SUPERSERVER®

6018R-MD
6018R-MDR

USER'S MANUAL

1.0a

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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 6018R-MD/MDR. Installation and maintainance should be performed by experienced technicians only.

The SuperServer 6018R-MD/MDR is a high-end server based on the SC514-505/R400C chassis and the X10DRD-L serverboard.

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 X10DRD-L serverboard and the SC514-505/R400C chassis.

Chapter 2: Server Installation

This chapter describes the steps necessary to install the SuperServer 6018R-MD/MDR 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 6018R-MD/MDR.

Chapter 5: Advanced Serverboard Setup

Chapter 5 provides detailed information on the X10DRD-L serverboard, 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 serverboard.

Chapter 6: Advanced Chassis Setup

Refer to Chapter 6 for detailed information on the SC514-505/R400C server chassis. You should follow the procedures given in this chapter when installing, removing or reconfiguring 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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Chapter 1

Introduction

1-1 Overview

The SuperServer 6018R-MD/MDR is a 1U server comprised of two main subsystems: the SC514-505/R400C chassis and the X10DRD-L serverboard. Please refer to our website for information on operating systems that have been certified for use with the system (www.supermicro.com).

In addition to the serverboard and chassis, various hardware components have been included with the 6018R-MD/MDR, as listed below:

- Five 4-cm counter-rotating fans (FAN-0156L4)
- Two passive CPU heatsinks (SNK-P0047PS)
- One SATA power cable (CBL-0082L)
- Two SATA cables (CBL-0481L)
- One RSC-RR1U-E8 riser card
- One bracket for dual fixed 2.5" hard drives (MCP-220-51401-0N)
- One bracket for single fixed 3.5" hard drive (MCP-220-51402-0N, 6018R-MD only)
- One rail kit consisting of one set each of outer rails (MCP-290-00102-0N) and inner rails (MCP-290-00108-0N)

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

- Supermicro product manuals: http://www.supermicro.com/support/manuals/
- Product drivers and utilities: ftp://ftp.supermicro.com
- Product safety info: http://www.supermicro.com/about/policies/safety_information.cfm
- If you have any questions, please contact our support team at: support@supermicro.com

1-2 Serverboard Features

At the heart of the SuperServer 6018R-MD/MDR lies the X10DRD-L, a dual processor serverboard based on Intel's C612 chipset. Below are the main features of the X10DRD-L (see Figure 1-1 for a block diagram of the chipset).

Processors

The X10DRD-L supports single or dual Intel® Xeon® E5-2600 v3/v4 Series processors in LGA2011-3 (Socket R3) sockets. Please refer to the serverboard description pages on our website for a complete listing of supported processors.

Memory

The X10DRD-L has eight DIMM sockets that can support up to 1 TB of ECC LRDIMM (Load Reduced DIMMs) or 512 GB of ECC RDIMM (Registered DIMMs) DDR4-2400/2133/1866/1600 memory. Please refer to Chapter 5 for installing memory.

SATA

An on-chip SATA controller is integrated into the X10DRD-L to provide a six-port, SATA 3.0 subsystem, which is RAID 0, 1, 5 and 10 supported. The SATA drives are hot-swappable units.

Note: Documentation on RAID setup guidelines can be found on our website.

PCI-Expansion

One PCI-E 3.0 x8 slot is included on the X10DRD-L. An expansion card may be added to the system with the included riser card to support a standard size PCI-E 3.0 x8 FHHL (full-height, half-length) add-on card.

Rear I/O Ports

The rear I/O panel include one COM port, a VGA (monitor) port, four USB 2.0 ports and two gigabit Ethernet ports. A dedicated IPMI LAN port is also included.

Onboard Graphics

The X10DRD-L provides onboard graphics with an Aspeed 2400 BMC (baseboard management controller).

1-3 Server Chassis Features

The following is a general outline of the main features of the SC514-505/R400C chassis.

System Power

The SC514-505 chassis (used for the 6018R-MD) features a single 500W power supply. Power must be removed from the system when removing the power supply.

The SC514-R400C chassis (used for the 6018R-MDR) features a redundant 400W power supply. This redundancy allows either of the two modules to be removed without powering down the system. See Chapter 6 for details.

Hard Drives

The SC514-505 chassis (6018R-MD) can accommodate two 2.5" fixed internal hard drives or one 3.5" fixed internal hard drive. The hard drives require a drive bracket for mounting, which is included in the system.

The SC514-R400C chassis (6018R-MDR) can accommodate two 2.5" fixed internal hard drives. The hard drives require a drive bracket for mounting, which is included in the system.

Control Panel

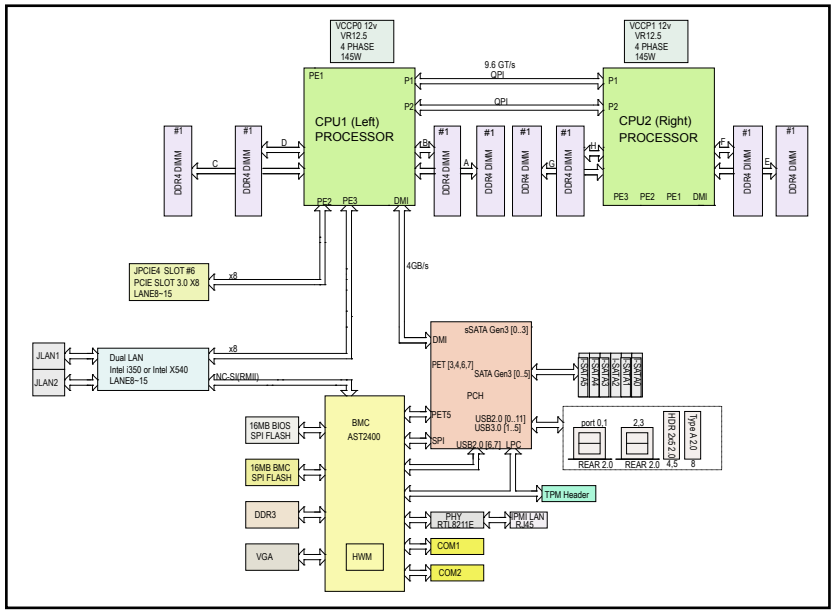
The SC514-505/R400C's control panel provides important system monitoring and control information. LEDs indicate system power, HDD activity, network activity, and an information LED. A main power button and a system reset button are also included.

Cooling System

The SC514-505/R400C chassis has an innovative cooling design that features five 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 C612 Chipset: System Block Diagram

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



Note: the Intel X540 controller is not included on the X10DRD-L serverboard model.

1-4 Contacting Supermicro

Headquarters

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San Jose, CA 95131 U.S.A.
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Email: support@supermicro.com.tw
Website: www.supermicro.com.tw

Notes

Chapter 2

Rack Installation

This chapter provides instructions for mounting your chassis in a rack.

2-1 Preparing for Setup

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

Choosing a Setup Location

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

- Leave at least 25 inches clearance in front of the rack to open the front door completely.
- Leave approximately 30 inches of clearance in the back of the rack to allow for sufficient airflow and access for servicing.
- It should be a restricted access location, such as a dedicated equipment room or a service closet.

2-2 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 SAS 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 (Tmra).

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.).

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

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

2-3 Installing the System into a Rack

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

Note: These rails will fit a rack between 26" and 33.5" deep.

Identifying the Sections of the Rack Rails

The chassis package includes two sets of rack rails, one set for the right side of the chassis and one for the left. Each set includes the outer rail pieces that attach to the rack. The outer rails accept an inner rail that is pre-attached directly to the chassis.

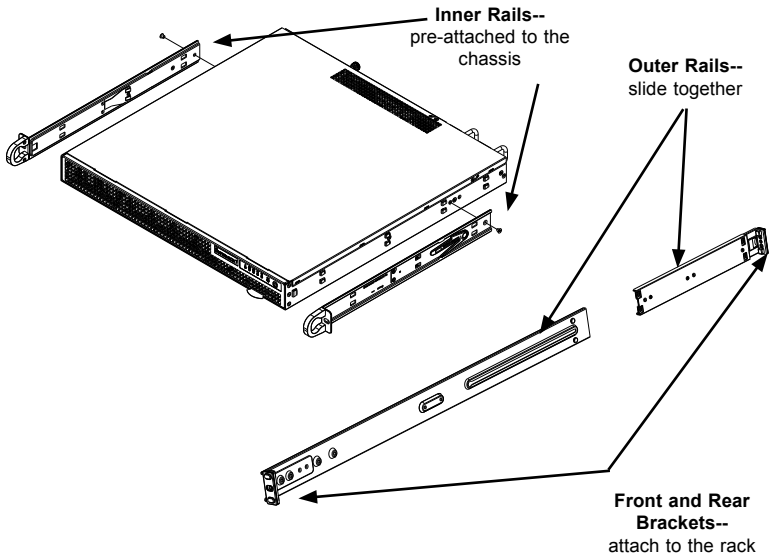

Figure 2-1. Identifying the Sections of the Rack Rails

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

Assembling the Outer Rails

Each outer rail comes in two sections that must be assembled before mounting onto the rack.

Assembling the Outer Rails

1. Identify the left and right outer rails by examining the ends, which bend outward. Match the left front outer rail with the left rear outer rail and the same for the right rails.

2. Align the round post in the rear rail (B) with the round hole at the end of the slot in the front rail (A), and slide the front section into the rear section.

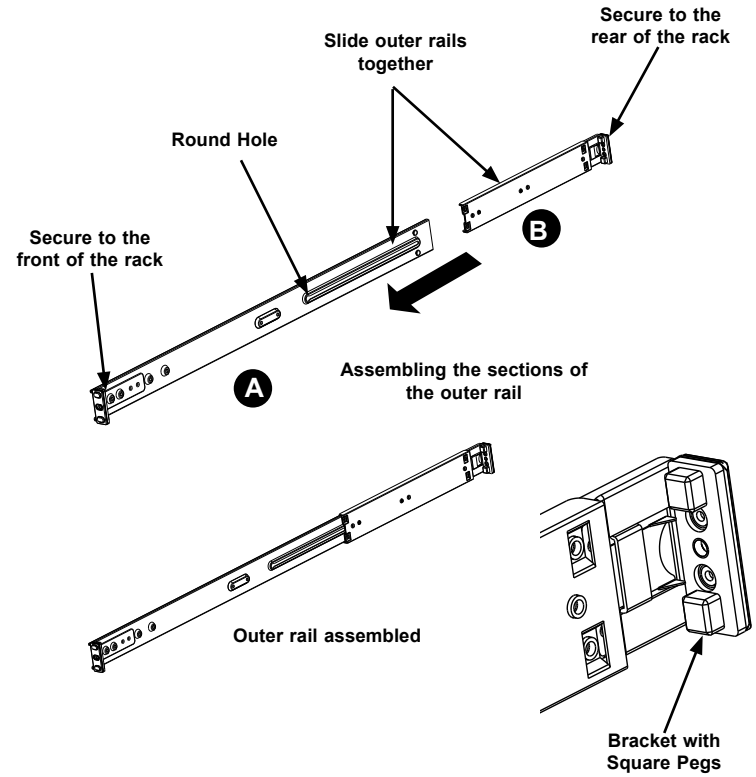

Figure 2-2. Assembling the Outer Rails

Installing the Outer Rails onto the Rack

Each end of the assembled outer rail includes a bracket with square pegs to fit into your rack holes. If you have an older rack with round holes, these brackets must be removed, and you must use screws to secure the rail to the rack.

Installing the Outer Rails

1. Align the square pegs on the front end of the rail with the square holes on the front of the rack (C). Push the rail into the rack until the quick release bracket snaps into place, securing the rail to the rack. Keep the rail horizontal.

2. Adjust the rail to reach just past the full depth of your rack.

3. Align the square pegs on the rear end of the rail to the holes on the rack (D) and push the rail into the rack until the quick release bracket snaps into place, securing the rail to the rack.

4. Repeat the procedure for the other outer rail assembly.

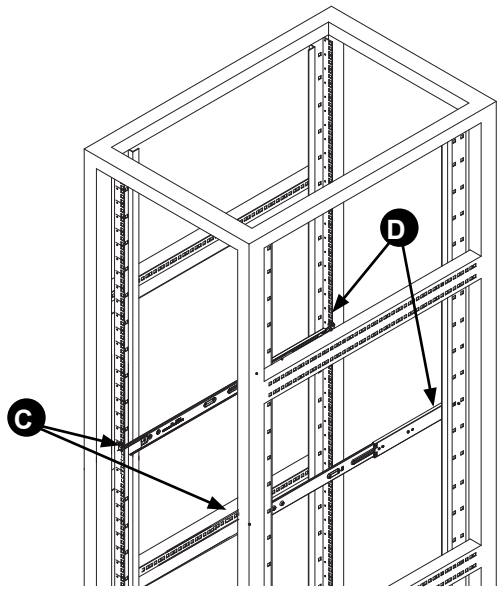

Figure 2-3. Installing the Outer Rails to the Rack

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

Sliding the Chassis onto the Rack Rails

Installing the Chassis into a Rack

1. Align 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. The spring latch engages when the chassis is part way in. Push the server completely into the rack.

3. (*Optional*) Insert and tighten the thumbscrews that hold the front of the server to the rack.

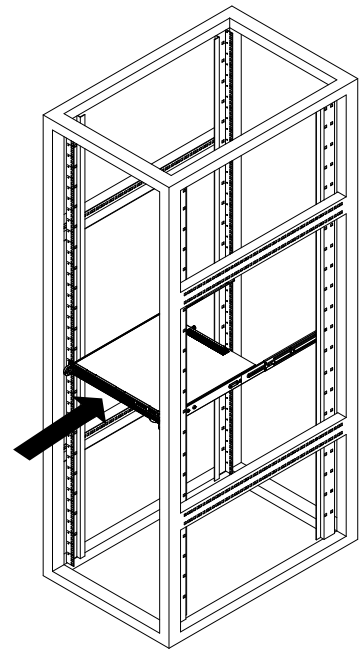

Figure 2-4. Installing the Server into a Rack

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

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

Installing the Server into a Two Post Rack

Optional brackets (p/n MCP-290-00016-0N) are needed to install the server to a two post (telco type) rack. Use the two L-shaped brackets on either side of the chassis (four total).

1. First, determine how far follow the server will extend out the front of the rack. Larger chassis should be positioned to balance the weight between front and back. If a bezel is included on your server, remove it.

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 telco rack.

3. Finish by sliding the chassis into the rack and tightening the brackets to the rack.

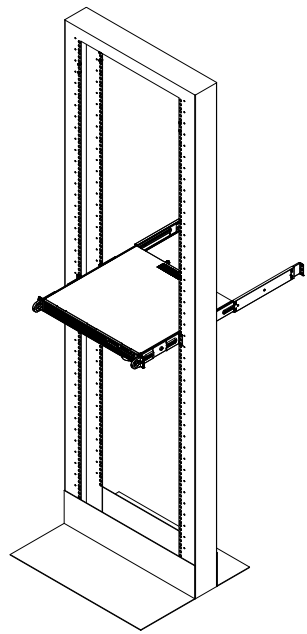

Figure 2-5. Installing the Server into a Telco Rack

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

Chapter 3

System Interface

3-1 Overview

There are two buttons and 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 status lights for the power supply.

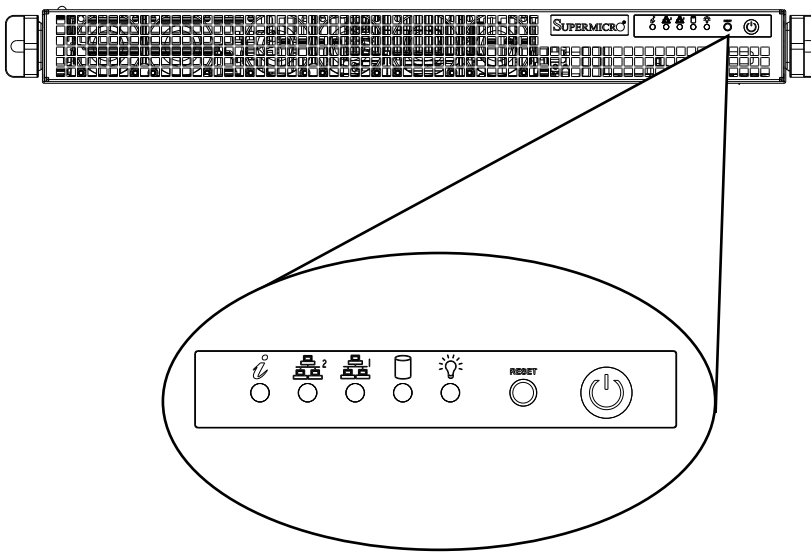

Figure 3-1. Control Panel

3-2 Control Panel Buttons

The chassis includes two push-buttons.

Reset

Use the reset button to reboot the system.

Power

The main power switch is used to apply or remove power from the power supply to the server. Turning off system power with this button removes the main power but maintains standby power. To perform maintenance tasks, you must unplug system before servicing.

3-3 Control Panel LEDs

There are five LEDs that provide status information about the system.

Information LED

Alerts operator of several states, as noted in the table below.

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

NIC2

Indicates network activity on GLAN2 when flashing.

NIC1

Indicates network activity on GLAN1 when flashing.

HDD

Indicates IDE channel activity on the hard drive when flashing.

Power

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

3-4 Power Supply LEDs

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

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

Chapter 4

Standardized Warning Statements for AC Systems

About Standardized Warning Statements

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

Read this chapter in its entirety before installing or configuring components in the Supermicro chassis. Some warnings may not apply for your system.

These warnings may also be found on our web site at www.supermicro.com/about/policies/safety_information.cfm.

Warning Definition

Warning!

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

警告の定義

この警告サインは危険を意味します。

人身事故につながる可能性がありますので、いずれの機器でも動作させる前に、

電気回路に含まれる危険性に注意して、標準的な事故防止策に精通して下さい。

此警告符号代表危险。

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

此警告符號代表危險。

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

Warnung

WICHTIGE SICHERHEITSHINWEISE

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

BEWAHREN SIE DIESE HINWEISE GUT AUF.

INSTRUCCIONES IMPORTANTES DE SEGURIDAD

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

GUARDE ESTAS INSTRUCCIONES.

IMPORTANTES INFORMATIONS DE SÉCURITÉ

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

CONSERVEZ CES INFORMATIONS.

תקנון הצהרות אזהרה

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

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

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 המכשיר המגן מפני הקצר החשמלי הוא לא יותר מ-60VDC, 20A

هذا المنتج يعتمد على معداث الحمايت مه الدوائرالقصيرة التي تم تثبيتها فـ المبنى

تأكد من أن تقييم الجهاز الوقائي ليس أكثر من: 20A, 250VDC

경고!

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

Waarschuwing

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

電源切断の警告

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

警告

在你打开机箱并安装或移除内部器件前,必须将系统完全断电,并移除电源线。

警告

在您打開機殼安裝或移除內部元件前，必須將系統完全斷電，並移除電源線。

Warnung

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

¡Advertencia!

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

Attention

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

אזהרה !
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 للهيكل لتثبيت أو إزالة مكونات الجهاز

경고!

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

Waarschuwing

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

Equipment Installation

Warning!

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

機器の設置

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

警告

只有经过培训且具有资格的人员才能进行此设备的安装、更换和维修。

警告

只有經過受訓且具資格人員才可安裝、更換與維修此設備。

Warnung

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

¡Advertencia!

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

Attention

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

אזהרה !

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

يجب أن يسمح فقط للموظفين المؤهلين والمدربين لتركيب 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 للالأمان

경고!

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

Waarschuwing

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

Battery Handling

Warning!

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

電池の取り扱い

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

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

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

Warnung

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

Attention

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

¡Advertencia!

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

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

סילוק הסוללות המשומשות יש לבצע לפי הוראות היצרן.

هناك خطر من انفجار في حالة 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 (if applicable to your system)

Warning!

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

冗長電源装置

このユニットは複数の電源装置が接続されている場合があります。

ユニットの電源を切るためには、すべての接続を取り外さなければなりません。

警告

此部件连接的电源可能不止一个，必须将所有电源断开才能停止给该部件供电。

警告

此裝置連接的電源可能不只一個，必須切斷所有電源才能停止對該裝置的供電。

Warnung

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

¡Advertencia!

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

Attention

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

אם קיים יותר מספק אחד

אזהרה !

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

قد يكون لهذا الجهاز عدة اتصالات بوحدات امداد الطاقة.

يجب إزالة كافة الاتصالات 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 (if applicable to your system)

Warning!

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

バックプレーンの電圧

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

修理する際には注意ください。

警告

当系统正在进行时，背板上有很危险的电压或能量，进行维修时务必小心。

警告

當系統正在進行時，背板上有危險的電壓或能量，進行維修時務必小心。

Warnung

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

¡Advertencia!

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

Attention

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

מתח בפנל האחורי

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

هناك خطر من التيار الكهربائي أوالطاقة 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 (if applicable to your system)

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 ell montaje del ventilador del chasis. Mandtenga 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 והמאוררים 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!

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

Waarschuwing

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

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Warnung

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¡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.

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Waarschuwing

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Notes

Chapter 5

Advanced Serverboard Setup

This chapter covers the steps required to install processors and heatsinks to the X10DRD-L serverboard, connect the data and power cables and install add-on cards. All serverboard 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 serverboard to protect and cool the system sufficiently.

5-1 Handling the Serverboard

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 serverboard can cause it to bend if handled improperly, which may result in damage. To prevent the serverboard 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 serverboard, add-on cards and peripherals back into their antistatic bags when not in use.

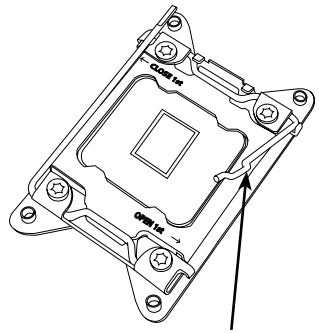
5-2 Processor and Heatsink Installation

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 serverboard into the chassis before you install the CPU heatsinks.
- When receiving a serverboard without a processor pre-installed, make sure that the plastic CPU socket cap is in place and none of the socket pins are bent; otherwise, contact your retailer immediately.
- Refer to the Supermicro website for updates on CPU support.

Installing a CPU

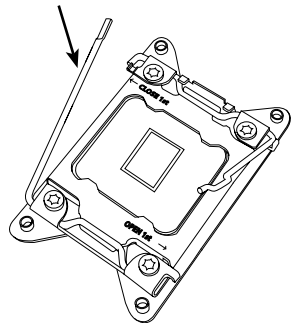
1. There are two levers on the LGA 2011 socket. First press and release the load lever labeled "Open 1st".



Release the lever labeled "Open 1st"

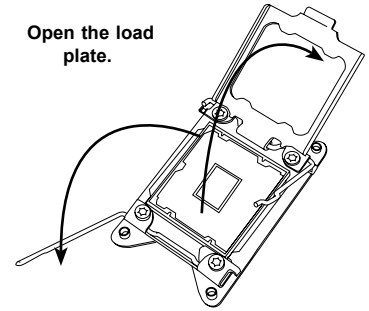
Release the lever labeled "Close 1st"

2. Press the second load lever labeled "Close 1st" to release the load plate from its locked position.

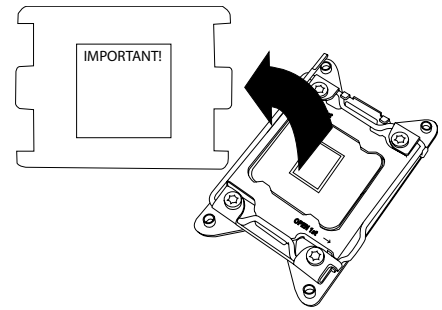


3. With the second lever fully retracted, gently push down on the "Open 1st" lever to loosen the load plate. Lift the load plate with your fingers to open it completely.

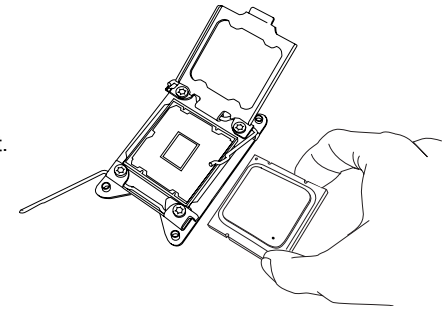
Open the load plate.



4. Pop the plastic cap marked "Warning" out of the load plate.
5. Holding the CPU carefully above the socket, orient the CPU so that all keys and edges will fit the socket.

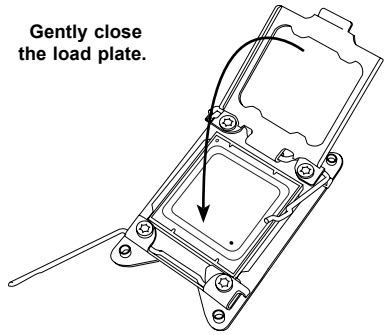


6. Carefully lower the CPU straight down into the socket. Do not move the CPU horizontally, and do not rub the pins of the socket. This may damage the CPU or the socket.

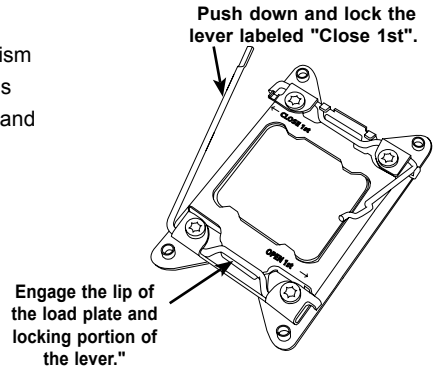


Caution: You can only install the CPU into the socket in one direction. Make sure that the CPU is properly inserted into the socket before closing the load plate. If it does not close properly, do not force it as it may damage your CPU. Instead, open the load plate again and double-check that the CPU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

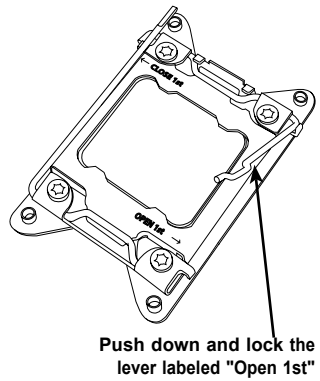
7. With the "Close 1st" lever fully retracted, gently close the load plate.



8. Make sure the locking mechanism on the "Close 1st" lever catches the lip of the load plate. Close and lock the "Close 1st" lever.



9. Close and lock the "Open 1st" lever.



Installing a Passive CPU Heatsink

1. Do not apply any thermal grease to the heatsink or the CPU die -- the required amount has already been applied.

2. Place the heatsink on top of the CPU so that the four mounting holes are aligned with those on the serverboard and the heatsink bracket underneath.

3. Screw in two diagonal screws (i.e., the #1 and the #2 screws) until just snug (do not over-tighten the screws to avoid possible damage to the CPU.)

4. Add the two remaining screws then fully tighten all four screws.

Removing the Heatsink

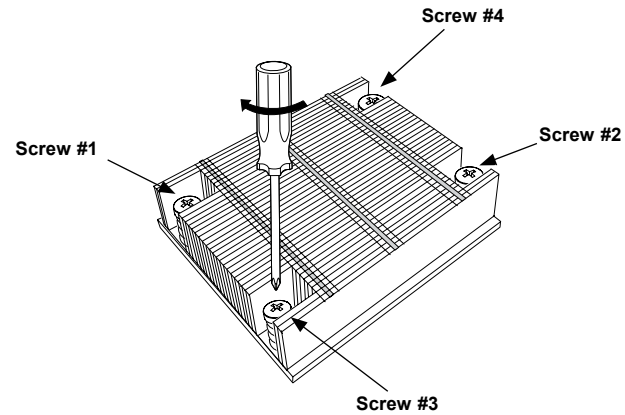
Warning: We do not recommend removing the CPU or the heatsink. However, if you do need to remove it, please follow the instructions below to prevent damage to the CPU or other components.

1. Unscrew the heatsink screws from the serverboard in the sequence shown below.

2. Gently wriggle the heatsink to loosen it from the CPU (do not use excessive force). Once the heatsink is loose, remove it from the CPU.

3. Clean the surface of the CPU and the heatsink, removing the used thermal grease. Reapply the proper amount of thermal grease on the surface before re-installing.

Figure 5-1. Installing the Heatsink



5-3 Connecting Cables

Now that the processors are installed, the next step is to connect the cables to the serverboard. These include the data cables for the peripherals and control panel and the power cables.

Connecting Data Cables

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

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

Connecting Power Cables

The X10DRD-L has a 24-pin primary power supply connector designated "JPWR1" for connection to the ATX power supply. Connect the appropriate connector from the power supply to JPW1 to supply power to the serverboard. See the Connector Definitions section in this chapter for power connector pin definitions.

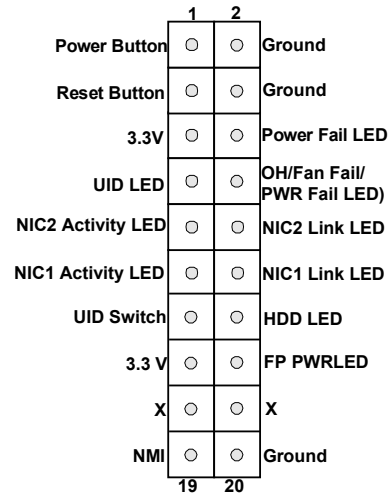
In addition, your power supply must be connected to the 8-pin Processor Power connectors at JPWR2 and JPWR3.

Connecting the Control Panel

JF1 contains header pins for various front control panel connectors. See Figure 5-2 for the pin locations of the various front control panel buttons and LED indicators. Please note that even and odd numbered pins are on opposite sides of each header. All JF1 wires have been bundled into single keyed ribbon cable to simplify their connection. Connect one end of this cable to JF1 and the other end to the Control Panel printed circuit board, located just behind the system status LEDs in the chassis.

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

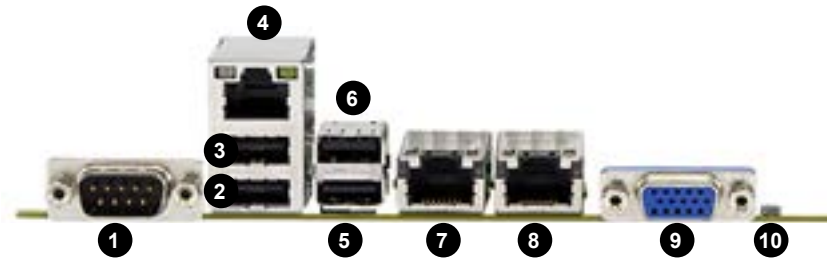
Figure 5-2. Front Control Panel Header Pins (JF1)



5-4 I/O Ports

See Figure 5-3 below for the descriptions of the various rear I/O ports.

Figure 5-3. Rear Panel I/O Ports



Backplane I/O Ports	
1. COM Port	6. USB 2.0 Port
2. USB 2.0 Port	7. Gb LAN Port 1
3. USB 2.0 Port	8. Gb LAN Port 2
4. Dedicated IPMI LAN Port	9. VGA Port
5. USB 2.0 Port	10. UID Button/LED

5-5 Installing Memory

Note: Check the Supermicro website for recommended memory modules.

CAUTION

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

Installing DIMMs

1. Insert the desired number of DIMMs into the memory slots, starting with slots DIMMA1. Pay attention to the notch along the bottom of the module to prevent inserting the DIMM module incorrectly. See Figure 5-4.

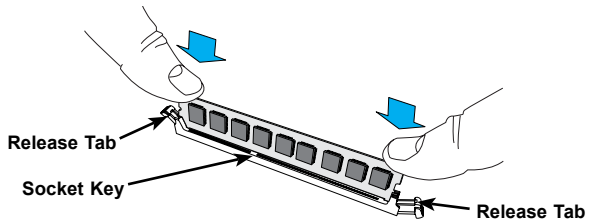
2. Gently press down on the DIMM module until it snaps into place in the slot. Repeat step 1 to install to DIMM1B if needed.

Memory Support

The X10DRD-L has eight DIMM sockets that can support up to 1 TB of ECC LRDIMM (Load Reduced DIMMs) or 512 GB of ECC RDIMM (Registered DIMMs) DDR4-2400/2133/1866/1600 memory.

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

Figure 5-4. DIMM Installation



Processors and their Corresponding Memory Modules				
CPU#	Corresponding DIMM Modules			
CPU 1	P1-DIMMA1	P1-DIMMB1	P1-DIMMC1	P1-DIMMD1
CPU2	P2-DIMME1	P2-DIMMF1	P2-DIMMG1	P2-DIMMH1

Processor and Memory Module Population for Optimal Performance	
Number of CPUs+DIMMs	CPU and Memory Population Configuration Table (For memory to work properly, please follow this table.)
1 CPU & 2 DIMMs	CPU1 P1-DIMMA1/P1-DIMMB1
1 CPU & 4 DIMMs	CPU1 P1-DIMMA1/P1-DIMMB1, P1-DIMMC1/P1-DIMMD1
2 CPUs & 4 DIMMs	CPU1 + CPU2 P1-DIMMA1/P1-DIMMB1, P2-DIMME1/P2-DIMMF1
2 CPUs & 6 DIMMs	CPU1 + CPU2 P1-DIMMA1/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1, P2-DIMME1/P2-DIMMF1
2 CPUs & 8 DIMMs	CPU1 + CPU2 P1-DIMMA1/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1, P2-DIMME1/P2-DIMMF1/P2-DIMMG1/P2-DIMMH1

Populating RDIMM/LRDIMM DDR4 Memory Modules					
Type	Ranks Per DIMM and Data Width	DIMM Capacity (GB)		Speed (MT/s); Voltage (V); Slots per Channel (SPC) and DIMMs per Channel (DPC)	
				1 Slot per Channel	
				1 DPC	
				E5-2600 V3	E5-2600 V4
		4 Gb	8 Gb	1.2 V	1.2 V
RDIMM	SRx4	8 GB	16 GB	2133	2400
RDIMM	SRx8	4 GB	8 GB	2133	2400
RDIMM	DRx8	8 GB	16 GB	2133	2400
RDIMM	DRx4	16 GB	32 GB	2133	2400
LRDIMM	QRx4	32 GB	64 GB	2133	2400
LRDIMM 3DS	8Rx4	64 GB	128 GB	2133	2400

5-6 Adding PCI Expansion Cards

PCI Expansion Slots

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

PCI Card Installation

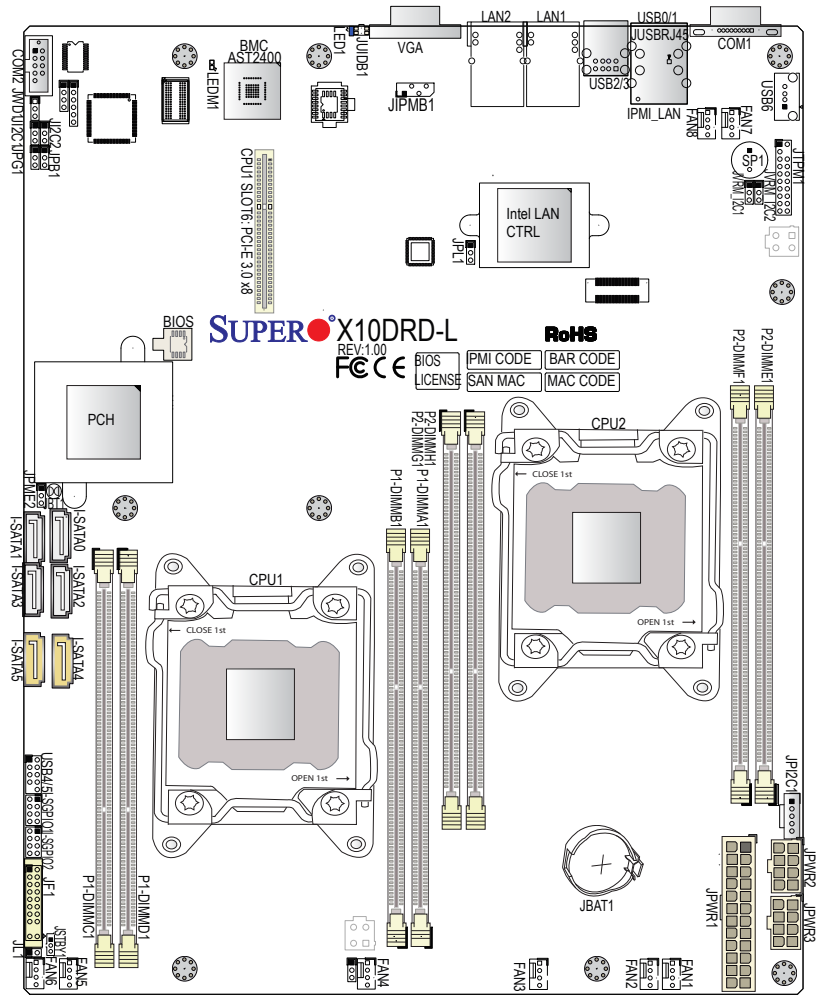
Before installing a PCI add-on card, make sure it is supported by the riser card. Begin by releasing the locking tab that corresponds to the slot you wish to populate. Insert the expansion card into the riser card by pushing down with your thumbs evenly on both sides of the card.

PCI Slot/Card Configurations

Riser Card	*Expansion Card Supported*
RSC-RR1U-E8 (pre-installed)	1x PCI-E 3.0 x8 FHHL card

5-7 Serverboard Details

Figure 5-5. SUPER X10DRD-L Layout



Notes:

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

X10DRD-L Quick Reference

Jumper	Description	Default Setting
JBT1	Clear CMOS	See Section 5-9
JI²C1/JI²C2	SMB to PCI-E Slots Enable/Disable	Pins 2-3 (Disabled)
JPB1	BMC Enable/Disable	Pins 1-2 (Enabled)
JPG1	VGA Enable/Disable	Pins 1-2 (Enabled)
JPL1	Gigabit LAN 1/2 Enable/Disable	Pins 1-2 (Enabled)
JPME2	Manufacture (ME) Mode Select	Pins 1-2 (Normal)
JWD1	Watch Dog Timer Enable	Pins 1-2 (Reset)

Connector	Description
COM1/COM2	Serial Port/Header
FAN 1- 8	CPU/System Fan Headers
IPMI_LAN	Dedicated IPMI LAN Port
JF1	Control Panel Header
JL1	Chassis Intrusion Header
JPI²C1	Power Supply SMBbus I²C Header
JPWR1	24-pin ATX Main Power Connector
JPWR2/JPWR3	12V 8-pin Power Connectors
JSTBY1	Standby Power Connector
JTPM1	TPM (Trusted Platform Module)/Port 80 Header
I-SATA 0-5	SATA 3.0 Ports (supported by Intel PCH)
LAN1	Gigabit Ethernet LAN Port1
LAN2	Gigabit Ethernet LAN Port2
UID-SW (JUIDB1)	UID (Unit Identification) Switch
USB0/1/2/3	Backpanel USB 2.0 Ports
USB4/5	Front Accessible USB 2.0 Headers
USB6	Front Accessible Type A USB 2.0 Connector

LED	Description	State	Status
LED1	Rear UID LED	Blue: On	Unit Identified
LEDM1	BMC Heartbeat LED	Green: Blinking	BMC Normal

5-8 Connector Definitions

Power Connectors

A 24-pin main ATX power supply connector (JPWR1) and two 8-pin CPU power connectors (JPWR2/3) are included on the serverboard. These power connectors meet the SSI EPS 12V specification and must be connected to your power supply to provide adequate power to the system. 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

8-Pin Power Connectors

In addition to the ATX main power, two 8-pin 12V power connector located at JPWR2 and JPWR3 are also required connections. See the table on the right for pin definitions.

8-pin Power Pin Definitions (JPW2, JPW3)

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

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	3.3V
16	Power LED

HDD/UID LED

The HDD LED connection is located on pins 13 and 14 of JF1. Attach a cable to pin 14 to indicate HDD activity. Attach a cable to pin 13 to use the UID switch. See the table on the right for pin definitions.

HDD LED Pin Definitions (JF1)

Pin#	Definition
13	UID Switch
14	HD Active

NIC1/NIC2 LED Indicators

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

NIC1/2 LED Pin Definitions (JF1)

Pin#	Definition
9	NIC 2 Activity LED
10	NIC 2 Link LED
11	NIC 1 Activity LED
12	NIC 1 Link LED

Universal Information LED

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

Universal Information LED Pin Definitions (JF1)

Pin#	Definition
7	Blue UID LED
8	OH/Fan Fail/Power Fail

OH/Fan Fail/PWR Fail LED Status (Red LED)

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.

PWR Fail LED Pin Definitions (JF1)

Pin#	Definition
5	3.3V
6	PWR Supply Fail

Reset Button

The Reset Button connection is located on pins 3 and 4 of JF1. Attach it to a hardware reset switch on the computer case. 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. To turn off the power when the system is in suspend mode, press the button for four seconds or longer. Refer to the table on the right for pin definitions.

Power Button Pin Definitions (JF1)

Pin#	Definition
1	Signal
2	Ground

Universal Serial Bus (USB)

Four Universal Serial Bus ports (USB 0/1, USB 2/3) are located on the rear I/O panel. In addition, an internal USB header provides two front-accessible USB connections (USB 4/5). One Type A connector (USB6) also supports front panel USB connection. (Cables are not included.)

Back Panel USB 0/1, 2/3 (2.0) Pin Definitions

Pin#	Definition	Pin#	Definition
1	+5V	5	+5V
2	USB_PN1	6	USB_PN0
3	USB_PP1	7	USB_PP0
4	Ground	8	Ground

Front Panel USB 4/5 (2.0), Type A USB 6 (2.0) Pin Definitions

Pin#	Description
1	VBUS
2	SSRX-
3	SSRX+
4	Ground
5	SSTX-
6	SSTX+
7	GND_DRAIN
8	D-
9	D+

Serial Ports

Two COM connections (COM1 and COM2) are provided on the serverboard. COM1 is located on the rear I/O panel. COM2, located close to Slot4 (PCI-E 3.0 x8), provides front access support.

Ethernet LAN Ports

Two Gigabit LAN ports supported by the Intel i350 are provided on the rear I/O panel. In addition, a dedicated IPMI LAN port, supported by the AST2400 BMC (Baseboard Management Controller), is also provided to provide LAN support for IPMI 2.0.

Unit Identifier Switches/UID LED Indicators

A rear Unit Identifier (UID) switch and a rear UID LED (LED1) are located next to the VGA port. The front UID switch and the UID LED are both located on the front panel control (JF1), with the front UID switch on pin 13 of JF1 and the front LED on pin 7. Pressing either the front or rear UID switch, will turn on both front and rear UID LEDs. Press the UID switch again to turn off the LED indicators. The UID indicators provide easy identification of a system unit that may be in need of service.

Note: UID can also be triggered via IPMI on the serverboard. For more information on IPMI, please refer to the IPMI user's guide posted on our website @ http://www.supermicro.com.

UID Switch

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

UID LED (LED3) Status

Color/State	Status
Blue: On	Unit Identified

Fan Headers

The X10DRD-L has eight fan headers (Fan1 ~ Fan8). These are 4-pin fan headers, with pins 1-3 backward compatible with traditional 3-pin fans. However, fan speed control is available for 4-pin fans only by Thermal Management via the IPMI 2.0 interface. Refer to the table on the right for pin definitions.

Note: Please use all 3-pin fans or all 4-pin fans on a serverboard. Do not mix 3-pin fans and 4-pin fans on the same board.

Fan Header Pin Definitions

Pin#	Definition
1	Ground
2	+12V
3	Tachometer
4	PWR Modulation

Internal Speaker

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

Internal Buzzer (SP1) Pin Definition

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

Trusted Platform Module Header

The JTPM1 header is used to connect a Trusted Platform Module (TPM), available separately from a third-party vendor. A TPM is a security device that allows encryption and authentication of hard drives, disallowing access if the TPM associated with it is not installed in the system. See the table on the right for pin definitions.

TPM/Port 80 Header Pin Definitions

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

Power SMB (I^2C) Connector

The Power System Management Bus (I^2C) connector (JPI^2C1) monitors power supply, fan and system temperatures. See the table on the right for pin definitions.

PWR SMB Pin Definitions

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

Chassis Intrusion

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

Chassis Intrusion Pin Definitions

Pin#	Definition
1	Intrusion Input
2	Ground

T-SGPIO 0/1 Headers

Two T-SGPIO (Serial-Link General Purpose Input/Output) headers are included to communicate with the enclosure management chip in the system. I-SGPIO1 supports onboard I-SATA 0-3 ports, while I-SGPIO2 supports I-SATA 4/5. 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

NC = No connection

Standby Power Header

The +5V Standby Power header is located at JSTBY1 on the serverboard. See the table on the right for pin definitions. (You must also have a card with a Standby Power connector and a cable to use this feature.)

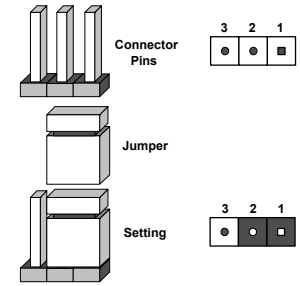
Standby PWR Pin Definitions

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

5-9 Jumper Settings

Explanation of Jumpers

To modify the operation of the serverboard, 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 serverboard 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

I²C Bus to PCI-Express Slots

Use jumpers JI²C1 and JI²C2 to connect the System Management Bus (I²C) to the PCI-Express slots to improve PCI performance. These two jumpers should be set at the same time. See the table on the right for jumper settings.

I²C for PCI-E slots Jumper Settings

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

LAN 1/2 Enable/Disable

JPL1 enables or disables the Gb LAN ports. See the table on the right for jumper settings.

LAN 1/2 Enable Jumper Settings

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

BMC Enable/Disable

Jumper JPB1 allows you to enable the embedded Aspeed AST2400 Baseboard Management Controller (BMC) to provide IPMI 2.0/KVM support on the serverboard. See the table on the right for jumper settings.

BMC IPMI Enable/Disable Jumper Settings

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

Watch Dog Enable

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

Watch Dog Jumper Settings

Jumper Setting	Definition
Pins 1-2	Reset (default)
Pins 2-3	NMI
Open	Disabled

Manufacturer Mode Select

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

ME Mode Select Jumper Settings

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

5-10 Onboard Indicators

LAN1/2 LEDs

Each Ethernet LAN port has two LEDs. The green LED indicates activity, while the other Link LED may be green, amber, or off to indicate the speed of the connection. See the tables at right for more information.

LAN1/2 Link LED (Left) LED State

LED Color	Definition
Off	10 Mbps or No Connection
Green	100 Mbps
Amber	1 Gbps

IPMI Dedicated LAN

In addition to the LAN ports, a dedicated IPMI LAN port is also included on the X10DRD-L. The amber LED on the right indicates activity, while the green LED on the left indicates the speed of the connection. See the table at right for more information.

IPMI LAN Link LED (Left) & Activity LED (Right)

	Color/State	Definition
Link (Left)	Green: Solid Amber: Solid	100 Mbps 1 Gbps
Activity (Right)	Amber: Blinking	Active

BMC Heartbeat LED

A BMC Heartbeat LED is located at LEDM1 on the serverboard. When LEDM1 is blinking, the BMC is functioning normally. See the table at right for more information.

BMC Heartbeat LED Status

Color/State	Definition
Green: Blinking	BMC: Normal

5-11 SATA Ports

SATA Ports

Six SATA 3.0 ports (I-SATA 0-5), supported by the Intel PCH C612, are located on the serverboard. Note that I-SATA 4/5 also support Supermicro SuperDOMs, which are yellow SATA DOM (Device-On-Module) connectors with power pins built in and do not require separate external power cables. SuperDOMs are backward-compatible with non-Supermicro SATA DOMs that require the external power supply.

5-12 Installing Drivers

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

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

Another option is to go to the Supermicro website at http://www.supermicro.com/products/. Find the product page for your serverboard here, where you may download individual drivers and utilities.

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

Figure 5-5. Driver Installation Display Screen

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

SuperDoctor® 5

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

SuperDoctor 5 comes in local and remote management versions and can be used with Nagios to maximize your system monitoring needs. With SuperDoctor 5 Management Server (SSM Server), you can remotely control power on/off and reset chassis intrusion for multiple systems with SuperDoctor 5 or IPMI. SD5 Management Server monitors HTTP, FTP, and SMTP services to optimize the efficiency of your operation.

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

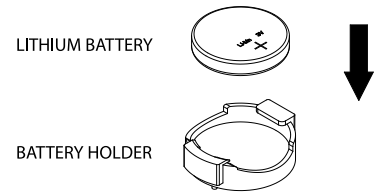
Figure 5-6. SuperDoctor 5 Interface Display Screen (Health Information)

Note: The SuperDoctor 5 program and User's Manual can be downloaded from the Supermicro web site at http://www.supermicro.com/products/nfo/sms_sd5.cfm.

5-13 Onboard Battery

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

Figure 5-7. Installing the Onboard Battery



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

Notes

Chapter 6

Advanced Chassis Setup

This chapter covers the steps required to install components and perform maintenance on the chassis. The only tool required is a Phillips screwdriver.

Review the warnings and precautions listed in the manual before setting up or servicing this chassis. These include information in Chapter 4 and the warnings and precautions listed in the setup instructions.

6-1 Static-Sensitive Devices

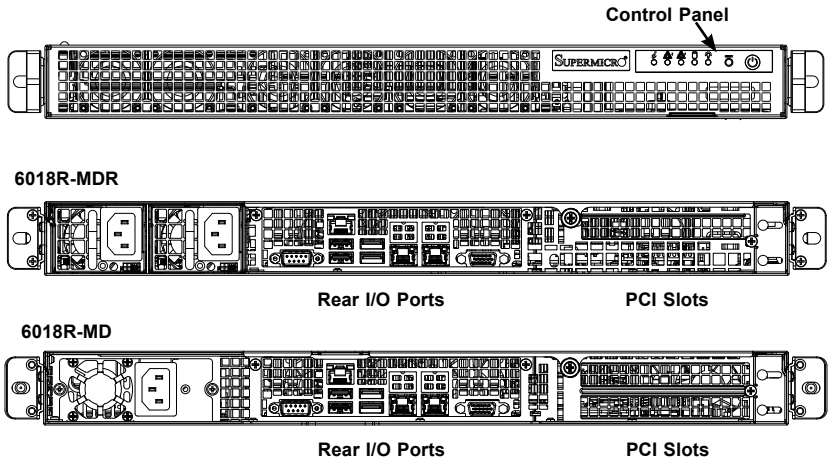
Electrostatic Discharge (ESD) can damage electronic components. To prevent damage to any printed circuit boards (PCBs), it is important to handle them very carefully.

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 serverboard, add-on cards and peripherals back into their antistatic bags when not in use.
- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the serverboard.

Figure 6-1. 6018R-MD/6018R-MDR Front and Rear Views



6-2 Removing Power from the System

Before performing setup or maintenance tasks, use the following procedure to ensure that power has been removed from the system.

1. Use the operating system to power down the system, following the on-screen prompts.

2. After the system has completely shut-down, carefully grasp the head of the power cord and gently pull it out of the back of the power supply. For the 6018R-MDR, remove the cords from both power supply modules.

3. Disconnect the power cord(s) from the power strip or wall outlet.

6-3 Removing the Chassis Cover

You may need to remove the top cover to access the inside of the system for some of the procedures desccibed in this chapter.

Removing the Chassis Cover

1. Remove the thumb screw securing the top cover to the chassis.

2. Remove the two screws on the sides of the chassis.

3. Lift the cover up and off of the chassis.

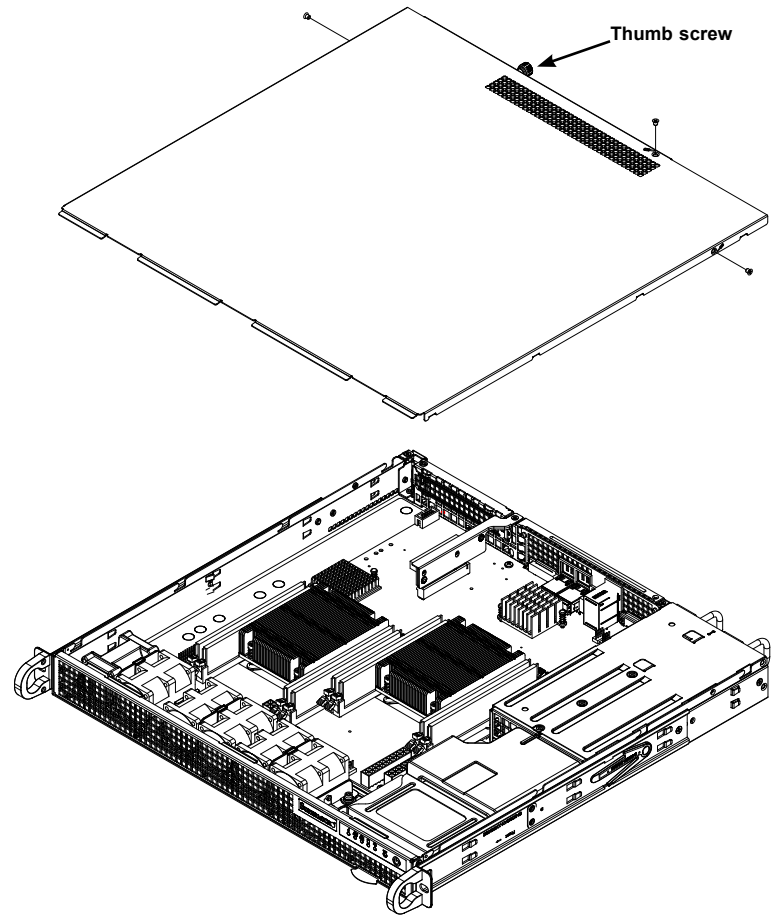


Figure 6-2. Removing the Chassis Cover

6-4 Installing Hard Drives

The 6018R-MDR supports two fixed 2.5" hard disk drives. The 6018R-MD supports two fixed 2.5" or one 3.5" hard disk drives. The use of enterprise level hard drives only is recommended.

Installing Hard Disk Drives

1. Identify the HDD bracket and secure the drive(s) to the bracket. (Figure 6-3).

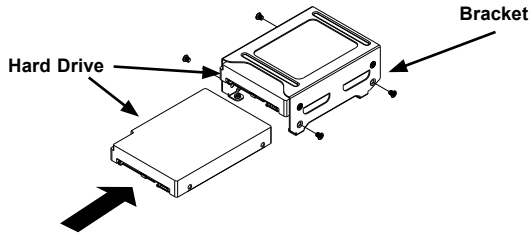


Figure 6-3. Installing Hard Drives into the Bracket

2. Secure the bracket to the HDD mounting tray. (Figure 6-4)
3. Secure the HDD tray to the chassis floor. (Figure 6-5).
4. Connect the drive cabling.

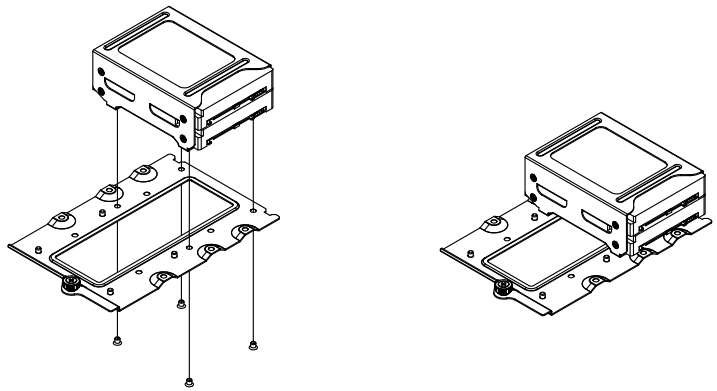


Figure 6-4. Securing the Bracket to the HDD Tray (2.5" Drives)

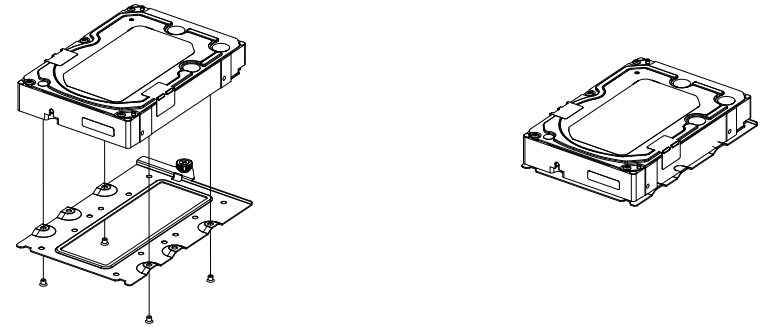


Figure 6-5. Securing the Bracket to the HDD Tray (3.5" Drives)

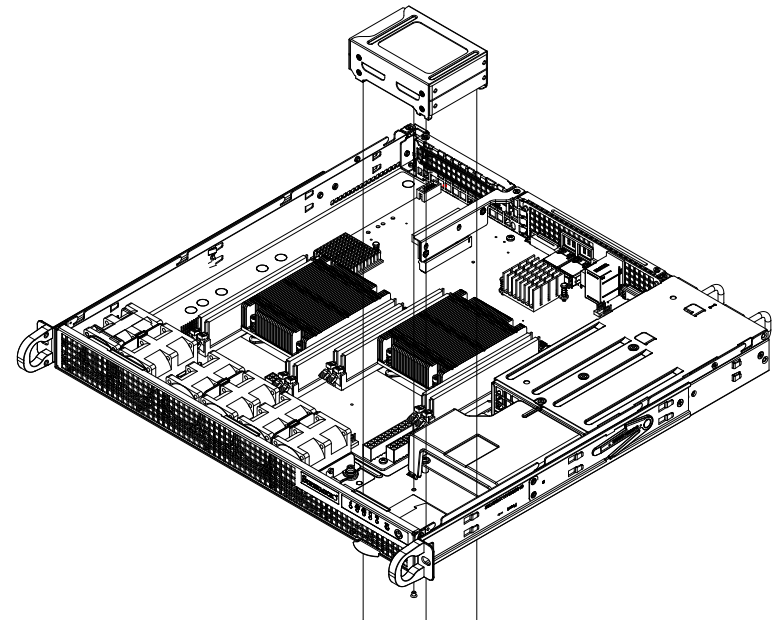


Figure 6-6. Securing the HDD Tray to the Chassis Floor

6-4 System Fans

The SC514 chassis includes five heavy-duty fans plus the option to add one additional fan for system coolong.

Replacing a System Fan

1. If necessary, open the chassis cover while the power is running to determine which fan requires changing. (Do not run the server for an extended time with the chassis open.)
2. Power down the system as described in section 6-2.
3. Remove the failed fan's cable from the connector on the serverboard.
4. Lift the fan housing with the two fans attached up and out of the chassis. Remove the failed fan by gently pulling it out of the housing.
5. Place the new fan into the vacant space in the housing. Make sure that the arrows on the sides of the fan (indicating air direction) point in the same direction as the arrows on the other fans.
6. Plug the fan cable into the connector on the serverboard.
7. Place the fan housing into the chassis and secure it with the screws previously set aside.
8. Power up the system and check that the fan is working properly before replacing the top cover.

Checking the Server Airflow

- Make sure there are no objects to obstruct airflow in and out of the server.
- Make sure no cables or foreign objects obstruct airflow through the chassis. Pull all excess cabling out of the airflow path or use shorter cables.

The control panel LEDs inform you of the system heat status. See “Chapter 3: System Interface” for details.

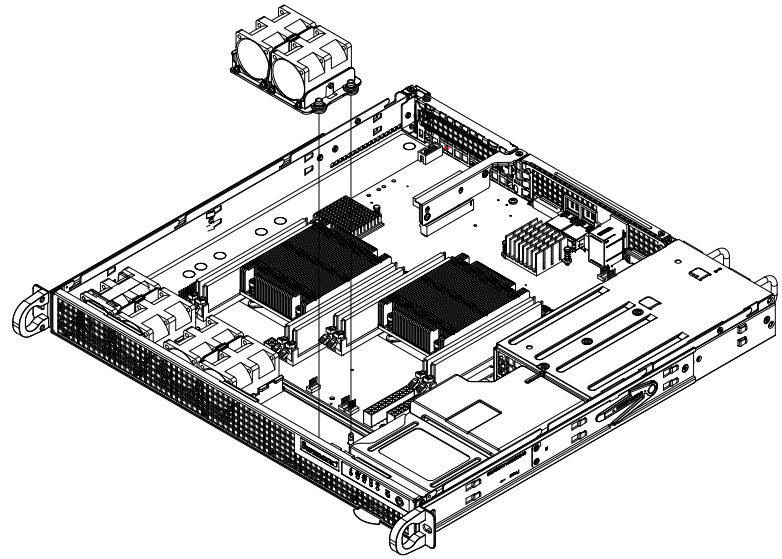


Figure 6-7. Fan Layout

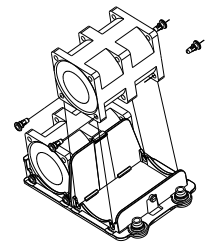


Figure 6-8. Removing a Fan from the Fan Housing

6-5 Installing Expansion Cards

The system supports one full-height, half-length PCI Express expansion card. The expansion card is installed using a riser card and a riser bracket.

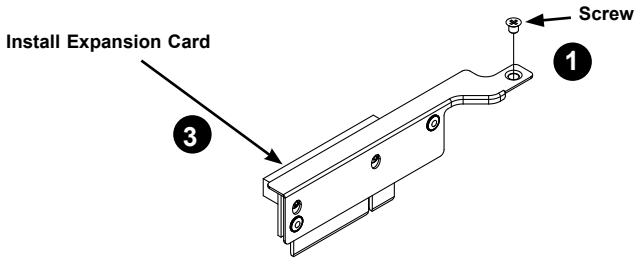


Figure 6-9. Removing the Riser Bracket

Installing Expansion Cards

1. Remove the riser card bracket from the chassis by removing the screw indicated in Figure 6-9.
2. Lift the riser card bracket from the chassis.
3. Install the expansion card by inserting the card into the slot in the riser card.
4. Install the bracket into the slot on the serverboard while aligning the bracket in the rear of the chassis.

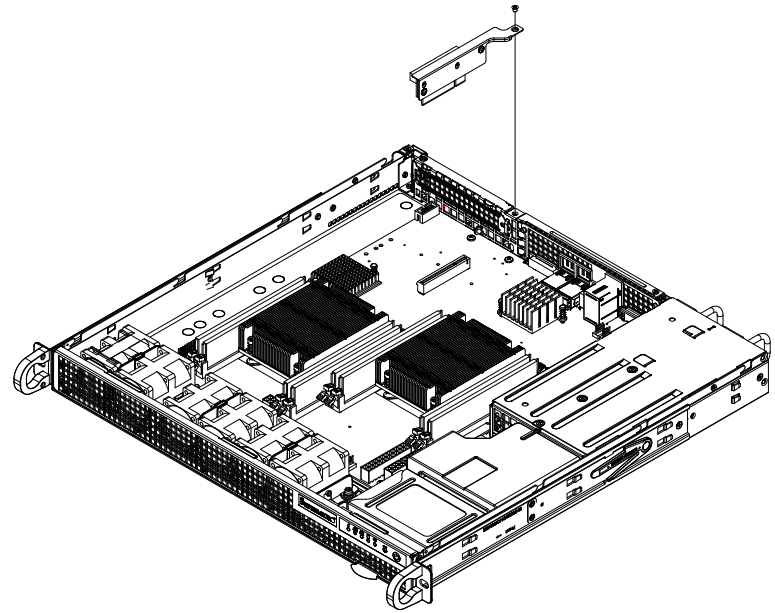


Figure 6-10. Riser Card Bracket

6-7 Power Supply

6018R-MD

The 6018R-MD has a single 500W power supply. The power supply is auto-switching capable, which enables it to automatically sense and operate at a 100v to 240v input voltage.

Changing a Single Power Supply

1. Power down the system as described in section 6-2, then remove the chassis cover.
2. Remove the screws located on the end of the power supply bay and at the front of the power supply and the underside of the chassis. Set the screws aside for later use.
3. Gently slide the power supply out of the back of the chassis.
4. Replace the failed power module with another of the same model.
5. Slide the new power supply module into the power supply bay.
6. Align the holes in the power supply with the holes in the power supply bay and secure the power supply using the screws which were set aside in step 2.
7. Replace the chassis cover, plug the power cord into the rear of the power supply and power up the system.

6018R-MDR

The 6018R-MDR has two hot-swap 400W power supplies. The power supply modules have an auto-switching capability, which enables them to automatically sense and operate at a 100V-240V input voltage.

If a power supply unit fails, it can be changed without powering down the system. Replacement units can be ordered directly from Supermicro.

Changing a Redundant Power Supply

1. Press the release button on the failed power supply.
2. Use the handle to gently slide the power supply out the back of the chassis.
3. Replace the failed power module with another of the same model.
4. Slide the new power supply module into the power supply bay until it clicks into the locked position.

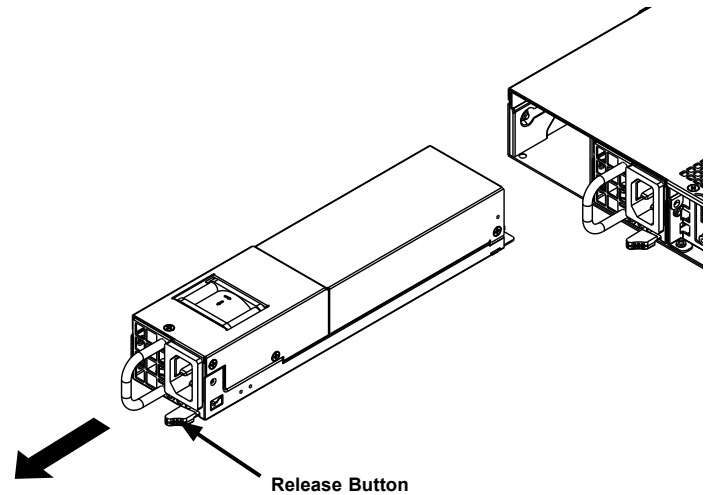


Figure 6-11. Replacing a Redundant Power Supply Module

Notes

Chapter 7

BIOS

7-1 Introduction

This chapter describes the AMI BIOS setup utility for the X10DRD-L/LT/i/iT/iNT. The ROM BIOS is stored in a Flash EEPROM and can be easily updated. This chapter describes the basic navigation of the AMI BIOS setup utility screens.

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 AMI BIOS setup menu screen has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured. Options in blue can be configured by the user. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it.

> **Note:** The AMI BIOS has default text messages built in. Supermicro retains the option to include, omit, or change any of these text messages.

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

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

How To Change the Configuration Data

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

How to Start the Setup Utility

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

Warning: Do not 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 page. You can always return to the main setup page by selecting the Main tab at the top of the BIOS screen. The main BIOS setup page is shown below*.

*Please note that the screenshots and BIOS settings cover more than one motherboard SKU. Some settings may not be available on the motherboard included in the 6018R-MD/MDR server.

The following main menu items will be displayed:

System Date/System Time

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

Note: The time is in the 24-hour format. For example, 5:30 p.m. appears as 17:30:00.

Supermicro X10DRD-iT

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

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

Memory Information

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

Memory Speed: This item displays the default speed of the memory modules installed in the system.

7-3 Advanced Setup Configurations

Use the arrow keys to select the Advanced tab and press <Enter> to access the submenu items:

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

▶Boot Feature

Quiet Boot

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

AddOn ROM Display Mode

Use this item to set the display mode for the Option ROM. Select Keep Current to use the current AddOn ROM 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.

Bootup NumLock State

Use this item to set the power-on state for the NumLock key. Select On to enable NumLock support during system boot. The options are Off and **On**.

Wait For 'F1' If Error

Select Enabled to force the system to wait until the <F1> key is pressed if an error occurs. The options are Disabled and **Enabled**.

INT19 (Interrupt 19) Trap Response

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

Re-try Boot

When EFI Boot is selected, the system BIOS will automatically reboot the system from an EFI boot device after its initial boot failure. Select Legacy Boot to allow the BIOS to automatically reboot the system from a Legacy boot device after its initial boot failure. The options are **Disabled**, Legacy Boot, and EFI Boot.

Power Configuration

Watch Dog Function

Select Enabled to allow the Watch Dog timer to reboot the system when it is inactive for more than 5 minutes. The options are Enabled and **Disabled**.

Power Button Function

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

Restore on AC Power Loss

Use this feature to set the power state after a power outage. Select 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 most recent power state before a power loss. The options are Power On, Stay Off, and **Last State**.

▶CPU Configuration

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

Socket 1 CPU Information/Socket 2 CPU Information

This submenu displays the following information regarding the CPU installed in Socket 1 and/or Socket 2 as detected by the BIOS.

- Processor Socket
- Processor ID
- Processor Frequency
- Processor Maximum Ratio
- Processor Minimum Ratio
- Microcode Revision
- L1 Cache RAM
- L2 Cache RAM
- L3 Cache RAM
- CPU 1 Version
- CPU 2 Version

Clock Spread Spectrum

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

Hyper-Threading (ALL)

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

Cores Enabled

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

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

Select Enable to enable the Execute-Disable Bit technology 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 options are **Enable** and Disable. (Refer to the Intel and Microsoft websites for more information.)

PPIN Control

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

Hardware Prefetcher (Available when supported by the CPU)

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

Adjacent Cache Prefetch (Available when supported by the CPU)

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

DCU Streamer Prefetcher (Available when supported by the CPU)

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

DCU IP Prefetcher (Available when supported by the CPU)

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

Direct Cache Access (DCA)

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

X2APIC

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

AES-NI

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

Intel Virtualization Technology (Available when supported by the CPU)

Select Enable for Intel Virtualization Technology support, 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 **Enable** and Disable.

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

▶ Advanced Power Management Configuration

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

Power Technology

Select Energy Efficiency to support power-saving mode. Select Custom to customize system power settings. Select Disabled to disable power-saving settings. The options are Disable, **Energy Efficient** and Custom.

If the Power Technology option is set to Energy Efficient or Custom, the following items will be displayed:

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

Select Enable to support energy-performance tuning to enhance CPU energy efficiency. The options are Enable and **Disable**.

Energy Performance Bias Setting (Available when Power Technology is set to Energy Efficient or Custom)

Use this feature to select an appropriate fan-speed setting for your system. Select Performance to maximize system performance with maximum cooling, which will increase power consumption. Select Power to maximize energy efficiency by reducing fan-speeds, which might compromise system performance. The fan speeds are controlled by the firmware management via IPMI 2.0. The options are Performance, **Balanced Performance**, Balanced Power, and Power.

Energy Efficiency Turbo (Available when Power Technology is set to Energy Efficient or Custom)

Select Enable for Energy Efficiency Turbo support to turn up CPU core frequency to improve CPU performance without compromising energy efficiency. The options are **Enable** and Disable.

If the Power Technology option is set to Custom, the following items will be displayed:

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

EIST (P-States) (Available when Power Technology is set to Custom)

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

Turbo Mode (Available when Power Technology is set to Custom)

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

P-State Coordination (Available when Power Technology is set to Custom)

This feature determines how an ACPI-aware operating system will coordinate P-state transitions between logical processors. P-state is also known as "SpeedStep" for Intel processors. Select HW_ALL to change the P-State coordination type for all hardware components. This option is recommended for the E5-2600 V3/V4 platform. Select SW_ALL to change the P-State coordination type for all software installed in the system. Select SW_ANY to change the P-state coordination type for a particular software program specified by the user. The options are **HW_All**, SW_ALL, and SW_ANY.

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

Package C-State limit (Available when Power Technology is set to Custom)

Use this item to set the limit on the C-state package register. The options are C0/C1 State, C2 State, C6 (non Retention) State**,** and **C6 (Retention) State.**

CPU C3 Report

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

CPU C6 Report

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

Enhanced Halt State (C1E)

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

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

ACPI (Advanced Configuration Power Interface) T-States

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

▶Chipset Configuration

▶North Bridge

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

▶IIO Configuration

EV DFX (Device Function On-Hide) Features

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

▶IIO1 Configuration

CPU1 SLOT5 PCI-E 3.0 x8

Use this feature to set the PCI-E bus speed for the slot specified above. The options are Gen (Generation) 1 (2.5 GT/s), Gen (Generation) 2 (5 GT/s), and **Gen** (**Generation) 3 (8 GT/s)**.

CPU1 SLOT6 PCI-E 3.0 x8

Use this feature to set the PCI-E bus speed for the slot specified above. The options are Gen (Generation) 1 (2.5 GT/s), Gen (Generation) 2 (5 GT/s), and **Gen** (**Generation) 3 (8 GT/s)**.

CPU1 SLOT4 PCI-E 3.0 x8

Use this feature to set the PCI-E bus speed for the slot specified above. The options are Gen (Generation) 1 (2.5 GT/s), Gen (Generation) 2 (5 GT/s), and **Gen** (**Generation) 3 (8 GT/s)**.

▶IIO2 Configuration

CPU2 SLOT7 PCI-E 3.0 x8

Use this feature to set the PCI-E bus speed for the slot specified above. The options are Gen (Generation) 1 (2.5 GT/s), Gen (Generation) 2 (5 GT/s), and **Gen** (**Generation) 3 (8 GT/s)**.

▶IOAT Configuration

Enable IOAT (I/O Acceleration Technology)

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

No Snoop

Select Enable to support no-snoop mode for each CB device. The options are **Disable** and Enable.

Relaxed Ordering

Select Enable for relaxed ordering support, which will allow certain transactions to be processed and completed prior to other transactions that have already been queued and that violate the strict ordering rules of PCI processing. The options are **Disable** and Enable.

▶Intel VT for Directed I/O (VT-d)

Intel® VT for Directed I/O (VT-d)

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

Interrupt Remapping

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

▶QPI (Quick Path Interconnect) Configuration

QPI General Configuration

The following QPI information will be displayed:

- Number of CPU
- Number of IIO
- Current QPI Link Speed
- Current QPI Link Frequency
- QPI Global MMIO Low Base / Limit
- QPI Global MMIO High Base / Limit
- QPI PCIe Configuration Base / Size

Link Frequency Select

Use this feature to set the desired QPI link frequency. The options are 6.4 GT/s, 8.0 GT/s, 9.6 GT/s, **Auto**, and Auto Limited.

Link L0p Enable

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

Link L1 Enable

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

COD Enable (Available when the OS and the CPU support this feature)

Select Enable for Cluster-On-Die support to enhance system performance in cloud computing. The options are **Disable** and Enable.

Early Snoop (Available when the OS and the CPU support this feature)

Select Enable for Early Snoop support to enhance system performance. The options are Disable, Enable, and **Auto**.

Isoc Mode

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

▶Memory Configuration

Integrated Memory Controller (IMC)

Enforce POR

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

Memory Frequency

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

Data Scrambling

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

DRAM RAPL (Running Average Power Limit) Baseline

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

Set Throttling Mode

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

A7 Mode

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

▶DIMM Information

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

- P1-DIMMA1
- P1-DIMMB1
- P1-DIMMC1
- P1-DIMMD1
- P2-DIMME1
- P2-DIMMF1
- P2-DIMMG1
- P2-DIMMH1

▶Memory RAS (Reliability-Availability-Serviceability) Configuration

Use this submenu to configure the following Memory RAS settings.

Memory RAS Configuration Setup

RAS Mode

When Disable is selected, RAS is not supported. When Mirror 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 to boost performance. The options are **Disable**, Mirror, and Lockstep Mode.

Memory Rank Sparing

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

Patrol Scrub

Patrol scrubbing is a process that allows the CPU to correct correctable memory errors detected on a memory module and send the correction to the requestor (the original source). When this item is set to Enable, read-and-write will be performed every 16K cycles per cache line if there is no delay caused by internal processing. The options are Disable and **Enable**.

Patrol Scrub Interval

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

Demand Scrub

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

Device Tagging

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

▶South Bridge Configuration

The following South Bridge information will display:

▶USB Configuration

- USB Module Version
- USB Devices

Legacy USB Support

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

EHCI Hand-Off

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

Port 60/64 Emulation

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

EHCI1

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

EHCI2

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

▶SATA Configuration

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

SATA Controller

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

Configure SATA as

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

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

Support Aggressive Link Power Management

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

SATA Port 0-5

These items display the information detected on the installed SATA drive on the particular SATA port.

- Model number of drive and capacity
- Software Preserve Support

Port 0-5 Hot Plug

Select Enabled to enable hot-plugging support for a port specified by the user, which will allow the user to replace a SATA disk drive installed on this port without shutting down the system. The options are Disabled and **Enabled**.

Port 0-5 Spin Up Device

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

Port 0-5 SATA Device Type

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

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

Serial ATA Port 0-5

This item indicates that a SATA port specified by the user is not installed or not present.

Port 0-5 SATA Device Type (Available when a SATA port is detected)

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

If the option "Configure SATA as" is set to RAID, the following items will display:

Support Aggressive Link Power Management

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

SATA RAID Option ROM/UEFI Driver

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

SATA/sSATA RAID Boot Select

Select SATA Controller to boot the system from a SATA RAID device. Select sSATA Controller to boot the system from an sSATA RAID device. Select Both to boot the system either from a SATA RAID device or from an sSATA RAID device. Please note that the option Both is not supported by the Windows Server 2012/R2 OS. The options are SATA Controller, **sSATA Controller**, and Both.

Serial ATA Port 0-5

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

- Model number of drive and capacity
- Software Preserve Support

Port 0-5 Hot Plug

Select Enabled to enable hot-plugging support for a port specified by the user, which will allow the user to replace a SATA disk drive installed on this port without shutting down the system. The options are Enabled and **Disabled**.

Port 0-5 Spin Up Device

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

Port 0-5 SATA Device Type

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

▶sSATA Configuration

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

sSATA Controller

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

Configure sSATA as

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

If the option "Configure sSATA as" is set to AHCI, the following items will display:

Support Aggressive Link Power Management

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

sSATA Port 0-3 Hot Plug

Select Enabled to enable hot-plugging support for a port specified by the user, which will allow the user to replace an sSATA disk drive installed on this port without shutting down the system. The options are Disabled and **Enabled**.

sSATA Port 0-3 Spin Up Device

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

Port 0-3 sSATA Device Type

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

If the option "Configure sSATA as" is set to IDE, the following items will display:

sSATA Port 0-3

This item indicates that an sSATA port specified by the user is not installed or not detected.

Port 0-3 sSATA Device Type

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

If the option "Configure sSATA as" is set to RAID, the following items will display:

Support Aggressive Link Power Management

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

sSATA RAID Option ROM/UEFI Driver

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

SATA/sSATA RAID Boot Select

Select SATA Controller to boot the system from a SATA RAID device. Select sSATA Controller to boot the system from an sSATA RAID device. Select Both to boot the system either from a SATA RAID device or from an sSATA RAID device. Please note that the option Both is not supported by the Windows Server 2012/R2 OS. The options are Both, SATA Controller, and **sSATA Controller**.

sSATA Port 0-3 Hot Plug

Select Enabled to support hot-plugging on the port specified by the user, which will allow the user to replace an sSATA drive without shutting down the system. The options are **Disabled** and Enabled.

sSATA Port 0-3 Spin Up Device

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

Port 0-3 sSATA Device Type

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

▶Server ME (Management Engine) Configuration

This feature displays the following system ME configuration settings.

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

▶PCIe/PCI/PnP Configuration

The following PCI information will be displayed:

- PCI Bus Driver Version

PCI Devices Common Settings:

PCI PERR/SERR Support

Select Enabled for the system to log an error event when a PERR (PCI/PCI-E Parity Error) or a SERR (System Error) occurs. The options are **Disabled** and Enabled.

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

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

SR-IOV (Available if the system supports Single-Root Virtualization)

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

Maximum Payload

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

Maximum Read Request

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

ASPM Support

Use this item to set the Active State Power Management (ASPM) level for a PCIe device. Select Auto for the system BIOS to automatically set the ASPM level based on the system configuration. Select Disabled to disable ASPM support. The options are **Disabled** and Auto.

Warning: Enabling ASPM support may cause some PCI-E devices to fail.

MMIOHBase

Use this item to select the base memory size according to memory-address mapping for the IO hub. The options are **56T**, 48T, 24T, 3T, and 2T.

MMIO High Size

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

CPU1 SLOT4 PCI-E x8/CPU1 SLOT5 PCI-E x8/CPU1 SLOT6 PCI-E x8 (/CPU2 SLOT7 PCI-E x8

Select Enabled to enable Option ROM support to boot the computer using a device installed on the slot specified by the user. The options are Disabled, **Legacy**, and EFI.

Onboard LAN Option ROM Type

Select Enabled to enable Option ROM support to boot the computer using a device installed on the slot specified by the user. The options are **Legacy** and EFI.

Onboard LAN1 Option ROM/Onboard LAN2 Option ROM

Use this option to select the type of device installed in LAN Port1 or LAN Port2 used for system boot. The options for LAN1 Option ROM are Disabled, **PXE**, iSCSI, and FCoE. The options for LAN2 Option ROM are **Disabled** and PXE.

Onboard NVMe1 Option ROM/Onboard NVMe2 Option ROM (For X10DRD-iNT)

Use this item to select the type of device to be installed in NVMe Connector 1 or NVMe Connector 2 for system boot. The options for both NVMe connectors are Disabled and **EFI**.

Onboard Video OPROM

This feature controls how the system executes UEFI (Unified Extensible Firmware Interface) and Legacy Video OPROM. Select Legacy to boot the system using a legacy video device installed on the motherboard for system boot. The options are Disabled, **Legacy**, and EFI.

VGA Priority

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

Network Stack

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

▶Super IO Configuration

Super IO Chip AST2400

▶Serial Port 1 Configuration/Serial Port 2 Configuration

Serial Port 1/Serial Port 2

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

Device Settings

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

Change Port 1 Settings/Change Port 2 Settings

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

The options for Serial Port 1 are **Auto**, (IO=3F8h; IRQ=4), (IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12), (IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12), (IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12), and (IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12).

The options for Serial Port 2 are **Auto**, (IO=2F8h; IRQ=3), (IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12), (IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12), (IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12), and (IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12).

Serial Port 2 Attribute

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

▶Serial Port Console Redirection

COM 1 Console Redirection

COM1 Console Redirection

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

If this option is set to Enabled, the following items will become available for configuration:

▶COM1 Console Redirection Settings

Terminal Type

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

Bits per second

Use this item to set the transmission speed, in bits per second, for COM1, which is used in Console Redirection. Make sure that the same speed is used in the host computer and the client computer. A lower transmission speed may be required for long and busy lines. The options are 9600, 19200, 38400, 57600, and **115200**.

Data Bits

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

Parity

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

Stop Bits

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

Flow Control

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

VT-UTF8 Combo Key Support

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

Recorder Mode

Select Enabled to capture the data displayed on a terminal and send them 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 item to select the number of rows and columns used in Console Redirection for legacy OS support. The options are 80x24 and **80x25**.

Putty KeyPad

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

Redirection After BIOS Post

Use this feature to enable or disable legacy Console Redirection after BIOS Power-On Self-Test (POST). When the option BootLoader is selected, legacy Console Redirection is disabled before booting the OS. When the option Always Enable is selected, legacy Console Redirection remains enabled upon OS bootup. The options are **Always Enable** and BootLoader.

SOL/COM2

Console Redirection

Select Enabled to use the SOL (Serial-Over-LAN) port for Console Redirection. The options are **Enabled** and Disabled.

**If thisoption is set to Enabled, the following items will become available for user configuration:*

▶SOL/COM2 Console Redirection Settings

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

Terminal Type

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

Bits Per second

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

Data Bits

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

Parity

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

in transmission. Select Mark to add a mark as a parity bit to be sent along with the data bits. Select Space to add a Space as a parity bit to be sent with your data bits. The options are **None**, Even, Odd, Mark, and Space.

Stop Bits

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

Flow Control

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

VT-UTF8 Combo Key Support

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

Recorder Mode

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

Resolution 100x31

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

Legacy OS Redirection Resolution

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

Putty KeyPad

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

Redirection After BIOS Post

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

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

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

EMS Console Redirection

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

**If the option above is set to Enabled, the following items will become available for user configuration:*

▶EMS Console Redirection Settings (Available when EMS Console Redirection is enabled)

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

Out-of-Band Management Port

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

Terminal Type

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

Bits Per Second

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

Flow Control

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

The setting for each these features is displayed:

- Data Bits
- Parity
- Stop Bits

▶ACPI Settings

WHEA Support

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

High Precision Event Timer

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

NUMA (Available when the OS supports this feature)

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

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

Configuration

Security Device Support

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

Note: Refer to the Supermicro TPM user's guide for more details on how to install and set up the TPM in the BIOS.

TPM State

Select Enabled to use TPM (Trusted Platform Module) settings to enhance system data security. Please reboot your system for any change on the TPM state to take effect. The options are Disabled and **Enabled**.

Pending Operation

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

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

Current Status Information

This item displays the status of the TPM support on this motherboard.

- TPM Enabled Status
- TPM Active Status
- TPM Owner Status

TXT Support

Select Enabled to enable TXT (Trusted Execution Technology) settings to improve data and network security. The options are **Disabled** and Enabled.

7-4 Event Logs

Use this feature to configure event log settings.

▶Change SMBIOS Event Log Settings

This feature allows the user to configure SMBIOS event log settings.

Enabling/Disabling Options

SMBIOS Event Log

Select Enabled to enable SMBIOS (System Management BIOS) event logging during system boot. The options are Disabled and **Enabled**.

Runtime Error Logging Support

Select Enable to support runtime error logging. The options are Disable and **Enable**. If this option is set to Enable, the following items will be available for configuration:

Erasing Settings

Erase Event Log

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

When Log is Full

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

SMBIOS Event Log Standard Settings

Log System Boot Event

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

MECI (Multiple Event Count Increment)

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

METW (Multiple Event Count Time Window)

This item is used to determine how long (in minutes) the multiple event counter should wait before generating a new event log. Enter a number between 0 to 99. The default setting is **60**.

Note: Please reboot the system for the changes to take effect.

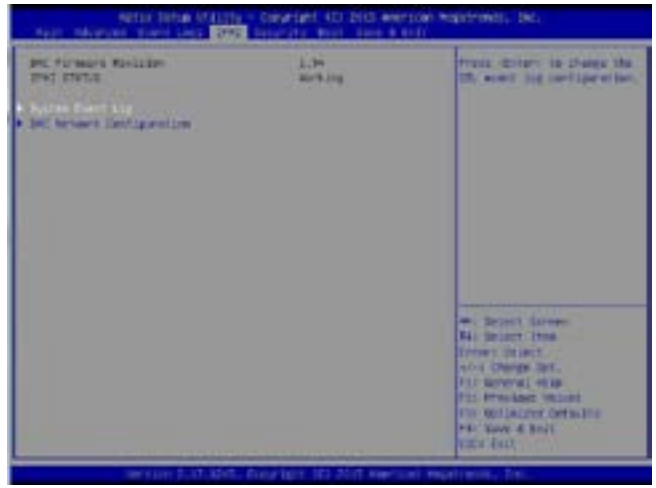
▶View SMBIOS Event Log

This item allows the user to view the event in the SMBIOS event log. Select this item and press <Enter> to view the status of an event in the log. The following details of each event are displayed:

- Date
- Time
- Error Code
- Severity

7-5 IPMI

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



BMC Firmware Revision

This item indicates the Baseboard Management Control (BMC) firmware revision used in your system.

IPMI Status

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

▶System Event Log

Enabling/Disabling Options

SEL Components

Select Enabled to enable all system event logging support at bootup. The options are Disabled and **Enabled**.

Erasing Settings

Erase SEL

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

When SEL is Full

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

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

▶BMC Network Configuration

The following items will be displayed:

IPMI LAN Selection

Use this feature to select the type of the IPMI LAN. The default setting is **Failover**.

IPMI Network Link Status:

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

Update IPMI LAN Configuration

Select Yes for the system BIOS to automatically reset the following IPMI settings at next system boot. The options are **No** and Yes.

Configuration Address Source

This item is activated only when the Update IPMI LAN Configuration option is set to Yes. Use this item to select the IP address source for this computer. If Static is selected, you will need to know the IP address of this computer and enter it to the system manually in the field. If DHCP is selected, the AMI BIOS will search for a DHCP (Dynamic Host Configuration Protocol) server attached to the network and request the next available IP address for this computer. The options are **DHCP** and Static.

Station IP Address

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

Subnet Mask

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

Station MAC Address

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

Gateway IP Address

This item displays the Gateway IP address for this computer.

7-6 Security Settings

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

Password Check

If this feature is set to Setup, a password is required for a user to enter the BIOS Setup utility. If Always is selected, the user will need to enter a password when entering the BIOS setup utility and entering the Windows OS environment. The options are **Setup** and Always.

Administrator Password

Use this feature to set the administrator password, which will be required before entering the BIOS setup utility. The length of the password should be from 3 characters to 20 characters long.

User Password

Use this feature to set the user password, which will be required to enter the BIOS setup utility. The length of the password should be from 3 characters to 20 characters long.

▶Secure Boot Menu

System Mode

Secure Boot

Secure Boot

Select Enabled for the system to bootup securely. The options are **Disabled** and Enabled.

Secure Boot Mode

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

CSM Support

This feature, the Compatibility Support Module, allows the user to enable legacy BIOS support for the system. The options are Disabled and **Enabled**.

▶Key Management

Default Key Provision

Select Enabled to install all manufacture defaults for the following system security settings. The options are **Disabled** and Enabled.

▶Enroll All Factory Default Keys

Select Yes and hit <Enter> to store security-related boot data in a file of the same named in the system root folder of your computer.

▶Save All Secure Boot Variables

This feature allows the user to save the secure boot settings specified by the user.

Platform Key (PK)

▶Delete PK

Select <Yes> to confirm deletion of the Platform Key (PK) from the NVRAM (Non-Volatile RAM).

▶Set New Key

Select <Yes> to load the manufacturer's default platform keys for your system. Select No to load the default settings from other sources.

Key Exchange Key (KEK)

▶Delete KEK (Key Exchange Key)

Select <Yes> to confirm deletion of the KEK from the NVRAM (Non-Volatile RAM).

▶Set New KEK (Key Exchange Key)

Select <Yes> to confirm that a new KEK will be set in the NVRAM (Non-Volatile RAM).

▶Append KEK (Key Exchange Key)

Select <Yes> to load the new KEK from the manufacturer's defaults. Select <No> to load the new KEK from other sources.

Authorized Signatures

▶Delete DB (DataBase)

Select <Yes> to confirm deletion of a database from the NVRAM (Non-Volatile RAM).

▶Set New DB (DataBase)

Select <Yes> to confirm that a new database will be set in the NVRAM (Non-Volatile RAM).

▶Append DB (DataBase)

Select <Yes> to load the new database from the manufacturer's defaults. Select <No> to load the new database from other sources.

Authorized TimeStamps

▶Delete DBT (DataBase Timer)

Select <Yes> to confirm deletion of the database timer from the NVRAM (Non-Volatile RAM).

▶Set New DBT (DataBase Timer)

Select <Yes> to confirm that the new database timer will be set in the NVRAM (Non-Volatile RAM).

▶Append DBT (DataBase Timer)

Select <Yes> to load the new database timer from the manufacturer's defaults. Select <No> to load the new database timer from other sources.

Forbidden Signatures

▶Delete DBX

Select <Yes> to confirm deletion of the DBX files from the Non-Volatile RAM (NVRAM).

▶Set New DBX

Select <Yes> to confirm that the new DBX files will be downloaded to the Non-Volatile RAM (NVRAM).

▶Append DBX (DataBase Timer)

Select <Yes> to load the new DBX files from the manufacturer's defaults. Select <No> to load the new DBX files from other sources.

7-7 Boot Settings

Use this feature to configure boot settings:

Setup Prompt Timeout

This feature allows the user to determine how long, in seconds, the system should wait for the setup activation key before it boots up. The default setting is **1**.

Boot Mode Select

Use this item to select the type of device to be used for system boot. The options are Legacy, UEFI, and **Dual**.

Fixed Boot Order Priorities

This option prioritizes the order of bootable devices that the system will boot from. Press <Enter> on each entry from top to bottom to select devices. For each boot item, select the device from the list. The device options are UEFI Hard Disk, UEFI CD/DVD, UEFI USB Hard Disk, UEFI USB CD/DVD, UEFI USB Key, UEFI USB Floppy, UEFI Network, UEFI AP:UEFI: Built-in EFI Shell, Hard Disk, CD/DVD, USB Hard Disk, USB CD/DVD, USB Key, USB Floppy, Network, and Disabled.

- Dual Boot Order #1
- Dual Boot Order #2
- Dual Boot Order #3
- Dual Boot Order #4
- Dual Boot Order #5

- Dual Boot Order #6
- Dual Boot Order #7
- Dual Boot Order #8
- Dual Boot Order #9
- Dual Boot Order #10
- Dual Boot Order #11
- Dual Boot Order #12
- Dual Boot Order #13
- Dual Boot Order #14
- Dual Boot Order #15

▶Add New Boot Option

Use this item to select a new boot device to add to the boot priority list.

Add Boot Option

Select the target boot device to add to the boot priority list.

Path for Boot Option

Select the device path (the file system) for the new boot device to use.

Create

After selecting a boot device to add and the path for this new device, choose this feature and click OK to add the new device to the boot priority list.

▶Delete Boot Option

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

Delete Boot Option

Select the target boot device to delete.

▶Hard Disk Driver BBS Priorities

- Legacy Boot Order #1 - Legacy Boot Order #2

▶NETWORK Disk Drive BBS Priorities

- Legacy Boot Order #1

▶UEFI Application Boot Priorities

- UEFI Boot Order #1

7-8 Save & Exit

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

Discard Changes and Exit

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

Save Changes and Reset

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

Save Options

Save Changes

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

Discard Changes

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

Restore Optimized Defaults

Select this option and press <Enter> to load the manufacturer's default settings, which are designed for maximum system performance but not necessarily for maximum stability.

Save As User Defaults

Select this option and press <Enter> to save any changes to the BIOS setup for future use.

Restore User Defaults

Select this option and press <Enter> to retrieve user-defined settings that were saved previously.

Boot Override

This feature allows the user to override the boot priorities sequence in the Boot menu and immediately boot the system with another device specified by the user. This is a one-time override.

Notes

Appendix A

BIOS Error Beep Codes

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

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

Fatal errors will not allow the system to continue with bootup. If a fatal error occurs, you should consult with your system manufacturer for possible repairs.

These fatal errors are usually communicated through a series of audible beeps. The numbers on the fatal error list correspond to the number of beeps for the corresponding error.

Motherboard BIOS Error Beep Codes		
Beep Code/LED	**Error Message**	**Description**
1 beep	Refresh	Ready to boot
5 short beeps + 1 long beep	Memory error	No memory detected in the system
5 beeps	No con-in or con-out devices	Con-in includes USB or PS/2 keyboard, PCI or serial console redirection, and IPMI KVM or SOL. Con-out includes the video controller, PCI or serial console redirection, and IPMI SOL.
1 beep per device	Refresh	1 beep for each USB device detected
IPMI Error Codes		
1 Continuous beep	System OH	System overheat

Notes

Appendix B

System Specifications

Processors

Dual Intel Xeon E5-2600 v3/v4 Series processors in LGA2011 (Socket R3) sockets

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

Chipset

Intel PCH C612

Memory Capacity

Eight DIMM sockets that can support up to 1 TB of ECC LRDIMM (Load Reduced DIMMs) or 512 GB of ECC RDIMM (Registered DIMMs) DDR4-2400/2133/1866/1600 memory

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

SATA

Intel on-chip controller for six SATA 3.0 ports, RAID 0, 1, 5 and 10 supported

Drive Bays

6018R-MD: two 2.5" or one 3.5" fixed internal hard disk drives

6018R-MDR: two 2.5" fixed internal hard disk drives

PCI Expansion

Riser card for one PCI-E 3.0 x8 full-height, half-length add-on card

Serverboard

X10DRD-L

Dimensions: 13.05 x 10.5 in (331.5 x 266.7 mm)

Chassis

6018R-MD: SC514-505 (1U rackmount)

6018R-MDR: SC514-R400C (1U rackmount)

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

Weight, 6018R-MD: Gross: 28 lbs. (12.7 kg.) Net: 16 lbs. (7.26 kg.)

Weight, 6018R-MDR: Gross: 26 lbs. (11.79 kg.) Net: 14 lbs. (6.35 kg.)

System Cooling

Five sets of 4-cm counter-rotating cooling fans with an option for one more (fan speed controlled by IPMI)

System Input Requirements

AC Input (6018R-MD/6018R-MDR): 100-240 V, 50-60 Hz

Power Supply

6018R-MD

Rated Output Power: Single 500 W (Part# PWS-505P-1H)
Rated DC Output Voltages:

- +12V (41A)
- +5Vsb (3A)
- +5V (15A), +3.3V (12A), -12V (0.2A)

6018R-MDR

Rated Output Power: Dual hot-swap 400 W (Part# PWS-406P-1R)
Rated DC Output Voltages:

- +12V (33A)
- +5Vsb (3A)
- With power distributor: +5V (25A), +3.3V (25A), -12V (0.6A)

Operating Environment

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

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

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

Regulatory Compliance

Electromagnetic Emissions:
FCC Class A, EN 55022 Class A, EN 61000-3-2/-3-3, CISPR 22 Class A

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

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

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

Notes