU1 Configuration.
Slot2	CPU1	x8 or x16	x16	
Slot3	CPU1	x8	x8 (open-ended)	
Slot4	CPU1	x16	x16	
Slot5	CPU2	x8	x8 (open-ended)	Configure the option IOU0 (IIO PCIe Br1) in CPU2 Configuration.
Slot6	CPU2	x8 or x16	x16	
Slot7	CPU1	x8	x8 (open-ended)	
Slot8	CPU2	x16	x16	
Slot9	CPU2	x8	x8 (open-ended)	
Slot10	CPU2	x8	x8 (open-ended)	
Slot11	CPU2	x4	x8	

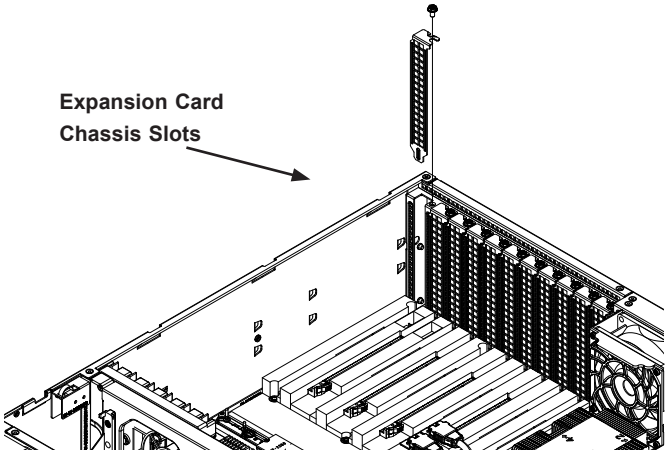


Figure 3-8. Removing a Blank PCI Shield

Motherboard Battery

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

Replacing the Battery

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

1. Push aside the small clamp that covers the edge of the battery. When the battery is released, lift it out of the holder.

2. To insert a new battery, slide one edge under the lip of the holder with the positive (+) side facing up. Then push the other side down until the clamp snaps over it.

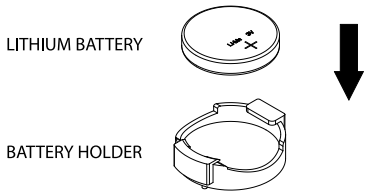


Figure 3-9. Installing the Onboard Battery

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.

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

3.4 Chassis Components

Hard Drives

Your server may or may not have come with hard drives installed. Up to eight 3.5" hard drives are supported by the chassis.

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

Removing a Hot-Swap Drive Carrier

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

Mounting a Drive in a Drive Carrier

1. To add a new drive, install it into the carrier with the printed circuit board side facing down so that the mounting holes align with those in the carrier.
2. Secure the drive to the carrier with the screws provided, then push the carrier completely into the drive bay. You should hear a *click* when the drive is fully inserted. This indicates that the carrier has been fully seated and connected to the midplane, which automatically makes the power and logic connections to the hard drive.

Removing a Drive from a Drive Carrier

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

Hard Drive Carrier Indicators

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

DVD-ROM Drive Installation

The 6039P-TXRT accommodates only slim DVD drives. Side mounting brackets are needed to install a slim DVD drive in the chassis.

Accessing a DVD-ROM Drive

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

1. Unplug the power and data cables from the drive.
2. Locate the locking tab at the rear of the drive. It will be on the left side of the drive when viewed from the front of the chassis.

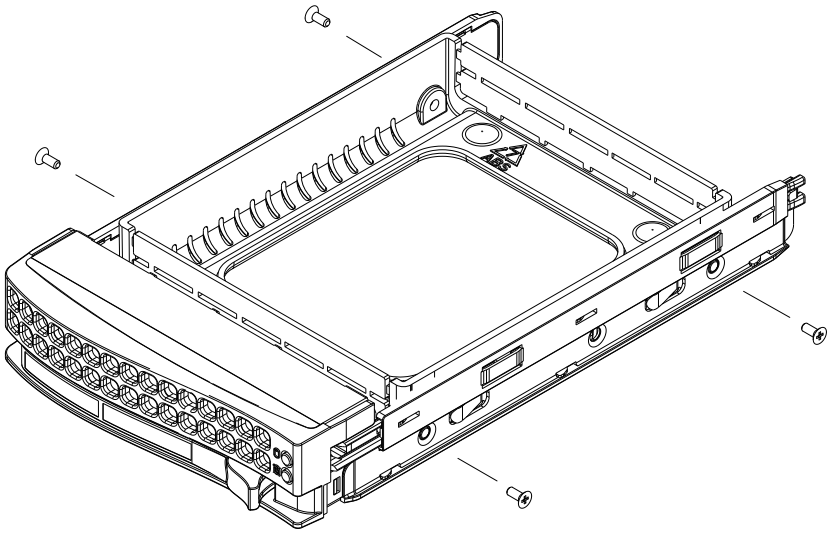


Figure 3-10. Installing a Hard Drive to a Carrier

3. Pull the tab away from the drive and push the drive unit out the front of the chassis.
4. Add a new drive by following this procedure in reverse order. You may hear the faint *click* of the locking tab when the drive is fully inserted.
5. Reconnect the data and power cables to the drive then replace the chassis cover and restore power to the system.

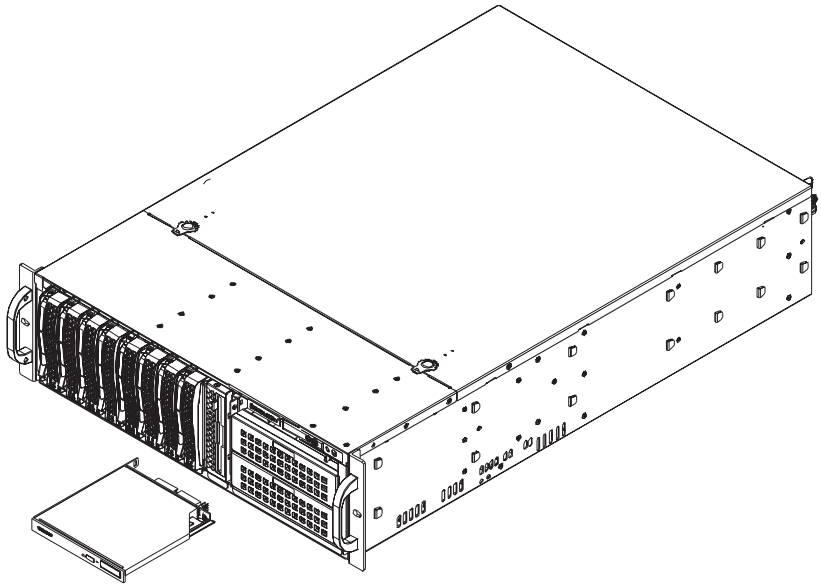


Figure 3-11. Installing the DVD-ROM Drive

System Fans

Three 8-cm hot-swap system fans and one exhaust fan provide the cooling for the system. It is very important that the chassis top cover is properly installed and making a good seal in order for the cooling air to circulate properly through the chassis and cool the components.

System Fan Failure

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

Replacing System Fans

Removing a Fan

System power does not need to be removed since the fans are hot-pluggable. Replace the failed fan with an identical 8-cm 12 volt fan (available from Supermicro).

1. Open the chassis and locate the faulty fan. Never run the server for an extended period of time with the chassis open.
2. Press the release tab on the fan and pull the fan upward.
3. Slide the new fan into the fan housing. Make sure the power connectors are correctly aligned. The new fan will immediately activate.

Installing the Rear Fan

The rear fans must be installed after the serverboard and air shroud setup.

Installing Rear System Fans

1. Confirm that the air shroud is correctly placed.
2. Slide the rear fan into the slot as illustrated. The fan release tab should be on the side closest to the power supply.
3. Make sure that the fan is secure in the fan housing and the housing is correctly connected to the power supply.

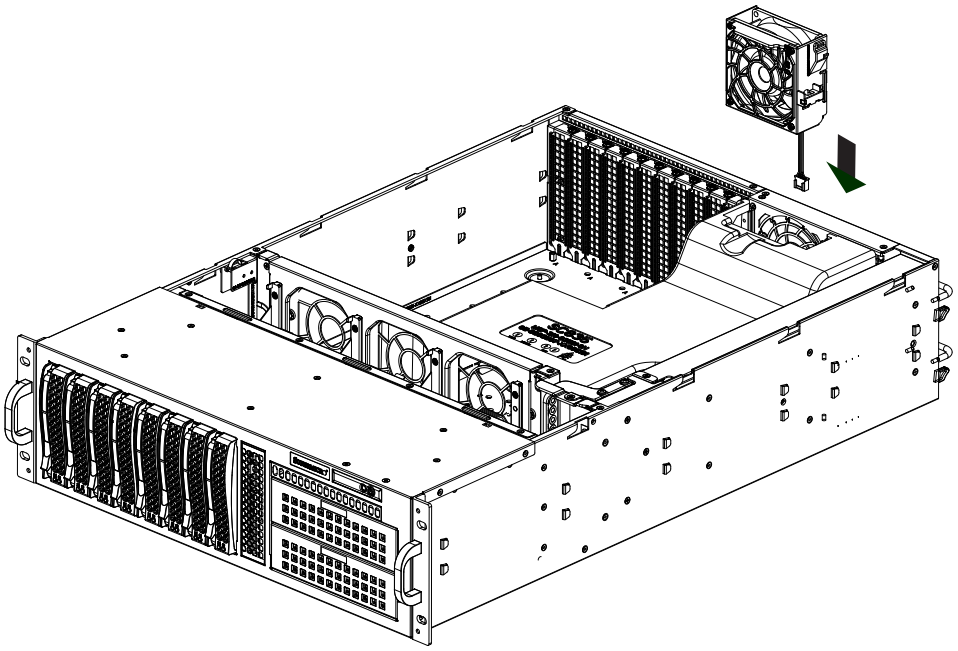


Figure 3-12. Replacing a Rear Fan

Air Shroud

The air shroud is used to concentrate airflow to maximize fan efficiency. The air shroud does not require screws to set up.

Installing the Air Shroud

1. Lay the chassis on a flat, stable surface and remove the chassis cover.
2. If necessary, move any cables that interfere with the air shroud placement.
3. Place the air shroud in the chassis. The air shroud fits just behind the three fans in the fan rack. Slide the air shroud into the grooves just behind the fan rack.
4. Reroute any cables that were moved and replace the chassis cover.

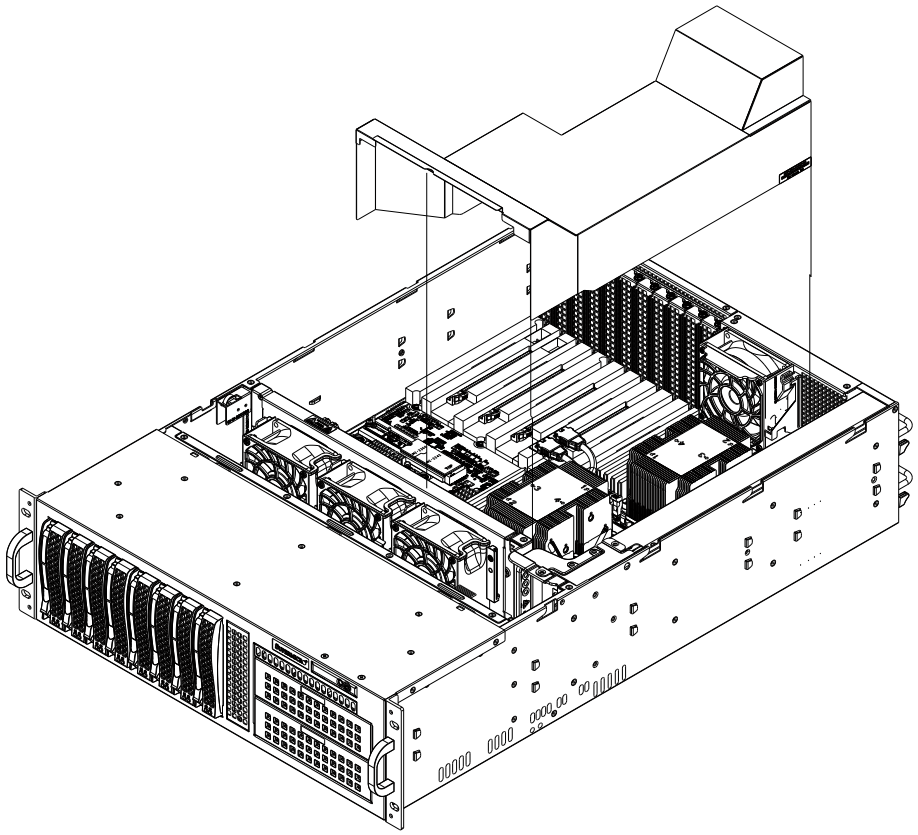


Figure 3-13. Installing the Air Shroud

Power Supply

The 6039P-TXRT has a 980W watt redundant power supply consisting of two power modules. Each power supply module has an auto-switching capability, which enables it to automatically sense and operate at a 100V - 240V input voltage.

Power Supply Failure

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

Replacing the Power Supply

You do not need to shut down the system to replace a power supply unit. The backup power supply module will keep the system up and running while you replace the failed hot-swap unit. Replace with the same model, which can be ordered directly from Supermicro.

Replacing the Power Supply

1. The chassis SC835XTQ-R982B includes a redundant power supply (at least two power modules), you can leave the server running if you remove only one power supply at a time.
2. Unplug the power supply that you will replace.
3. Push the release tab (on the back of the power supply) as illustrated.
4. Pull the power supply out using the handle provided.
5. Replace the failed power module with the same model.
6. Push the new power supply module into the power bay until you hear a click.
7. Plug the AC power cord back into the module and power up the server.

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 Appendix B before installing or removing components.

4.1 Power Connections

Four power connections on the X11DPX-T must be connected to the power supply. The wiring is included with the power supply.

- 24-pin ATX Power (JPWR1)
- 12V 8-pin Processor Power (JPWR2/JPWR3)
- 12V 4-pin Power Connector (JPWR4)

Main ATX Power Supply Connector

The primary power supply connector (JPWR1) meets the ATX SSI EPS 24-pin specification. You must also connect the 8-pin (JPWR2/JPWR3) and 4-pin (JPWR4) CPU power connectors to your power supply.

Warning: To provide adequate power to your system and to avoid damaging the power supply or the motherboard, be sure to connect all power connectors mentioned above to the power supply. Failure in doing so may void the manufacturer warranty on your power supply and motherboard.

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

12V 8-pin PWR Connector Pin Definitions

Pins	Definition
1-4	Ground
5-8	+12V

12V 4-pin PWR Connector Pin Definitions

Pins	Definition
1-2	Ground
3-4	+12V

4.2 Headers and Connectors

Fan Headers

There are ten 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 monitored and controlled by BMC. Use 4-pin fan headers for fan speed control support.

Fan Header Pin Definitions

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

Internal Speaker/Buzzer

The Internal Speaker/Buzzer (SP1) is used to provide audible indications for various beep codes. See the table below for pin definitions.

Internal Buzzer Pin Definitions

Pin#	Definition	
1	Pos (+)	Beep In
2	Neg (-)	Alarm Speaker

Host Fabric Interface (HFI) Carrier Card Sideband Headers (for the F Model CPU Only)

Two Host Fabric Interface (HFI) carrier card headers are located at JHFI1/JHFI2 on the motherboard. The JHFI headers are used when the F model processor is installed on the CPU socket on the motherboard. Use an HFI sideband cable to connect the carrier card to the JHFI headers, and use an appropriate IFP (Internal-Faceplate-to-Processor) cable (optional) to connect the carrier card to the F model processor to enhance system performance (See Note below). See page 34 for the installation instructions. Please note that in a dual-processor system, JHFI1 is used for CPU1, and JHFI2 is for CPU2. Refer to the table below for the pin-out descriptions.

Note: For the HFI carrier card to function properly, please purchase the appropriate IFP cable from Supermicro. Please refer to Supermicro's website at www.supermicro.com for the part number of the IFP cable specified for your system.

HFI Carrier Card Sideband Header Pin Definitions

Pin#	Definition	Pin#	Definition
1	Ground	2	SMB_HFI_0_SCL
3	HFI0_MODPRST_N	4	SMB_HFI_0_SDA
5	LED_HFI0_N	6	HFI0_RESET_N
7	Ground	8	HFI0_INT_N
9	Ground	10	SMB_HFI_1_SCL
11	HFI1_MODPRST_N	12	SMB_HFI_1_SDA
13	LED_HFI1_N	14	HFI1_RESET_N
15	Ground	16	HFI1_INT_N
17	Reserved	18	P3V3
19	P2V5_PWRGD	20	P3V3
21	P2V5	22	PCIe_SMBCLK
23	Ground	24	PCIe_SMBDAT

S-SGPIO Header

A Serial General Purpose Input/Output header (S-SGPIO) is located on the motherboard. This header is used to communicate with the enclosure management chip on the backplane. See the table below for pin definitions.

SGPIO Header Pin Definitions

Pin#	Definition	Pin#	Definition
1	NC	2	NC
3	Ground	4	DATA Out
5	Load	6	Ground
7	Clock	8	NC

NC = No Connection

Disk-On-Module Power Connector

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

DOM Power Pin Definitions

Pin#	Definition
1	5V
2	Ground
3	Ground

TPM Header

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

Trusted Platform Module/Port 80 Header Pin Definitions

Pin#	Definition	Pin#	Definition
1	P3V3	2	SPI_TPM_CS_N
3	PCIE_RESET_N#	4	SPI_PCH_MISO
5	SPI_PCH_CLK#	6	Ground
7	SPI_PCH_MOSI	8	N/A
9	JTPM1_P3V3A	10	IRQ_TPM_SPIN_N

Chassis Intrusion

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

Chassis Intrusion Pin Definitions

Pins	Definition
1	Intrusion Input
2	Ground

4-pin BMC External I²C Header

A System Management Bus header for IPMI 2.0 is located at JIPMB1. Connect a cable to this header to use the IPMB I²C connection on your system. See the table below for pin definitions.

External I²C Header Pin Definitions

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

Power SMB (I²C) Header

Power System Management Bus (I²C) header at JPI²C1 monitors the power supply input/ output voltages, fans, temperatures, and status. Refer to the table below for pin definitions.

Power SMB Header Pin Definitions

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

I-SATA 3.0 and S-SATA 3.0 Ports

The X11DPX-T has eight I-SATA 3.0 ports (I-SATA0~3, I-SATA4~7) which are supported by the Intel® C621 chipset. In addition, it also has two S-SATA 3.0 ports (S-SATA0/ S-SATA1) that are supported by the Intel SCU. S-SATA0/1 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.

SATA 3.0 Port Pin Definitions

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

RAID Key Header

A RAID_Key header is located at JRK1 on the motherboard. RAID key is used to support the NVMe SSD. Please refer to the table below for the location.

RAID Key Header Pin Definitions

Pin#	Definition
1	Ground
2	RAID_KEY_PU
3	Ground
4	PCH_RAID_KEY

NVMe SMBus Headers

NVMe SMBus (I^2C) headers ($JNVI^2C1$/$JNVI^2C2$), used for PCI-E SMBus clock and data connections, provide hot-plug support via a dedicated SMBus interface. This feature is only available for a Supermicro complete system with an SMCI-proprietary NVMe add-on card and cable installed. Also, $JNVI^2C1$ and $JNVI^2C2$ are VPP headers for NVMe add-on cards. See the table below for pin definitions.

NVMe SMBus Header Pin Definitions

Pin#	Definition
1	Data
2	Ground
3	Clock
4	VCCIO

Standby Power

The standby power header is located at JSTBY1 on the motherboard. Refer to the table below for pin definitions.

Standby Power Pin Definitions

Pin#	Definition
1	+5V Standby
2	Ground
3	No Connection

PCI-E M.2 Slot

The motherboard has one PCI-E M.2 slot. The M.2, formerly known as Next Generation Form Factor (NGFF) replaces a mini PCI-E slot. The M.2 allows for a variety of card sizes and offers 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 2260, 2280 and 22110 form factors.

NC-SI Header for IPMI Support

A Network-Controller Sideband Interface (NC-SI) header is located at JNCSI1 on the motherboard. Connect an appropriate cable from this header to an add-on card to provide the out-of-band (sideband) connection between the onboard Baseboard Management Controller (BMC) and a Network Interface Controller (NIC) for remote management. For the network sideband interface to work properly, you will need to use a NIC add-on card that supports NC-SI and also need to have a special cable. Please contact Supermicro at www.supermicro.com to purchase the cable for this header. Refer to the table below for pin definitions.

NC-SI Header for IPMI Support Pin Definitions

Pin#	Definition	Pin#	Definition
1	CLK_50MHz	2	Ground
3	NCSI_CRS_DV	4	Ground
5	NCSI_RXD0	6	Ground
7	NCSI_RXD1	8	Ground
9	NCSI_TXD0	10	Ground
11	NCSI_TXD1	12	Ground
13	NCSI_TX_EX	14	NCSI_PRESENT_N
15	NC	16	NC
17	5V STBY	18	5V STBY
19	5V STBY	20	5V STBY
21	5V STBY	22	NC

Inlet Sensor Header

This header (JSEN1) allows BMC to monitor thermal inlet temperature. A special module is required. Please contact Supermicro at www.supermicro.com to purchase the module for this header. Refer to the table below for pin definitions.

Inlet Sensor Header Pin Definitions

Pin#	Definition
1	SMBDAT
2	Ground
3	SMBCLK
4	3.3V STBY

HFI Debug Port for Fabric CPU (JTAG_HFI1)

This connector (JTAG_HFI1) is the JTAG port and provides miscellaneous signals connectivity requirements of the Fabric CPU debug port. Refer to the table below for pin definitions.

HFI Debug Port for Fabric CPU Pin Definitions

Pin#	Definition	Pin#	Definition
1	CD_TCK	2	Ground
3	CD_TDO	4	VCCH
5	CD_TMS	6	CD_TRST_N
7	CPU_PWRGD	8	NC
9	CD_TDI	10	Ground

Control Panel

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

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

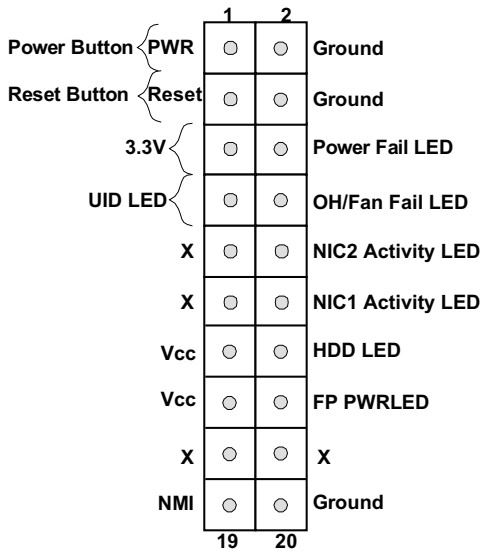


Figure 4-1. JF1: Control Panel Pins

NMI Button

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

NMI Button Pin Definitions (JF1)	
Pin#	**Definition**
19	NMI
20	Ground

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)	
Pin#	**Definition**
15	Vcc
16	FP PWR LED

HDD LED

The HDD LED connection is located on pins 13 and 14 of JF1. Attach a cable here to indicate the status of HDD-related activities, including IDE, SATA activities. See the table below for pin definitions.

HDD LED Pin Definitions (JF1)	
Pin#	**Definition**
13	Vcc
14	HDD LED

NIC1/NIC2 (LAN1/LAN2)

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

LAN1/LAN2 LED Pin Definitions (JF1)	
Pin#	**Definition**
10	NIC2 Activity LED
12	NIC1 Activity LED

UID/Overheat (OH)/Fan Fail

Connect an LED cable to UID/OH/Fan Fail connections on pins 7 and 8 of JF1 to provide front UID LED indication and warnings for chassis overheat/fan failure. Refer to the table below for pin definitions.

UID/Overheat (OH)/Fan Fail Pin Definitions (JF1)	
Pin#	**Definition**
7	Front UID LED
8	OH/Fan Fail LED

Power Fail LED

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

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

Reset Button

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

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

Power Button

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

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

4.3 Ports

Rear I/O Ports

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

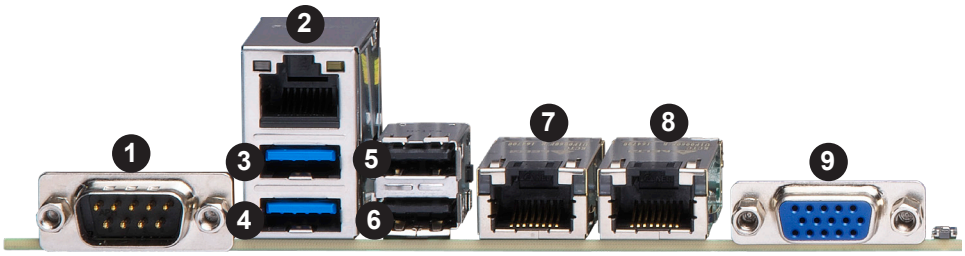


Figure 4-2. Rear I/O Ports

Rear I/O Ports			
#	**Description**	**#**	**Description**
1.	COM Port 1	6.	USB Port 1
2.	Dedicated IPMI LAN	7.	LAN Port 1
3.	USB 3.0 Port 4	8.	LAN Port 2
4.	USB 3.0 Port 5	9.	VGA Port
5.	USB 2.0 Port 0		

VGA Port

One VGA port is located next to LAN Port 2 on the I/O back panel. Use this connection for VGA display.

Serial Port

There is one COM port (COM1) on the I/O back panel and one COM header (COM2) on the motherboard. The COM1/COM2 provide serial communication support. See the table below for pin definitions.

COM Port Pin Definitions			
Pin#	**Definition**	**Pin#**	**Definition**
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	Ground	10	N/A

LAN Ports

Two LAN ports (LAN1, LAN2) are located on the I/O back panel. These ports accept RJ45 type cables.

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

Universal Serial Bus (USB) Ports

There are two USB 3.0 ports (USB 4/5) located on the I/O back panel. The motherboard also has a front access USB 3.0 header that supports two USB connections (USB 6/7). A USB Type A header, USB 8, provides also USB 3.0 support. The onboard headers can be used to provide front side USB access with a cable (not included).

Back Panel USB4/5 (3.0) Pin Definitions			
Pin#	**Definition**	**Pin#**	**Definition**
1	VBUS	10	Power
2	D-	11	USB 2.0 Differential Pair
3	D+	12	
4	Ground	13	Ground of PWR Return
5	StdA_SSRX-	14	SuperSpeed Receiver
6	StdA_SSRX+	15	Differential Pair
7	GND_DRAIN	16	Ground for Signal Return
8	StdA_SSTX-	17	SuperSpeed Transmitter
9	StdA_SSTX+	18	Differential Pair

Front Panel USB6/7 3.0 Header Pin Definitions			
Pin#	**Definition**	**Pin#**	**Definition**
1	VBUS	19	Power
2	Stda_SSRX-	18	USB3_RN
3	Stda_SSRX+	17	USB3_RP
4	Ground	16	Ground
5	Stda_SSTX-	15	USB3_TN
6	Stda_SSTX+	14	USB3_TP
7	Ground	13	Ground
8	D-	12	USB_N
9	D+	11	USB_P
10		x	

Type A USB8 (3.0) Pin Definitions			
Pin#	**Definition**	**Pin#**	**Definition**
1	VBUS	5	SSRX-
2	USB_N	6	SSRX+
3	USB_P	7	Ground
4	Ground	8	SSTX-
		9	SSTX+

Unit Identifier Switch/UID LED Indicator

A rear Unit Identifier (UID) switch (JUIDB1) and an rear LED Indicator (LED2) are located on the rear side of the system. The front UID LED is located on Pin 7 of the Front Control Panel (JF1). When you press the UID switch, both front and rear UID LED indicators will be turned on. Press the UID switch again to turn off the LEDs. The UID Indicators provide easy identification of a system unit that may be in need of service.

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

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

UID LED Pin Definitions	
Color	**Status**
Blue: On	Unit Identified

IPMI LAN Port

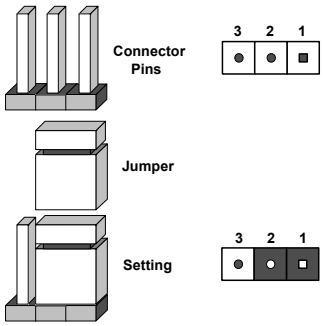
A dedicated IPMI LAN port that supports Gigabit LAN is located next to USB 0/1 ports on the back panel. This LAN port is supported by the onboard AST2500 BMC and accepts an RJ45 type cable. Refer to the LED Indicator Section for LAN LED information.

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.

Watch Dog

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

Note: When Watch Dog is enabled, 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

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. See the table below for jumper settings.

Manufacturing Mode Select Jumper Settings

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

VRM_I2C Jumper

Set this jumper (JVRM_SEL1) to Normal (Default) to allow BMC to access VRM controllers. Set this jumper to short pins 2-3 to have VRM code updated by PCH. See the table below for jumper settings.

VRM_I2C Jumper Settings

Jumper Setting	Definition
Pins 1-2	Normal (Default)
Pins 2-3	VRM Program

10Gb LAN1/2 Enable/Disable

JPTG1 allows you to enable or disable the 10Gb LAN1/2. The default setting is Enabled.

10Gb LAN Enable/Disable Jumper Settings

Jumper Setting	Definition
Pins 1-2	Enabled
Pins 2-3	Disabled

4.5 Onboard Indicators

LAN 1/2 LEDs

Two LAN ports (LAN 1/LAN 2) are located on the I/O back panel of the motherboard. Each Ethernet LAN port has two LEDs. The green LED indicates activity, while the other Link LED may be green, amber or off to indicate the speed of the connections. See the tables on the right for more information.

10G_LAN 1/10G_LAN 2 Link LED (Left) LED State	
LED Color	**Definition**
Off	10 Mbps, 100 Mbps or No Connection
Green	10 Gbps
Amber	1 Gbps

LAN 1/LAN 2 Activity LED (Right) LED State		
Color	**Status**	**Definition**
Off	Flashing	Active

Dedicated IPMI LAN LEDs

A dedicated IPMI LAN is located on the I/O back panel. The amber LED on the right indicates activity, while the other LED on the left indicates the speed of the connection. See the tables on the right for more information.

Dedicated IPMI LAN Link LED LED State (Left)	
LED Color	**Definition**
Off	10 Mbps, or No Connection
Green	100 Mbps
Amber	1 Gbps

Dedicated IPMI LAN Activity LED LED State (Right)		
Color	**Status**	**Definition**
Amber	Flashing	Active

Onboard Power LED

An Onboard Power LED is located at LED2 on the serverboard. 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. See the tables at right for more information.

Onboard PWR LED Indicator LED States	
Color/State	**Definition**
Off	System Off (PWR cable not connected)
Green: On	System Power On

BMC Heartbeat LED

A BMC Heartbeat LED is located at LEM1 on the serverboard. When this LED is blinking, BMC functions normally. See the table at right for more information.

BMC Heartbeat LED States	
Color/State	**Definition**
Green: Blinking	BMC: Normal

Chapter 5

Software

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

5.1 OS Installation

You must first configure RAID settings (if using RAID) before you install the Windows OS and the software drivers. To configure RAID settings, please refer to the RAID Configuration User Guides posted on our website at www.supermicro.com/support/manuals.

Installing the Windows OS for a RAID System

1. Insert Microsoft's Windows Setup DVD in the DVD drive and the system will start booting up from the DVD.
2. Insert the USB stick containing Windows drivers to a USB port on the system. **Note:** for older legacy OS's, please use a method to slipstream the drivers.
3. Select the partition on the drive in which to install Windows.
4. Browse the USB folder for the proper driver files.
5. Choose the RAID driver indicated in the Windows OS Setup screen, then choose the hard drive in which you want to install it.
6. Once all devices are specified, continue with the installation.
7. After the Windows OS installation is completed, the system will automatically reboot.

Installing Windows to a Non-RAID System

1. Insert Microsoft's Windows OS Setup DVD in the DVD-ROM drive and the system will start booting up from the DVD.
2. Continue with the installation. The Windows OS Setup screen will display.
3. From the Windows OS Setup screen, press the <Enter> key. The OS Setup will automatically load all device files and then continue with the Windows installation.
4. After the installation has completed, the system will automatically reboot.

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/.

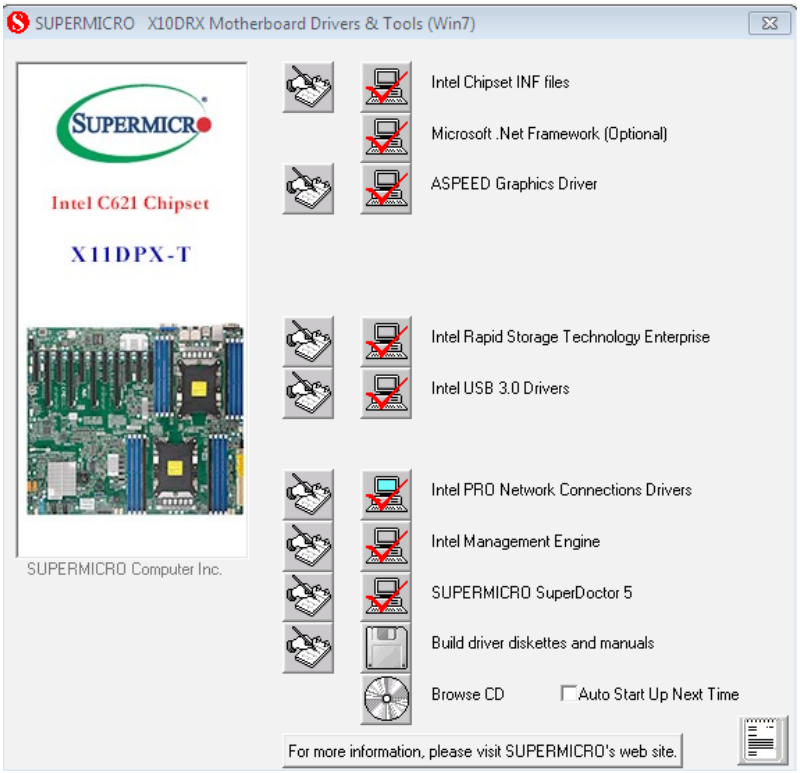


Figure 5-1. Driver & Tool Installation Screen

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

5.3 SuperDoctor® 5

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

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

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

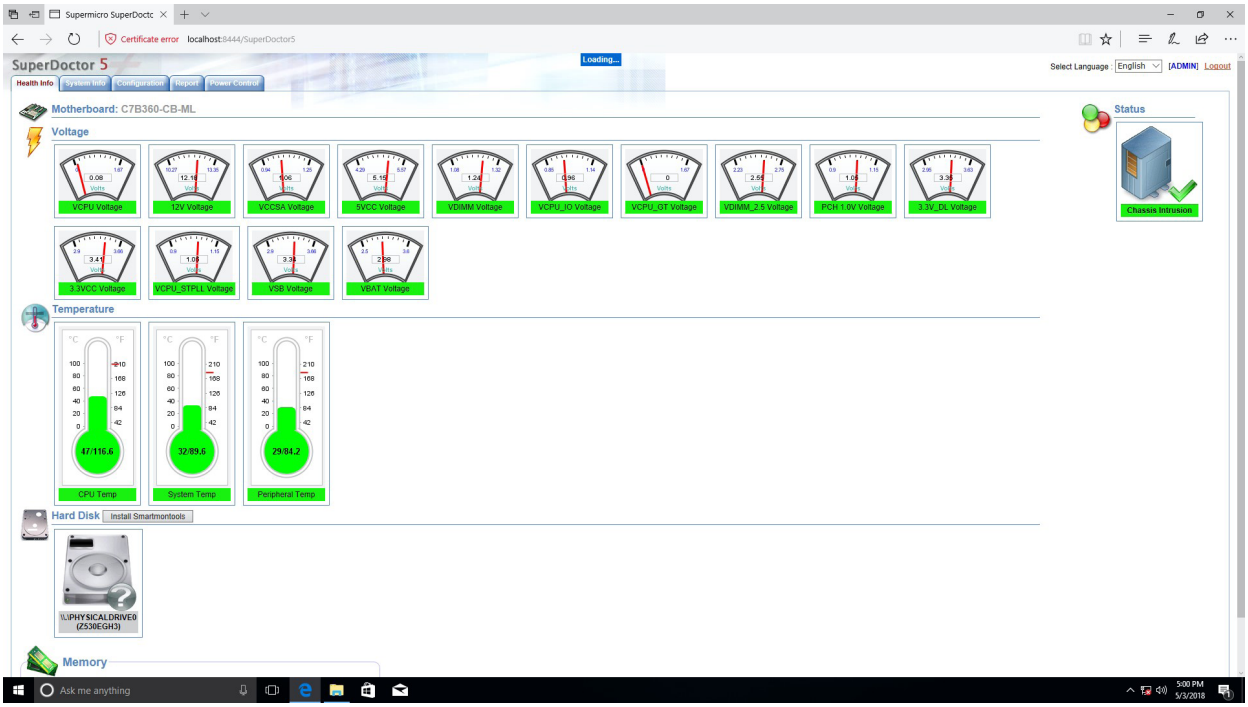


Figure 5-2. SuperDoctor 5 Interface Display Screen (Health Information)

5.4 IPMI

The X11DPX-T supports the Intelligent Platform Management Interface (IPMI). IPMI is used to provide remote access, monitoring and management. There are several BIOS settings that are related to IPMI.

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

Chapter 6

UEFI BIOS

6.1 Introduction

This chapter describes the AMIBIOS™ Setup utility for the X11DPX-T motherboard(s). The is stored in a flash chip and can be easily upgraded using a floppy disk-based program.

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

Starting the Setup Utility

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

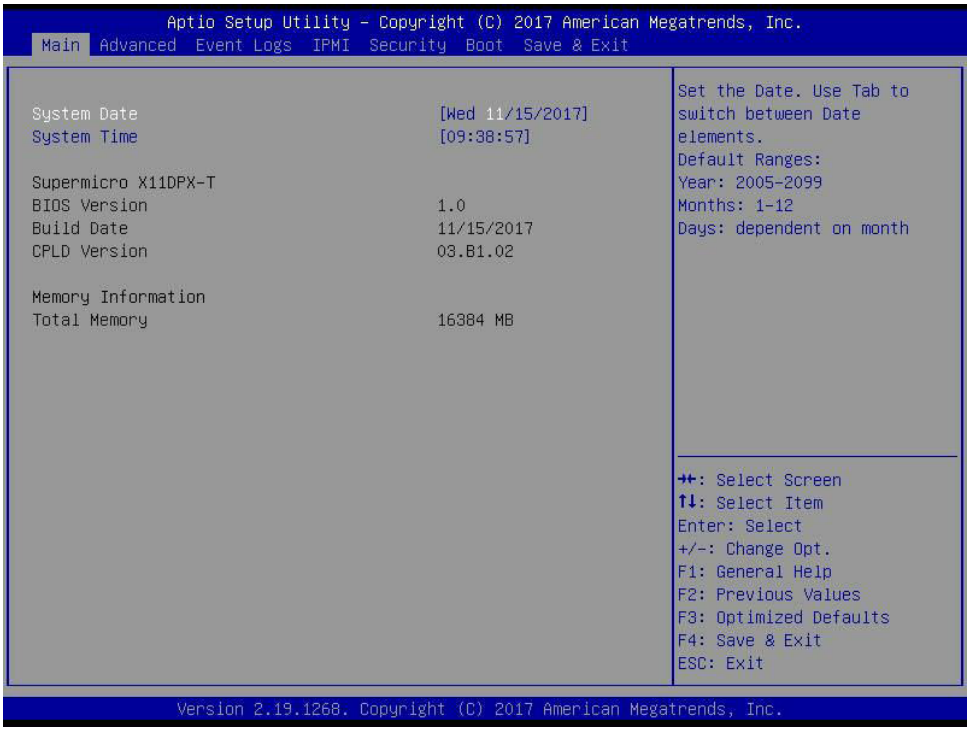
The Main BIOS screen has two main frames. The left frame displays all the options that can be configured. “Grayed-out” options cannot be configured. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is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

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

The BIOS setup utility uses a key-based navigation system called hot keys. Most of these hot keys (<F1>, <F10>, <Enter>, <ESC>, <Arrow> keys, etc.) can be used at any time during the setup navigation process.

6.2 Main 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 X11DPX-T

BIOS Version

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

Build Date

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

CPLD Version

This item displays the Complex Programmable Logic Device version.

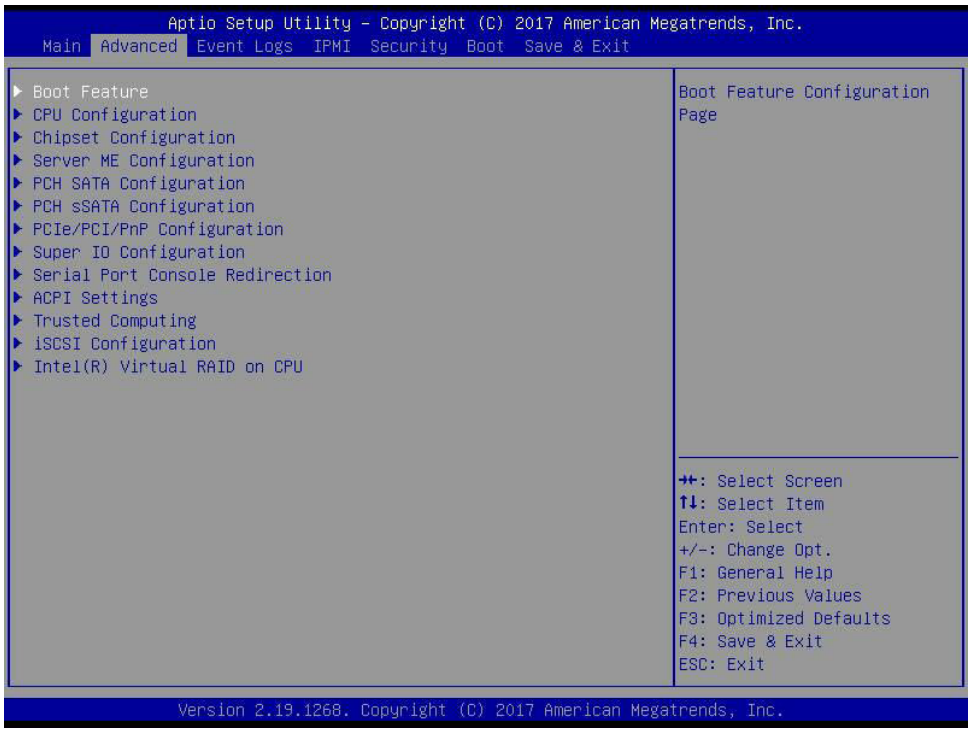
Memory Information

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 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.

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. 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.

Port 61h Bit-4 Emulation

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

Power Configuration

Watch Dog Function

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

Restore on AC Power Loss

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

Power Button Function

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

Throttle on Power Fail

Throttling improves reliability and reduces power consumption in the processor via automatic voltage control during processor idle states. Select Enabled to decrease the system power by throttling CPU frequency when one power supply is failed. The options are **Disabled** and Enabled.

▶CPU Configuration

This submenu displays the information of the CPU as detected by the BIOS. It also allows the user to configuration CPU settings:

- Processor BSP Revision
- Processor Socket
- Processor ID
- Processor Frequency
- Processor Max Ration
- Processor Min Ration
- 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 Enabled 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 Enable 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. (Please refer to Intel's website for more information.) The options are Disable and **Enable**.

Intel Virtualization Technology (Available when supported by the CPU)

Select Enable to use Intel® Virtualization Technology so that I/O device assignments will be reported directly to the VMM (Virtual Memory Management) through the DMAR ACPI Tables. This feature offers fully-protected I/O resource-sharing across the Intel® platforms, providing the user with greater reliability, security and availability in networking and data-sharing. The options are Disable and **Enable**.

Note: If a change is made to this setting, you will need to reboot the system for the change to take effect. Refer to Intel's website for detailed information.

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

Adjacent Cache Prefetch (Available when supported by the CPU)

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

DCU Streamer Prefetcher (Available when supported by the CPU)

Select Enabled to enable Intel® CPU Advanced Encryption Standard (AES) Instructions for CPU to enhance data integrity. The options are **Enable** and Disable.

DCU IP Prefetcher (Available when supported by the CPU)

If this feature is set to Enable, the DCU (Data Cache Unit) IP prefetcher will prefetch IP addresses in advance to improve network connectivity and system performance. The options are **Enable** and Disable.

LLC Prefetch

Select Enable to support the LLC prefetch on all threads. The options are **Disable** and Enable.

Extended APIC

Select Enable to use the extended APIC (Advanced Programmable Interrupt Control) support to enhance power management. The options are **Disable** and Enable.

AES-NI

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

▶Advanced Power Management Configuration

Power Technology

Use this item to enable power management features. The options are Disable, **Energy Efficient**, and Custom. Select Energy Efficient to support power-saving mode. Select Custom to customize system power settings. Select Disable to disable power-saving settings.

Power Performance Tuning (Available when Power Technology is set to Custom)

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

ENERGY_PERF_BIAS_CFG Mode (Available when Power Performance Tuning is set to BIOS Controls EPB)

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

▶CPU P State Control (Available when Power Technology is set to Custom)

SpeedStep (Pstates)

EIST (Enhanced Intel® SpeedStep™ Technology) allows the system to automatically adjust processor voltage and core frequency to reduce power consumption and heat dissipation. The options are Disable and **Enable**.

EIST PSD Function

This feature allows the user to change the P-State (Power-Performance State) coordination type. P-State is also known as "SpeedStep" for Intel® processors. Select HW_ALL to

change the P-State coordination type for all hardware components only. Select SW_ALL to change the P-State coordination type for all software installed in the system. Select SW_ANY to change the P-State coordination type for a particular software program specified by the user in the system. The options are **HW_ALL**, SW_ALL, and SW_ANY.

Turbo Mode (Available when Intel® EIST Technology is enabled)

Select Enable to use the Turbo Mode to boost system performance. The options are Disable and **Enable**.

▶Hardware PM State Control (Available when Power Technology is set to Custom)

Hardware P-States

This feature enables the hardware P-States support. The options are **Disable**, Native Mode, Out of Band Mode, and Native Mode with No Legacy Support.

▶CPU C State Control (Available when Power Technology is set to Custom)

Autonomous Core C-State

Use this feature to enable the autonomous core C-State control. The options are **Disable** and Enable.

CPU C6 report

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

Enhanced Halt State (C1E)

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

▶Package C State Control (Available when Power Technology is set to Custom)

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 (Available when Power Technology is set to Custom)

Software Controlled T-States

This feature enables the software controlled T-States support. The options are Disable and **Enable**

▶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 Configuration

The following information will be displayed:

- 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

Select **Topology Precedence** to degrade features if system options are in conflict. Select Feature Precedence to degrade topology if system options are in conflict. The options are **Topology Precedence** and Feature Precedence.

Link L0p Enable

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

Link L1 Enable

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

IO Directory Cache (IODC)

Use this feature to enable the IO Directory Cache (IODC) support. The options are Disable, **Auto**, Enable for Remote InvItoM Hybrid Push, InvItoM AllocFlow, Enable for Remote InvItoM Hybrid AllocNonAlloc, and Enable for Remote InvItoM and Remote WViLF.

SNC

Sub NUMA Clustering (SNC) is a feature that breaks up the Last Level Cache (LLC) into clusters based on address range. Each cluster is connected to a subset of the memory controller. Enabling SNC improves average latency and reduces memory access congestion to achieve higher performance. Select Auto for 1-cluster or 2-clusters depending on IMC interleave. Select Enable for Full SNC (2-clusters and 1-way IMC interleave). The options are **Disable**, Enable, and Auto.

XPT Prefetch

XPT Prefetch is a feature that speculatively makes a copy to the memory controller of a read request being sent to the LLC. If the read request maps to the local memory address and the recent memory reads are likely to miss the LLC, a speculative read is sent to the local memory controller. The options are Disable and **Enable**.

KTI Prefetch

KTI Prefetch is a feature that enables memory read to start early on a DDR bus, where the KTI Rx path will directly create a Memory Speculative Read command to the memory controller. The options are Disable and **Enable**.

Local/Remote Threshold

This feature allows the user to set the threshold for the Interrupt Request (IRQ) signal, which handles hardware interruptions. The options are Disable, **Auto**, Low, Medium, and High.

Stale AtoS

This feature optimizes A to S directory. When all snoop responses found in directory A are found to be Rspl, then all data is moved to directory S and is returned in S-state. The options are **Disable**, Enable, and Auto.

LLC Dead Line Alloc

Select Enable to optimally fill dead lines in LLC. Select Disable to never fill dead lines in LLC. The options are Disable, **Enable**, and Auto.

Isoc Mode

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

▶Memory Configuration

Integrated Memory Controller (iMC)

Enforce POR

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

Memory Frequency

Use this feature to set the maximum memory frequency for onboard memory modules. The options are **Auto**, 1866, 2000, 2133, 2200, 2400, 2600, and 2666.

Data Scrambling for NVMDIMM

Select Enable to enable data scrambling to enhance system performance and data integrity. The options are **Auto**, Disable, and Enable.

Data Scrambling for DDR4

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

tCCD_L Relaxation

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

Enable ADR

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

2X Refresh Options

Use this item to select the 2X refresh mode. The options are **Auto** and Enable.

Page Policy

This feature allows the user to determine the desired page mode for IMC. When Auto is selected, the memory controller will close or open pages based on the current operation. Closed policy closes that page after reading or writing. Adaptive is similar to open page policy, but can be dynamically modified. The options are **Auto**, Closed, and Adaptive..

IMC Interleaving

This feature allows the user to configure Integrated Memory Controller (IMC) Interleaving settings. The options are **Auto**, 1-way Interleave, and 2-way Interleave.

▶Memory Topology

The item displays the information of onboard memory modules as detected by the BIOS.

▶Memory RAS (Reliability_Availability_Serviceability) Configuration

Memory RAS Configuration Setup

Use this submenu to configure the following Memory RAS settings.

Static Virtual Lockstep Mode

Select Enable to support the static virtual lockstep mode. The options are **Disable** and Enable.

Mirror Mode

Use this item to select the mirror mode. The options are **Disable**, Mirror Mode 1LM, and Mirror Mode 2LM. If this item is set to Mirror Mode 1LM or Mirror Mode 2LM, the available memory capacity will be reduced by 50 percent.

UEFI ARM Mirror

Select Enable to support the UEFI-based address range mirroring with setup option. The options are **Disable** and Enable.

Memory Rank Sparing

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

If the item above "Memory Rank Sparing" is set to Enable, the following item, "Multi Rank Sparing", will be available:

Multi Rank Sparing

Use this feature to set the multiple rank sparing number. The default setting and the maximum is two ranks per channel. The options are One Rank and **Two Rank**.

Correctable Error Threshold

Use this item to enter the threshold value for correctable memory errors. The default setting is **10**.

SDDC Plus One

Single Device Data Correction (SDDC) allows data to be reconstructed when one of the memory devices fails on a DIMM. Use this feature to enable the SDDC support. The options are **Disable** and Enable.

ADDDC Sparing

Adaptive Double Device Data Correction (ADDDC) Sparing detects the predetermined threshold for correctable errors, 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, read-and-write will be performed every 16K cycles per cache line if there is no delay caused by internal processing. 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

IIO Configuration

EV DFX Features

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

▶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**.

▶CPU1 SLOT2 PCI-E 3.0 x16

Link Speed

Use this feature to select the link speed for the PCIe port. The options are **Auto**, Gen 1 (2.5 GT/s), Gen 2 (5 GT/s), and Gen 3 (8 GT/s).

PCI-E Port Link Status

PCI-E Port Link Max

PCI-E Port Link Speed

PCI-E Port Clocking

The options are Distinct and **Common**. If this item is set to Distinct, this component and the component at the opposite end of the Link are operating with separate reference clock sources. If this item is set to Common, this component and the component at the opposite end of the Link are operating with a common clock source.

PCI-E Port Max Payload Size

Select Auto for the system BIOS to automatically set the maximum payload value for a PCI-E device to enhance system performance. The options are 128B, 256B, and **Auto**.

▶CPU1 SLOT4 PCI-E 3.0 x16

Link Speed

Use this feature to select the link speed for the PCIe port. The options are **Auto**, Gen 1 (2.5 GT/s), Gen 2 (5 GT/s), and Gen 3 (8 GT/s).

PCI-E Port Link Status

PCI-E Port Link Max

PCI-E Port Link Speed

PCI-E Port Clocking

The options are Distinct and **Common**. If this item is set to Distinct, this component and the component at the opposite end of the Link are operating with separate reference clock sources. If this item is set to Common, this component and the component at the opposite end of the Link are operating with a common clock source.

PCI-E Port Max Payload Size

Select Auto for the system BIOS to automatically set the maximum payload value for a PCI-E device to enhance system performance. The options are 128B, 256B, and **Auto**.

▶CPU1 SLOT9 PCI-E 3.0 x16

Link Speed

Use this feature to select the link speed for the PCIe port. The options are **Auto**, Gen 1 (2.5 GT/s), Gen 2 (5 GT/s), and Gen 3 (8 GT/s).

PCI-E Port Link Status

PCI-E Port Link Max

PCI-E Port Link Speed

PCI-E Port Clocking

The options are Distinct and **Common**. If this item is set to Distinct, this component and the component at the opposite end of the Link are operating with separate reference clock sources. If this item is set to Common, this component and the component at the opposite end of the Link are operating with a common clock source.

PCI-E Port Max Payload Size

Select Auto for the system BIOS to automatically set the maximum payload value for a PCI-E device to enhance system performance. The options are 128B, 256B, and **Auto**.

▶CPU2 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**.

▶CPU2 SLOT6 PCI-E 3.0 x16

Link Speed

Use this feature to select the link speed for the PCIe port. The options are **Auto**, Gen 1 (2.5 GT/s), Gen 2 (5 GT/s), and Gen 3 (8 GT/s).

PCI-E Port Link Status

PCI-E Port Link Max

PCI-E Port Link Speed

PCI-E Port Clocking

The options are Distinct and **Common**. If this item is set to Distinct, this component and the component at the opposite end of the Link are operating with separate reference clock sources. If this item is set to Common, this component and the component at the opposite end of the Link are operating with a common clock source.

PCI-E Port Max Payload Size

Select Auto for the system BIOS to automatically set the maximum payload value for a PCI-E device to enhance system performance. The options are 128B, 256B, and **Auto**.

▶CPU2 SLOT8 PCI-E 3.0 x16

Link Speed

Use this feature to select the link speed for the PCIe port. The options are **Auto**, Gen 1 (2.5 GT/s), Gen 2 (5 GT/s), and Gen 3 (8 GT/s).

PCI-E Port Link Status

PCI-E Port Link Max

PCI-E Port Link Speed

PCI-E Port Clocking

The options are Distinct and **Common**. If this item is set to Distinct, this component and the component at the opposite end of the Link are operating with separate reference clock sources. If this item is set to Common, this component and the component at the opposite end of the Link are operating with a common clock source.

PCI-E Port Max Payload Size

Select Auto for the system BIOS to automatically set the maximum payload value for a PCI-E device to enhance system performance. The options are 128B, 256B, and **Auto**.

▶CPU2 SLOT10 PCI-E 3.0 x16

Link Speed

Use this feature to select the link speed for the PCIe port. The options are **Auto**, Gen 1 (2.5 GT/s), Gen 2 (5 GT/s), and Gen 3 (8 GT/s).

PCI-E Port Link Status

PCI-E Port Link Max

PCI-E Port Link Speed

PCI-E Port Clocking

The options are Distinct and **Common**. If this item is set to Distinct, this component and the component at the opposite end of the Link are operating with separate reference clock sources. If this item is set to Common, this component and the component at the opposite end of the Link are operating with a common clock source.

PCI-E Port Max Payload Size

Select Auto for the system BIOS to automatically set the maximum payload value for a PCI-E device to enhance system performance. The options are 128B, 256B, and **Auto**.

▶IOAT (Intel® IO Acceleration) Configuration

Disable TPH

Select Yes to deactivate TLP Processing Hint support. The options are **No** and Yes.

Prioritize TPH

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

If the item above is set to Enable, the following items will be available:

Interrupt Remapping

Select Enable for Interrupt Remapping support to enhance system performance. The options are **Enable** and Disable.

PassThrough DMA

Select Enable to use the Non-Isoch VT_D engine pass through DMA support. The options are **Enable** and Disable.

ATS

Select Enable to use the Non-Isoch VT_D engine ATS support. 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)

Select Enable for the Non-Iscoh VT-d engine to pass through DMA (Direct Memory Access) to enhance system performance. The options are **Enable** and Disable.

▶Intel® VMD technology

The Intel® Volume Management Device (VMD) is a host bridge to a secondary PCIe domain to provide more bus resources.

▶Intel® VMD for Volume Management Device on CPU1

VMD Config for PStack0

Intel® VMD for Volume Management Device

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

If the item above "Intel® VMD for Volume Management Device" is set to Enable, the following items will be displayed:

CPU1 SLOT2 PCI-E 3.0 x16 VMD (Available when the device is detected by the system)
Select Enable to use the Intel® Volume Management Device Technology for this device. The options are **Disable** and Enable.

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

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

VMD Config for PStack1

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

If the item above "Intel® VMD for Volume Management Device" is set to Enable, the following items will be displayed:

CPU1 SLOT4 PCI-E 3.0 x16 VMD (Available when the device is detected by the system)
Select Enable to use the Intel® Volume Management Device Technology for this device. The options are **Disable** and Enable.

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

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

VMD Config for PStack2

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

If the item above "Intel® VMD for Volume Management Device" is set to Enable, the following items will be displayed:

CPU1 SLOT9 PCI-E 3.0 x16 VMD (Available when the device is detected by the system)
Select Enable to use the Intel® Volume Management Device Technology for this device. The options are **Disable** and Enable.

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

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

▶Intel® VMD for Volume Management Device on CPU2

VMD Config for PStack0

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

If the item above "Intel® VMD for Volume Management Device" is set to Enable, the following items will be displayed:

CPU2 SLOT6 PCI-E 3.0 x16 VMD (Available when the device is detected by the system)
Select Enable to use the Intel® Volume Management Device Technology for this device. The options are **Disable** and Enable.

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

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

VMD Config for PStack1

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

If the item above "Intel® VMD for Volume Management Device" is set to Enable, the following items will be displayed:

CPU2 SLOT8 PCI-E 3.0 x16 VMD (Available when the device is detected by the system)
Select Enable to use the Intel® Volume Management Device Technology for this device. The options are **Disable** and Enable.

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

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

VMD Config for PStack2

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

If the item above "Intel® VMD for Volume Management Device" is set to Enable, the following items will be displayed:

CPU2 SLOT10 PCI-E 3.0 x16 VMD (Available when the device is detected by the system)

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

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

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

IIO-PCIE Express Global Options

PCI-E Completion Timeout Disable

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

▶South Bridge

The following South Bridge information will be displayed:

- USB Module Version
- USB Devices

Legacy USB Support

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

XHCI Hand-off

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

Port 60/64 Emulation

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

PCIE PLL SSC

Use this feature to enable PCI-E Phase-locked Loop (PLL) Spread Spectrum Clocking (SSC). The options are **Disable** and Enable.

Real USB Wake Up

Select Enabled to enable the wake-up function of the USB port. The options are Disabled and **Enabled**.

Front USB Wake Up

Select Enabled to enable the wake-up function of the front access USB port. The options are Disabled and **Enabled**.

Azalia

Select Enabled to enable support for Azalia High Definition Audio. The options are Disabled, Enabled, and **Auto**.

Azalia PME Enable

Select Enabled to enable power management capability of the Azalia controller. The options are **Disabled** and Enabled.

▶Server ME 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

▶PCH SATA Configuration

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

SATA HDD Unlock

Select Enable to unlock the HDD password. The options are Disable and **Enable**.

Aggressive Link Power Management

When this item is set to Enable, the SATA AHCI controller manages the power usage of the SATA link. The controller will put the link to a low power state when the I/O is inactive for an extended period of time, and the power state will return to normal when the I/O becomes active. The options are **Disable** and Enable.

If the item above "Configure SATA as" is set to AHCI, the following items will be displayed:

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

Hot Plug (SATA Port 0~ Port 7)

Select Enabled to enable a SATA port specified by the user. The options are Disable and **Enable**.

Spin Up Device (SATA Port 0~ Port 7)

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

SATA Device Type (SATA Port 0~ Port 7)

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.

If the item above "Configure SATA as" is set to RAID, the following items will be displayed:

SATA HDD Unlock

Select Enable to unlock the HDD password. The options are Disable and **Enable**.

Aggressive Link Power Management

When this item is set to Enable, the SATA Raid controller manages the power usage of the SATA link. The controller will put the link to a low power state when the I/O is inactive for an extended period of time, and the power state will return to normal when the I/O becomes active. The options are **Disable** and Enable.

SATA RSTe Boot Info

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

SATA RAID Option ROM/UEFI Driver

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

SATA Port 0~ 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

Hot Plug (SATA Port 0~ Port 7)

Select Enabled to enable a SATA port specified by the user. The options are Disable and **Enable**.

Spin Up Device (SATA Port 0~ Port 7)

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

SATA Device Type (SATA Port 0~ Port 7)

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.

▶PCH sSATA Configuration

sSATA Controller

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

Configure sSATA as

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

SATA HDD Unlock

Select Enable to unlock the HDD password. The options are Disable and **Enable**.

Aggressive Link Power Management

When this item is set to Enable, the SATA AHCI controller manages the power usage of the SATA link. The controller will put the link to a low power state when the I/O is inactive for an extended period of time, and the power state will return to normal when the I/O becomes active. The options are **Disable** and Enable.

If the item above "Configure sSATA as" is set to AHCI, the following items will be displayed:

sSATA Port 0~ Port 1

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

Hot Plug (sSATA Port 0~ Port 1)

Select Enabled to enable a SATA port specified by the user. The options are Disable and **Enable**.

Spin Up Device (sSATA Port 0~ Port 1)

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

sSATA Device Type (sSATA Port 0~ Port 1)

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.

If the item above "Configure SATA as" is set to RAID, the following items will be displayed:

SATA HDD Unlock

Select Enable to unlock the HDD password. The options are Disable and **Enable**.

Aggressive Link Power Management

When this item is set to Enable, the SATA Raid controller manages the power usage of the SATA link. The controller will put the link to a low power state when the I/O is inactive for an extended period of time, and the power state will return to normal when the I/O becomes active. The options are **Disable** and Enable.

sSATA RSTe Boot Info

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

sSATA RAID Option ROM/UEFI Driver

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

sSATA Port 0~ Port 1

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

Hot Plug (sSATA Port 0~ Port 1)

Select Enabled to enable a SATA port specified by the user. The options are Disable and **Enable**.

Spin Up Device (sSATA Port 0~ Port 1)

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

sSATA Device Type (sSATA Port 0~ Port 1)

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 be displayed:

- PCI Bus Driver Version

PCI Devices Common Settings:

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

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

SR-IOV Support

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

MMIO High Base

Use this item to select the base memory size according to memory-address mapping for the IO hub. The base memory size must be between 4032G to 4078G. The options are **56T**, 40T, 24T, 16T, 4T, and 1T.

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 1G, 4G, 16G, 64G, **256G**, and 1024G.

PCI PERR/SERR Support

Select Enabled to activate PCI Error and System Error report handling. The options are **Disabled** and Enabled.

Maximum Read Request

Select Auto to allow the system BIOS to automatically set the maximum read request size 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 feature to select the default value for the PCI MMIO (Memory-Mapped IO) base address. The options are 1G, 1.5G, 1.75G, **2G**, 2.25G, and 3G.

NVMe Firmware Source

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

VGA Priority

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

CPU1 SLOT1 PCI-E 3.0 x8 OPROM, CPU1 SLOT2 PCI-E 3.0 x16 OPROM, CPU1 SLOT3 PCI-E 3.0 x8 OPROM, CPU1 SLOT4 PCI-E 3.0 x16 OPROM, CPU2 SLOT5 PCI-E 3.0 x8 OPROM, CPU2 SLOT6 PCI-E 3.0 x16 OPROM, CPU2 SLOT7 PCI-E 3.0 x8 OPROM, CPU2 SLOT8 PCI-E 3.0 x16 OPROM, CPU2 SLOT9 PCI-E 3.0 x8 OPROM, CPU2 SLOT10 PCI-E 3.0 x8 OPROM, CPU2 SLOT11 PCI-E 3.0 x4(IN x8) OPROM

Select Disabled to deactivate the selected slot, Legacy to activate the slot in legacy mode, and EFI to activate the slot in EFI mode. The options are Disabled, **Legacy**, and EFI.

M.2-P OPROM

The options are Disabled, **Legacy**, and EFI. Select Disabled to deactivate the M.2 connector, Legacy to activate the slot in legacy mode, and EFI to activate the slot in EFI mode.

Onboard LAN1 Option ROM, Onboard LAN2 Option ROM

Use the two items to select the type of device installed in a LAN port specified by the user for system boot. The default setting for Onboard LAN1 Option ROM is **Legacy**, and the default setting for Onboard LAN2 Option ROM is **Disabled**.

Onboard Video Option ROM

Select Legacy to boot the system using a legacy video device installed on the motherboard. The options are Disabled, **Legacy**, and EFI.

▶Network Stack Configuration

Network Stack

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

If the item above "Network Stack" is set to Enabled, the following items will be displayed:

Ipv4 PXE Support

Select Enabled to enable Ipv4 PXE boot support. The options are Disabled and **Enabled**.

Ipv4 HTTP Support

Select Enabled to enable Ipv4 HTTP boot support. The options are **Disabled** and Enabled.

Ipv6 PXE Support

Select Enabled to enable Ipv6 PXE boot support. The options are Disabled and **Enabled**.

Ipv6 HTTP Support

Select Enabled to enable Ipv6 HTTP boot support. The options are **Disabled** and Enabled.

PXE boot wait time

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

Media detect count

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

▶Super IO Configuration

Super IO Configuration

The following Super IO information will be displayed:

- Super IO Chip AST2500

▶Serial Port 1 Configuration

Serial Port 1 Configuration

This submenu allows the user the configure settings of Serial Port 1.

Serial Port 1

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

Device Settings

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

Change Settings

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

▶Serial Port 2 Configuration

Serial Port 2 Configuration

This submenu allows the user the configure settings of Serial Port 2.

Serial Port 2

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

Device Settings

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

Change Settings

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

Serial Port 2 Attribute (Available for Serial Port 2 only)

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

▶Serial Port Console Redirection

COM1

Console Redirection

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

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

▶Console Redirection Settings

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

COM1

Console Redirection Settings

Terminal Type

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

Bits Per second

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

Data Bits

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

Parity

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

Stop Bits

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

Flow Control

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

VT-UTF8 Combo Key Support

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

Recorder Mode

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

Resolution 100x31

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

Legacy OS Redirection Resolution

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

Putty KeyPad

This feature selects the settings for the function keys and the key pad 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 this feature is set to BootLoader, legacy console redirection is disabled before booting the OS. When this feature is set to Always Enable, legacy console redirection remains enabled when booting the OS. The options are **Always Enable** and BootLoader.

SOL/COM2

Console Redirection

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

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

▶Console Redirection Settings

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

SOL/COM2

Console Redirection Settings

Terminal Type

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

Bits Per second

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

Data Bits

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

Parity

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

Stop Bits

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

Flow Control

Use this feature to set the flow control for Console Redirection to prevent data loss caused by buffer overflow. Send a "Stop" signal to stop sending data when the receiving buffer

is full. Send a "Start" signal to start sending data when the receiving buffer is empty. The options are **None** and Hardware RTS/CTS.

VT-UTF8 Combo Key Support

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

Recorder Mode

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

Resolution 100x31

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

Legacy OS Redirection Resolution

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

Putty KeyPad

This feature selects the settings for the function keys and the key pad 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 this feature is set to BootLoader, legacy console redirection is disabled before booting the OS. When this feature is set to Always Enable, legacy console redirection remains enabled when booting the OS. The options are **Always Enable** and BootLoader.

Legacy Console Redirection

Legacy Serial Redirection Port

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

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

The submenu allows the user to configure Console Redirection settings to support Out-of-Band Serial Port management.

Console Redirection

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

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

▶Console Redirection Settings

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

Out-of-Band Management Port

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

Terminal Type

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

Bits Per second

This item sets the transmission speed for a serial port used in Console Redirection. Make sure that the same speed is used in both 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 data-sending when the receiving buffer is full. Send a "Start" signal to start data-sending when the receiving buffer is empty. The options are **None**, Hardware RTS/CTS, and Software Xon/Xoff.

The settings below are displayed:

Data Bits, Parity, Stop Bits

▶ACPI Settings

NUMA (Available when the OS supports this feature)

Select Enabled to enable Non-Uniform Memory Access support to enhance system performance. The options are Disabled and **Enabled**.

WHEA Support

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

High Precision Event Timer

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

ACPI Sleep State

This feature selects the ACPI Sleep State that the system will enter into when the suspend button is activated. The options are Suspend Disabled and **S3 (Suspend to RAM)**.

▶Trusted Computing (Available when a TPM device is installed and detected by the BIOS)

Security Device Support

If a Trusted Platform Module (TPM) device is connected to the TPM header (JTPM1) on the motherboard and this feature is set to Enable, onboard security devices will be available for the TPM support to enhance data integrity and network security. Please reboot the system for a change on this setting to take effect. The options are Disable and **Enable**.

If the item above is set to Enable, the following items will become available for user's configuration:

The following Platform Configuration Register information will be displayed:

- **Active PCR banks**
- **Available PCR banks**

SHA256 PCR Bank

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

Pending operation

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

Platform Hierarchy

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

Storage Hierarchy

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

Endorsement Hierarchy

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

PH Randomization

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

SMC BIOS -Based TPM Provision Support

Use this feature to enable TPM Provision Support. Enabling this feature will lock your TPM. Once locked, the NV indexes will not be able to be deleted. The options are **Disabled** and Enabled.

TXT Support

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

▶iSCSi Configuration

iSCSI Initiator Name

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

▶Add an Attempt

▶Delete Attempts

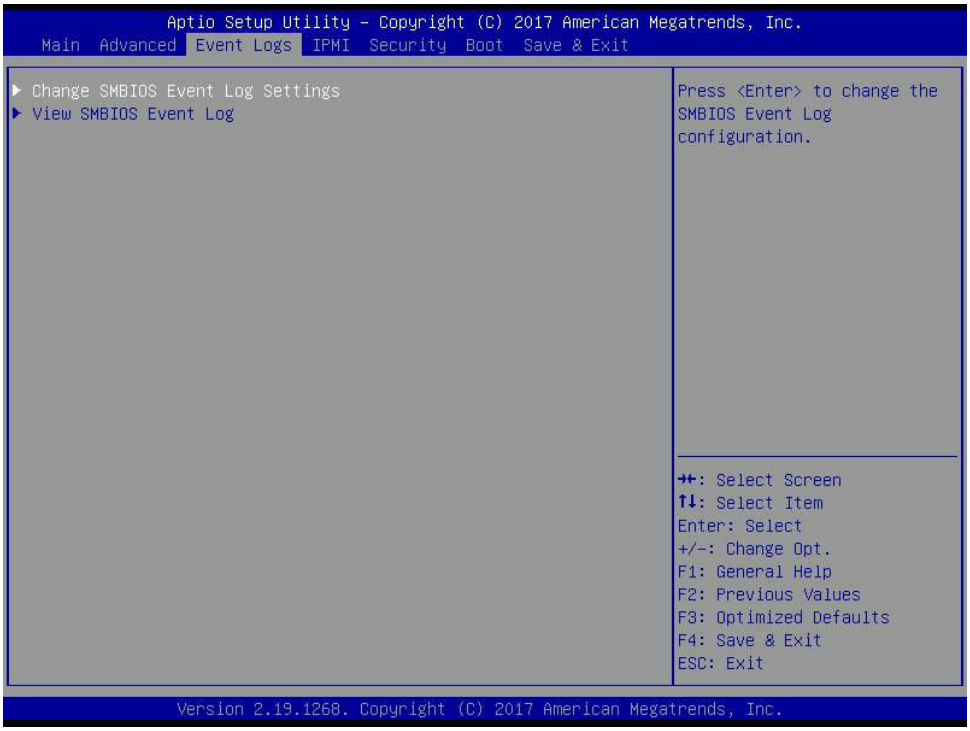
▶Change Attempt order

▶Intel® Virtual RAID on CPU

This submenu displays the information of the Intel® VMD controllers as detected by the BIOS.

6.4 Event Logs

Use this feature to configure the 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 (System Management BIOS) Event Logging during system boot. The options are Disabled and **Enabled**.

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 Log Standard Settings

Log System Boot Event

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

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.

▶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 Disabled and **Enabled**.

Erasing Settings

Erase SEL

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

When SEL is Full

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

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

▶BMC Network Configuration

BMC Network Configuration

Configure IPV4 support

IPMI LAN Selection

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

IPMI Network Link Status

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

Update IPMI LAN Configuration

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

If the item above is set to Yes, the following items 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 Static and **DHCP**.

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

Use this item to enable or disable the IPMI VLAN function. The options are **Disable** and Enable.

If the item above is set to Enable, the following item, "VLAN ID", will become available for user's configuration:

VLAN ID

Use this item to enter the VLAN ID. The default setting is **0**.

Configure IPV6 support

Lan channel 1

IPV6 Support

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

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

Configuration Address Source

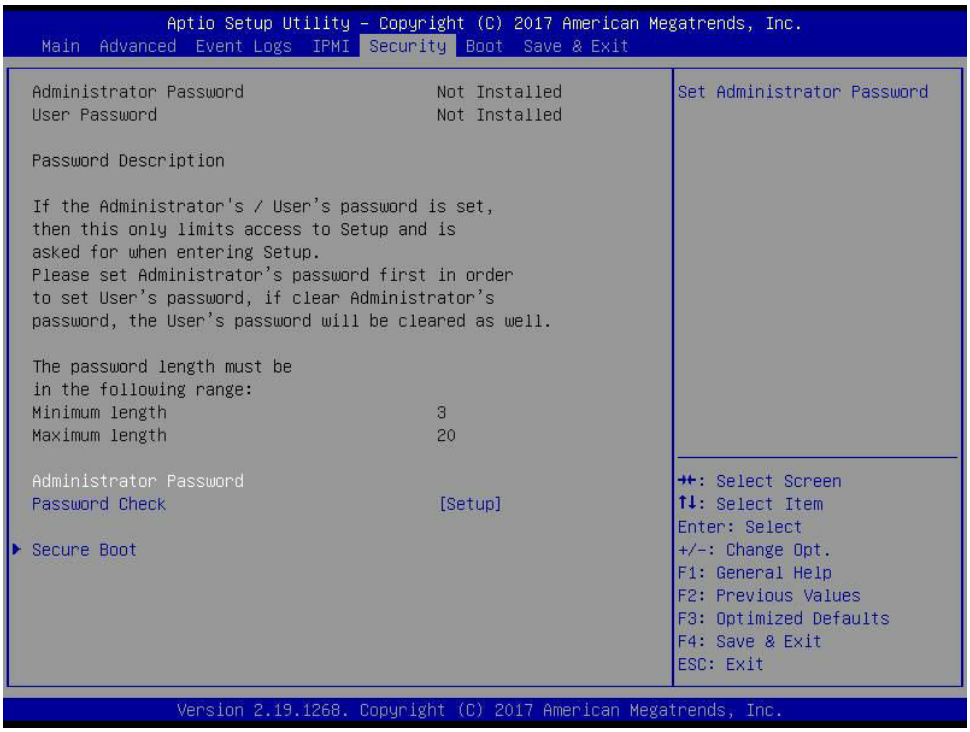
This feature allows the user to select the source of the IP address for this computer. If Static is selected, you will need to know the IP address of this computer and enter it to the system manually in the field. If DHCP is selected, the BIOS will search for a DHCP (Dynamic Host Configuration Protocol)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

The following information is displayed:

- Current Configuration Address source
- Station IPV6 address
- Prefix Length
- IPV6 Router1 IP Address
- IPV6 address status
- IPV6 DHCP Algorithm

6.6 Security

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



Administrator Password

Press Enter to set the user password which is required to enter the BIOS setup utility. The length of the password should be from 3 characters to 20 characters long.

User Password

Press Enter to set the user password which is required to enter the BIOS setup utility. The length of the password should be from 3 characters to 20 characters long.

Password Check

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

HDD Security Configuration:

This item displays the HDD security configuration of the selected drive.

▶Secure Boot

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.

Secure Boot Mode

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

CSM Support

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

▶Key Management

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

Provision Factory Defaults

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.

▶Enroll Efi Image

This feature allows the image to run in Secure Boot Mode. Enroll SHA256 Hash Certicate of the image into the Authorized Signature Database.

▶Save all Secure Boot variables

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

Secure Boot variable: Size/ Key#/ Key Source

▶Platform Key (PK)

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

Set New
Use this feature to load the new platform keys (PK) from the manufacturer's defaults.

▶Key Exchange Keys (KEK)

Select Set New to load the KEK from the manufacturer's defaults. Select Append to add the KEK from the manufacturer's defaults list to the existing KEK. The default setting is **Set New**.

▶Authorized Signatures

Authorized Signature Database (DB) contains authorized signing certificates and digital signatures. Select Set New to load the DB from the manufacturer's defaults. Select Append to add the database from the manufacturer's defaults to the existing DB. The default setting is **Set New**.

▶Forbidden Signatures

Forbidden Signature Database (DBX) contains forbidden certificates and digital signatures. Select Set New to load the DBX from the manufacturer's defaults. Select Append to add the DBX from the manufacturer's defaults to the existing DBX. The default setting is **Set New**.

▶Authorized TimeStamps

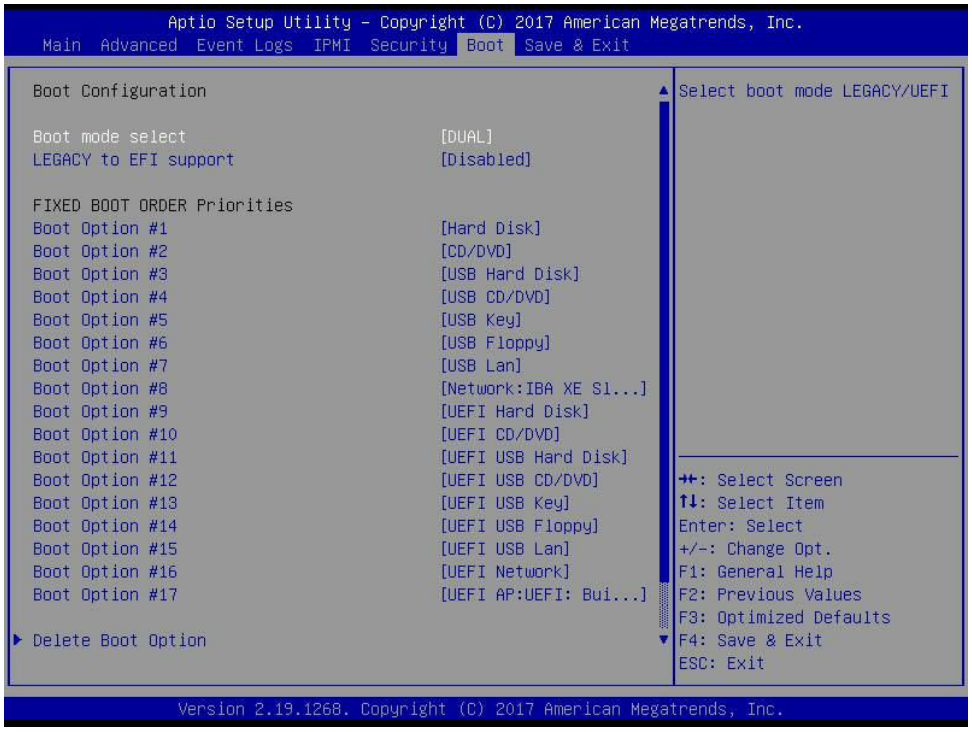
Select Set New to load the Authorized Timestamp Database (DBT) from the manufacturer's defaults. Select Append to add the DBT from the manufacturer's defaults list to the existing DBT. The default setting is **Set New**.

▶OsRecovery Signatures

Select Set New to load the OsRecovery Signatures Database (DBR) from the manufacturer's defaults. Select Append to add the DBR from the manufacturer's defaults list to the existing DBR. The default setting is **Set New**.

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.** The default setting is **DUAL**.

LEGACY to EFI support

Use this item to enable the EFI boot support. The options are **Disabled** and Enabled.

FIXED BOOT ORDER Priorities

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

If the item above, "Boot mode select", is set to Legacy/UEFI/Dual, the following items will be displayed:

- Legacy/UEFI/Dual Boot Order #1
- Legacy/UEFI/Dual Boot Order #2
- Legacy/UEFI/Dual Boot Order #3
- Legacy/UEFI/Dual Boot Order #4
- Legacy/UEFI/Dual Boot Order #5

- Legacy/UEFI/Dual Boot Order #6
- Legacy/UEFI/Dual Boot Order #7
- Legacy/UEFI/Dual Boot Order #8
- UEFI/Dual Boot Order #9
- Dual Boot Order #10
- Dual Boot Order #11
- Dual Boot Order #12
- Dual Boot Order #13
- Dual Boot Order #14
- Dual Boot Order #15
- Dual Boot Order #16
- Dual Boot Order #17

▶Add New Boot 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.

▶Delete Boot Option

Use this feature to remove a pre-defined boot device from which the system will boot during startup. The options are **Select one to Delete** and UEFI: Built-in EFI Shell.

▶UEFI Application Boot Priorities

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

Boot Option #1

The options are **UEFI: Built-in EFI Shell** and Disabled.

▶Hard Disk Drive BBS Priorities

This feature allows the user to specify the boot device priority from the available hard disk drives.

Boot Option #1

The options are **(the available hard disk drive)** and Disabled.

▶Network Drive BBS Priorities

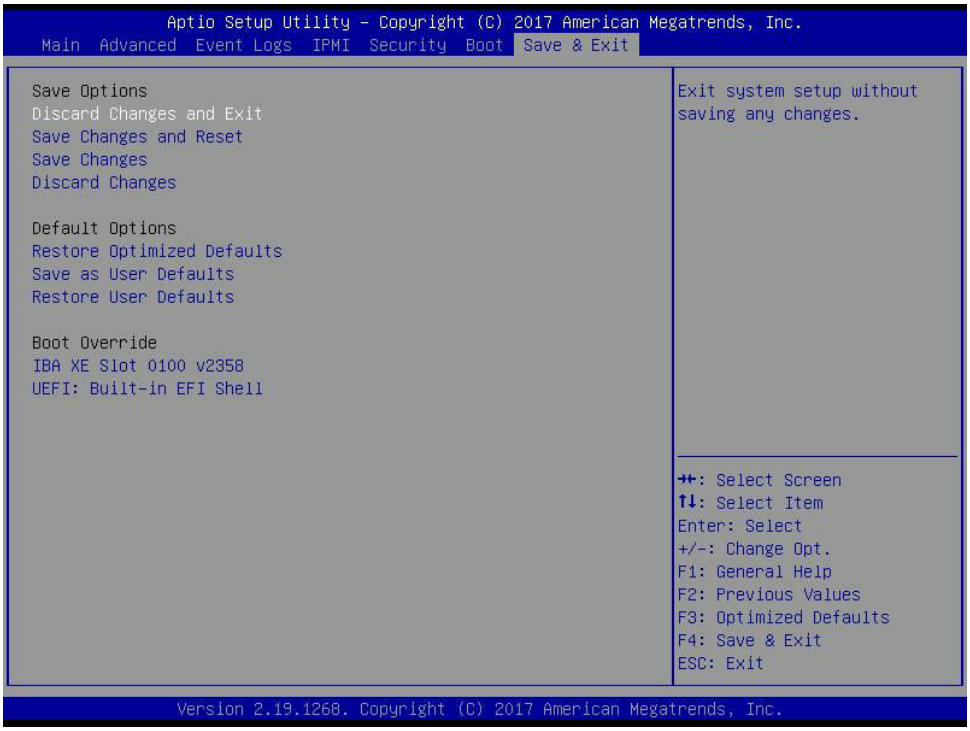
This feature allows the user to specify which available network drives are boot devices.

Boot Option #1

The options are **IBA XE Slot 0100 v2398** and Disabled.

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 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 reset (reboot) the system.

Save Changes

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

Discard Changes

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

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

Default Options

Restore Optimized Defaults

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

Save As User Defaults

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

Restore User Defaults

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

Boot Override

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

Appendix A

BIOS Error Codes

A-1 BIOS Error Beep (POST) Codes

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

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

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

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

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

A-2 Additional BIOS POST Codes

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

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

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

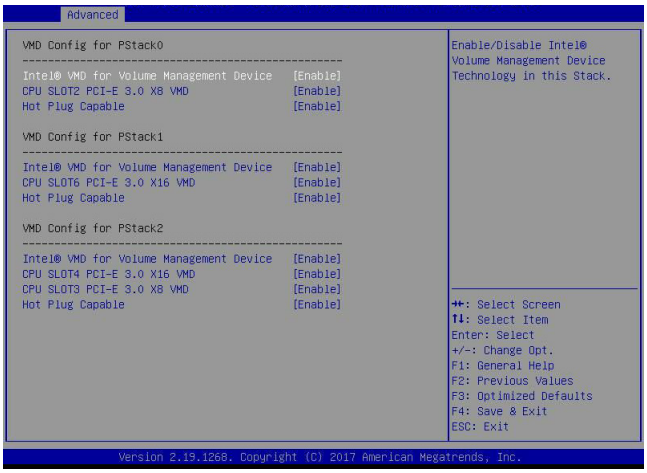
Appendix B

Configuring VROC RAID Settings

The Supermicro X11 Purley platform supports Intel® Virtual RAID on CPU (Intel® VROC). Intel® VROC is a Redundant Array of Independent Disks (RAID) solution, which integrates with Intel® Volume Management Device (Intel® VMD), for Non-Volatile Memory Express (NVMe) solid-state drives (SSDs). The E.1 section provides instructions on how to access All Intel VMD Controllers menu items. The E.2 section explains RAID settings. The E.3 section describes the use of journal disk for RAID5 volume (parity based RAID).

B.1 All Intel® VMD Controllers Features

Press <Del> key continuously during system boot to enter the BIOS Setup utility. Navigate to the Advanced tab. Use the arrow keys and press <Enter> to select Chipset Configuration -> North Bridge -> IIO Configuration -> Intel® VMD technology -> Intel® VMD for Volume Management Device on CPU to access the menu items. The following screen will appear.

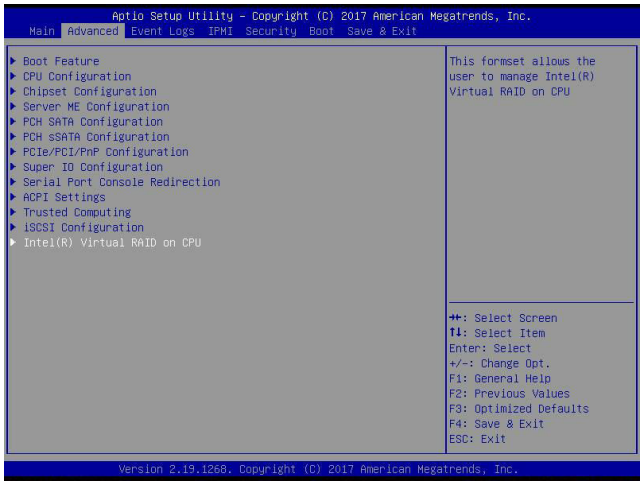


Set the following items to Enable: Intel® VMD for Volume Management Device and devices attached to the Intel® VMD controllers, as shown above. The default options are Disable. For the changes to take effect, press <F4> to save the settings and exit the BIOS Setup utility. Then, press <Del> key continuously during system boot to enter the BIOS Setup utility.

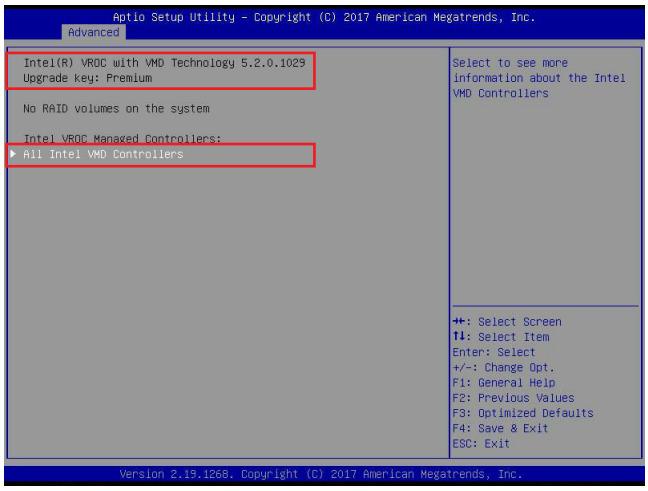
Note 1: Only use NVMe devices that have been validated by Supermicro. For the latest updates, please contact us or refer to our website at https://www.supermicro.com.tw/.

Note 2: Depending on the version of driver/utility/package, it may or may not have exactly the same as the BIOS settings/features shown in the appendix.

Navigate to the Advanced tab.



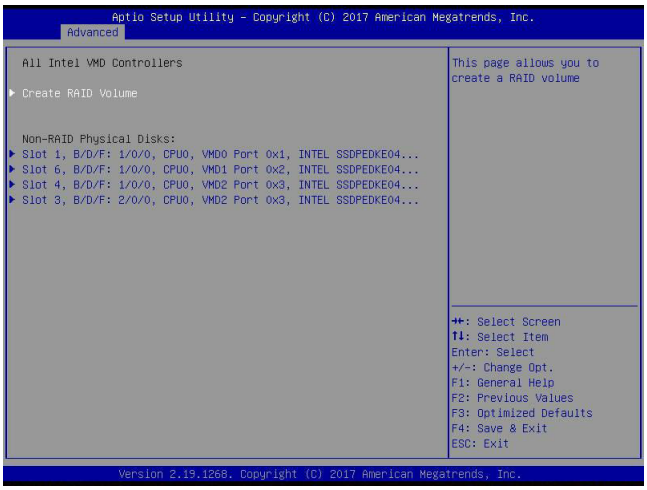
Use the arrow keys to select Intel(R) Virtual RAID on CPU and press <Enter> to access the menu items. The following screen will appear and the All Intel VMD Controllers feature has become available.



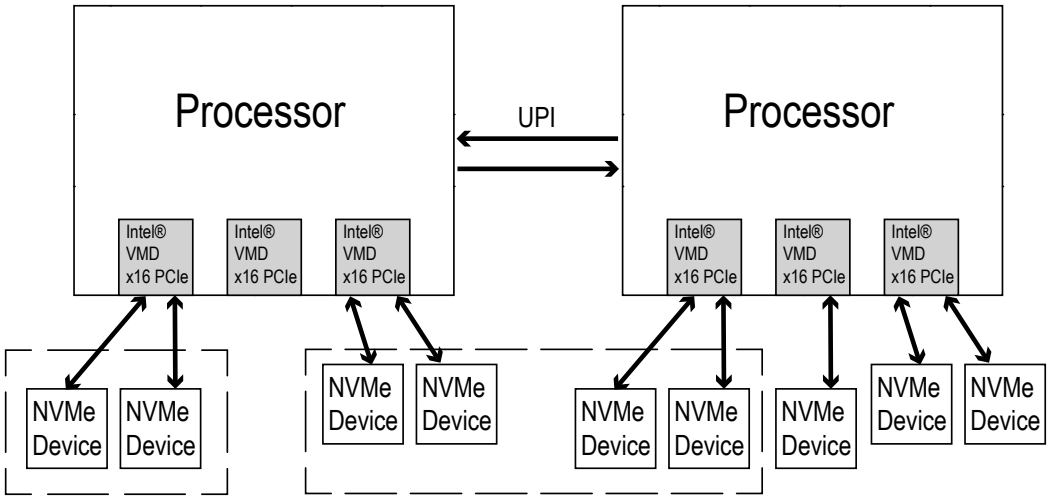
Note 1: The license and header (on the motherboard) for Intel® VROC hardware key are required. Also, be sure the version of Intel® Rapid Storage Technology enterprise (Intel® RSTe) VROC utility is 5 or above (look for Intel(R) VROC with VMD Technology x.x.x.xxxx shown on the screen).

Note 2: Intel® VROC Premium hardware key is used in the appendix to demonstrate RAID settings.

Use the arrow keys to select All Intel VMD Controllers and press <Enter> to access the menu items. The following screen will appear. It allows the user to create RAID volumes and configure settings of NVMe devices as detected by the system.

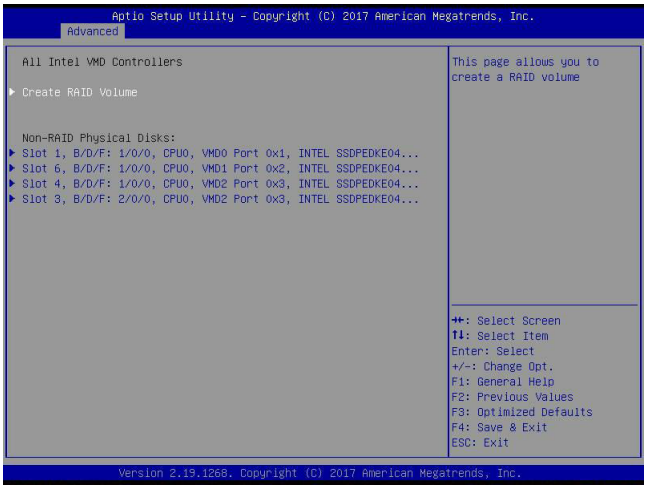


Note : A single Intel® VMD supported processor supplies 48 PCIe lanes and contains three Intel® VMD controllers (domains). Refer to the following illustration for more information.

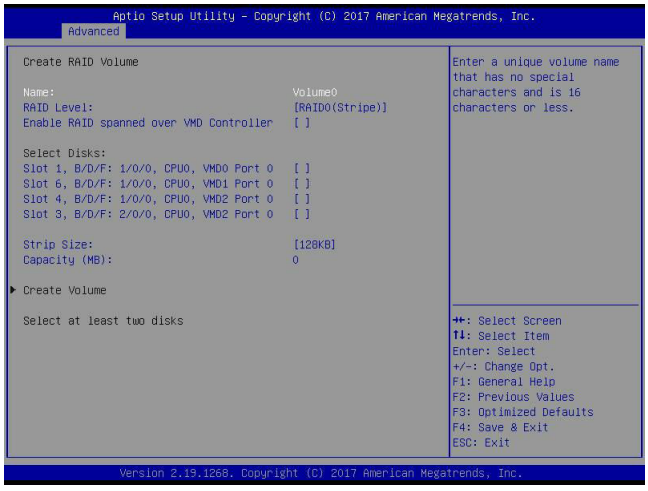


B.2 Configuring RAID Settings

Refer to the instructions stated in E.1 section on how to access All Intel VMD Controllers menu items. Follow the steps below to create RAID volume(s).

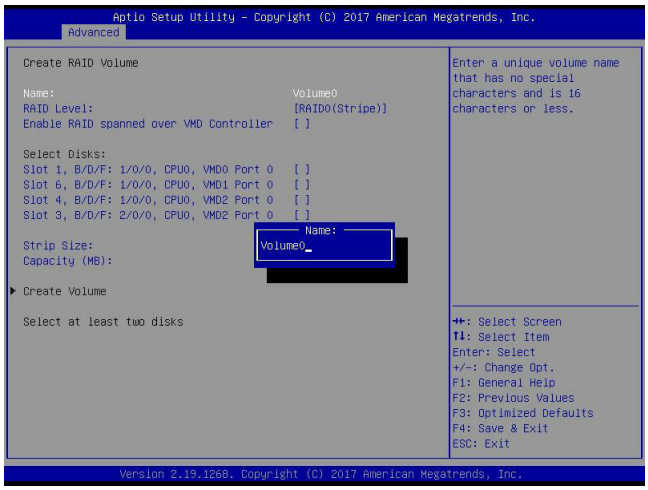


Step 1. To create RAID volume(s), use the arrow keys to select Create RAID Volume and press <Enter>. The following screen will appear.



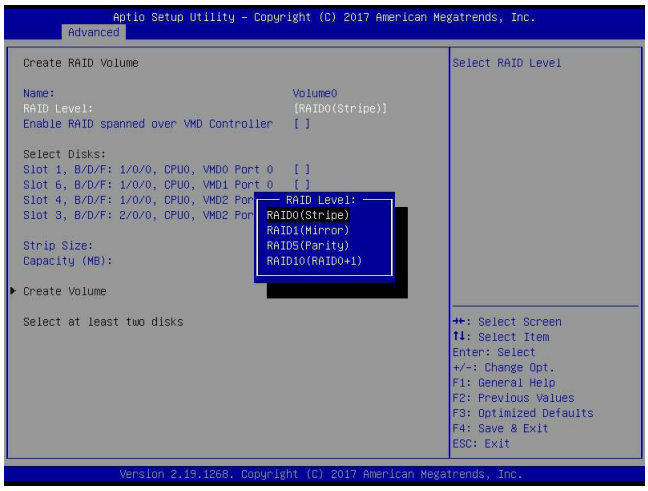
Step 2. **Name:**

This item allows the user to enter the unique name of the RAID volume.



Step 3. **RAID Level:**

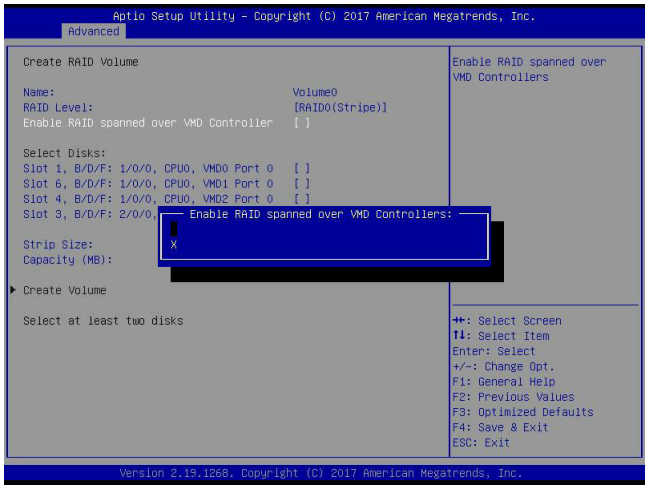
This item allows the user to select the RAID level. The options are **RAID0(Stripe)**, RAID1(Mirror), RAID5(Parity), and RAID10(RAID0+1).



Note: The RAID level(s) displayed is(are) based on the number of NVMe devices connected to the system.

Step 4. **Enable RAID spanned over VMD Controller**

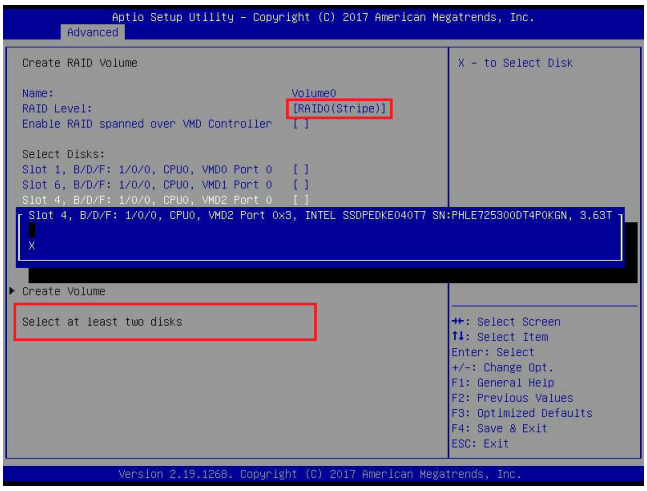
The options are **(not selected)** and X (selected). Set this item to X if the RAID level you selected earlier from Step 3. will cross VMD domains.



Note: For a bootable RAID volume, do not cross VMD domains.

Step 5. **Select Disks:**

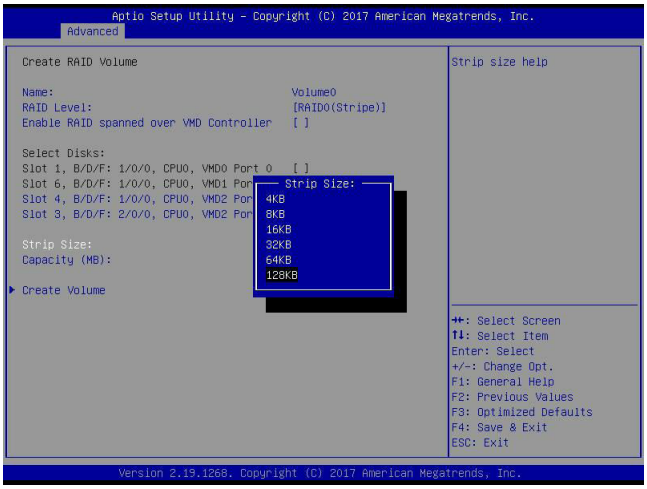
The options are **(not selected)** and X (selected). Set the items one by one to X to select the desired RAID disks.



Note: For RAID0/RAID1/RAID5/RAID10, the minimum number of NVMe devices required is two/two/three/four respectively.

Step 6. **Strip Size:**

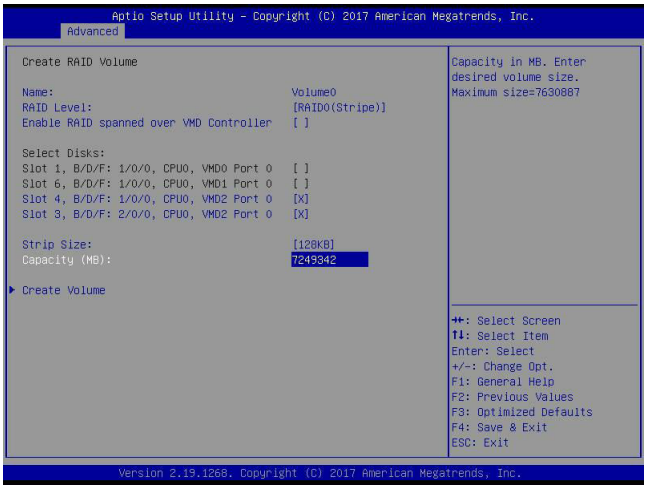
Use this item to select the RAID strip size. The options are 4KB, 8KB, 16KB, 32KB, 64KB, and **128KB**.



Note: For RAID5 and RAID10, the default setting is 64KB.

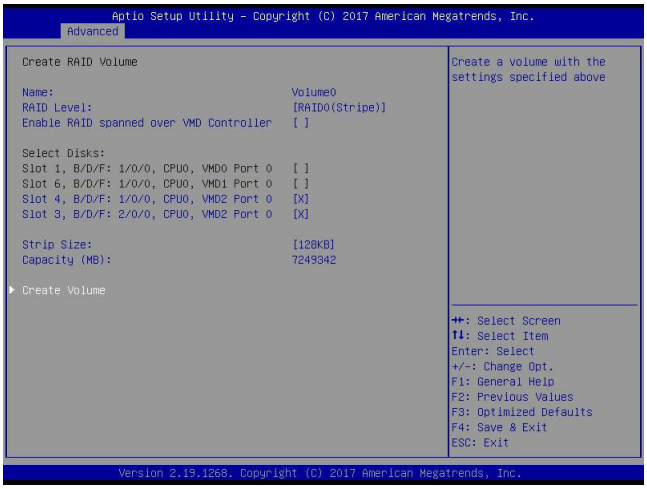
Step 7. **Capacity (MB):**

This item allows the user to enter the desired RAID capacity (in MB). See the right panel of the screen for the maximum volume size allowed.

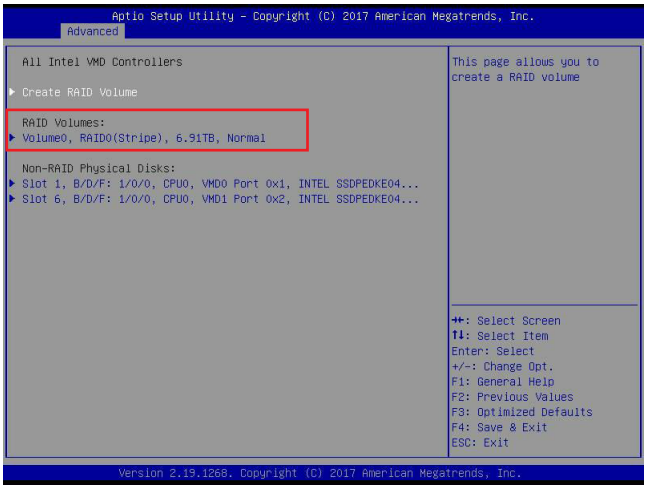


Step 8. **Create Volume**

Use the arrow keys to select Create Volume.

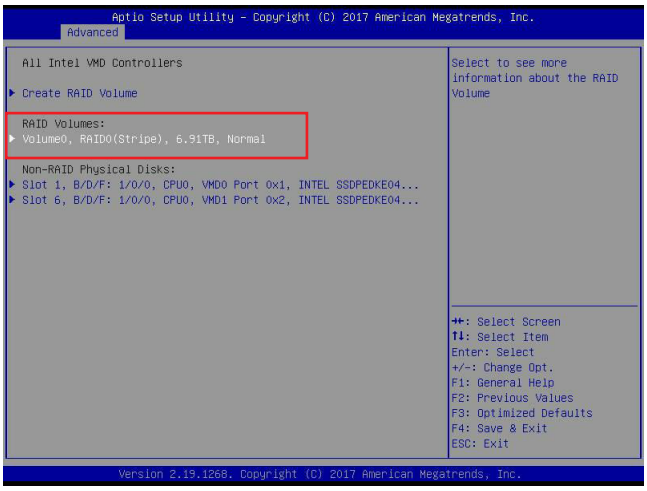


Press <Enter> to create a RAID level with settings shown on the screen. Refer to the following for the RAID volume(s) being created successfully.



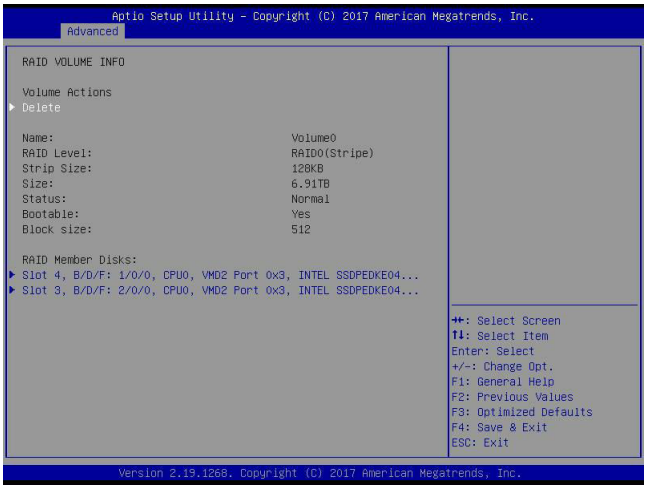
RAID Volumes:

For detailed RAID volume information, use the arrow keys to select the desired RAID volume as shown below.



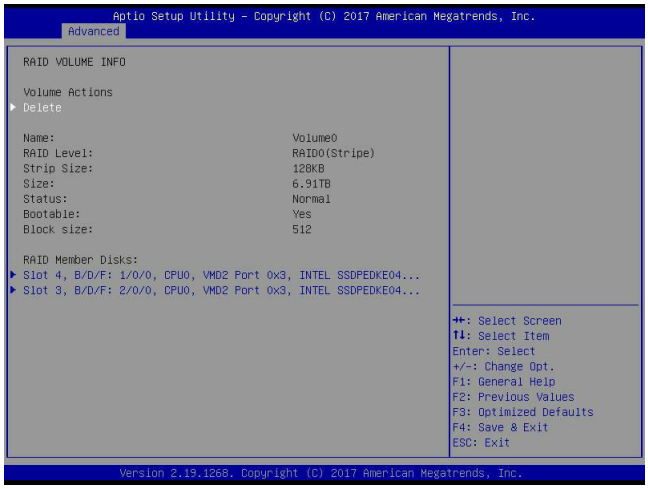
RAID VOLUME INFO

Press <Enter> and the following screen will appear.

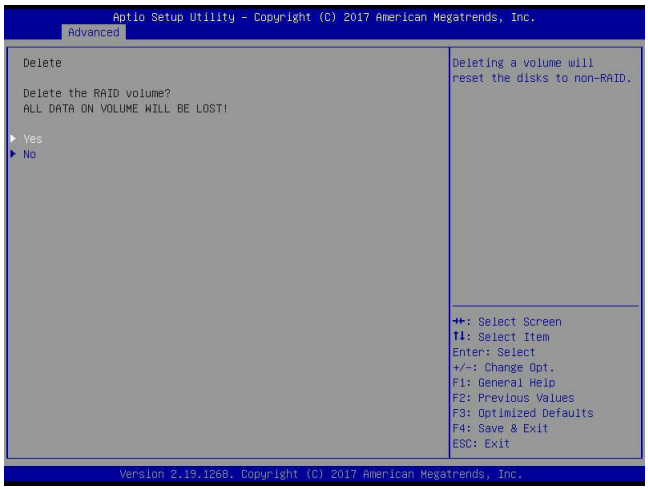


Delete

On the RAID VOLUME INFO screen, use the arrow keys to select Delete and press <Enter> to delete the RAID volume you have selected earlier (see the previous page for the RAID volume selection).

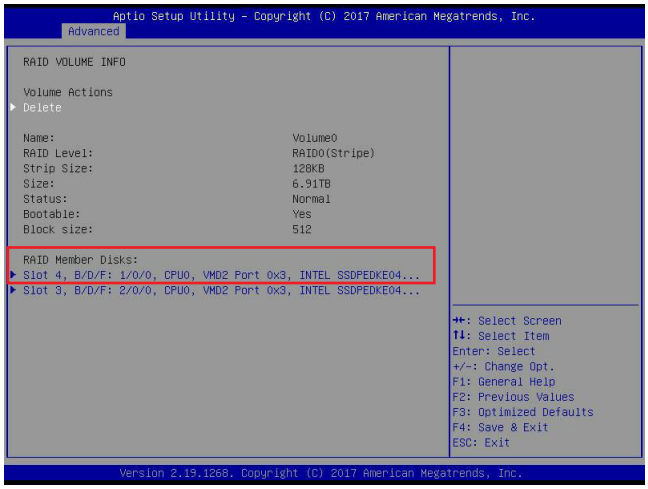


The following screen will appear. Options are **Yes** and No.

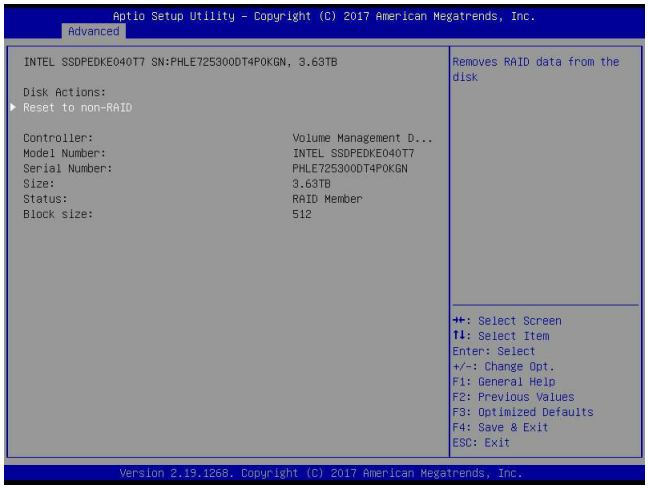


Reset to non-RAID

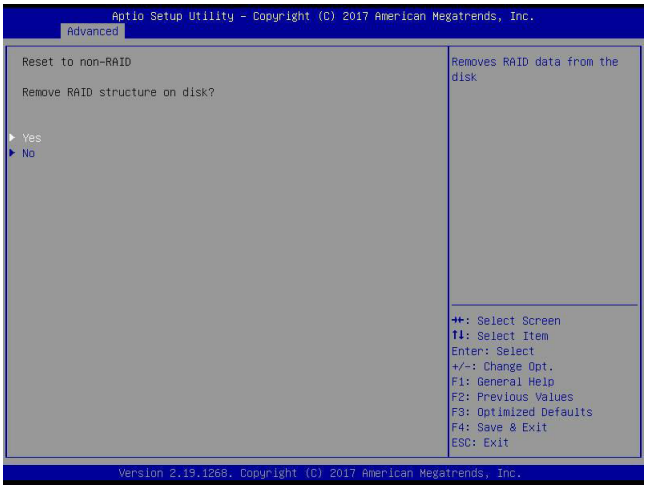
On the RAID VOLUME INFO screen, select the desired NVMe device from the list of RAID Member Disks.



Press <Enter> and the following screen will appear.

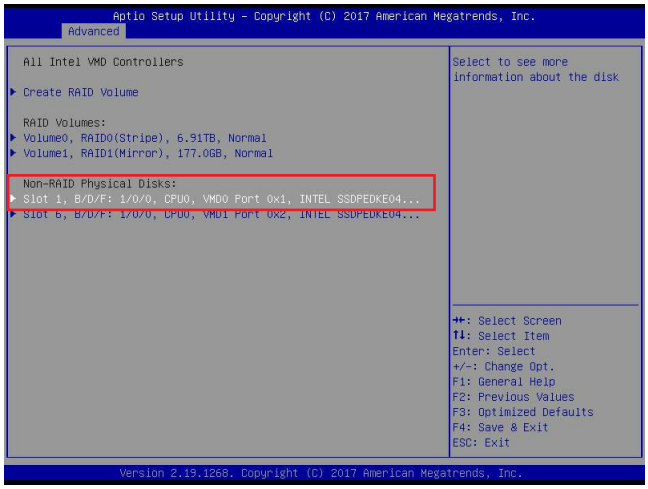


The item, Reset to non-RAID, allows the user to remove RAID data from the selected NVMe device. Press <Enter> and the following screen will appear. Options are **Yes** and No.

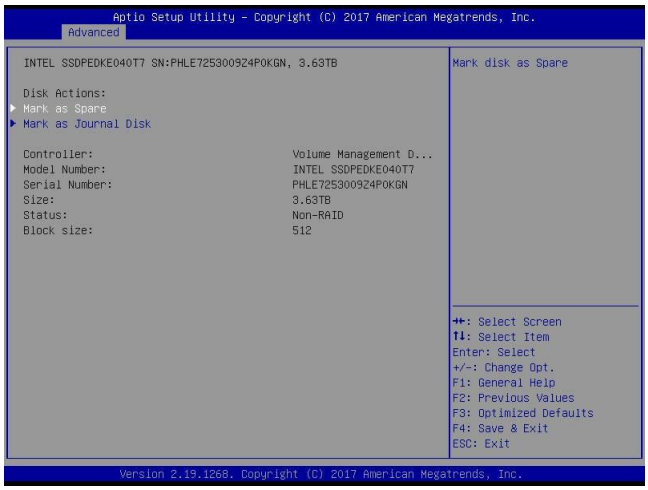


Mark as Spare

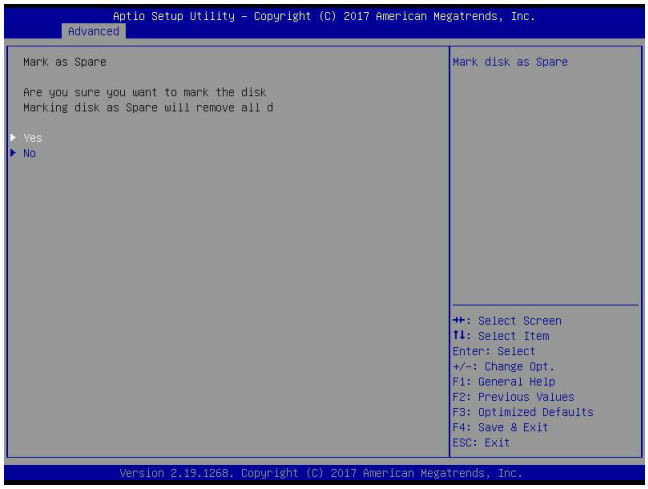
Refer to the instructions stated in E.1 section on how to access All Intel VMD Controllers menu items. When the following screen appears, select the desired NVMe device from the list of Non-RAID Physical Disks.



Press <Enter> and the following screen will appear.



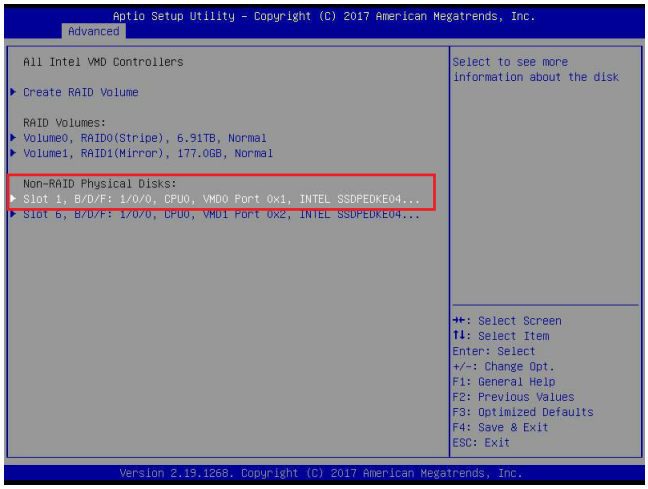
The item, Mark as Spare, allows the user to set the selected NVMe device as a spare disk. Use the arrow keys to select Mark as Spare and press <Enter>. The following screen will appear. Options are **Yes** and No.



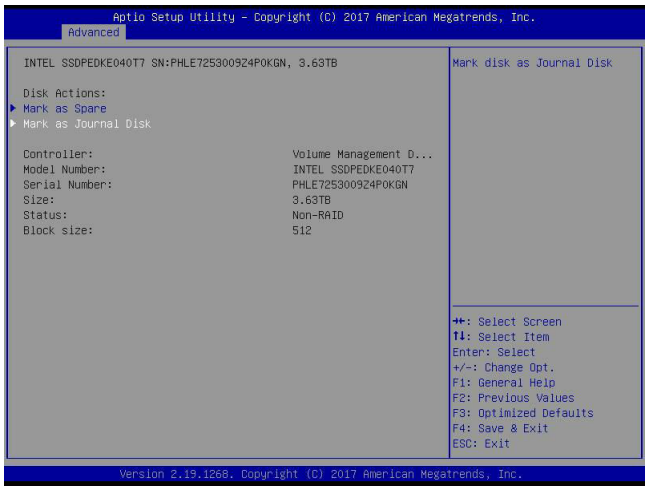
Note: A spare disk is used for automatic RAID volume rebuilds when status of failed, missing, or at risk was detected on the array disk. For RAID0 volumes, only status of at risk will trigger automatic RAID volume rebuilds.

Mark as Journal Disk

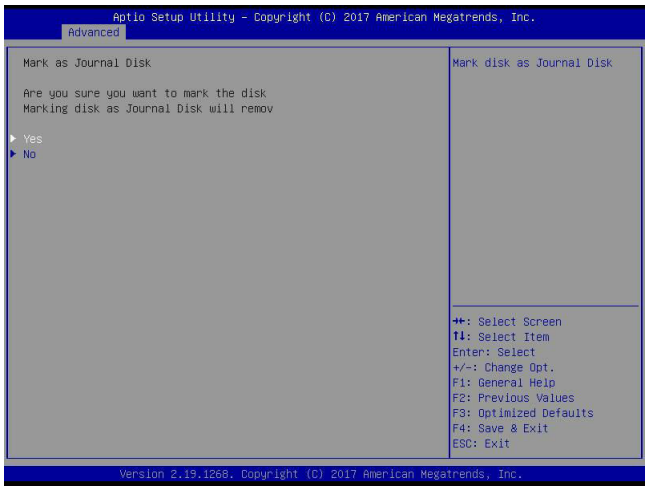
Refer to the instructions stated in E.1 section on how to access All Intel VMD Controllers menu items. When the following screen appears, select the desired NVMe device from the list of Non-RAID Physical Disks.



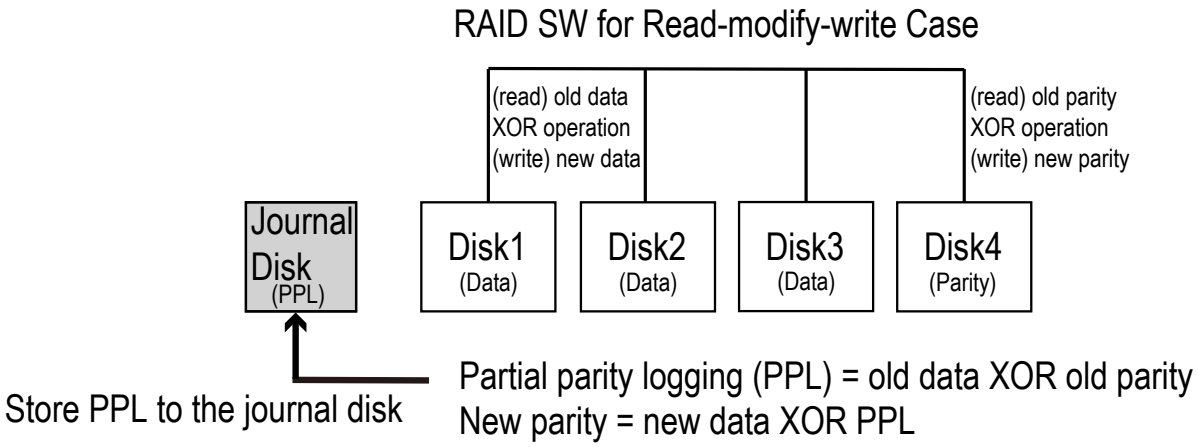
Press <Enter> and the following screen will appear.



The item, Mark as Journal Disk, allows the user to set the selected NVMe device as a journal disk. Use the arrow keys to select Mark as Journal Disk and press <Enter>. The following screen will appear. Options are **Yes** and No.



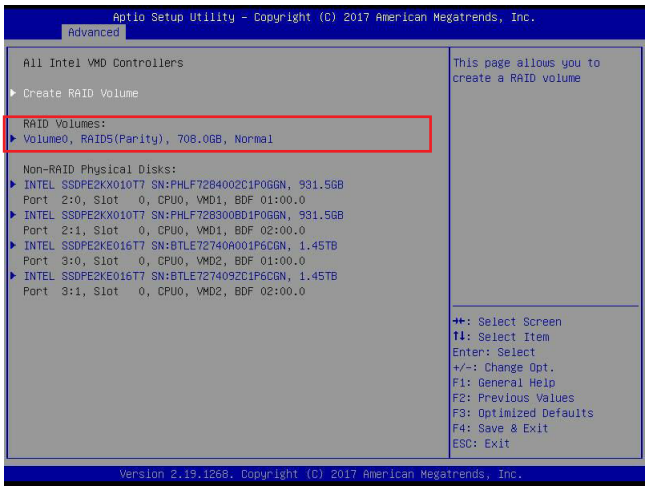
Note: RAID Write Hole (RWH) is a condition associated with a power/drive-failure/crash while writing RAID5 strips. The use of journal disk that contains partial parity logging (PPL) can reduce the potential data loss. Refer to the following illustration for the use of journal disk.



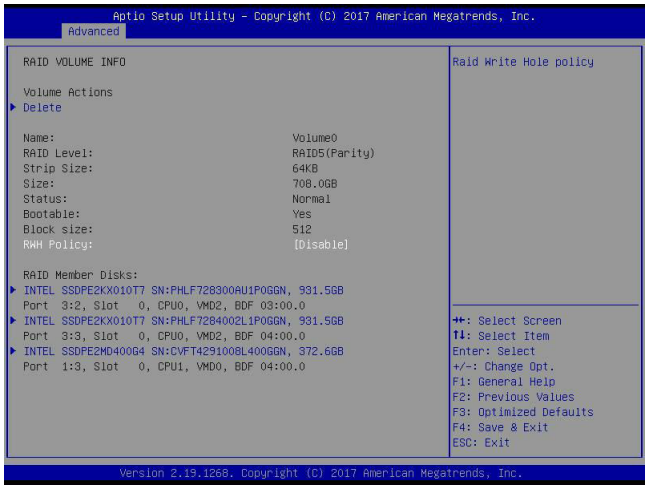
B.3 Use of Journal Disk

The following steps describe the use of journal disk for RAID5 volume (parity based RAID).

Step 1. Refer to the instructions stated in E.1 section on how to access All Intel VMD Controllers menu items. When the following screen appears, use the arrow keys to select the desired RAID5 volume.



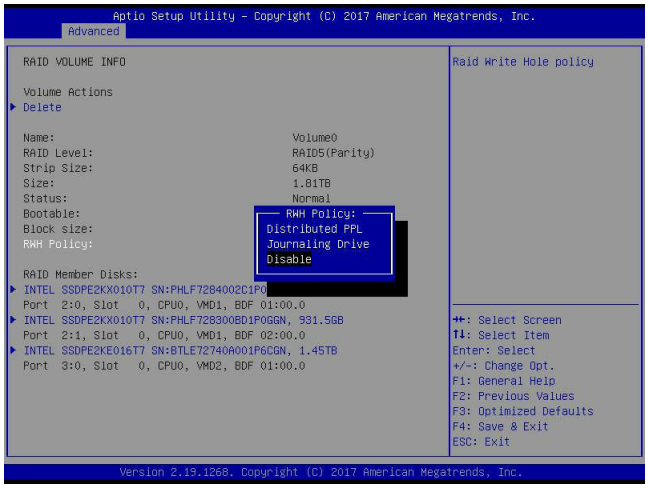
Press <Enter> and the following screen will appear.



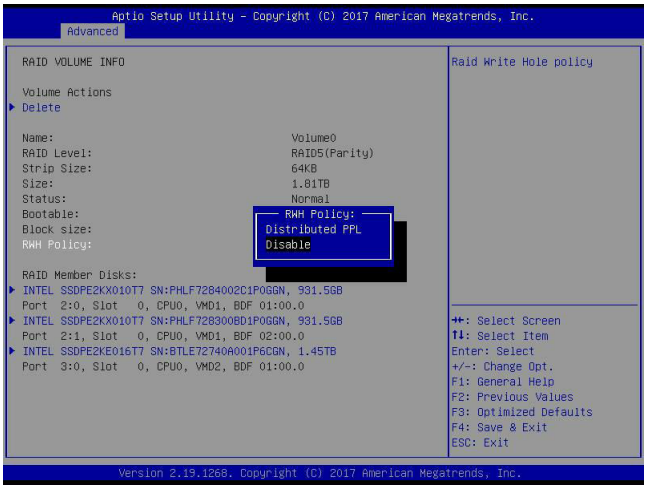
Step 2. Use the arrow keys to select RWH Policy. RWH is a scenario related to a power/ drive-failure/crash.

RWH Policy

Press <Enter> and the following screen will appear. If any device(s) from the list of Non-RAID Physical Disks has(have) been set as journal disk(s) (see pages 140 and 141), the options are Distributed PPL, Journaling Drive, and **Disable**.



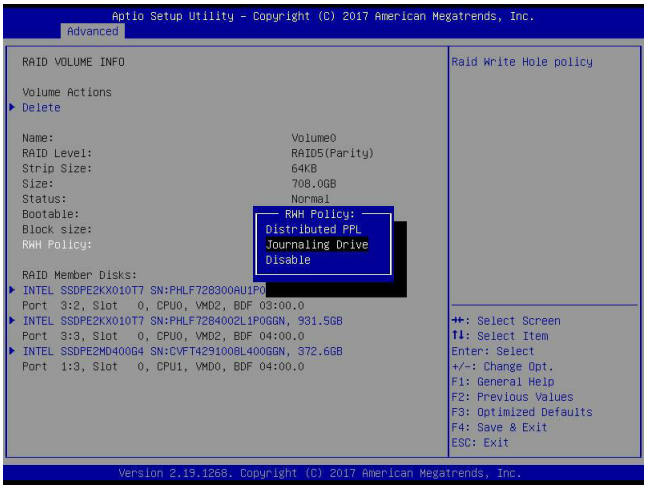
If none from the list of Non-RAID Physical Disks has been set as a journal disk (see pages 140 and 141), the options are Distributed PPL and **Disable**.



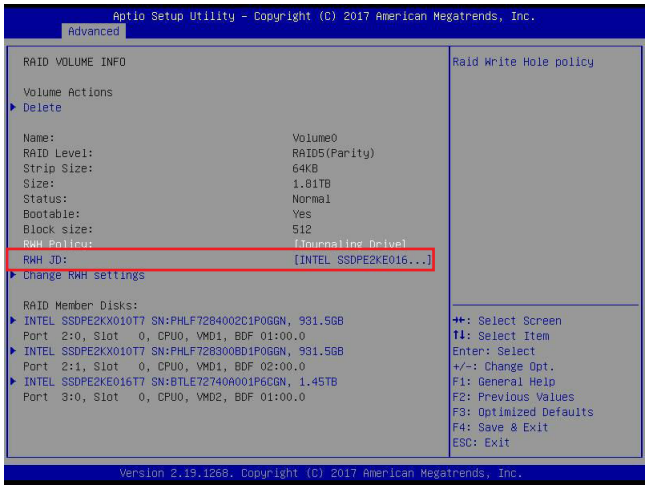
Note 1: Partial parity logging (PPL) can be defined as the result of XOR calculation of old data and old parity. PPL is a feature available for RAID5 volumes. While a power/drive-failure/crash occurring, PPL information helps rebuild the RAID volume and reduce the potential data loss.

Note 2: For the RWH condition, the Intel® RSTe 5.X RWH closure algorithm provides the option of use of an additional NVMe device for RAID volume rebuilds (Journaling Drive RWH closure mode). Without the use of an additional NVMe device, PPL distributed RWH closure mode can be utilized to close the RWH by using the parity drive for example.

Step 3. Set the item RWH Policy to Journaling Drive.

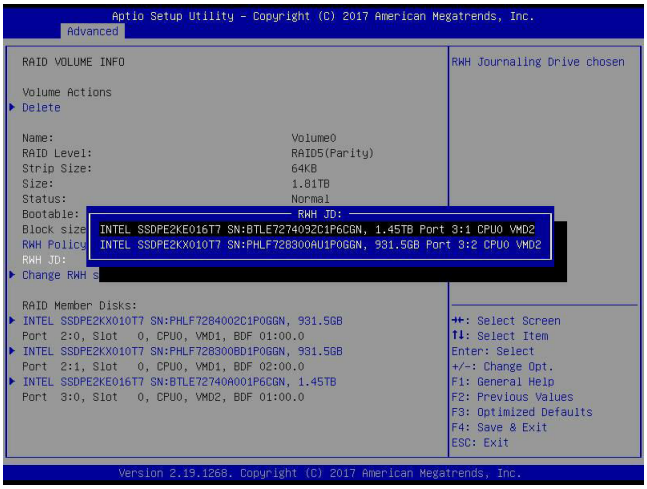


Press <Enter> and the RWH JD feature will become available as shown below.



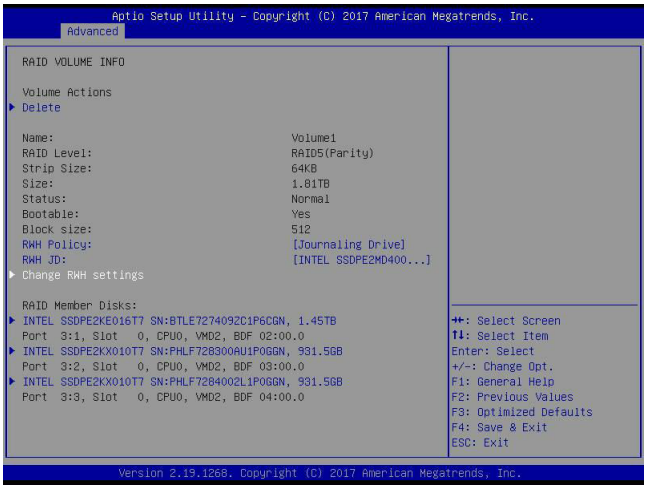
RWH JD

Use the arrow keys to select RWH JD. Press <Enter> and the following screen will appear. The item displays the information of journal disk(s).

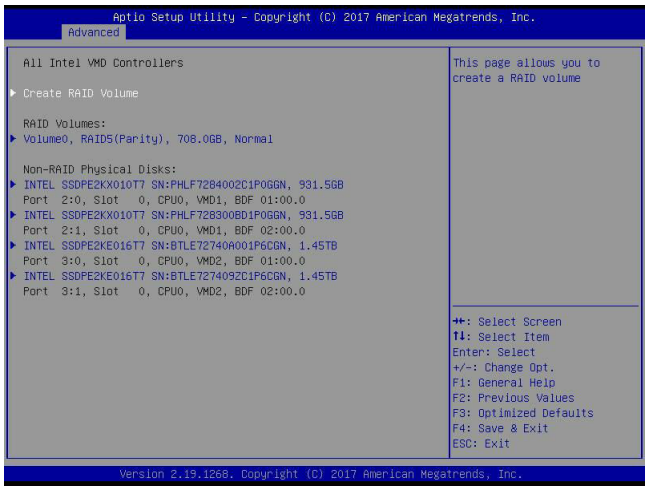


Step 4. Use the arrow keys and press <Enter> to select the desired journal disk from the option list of RWH JD.

Step 5. For the changes to take effect, use the arrow keys to select Change RWH settings and press <Enter>.



The user will be returned to the main screen of All Intel VMD Controllers as shown below.



Appendix C

Standardized Warning Statements for AC Systems

C.1 About Standardized Warning Statements

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

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

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

Warning Definition

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

警告の定義

この警告サインは危険を意味します。

人身事故につながる可能性がありますので、いずれの機器でも動作させる前に、

電気回路に含まれる危険性に注意して、標準的な事故防止策に精通して下さい。

此警告符号代表危险。

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

此警告符號代表危險。

您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 הצהרות אזהרה

הצהרות הבאות הן אזהרות על פי תקני התעשייה, על מנת להזהיר את המשתמש מפני חבלה

פיזית אפשרית. במידה ויש שאלות או היתקלות בבעיה כלשהי, יש ליצור קשר עם מחלקת תמיכה

טכנית של סופרמיקרו. טכנאים מוסמכים בלבד רשאים להתקין או להגדיר את הרכיבים.

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

ا كً ف حالة وٌكي أى تتسبب ف اصابة جسد ةٌ هذا الزهز عٌ خطز !تحذ زٌ .
قبل أى تعول على أي هعذات،كي على علن بالوخاطز ال ٱجوة عي الذوائز
الكهزبائ ةٍ
وكي على درا ةٌ بالووارسات البقائ ةٍ لو عٌ وقع أي حادث
استخذم رقن الب إٍى الو صٌص ف هًا ةٌ كل تحذ زٌ للعشر تزجوتها

안전을 위한 주의사항

경고!

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

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

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

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

BEWAAR DEZE INSTRUCTIES

Installation Instructions

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

設置手順書

システムを電源に接続する前に、設置手順書をお読み下さい。

警告

将此系统连接电源前,请先阅读安装说明。

警告

將系統與電源連接前，請先閱讀安裝說明。

Warnung

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

¡Advertencia!

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

Attention

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

יש לקרוא את הוראות התקנה לפני חיבור המערכת למקור מתח.

اقر إرشادات التركيب قبل توصيل النظام إلى مصدر للطاقة

시스템을 전원에 연결하기 전에 설치 안내를 읽어주십시오.

Waarschuwing

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

Circuit Breaker

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

サーキット・ブレーカー

この製品は、短絡（過電流）保護装置がある建物での設置を前提としています。

保護装置の定格が250 V、20 Aを超えないことを確認下さい。

警告

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

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

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

경고!

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

Waarschuwing

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

Power Disconnection Warning

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

電源切断の警告

システムコンポーネントの取り付けまたは取り外しのために、シャーシー内部にアクセスするには、

システムの電源はすべてのソースから切断され、電源コードは電源モジュールから取り外す必要があります。

警告

在你打开机箱并安装或移除内部器件前,必须将系统完全断电,并移除电源线。

警告

在您打開機殼安裝或移除內部元件前，必須將系統完全斷電，並移除電源線。

Warnung

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

¡Advertencia!

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

Attention

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

אזהרה מפני ניתוק חשמלי

!אזהרה

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

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

يجب فصم انتظاو من جميع مصادر انطاقت وإزانت سهك انكهرباء من وحدة امداد
انطاقت قبم
انصل إنى اىمناطق انداخهيت نههيكم نتثبيج أو إزانت مكناث الجهاز

경고!

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

Waarschuwing

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

Equipment Installation

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

機器の設置

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

警告

只有经过培训且具有资格的人员才能进行此设备的安装、更换和维修。

警告

只有經過受訓且具資格人員才可安裝、更換與維修此設備。

Warnung

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

¡Advertencia!

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

Attention

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

אזהרה!

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

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

경고!

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

Waarschuwing

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

Restricted Area

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

アクセス制限区域

このユニットは、アクセス制限区域に設置されることを想定しています。

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

警告

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

אזור עם גישה מוגבלת
אזהרה!
יש להתקין את היחידה באזורים שיש בהם הגבלת גישה. הגישה ניתנת בעזרת
'כלי אבטחה בלבד)מפתח, מנעול וכד.)

تخصيص هذه انحذة نترك بُها ف مناطق محظورة تم .
،مَكن انصبل إن منطقت محظورة فقط من خلال استخذاو أداة خاصت
أو أ وس هُت أخري نلالأمما قفم ومفتاح

경고!

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

Waarschuwing

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

Battery Handling

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

電池の取り扱い

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

警告

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

警告

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

Warnung

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

Attention

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

¡Advertencia!

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

אזהרה!

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

هناك خطر من انفجار في حالة اسحبذال البطارية بطريقة غير صحيحة فعليل
اسحبذال البطارية
فقط بنفس النبع أو ما يعادلها مما أوصث به الشرمة المصنعة
جخلص من البطاريات المسحعملة وفقا لحعليمات الشرمة الصانعة

경고!

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

Waarschuwing

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

Redundant Power Supplies

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

冗長電源装置

このユニットは複数の電源装置が接続されている場合があります。

ユニットの電源を切るためには、すべての接続を取り外さなければなりません。

警告
此部件连接的电源可能不止一个，必须将所有电源断开才能停止给该部件供电。

警告
此裝置連接的電源可能不只一個，必須切斷所有電源才能停止對該裝置的供電。

Warnung

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

¡Advertencia!

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

Attention

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

אם קיים יותר מספק אחד
אזהרה!
ליחדה יש יותר מחיבור אחד של ספק. יש להסיר את כל החיבורים על מנת לרוקן את היחידה.

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

경고!

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

Waarschuwing

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

Backplane Voltage

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

バックプレーンの電圧

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

修理する際には注意ください。

警告

当系统正在进行时，背板上有很危险的电压或能量，进行维修时务必小心。

警告

當系統正在進行時，背板上有危險的電壓或能量，進行維修時務必小心。

Warnung

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

¡Advertencia!

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

Attention

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

מתח בפנל האחורי

!אזהרה

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

هناك خطر مه التيار الكهزبائي أوالطاقة المجبدة على اللحة
عندما يكن النظام يعمل كه حذرا عند خدمة هذا الجهاس

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

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

Comply with Local and National Electrical Codes

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

地方および国の電気規格に準拠
機器の取り付けはその地方および国の電気規格に準拠する必要があります。

警告
设备安装必须符合本地与本国电气法规。

警告
設備安裝必須符合本地與本國電氣法規。

Warnung
Die Installation der Geräte muss den Sicherheitsstandards entsprechen.

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

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

תיאום חוקי החשמל הארצי
אזהרה!
התקנת הציוד חייבת להיות תואמת לחוקי החשמל המקומיים והארציים.

تركيب المعدات الكهربائية يجب أن يمتثل للقاويه المحلية والبطية المتعلقة
بالكهرباء

경고!
현 지역 및 국가의 전기 규정에 따라 장비를 설치해야 합니다.

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

Product Disposal

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

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

警告
本产品的废弃处理应根据所有国家的法律和规章进行。

警告
本產品的廢棄處理應根據所有國家的法律和規章進行。

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

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

Attention

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

סילוק המוצר

אזהרה!

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

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

경고!

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

Waarschuwing

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

Hot Swap Fan Warning

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

ファン・ホットスワップの警告

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

警告!

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

אזהרה!

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

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

경고!

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

Waarschuwing

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

Power Cable and AC Adapter

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

電源コードとACアダプター

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

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

警告

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

כבלים חשמליים ומתאמי AC

אזהרה!

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

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

Stroomkabel en AC-Adapter

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

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

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

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

D.3 Recovering the BIOS Block with a USB Device

This feature allows the user to recover the main BIOS image using a USB-attached device without additional utilities used. A USB flash device such as a USB Flash Drive, or a USB CD/DVD ROM/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 the recovery block 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.

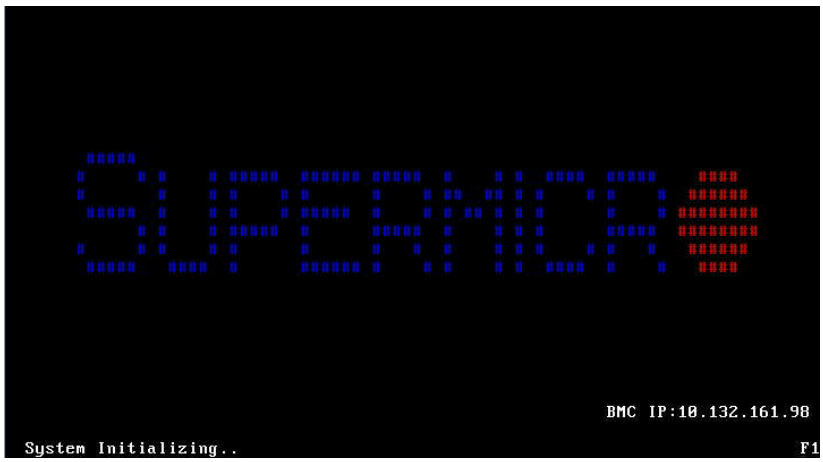
To perform UEFI BIOS recovery using a USB-attached device, follow the instructions below.

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

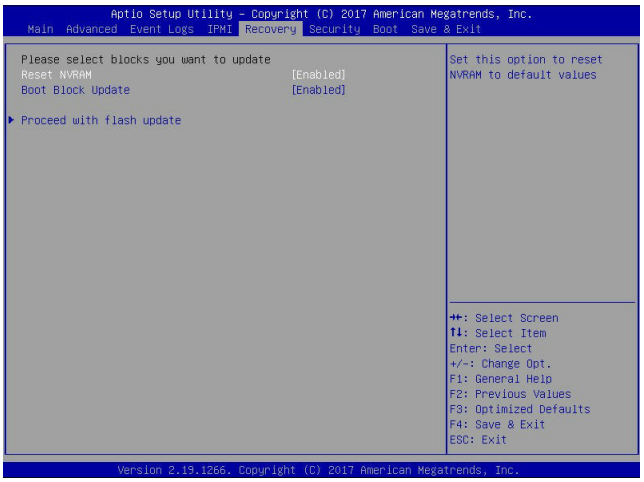
Note 1: If you cannot locate the "Super.ROM" file in your driver disk, visit our website at www.supermicro.com to download the BIOS package. Extract the BIOS binary image into a USB flash device and rename it "Super.ROM" for the BIOS recovery use.

Note 2: Before recovering the main BIOS image, confirm that the "Super.ROM" binary image file you download is the same version or a close version meant for your motherboard.

2. Insert the USB device that contains the new BIOS image ("Super.ROM") into your USB drive and reset the system when the following screen appears.



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

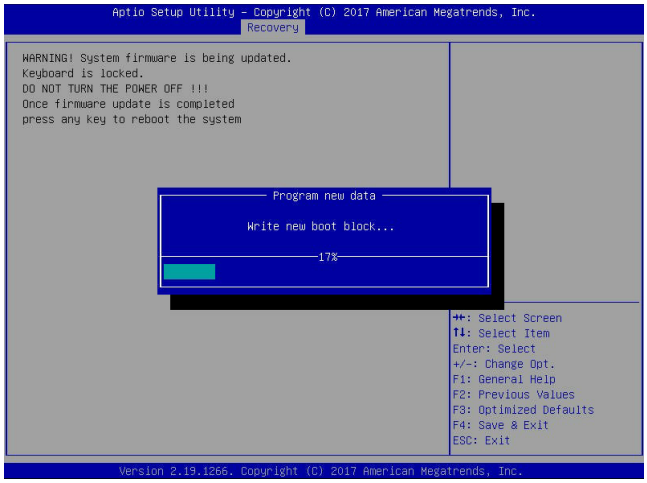


Note: At this point, you may decide if you want to start the BIOS recovery. If you decide to proceed with BIOS recovery, follow the procedures below.

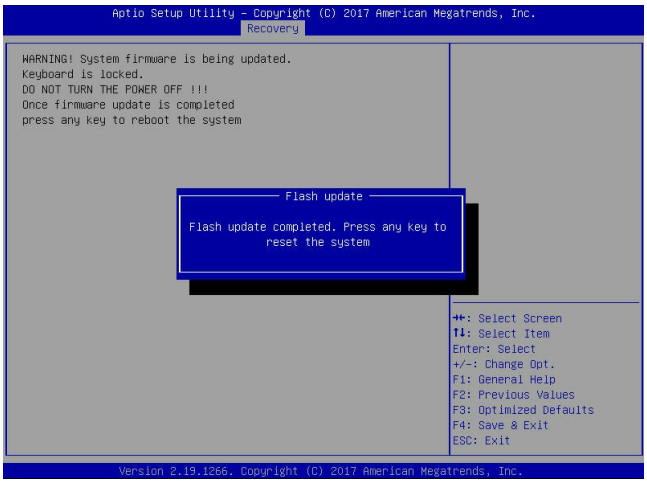
4. When the screen as shown above displays, use the arrow keys to select the item "Proceed with flash update" and press the <Enter> key. You will see the BIOS recovery progress as shown in the screen below:

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

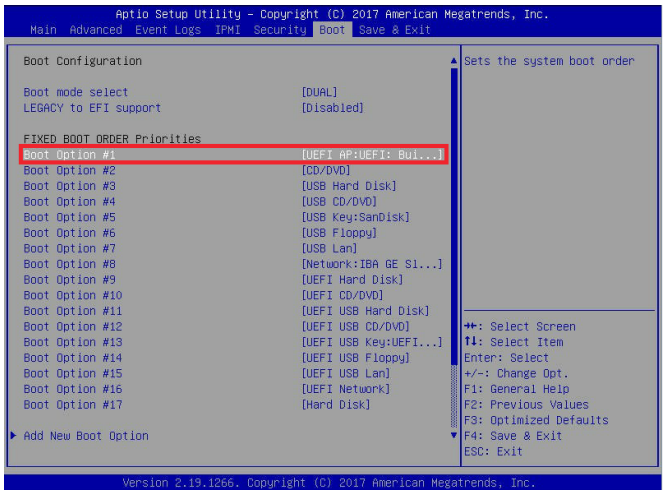
5. After the BIOS recovery process is complete, press any key to reboot the system.



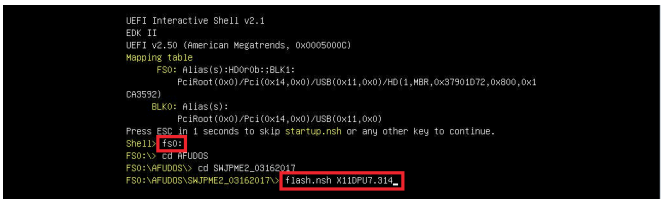
6. Using a different system, extract the BIOS package into a USB flash drive.



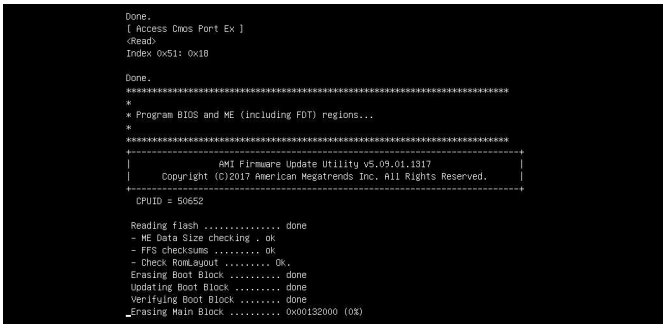
7. Press <Del> continuously during system boot to enter the BIOS Setup utility. From the top of the tool bar, select Boot to enter the submenu. From the submenu list, select Boot Option #1 as shown below. Then, set Boot Option #1 to [UEFI AP:UEFI: Built-in EFI Shell]. Press <F4> to save the settings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



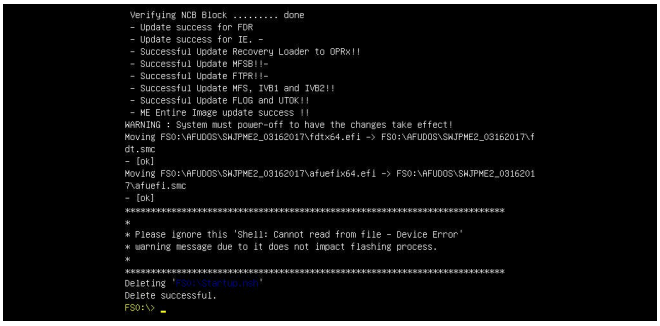
8. When the UEFI Shell prompt appears, type fs# to change the device directory path. Go to the directory that contains the BIOS package you extracted earlier from Step 6. Enter flash.nsh BIOSname.### at the prompt to start the BIOS update process.



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



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



10. Press <Del> continuously to enter the BIOS Setup utility.

11. Press <F3> to load the default settings.

12. After loading the default settings, press <F4> to save the settings and exit the BIOS Setup utility.

Appendix E

System Specifications

Processors

Intel® Xeon® Scalable Processors, Dual Socket P (LGA 3647)
Note: Please refer to the motherboard specifications pages on our website for updates to supported processors.

Chipset

Intel®C621 chipset

BIOS

32Mb AMI UEFI

Memory

Supports up to 2 TB of registered ECC DDR4-2666 RDIMM (Registered DIMM) or LRDIMM (Load-Reduced DIMM) memory; 16 DIMM slots
Note: See the memory section in Chapter 3 for details and our website for updates to supported memory.

SATA Controller

On-chip (Intel®C621) controller

Drive Bays

Eight hot-swap 3.5" drive bays and two 5.25" drive bays

PCI Expansion Slots

Two PCI Express 3.0 x16 slots
Two PCI Express 3.0 x16 slots (or four PCI-E 3.0 x 8 by MUX)
Four PCI Express 3.0 x8 slots
One PCI Express 3.0 x4 (in x8 slot)

Motherboard

X11DPX-T; Proprietary form factor (15.12 x 13.2 in. / 384 x 335.3 mm (L x W)

Chassis

CSE-835XTS-R982BP; 3U Rackmount, 17.2 x 5.2 x 25.5 in. / 437 x 132 x 648 mm. (W x H x D)

Gross Weight

72 lbs (32.6 kg)

System Cooling

Three middle and one rear exhaust fans

Power Supply

850W/980W high efficiency (94%+) AC-DC Redundant power supplies with PMBus
AC Input Voltages: 100-240 VAC
Rated Input Current: 11.5A (100V) to 4.54A (240V)
Rated Input Frequency: 50-60 Hz
Rated Output Power: 850W/980W
Rated Output Voltages: +5Vsb, 12V

Operating Environment

Operating Temperature: 10º to 35º C (50º to 95º F)
Non-operating Temperature: -40º to 60º C (-40º to 140º F)
Operating Relative Humidity: 8% to 90% (non-condensing)
Non-operating Relative Humidity: 5% to 95% (non-condensing)

Regulatory Compliance

Electromagnetic Emissions: FCC Class A, EN 55032 Class A, EN 61000-3-2/3-3, CISPR 32 Class A
Electromagnetic Immunity: EN 55024/CISPR 24, (EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11)
Other: VCCI-CISPR 32 and AS/NZS CISPR 32
Environmental: Directive 2011/65/EU and Directive 2012/19/EU
Safety: CSA/EN/IEC/UL 60950-1 Compliant, UL or CSA Listed (USA and Canada), CE Marking (Europe)

Perchlorate Warning

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