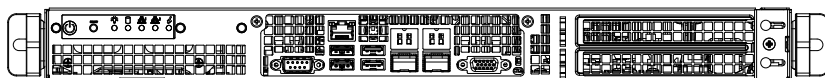




SUPERSERVER®

1018D-FRN8T



USER'S MANUAL

1.0

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Release Date: July 7, 2016

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## Preface

### About This Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of the SuperServer 1018D-FRN8T. Installation and maintenance should be performed by experienced technicians only.

The SuperServer 1018D-FRN8T is a server based on the SC515-R407 1U rack-mount chassis and the Super X10SDV-7TP8F motherboard.

### Manual Organization

#### Chapter 1: Introduction

The first chapter provides a checklist of the main components included with the server system and describes the main features of the X10SDV-7TP8F motherboard and the SC515-R407 chassis.

#### Chapter 2: Server Installation

This chapter describes the steps necessary to install the SuperServer 1018D-FRN8T into a rack and check out the server configuration prior to powering up the system. If your server was ordered without processor and memory components, this chapter will refer you to the appropriate sections of the manual for their installation.

#### Chapter 3: System Interface

Refer here for details on the system interface, which includes the functions and information provided by the control panel on the chassis as well as other LEDs located throughout the system.

#### Chapter 4: Standardized Warning Statements

You should thoroughly familiarize yourself with this chapter for a general overview of safety precautions that should be followed when installing and servicing the SuperServer 1018D-FRN8T.

**Chapter 5: Advanced Motherboard Setup**

Chapter 5 provides detailed information on the X10SDV-7TP8F motherboard, including the locations and functions of connections, headers and jumpers. Refer to this chapter when adding or removing processors or main memory and when reconfiguring the motherboard.

**Chapter 6: Advanced Chassis Setup**

Refer to Chapter 6 for detailed information on the SC515-R407 server chassis. You should follow the procedures given in this chapter when installing, removing or reconfiguring hard drives and when replacing system power supply modules and cooling fans.

**Chapter 7: BIOS**

The BIOS chapter includes an introduction to BIOS and provides detailed information on running the CMOS Setup Utility.

**Appendix A: BIOS Error Beep Codes****Appendix B: System Specifications****Appendix C: UEFI BIOS Recovery Instructions****Notes**

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# Chapter 1

## Introduction

### 1-1 Overview

The SuperServer 1018D-FRN8T is a 1U server comprised of two main subsystems: the SC515-R407 chassis and the X10SDV-7TP8F motherboard. Please refer to our website for information on operating systems that have been certified for use with the system ([www.supermicro.com](http://www.supermicro.com)).

In addition to the motherboard and chassis, various hardware components have been included with the 1018D-FRN8T, as listed below:

- Four 4-cm counter-rotating fans (FAN-0157L4)
- One air shroud (MCP-310-51502-0B)
- Two passive CPU heatsinks (SNK-P0047PS)
- One RSC-RR1U-E8 riser card
- One fixed HDD bracket for two 2.5" HDDs (MCP-220-51401-0N)
- One rail kit consisting of one set each of outer rails (MCP-290-00102-0N) and inner rails (MCP-290-00108-0N)

**Note:** 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: <ftp://ftp.supermicro.com>
- Product safety info: [http://www.supermicro.com/about/policies/safety\\_information.cfm](http://www.supermicro.com/about/policies/safety_information.cfm)
- If you have any questions, please contact our support team at: [support@supermicro.com](mailto:support@supermicro.com)

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## 1-2 Motherboard Features

At the heart of the SuperServer 1018D-FRN8T lies the X10SDV-7TP8F, a single processor motherboard. Below are the main features of the X10SDV-7TP8F.

### Processors

The X10SDV-7TP8F supports a single Intel® Xeon/Pentium® D-1500 Family SoC embedded processor (SoC = System on a Chip).

### Memory

The X10SDV-7TP8F has four DIMM slots that can support up to 128 GB of ECC RDIMM (Registered DIMM) or 64 GB of ECC/non-ECC UDIMM (Unregistered DIMM) DDR4-2133/1866/1600 memory. See Chapter 5 for details.

### SATA

A SATA controller is integrated into the chipset to provide six SATA 3.0 (6/Gbps) ports. The SC515-R407 chassis can support two internal fixed HDDs..

### PCI-Expansion

One M.2 PCI-E 3.0 x4 slot, an M Key for 2242/2280/22110 SSDs and one mini PCI-E 2.0 x1 slot with mSATA support (Mux with I-SATA5)

### Rear I/O Ports

The rear I/O panel include a VGA port, two USB 3.0 ports, two Gb Ethernet (RJ45) LAN ports, a dedicated IPMI LAN port and two 10 Gb (SPF+) Ethernet LAN ports.

### Onboard Graphics

The X10SDV-7TP8F features an integrated AST 2400 graphics controller.

---

## 1-3 Server Chassis Features

The following is a general outline of the main features of the SC515-R407 chassis.

### System Power

The SC515-R407 chassis includes a single 400W redundant power supply consisting of two separate power supply modules. If one of the power supply modules fail, the system will continue running.

### Control Panel

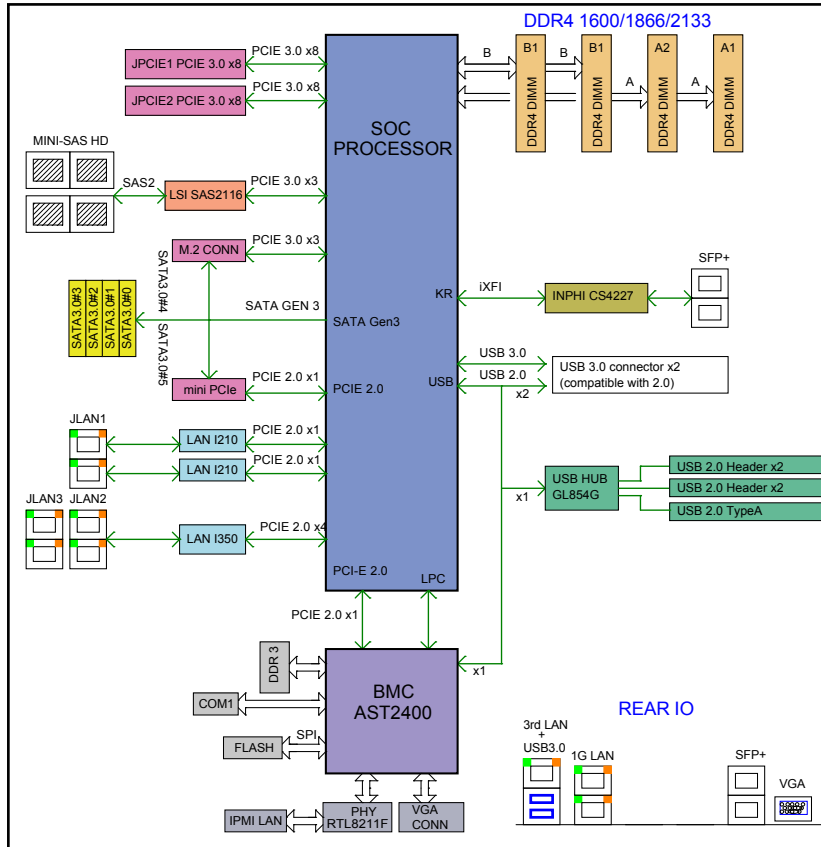
The SC515-R407's control panel provides important system monitoring and control information. LEDs indicate power on, network activity, hard disk drive activity and an information LED. The control panel also includes a main power button and a system reset button.

### Cooling System

The SC515-R407 chassis has an innovative cooling design that features four 4-cm counter-rotating fans. The fans plug into a fan header on the motherboard.

**Figure 1-1. X10SDV Flex ATX Series:  
System Block Diagram**

**Note:** This is a general block diagram. Please see Chapter 5 for details.



## 1-4 Contacting Supermicro

### Headquarters

Address: Super Micro Computer, Inc.  
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Fax: +886-(2) 8226-3992  
Email: support@supermicro.com.tw  
Website: [www.supermicro.com.tw](http://www.supermicro.com.tw)



# Notes

## Chapter 2

# Server Installation

### 2-1 Overview

This chapter provides a quick setup checklist to get your system installed into a rack. Be aware of the warnings and precautions mentioned in this chapter when installing the server into a rack.

### 2-2 Unpacking the System

You should inspect the box the server was shipped in and note if it was damaged in any way. If the chassis itself shows damage, file a damage claim with the carrier who delivered it.

### 2-3 Preparing for Setup

Decide on a suitable location for the rack unit that will hold your chassis. It should be a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. A nearby grounded power outlet is required

The box your chassis was shipped in should include two sets of rail assemblies, two rail mounting brackets and the mounting screws to mount the system into the rack. Please read this chapter in its entirety before beginning the installation procedure.

#### Choosing a Setup Location

- Leave enough clearance in front of the rack to enable you to open the front door completely (~25 inches) and approximately 30 inches of clearance in the back of the rack to allow for sufficient airflow and ease in servicing. This product is for installation only in a Restricted Access Location (dedicated equipment rooms, service closets and the like).
- This product is not suitable for use with visual display work place devices according to §2 of the German Ordinance for Work with Visual Display Units.

## 2-4 Warnings and Precautions

### Rack Precautions

- Ensure that the leveling jacks on the bottom of the rack are fully extended to the floor with the full weight of the rack resting on them.
- In single rack installation, 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 component from the rack.
- You should extend only one component at a time - extending two or more simultaneously may cause the rack to become unstable.
- Rack-mounted equipment should not be used as a shelf or work space.

### Server Precautions

- Review the electrical and general safety precautions in Chapter 4.
- Determine the placement of each component in the rack *before* you install the rails.
- Install the heaviest server components on the bottom of the rack first, and then work up.
- Use a regulating uninterruptible power supply (UPS) to protect the server from power surges, voltage spikes and to keep your system operating in case of a power failure.
- Allow the hot plug SATA drives and power supply modules to cool before touching them.
- Always keep the rack's front door and all panels and components on the servers closed when not servicing 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 ambient temperature of the room. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature (T<sub>mra</sub>).

### *Reduced Airflow*

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

### *Mechanical Loading*

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

### *Circuit Overloading*

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

### *Reliable Ground*

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



**Warning!** 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.

## 2-4 Rack Mounting Instructions

This section provides information on installing the SC515 chassis into a rack unit with the 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.

**Note:** This rail will fit a rack between 26" and 33.5" deep.

### Identifying the Sections of the Rack Rails

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

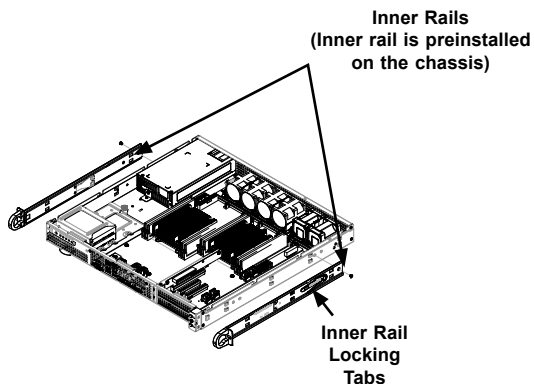


Figure 2-1. Identifying the Sections of the Inner Rails

### Locking Tabs

Both chassis rails have a locking tab. The tabs lock the server into place when installed and pushed fully into the rack. These tabs also lock the server in place when fully extended from the rack. This prevents the server from coming completely out of the rack when you pull it out for servicing.

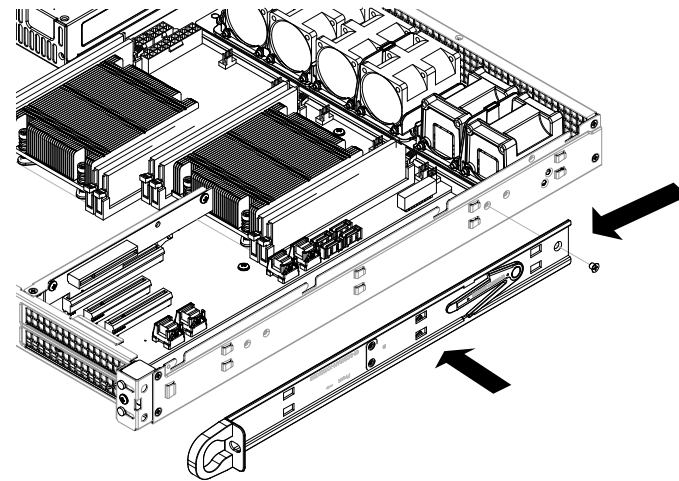


Figure 2-2. Installing the Inner Rail (Right side inner rail shown)

### Installing The Inner Rail

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

#### Installing the Inner Rails

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



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

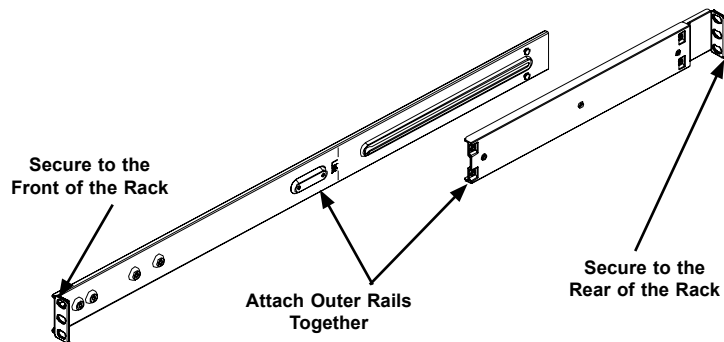


Figure 2-3. Assembling the Outer Rails

### Outer Rack Rails

Outer rails attach to the server rack and hold the server in place. The outer rails for the SC515 chassis extend between 30 inches and 33 inches.

#### *Installing the Outer Rails to the Rack*

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



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



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.

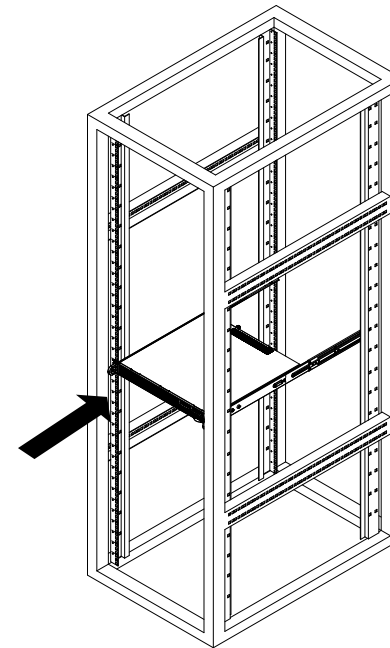
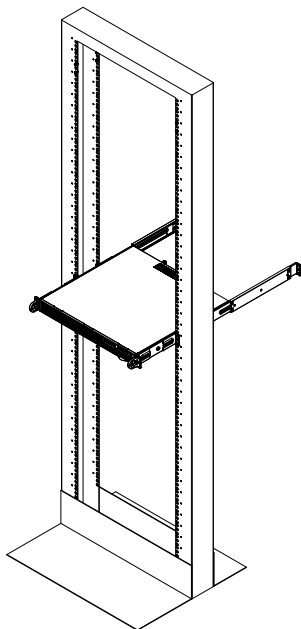


Figure 2-4. Installing into a Rack

#### *Installing the Chassis into a Rack*

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

**Note:** figures are for illustrative purposes only. Always install servers into racks from the bottom up.



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

***Installing the Chassis into a Mid-Mount Position (Telco) Rack***

1. Use the two L-shaped brackets (four total) to suspend the sides of the chassis within the rack.
2. Determine how far the chassis will extend out the front of the rack. Larger chassis should be positioned to balance the weight between front and back. If a bezel is included on your server, remove it.
3. Attach the two front brackets to each side of the chassis, then the two rear brackets positioned with just enough space to accommodate the width of the telco rack.
4. Finish by sliding the chassis into the rack and tightening the brackets to the rack.

**Note:** figures are for illustrative purposes only. Always install servers into racks from the bottom up.

## Chapter 3

# System Interface

### 3-1 Overview

There are several LEDs on the control panel as well as others on the hard drive carriers to keep you constantly informed of the overall status of the system as well as the activity and health of specific components. There are also two buttons on the chassis control panel.

This chapter explains the meanings of all LED indicators and the appropriate response you may need to take.

### 3-2 Control Panel Buttons

There are two push-buttons located on the front of the chassis: a reset button and a power on/off button.

RESET



#### Reset

The reset button reboots the system.



#### Power

This is the main power button, which is used to apply or turn off the main system power. Turning off system power with this button removes the main power but keeps standby power supplied to the system.

### 3-3 Control Panel LEDs

The control panel located on the front of the SC515-R407 chassis has five LEDs. These LEDs provide you with critical information related to different parts of the system. This section explains what each LED indicates when illuminated and any corrective action you may need to take.



#### Information LED

This LED will be blue when the UID function has been activated. When this LED flashes red, it indicates a fan failure. When red continuously it indicates an overheat condition, which may be caused by cables obstructing the airflow in the system or the ambient room temperature being too warm. Check the routing of the cables and make sure all fans are present and operating normally. You should also check to make sure that the chassis covers are installed. Finally, verify that the heatsinks are installed properly (see Chapter 5). This LED will remain flashing or on as long as the indicated condition exists.

Information LED	
Status	Description
Solid red	An overheat condition has occurred. (This may be caused by cable congestion).
Blinking red (1Hz)	Fan failure, check for an inoperative fan.
Blinking red (0.25Hz)	Power failure, check for a non-operational power supply.
Solid blue	Local UID has been activated. Use this function to locate the server in a rack mount environment.
Blinking blue (300 msec)	Remote UID is on. Use this function to identify the server from a remote location.



#### NIC1

Indicates network activity on LAN1 when flashing.



#### NIC2

Indicates network activity on LAN2 when flashing.



#### HDD

Channel activity for all HDDs. This light indicates hard drive activity on the 1018D-FRN8T when flashing.



#### Power

Indicates power is being supplied to the system's power supply units. This LED should normally be illuminated when the system is operating.

### 3-4 Power Supply LEDs

On the rear of the power supply module, an LED displays the status.

- **Solid Green:** When illuminated, indicates that the power supply is on.
- **Solid Amber:** When illuminated, indicates the power supply is plugged in and turned off, or the system is off but in an abnormal state.
- **Blinking Amber:** When blinking, this system power supply temperature has reached 63°C. The system will automatically power down when the power supply temperature reaches 70°C and restart when the power supply temperature goes below 60°C.



## Notes

## Chapter 4

# Standardized Warning Statements for AC Systems

### 4-1 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 web site at [http://www.supermicro.com/about/policies/safety\\_information.cfm](http://www.supermicro.com/about/policies/safety_information.cfm).

#### Warning Definition



#### Warning!

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

#### 警告の定義

この警告サインは危険を意味します。

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

此警告符号代表危險。

您正處於可能受到嚴重傷害的工作環境中。在您使用設備開始工作之前，必須充分意識到觸電的危險，並熟练掌握防止事故發生的標準工作程序。請根據每項警告結尾的聲明號碼找到此設備的安全性警告說明的翻譯文本。

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 במאזי סופרמיקרו.

تحذير! هذا الرمز يعني خطر انك في حالة يمكن أن تتسبب في اصابة جسدية .  
قبل أن تعمل على أي معدات، كن على علم بالمخاطر الناجمة عن الدوائر  
الكهربائية

وكن على دراية بالممارسات الوقائية لمنع وقوع أي حوادث  
استخدم رقم البيان المنصوص في نهاية كل تحذير للعثور ترجمتها

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 읽어주시시오.

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-250 V, 20 A.

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

#### 경고!

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

#### Waarschuwing

Dit product is afhankelijk van de kortsluitbeveiliging (overspanning) van uw elektrische installatie. Controleer of het beveiligde apparaat niet groter gedimensioneerd is dan 220V, 20A.

### Power Disconnection Warning



#### Warning!

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

#### 電源切斷の警告

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

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

#### 警告

在你打开机箱并安装或移除内部器件前，必须将系统完全断电，并移除电源线。

#### 警告

在您打開機殼安裝或移除內部元件前，必須將系統完全斷電，並移除電源線。

#### Warnung

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

#### ¡Advertencia!

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

#### Attention

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

### אזהרה מפני ניתוק חשמלי

#### אזהרה!

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

يجب فصل النظام من جميع مصادر الطاقة وإزالة سلك الكهرباء من وحدة امداد الطاقة قبل الوصول إلى المناطق الداخلية للهيكल لتثبيت أو إزالة مكونات الجهاز

#### 경고!

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

يجب أن يسمح فقط للموظفين المؤهلين والمدربين لتثبيت واستبدال أو خدمة هذا الجهاز

#### 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').

تم تخصيص هذه الوحدة لتركيبها في مناطق محظورة .  
يمكن الوصول إلى منطقة محظورة فقط من خلال استخدام أداة خاصة،  
قفل ومفتاح أو أي وسيلة أخرى للأمان

**경고!**

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

**Waarschuwing**

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

**Battery Handling****Warning!**

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

**電池の取り扱い**

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

**警告**

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

**警告**

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

**Warnung**

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

**Attention**

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

**¡Advertencia!**

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

**אזהרה!**

קיימת סכנת פיצוץ של הסוללה במידה והוחלפה בדרך לא תקינה. יש להחליף את הסוללה בסוג התואם מחברת יצרן מומלצת.

סילוק הסוללות המשומשות יש לבצע לפי הוראות היצרן.

هناك خطر من انفجار في حالة استبدال البطارية بطريقة غير صحيحة فعليك استبدال البطارية فقط بنفس النوع أو ما يعادلها كما أوصت به الشركة المصنعة تخلص من البطاريات المستعملة وفقا لتعليمات الشركة الصانعة

**경고!**

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

**Waarschuwing**

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

## Redundant Power Supplies



### Warning!

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

### 冗長電源装置

このユニットは複数の電源装置が接続されている場合があります。  
ユニットの電源を切るためには、すべての接続を取り外さなければなりません。

### 警告

此部件连接的电源可能不止一个，必须将所有电源断开才能停止给该部件供电。

### 警告

此裝置連接的電源可能不只一個，必須切斷所有電源才能停止對該裝置的供電。

### Warnung

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

### ¡Advertencia!

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

### Attention

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

## אם קיים יותר מספק אחד

### אזהרה!

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

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

### 경고!

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

### Waarschuwing

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

## Backplane Voltage



### Warning!

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

### バックプレーンの電圧

システムの稼働中は危険な電圧または電力が、バックプレーン上にかかっています。  
修理するにはご注意ください。

### 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!

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



**Attention**

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

**מתח בפנל האחורי**

אזהרה!

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

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

경고!

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

**Waarschuwing**

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

**Comply with Local and National Electrical Codes****Warning!**

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

地方および国の電気規格に準拠

機器の取り付けはその地方および国の電気規格に準拠する必要があります。

警告

设备安装必须符合本地与本国电气法规。

警告

設備安裝必須符合本地與本國電氣法規。

Warnung

Die Installation der Geräte muss den Sicherheitsstandards entsprechen.

¡Advertencia!

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

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

**תאום חוקי החשמל הארצי**

אזהרה!

התקנת הציוד חייבת להיות תואמת לחוקי החשמל המקומיים והארציים.

تركيب المعدات الكهربائية يجب أن يمتثل للقوانين المحلية والوطنية 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.

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

**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!**

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**

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**

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**

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**

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!**

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

**Attention**

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!**

כאשר מסירים את חלקי המאוורר מהמארז, יתכן והמאווררים עדיין עובדים. יש להרחיק למרחק בטוח את האצבעות וכלי עבודה שונים מהפתחים בתוך המאוורר

من الممكن أن المراوح لا تزال تدور عند إزالة كتلة المروحة من الهيكل يجب إبقاء الأصابع ومفكات البراغي وغيرها من الأشياء بعيدا عن الفتحات في كتلة المروحة.

**경고!**

새시로부터 팬 조립품을 제거할 때 팬은 여전히 회전하고 있을 수 있습니다. 팬 조립품 외관의 열려있는 부분들로부터 손가락 및 스크류드라이버, 다른 물체들이 가까이 하지 않도록 배치해 주십시오.

## Waarschuwing

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、提供または指定された接続ケーブル、電源コードとACアダプターを使用下さい。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连接线,电源线和电源适配器.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連接線,電源線和電源適配器.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

Bei der Installation des Produkts, die zur Verfügung gestellten oder benannt Anschlusskabel, Stromkabel und Netzteile. Verwendung anderer Kabel und Adapter kann zu einer Fehlfunktion oder ein Brand entstehen. Elektrische Geräte und Material Safety Law verbietet die Verwendung von UL-oder CSA-zertifizierte Kabel, UL oder CSA auf der Code für alle anderen elektrischen Geräte als Produkte von Supermicro nur bezeichnet gezeigt haben.

## ¡Advertencia!

Al instalar el producto, utilice los cables de conexión previstos o designados, los cables y adaptadores de CA. La utilización de otros cables y adaptadores podría ocasionar un mal funcionamiento o un incendio. Aparatos Eléctricos y la Ley de Seguridad del Material prohíbe el uso de UL o CSA cables certificados que tienen UL o CSA se muestra en el código de otros dispositivos eléctricos que los productos designados por Supermicro solamente.

### Attention

Lors de l'installation du produit, utilisez les bables de connection fournis ou désigné. L'utilisation d'autres cables et adaptateurs peut provoquer un dysfonctionnement ou un incendie. Appareils électroménagers et de loi sur la sécurité Matériel interdit l'utilisation de UL ou CSA câbles certifiés qui ont UL ou CSA indiqué sur le code pour tous les autres appareils électriques que les produits désignés par Supermicro seulement.

## חשמליים ומתאמי AC

### אזהרה!

כאשר מתקינים את המוצר, יש להשתמש בכבלים, ספקים ומתאמים AC אשר נועדו וסופקו לשם כך. שימוש בכל כבל או מתאם אחר יכול לגרום לתקלה או קצר חשמלי. על פי חוקי שימוש במכשירי חשמל וחוקי בטיחות, קיים איסור להשתמש בכבלים המוסמכים ב- UL או ב- CSA (כשאר מופיע עליהם קוד של UL/CSA) עבור כל מוצר חשמלי אחר שלא צוין על ידי סופרמיקרו בלבד.

عند تركيب الجهاز يجب استخدام كابلات التوصيل، والكابلات الكهربائية ومحولات التيار المتردد

التي . أن استخدام أي كابلات ومحولات أخرى يتسبب في حدوث عطل أو حريق. تم توفيرها لك مع المنتج

الأجهزة الكهربائية ومواد قانون السلامة يحظر استخدام الكابلات UL أو CSA معتمدة من قبل

لأي أجهزة كهربائية أخرى غير المنتجات المعينة من قبل Supermicro (التي تحمل علامة UL/CSA)

### 경고!

제품을 설치할 때에는 제공되거나 지정된 연결케이블과 전원케이블, AC 어댑터를 사용해야 합니다. 그 밖의 다른 케이블들이나 어댑터들은 고장 또는 화재의 원인이 될 수 있습니다. 전기용품안전법 (Electrical Appliance and Material Safety Law)은 슈퍼마이크로에서 지정한 제품들 외에는 그 밖의 다른 전기 장치들을 위한 UL 또는 CSA에서 인증한 케이블(전선 위에 UL/CSA가 표시)들의 사용을 금지합니다.

### Waarschuwing

Bij het installeren van het product, gebruik de meegeleverde of aangewezen kabels, stroomkabels en adapters. Het gebruik van andere kabels en adapters kan leiden tot een storing of een brand. Elektrisch apparaat en veiligheidsinformatiebladen wet verbiedt het gebruik van UL of CSA gecertificeerde kabels die UL of CSA die op de code voor andere elektrische apparaten dan de producten die door Supermicro alleen.

## Chapter 5

### Advanced Motherboard Setup

This chapter describes the X10SDV-7TP8F motherboard including how to connect the data and power cables and install add-on cards. All motherboard jumpers and connections are described and a layout and quick reference chart are included in this chapter. Remember to close the chassis completely when you have finished working on the motherboard to protect and cool the system sufficiently.

#### 5-1 Handling the Motherboard

Static electrical discharge can damage electronic components. To prevent damage to printed circuit boards, it is important to handle them very carefully (see Chapter 4). Also note that the size and weight of the motherboard can cause it to bend if handled improperly, which may result in damage. To prevent the motherboard from bending, keep one hand under the center of the board to support it when handling.

The following measures are generally sufficient to protect your equipment from static discharge.

##### Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing any board from its antistatic bag.
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the motherboard, add-on cards and peripherals back into their antistatic bags when not in use.

## 5-2 Connecting Cables

The cables include the data cables for the peripherals and control panel and the power cables.

### Connecting Data Cables

The cables used to transfer data from the peripheral devices have been carefully routed in preconfigured systems to prevent them from blocking the flow of cooling air that moves through the system from front to back.

If you need to disconnect any of these cables, you should take care to reroute them as they were originally after reconnecting them (be aware of the pin 1 locations). If you are configuring the system, keep the airflow in mind when routing the cables.

### Connecting Power Cables

The X10SDV-7TP8F has a 24-pin primary power supply connector designated "JPW1" for connection to the ATX power supply. Connect the appropriate connector from the power supply to JPW1 to supply power to the motherboard. See the Connector Definitions section in this chapter for power connector pin definitions.

In addition, the JPH1 connector (to supply power for HDDs) and the JPV1 connector (to provide alternate power when JPW1 is not being used) may need to be connected to the power supply.

### Connecting the Control Panel

JF1 contains header pins for various front control panel connectors. See Figure 5-1 for the pin locations of the various front control panel buttons and LED indicators. Please note that even and odd numbered pins are on opposite sides of each header. All JF1 wires have been bundled into single keyed ribbon cable to simplify their connection. Connect one end of this cable to JF1 and the other end to the Control Panel printed circuit board, located just behind the system status LEDs in the chassis.

See the Connector Definitions section in this chapter for details and pin descriptions of JF1.

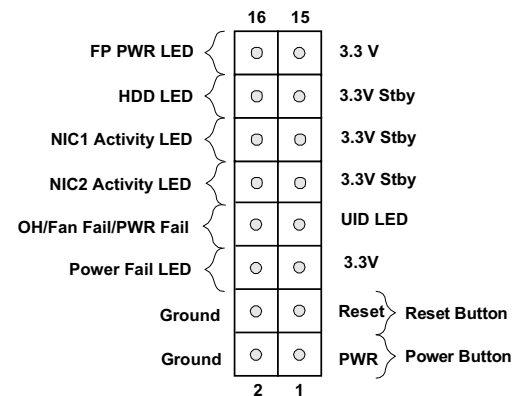


Figure 5-1. Front Control Panel Header Pins (JF1)

## 5-3 I/O Ports

See Figure 5-2 below for the descriptions of the various rear I/O ports.

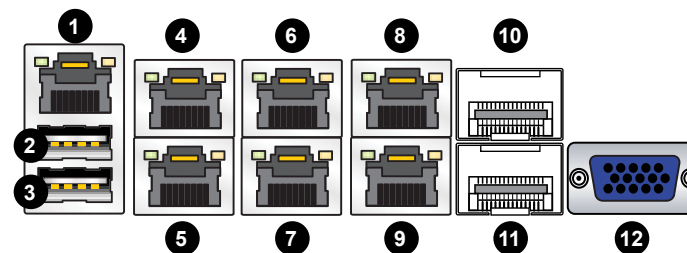


Figure 5-2. Rear Panel I/O Ports

Rear Panel I/O Ports		
1. IPMI LAN Port	5. LAN Port 1	9. LAN Port 5
2. USB Port 1 (USB 3.0)	6. LAN Port 4	10. LAN Port 8
3. USB Port 0 (USB 3.0)	7. LAN Port 3	11. LAN Port 7
4. LAN Port 2	8. LAN Port 6	12. VGA Port

## 5-4 Installing Memory

Note: Check the Supermicro website for recommended memory modules.

### CAUTION

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

#### Installing DIMMs

1. Insert the desired number of DIMMs into the memory slots, starting with slots DIMMA1. Pay attention to the notch along the bottom of the module to prevent inserting the DIMM module incorrectly. See Figure 5-3.
2. Gently press down on the DIMM module until it snaps into place in the slot. Repeat step 1 to install to DIMM1B if needed.

#### Memory Support

The X10SDV-7TP8F has four DIMM sockets that can support up to 128 GB of ECC RDIMM (Registered DIMMs) or 64 GB of ECC/non-ECC UDIMM (Unregistered DIMMs) DDR4-2133/1866/1600 memory.

For the latest memory updates, please refer to our website. Please follow the tables below for correct installation.

#### Memory Installation Guidelines

When installing memory modules, the DIMM slots should be populated in the following order: DIMMA1, DIMMB1, then DIMMA2, DIMMB2.

- Always use DDR4 DIMM modules of the same size, type and speed. Mixing memory modules of different types and speeds is not allowed.
- The motherboard will support one DIMM module installed. However, for best memory performance, install DIMM modules in pairs.

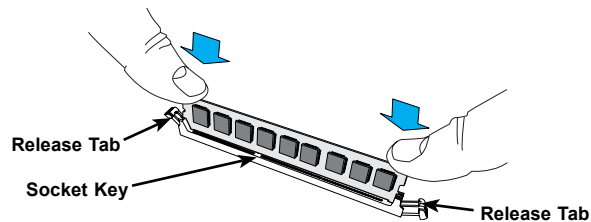


Figure 5-3. DIMM Installation

### Recommended Population (Balanced)

DIMMA1 Slot	DIMMB1 Slot	DIMMA2 Slot	DIMMB2 Slot	Total System Memory
4GB	4GB			8GB
4GB	4GB	4GB	4GB	16GB
8GB	8GB			16GB
8GB	8GB	8GB	8GB	32GB
16GB	16GB			32GB
16GB	16GB	16GB	16GB	64GB
32GB	32GB			64GB
32GB	32GB	32GB	32GB	128GB

## 5-5 Adding PCI Expansion Cards

#### PCI Expansion Slots

One RSC-RR1U-E8 riser card is used to support a FHHL (full-height, half-length) expansion (add-on) card to the system.

#### PCI Card Installation

Before installing a PCI add-on card, make sure it is supported by the riser card. Begin by releasing the locking tab that corresponds to the slot you wish to populate. Insert the expansion card into the riser card by pushing down with your thumbs evenly on both sides of the card.

#### PCI Slot/Card Configurations

##### Riser Card

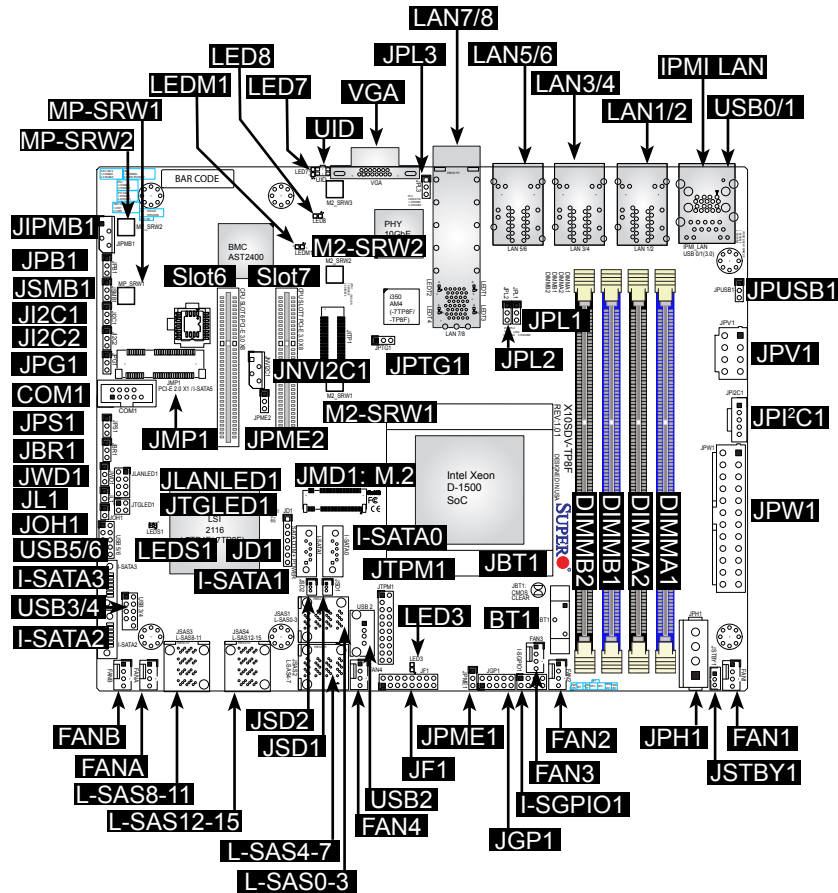
RSC-RR1U-E8 (pre-installed)

##### Expansion Card Supported

1x PCI-E 3.0 x8 FHHL card

## 5-6 Motherboard Details

Figure 5-4. SUPER X10SDV-7TP8F Layout



**Notes:**

- "■" indicates the location of pin 1.
- Jumpers/LED indicators not indicated are used for testing purposes only.

## X10SDV-7TP8F Quick Reference

Jumper	Description	Default Setting
JBR1	BIOS Recovery	Pins 1-2 (Normal)
JBT1	CMOS Clear	See Section 5-8
JI2C1/JI2C2	SMB to PCI-Exp. Slots /Disable	Pins 2-3 (Disabled)
JPB1	BMC Enable/Disable (Debug use only)	Pins 1-2 (Enabled)
JPG1	VGA Enable/Disable	Pins 1-2 (Enabled)
JPL1	LAN1 Enable/Disable	Pins 1-2 (Enabled)
JPL2	LAN2 Enable/Disable	Pins 1-2 (Enabled)
JPL3	LAN3/4/5/6 Enable/Disable	Pins 1-2 (Enabled)
JPME1	ME Recovery	Pins 1-2 (Normal)
JPME2	Manufacturing Mode	Pins 1-2 (Normal)
JPS1	SAS 2.0 Enable/Disable	Pins 1-2 (Enabled)
JPTG1	10Gb Ethernet Enable/Disable	Pins 1-2 (Enabled)
JPUSB1	USB Wakeup (USB0/1) Enable/Disable	Pins 1-2 (Enabled)
JWD1	Watch Dog	Pins 1-2 (Reset)

Connector	Description
COM1	COM1 Header
FAN1 ~ FAN4 FANA, FANB	CPU/System Cooling Fans
IPMI LAN	Dedicated IPMI LAN Port
I-SATA0 ~ I-SATA5	Intel SATA Ports (I-SATA0 / I-SATA1 support SuperDOM, I-SATA4 via M.2, I-SATA5 via Mini-PCIE mSATA)
I-SGPIO1	Serial Link General Purpose I/O Header
JD1	Speaker (Pins 1-3: Power LED, Pins 4-7: Speaker)
JF1	Front Panel Control Header
JGP1	General Purpose I/O Header
JIPMB1	4-pin External Smbus I2C Header (for an IPMI Card)
JL1	Chassis Intrusion Header
JLANLED1	LAN3 ~ LAN6 Activity LED Header
JMD1	M.2 PCI-E 3.0 X4 / I-SATA4 Slot
JMP1	Mini PCI-E 2.0 X1 / I-SATA5 Slot
JNVI2C1	NVMe I2C Header

Table continued on next page.



Connector	Description
JOH1	Overheat LED Header
JPH1	4-pin Power Connector for HDDs
JPI <sup>2</sup> C1	Power Supply SMBus I <sup>2</sup> C Header
JPV1	12V 8-pin Power Connector (provides alternate power for special enclosure when the 24-pin ATX power is not in use)
JPW1	24-pin ATX Power Connector
JSD1, JSD2	SATA DOM (Device On Module) Power Connectors
JSMB1	SMBus Header
JSTBY1	5V Standby Power Header
JTGLD1	LAN7 ~ LAN8 Activity LED Header
JTPM1	Trusted Platform Module (TPM)/Port 80 Connector
LAN1 ~ LAN8	Gigabit Ethernet (RJ45) Ports (LAN1 ~ LAN6) 10Gigabit Ethernet (SFP+) Ports (LAN7 ~ LAN8)
L-SAS0 ~ L-SAS15	SAS 2.0 Ports
M2-SRW1 ~ SRW3	M.2 Mounting Screws
MP-SRW1 ~ SRW2	PCI-E 2.0 x1 / I-SATA5 Slot Mounting Screws
Slot6, Slot7	CPU PCI-E 3.0 x8 Slot
UID	Unit ID Button
USB 0/1	Back Panel USB 3.0 Ports
USB 2	USB Type A Connector
USB 3/4, 5/6	Front Access USB 2.0 Ports

LED	Description	Color/State	Status
LED3	Power LED	Green: On	System Power On
LED7	UID Switch LED	Blue: On	Unit Identified
LED8	Overheat/PWR Fail/Fan Fail LED	Red: Solid on Blinking	Overheat PWR Fail or Fan Fail
LEDM1	BMC Heartbeat LED	Green: Blinking	BMC: Normal
LEDS1	SAS Heartbeat LED	Green: Blinking Red: Solid On	SAS Active SAS Error
LEDT1	LAN7 Link Status	Green: On	LAN7 Normal
LEDT2	LAN7 Activity	Green: Blinking	LAN7 Active
LEDT3	LAN8 Link Status	Green: On	LAN8 Normal
LEDT4	LAN8 Activity	Green: Blinking	LAN8 Active

## 5-7 Connector Definitions

### Power Connectors

The 24-pin ATX power connector at JPW1 is used to provide power to the motherboard. JPV1 is a 12V DC power connector that provides alternative power for special a enclosure when the 24-pin ATX power is not in use. The 4-pin HDD power connector JPH1 provides power to onboard HDD devices.

**Note:** Do not use the 8-pin DC power at JPV1 when the 24-pin ATX Power at JPW1 is connected to the power supply. Do not plug in both JPV1 and JPW1 at the same time.

ATX Power 24-pin Connector Pin Definitions (JPW1)			
Pin#	Definition	Pin #	Definition
13	+3.3V	1	+3.3V
14	-12V	2	+3.3V
15	COM	3	COM
16	PS_ON	4	+5V
17	COM	5	COM
18	COM	6	+5V
19	COM	7	COM
20	Res (NC)	8	PWR_OK
21	+5V	9	5VSB
22	+5V	10	+12V
23	+5V	11	+12V
24	COM	12	+3.3V

8-pin DC Power Pin Definitions (JPV1)		4-Pin HDD Power Pin Definitions (JPH1)	
Pin#	Definition	Pin#	Definition
1-4	GND	1	12V
5-8	12V	2-3	GND
		4	5V

### Power LED

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

Power LED Pin Definitions (JF1)	
Pin#	Definition
15	3.3V
16	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 all HDD-related activities. See the table on the right for pin definitions.

HDD LED Pin Definitions (JF1)	
Pin#	Definition
13	3.3V Standby
14	HD LED

### NIC1/NIC2 (LAN1/LAN2)

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

LAN1/LAN2 LED Pin Definitions (JF1)	
Pin#	Definition
9-11	3.3V Standby
10-12	NIC Activity LED

### Overheat (OH)/Fan Fail/PWR Fail/UID LED

Connect an LED cable to pins 7 and 8 of JF1 for Overheat/Fan Fail/Power Fail and UID LED indications. The blue LED on pin 7 works as the front panel UID LED indicator. The red LED on pin 8 works provides warnings of overheat, fan failure or power failure. The red LED takes precedence over the blue LED by default. Refer to the table on the right for pin definitions.

OH/Fan Fail/PWR Fail/Blue UID LED Pin Definitions (JF1)	
Pin#	Definition
7	Blue UID LED
8	OH/Fan Fail/Power Fail Cathode

### 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 on the right for pin definitions.

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

### Power Fail LED

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

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

### 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 be configured as 4 Seconds Override or Instant Off (with a setting in the BIOS setting, see Chapter 7). Refer to the table on the right for pin definitions.

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

### Universal Serial Bus (USB)

Two USB 3.0 ports (USB0/1) are located on the I/O back panel. Two USB 2.0 headers (USB3/4 and USB5/6) and one USB Type A header are also provided on the motherboard to provide front panel access. USB cables are not included. Refer to the tables on the right for pin definitions.

Back Panel USB 3.0 Pin Definitions			
Pin #	Definition	Pin #	Definition
1	+5V	5	+5V
2	USB_PN1	6	USB_PN0
3	USB_PP1	7	USB_PP0
4	Ground	8	Ground

Internal USB Port 2.0 Pin Definitions			
Pin #	Definition	Pin #	Definition
1	+5V	2	+5V
3	USB_PN2	4	USB_PN3
5	USB_PP2	6	USB_PP3
7	Ground	8	Ground
9	Key	10	NC

### Gigabit Ethernet LAN Ports

Two Gigabit Ethernet ports (LAN1 and LAN2) and a dedicated IPMI LAN port are located on the rear I/O panel to provide network connections. These ports accept RJ45 type cables. Please refer to the LED Indicator Section for LAN LED information.

### 10G SFP+/Ethernet LAN Ports

Two 10 Gigabit SFP+ (Small-form Factor Pluggable) Ethernet LAN ports, supported by the SoC, are located at LAN7 and LAN8 on the rear I/O panel. Please refer to the 10G LAN LED section for 10G LAN LED information.

### Serial Port

A COM port is on the motherboard to provide a front accessible serial connection.

### Unit Identifier Switch

A Unit Identifier (UID) switch and two LED indicators are located on the motherboard. The UID switch is located next to the VGA port on the back panel. The rear UID LED (LED7) is located next to the UID switch. The Front Panel UID LED is located at pin 7 of the Front Control Panel at JF1. Connect a cable to pin 7 on JF1 for Front Panel UID LED indication. When you press the UID switch, both the rear UID LED and the Front Panel UID LED Indicators will be turned on. Press the UID switch again to turn off both LED Indicators. These 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>.

### Fan Headers

This motherboard has six 4-pin fan headers. Although pins 1-3 of the fan headers are backward compatible with the traditional 3-pin fans, we recommend you use 4-pin fans to take advantage of the fan speed control via Pulse Width Modulation through the BMC. This allows the fan speeds to be automatically adjusted based on the motherboard temperature.

### Chassis Intrusion

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

### Internal Speaker

The Internal Speaker, located at SP1, can be used to provide audible indications for various beep codes. See the table on the right for pin definitions.

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

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

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

Chassis Intrusion Pin Definitions (JL1)	
Pin#	Definition
1	Ground
2	Intrusion Input

Internal Buzzer (SP1) Pin Definition		
Pin#	Definitions	
1	Pos. (+)	Beep In
2	Neg. (-)	Alarm Speaker

### TPM Header/Port 80 Header

A Trusted Platform Module/Port 80 header, located at JTPM1, provides Trusted Platform (TPM) support and Port 80 connection. Use this header to enhance system performance and data security. See the table on the right for pin definitions.

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

TPM/Port 80 Header Pin Definitions			
Pin #	Definition	Pin #	Definition
1	LCLK	2	GND
3	LFRAME#	4	<(KEY)>
5	LRESET#	6	+5V (X)
7	LAD 3	8	LAD 2
9	+3.3V	10	LAD1
11	LAD0	12	GND
13	SMB_CLK4	14	SMB_DAT4
15	+3V_DUAL	16	SERIRQ
17	GND	18	CLKRUN# (X)
19	LPCPD#	20	LDRQ# (X)

### 4-pin External I<sup>2</sup>C BMC Header

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

External I <sup>2</sup> C Header Pin Definitions	
Pin#	Definition
1	Data
2	Ground
3	Clock
4	No Connection

### DOM PWR Connector

The Disk-On-Module (DOM) power connectors, located at JSD1 and JSD2, provide 5V power to a solid state DOM storage device connected to the SATA port. See the table on the right for pin definitions.

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

### Overheat LED Header

The JOH1 header is used to connect an LED indicator to provide warnings of chassis overheating Refer to the tables on the right for pin definitions.

Overheat LED Pin Definitions	
State	Definition
1	3.3V
2	OH Active

OH Status (Red LED)	
State	Definition
Off	Normal
Solid	Overheat

### Speaker

On the JD1 header, pins 1-3 are used for the Power LED and pins 4-7 are used for the speaker. See the table on the right for pin definitions.

Speaker Connector Pin Definitions	
Pin#	Definition
1-3	Power LED
4-7	Speaker

### Standby Power

The Standby Power header is located at JSTBY1 on the motherboard. See the table on the right for pin definitions.

Standby Power Pin Definitions	
Pin#	Definition
1	+5V Standby
2	Ground
3	No connection

### Serial Link I/O Header

The Serial Link General Purpose Input/Output (SGPIO) header is used to communicate with the enclosure management chip in the system. See the table on the right for pin definitions.

Serial Link I/O Header Pin Definitions			
Pin#	Definition	Pin	Definition
1	NC	2	NC
3	Ground	4	DATA Out
5	Load	6	Ground
7	Clock	8	NC

### System Management Bus Header

The System Management Bus header for additional slave devices or sensors is located as JSMB1. Refer to the table on the right for pin definitions.

SMBus Power Pin Definitions	
Pin#	Definition
1	Data
2	Ground
3	Clock

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

The Power System Management Bus header at JPI<sup>2</sup>C1 monitors the power supply, fan and system temperature. Refer to the table on the right for pin definitions.

Standby Power Pin Definitions	
Pin#	Definition
1	+5V Standby
2	Ground
3	No connection

### NVMe I<sup>2</sup>C Header

Connector JNVI<sup>2</sup>C is a management header for the Supermicro AOC NVMe PCI-E peripheral cards. Please connect the I<sup>2</sup>C cable to this connector.

### General Purpose I/O Header

JGP1 is a general purpose I/O header. See the table on the right for pin definitions.

GPIO Header Pin Definitions			
Pin#	Definition	Pin	Definition
1	P3V3	2	GND
3	GP0	4	GP1
5	GP2	6	GP3
7	GP4	8	GP5
9	GP6	10	GP7

GPIO Register Address Table To Control JGPIO Pin Header

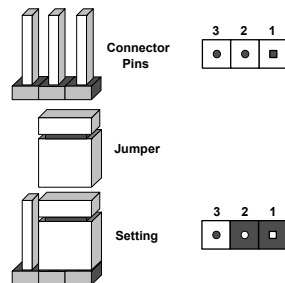
JGPIO1 PIN#	SoC GPIO#	USE Select	IO Select	Level
1	Power			
2	Ground			
3	17	IO 0x500 [17]	IO 0x504 [17]	IO 0x50C [17]
4	68	IO 0x540 [4]	IO 0x544 [4]	IO 0x548 [4]
5	01	IO 0x500 [1]	IO 0x504 [1]	IO 0x50C [1]
6	69	IO 0x540 [5]	IO 0x544 [5]	IO 0x548 [5]
7	06	IO 0x500 [6]	IO x0504 [6]	IO 0x50C [6]
8	70	IO 0x540 [6]	IO 0x544 [6]	IO 0x548 [6]
9	07	IO 0x500 [7]	IO 0x504 [7]	IO 0x50C [7]
10	71	IO 0x540 [7]	IO 0x544 [7]	IO 0x548 [7]

**Note:** Please refer to the Intel Xeon Processor D-1500 Product Family Datasheet for more information.

## 5-8 Jumper Settings

### Explanation of Jumpers

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



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

### CMOS Clear

JBT1 is used to clear CMOS and 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. With the power disconnected, short the CMOS pads with a metal object such as a small screwdriver.
3. Remove the screwdriver (or shorting device).
4. Reconnect the power cord(s) and power on the system.

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

### VGA Enable/Disable

JPG1 allows you to enable or disable the VGA port. The default position is on pins 1 and 2 to enable VGA. See the table on the right for jumper settings.

VGA Enable/Disable Jumper Settings (JPG1)	
Jumper Setting	Definition
Pins 1-2	Enabled
Pins 2-3	Disabled

### PCI-E Slot SMB Enable (I<sup>2</sup>C1/I<sup>2</sup>C2)

Use jumpers I<sup>2</sup>C1/I<sup>2</sup>C2 to enable PCI SMB (System Management Bus) support to improve system management for the onboard PCI-E slot. See the table on the right for jumper settings.

PCI Slot SMB Enable Jumper Settings	
Pin#	Definition
Pins 1-2	Enabled
Pins 2-3	Disabled (Default)

### Watch Dog Timer Enable

Watch Dog is a system monitor that can reboot the system when a software application hangs. Close pins 1-2 to reset the system if an application hangs. Close pins 2-3 to generate a non-maskable interrupt signal for the application that hangs. See the table on the right for jumper settings. Watch Dog must also be enabled in the BIOS.

Watch Dog Jumper Settings	
Pin#	Definition
Pins 1-2	Reset (Default)
Pins 2-3	NMI
Open	LAN pairs set to default mode without reset or NMI

### USB Wake-Up

Use the JPUSB1 jumper to enable the function of "System Wake-Up via USB devices" for USB0/1. This jumper allows you to "wake-up" the system by pressing a key on the USB keyboard or by clicking the USB mouse of your system. The JPUSB1 jumper is used together with the USB Wake-Up function in the BIOS. Enable both the jumper and the BIOS setting to enable this function. See the table on the right for jumper settings.

USB Wake-up Jumper Settings	
Pin#	Definition
Pins 1-2	Enabled (Default)
Pins 2-3	Disabled

### Management Engine (ME) Recovery

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

ME Recovery Jumper Settings	
Pin#	Definition
Pins 1-2	Normal (Default)
Pins 2-3	ME Recovery

### BIOS Recovery

Close pins 2 and 3 of jumper JBR1 for BIOS recovery. The default setting is on pins 1 and 2 for normal operation. See the table on the right for jumper settings.

BIOS Recovery Jumper Settings	
Pin#	Definition
Pins 1-2	Normal
Pins 2-3	BIOS Recovery

### BMC Enabled

JPB1 allows you to enable the BMC (Baseboard Management Control) chip and the onboard IPMI connection for debugging purpose only. After the BMC is disabled, IPMI health and remote management functions are no longer supported. See the table on the right for jumper settings.

BMC Enabled Jumper Settings	
Pin#	Definition
Pins 1-2	Enabled (Default)
Pins 2-3	Disabled

**Note:** Please always keep BMC enabled to make sure that the platform operates reliably with the health monitor.

### GbE LAN Ports Enable/Disable

Jumpers JPL1 and JPL2 are used to enable or disable LAN ports 1 and 2, respectively. Use JPL3 to enable or disable LAN ports 3, 4, 5, and 6. See the table on the right for jumper settings.

GbE LAN Enable Jumper Settings	
Pin#	Definition
Pins 1-2	Enabled (Default)
Pins 2-3	Disabled

### 10GbE LAN Ports Enable/Disable

JPTG1 is used to enable or disable 10GbE support. See the table on the right for jumper settings.

10Gb Enable/Disable Jumper Settings	
Pin#	Definition
Pins 1-2	Enabled (Default)
Pins 2-3	Disabled

### SAS Port Enable/Disable

Use JPS1 to enable the onboard SAS ports. See the table on the right for jumper settings.

SAS Port Enable/Disable Jumper Settings	
Pin#	Definition
Pins 1-2	Enabled (Default)
Pins 2-3	Disabled

### ME Manufacturing Mode

Close JPME2 to bypass SPI flash security and force the system to use the Manufacturing Mode, which will allow the user to flash the system firmware from a host server to modify system settings. See the table on the right for jumper settings.

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

## 5-9 Onboard Indicators

### LAN Port LEDs

The Ethernet ports have two LEDs. On each port, one LED indicates activity when flashing while the other LED may be green, amber or off to indicate the speed of the connection. See the tables on the right for more information.

LAN Port Link Speed LED	
Color	Definition
Off	No Connection or 10 Mbps
Amber	1 Gbps
Green	100Mbps (10Gbps for 10GbE Port)

Overheat/PWR Fail/Fan Fail LED Settings		
Color	Status	Definition
Off		No Connection
Yellow	Flashing	Active

### BMC Heartbeat LED

A BMC Heartbeat LED is located at LEDM1. See the table on the right for more information.

BMC Heartbeat LED Status	
Color/State	Definition
Green: Blinking	BMC: Normal

### Onboard Power LED

An onboard Power LED is located at LED3 on the motherboard. When this LED is on, the system is on. Be sure to turn off the system and unplug the power cord before removing or installing components. See the table on the right for more information.

Onboard PWR LED Indicator LED Settings	
Color	Definition
Off	System Off (PWR cable not connected)
Green	System On

### Overheat/PWR Fail/Fan Fail LED

An onboard Overheat/PWR Fail/Fan Fail LED is located at LED8. See the table on the right for more information.

Overheat/PWR Fail/Fan Fail LED Settings	
Color	Definition
Solid	Overheat
Blinking	Power Fail or Fan Fail

### Unit Identification LED

A rear UID LED indicator (LED7) is located next to the Unit Identifier (UID) switch on the I/O back panel. The front panel UID LED is located at pin 7 of the Front Control Panel at JF1. Connect a cable to pin 7 on JF1 for front panel UID LED indication. When you press the UID switch, both rear UID LED and front panel UID Indicators will be turned on. Press the UID switch again to turn off both LED Indicators. These UID Indicators provide easy identification of a system unit that may be in need of service.

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

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

### 10G LAN Activity LED

The 10G LAN Activity LED for LAN7 is located at LEDT2, and the 10G LAN Activity LED for LAN8 is located at LEDT4. When the LEDs are blinking, LAN7/LAN8 are active. See the table on the right for the colors and definitions.

10G LAN Activity LED Indicator	
Color/State	Definition
LEDT2 Green: Blinking	LAN7 Active
LEDT4 Green: Blinking	LAN8 Active

### 10G LAN Link Status LED

The 10G LAN Link status LED for LAN7 is located at LEDT1, and the 10G LAN Link status LED for LAN8 is located at LEDT3. When the LEDs are on, LAN7/LAN8 are working properly. See the table on the right for the colors and definitions.

10G LAN Link Status LED Indicator	
Color/State	Definition
LEDT1 Green: On	LAN7 Normal
LEDT3 Green: On	LAN8 Normal

### SAS Activity LED

A SAS heartbeat LED is located at LEDS1. When LEDS1 flashes, it indicates activity on a SAS port. See the table on the right for more information.

SAS Activity LED Indicator	
Color	Definition
Green: Blinking	SAS Active
Red	SAS Error

## 5-10 SATA/SAS Ports

### SATA Ports

This motherboard has six SATA 3.0 ports. I-SATA0 and I-SATA1 have built-in power pins to support Supermicro's SATA DOM (Disk On Module) solutions. I-SATA4 is via the JMD1 M.2 connector, I-SATA5 is via the JMP1 Mini PCI-E slot.

### SAS Ports

Sixteen SAS 2.0 ports are provided at JSAS1 ~ JSAS4 on the motherboard via four Mini-SAS HD cables. These SAS ports are supported by the LSI2116 SAS controller.



## 5-11 Installing Drivers

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

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

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.

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

Figure 5-5. Driver Installation Display 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.

## SuperDoctor® 5

The Supermicro SuperDoctor 5 is a program that functions in a command-line or web-based interface in Windows and Linux operating systems. The program monitors system health information such 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. SD5 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 5-6. SuperDoctor 5 Interface Display Screen (Health Information)



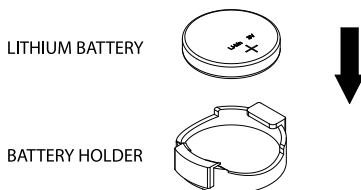
**Note:** The SuperDoctor 5 program and User's Manual can be downloaded from the Supermicro website at [http://www.supermicro.com/products/nfo/sms\\_sd5.cfm](http://www.supermicro.com/products/nfo/sms_sd5.cfm).



## 5-13 Onboard Battery

Care must be taken to assure that the chassis cover is in place when the system is operating to assure proper cooling. Out of warranty damage to the system can occur if this practice is not strictly followed.

**Figure 5-7. Installing the Onboard Battery**



Please 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.

## Chapter 6

### Advanced Chassis Setup

This chapter covers the steps required to install components and perform maintenance on the SC515-R407 chassis. For component installation, follow the steps in the order given to eliminate the most common problems encountered. If some steps are unnecessary, skip ahead to the next step.

The only tool you will need to install components and perform maintenance is a Philips screwdriver.

#### 6-1 Static-Sensitive Devices

Electricstatic discharge (ESD) can damage electronic components. To prevent damage to any printed circuit boards (PCBs), it is important to handle them very carefully. The following measures are generally sufficient to protect your equipment from ESD damage.

##### Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing any board from its antistatic bag.
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the serverboard, add-on cards and peripherals back into their antistatic bags when not in use.
- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the serverboard.

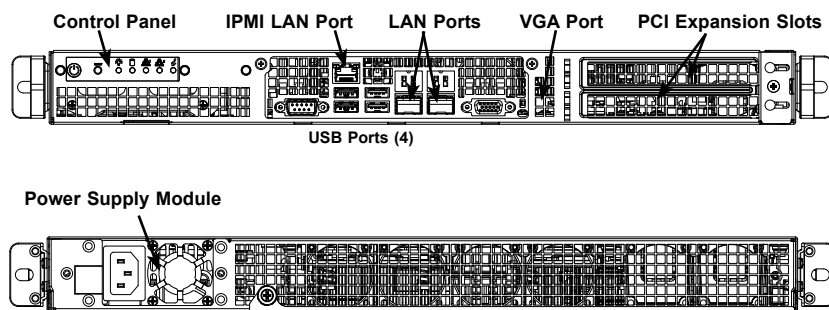


Figure 6-1. Chassis: Front and Rear Views

## 6-2 Control Panel

The control panel (located on the front of the chassis) must be connected to the JF1 connector on the serverboard to provide you with system status indications. These wires have been bundled together as a ribbon cable to simplify the connection. Connect the cable from JF1 on the serverboard to the appropriate header on the Control Panel PCB (printed circuit board). Make sure the red wire plugs into pin 1 on both connectors. Pull all excess cabling out of the airflow path.

The control panel LEDs inform you of system status. See "Chapter 3: System Interface" for details on the LEDs and the control panel buttons. Details on JF1 can be found in "Chapter 5: Advanced Serverboard Setup."

## 6-3 Removing the Chassis Cover

The chassis cover must be removed when performing some procedures in this chapter.

1. Power down the system.
2. Grasp the two handles on either side and pull the unit straight out until it locks (you will hear a "click").
3. Remove the three screws and the one thumbscrew securing the top cover to the chassis.
4. Slide the cover back toward the rear of the chassis then lift the cover upwards and off of the chassis.

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

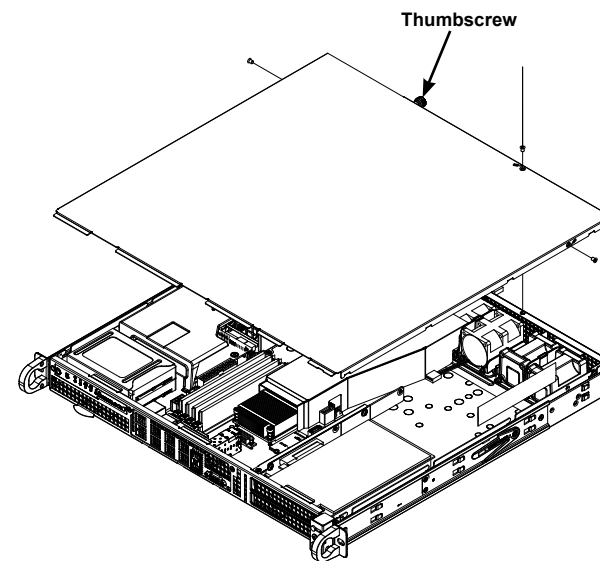


Figure 6-2. Removing the Chassis Cover

## 6-4 System Fans

Four heavy-duty fans and sockets for two optional fans provide the cooling for the 1018D-FRN8T. It is important that the chassis cover is properly installed in order for the cooling air to circulate properly through the chassis and cool the components.

Fan speed is controlled by system temperature via IPMI. If a fan fails, the remaining fan will ramp up to full speed and the Information LED on the control panel will turn on. Replace any failed fan with the same type and model.

### Replacing System Cooling Fans

1. If necessary, open the chassis cover while the system is running to determine which fan has failed. Then power down the system and remove the chassis cover as described in section 6-3.
2. Remove the failed fan's cable from the connector on the motherboard, then lift the fan housing and the two fans inside it up and out of the chassis. (Gently pull upward to remove a failed fan from the housing.)
3. Place the new fan into the vacant space in the housing. Make sure the arrows on the sides of the fan (indicating air direction) point in the same direction as the arrows on the other fans.

4. Plug the fan's cable into the connector on the motherboard.
5. Place the fan housing into the chassis and secure it with the screws previously set aside.
6. Power up the system and check that the fan is working properly before replacing the top cover.

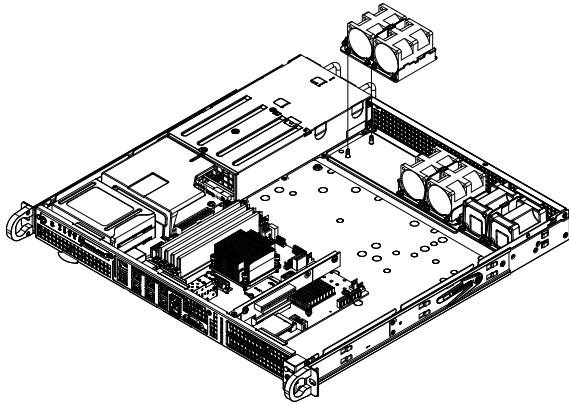


Figure 6-3. Installing System Fans

## 6-5 Drive Bay Installation/Removal

The 1018D-FRN8T supports up to two 2.5" fixed hard disk drives. Only enterprise level hard drives are recommended. The hard drives in your chassis may look slightly different than the ones shown in this manual.

### **Installing Hard Disk Drives**

1. Power down the system, remove the power cords from the rear of the power supply and remove the chassis cover as described in the previous sections.
2. Secure the drive(s) into the optional bracket as shown in Figure 6-4.

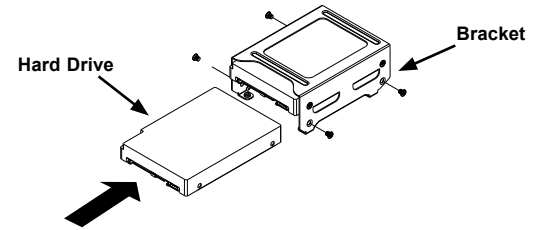


Figure 6-4. Installing 2.5" Hard Drives into the Bracket

3. Secure the HDD drive tray to the chassis floor using a thumb screw as shown in Figure 5-3 or four screws as shown in Figure 6-5.
4. Connect the drive cabling, plug the power cords into the power supply, replace the chassis cover and power-up the system.

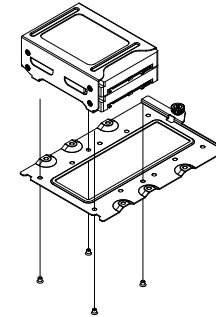


Figure 6-5. Securing 2.5" HDD Brackets to the HDD Drive Tray

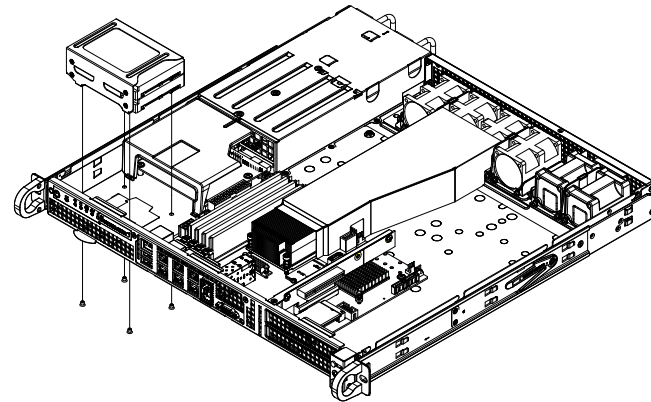


Figure 6-6. Installing 2.5" HDDs into the Chassis

## 6-6 Installing Expansion Cards

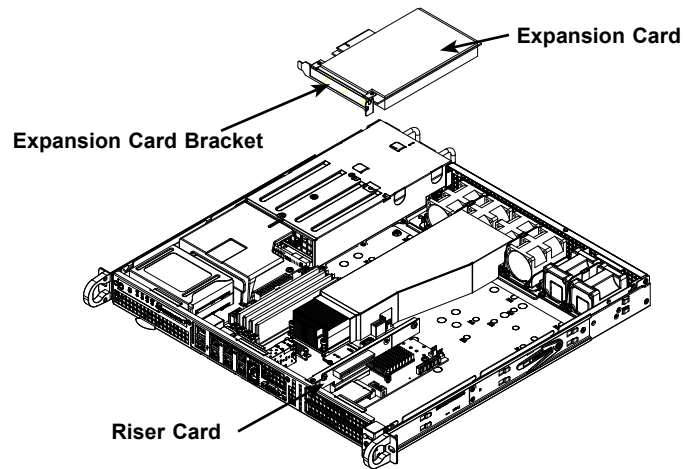


Figure 6-7. Installing an Expansion Card with Bracket

### Installing an Expansion Card

1. Confirm that you have the correct riser card for your chassis model and that the expansion card includes a standard bracket.
2. Power down the system and open the chassis cover as described in Section 6-3.
3. Remove the riser card bracket from the chassis.
4. Attach the riser card to the riser card bracket with screws.
5. Insert the expansion card(s) into the riser card slot(s).
6. Insert the riser card into the serverboard's expansion slot while aligning the expansion card bracket with the openings in the rear of the chassis.
7. Secure the riser card bracket to the chassis and the expansion card bracket to the rear of the chassis.
8. Replace the chassis cover and power up the system.

## 5-9 Power Supply

The SC515-R407 chassis has a redundant (two) 400W hot-swappable power supplies. The power supplies are auto-switching capable. This enables it to automatically sense and operate at a 100v to 240v input voltage. If your system has a fixed power supply, it will be necessary to shut down the system in order to change the power supply. If your system includes a redundant power supply, it is hot-swappable and can be changed without powering down the system.

### Changing a Redundant Hot-Swap Power Supply

In the event that one of the power supplies fails, the redundant power supply will take over. Replacing the power supply is simple and requires no tools.

#### Replacing the Power Supply

1. Push the release button on the failed power supply.
2. Pull the power supply out using the handle.
3. Replace the power supply with another of the same model and push it into the chassis until it clicks into the locked position.

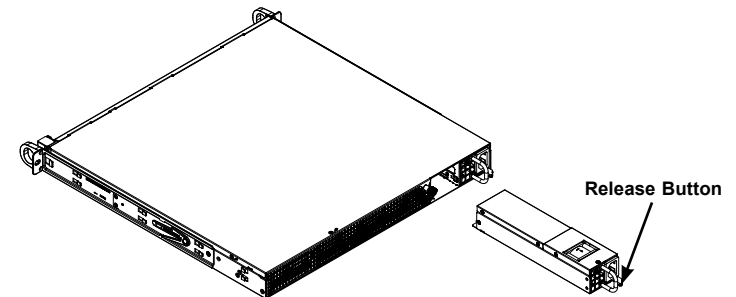


Figure 6-8. Removing a Hot-Swap Redundant Power Supply

## Notes

# Chapter 7

## BIOS

### 7-1 Introduction

This chapter describes the AMI BIOS setup utility for the X10SDV-7TP8F motherboard. The ROM BIOS is stored in a Flash EEPROM and can be easily updated. This chapter describes the basic navigation of the AMI BIOS setup utility setup screens.

**Note:** For AMI BIOS Recovery, please refer to the UEFI BIOS Recovery Instructions in Appendix C.

#### Starting BIOS Setup Utility

To enter the AMI BIOS setup utility screens, press the <Delete> key while the system is booting up.

**Note:** In most cases, the <Delete> key is used to invoke the AMI 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 setup menu screen has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured. Options in blue can be configured by the user. 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:** the AMI BIOS has default text messages built in. Supermicro retains the option to include, omit, or change any of these text messages.)

The AMI BIOS setup utility uses a key-based navigation system called "hot keys". Most of the AMI BIOS setup utility "hot keys" can be used at any time during the setup navigation process. These keys include <F1>, <F4>, <Enter>, <ESC>, arrow keys, etc.

**Note:** Options printed in **Bold** are default settings.

#### How To Change the Configuration Data

The configuration data that determines the system parameters may be changed by entering the AMI BIOS setup utility. This setup utility can be accessed by pressing <Del> at the appropriate time during system boot.

## How to Start the Setup Utility

Normally, the only visible Power-On Self-Test (POST) routine is the memory test. As the memory is being tested, press the <Delete> key to enter the main menu of the AMI BIOS setup utility. From the main menu, you can access the other setup screens. An AMI BIOS identification string is displayed at the left bottom corner of the screen, below the copyright message.

**Warning:** Do not update 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 have to update the BIOS, do not shut down or reset the system while the BIOS is updating. This is to avoid possible boot failure.

## 7-2 Main Setup

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



The following Main menu items will display:

### System Date/System Time

Use this feature 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 Day MM/DD/YY 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 following BIOS items will also be displayed:

### Supermicro X10SDV-7TP8F

#### Version

#### Build Date

#### Memory Information

#### Total Memory

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



## 7-3 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 **Enabled** and **Disabled**.

#### AddOn ROM Display Mode

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

#### Bootup NumLock State

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

#### Wait For 'F1' If Error

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

#### INT19 (Interrupt 19) Trap Response

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

#### Re-try Boot

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

### ► Power Configuration

#### Watch Dog Function

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

#### 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 **4 Seconds Override** and **Instant Off**.

#### 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 **Power On**, **Stay Off**, and **Last State**.

## ► CPU Configuration

The following CPU information will be displayed:

- Processor ID
- Processor Frequency
- Processor Max Ratio
- Processor Min Ratio
- Microcode Revision
- L1 Cache RAM
- L2 Cache RAM
- L3 Cache Ram
- CPU Version

### Clock Spread Spectrum

If this feature is set to Enabled, the BIOS utility will monitor the level of Electro-magnetic Interference caused by the components and will attempt to reduce the interference whenever needed. The options are **Disable** and **Enable**.

### Hyper-Threading (ALL)

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

### Cores Enabled

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

### Monitor/Mwait

Select **Enabled** to enable the Monitor/MWait instructions. The Monitor instruction monitors a region of memory for writes, and MWait instructions instruct the CPU to stop until the monitored region begins to write. The options are **Disable** and **Enable**.

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

Select **Enabled** to enable the Execute-Disable Bit which will allow the processor to designate areas in the system memory where an application code can execute and where it cannot, thus preventing a worm or a virus from flooding illegal codes to overwhelm the processor or damage the system during an attack. The default is **Enable**. (Refer to the Intel® and Microsoft® websites for more information.)

### PPIN Control

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

### Hardware Prefetcher (Available when supported by the CPU)

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

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

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

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

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

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


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

### Direct Cache Access (DCA)

Select **Enabled** to use Intel's DCA (Direct Cache Access) Technology to improve data transfer efficiency. The options are **Disable**, **Enable**, and **Auto**.

### Intel® Virtualization Technology (Available when supported by the CPU)

Select **Enabled** to support Intel Virtualization Technology, which will allow one platform to run multiple operating systems and applications in independent partitions, creating multiple "virtual" systems in one physical computer. 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.

## ► Advanced Power Management Configuration

This section is used to configure the following CPU Power Management settings.

### EIST (P-States)

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**.

*If the above is set to Enable, CPU P State will display:*

## ► CPU P State Control

### P State Domain

This feature allows the user to indicate the P-State domain for each logical process in the system. All processes indicate the same domain in the same package. The options are **ALL** and **ONE**.

### P-State Coordination

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 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 software program in the system. The options are **HW\_All**, **SW\_ALL**, and **SW\_ANY**.

### Energy Efficient P-State

Select **Enable** to support power-saving mode for P-State. The options are **Disable** and **Enable**.

### Boot Performance Mode

This feature allows the user to select the performance state that the BIOS will set before the operating system handoff. The options are **Max Performance** and **Max Efficient**.

### Turbo Mode

Select **Enable** for processor cores to run faster than the frequency specified by the manufacturer. The options are **Disable** and **Enable**.

## ► CPU HWPM State Control

### Enable CPU HWPM

Select **Enable** for better CPU energy performance. The options are **Disable**, **HWPM NATIVE MODE**, and **HWPM OOB MODE**.

### Enable CPU Autonomous Cstate

Use this feature to enable CPU Autonomous C State, which converts HALT instructions to Mwait. The options are **Disable** and **Enable**.

## ► CPU C State Control

### CPU C State

Use this feature to enable the enhanced C State of the CPU. The options are **Disable** and **Enable**.

### Package C State Limit

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**, and **C6 (Retention) state**.

### CPU C3 Report

Select **Enabled** to allow the BIOS to report the CPU C3 State (ACPI C2) to the operating system. During the CPU C3 State, the CPU clock generator is turned off. The options are **Enable** and **Disable**.

### CPU C6 Report

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

### Enhanced Halt State (C1E)

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

## ► CPU T State Control

### ACPI (Advanced Configuration Power Interface) T-States

Select Enable to support CPU throttling by the operating system to reduce power consumption. The options are **Disable** and Enable.

## ► CPU Advanced PM Turning

### ► Energy Perf BIAS

#### Energy Performance Tuning

When enabled, this item selects whether the BIOS or Operating System can turn on the energy performance bias tuning. The options are Disable and **Enable**.

*If the above is set to Disable, Energy Performance BIAS Setting will display:*

#### Energy Performance BIAS Setting

This feature allows balancing Power Efficiency vs Performance. This will override whatever setting is in the Operating System. The options are Performance, **Balanced Performance**, Balanced Power, and Power.

#### Power/Performance Switch

This feature allows dynamic switching between Power and Performance power efficiency. The options are Disable and **Enable**.

#### Workload Configuration

This feature allows for optimization of workload. Balanced is recommended. The options are **Balanced** and I/O Sensitive.

## ► Program PowerCTL\_MSR

### PKG C-state Lat. Neg.

Use this feature to indicate whether latency should be negotiated with PCH for packaging C-States. The options are **Enable** and Disable.

### SAPM Control

This feature indicates whether the PCU should control the System Agent PM using its power-performance tuning algorithm. The options are **Enable** and Disable.

## Energy Efficient Turbo

Use this feature to enable energy efficient turbo mode. The options are **Enable** and Disable.

## ► DRAM RAPL Configuration

### Override BW\_LIMIT\_TF

This feature allows the user to turn off the "Override BW\_LIMIT\_TF (Time Frame)" setting when the item "Running Average Limit for DRAM modules" (DRAM RAPL) is set to Enabled so that the DRAM RAPL setting can work properly. The default setting is 1.

### DRAM RAPL Extended Range

Use this feature to set the DRAM Running Average Power Limit (RAPL) Extended Range. 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.

## ► IIO Configuration

### EV DFX (Device Function On-Hide) 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.

## ► IIO1 Configuration

### M.2 PCI-E 3.0 X4

This item configures the link speed of the PCI-E port specified by the user. The options are Gen 1 (Generation 1) (2.5 GT/s), Gen 2 (Generation 2) (5 GT/s), and **Gen 3 (Generation 3) (8 GT/s)**.

**CPU SLOT 6 PCI-E 3.0 X8**

This item configures the link speed of the PCI-E port specified by the user. The options are Gen 1 (Generation 1) (2.5 GT/s), Gen 2 (Generation 2) (5 GT/s), and **Gen 3 (Generation 3) (8 GT/s)**.

**CPU SLOT 7 PCI-E 3.0 X8**

This item configures the link speed of the PCI-E port specified by the user. The options are Gen 1 (Generation 1) (2.5 GT/s), Gen 2 (Generation 2) (5 GT/s), and **Gen 3 (Generation 3) (8 GT/s)**.

**►IOAT (Intel® IO Acceleration) Configuration****Enable IOAT**

Select Enable to enable Intel I/OAT (I/O Acceleration Technology) support, which significantly reduces CPU overhead by leveraging CPU architectural improvements and freeing the system resource for other tasks. The options are Disable and **Enable**.

**No Snoop**

Select Enable to support no-snoop mode for each CB device. 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.

**ACS Control**

Use this feature to program Access Control Services (ACS) to the PCI-E Root Port Bridges. The options are **Enable** and Disable.

**Interrupt Remapping**

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

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

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

**Memory Frequency**

Use this feature to set the maximum memory frequency for onboard memory modules. The options are **Auto**, 1333, 1400, 1600, 1800, 1867, 2000, 2133, 2200, 2400, 2600, 2667, 2800, 2993, 3000, 3200, and Reserved (Do not select Reserved).

**Data Scrambling**

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

**DRAM RAPL Baseline**

Use this feature to set the run-time power-limit baseline for DRAM modules. The options are Disable, DRAM RAPL Mode 0, and **DRAM RAPL Mode 1**.

**Set Throttling Mode**

Throttling improves reliability and reduces power consumption in the processor via automatic voltage control during processor idle states. The options are Disabled and **CLTT** (Closed Loop Thermal Throttling).

**A7 Mode**

Select Enabled to support the A7 (Addressing) mode to improve memory performance. The options are **Enable** and Disable.

**►DIMM Information**

This item displays the status of a DIMM module specified by the user.

- DIMMA1
- DIMMB1
- DIMMA2
- DIMMB2

## ► Memory RAS (Reliability\_Availability\_Serviceability) Configuration

Use this submenu to configure the following Memory RAS settings.

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

### 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**.

### Demand Scrub

Demand Scrubbing is a process that allows the CPU to correct correctable memory errors found on a memory module. When the CPU or I/O issues a demand-read command, and the read data from memory turns out to be a correctable error, the error is corrected and sent to the requestor (the original source). Memory is updated as well. Select **Enable** to use Demand Scrubbing for ECC memory correction. The options are **Disable** and **Enable**.

### Device Tagging

Select **Enable** to support device tagging. The options are **Disable** and **Enable**.

## ► South Bridge

The following South Bridge information will display:

- USB Configuration
- USB Module Version
- USB Devices

### Legacy USB Support

This feature enables support for legacy USB devices. Select **Auto** to disable legacy support if USB devices are not present. Select **Disable** to have USB devices available only for EFI applications. 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 settings are **Enabled** and **Disabled**.

### EHCI Hand-Off

This item is for the Operating Systems that do not support Enhanced Host Controller Interface (EHCI) hand-off. When this item is enabled, EHCI ownership change will be claimed by the EHCI driver. The settings are **Enabled** and **Disabled**.

### USB 3.0 Support

Select **Enabled** for USB 3.0 support. The options are **Smart Auto**, **Auto**, **Enabled**, and **Disabled**.

### EHCI1

Select **Enabled** to enable EHCI (Enhanced Host Controller Interface) support on USB 2.0 connector #1 (at least one USB 2.0 connector should be enabled for EHCI support). The options are **Disabled** and **Enabled**.

### EHCI2

Select **Enabled** to enable EHCI (Enhanced Host Controller Interface) support on USB 2.0 connector #2 (at least one USB 2.0 connector should be enabled for EHCI support). The options are **Disabled** and **Enabled**.

### XHCI Pre-Boot Driver

Select **Enabled** to enable XHCI (Extensible Host Controller Interface) support on a pre-boot drive specified by the user. The options are **Enabled** and **Disabled**.

## ► SATA Configuration

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

### SATA Controller

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

### Configure SATA as

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

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

#### **SATA Frozen**

Use this item to enable the HDD Security Frozen Mode. The options are **Disabled** and **Enabled**.

#### **SATA AHCI LPM**

Use this feature to enable the Link Power Management for SATA AHCI. The options are **Disabled** and **Enabled**.

#### **Support Aggressive Link Power Mgmt**

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

#### **SATA RAID Option ROM/UEFI Driver (Available if "Configure SATA As" is set to RAID)**

Select **Enabled** to use the SATA RAID Option ROM/UEFI driver for system boot. The options are **Enabled** and **Disabled**.

#### **SATA Port 0~ Port 5**

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

- Model number of drive and capacity
- Software Preserve Support

#### **Port 0 ~ Port 5 Hot Plug**

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

#### **Port 0 ~ Port 5 Spin Up Device**

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

#### **Port 0 ~ Port 5 SATA Device Type**

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

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

#### **SATA Frozen**

Use this item to enable the HDD Security Frozen Mode. The options are **Disabled** and **Enabled**.

#### **Port 0 ~ Port 5 SATA Device Type (Available when a SATA port is detected)**

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**.

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

This feature displays the following system ME configuration settings.

- General ME Configuration
- Operational Firmware Version
- ME Firmware Type
- Recovery Firmware Version
- ME Firmware Features
- ME Firmware Status #1
- ME Firmware Status #2
  - Current State
  - Error Code

### **► PCIe/PCI/PnP Configuration**

The following information will display:

- PCI Bus Driver Version
- PCI Devices Common Settings:

#### **PCI PERR/SERR Support**

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

#### **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 (Available if the system supports Single-Root Virtualization)**

Select Enabled for Single-Root IO Virtualization support. The options are **Disabled** and Enabled.

#### **Maximum Payload**

Use this feature to select the setting for the PCI Express maximum payload size. The options are **Auto**, 128 Bytes, 256 Bytes, 512 Bytes, 1024 Bytes, 2048 Bytes, and 4096 Bytes.

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

#### **Extended Tag**

Use this item to allow a device to use the 8-bit tag field as a requester. The options are **Disabled** and Enabled.

#### **ARI Forwarding**

When this feature is enabled, the Downstream Port disables its traditional device number to 0 when turning Type1 Configuration Request into a Type0 Configuration Request. The default value is **Disabled**.

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

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

#### **CPU SLOT 6 PCI-E 3.0 X8 OPROM**

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

#### **CPU SLOT 7 PCI-E 3.0 X8 OPROM**

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

#### **PCI-E 2.0 X1 OPROM**

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

#### **Onboard SAS Option ROM**

Use this feature to select which firmware to be loaded for the onboard SAS Option ROM. The options are Disabled, **Legacy**, and EFI.

#### **Onboard LAN Option ROM Type**

Use this feature to select which firmware to be loaded for the onboard LAN. The options are **Legacy** and EFI.

#### **Onboard LAN1 Option ROM**

Use this option to select the type of device installed in LAN Port1 used for system boot. The default setting for LAN1 Option ROM is **PXE**.

#### **Onboard LAN2 ~ LAN8 Option ROM**

Use this option to select the type of device installed in the specified LAN Ports used for system boot. The options are **Disabled** and PXE.

#### **Onboard Video Option ROM**

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

#### **VGA Priority**

This feature allows the user to select the graphics adapter to be used as the primary boot device. The options are **Onboard** and Offboard.

#### **Network Stack**

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

*\*If "Network Stack" is set to Enabled, the four items below will become available for configuration:*

#### **IPv4 PXE Support**

Select Enabled to enable IPv4 PXE 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.



**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 Chip AST2400****► Serial Port 1 Configuration**

This submenu allows the user the configure settings of Serial Port 1 or Serial Port 2.

**Serial Port**

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

**Device Settings**

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

**Change Port 1 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 for Serial Port 1 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 Console Redirection****COM1 Console Redirection****Console Redirection**

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

**► COM1 Console Redirection Settings**

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

**Terminal Type**

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

**Bits Per second**

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

**Data Bits**

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

**Parity**

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

**Stop Bits**

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

**Flow Control**

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

**VT-UTF8 Combo Key Support**

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

**Recorder Mode**

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

**Resolution 100x31**

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

**Legacy OS Redirection Resolution**

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

**Putty KeyPad**

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

**Redirection After BIOS POST**

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

**SOL Console Redirection**

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

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

**► SOL Console Redirection Settings**

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

**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 ANSI, VT100, **VT100+**, and VT-UTF8.

**Bits Per second**

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

**Data Bits**

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

**Parity**

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

**Stop Bits**

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

**Flow Control**

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

**VT-UTF8 Combo Key Support**

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

**Recorder Mode**

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

**Resolution 100x31**

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

**Legacy OS Redirection Resolution**

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

**Putty KeyPad**

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

**Redirection After BIOS POST**

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

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

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

**EMS (Emergency Management Services) Console Redirection**

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

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

**►EMS 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 Mgmt Port**

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

**Terminal Type**

Use this feature to select the target terminal emulation type for Console Redirection. Select VT100 to use the ASCII character set. Select VT100+ to add color and

function key support. Select ANSI to use the extended ASCII character set. Select VT-UTF8 to use UTF8 encoding to map Unicode characters into one or more bytes. The options are ANSI, VT100, VT100+, and **VT-UTF8**.

**Bits Per Second**

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

**Flow Control**

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

**Data Bits**

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

**Parity**

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

**Stop Bits**

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

**►ACPI Settings****WHEA Support**

This feature Enables the Windows Hardware Error Architecture (WHEA) support for the Windows 2008 (or a later version) operating system. The options are Disabled and **Enabled**.

#### High Precision Event Timer

Select Enabled to activate the High Performance 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**.

#### PCI AER Support

Select Enabled to enable the ACPI OS to manage PCI Advanced Error Reporting. The options are **Disabled** and Enabled.

### ► Trusted Computing

#### Configuration

##### Security Device Support

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

##### TPM State

This feature changes the TPM State. The options are **Disabled** and Enabled.

**Note:** The system will restart to change the TPM State.

##### 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.

##### Device Select

Use this feature to select the TPM version. TPM 1.2 will restrict support to TPM 1.2 devices. TPM 2.0 will restrict support for TPM 2.0 devices. Select Auto to enable support for both versions. The default setting is **Auto**.

The following are informational status messages that indicate the current TPM State:

#### TPM Enabled Status

#### TPM Active Status

#### TPM Owner Status

#### 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**.

## 7-4 Event Logs

Use this feature to configure Event Log settings.

### ► Change SMBIOS Event Log Settings

#### Enabling/Disabling Options

#### SMBIOS Event Log

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

#### Runtime Error Logging Support

Select **Enabled** to support Runtime Error Logging. The options are **Enable** and **Disable**. If this item is set to **Enable**, the following item will be available for configuration:

#### Memory Corrected Error Enabling (Available when the item above - Runtime Error Logging Support is set to **Enable**)

Select **Enable** for the BIOS to correct a memory error if it is correctable. The options are **Disable** and **Enable**.

#### Memory Corr. Error Threshold

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

#### PCI-Ex (PCI-Express) Error Enable

Select **Yes** for the BIOS to correct errors occurred in the PCI-E slots. The options are **Yes** and **No**.

#### Erasing Settings

##### Erase Event Log

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

##### When Log is Full

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

#### SMBIOS Event Long Standard Settings

##### Log System Boot Event

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

##### MECI

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

##### METW

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

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

### ►View SMBIOS Event Log



This section displays the contents of the SMBIOS Event Log.

## 7-5 IPMI

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

### BMC Firmware Revision

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

### IPMI STATUS (Baseboard Management Controller)

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

### ►System Event Log

#### Enabling/Disabling Options

##### SEL Components

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

##### Erasing Settings

### Erase SEL

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

### When SEL is Full

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

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

### ►BMC Network Configuration

#### BMC Network Configuration

##### IPMI LAN Selection

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

##### IPMI Network Link Status

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

##### Update IPMI LAN Configuration

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

##### Configuration Address Source (Available for configuration if "Update IPMI LAN Configuration" is set to Yes)

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

##### 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 (Available for configuration if "Update IPMI LAN Configuration" is set to Yes)

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

#### IPMI Function Support

Use this feature to enable IPMI support. The options are **Enabled** and **Disabled**. When Disabled, the system powers on quickly by removing BIOS support for

extended IPMI features. The Disable option is for applications that require faster power on time without using Supermicro Update Manager (SUM) or extended IPMI features. The BMC network configuration in the BIOS setup is also invalid when IPMI



Function Support is disabled. The general BMC function and motherboard health monitor such as fan control are still functioning even when this option is disabled.

## 7-6 Security Settings

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

#### 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**.

#### Administrator Password

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

#### CSM Support

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

## ► Secure Boot Menu

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

- System Mode
- Secure Boot
- Vendor Keys

### Secure Boot

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

### Secure Boot Mode

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

## ► Key Management

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

### Factory Default Key Provision

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

### ► Enroll All Factory Default Keys

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

### Save All Secure Boot Variables

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

### ► Platform Key (PK)

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

### Set New Key

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

## ► Key Exchange Key (KEK)

### Set New Key

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

### Append Key

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

## ► Authorized Signatures

### Set New Key

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

### Append Key

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

## ► Forbidden Signatures

### Set New Key

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

### Append New Key

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

## ► Authorized TimeStamps

### Set New Key

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

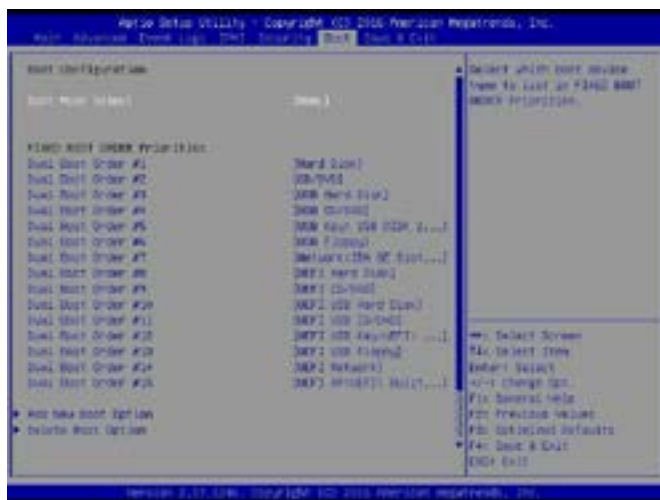
### Append Key

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



## 7-7 Boot Settings

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.

### 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.

- Dual Boot Order #1
- Dual Boot Order #2
- Dual Boot Order #3
- Dual Boot Order #4
- Dual Boot Order #5
- Dual Boot Order #6
- Dual Boot Order #7
- Dual Boot Order #8

- 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

### ► Delete Boot Option

Use this feature to remove a pre-defined boot device from which the system will boot during startup.

The settings are [any pre-defined boot device].

### ► NETWORK Drive BBS Priorities

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

- Legacy Boot Order #1
- 2nd Boot Device

### ► UEFI Application Boot Priorities

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

- UEFI Boot Order #1

## 7-8 Save & Exit

Select the Exit tab from the BIOS setup utility screen to enter the Exit BIOS Setup screen.



### 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

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

### Save Options

#### Save Changes

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

#### Discard Changes

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

### Restore Defaults

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

### Save As User Defaults

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

### Restore User Defaults

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

### Boot Override

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.

## Notes

## Appendix A

### BIOS Error Beep Codes

During the POST (Power-On Self-Test) routines, which are performed upon each system boot, errors may occur.

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

**Fatal errors** will not allow the system to continue with bootup. 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 numbers on the fatal error list correspond to the number of beeps for the corresponding error.

**Note:** A PC buzzer must be connected to JD1 to hear the BIOS Error Beep Codes.

BIOS Error Beep Codes		
Beep Code/LED	Error Message	Description
1 beep	Refresh	Circuits have been reset. (Ready to power up)
5 short beeps + 1 long beep	Memory error	No memory detected in the system
8 beeps	Display memory read/write error	Video adapter missing or with faulty memory
OH LED On	System OH	System Overheat

# Notes

# Appendix B

## System Specifications

### Processors

Single Intel® Xeon/Pentium® D-1500 Family SoC embedded processor (SoC = System on a Chip)

### Memory Capacity

Four DIMM sockets that can support up to 128 GB of ECC RDIMM (Registered DIMMs) or 64 GB of ECC/non-ECC UDIMM (Unregistered DIMMs) DDR4-2133/1866/1600 memory

**Note:** See the memory section in Chapter 5 for details.

### SATA

Intel on-chip controller for six SATA 3.0 ports (two HDDs supported by system)

### PCI Expansion

One M.2 PCI-E 3.0 x4 slot, an M Key for 2242/2280/22110 SSDs and one mini PCI-E 2.0 x1 slot with mSATA support (Mux with I-SATA5)

### Motherboard

X10SDV-7TP8F (Flex ATX)

Dimensions: 9 x 7.25 in (227 x 184 mm)

### Chassis

SC515-R407 (1U rackmount)

Dimensions: (WxHxD) 17.2 x 1.7 x 16.9 in. (437 x 43 x 429 mm)

### Weight

Gross Weight: 18 lbs. (8.16 kg.)

### System Cooling

Four 4-cm counter-rotating fans

## System Input Requirements

AC Input Voltage: 100-240V AC auto-range

Rated Input Current: 6 - 3A (100-140V) to 3.4 - 3.2A (200-240V)

Rated Input Frequency: 50 to 60 Hz

## Power Supply

Rated Output Power: 400W (Part# PWS-407P-1R)

Rated Output Voltages: +12V (max. 33A, min. 0.5A), +5Vsb (max. 3A, min. 0A)

## Operating Environment

Operating Temperature: 5° to 35° C (41° to 95° F)

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

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

## Regulatory Compliance

Electromagnetic Emissions:

FCC Class A, EN 55022 Class A, EN 61000-3-2/-3-3, CISPR 22 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)

Safety:

EN 60950/IEC 60950-Compliant, UL Listed (USA), CUL Listed (Canada), TUV  
Certified (Germany), CE Marking (Europe)

California Best Management Practices Regulations for Perchlorate Materials:

This Perchlorate warning applies only to products containing CR (Manganese  
Dioxide) Lithium coin cells. "Perchlorate Material-special handling may apply.

See [www.dtsc.ca.gov/hazardouswaste/perchlorate](http://www.dtsc.ca.gov/hazardouswaste/perchlorate)"

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## Notes



## Appendix C

### UEFI BIOS Recovery Instructions

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

#### C-1 Overview to UEFI BIOS

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

#### C-2 Recovering the UEFI BIOS Image (Main BIOS Block)

A UEFI BIOS flash chip consists of a recovery BIOS block, which is comprised of two boot blocks and a main BIOS block (the main BIOS image). The boot block contains critical BIOS codes including memory detection and recovery codes for the user to flash a new BIOS image if the original main BIOS image is corrupted. When the system power is on, the boot block codes execute first. Then the main BIOS code will continue with system initialization and bootup.

**Note:** Follow the BIOS recovery instructions below when the main BIOS boot crashes.

#### C-3 Recovering the UEFI BIOS with a USB Device

This feature allows the user to recover a BIOS image using a USB device without the need of additional utilities. A device such as a USB flash drive or a USB CD/DVD ROM/RW can be used. A USB hard disk drive cannot be used for BIOS recovery at this time.

To perform UEFI BIOS recovery using an attached device, follow the instructions below.

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

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

2. Insert the USB device that contains the new BIOS image ("Super.ROM") into your USB drive and power on the system
3. While powering on the system, keep pressing <Ctrl> and <Home> simultaneously on your keyboard until you hear two short beeps. This may take from a few seconds to one minute.
4. After locating the new BIOS binary image, the system will enter the BIOS recovery menu as shown below.

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

5. When the screen 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 until it has completed.



6. After the process has completed, press any key to reboot the system.



7. Using a different system, extract the BIOS package into a bootable USB flash drive.
8. When the DOS prompt appears, enter AMI.BAT BIOSName.###.

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

9. After receiving the message that the BIOS update is complete, unplug the AC power cable from the power supply to clear CMOS, then 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.