

# SUPERO<sup>®</sup>

## SUPERSERVER

### 1017R-WR



## USER'S MANUAL

1.0

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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 1017R-WR. Installation and maintenance should be performed by experienced technicians only.

The SuperServer 1017R-WR is a 1U rackmount server based on the SC514-R400W chassis and the X9SRW-F 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 X9SRW-F motherboard and the SC514-R400W chassis.

### Chapter 2: Server Installation

This chapter describes the steps necessary to install the 1017R-WR 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 1017R-WR.

## **Chapter 5: Advanced Motherboard Setup**

Chapter 5 provides detailed information on the X9SRW-F 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 SC514-R400W server chassis. You should follow the procedures given in this chapter when installing or removing drives and when replacing system power supply units 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**



## Notes

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## **Appendix A BIOS Error Beep Codes**

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# Chapter 1

## Introduction

### 1-1 Overview

The SuperServer 1017R-WR is a 1U server comprised of two main subsystems: the SC514-R400W chassis and the X9SRW-F 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 1017R-WR, as listed below:

- Four 4-cm chassis fans (FAN-0156L4)
- One passive CPU heatsink (SNK-P0047PS)
- Two riser cards (RSC-R1UW-E8R and RSC-R1UW-2E16)

#### Rackmount Rail Kit

- One outer rail kit (MCP-290-00102-0N)
- One inner rail kit (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://super-dev/about/policies/safety\\_information.cfm](http://super-dev/about/policies/safety_information.cfm)

## 1-2 Motherboard Features

At the heart of the SuperServer 1017R-WR lies the X9SRW-F, a single processor motherboard based on the Intel® C600-A/D chipset. Below are the main features of the X9SRW-F. (See Figure 1-1 for a block diagram of the chipset.)

### Processors

The X9SRW-F supports a single Intel® Xeon E5-2600/E5-1600 series processor in an LGA2011 socket. Please refer to our website for a complete listing of supported processors ([www.supermicro.com](http://www.supermicro.com)).

### Memory

The X9SRW-F has eight DIMM sockets to support up to 512 GB of ECC LRDIMM, 256 GB of ECC RDIMM or 64 GB of ECC/non-ECC UDIMM DDR3-1866/1600/1333/1066 memory. Please refer to Chapter 5 for installing memory.

### SATA

A SATA controller is integrated into the chipset to provide a six-port, SATA subsystem, which is RAID 0, 1, 5 and 10 supported. The SATA drives are hot-swappable units. Two of the ports support SATA 3.0 (6 Gb/s) while the other four are SATA 2.0 (3 Gb/s) ports.

Note: You must have RAID set up to enable the hot-swap capability of the SATA drives. Documentation on RAID setup guidelines can be found on our web site.

### SCU SATA

An additional SCU SATA controller integrated into the chipset provides four SATA 2.0 ports. RAID 0, 1 and 10 are supported. The SATA drives are hot-swappable units.

Note: You must have RAID set up to enable the hot-swap capability of the SATA drives. Documentation on RAID setup guidelines can be found on our web site.

### Onboard Controllers/Ports

The color-coded I/O ports include one COM port, a VGA (monitor) port, four USB 2.0 ports, two gigabit Ethernet ports and an IPMI port.

### Intel® Intelligent Power Node Manager (NM)

The Intel® Intelligent Power Node Manager (IPNM) provides your system with real-time thermal control and power management for maximum energy efficiency. Although IPNM Specification Version 1.5 is supported by the BMC (Baseboard

Management Controller), your system must also have IPNM-compatible Manageability Engine (ME) firmware installed to use this feature.

## **1-3 Server Chassis Features**

The 1017R-WR is built upon the SC514-R400W chassis. Details on the chassis and on servicing procedures can be found in Chapter 6. The following is a general outline of the main features of the chassis.

### **System Power**

The SC514-R400W features a redundant 400W power supply consisting of two power modules. The system does not need to be shut down when replacing or removing a single power supply module.

### **Hard Drive Subsystem**

The SC514-R400W chassis has an internal hard drive bracket designed to support up to two 2.5" SATA 3.0 hard drives.

### **Front Control Panel**

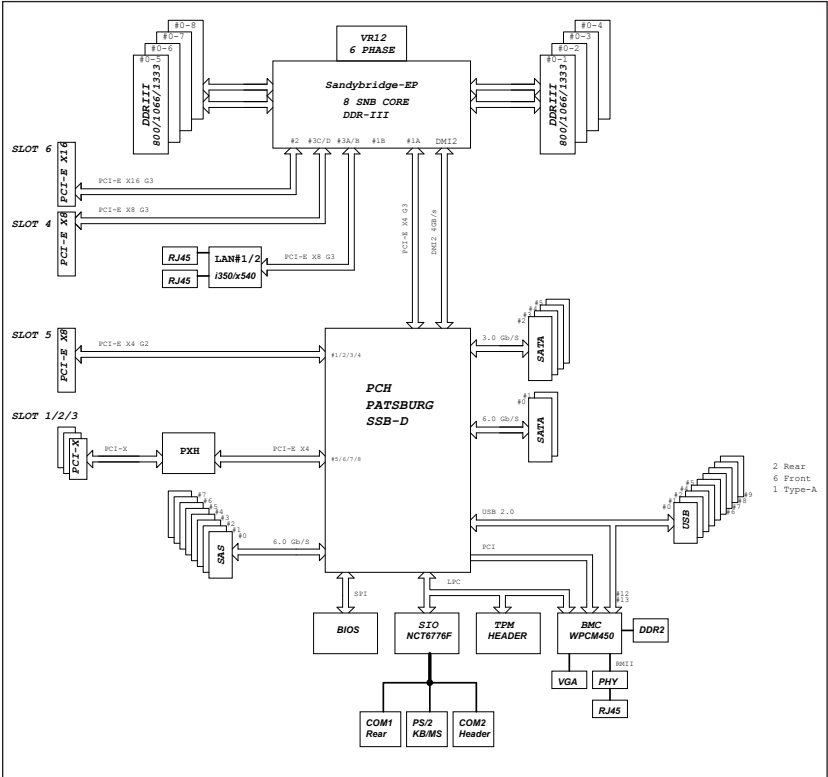
The chassis' control panel provides you with system monitoring and control. Indicators include system power, HDD activity, network activity (two LEDs) and fan fail/power fail LEDs. A main power button and system reset button is also included on the control panel.

### **Cooling System**

The SC514-R400W chassis has an innovative cooling design that features four sets of 4-cm counter-rotating fans located at the front of the chassis. Fan speed control allows chassis fan speed to be determined by system temperature as determined by IPMI.

**Figure 1-1. Intel C600 Chipset:  
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.  
980 Rock Ave.  
San Jose, CA 95131 U.S.A.

Tel: +1 (408) 503-8000

Fax: +1 (408) 503-8008

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

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

### Europe

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

Tel: +31 (0) 73-6400390

Fax: +31 (0) 73-6416525

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

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

### Asia-Pacific

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

Tel: +886-(2) 8226-3990

Fax: +886-(2) 8226-3992

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

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

# Notes

## Chapter 2

# Server Installation

### 2-1 Overview

This chapter provides a quick setup checklist to get your SuperServer 1017R-WR up and running. Following the steps in the order given should enable you to have the system operational within a minimal amount of time. This quick setup assumes that your system has come to you with the processor and memory preinstalled. If your system is not already fully integrated with a motherboard, processor, system memory etc., please turn to the chapter or section noted in each step for details on installing specific components.

### 2-2 Unpacking the System

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

Decide on a suitable location for the rack unit that will hold the system. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. You will also need it placed near a grounded power outlet. Read the Rack and Server Precautions in the next section.

### 2-3 Preparing for Setup

The box the system was shipped in should include two sets of rail assemblies, six rail mounting brackets and the mounting screws you will need to install the system into the rack. Follow the steps in the order given to complete the installation process in a minimal amount of time. Please read this section in its entirety before you begin the installation procedure outlined in the sections that follow.

#### 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 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.

### 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.

## 2-5 Installing the System into a Rack

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

### Identifying the Sections of the Rack Rails

You may have received rack rail hardware with the system. (Two front inner rails should already be attached to the chassis.) This hardware consists of two rear inner rails that secure to the chassis, one on each side just behind the preinstalled front inner rails. Note that these two rails are left/right specific.

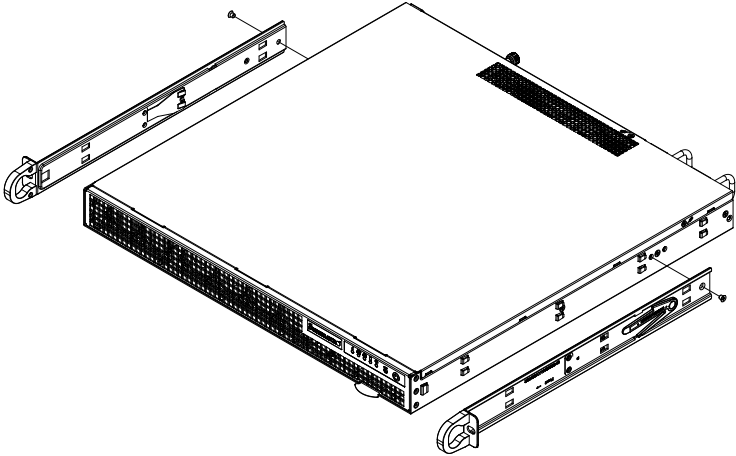
### Installing the Rear Inner Rails

First, locate the right rear inner rail (the rail that will be used on the right side of the chassis when you face the front of the chassis). Align the two square holes on the rail against the hooks on the right side of the chassis. Securely attach the rail to the chassis with M4 flat head screws. Repeat these steps to install the left rear inner rail to the left side of the chassis (see Figure 2-1). You will also need to attach the rail brackets when installing into a telco rack.

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



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

**Figure 2-1. Installing Rear Inner Chassis Rails**

## Installing the Rack Rails

Determine where you want to place the system in the rack ([see Rack and Server Precautions in Section 2-4](#)).

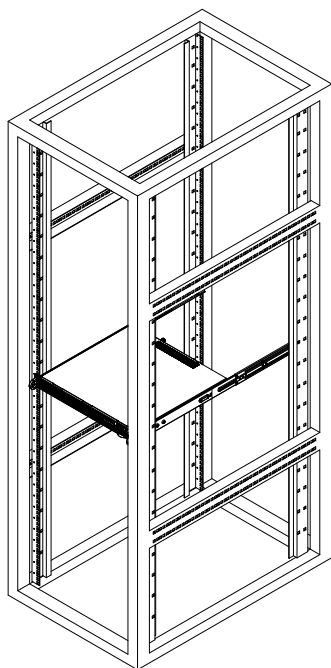
1. Position the chassis rail guides at the desired location in the rack, keeping the sliding rail guide facing the inside of the rack.
2. Screw the assembly securely to the rack using the brackets provided.
3. Attach the other assembly to the other side of the rack, making sure that both are at the exact same height and with the rail guides facing inward.

## Installing the Server into the Rack

You should now have rails attached to both the chassis and the rack unit. The next step is to install the server into the rack.

1. Align the rear of the chassis rails with the front of the rack rails.
2. Slide the chassis rails into the rack rails, keeping the pressure even on both sides (you may have to depress the locking tabs when inserting). See Figure 2-2.
3. When the server has been pushed completely into the rack, you should hear the locking tabs "click".

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



**Note:** figures are for illustrative purposes only. Always install servers starting from the bottom of a rack first.



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

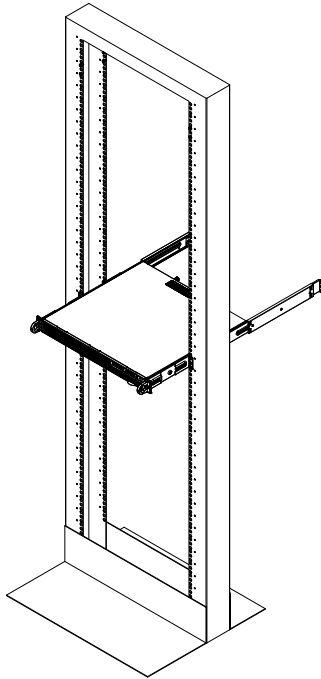


## Installing the Server into a Telco Rack

To install the system into a Telco type rack, use two L-shaped brackets on either side of the chassis (four total).

1. First, determine how far the server will extend out the front of the rack. Larger chassis should be positioned to balance the weight between front and back.
2. 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 rack.
3. Finish by sliding the chassis into the rack and tightening the brackets to the rack.

**Figure 2-3. Installing the Server into a Telco Rack**



**Note:** figures are for illustrative purposes only. Always install servers starting from the bottom of a rack first.

## Notes

## Chapter 3

# System Interface

### 3-1 Overview

There are several LEDs on the control panel 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**

Use the reset button to reboot the system.



#### **Power**

The main power button is used to apply or remove power from the power supply to the server system. Turning off system power with this button removes the main power but keeps standby power supplied to the system.

### 3-3 Control Panel LEDs

The control panel located on the front of the SC815TQ-R500WB 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.



#### Universal Information LED

When this LED blinks red quickly, it indicates a fan failure and when blinking red slowly a power failure. The LED will be blue when used for UID (Unit Identifier). When on 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. See the table below for descriptions of the LED states.

**Figure 3-1. Universal Information LED States**

Universal Information LED States	
State	Indication
Fast Blinking Red (1x/sec)	Fan Fail
Solid Red	CPU Overheat
Slow Blinking Red (1x/4 sec)	Power Fail
Solid Blue	Local UID Button Depressed
Blinking Blue	IPMI-Activated UID

**Note:** deactivating the UID LED must be performed in the same way it was activated. (If the UID LED was activated via IPMI, you can only turn the LED off via IPMI and not with the UID button.)

**NIC2**

Indicates network activity on LAN2 when flashing.

**NIC1**

Indicates network activity on LAN1 when flashing.

**HDD**

Indicates IDE channel activity. On the SuperServer 1017R-WR, this light indicates SATA and/or DVD-ROM drive activity 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.

# 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，並熟練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 במארזי 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 읽어주십시오.

Waarschuwing

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

## Circuit Breaker



### Warning!

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

### サーキット・ブレーカー

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

### 警告

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

### 警告

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

### Warnung

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

### ¡Advertencia!

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

### Attention

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

מוצר זה מסתמך על הגנה המותקנת במבנים למניעת קצר חשמלי. יש לוודא כי  
המכשיר המגן מפני הקצר החשמלי הוא לא יותר מ-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 분리해주어야 합니다.

Waarschuwing

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

## Equipment Installation



### Warning!

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

### 機器の設置

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

### 警告

只有经过培训且具有资格的人员才能进行此设备的安装、更换和维修。

### 警告

只有經過受訓且具資格人員才可安裝、更換與維修此設備。

### Warnung

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

### ¡Advertencia!

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

### Attention

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

### אזהרה!

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

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 되어있습니다. 특수도구, 잠금 장치 및 키, 또는 기타 보안 수단을 통해서만 접근 제한 구역에 들어갈 수 있습니다.

### Waarschuwing

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

## Battery Handling



### Warning!

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

### 電池の取り扱い

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

### 警告

電池更換不當會有爆炸危險。請只使用同類電池或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

此装置连接的电源可能不只一个，必须切断所有电源才能停止对该装置的供电。

#### Warnung

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

#### ¡Advertencia!

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

#### Attention

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

#### אם קיים יותר מספק אחד

#### אזהרה!

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

قد يكون لهذا الجهاز عدة اتصالات بوحدات امداد الطاقة.  
يجب إزالة كافة الاتصالات 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，背板上有很危險的電壓或能量，進行維修時務必小心。

Warnung

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

¡Advertencia!

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

Attention

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

**מתח בפנל האחורי**

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

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

경고!

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

Waarschuwing

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

**Comply with Local and National Electrical Codes**



**Warning!**

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

地方および国の電気規格に準拠

機器の取り付けはその地方および国の電気規格に準拠する必要があります。

警告

设备安装必须符合本地与本国电气法规。

警告

設備安裝必須符合本地與本國電氣法規。

Warnung

Die Installation der Geräte muss den Sicherheitsstandards entsprechen.

¡Advertencia!

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

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

## תיאום חוקי החשמל הארצי

אזהרה!

התקנת הציוד חייבת להיות תואמת לחוקי החשמל המקומיים והארציים.

تركيب المعدات الكهربائية يجب أن يمتثل 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)。

### 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 צויין 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 CSA أو UL  
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 covers the steps required to install processors and heatsinks to the X9SRW-F motherboard, 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.

##### Unpacking

The motherboard is shipped in antistatic packaging to avoid static damage. When unpacking the board, make sure the person handling it is static protected.

## 5-2 Processor and Heatsink Installation

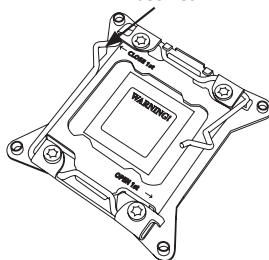
### Notes

- Always connect the power cord last and always remove it before adding, removing or changing any hardware components. Make sure that you install the processor into the CPU socket before you install the CPU heatsink.
- If you buy a CPU separately, make sure that you use an Intel-certified multi-directional heatsink only.
- Make sure to install the motherboard into the chassis before you install the CPU heatsinks.
- When receiving a motherboard without a processor pre-installed, make sure that the plastic CPU socket cap is in place and none of the socket pins are bent; otherwise, contact your retailer immediately.
- Refer to the Supermicro web site for updates on CPU support.

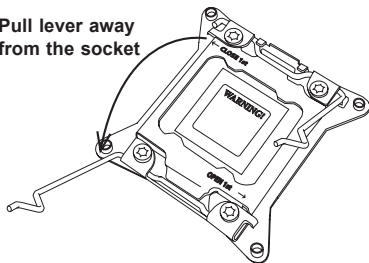
### Installing an LGA2011 Processor

1. There are two levers on the LGA2011 socket. First press and release the load lever labeled 'Open 1st'.
2. Press the second load lever labeled 'Close 1st' to release the load plate from its locked position.

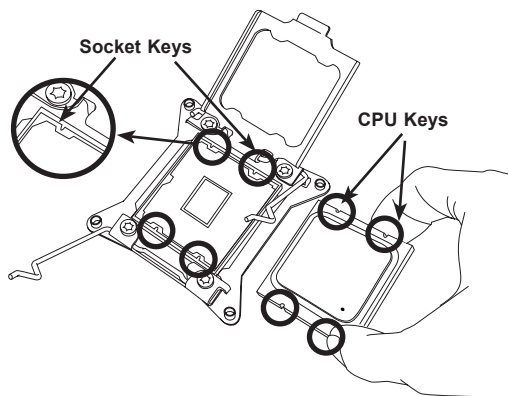
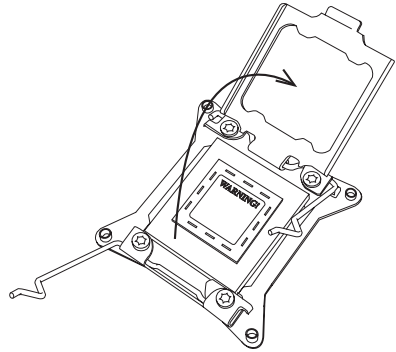
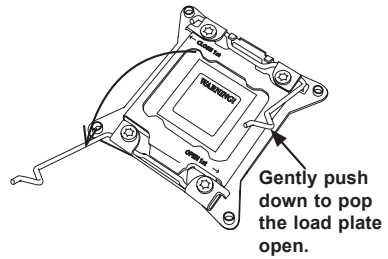
Press down on the lever labeled  
'Close 1st'



Pull lever away  
from the socket

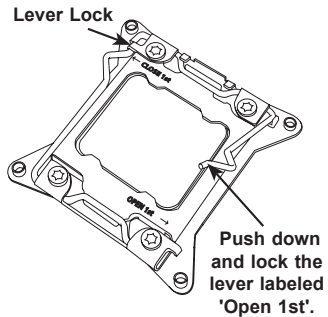
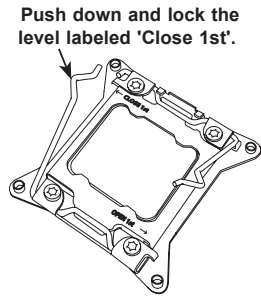
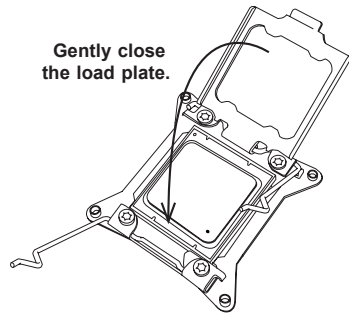


1. With the lever labeled 'Close 1st' fully retracted, gently push down on the 'Open 1st' lever to open the load plate. Lift the load plate to open it completely.
2. Using your thumb and the index finger, remove the 'WARNING' plastic cap from the socket.
3. Use your thumb and index finger to hold the CPU by its edges. Align the CPU keys, which are semi-circle cutouts, against the socket keys.
4. Once they are aligned, carefully lower the CPU straight down into the socket. (Do not drop the CPU on the socket. Do not move the CPU horizontally or vertically and do not rub the CPU against any pins of the socket, which may damage the CPU or the socket.)



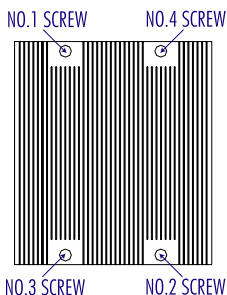
**Warning:** You can only install the CPU to the socket in one direction. Make sure that the CPU is properly inserted into the socket before closing the load plate. If it doesn't close properly, do not force it as it may damage your CPU. Instead, open the load plate again and double-check that the CPU is aligned properly.

1. With the CPU in the socket, inspect the four corners of the CPU to make sure that they are flush with the socket.
2. Close the load plate. Lock the lever labeled 'Close 1st', then lock the lever labeled 'Open 1st'. Use your thumb to gently push the load levers down until the lever locks.



## Installing a CPU Heatsink

1. Place the heatsink on top of the CPU so that the four mounting holes are aligned with those on the retention mechanism.
2. Screw in two diagonal screws (i.e. the #1 and the #2 screws) until just snug (do not over-tighten the screws, which may damage the CPU.)
3. Finish the installation by fully tightening all four screws.



## Removing the Heatsink

**Warning:** We do not recommend removing the CPU or the heatsink. If you do need to remove the heatsink, please follow the instructions below to prevent damage to the CPU or other components.

1. Unplug the power cord from the power supply.
1. Unscrew and remove the heatsink screws in the sequence shown in the picture below.
2. Hold the heatsink and gently wiggle it to loosen it from the CPU. (Do not use excessive force when doing this!)
3. Once the heatsink is loosened, remove it from the CPU.
4. Clean the surface of the CPU and the heatsink to get rid of the old thermal grease. Reapply the proper amount of thermal grease before you re-install the heatsink.

## 5-3 Connecting Cables

Now that the processors are installed, the next step is to connect the cables to the motherboard. These include the data (ribbon) 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 (make sure the red wires connect to the pin 1 locations). If you are configuring the system, keep the airflow in mind when routing the cables.

See the motherboard layout diagram in this chapter for connector locations.

### Connecting Power Cables

The X9SRW-F 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, your power supply must be connected to the 8-pin Processor Power connector at JPW2.

### Connecting the Control Panel

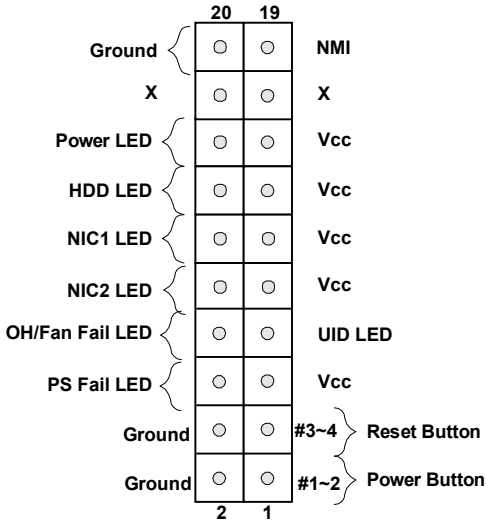
JF1 contains header pins for various front control panel connectors. See Figure 5-1 for the pin locations of the various front control panel buttons and LED indicators. Even and odd numbered pins are on opposite sides of each header.

All JF1 wires have been bundled into single keyed ribbon cable to simplify their connection. The red wire in the ribbon cable plugs into pin 1 of JF1. Connect the other end of the cable 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.



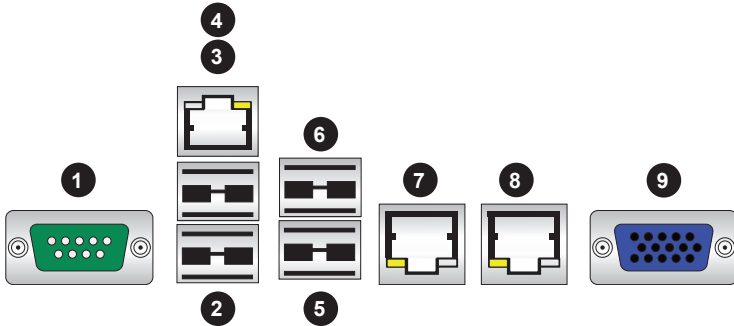
Figure 5-1. Front Control Panel Header Pins (JF1)



## 5-4 I/O Ports

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

Figure 5-2. Rear Panel I/O Ports



Rear I/O Ports	
1. COM1 Port	6. USB3
2. USB1	7. LAN1 Port
3. USB0	8. LAN2 Port
4. IPMI LAN Port	9. VGA Port
5. USB2	

## 5-5 Installing Memory

Note: Check the Supermicro web site for recommended memory modules.

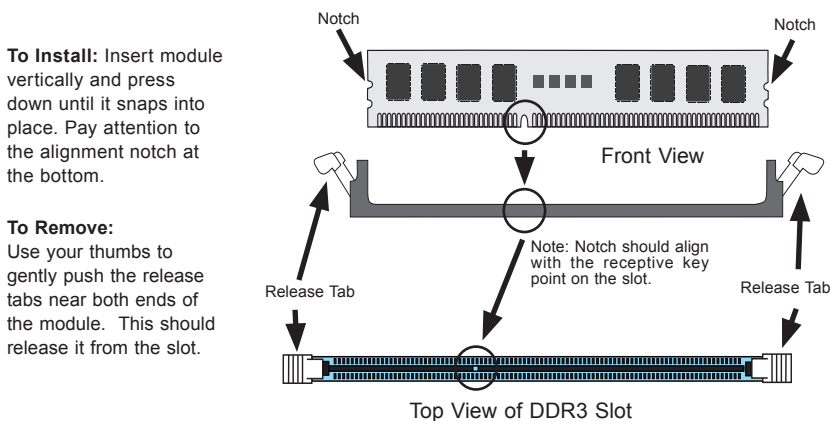
### CAUTION

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 slot DIMM1A.
2. Push the release tabs outwards on both ends of the DIMM slot to unlock it.
3. Align the key on the DIMM module with the receptive point on the slot.
4. Use two thumbs together to press on both ends of the module straight down into the slot until the module snaps into place.
5. Press the release tabs to the lock positions to secure the DIMM module into the slot. See Figure 5-3.

Figure 5-3. Installing DIMM into Slot



## Memory Support

The X9SRW-F supports up to 512 GB of ECC LRDIMM, 256 GB of ECC RDIMM or 64 GB of ECC/non-ECC UDIMM DDR3-1866/1600/1333/1066 memory. Please refer to Chapter 5 for installing memory. Populating these DIMM modules with a pair of memory modules of the same type and same size will result in interleaved memory, which will improve memory performance. Please refer to the table on the next page.

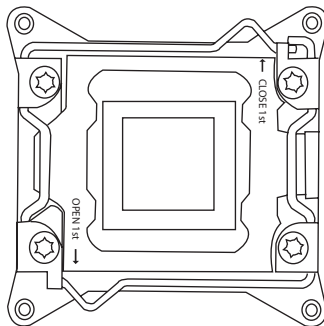
Edge of the motherboard 

**DIMM3A (Blue Slot)** 

**DIMM3B** 

**DIMM4A (Blue Slot)** 

**DIMM4B** 



**DIMM2B** 

**DIMM2A (Blue Slot)** 

**DIMM1B** 

**DIMM1A (Blue Slot)** 

## Memory Population Guidelines

When installing memory modules, the DIMM slots should be populated in the following order: DIMM1A, DIMM2A, DIMM3A, DIMM4A then DIMM1B, DIMM2B, DIMM3B, DIMM4B.

- Use DDR3 DIMM modules of the same size, type and speed.
- Mixed DIMM speeds can be installed. However, all DIMMs will run at the speed of the slowest DIMM.
- The motherboard will support odd-numbered modules installed (1 ,3 ,5 or 7 modules). However, for best memory performance you should install DIMM modules in pairs.

Recommended Population (Balanced)								
DIMM1A	DIMM2A	DIMM3A	DIMM4A	DIMM1B	DIMM2B	DIMM3B	DIMM4B	Total System Memory
2GB	2GB							4GB
2GB	2GB	2GB	2GB					8GB
2GB	2GB	2GB	2GB	2GB	2GB			12GB
2GB	2GB	2GB	2GB	2GB	2GB	2GB	2GB	16GB
4GB	4GB							8GB
4GB	4GB	4GB	4GB					16GB
4GB	4GB	4GB	4GB	4GB	4GB			24GB
4GB	4GB	4GB	4GB	4GB	4GB	4GB	4GB	32GB
8GB	8GB							16GB
8GB	8GB	8GB	8GB					32GB
8GB	8GB	8GB	8GB	8GB	8GB			64GB
8GB	8GB	8GB	8GB	8GB	8GB	8GB	8GB	128GB
16GB	16GB							32GB
16GB	16GB	16GB	16GB					64GB
16GB	16GB	16GB	16GB	16GB	16GB			96GB
16GB	16GB	16GB	16GB	16GB	16GB	16GB	16GB	128GB
32GB	32GB							64GB
32GB	32GB	32GB	32GB					128GB
32GB	32GB	32GB	32GB	32GB	32GB			192GB
32GB	32GB	32GB	32GB	32GB	32GB	32GB	32GB	256GB

## 5-6 Adding PCI Expansion Cards

### PCI Expansion Slots

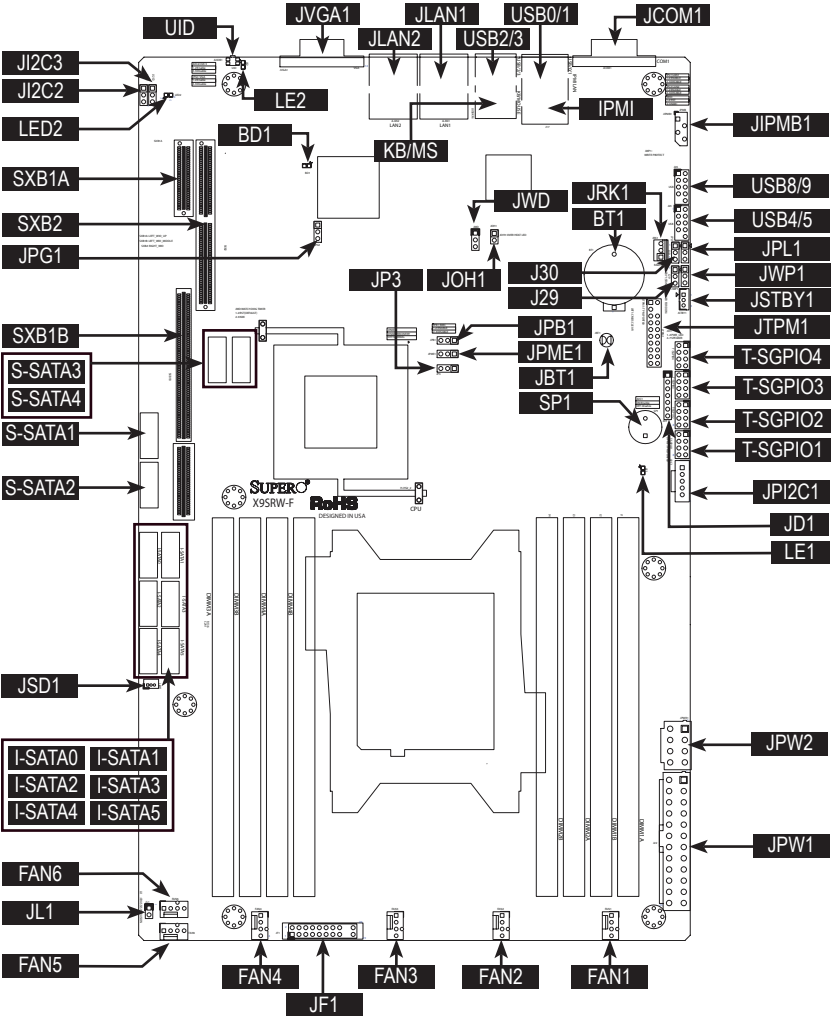
Two riser cards are used to support PCI expansion cards in the system. The RSC-R1UW-E8R riser card can support a low-profile PCI-E 3.0 x8 card and the RSC-R1UW-2E16 can support two standard size PCI-E 3.0 x16 cards.

### *Installing a PCI Add-on Card*

1. Release the locking tab that corresponds to the slot you wish to populate.
2. Insert the expansion card into the riser card, pushing down with your thumbs evenly on both sides of the card.

## 5-7 Motherboard Details

Figure 5-4. SUPER X9SRW-F Layout



**X9SRW-F Quick Reference**

<b>Connector</b>	<b>Description</b>
S-SATA1 ~ S-SATA4	SCU-based SATA 3.0 ports (6Gb/s)
I-SATA0 ~ I-SATA5	Intel-based SATA ports (I-SATA0 and I-SATA1 = SATA 3.0, S-SATA1~S-SATA4 = SATA 2.0)
FAN1~FAN5	Headers for system cooling fans
JSD1	SATA DOM (Disk On Module) Power Connector
JL1	Chassis Intrusion Header
JF1	Front Panel Control Header
JPW1	24-pin Main ATX Power Connector
JPW2	8-pin Secondary Power Connector
JD1	Power LED / Speaker Header
JPI2C1	Power Supply SMBus I2C Header
T-SGPIO1~4	Serial Link General Purpose I/O Headers
JTPM1	Trusted Platform Module (TPM) Header
JSTBY1	Legacy Wake On LAN Header
USB0/1, USB2/3	Back panel USB 2.0 ports
USB4/5, USB4/5	Internal USB 2.0 headers
JIPMB	System Management Bus Header for the IPMI Slot
JCOM1	Serial Port
IPMI	IPMI LAN Port
JLAN1/JLAN2	LAN1 / LAN2 Ethernet Ports
JVGA1	VGA Port
KB/MS	Combination Keyboard/Mouse Port
JOH1	Overheat LED/Fan Fail
JRK1	RAID Key Firmware upgrade Header
BT1	System Battery
SP1	Internal Speaker / Buzzer
SXB1A, SXB1B	Riser card slot P/N RSC-R2UW-2E16
SXB2	Slot for Supermicro riser card P/N RSC-R2UW-E8R

<b>LED</b>	<b>Description</b>	<b>Color/State</b>	<b>Status</b>
LED2	3.3V Standby Power	Green/Steady	Standby Power
LE1	Power LED	Green/Steady	System On/Running
LE2	UID LED	Blue/Steady	UID Switch On
BD1	IPMI Heartbeat	Green/Blinking	IPMI Enabled

<b>Jumper</b>	<b>Description</b>	<b>Default</b>
J12C2/J12C3	SMB to PCI Slots	On (Enabled)
JPG1	Onboard VGA Enable/Disable	Pins 1-2 (On)
JPL1	LAN1/LAN2 Enable/Disable	Pins 1-2 (Enabled)
JPME1	Intel ME Mode Select	Pins 1-2 (Normal)
UID	Unit ID Switch	Off (Disabled)
JWD	Watch Dog Timer Reset	Pins 1-2 (Reset)
JPB1	IPMI/BMC Enable/Disable	Pins 1-2 (Enabled)
JWP1	BIOS Write Protect	Pins 1-2 (Normal)
JBT1	CMOS Clear	See Section 5-9
J29	VRM SMB Clock (to BMC or PCH)	Pins 1-2 (BMC)
J30	VRAM SMB Data (to BMC or PCH)	Pins 1-2 (BMC)



## 5-8 Connector Definitions

### ATX Power Connector

The 24-pin main power connector (JPW1) is used to provide power to the motherboard. The 8-pin power connector (JPW2) is also required for the processor. These power connectors meet the SSI EPS 12V specification. See the table on the right for pin definitions.

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

### Processor Power Connectors

JPW2 and JPW3 must also be connected to the power supply to provide power for the processor(s). See the table on the right for pin definitions.

Processor Power Pin Definitions (JPW2)	
Pins	Definition
1 through 4	Ground
5 through 8	+12V

**Warning:** To prevent damage to your power supply or motherboard, please use a power supply that contains a 20-pin and two 8-pin power connectors. Be sure to connect these power connectors to the 20-pin and the two 8-pin power connectors on your motherboard for adequate power supply to your system. Failure to do so will void the manufacturer warranty on your power supply and motherboard.

### NMI Button

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

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

### 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	Vcc
16	Control

**HDD LED**

The HDD LED connection is located on pins 13 and 14 of JF1. Attach a hard drive LED cable to display SATA/IDE disk activity. Refer to the table on the right for pin definitions.

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

**NIC1 LED**

The NIC1 (Network Interface Controller) LED connection is located on pins 11 and 12 of JF1. Attach the NIC1 LED cable to display network activity. Refer to the table on the right for pin definitions.

NIC1 LED Pin Definitions (JF1)	
Pin#	Definition
11	Vcc
12	Ground

**NIC2 LED**

The NIC2 (Network Interface Controller) LED connection is located on pins 9 and 10 of JF1. Attach the NIC2 LED cable to display network activity. Refer to the table on the right for pin definitions.

NIC2 LED Pin Definitions (JF1)	
Pin#	Definition
9	Vcc
10	Ground

**Overheat (OH)/Fan Fail/UID LED**

Connect an LED cable to the Front UID and OH/Fan Fail connections on pins 7 and 8 of JF1 to display UID (Unit ID) signals or to provide advanced warnings for chassis overheat/fan failure. Refer to the table on the right for pin definitions.

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

**Power Fail LED**

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

Power Fail LED Pin Definitions (JF1)	
Pin#	Definition
5	Vcc
6	Ground

### Reset Button

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

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

### Power Button

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

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

### Universal Serial Bus Ports

Four USB 2.0 ports are included with the rear I/O ports. There are also four USB 2.0 ports on two headers that can be used to provide front chassis access (see board layout for locations) See the tables on the right for pin definitions.

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

Rear I/O USB Port 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

### Chassis Intrusion

A Chassis Intrusion header is located at JL1. Attach the appropriate cable to inform you of a chassis intrusion.

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

### Speaker (JD1)

On the JD1 header, pins 3~4 are used for the internal speaker. Close pins 3~4 with a jumper or cap to use the onboard speaker. If you wish to use an external speaker, attach the external speaker's cable to pins 1~4. See the table on the right for pin definitions.

Speaker Connector Pin Definitions	
Pin Setting	Definition
Pins 3~4	Internal Speaker
Pins 1~4	External Speaker

### Serial Port

The serial port (COM) is located on the IO backplane.

### Fan Headers

The X9SRW-F has six headers, designated Fan1 through Fan6. Pins 1-3 of the fan headers are backward compatible with traditional 3-pin fans, but will only run at full speed. Use 4-pin fans to allow the BIOS to automatically set fan speed based on the system temperature (setting in Hardware Monitoring section). See the table on the right for pin definitions.

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

### Legacy Wake-On-LAN Header (JSTBY)

The onboard LAN ports do not need a WOL header to support their Wake-On-LAN function. Instead, the legacy WOL header was preserved (JSTBY) to provide convenience for some embedded customers who need an internal power source from the board. See the table on the right for pin definitions.

Wake-On-LAN Pin Definitions	
Pin#	Definition
1	+5V Standby
2	Ground
3	Wake-up

## Ethernet Ports

Two Ethernet ports (LAN1/LAN2) are located next to the VGA port on the rear I/O. A dedicated IPMI LAN is also located above the USB 0/1 ports to provide a dedicated network connection for IPMI 2.0. These ports accept RJ45 type cables. Please refer to Section 5-10 for LAN LED information.

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

The Power System Management Bus (I<sup>2</sup>C) header (JP1<sup>2</sup>C) is used to monitor the power supply, fan and system temperatures. See the table on the right for pin definitions.

PWR SMB Pin Definitions (JP1 <sup>2</sup> C)	
Pin#	Definition
1	Clock
2	Data
3	PWR Fail
4	Ground
5	+3.3V

## DOM PWR Connector

The Disk-On-Module (DOM) power connector, located at JSD1, provides 5V (Gen1/Gen) power to a solid-state DOM storage device connected to one of the SATA ports. See the table on the right for pin definitions.

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

## Overheat/Fan Fail LED

The JOH1 header is used to connect an LED to provide warnings of chassis overheat. This LED will also blink to indicate a fan failure. Refer to the table on right for pin definitions.

Overheat LED Pin Definitions	
Pin#	Definition
1	5vDC
2	OH Active

OH/Fan Fail LED Pin Definitions	
State	Message
Solid	Overheat
Blinking	Fan Fail

### IPMB I<sup>2</sup>C

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

IPMB I <sup>2</sup> C Pin Definitions (IPMB)	
Pin#	Definition
1	Data
2	Ground
3	Clock
4	No Connection

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

Two T-SGPIO (Serial-Link General Purpose Input/Output) headers are located next to the I-SATA ports on the motherboard. Additionally, two 3-SGPIO ports are also located next to USB 8/9. These headers are used to communicate with the enclosure management chip in the system. See the table on the right for pin definitions.

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

**Note:** NC indicates no connection.

### TPM Header

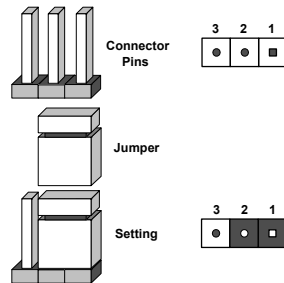
This header is used to connect to a Trusted Platform Module (TPM), which is available from third-party vendors. A TPM is a security device that supports encryption and authentication in hard drives. It enables the motherboard to deny access if the TPM associated with the hard drive is not installed in the system. See the table on the right for pin definitions.

Trusted Platform Module Header Pin Definitions			
Pin #	Definition	Pin #	Definition
1	LCLK	2	GND
3	LFRAME	4	No Pin
5	LRESET	6	VCC5
7	LAD3	8	LAD2
9	VCC3	10	LAD1
11	LAD0	12	GND
13	RSV0	14	RSV1
15	SB3V	16	SERIRQ
17	GND	18	CLKRUN
19	LPCPD	20	RSV2

## 5-9 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

### LAN Enable/Disable

Change the setting of jumper JPL1 to enable or disable the onboard Ethernet (RJ45) ports LAN1 and LAN2. See the table on the right for jumper settings. The default setting is enabled.

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

### Watch Dog Enable/Disable

JWD controls the Watch Dog function. Watch Dog is a system monitor that can reboot the system when a software application “hangs”. Pins 1-2 will cause WD to reset the system if an application hangs. Pins 2-3 will generate a non-maskable interrupt signal for the application that has hung. See the table on the right for jumper settings. Watch Dog must also be enabled in BIOS.

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

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

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

### PCI Slot SMB Enable

Use jumpers JI<sup>2</sup>C2/JI<sup>2</sup>C3 to enable PCI SMB (System Management Bus) support to improve system management for the PCI slots. See the table on the right for jumper settings.

PCI Slot SMB Enable Jumper Settings	
Jumper Setting	Definition
Short (Default)	Enabled
Open	Disabled



### ME Recovery

ME Recovery (JPME1) is used to enable or disable the ME Recovery feature of the motherboard. This jumper will reset Intel ME values back to their default settings.

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

### VRM SMB Clock/Data

The VRM SMB Clock/Data is used to select where the Voltage Regulator Module's System Management Bus clock signal (J29) or data (J30) is directed to. Select between BMC or PCH. Note: both jumpers must be set to the same setting.

VRM SMB Clock/Data Pin Definitions	
Pin#	Definition
Pins 1-2	BMC (Default)
Pins 2-3	PCH

### BMC Enable/Disable

JPB1 is used to enable or disable the BMC (Baseboard Management Control) chip and the onboard IPMI connection. This jumper is used together with the IPMI settings in the BIOS. See the table on the right for jumper settings.

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

## 5-10 Onboard Indicators

### LAN Port LEDs

The Ethernet ports (located beside the VGA port) have two LEDs. One LED indicates activity when blinking while the other LED may be green, amber or off to indicate the speed of the connection. See the table on the right for the functions associated with the connection speed LED.

LAN LED Connection Speed Indicator	
LED Color	Definition
Off	No connection or 10 Mb/s
Green	100 Mb/s
Amber	1 Gb/s



### IPMI\_Dedicated LAN LEDs

In addition to LAN1 and LAN2, the X9SRW-F has an IPMI\_Dedicated LAN located on the IO backpanel. The amber LED indicates activity, while the Link LED may be green, amber or off to indicate the speed of the connection. See the table above for more information.

### LE1

An Onboard Power LED is located at LE1 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 tables at right for more information.

Onboard PWR LED Indicator	
LED Color	Definition
Off	System Off/Power cable not connected
Green	System On
Green: Flashing Quickly	ACPI S1 State
Green: Flashing Slowly	ACPI S3 State

### IPMI Heartbeat LED

When blinking, the IPMI Heartbeat LED (BD1) indicates the IPMI feature is functioning properly. Refer to the table on the right for details.

IPMI Heartbeat LED Indicator	
Status	Definition
Blinking Green	IPMI is ready for use

### Rear Unit ID LED

The rear Unit ID LED (LE2) is located on the back panel. This LED is used in conjunction with the rear UID switch to provide easy identification of a system that might be in need of service.

Rear UID LED Indicator	
Status	Definition
Solid Blue	UID Toggled On

### Onboard Standby Power LED

An onboard Standby Power LED (LED2) indicates that the AC power cable is connected and the power supply switch is on. Make sure to disconnect the power cable before removing or installing non hot-swap components.

Onboard Standby Power LED Indicator	
Status	Definition
Off	Power Supply is Off (Hard Switch)
On	Power Supply is On (Hard Switch).

## 5-11 SATA Ports

### SATA Ports

The X9SRW-F includes a total of 10 SATA ports. I-SATA0 ~ 5 on the motherboard includes two SATA 3.0 ports (I-SATA0 and I-SATA1, which have white connector). An additional SATA controller provides four more SATA 2.0 ports (S-SATA1 ~ 4).

## 5-12 Installing Software

After the hardware has been installed, you should first install the operating system and then the drivers. The necessary drivers are all included on the Supermicro CDs that came packaged with your motherboard.

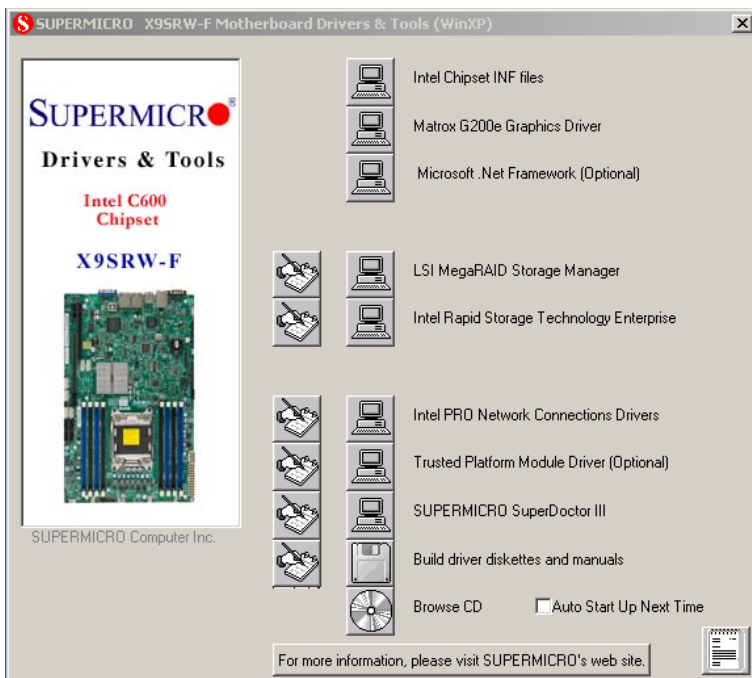


Figure 5-5. Driver/Tool Installation Display Screen

**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 of the CD.

## SuperDoctor III

The SuperDoctor® III program is a Web base management tool that supports remote management capability. It includes Remote and Local Management tools. The local management is called SD III Client. The SuperDoctor III program included on the CD-ROM that came with your motherboard allows you to monitor the environment and operations of your system. SuperDoctor III displays crucial system information such as CPU temperature, system voltages and fan status. See the Figure below for a display of the SuperDoctor III interface.

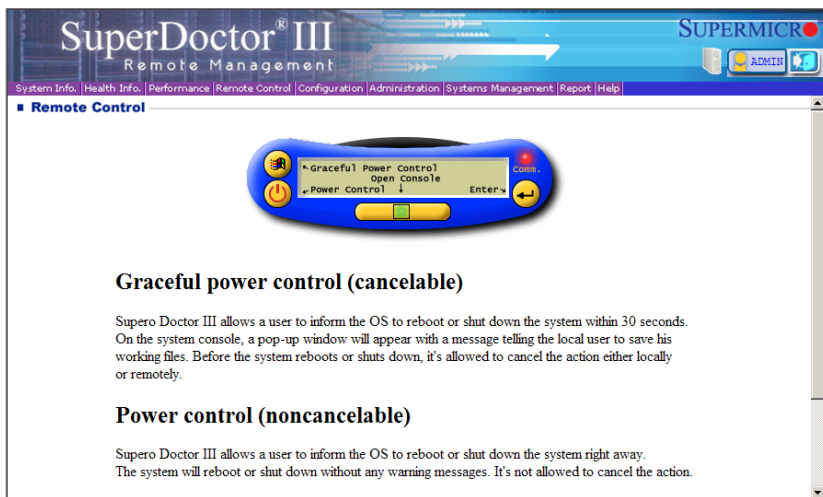
**Note:** The default User Name and Password for SuperDoctor III is ADMIN / ADMIN.

**Note:** When SuperDoctor is first installed, it adopts the temperature threshold settings that have been set in BIOS. Any subsequent changes to these thresholds must be made within SuperDoctor, as the SuperDoctor settings override the BIOS settings. To set the BIOS temperature threshold settings again, you would first need to uninstall SuperDoctor.

Figure 5-6. SuperDoctor III Interface Display Screen (Health Information)



Figure 5-7. SuperDoctor III Interface Display Screen (Remote Control)



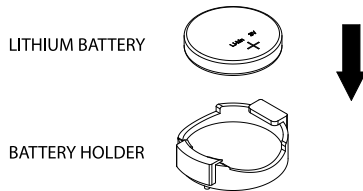
Note: The SuperDoctor III program and User's Manual can be downloaded from the Supermicro web site at <http://www.supermicro.com/products/accessories/software/SuperDoctorIII.cfm>.

For Linux, we recommend using SuperDoctor II.

## 5-13 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.

**Figure 5-8. Installing the Onboard Battery**



## Chapter 6

### Advanced Chassis Setup

This chapter covers the steps required to install components and perform maintenance on the SC514-R400W 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.

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

#### 6-1 Static-Sensitive Devices

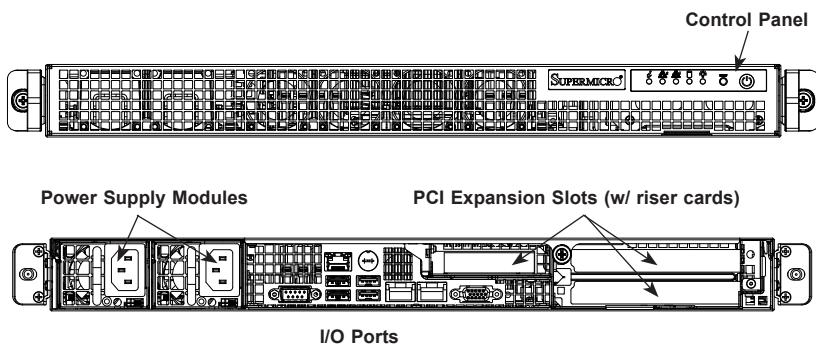
Electrostatic Discharge (ESD) can damage electronic components. To prevent damage to any printed circuit boards (PCBs), it is important to handle them very carefully. The following measures are generally sufficient to protect your equipment from ESD damage.

##### 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 motherboard, 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 motherboard.



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 motherboard 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 motherboard 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 Motherboard Setup."

## 6-3 System Fans

Four 4-cm heavy duty counter-rotating fans provide the cooling for the SuperServer 1017R-WR. Each fan unit is actually made up of two fans joined back-to-back, which rotate in opposite directions. This counter-rotating action generates exceptional airflow and works to dampen vibration levels. It is very important that the chassis top cover is properly installed and making a good seal in order for the cooling air to circulate properly through the chassis and cool the components. See Figure 6-2.

### System Fan Failure

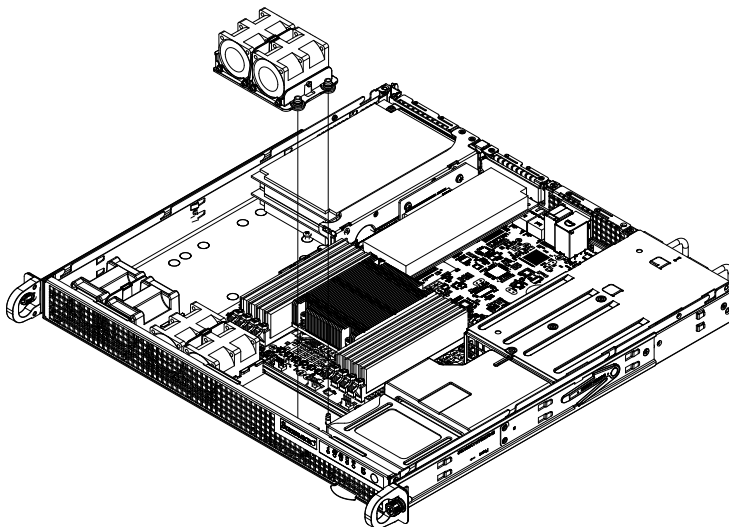
Fan speed is controlled by system temperature via IPMI. If a fan fails, the remaining fan will ramp up to full speed and the overheat/fan fail LED on the control panel will turn on. Replace any failed fan at your earliest convenience with the same type and model (the system can continue to run with a failed fan).

Remove the top chassis cover while the system is still running to determine which of the fans has failed. Then power down the system before replacing a fan. Removing the power supply cords is also recommended as a safety precaution.

### **Replacing System Fans**

1. After determining which fan has failed, turn off the power to the system and unplug the power cords.
2. Unplug the fan cable from the motherboard and remove the failed fan from the chassis.
3. Replace the failed fan with an identical 4-cm, 12 volt fan (available from Supermicro).
4. Push the new fan into the vacated space while making sure the arrows on the top of the fan (indicating air direction) point in the same direction as the arrows on the other fans.
5. Reconnect the fan wires to the same fan headers you removed them from.
6. Power up the system and check that the fan is working properly and that the LED on the control panel has turned off.
7. Finish by replacing the chassis cover.

**Figure 6-2. Installing System Fans**



## 6-4 Hard Drive Installation

### Hard Drive Installation

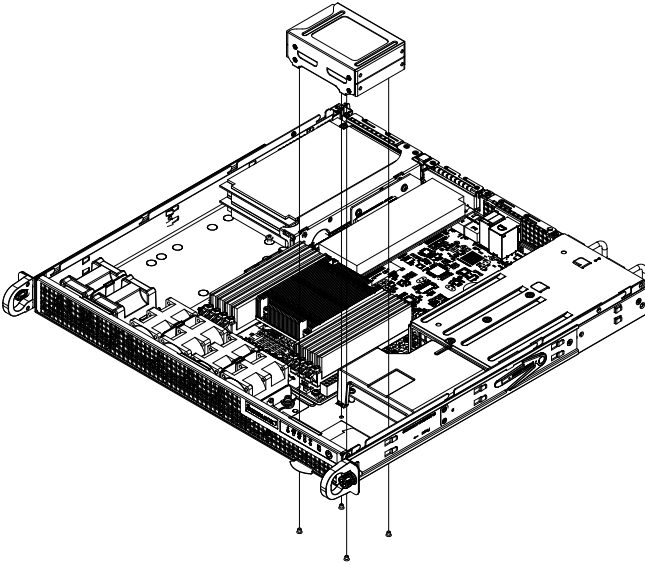
Two 2.5" internal hard drives may be installed in a drive bracket, which is included in the system.

#### *Installing/Removing Hard Drives*

1. Begin by powering down the system and removing the power cords from the power supplies.
1. Remove the hard drive bracket (located at the front-right side of the chassis) with the four screws, as shown in Figure 6-3.
2. Insert up to two drives into the bracket with the printed circuit board side facing down, and the power and data connections facing toward the inside of the chassis.
3. Secure the drive to the carrier with screws just removed.
4. Connect the power and data cables to the drives.
5. Replace the cover and power up the server.

**Warning:** Enterprise level hard disk drives are recommended for use in Supermicro chassis and servers. For information on recommended HDDs, visit the Supermicro Web site at <http://www.supermicro.com/products/nfo/storage.cfm>

**Figure 6-3. Installing a Hard Drive**



## 6-5 Power Supply

The SuperServer 1017R-WR has a 400 watt, hot-plug redundant power supply configuration consisting of two power modules. The power supply modules have an auto-switching capability, which enables them to automatically sense and operate with a 100V - 240V input voltage.

### ***Power Supply Failure***

If either of the two power supply modules fail, the other module will take the full load and allow the system to continue operation without interruption. The Universal Information LED on the control panel will blink red slowly until the failed module has been replaced.

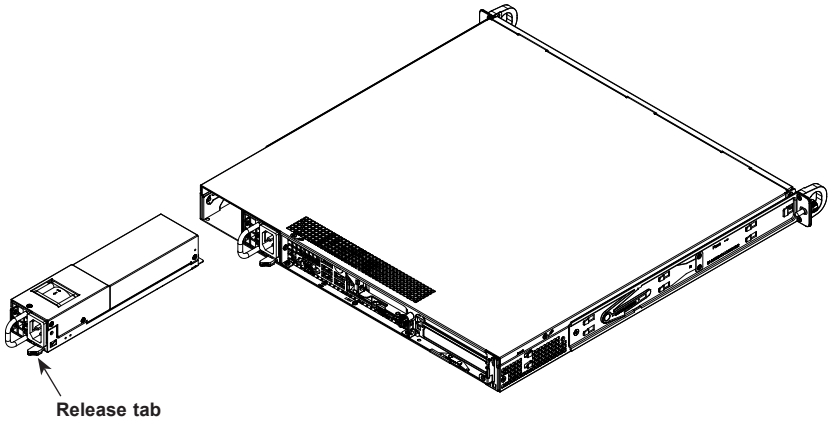
Replacement power modules can be ordered directly from Supermicro (see contact information in the Preface).

### ***Replacing the Power Supply***

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

1. First unplug the power cord from the failed power supply module.
2. To remove the failed power module, push the release tab (on the back of the power supply) to the side and then use the handles to pull the module straight out (see Figure 6-6).
3. The power supply wiring will detach automatically when the module is pulled from the chassis.
4. Replace the failed power module with another PWS-406P-1R power supply module.
5. Push the new power supply module into the power bay until you hear a click.
6. Finish by plugging the AC power cord back into the new power module.

Figure 6-5. Removing/Replacing the Power Supply



# Notes

## Chapter 7

# BIOS

### 7-1 Introduction

This chapter describes the AMI BIOS Setup Utility for the X9SRW motherboard. The AMI 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. SAS features are not included on the X9SRW.

**Note:** For instructions on BIOS recovery, please refer to the instruction guide posted at <http://www.supermicro.com/support/manuals/>.

#### 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>, <F10>, <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 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 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.

```

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
Main Advanced Chipset Server Mgmt Boot Security Save & Exit

BIOS Information
BIOS Vendor          American Megatrends
Core Version         4.6.4.1
Compliance          UEFI 2.1; PI 0.9
Project Version      0ABVH 0.13 x64
Build Date and Time  11/23/2011 20:24:24

Memory Information
Total Memory         2 GB (DDR3)

System Language      [English]

System Date          [Fri 12/02/2011]
System Time          [15:26:44]

Access Level         Administrator

Choose the system default language

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

Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

```

The AMI BIOS main menu displays the following information:

**BIOS Information****BIOS Vendor**

This item displays the name of the BIOS vendor.

**Core Version**

This item displays the core version of the BIOS.

**Compliance**

This item displays the compliance information of the BIOS.

**Project Version**

This item displays the version number of the project.

**Build Date and Time**

This item displays the day and time when this version of BIOS was built.

**SMC Version**

This item displays the SMC Version of the BIOS used in the system.

**Memory Information****Total Memory**

This displays the amount of memory that is available in the system.

**System Language**

This item displays the language used in the system.

**System Date**

This item displays the system date in Day MM/DD/YY format (e.g. 10/12/2011).

**System Time**

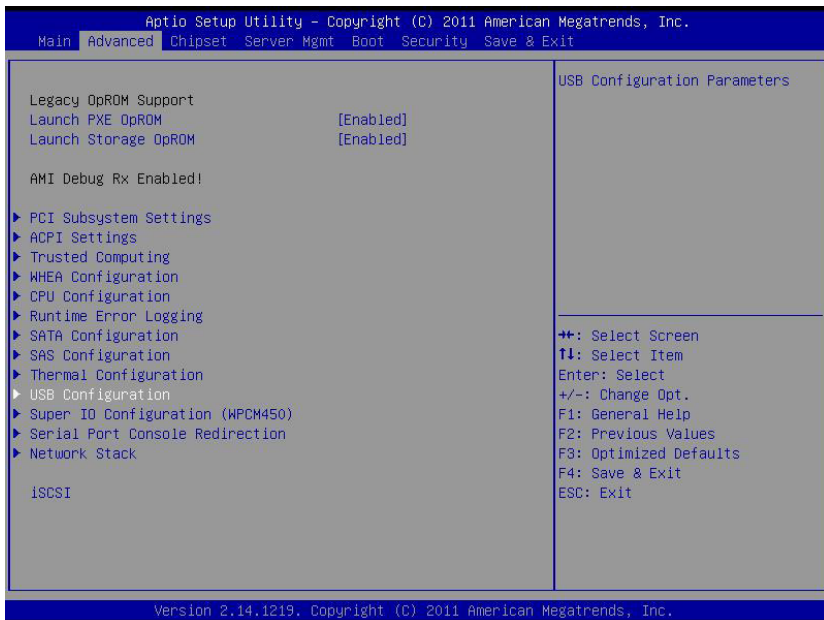
This item displays the system time in HH:MM:SS format (e.g. 15:32:52).

**Access Level**

This item displays the access level of the user who can access the setup utility.

## 7-3 Advanced Setup Configurations

Use the arrow keys to select Boot Setup and hit <Enter> to access the submenu items:



### Legacy OpROM Support

#### Launch PXE OpROM

The options are **Enabled** and Disabled.

#### Launch Storage OpROM

The options are **Enabled** and Disabled.

### ► PCI Subsystem Settings

#### PCI Bus Driver Version

This item displays the current driver version.

#### PCI Option ROM Handling

##### PCI ROM Priority

In case of multiple Option ROMs (Legacy and EFI-compatible), this feature specifies what ROM to launch. The options are Legacy ROM and **EFI Compatible ROM**.

## PCI bit Resource Handling

### Above 4G Decoding

Set this item to Enabled to activate 64-bit capable devices to be decoded above the 4G address space. This works only if the system supports 64-bit PCI decoding. The options are Enabled and **Disabled**.

## PCI Common Settings

### PCI Latency Timer

This feature sets the latency Timer of each PCI device installed on a PCI bus. Select 64 to set the PCI latency to 64 PCI clock cycles. The options are **32 PCI Bus Clocks**, 64 PCI Bus Clocks, 96 PCI Bus Clocks, 128 PCI Bus Clocks, 160 PCI Bus Clocks, 192 PCI Bus Clocks, 224 PCI Bus Clocks and 248 PCI Bus Clocks.

### VGA Palette Snoop

Select Enabled to inform the onboard PCI devices that an ISA graphics device is installed in the system in order for the graphics card to function properly. The options are Enabled and **Disabled**.

### PERR# Generation

Set this item to Enabled to allow PCI devices to generate PERR# error codes. The options are Enabled and **Disabled**.

### SERR# Generation

Set this item to Enabled to allow PCI devices to generate SERR# error codes. The options are Enabled and **Disabled**.

## ►PCI Express Settings

### Relaxed Ordering

Select Enabled to allow certain PCI-E transactions to violate the strict ordering rules of PCI-E so that a transaction can be completed before other transactions that have already been queued in order to enhance PCI-E performance. The options are **Disabled** and Enabled.

### Extended Tag

The options are **Disabled** and Enabled.

### No Snoop

The options are Disabled and **Enabled**.

### **Maximum Payload**

This feature selects the setting for the PCIe maximum payload size. The options are **Auto**, 128 Bytes, 256 Bytes, 512 Bytes, 1024 Bytes, 2048 Bytes, and 4096 Bytes.

### **Maximum Read Request**

This feature selects the setting for the PCIe maximum Read Request size. The options are **Auto**, 128 Bytes, 256 Bytes, 512 Bytes, 1024 Bytes, 2048 Bytes, and 4096 Bytes.

### **ASPM Support**

Set this item to the desired ASPM (Active State Power Management) level. The options are **Disabled**, Auto, and Force L0s.

### **Extended Synch**

Select Enabled for Extended Synchronization support, which will extend the same synchronization capability for the PCI-E device. The options are **Disabled** and Enabled.

### **Link Training Retry**

This feature allows the user to decide how many attempts a software program can make before time-out for the program. The default setting is 5. The options are Disabled, 2, 3, and 5.

### **Link Training Timeout (US)**

This feature allows the user to decide how many microseconds a software program should wait before polling the 'Link Training' bit in the Link Status Register. Enter the desired microsecond setting (from 10 to 1000). The default setting is **100**.

### **Unpopulated Links**

Select Disable Link to disable the unpopulated PCI-E links (connections) to save power. The options are **Keep Link ON** and Disable Link.

## **►PCI Express GEN 2 Settings**

### **Completion Timeout**

This feature allows the system to modify the Completion Timeout value for a device that supports Completion Timeout Programmability. The default setting is between 50us and 50ms. If Shorter is selected, software will use a shorter timeout range supported by the device. If Longer is selected, software will use a

longer timeout range supported by the device. The options are **Default**, Shorter, Longer, and Disabled.

**ARI (Alternative Routing-ID Interpretation) Forwarding (Available if supported by a device)**

If this feature is set to Enabled, Downstream PCI-E ports do not force the Device Number=0 restriction. If this feature is set to Disabled, ARI Downstream Ports, ID-based Routing is performed per the existing PCI-E Specification. The options are **Disabled** and Enabled.

**AtomicOp Requester Enable (Available if supported by a device)**

If this feature is set to Enabled, and is supported by the device, a hardware device that supports this feature will initiate Atomic Operation requests, provided that the Bus Master Enable bit is in the Command Register Set. The options are **Disabled** and Enabled.

**AtomicOp Egress Blocking (Available if supported by a device)**

If this feature is set to Enabled, and is supported by the device, any outbound automatic operation requests via Egress (Exiting) ports will be blocked. The options are **Disabled** and Enabled.

**IDO (ID-Based Ordering) Request Enable (Available if supported by a device)**

If this feature is set to Enabled and is supported by the device, ID-Based Ordering provides the opportunity for independent request streams to bypass another congested stream to enhance performance. The options are **Disabled** and Enabled.

**IDO (ID-Based Ordering) Completion Enable (Available if supported by a device)**

If this feature is set to Enabled and is supported by the device, a computer is allowed to set the ID-Based Ordering if the IDO Completion Enable bit in the Device Control 2 Register is set. The options are **Disabled** and Enabled.

**LTR Mechanism Enable (Available if supported by a device)**

The PXI-E Latency Tolerance Reporting (LTR) is an extended PCI-E capability that will allow software to provide platform latency information to upstream connection components (such as endpoints and switches). This feature is required if the device supports LTR. If this feature is set to Enabled and is supported by the device, the Latency Tolerance Reporting mechanism will be enabled. The options are **Disabled** and Enabled.

**End-End TLP Prefix Blocking (Available if supported by a device)**

If this feature is set to Enabled and is supported by the device, TLP forwarding that contains End-End TLP prefixes will be blocked. The options are **Disabled** and Enabled.

**Target Link Speed**

The options are **Auto**, Force to 2.5 GT/s, and Force to 5.0 GT/s

**Clock Power Management**

If this feature is enabled and is supported by the device, CLKREQ# signals can be used for Link Clock power management according to the protocol defined in the specification. The options are **Disabled** and Enabled.

**Compliance SOS**

Select Enabled to force the Link Training and Status State Machine (LTSSM) to send SKP (Sketch Up Documents) Ordered sets between sequences when sending or modifying the compliance pattern, provided that this feature is supported by the device. The options are **Disabled** and Enabled.

**Hardware Autonomous Width**

Select Disabled to disable hardware's ability to change PCI-E link width (except width reduction) to correct operational errors if this feature is supported by the device. The options are Disabled and **Enabled**.

**Hardware Autonomous Speed**

Select Disabled to disable hardware's ability to change PCI-E link speed (except reducing the speed) to correct operational errors if this feature is supported by the device. The options are Disabled and **Enabled**.

**►ACPI Settings**

Use this feature to configure Advanced Configuration and Power Interface (ACPI) power management settings for your system.

**Enable ACPI Auto Configuration**

Select Enabled for BIOS ACPI Auto Configuration support which will allow the BIOS to automatically set Advanced Configuration and Power Interface configuration depending on the devices installed in the system. The options are **Disabled** and Enabled.

**Enable Hibernation**

Select Enabled to enable hibernation support, which is OS/S4 sleep state. The options are **Enabled** and Disabled.

### **ACPI Sleep State**

Use this feature to select the ACPI State when the system is in sleep mode. Select S1 (CPU Stop Clock) to erase all CPU caches and stop executing instructions. Power to the CPU(s) and RAM is maintained, but RAM is refreshed. Select Suspend to use power-reduced mode. Power will only be supplied to limited components (such as RAMs) to maintain the most critical functions of the system. The options are **S1 (CPU Stop Clock)** and Suspend Disabled.

### **Lock Legacy Resources**

Select Enabled to lock legacy resources to enhance system performance. The options are Enabled and **Disabled**.

## **►Trusted Computing**

### **Configuration**

#### **TPM Support**

Select Enabled on this item and enable the TPM jumper on the motherboard to allow TPM support to improve data integrity and network security. The options are **Enabled** and Disabled.

#### **TPM State**

Select Enabled to enable TPM security settings to improve data integrity and network security. The options are **Disabled** and Enabled.

**Pending Operation:** This item displays the status of a pending operation.

**Current Status Information:** This item displays the information regarding the current TPM status.

#### **TPM Enable Status**

This item displays the status of TPM Support to indicate if TPM is currently enabled or disabled.

#### **TPM Active Status**

This item displays the status of TPM Support to indicate if TPM is currently active or deactivated.

#### **TPM Owner Status**

This item displays the status of TPM Ownership.



## ►WHEA Configuration

### WHEA Support

Select Enabled to enable Windows Hardware Error Architecture (WHEA) support which will provide a common infrastructure for the system to handle hardware errors on the Windows OS platforms in order to reduce system crashes due to hardware errors and to enhance system recovery and health monitoring. The default setting is **Enabled**.

## ►CPU Configuration

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

### ►CPU Information

This submenu displays the following information regarding the CPU installed.

- Type of CPU
- CPU Signature
- Microcode Patch
- Maximum CPU Speed
- Minimum CPU Speed
- Processor Cores
- Intel HT(Hyper-Threading) Technology
- Intel VT-x (Virtualization) Technology
- L1 Data Cache
- L1 Code Cache
- L2 Cache
- L3 Cache

### CPU Speed

This item displays if a CPU is installed.

**64-bit**

This item indicates if the CPU installed supports 64-bit technology.

**Hyper-threading**

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

**Active Processor Cores**

Set to Enabled to use a processor's Second Core and beyond. (Please refer to Intel's web site for more information.) The options are **All**, 1, 2, 3, 4, 5, 6 and 7.

**Limit CPUID Maximum**

This feature allows the user to set the maximum CPU ID value. Enable this function to boot the legacy operating systems that cannot support processors with extended CPUID functions. The options are Enabled and **Disabled** (for the Windows OS.).

**Execute-Disable Bit Capability (Available when supported by the OS and the CPU)**

Set to 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 **Enabled**. (Refer to Intel and Microsoft Web Sites for more information.)

**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 Disabled and **Enabled**.

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

If this feature is set to Disabled, The CPU prefetches the cache line for 64 bytes. If this option is set to Enabled the CPU fetches both cache lines for 128 bytes as comprised. The options are Disabled and **Enabled**.

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

Select Enabled to support Data Cache Unite (DCU) prefetch to speed up data accessing and processing in the DCU to enhance CPU performance. The options are Disabled and **Enabled**.

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

The options are **Enabled** and Disabled.

### Intel® Virtualization Technology

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 **Enabled** and Disabled.

**Note:** If there is any change to this setting, you will need to power off and restart the system for the change to take effect. Please refer to Intel's website for detailed information.

### Clock Spread Spectrum

Select Enabled to enable Clock Spectrum support, which will allow the BIOS to monitor and attempt to reduce the level of Electromagnetic Interference caused by the components whenever needed. The options are **Disabled** and Enable.

## ► CPU Power Management Configuration

### Power Technology

This feature determines what power-saving scheme the motherboard uses. The options are Disabled, **Energy Efficient** and Custom. If Custom is selected, the following options become available:

#### EIST

EIST (Enhanced Intel SpeedStep Technology) allows the system to automatically adjust processor voltage and core frequency in an effort to reduce power consumption and heat dissipation. **Please refer to Intel's web site for detailed information.** The options are **Disabled** and Enabled.

#### Turbo Mode

This feature allows processor cores to run faster than marked frequency in specific conditions. The options are Disabled and **Enabled**.

#### P-STATE Coordination

This feature selects the type of coordination for the P-State of the processor. P-State is a processor operational state that reduces the processor's voltage and frequency. This makes the processor more energy efficient, resulting in further gains. The options are **HW\_ALL**, **SW\_ALL** and **SW-ANY**.

#### CPU C3 Report, CPU C6 Report, CPU C7 Report

This BIOS feature enables or disables C3, C6, and C7 reporting to the operating system. The options for C3 are **Disabled** and Enabled. The options for C6 and C7 are Disabled and **Enabled**.

### **Package C State Limit**

If set to Auto, the AMI BIOS will automatically set the limit on the C-State package register. The options are C0, C1, C6, C7, and No Limit.

### **Energy Performance**

The options are Performance, **Balanced Performance**, Balanced Energy, and Energy Efficient.

### **Factory Long Duration Power Limit**

This item displays the power limit set by the manufacturer during which long duration power is maintained.

### **Long Duration Power Limit**

This item displays the power limit set by the manufacturer during which long duration power is maintained.

### **Factory Long Duration Maintained**

This item displays the period of time set by the manufacturer during which long duration power is maintained.

### **Long Duration Maintained**

This item displays the period of time during which long duration power is maintained.

### **Recommended Short Duration Power**

This item displays the short duration power settings recommended by the manufacturer.

### **Short Duration Power Limit**

This item displays the period of time during which short duration power is maintained.

## **►Runtime Error Logging**

### **Runtime Error Logging Support**

Select Enabled to support Runtime Error Logging. The options are Enabled and **Disabled**.

If Enabled is selected, the following items appear:

### **Memory Corr. Error Logging Support**

This feature allows the user to enter the threshold value for correctable memory errors. The default setting is **10**.

---

### PCI Error Logging Support

Select Enabled to support error event logging for PCI Slots. The options are Enabled and **Disabled**.

### Poison Support

Select Enabled for Poison support. The options are Enabled and **Disabled**.

## ►SATA Configuration

When this submenu is selected, the AMI BIOS automatically detects the presence of IDE or SATA devices and displays the following items.

### SATA Port0~SATA Port5

The AMI BIOS displays the status of each SATA port as detected by the BIOS.

### SATA Mode

Use this feature to configure SATA mode for a selected SATA port. The options are Disabled, IDE Mode, **AHCI Mode**, and RAID Mode. The following are displayed depending on your selection:

#### IDE Mode

The following items are displayed when IDE Mode is selected:

#### Serial-ATA (SATA) Controller 0~1

Use this feature to activate or deactivate the SATA controller, and set the compatibility mode. The options for Controller 0 are Enhanced and **Compatible**. The default setting for SATA Controller 1 is **Enhanced**.

#### AHCI Mode

The following items are displayed when the AHCI Mode is selected:

#### Aggressive Link Power Management

Select Enabled to enable Aggressive Link Power Management to support Cougar Point B0 stepping and beyond. The options are **Enabled** and Disabled.

#### Port 0~Port 5 Hot Plug

Select Enabled to enable hot-plug support for a port specified by the user so that the user is allowed to change a hardware component or a device without shutting down the system. The options are Enabled and **Disabled**.

---

### External SATA Port 0~5

Select Enabled to enable Extended SATA Port 0 ~ Port 5 support. The options are Enabled and **Disabled**.

### Staggered Spin-up

Select Enabled to enable Staggered Spin-up support to prevent excessive power consumption caused by multiple HDDs spinning-up simultaneously. The options are Enabled and **Disabled**.

### RAID Mode

The following items are displayed when RAID Mode is selected:

#### Port 0~5 Hot Plug

Select Enabled to enable hot-plug support for a port specified by the user. The options are Enabled and **Disabled**.

### ►SAS Configuration

If a SAS port is detected in the system, the following items will be displayed.

#### OnChip SAS Oprom

Select Enabled to support the onboard SAS Option ROM to boot up the system via a storage device if a SAS device is installed.

#### SAS Option ROM Codebase

Select Intel to use the Intel SAS controller to support onboard SAS Option ROM. Select LSI to use the LSI SAS controller to support onboard SAS Option ROM.

**Device0~Device7:** The AMI BIOS will automatically detect the onboard SAS devices and display the status of each SAS device as detected.

### ►Thermal Configuration

#### Thermal Management

Select Enabled to initialize the PCH Thermal subsystem device located at D31:F6. The options are Enabled and **Disabled**. If Enabled is selected, the following item appears:

#### ME SMBus Thermal Reporting

Select Enabled to support ME SMBus (Management Engine System Management Bus) reporting. The options are Enabled and **Disabled**.

## ►USB Configuration

### Legacy USB Support

Select Enabled to support legacy USB devices. Select Auto to disable legacy support if USB devices are not present. Select Disable to have USB devices available for EFI (Extensive Firmware Interface) applications only. The options are **Enabled**, Disabled and Auto.

### EHCI Hand-off

Select Enabled to enable support for operating systems that do not support Enhanced Host Controller Interface (EHCI) hand-off. When enabled, EHCI ownership change will be claimed by the EHCI driver. The options are **Disabled** and Enabled.

### Port 60/64 Emulation

Select Enabled to enable I/O port 60h/64h emulation support for the legacy USB keyboard so that it can be fully supported by the operating systems that do not recognize a USB device. The options are Disabled and **Enabled**.

### USB Hardware Delays and Time-outs

#### USB Transfer Time-out

Use this item to set the time-out value for control, bulk, and interrupt transfers. The options are 1 second, 5 seconds, 10 seconds, and **20 seconds**.

#### Device Reset Time-out

Use this item to set the time-out value for the BIOS to detect USB mass storage devices installed in the system. The options are 10 seconds, **20 seconds**, 30 seconds, and 40 seconds.

#### Device Power-up Delay

Use this item to set the maximum time a device will wait before it properly reports to the host controller. Select Auto to use the default setting. The options are **Auto** and Manual.

## ►Super IO Configuration (WPCM450)

### Super IO Chip

Displays the Super IO chip type.

## ►Serial Port 0 Configuration/Serial Port 1 Configuration

The submenus allow the user to configure the following settings for Serial Port 0 or Serial Port 1:

**Serial Port**

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

**Serial Port Mode**

The options are **SOL** and COM.

**Device Settings**

This feature indicates whether or not a reset is required for a serial port specified.

**Change Settings**

Use this feature to set the optimal Platform Environment Control Interface (PECI) setting for a serial port specified. The default setting is **Auto**, which will allow the AMI BIOS to automatically select the best setting for the PECI platform.

**Device Mode**

Use this feature to select the desired mode for a serial port specified. The options are Normal and High Speed.

**►ME (Management Engine) Updates****ME Updates**

Select Enabled to update ME settings. The options are **Enabled** and Disabled.

**►Serial Port Console Redirection**

These submenus allow the user to configure the following Console Redirection settings for a COM Port 0 or COM Port 1 as specified by the user.

**COM 0/COM 1****Console Redirection**

Select Enabled to use a COM Port selected by the user for Console Redirection. The options are Enabled and Disabled. (The default setting for COM0 is **Disabled**, and for COM1 is **Enabled**.)

**►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

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)

### Data Bits

Use this feature to set the data transmission size for Console Redirection. The options are 7 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 Mark to add 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

This feature allows the user 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 **Enabled** and Disabled.

**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**

Use this feature to select function key and keypad setting on Putty. The options are **VT100**, LINUX, XTERMR6, SCO, ESCN, and VT400.

**Out-of-Band-Mgmt Port**

Use this feature to select the port for out-of-band management. The options are **COM0** and COM1

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

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

**►Network Stack****Network Stack**

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

**iSCSI**

This item displays the following iSCSI information:

**iSCSI Initiation Name:** This item displays the name of the iSCSI Initiator, which is a unique name used in the world.

**►Port 00-25-90-58-50-E2**

This submenu displays the following information.

### **Enable iSCSI**

Select Enabled to enable iSCSI support. The options are **Disabled** and Enabled.

### **Enable DHCP**

Select Enabled to enable Dynamic Host Configuration Protocol (DHCP) support, which will allow the BIOS to search for a DHCP server in the network to find the available IP address for this computer. The options are **Disabled** and Enabled.

If set to disabled, the following items will be displayed:

- Initiator IP Address
- Initiator Subnet Mask
- Gateway

### **Target Name**

- Target IP Address
- Target Port
- Boot LUN

### **CHAP Type**

Use this item to select CHAP type. The options are **None**, One Way, and Mutual. If the item 'Enable DHCP' is set to Enabled, the following items will be displayed:

### **Get Target Information via DHCP**

Select Enabled to get target information via DHCP. The options are **Disabled** and Enabled.

- Target Name
- Target IP Address
- Target Port
- Boot LUN

### **► Save Changes**

Select this item and press <Enter> to save the changes.

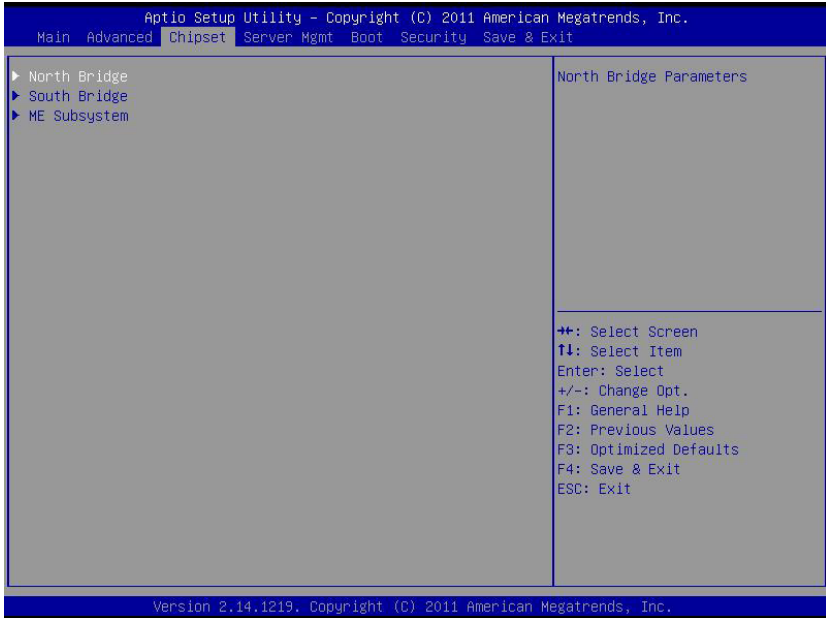
### **► Back to Previous Page**

Select this item and press <Enter> to return to the previous page.

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## 7-4 Chipset Configuration Settings

Use the arrow keys to select Chipset and display the following submenu items.



### ▶North Bridge

This feature allows the user to configure the settings for the Intel North Bridge.

### ▶IOH (IO Hub) Configuration

#### ▶Intel® VT for Directed I/O Configuration

##### Intel VT-d

Select Enabled to enable Intel Virtualization Technology support for Direct I/O VT-d by reporting the I/O device assignments to the VMM (Virtual Working Memory) 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 Enabled and **Disabled**.

If Enabled is selected, the following items appear:

#### **Interrupt Remapping**

The options are Disabled and **Enabled**.

#### **Coherency Support**

The options are **Disabled** and Enabled.

#### **ATS Support**

The options are Disabled and **Enabled**.

#### **Pass-through DMA**

The options are Disabled and **Enabled**.

#### **Intel® I/OAT**

The Intel I/OAT (I/O Acceleration Technology) significantly reduces CPU overhead by leveraging CPU architectural improvements, freeing the system resource for other tasks. The options are **Disabled** and Enabled.

#### **DCA Support**

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

#### **VGA Priority**

Use this feature to specify which graphics controller to be used as the primary boot device. The options are **Onboard** and Offboard (VGA).

#### **Target VGA**

#### **IOH Resource Selection Type**

Select Auto to automatically allocate PCI resources across multiple IO hubs based on PCI devices detected. The options are **Auto** and Manual.

#### **MMIOH (Memory Mapped IO High) Size**

This feature allows the user to set high memory mapped I/O range which is located above the main memory. This region is used to map I/O address requirements above 4-G range. The options are 1G, 2G, 3G, 4G, 8G, 16G, 32G, **64G**, and 128G.

#### **Io Ratio Skt0 (Available when IOH Resource Selection Type is set to Manual)**

The default setting is **3**.

---

**Mmio Ratio Skt0 (Available when IOH Resource Selection Type is set to Manual)**

The default setting is **6**.

**IOH PCIe Port Bifurcation Control**

This submenu allows the user to configure the following 10 PCIe Port Bifurcation Control settings for the IOH 0/IOH 1 PCI-Exp ports. This feature determines how to distribute the available PCI-Express lanes to the PCI-E Root Ports.

**IOU1-PCIe Port**

This feature allows the user to set the PCI-Exp bus speed between IOU1 and PCI-e port. The options are x4x4 and **x8**.

**Port A Link Speed**

Select GEN1 to enable PCI-Exp Generation 1 support for Port 1A. Select GEN2 to enable PCI-Exp Generation 2 support for Port 1A. The options are GEN1, and **GEN2**.

**IOU2 - PCIe Port**

This feature allows the user to set the PCI-Exp bus speed between IOU2 and PCIe port. The options are x4x4x4x4, x4x4x8, x8x4x4, x8x8, and x16, and **Auto**.

**IOU3 - PCIe Port**

This feature allows the user to set the PCI-Exp bus speed between IOU3 and PCIe port. The options are x4x4x4x4, x4x4x8, x8x4x4, x8x8, and x16, and **Auto**.

**Compatibility RID**

Select Enabled to support Compatibility Revision ID (CRID) as specified in the Sandybridge BIOS Specifications. The options are **Enabled** and Disabled.

**Memory Configuration**

- **Total Memory:** This item displays the total memory size available in the system.
- **Current Memory Mode:** This item displays the current memory mode.
- **Current Memory Speed:** This item displays the current memory speed.
- **Mirroring:** This item displays if memory mirroring is supported by the motherboard.
- **Sparing:** This item displays if memory sparing can be supported by the motherboard.

### Memory Mode

When Independent is selected, all DIMMs are available to the operating system. When Mirroring is selected, the motherboard maintains two identical copies of all data in memory for data backup. When Lockstep is selected, the motherboard uses two areas of memory to run the same set of operations in parallel. The options are **Independent**, Mirroring, Lockstep and Sparring.

### DDR Speed

Use this feature to force a DDR3 memory module to run at a frequency other than what the system is specified in the specification. The options are **Auto**, Force DDR3-800, Force DDR3-1066, Force DDR3-1333, Force DOR3-1600 and Force 1866.

### Channel Interleaving

This feature selects from the different channel interleaving methods. The options are **Auto**, 1 Way, 2 Way, 3, Way, and 4 Way.

### Rank Interleaving

This feature allows the user to select a rank memory interleaving method. The options are **Auto**, 1 Way, 2 Way, 4, Way, and 8 Way.

### 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 **Enabled** and Disabled.

### 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 Enabled to use Demand Scrubbing for ECC memory correction. The options are Enabled and **Disabled**.

### Data Scrambling

Select Enabled to enable data scrubbing and ensure data security and integrity. The options are **Disabled** and Enabled.

### Device Tagging

Select Enabled to support device tagging. The options are **Disabled** and Enabled.

### Rank Margin

Select Enabled to set the memory rank margin setting. The options are **Disabled** and Enabled.

### Thermal Throttling

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

### OLTT Peak BW %

Use this feature to set a percentage of the peak bandwidth allowed for OLTT. Enter a number between 25 to 100 (%).The default setting is **50**, Maximum.

### Altitude

Use this to set the altitude of the operating environment for the system as indicated by the number of meters above the sea level. The options are Auto, **300 M** (Meters), 900 M, 1500 M, and 3000 M.

### Serial Message Debug Level

This feature allows the user to select the serial message debug level. The options are **Minimum**, Maximum, Trace, and Memory Training.

#### ►DIMM Information

##### CPU DIMM Information

##### DIMM A1, A2, B1, B2, C1, C2, D1, D2

The status of the memory modules specified above will be displayed as detected by the BIOS.

#### ►South Bridge

This feature allows the user to configure the settings for the Intel PCH chip.

##### PCH Information

This feature displays the following PCH information.

- **Name:** This item displays the name of the PCH chip.
- **Stepping:** This item displays the status of the PCH stepping.



## **SB (South Bridge) Chipset Configuration**

### **PCH Compatibility RID**

Select Enabled to enable Compatibility Revision ID (CRID) support which will modify the chipset's PCI identifiers for compatibility reasons. The options are **Disabled** and Enabled.

### **Restore AC Power Loss**

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

### **SLP\_S4 Assertion Stretch Enable**

Select Enabled to support the assertion stretch width of the SLP\_S4# signal to maximize power safe cycles for DRAMs. The options are Disabled and **Enabled**.

### **SLP\_S4 Assertion Width**

This item sets the minimum assertion width of the SLP\_S4# signal to ensure that DRAMs' power cycles are safe. The options are 1-2 seconds, 2-3 seconds, 3-4 seconds, and **4-5 seconds**.

### **Deep Sx**

Use this item to configure Deep S4/S5 (Sx) settings for power support. For mobile devices, Deep Sx is supported in DC only. For desktop platforms, Sx is supported in AC only. The options are **Disabled**, Enabled in S5 (Battery), Enabled in S5, Enabled in S4 & S5 (Battery), and Enabled in S4 & S5.

### **Disable SCU Devices**

Select Enabled to enable support for Patsburg SCU (System Configuration Utility) devices. The options are **Disabled** and Enabled.

### **Onboard SAS Oprom**

Select Enabled to support Onboard SAS Option ROM which will allow the system to boot-up through onboard SAS connections. The options are **Disabled** and Enabled.

### **Onboard SATA RAID Oprom**

Select Enabled to support Onboard SATA RAID Option ROM which will allow the system to bootup through onboard SATA RAID devices via network connections. The options are **Enabled** and Disabled.

## High Precision Event Timer Configuration

### High Precision Timer

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

## ►PCI Express Ports Configuration

### PCI Express Port 1~8

The options are Enabled, Disabled, and **Auto**.

### PCIe Sub Decode

The options are Enabled and **Disabled**.

### DMI Vc1/Vcp/Vcm Control

The options are **Enabled** and Disabled.

## ►USB (Universal Serial Bus) Configuration

### All USB Devices

Select Enabled to enable all onboard USB devices. The options are **Enabled** and Disabled.

### EHCI Controller 1/ EHCI Controller 2

Select Enabled to enable Enhanced Host Interface (EHCI) Controller 1 or Controller 2 to improve overall platform performance. The options are **Enabled** and Disabled.

### USB Port 0~USB Port 13

Select Enabled to enable a USB port (from USB Port 0 to USB Port 13) as specified by the User. The options are **Enabled** and Disabled.

## ►ME (Management Engine) Subsystem

### Intel ME Subsystem Configuration

This feature displays the following ME Subsystem Configuration settings.

## **ME Subsystem**

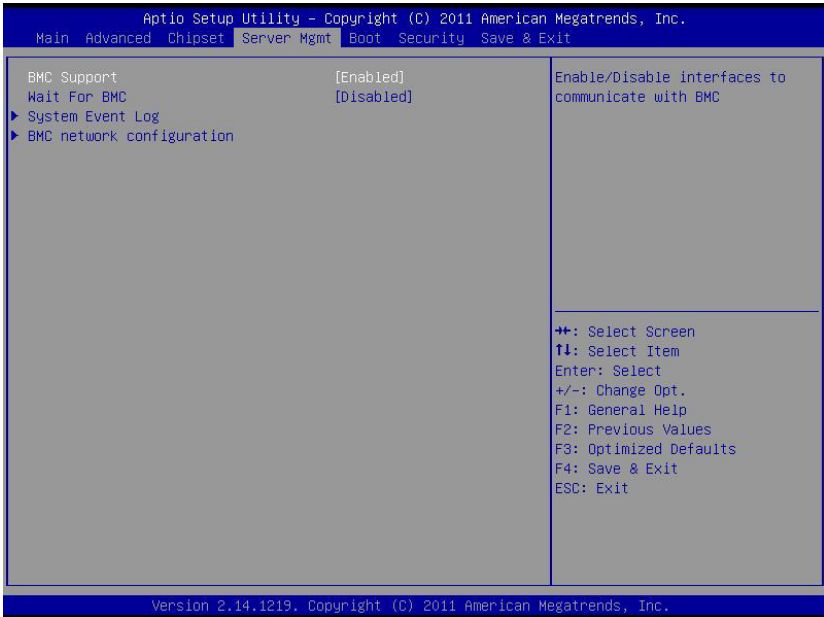
Select Enabled to support Intel Management Engine (ME) Subsystem, a small power computer subsystem that performs various tasks in the background. The options are **Enabled** and Disabled.

When ME Subsystem is enabled, the following items will display.

- **ME BIOS Interface**
- **ME Version**
- **ME FW (Firmware) Status Value**
- **ME FW (Firmware) State**
- **ME FW (Firmware) Operation State**
- **ME FW (Firmware) Error Code**
- **ME Ext. (Extended) FW (Firmware) Status Value**
- **BIOS Booting Mode**
- **Cores Disabled**
- **ME FW (Firmware) SKU Information**

## 7-5 Server Management

Use this feature to configure Server Management settings.



### BMC Support

Select Enabled to enable the BMC (Baseboard Management Controller). The options are **Enabled** and Disabled.

### Wait for BMC

Select Enabled for the system to wait for the host controller to initiate and to interface with the BMC at bootup. The options are **Disabled** and Enabled.

### ►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.

## Cstom EFI Logging Options

### Log EFI Status Codes

Select Enabled to log EFI (Extensible Firmware Interface) Status Codes, Error Codes or Progress Codes. The options are Disabled, **Both**, Error code, and Progress code.

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

## ►BMC Network Configuration

**LAN Channel 1/LAN Channel 2:** This feature allows th user to configure the settings for LAN Channel 1 or LAN Channel 2.

### Update IPMI LAN Configuration

This feature allows the user to decide if the BIOS should configure the IPMI setting at next system boot. The options are **No** and Yes. If the option is set to Yes, the user is allowed to configure the IPMI settings at next system boot:

### Configuration Address Source

This feature allows the user to select the source of the IP address for this computer. If Static is selected, you will need to know the IP address of this computer and enter it to the system manually in the field. If Unspecified is selected, the BIOS will search the next available IP address for this computer without modifying BMC network parameters. The options for LAN Channel 1 are Static and **Dynamic-Obtained by BMC**. The options for LAN Channel 2 are **Unspecified**, Static, Dynamic-Obtained by BMC, Dynamic-Loaded by BIOS, and Dynamic-BMC Running Other Protocol. If Unspecified is selected, the following items are assigned IP addresses automatically.

### 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.

### Router IP Address

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

### Router MAC Address

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

## 7-6 Boot

This submenu allows the user to configure the following boot settings for the system.

Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.		
Main Advanced Chipset Server Mgmt <b>Boot</b> Security Save & Exit		
Boot Configuration		
Setup Prompt Timeout	1	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Bootup NumLock State	[On]	
Quiet Boot	[Disabled]	
CSM16 Module Version	07.65	
GateA20 Active	[Upon Request]	
Option ROM Messages	[Force BIOS]	
Interrupt 19 Capture	[Disabled]	
Watch Dog Function	[Disabled]	
Boot Option Priorities		++: Select Screen F1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Boot Option #1	[UEFI: Network Card ]	
Boot Option #2	[IBA GE Slot 0800 v...]	
Boot Option #3	[UEFI: Built-in EFI...]	
Network Device BBS Priorities		

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## Boot Configuration

### Setup Prompt Timeout

This item allows the user to specify the number of seconds the system should wait before the setup is initiated. The default setting is **1**.

### Boot NumLock State

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

### Quiet Boot

Set this value to allow the bootup screen options to be modified between POST messages or the OEM logo. Select Disabled to allow the computer system to display the POST messages. Select Enabled to allow the computer system to display the OEM logo. The default setting is **Disabled**.

**CSM16 Module Version:** This item displays the version of the CSM16 Module.

### GateA20 Active

Select Always to keep Gate 20 enabled all the time, which will be beneficial when RT (Real Time) code is executed above 1 MB. The options are **Upon Request** and Always.

### Option ROM Messages

This item allows the user to decide how the Option ROM Message is displayed. Select Keep Current to use the current Option ROM Message Display setting. Select Force BIOS to use the Option ROM display mode set by the system BIOS. The options are **Force BIOS** and Keep Current.

### Interrupt 19 Capture

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

### Watch Dog Function

If enabled, the Watch Dog Timer will allow the system to reboot when it is inactive for more than 5 minutes. The options are Enabled and **Disabled**.

## Boot Option Priorities

### Boot Option #1/ Boot Option #2/ Boot Option #3

This item allows the user to select the first boot device. Select a LAN device to boot the system from the network connection. Select UEFI to boot the system from the UEFI: Built-in EFI Shell. The options are UEFI: Network Card, IBA GE Slot 0700 v1371, UEFI: Built-in EFI Shell, and Disabled. The default setting for the first boot drive is **UEFI: Network Card**. The default setting for the second boot drive is **IBA GE Slot 0700 v1371**. The default setting for the third boot drive is **UEFI: Built-in EFI Shell**.

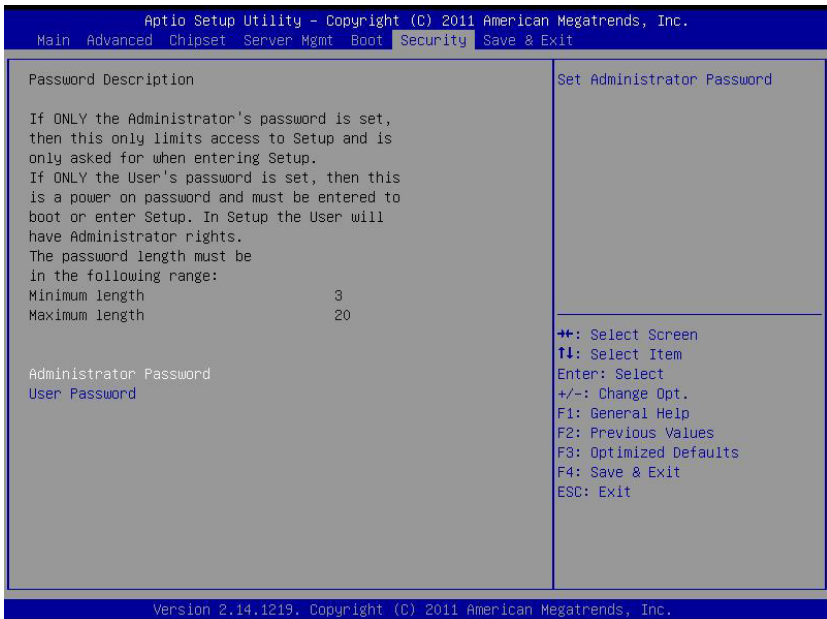
### Network Device BBS Priorities

#### Boot Option #1

This item allows the user to select the first boot drive. Select a LAN device to boot the system from the network connection. The options are **IBA GE Slot 0700 v1371** and Disabled.

## 7-7 Security

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





## Administrator Password

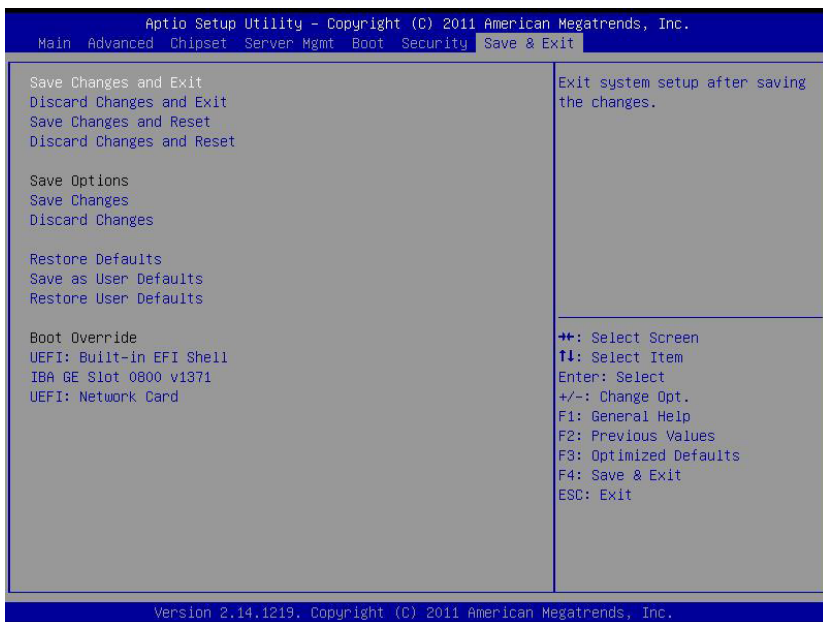
Use this feature to set the Administrator Password which is required to enter the BIOS setup utility. The length of the password should be from 3-characters to 8-characters long.

## User Password

Use this feature to set a User Password which is required to log into the system and to enter the BIOS setup utility. The length of the password should be from 3-characters to 8-characters long.

## 7-8 Save & Exit

This submenu allows the user to configure the Save and Exit settings for the system.



### Save Changes and Exit

Select this option to save changes and exit the system setup. Select Save Changes and Exit from the Exit menu and press <Enter>. When the dialog box appears, asking you if you want to Save configuration and exit, select **Yes** to save changes and exit the BIOS, or select No to keep the BIOS screen open for further changes.

**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>. When the dialog box appears, asking you if you want to exit the BIOS setup without saving, click **Yes** to quit BIOS without saving the changes, or click No to quit the BIOS and save changes.

**Save Changes and Reset**

When you have completed the system configuration changes, select this option to save the changes 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>. When the dialog box appears, asking you if you want to exit the BIOS setup without saving, click **Yes** to quit BIOS without saving the changes, or click No to quit the BIOS and save changes.

**Discard Changes and Reset**

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 Reset from the Exit menu and press <Enter>. When the dialog box appears, asking you if you want to exit the BIOS setup without saving, click **Yes** to quit BIOS without saving the changes, or click No to quit the BIOS and save changes.

**Save Options****Save Changes**

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

**Discard Changes**

Select this feature and press <Enter> to discard all the changes and return to the BIOS setup. When the dialog box appears, asking you if you want to load previous values, click **Yes** to load the values previous saved, or click No to keep the changes you've made so far.

**Restore Defaults**

Select this feature and press <Enter> to load the default settings. These are factory settings designed for maximum system stability, but not for maximum performance. When the dialog box appears, asking you if you want to load the default settings, click **Yes** to load the default settings, or click No to abandon defaults.

**Save As User Defaults**

Select this feature and press <Enter> to save the current settings as the user's defaults. When the dialog box appears, asking you if you want to save values as

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user's defaults, click **Yes** to save the current values as user's default settings, or click No to keep the defaults previously saved as the user's defaults.

### **Restore User Defaults**

Select this feature and press <Enter> to load the user's defaults previously saved in the system. When the dialog box appears, asking you if you want to restore user's defaults, click Yes to restore the user's defaults previously saved in the system, or click No to abandon the user's defaults that were previously saved.

### **Boot Override**

This feature allows the user to enter a new setting to overwrite the original setting that was saved for the following devices:

- UEFI: Network Card
- IBA GE Slot 0700 v1371
- UEFI: Built-in EFI Shell

## Appendix A

### BIOS Error Beep Codes

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

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

**Fatal errors** will not allow the system to continue to 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.

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
5 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 E5-2600/E5-1600 series processor in an LGA2011 socket

Note: Please refer to our web site for a complete listing of supported processors.

### Chipset

Intel C600-A/D chipset

### BIOS

8 Mb Award® SPI Flash ROM

### Memory Capacity

Eight DIMM sockets to support up to 512 GB of ECC LRDIMM, 256 GB of ECC RDIMM or 64 GB of ECC/non-ECC UDIMM DDR3-1866/1600/1333/1066 memory

See the memory section in Chapter 5 for details.

### SATA

Intel on-chip controllers support ten SATA ports (two SATA 3.0 ports and eight SATA 2.0 ports) (RAID 0, 1 5 and 10 supported)

### Drive Bays

Space for two internal 2.5" hard drives

### Serverboard

X9SRW-F (WIO form factor)

Dimensions: 8.15" x 13.05" in (207 x 331 mm)

### Chassis

SC514-R400W Form Factor: 1U rackmount

Dimensions: (WxHxD) 17.2 x 1.7 x 16.8 in. (437 x 43 x 427 mm)

## Weight

Gross: 27 lbs./12.3 kg. (with rails and heatsink)

Net: 16.5 lbs./7.5 kg. (with rails and heatsink)

## System Cooling

Four 4-cm heavy-duty counter-rotating fans

## System Input Requirements

AC Input Voltage: 100-240 VAC auto-range

Rated Input Current: 6-3A

Rated Input Frequency: 50 to 60 Hz

## Power Supply

Rated Output Power: 400W (Part# PWS-406P-1R)

Rated Output Voltages: +3.3V (25A), +5V (25A), -12V (.6A), +5Vsb (3A)

## Operating Environment

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

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

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

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

## Regulatory Compliance

Electromagnetic Emissions: FCC Class A, EN 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: CSA/EN/IEC/UL 60950-1 Compliant, UL or CSA Listed (USA and Canada), 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)"

## Notes



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