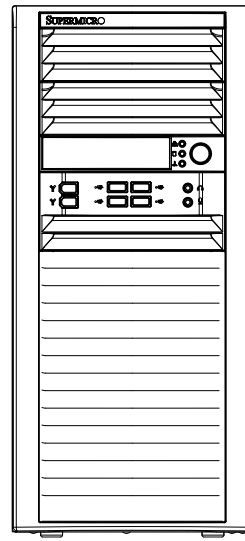
SUPERMICRO®

SuperWorkstation

5037A-IL



USER'S MANUAL

1.0

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FCC Statement: This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the authorized dealer or an experienced radio/TV technician for help.

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"

WARNING: Handling of lead solder materials used in this product may expose you to lead, a chemical known to the State of California to cause birth defects and other reproductive harm.

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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 SuperWorkstation 5037A-IL. Installation and maintenance should be performed by experienced technicians only.

The SuperWorkstation 5037A-IL is a high-end system based on the SC732D4-500B mid-tower chassis and the X9SAE serverboard.

Manual Organization

Chapter 1: Introduction

The first chapter provides a list of the main components included with the system and describes the main features of the X9SAE serverboard and the SC732D4-500B chassis.

Chapter 2: Server Installation

This chapter describes the steps necessary to setup the SuperWorkstation 5037A-IL and to check out the server configuration prior to powering-up the system. If your system 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: System Safety

You should thoroughly familiarize yourself with this chapter for a general overview of safety precautions that should be followed when installing and servicing the SuperWorkstation 5037A-IL.

Chapter 5: Advanced Serverboard Setup

Chapter 5 provides detailed information on the X9SAE 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 SC732D4-500B chassis. You should follow the procedures given in this chapter when installing, removing or reconfiguring SATA or peripheral 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: UEFI BIOS Recovery Instructions

Appendix C: System Specifications

Notes

Table of Contents

Chapter 1

Introduction

1-1 Overview

The 5037A-IL is a high-end workstation comprised of two main subsystems: the SC732D4-500B mid-tower chassis and the X9SAE, a single Intel® Xeon® processor serverboard. Please refer to our web site for information on operating systems that have been certified for use with the SuperWorkstation 5037A-IL (www.supermicro.com).

In addition to the serverboard and chassis, various hardware components have been included with the SuperWorkstation 5037A-IL, as listed below:

- Two 12-cm PWM "SuperQuiet" chassis fans (FAN-0124L4)
- Mounting rails [MCP-290-73102-0N]
- Optional:
  One Supermicro active heatsink [SNK-P00464A4]

Note: A complete list of safety warnings is provided on the Supermicro web site at http://www.supermicro.com/about/policies/sarety_information.cfm

1-2 Serverboard Features

At the heart of the SuperWorkstation 5037A-IL lies the X9SAE a single processor serverboard based on the Intel® C216 chipset. Below are the main features of the X9SAE. (See Figure 1-1 for a block diagram of the chipset).

Processors

The X9SAE supports a single Intel® Xeon E3-1200 V2 series, Xeon E3-1200 series, Pentium® and Celeron® processor in an LGA 1155 socket. Please refer to the serverboard description pages on our web site for a complete listing of supported processors (www.supermicro.com).

Memory

The X9SAE has four DIMM slots that can support up to 32 GB of unbuffered, ECC DDR3 UDIMM memory (1600/1333 MHz) See Chapter 5 for details.

SATA

Six SATA controllers are integrated into the chipset to provide a SATA subsystem that supports two SATA 3.0 (6 Gb/s) SATA 0~1 RAID 0, 1 and four I-SATA 2.0 (3Gb/s) SATA 2~5, RAID 0,1,5,10 (MS Windows), RAID 0, 1, 10 (Linux) The X9SAE supports two SATA 3.0 and four SATA 2.0 ports.

PCI Expansion Slots

The X9SAE has two PCI-E 2.0 x1 slots, one PCI-E 2.0x4 slot, one PCI-E 2.0 x4 (in x8) slot, one PCI-E 3.0 x16 slot, one PCI 33 MHz slot (5V).

Onboard Controllers/Ports

The color-coded I/O ports include one front accessible serial port header (COM2) and, one serial port on the back panel (COM1).

1-3 Chassis Features

The SC732D4-500B is mid-tower chassis. The following is a general outline of the main features of the chassis.

System Power

The 5037A-IL features a single 500W power supply. This power supply unit has been designed to operate at a low noise level to make it ideal for use in a workstation environment.

SATA Subsystem

The SC732D4-500B chassis was designed to support up to eight SATA hard drives with four 3.5" hard drive bays and four optional internal 2.5" hard drives.

Front Control Panel

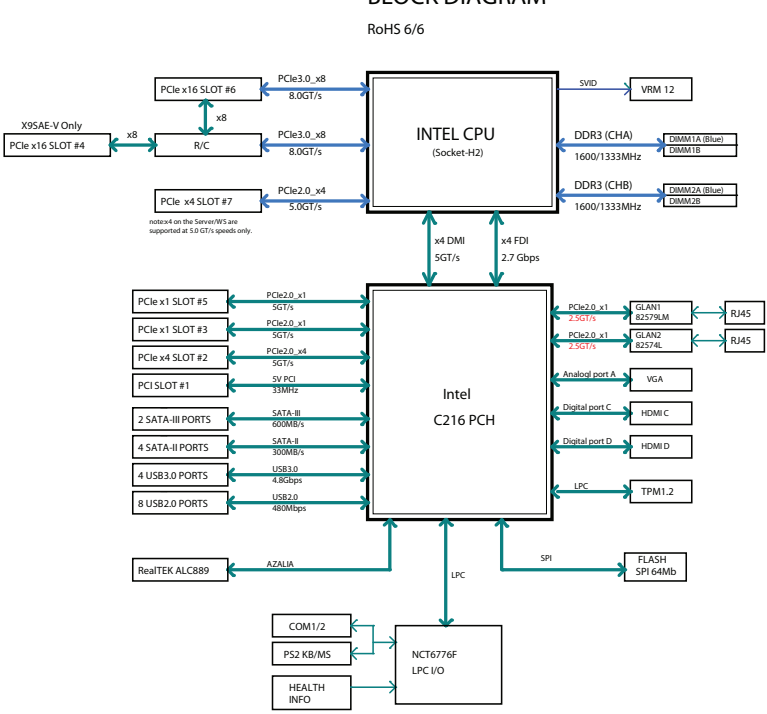
The control panel on the SuperWorkstation 5037A-IL includes system monitoring LEDs, and a main power button. In addition, two audio (HD/AC97) ports, two USB 2.0 ports and two USB 3.0 ports on the control panel. See Chapter 3 for details.

Cooling System

The SC732D4-500B chassis has an innovative "Super Quiet" cooling design that provides sufficient cooling at very low noise level - ideal for a workplace environment. The chassis includes one 12 cm rear exhaust fan and an optional 12 cm front cooling fan.

Figure 1-1. Intel C216 Chipset:
System Block Diagram

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



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Notes

Chapter 2

Installation

2-1 Overview

This chapter provides a quick setup checklist to get your SuperWorkstation 5037A-IL up and running. Following these steps in the order given should enable you to have the system operational within a minimum amount of time. This quick setup assumes that your system has come to you with the processor and memory preinstalled. If your system is not already fully integrated with a serverboard, processor, system memory etc., please turn to the chapter or section noted in each step for details on installing specific components.

2-2 Unpacking the System

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

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

Warnings and Precautions!

- Ensure that the caster wheels on the workstation are locked.
- Review the electrical and general safety precautions in Chapter 4.
- Use a regulating uninterruptible power supply (UPS) to protect the workstation from power surges, voltage spikes and to keep your system operating in case of a power failure.
- Allow the power supply units and hot-swap SATA drives to cool before touching them.
- To maintain proper cooling, always keep all chassis panels closed and all SATA carriers installed when not being serviced.

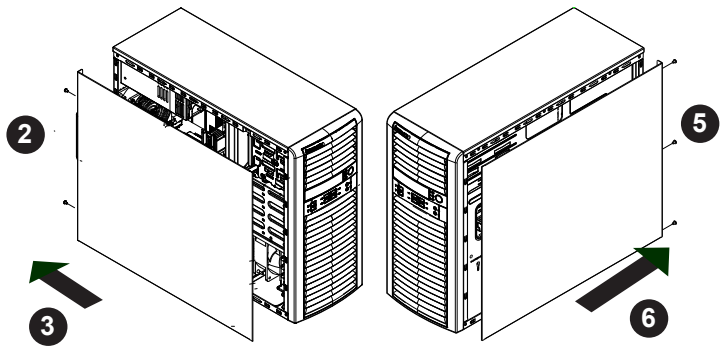
2-3 Accessing the Inside of the System

You may need to access the system periodically to perform maintenance or install components such as hard drives. The SC732 features two removable side covers, allowing easy access to the chassis interior.

Removing the Side Covers

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

Figure 2-1. Removing the Chassis Side Covers



Chapter 3

System Interface

3-1 Overview

The control panel on the 5037A-IL has three LEDs and a power button. These LEDs keep you constantly informed of the overall status of the system and the activity and health of specific components.

3-2 Control Panel Button

A single push-button is located on the front of the chassis.

Power

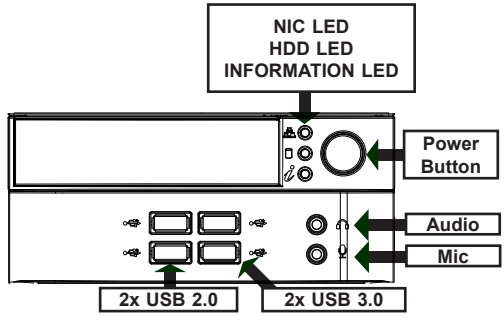
This is the main power button, which is used to apply or turn off the main system power. Turning off system power with this button removes the main power but keeps standby power supplied to the system.

3-3 Communications Panel Components

The SC732D4 chassis features a front communication panel allowing easy access to the chassis communication ports. The chassis models are equipped as follows:

- Two USB 2.0 ports
- Two USB 3.0 ports
- One audio port
- One microphone port

See the diagram on the following page.



3-4 Control Panel LEDs

The control panel located on the front of the SC732 chassis has three LEDs. These LEDs provide you with critical information related to different parts of the system. This section explains what each LED indicates when illuminated and any corrective action you may need to take.

NIC

Indicates network activity on the LAN port(s) when flashing.

HDD

Indicates activity on the SATA drive, and/or DVD-ROM drive activity when flashing.

Informational LED

Continuously on and blue: UID function has been activated.
Flashing red: Fan failure.
Continuously on and red: Overheat condition. This may be caused by cables obstructing the airflow in the system or the ambient room temperature being too warm. Check the routing of the cables and make sure all fans are present and operating normally. You should also check to make sure that the chassis covers are installed. Finally, verify that the heatsinks are installed properly. This LED will remain flashing or on as long as the overheat or fan failure condition exists. .

Notes

Chapter 4

Standardized Warning Statements for AC Systems

4-1 About Standardized Warning Statements

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

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

Note: A complete list of safety warnings is provided on the Supermicro web site at http://www.supermicro.com/about/policies/sarety_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。

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

將系統與電源連接前，請先仔細閱讀安裝說明。

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250 V, 20A。

Warnung

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

¡Advertencia!

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

Attention

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

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

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

경고!

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

않도록 해야 합니다.

Waarschuwing

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

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.

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.

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

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。

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。

Warnung

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

Attention

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

¡Advertencia!

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

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

סילוק הסוללות המשומשות יש לבצע לפי הוראות היצרן.

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

경고!

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

Waarschuwing

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

Redundant Power Supplies

Warning!

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

冗長電源装置

このユニットは複数の電源装置が接続されている場合があります。

ユニットの電源を切るためには、すべての接続を取り外さなければなりません。

警告

此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

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。

直流电源终端可能会产生危险的电压或能量.终端不使用时,请务必盖上机盖.机盖盖上后,请确保导体未绝缘部分无法使用.

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

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

本產品廢棄處理應依照所有國家法律規定進行。

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

Waarschuwing

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

Hot Swap Fan Warning

Warning!

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

ファン・ホットスワップの警告

シャーシから冷却ファン装置を取り外した際、ファンがまだ回転している可能性があります。ファンの開口部に、指、ドライバー、およびその他のものを近づけないで下さい。

警告

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 تدورعند إزالة كتلة المروحة من الهيكل يجب إبقاء الأصابع ومفكات البراغي
وغيرها من الأشياء بعيدا عن الفتحات في كتلة المروحة.

경고!

새시로부터 팬 조립품을 제거할 때 팬은 여전히 회전하고 있을 수 있습니다. 팬 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

安裝產品時，請使用隨附或指定的連接線、電線和AC變壓器。使用其他電線和變壓器可能會導致產品故障或發生火災。除了Supermicro所指定的產品，Electrical Applicance and Materical Saftety Law法律規定禁止任何其他電子裝置使用經過UL或CSA認證的電線(線纜上有UL或CSA的標示)。

Warnung

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

¡Advertencia!

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

Attention

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

חשמליים ומתאמי AC

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

عند تركيب الجهاز يجب استخدام كابلات التوصيل،والكابلات الكهربائية ومحولات التيار المتردد
التي . أن استخدام أي كابلات ومحولات أخرى يتسبب في حدوث عطل أو حريق.
تم توفيرها لك مع المنتج
الأجهزة الكهربائية ومواد قانون السلامة يحظر استخدام الكابلات CSA أو UL معتمدة من قبل
لأي أجهزة كهربائية أخرى غير المنتجات المعينة من قبل Supermicro
(التي تحمل علامة UL/CSA)

경고!

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

Waarschuwing

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

Notes

Chapter 5

Advanced Serverboard Setup

This chapter covers the steps required to install the X9SAE serverboard into the chassis, connect the data and power cables and install add-on cards. All serverboard jumpers and connections are also described. A layout and quick reference chart are included in this chapter for your reference. Remember to completely close the chassis when you have finished working with the serverboard to better cool and protect the system.

5-1 Handling the Serverboard

Electrostatic discharge (ESD) can damage electronic components. To prevent damage to any printed circuit boards (PCBs), it is important to handle them very carefully (see previous chapter). 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 electric static discharge.

Precautions

- Use a grounded wrist strap designed to prevent electrostatic 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.

Unpacking

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

5-2 Serverboard Installation

This section explains the first step of physically mounting the X9SAE into the SC732D4-500B chassis. Following the steps in the order given will eliminate the most common problems encountered in such an installation. To remove the serverboard, follow the procedure in reverse order.

Installing to the Chassis

1. Access the inside of the system by removing the screws from the back lip of the top cover of the chassis, then pull the cover off.

2. Make sure that the I/O ports on the serverboard align properly with their respective holes in the I/O shield at the back of the chassis.

3. Carefully mount the serverboard to the serverboard tray by aligning the board holes with the raised metal standoffs that are visible in the chassis.

4. Insert screws into all the mounting holes on your serverboard that line up with the standoffs and tighten until snug (if you screw them in too tight, you might strip the threads). Metal screws provide an electrical contact to the serverboard ground to provide a continuous ground for the system.

5. Finish by replacing the top cover of the chassis.

Warning: To avoid damaging the serverboard and its components, do not apply any force greater than 8 lbs. per square inch when installing a screw into a mounting hole.

5-3 Connecting Cables

Now that the serverboard is installed, the next step is to connect the cables to the board. These include the 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 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 keep them routed as they were originally after reconnecting them (make sure the red wires connect to the pin 1 locations). The following data cables (with their locations noted) should be connected. (See the layout on page 5-9 for connector locations.)

- SATA drive data cables (I-SATA0 ~ I-SATA5)
- Control panel cable (JF1)

Important! Make sure the the cables do not come into contact with the fans.

Connecting Power Cables

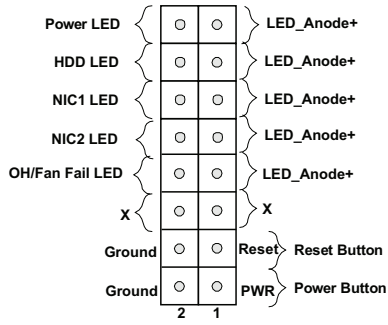
The X9SAE has a 24-pin primary power supply connector (JPW1) for connection to the ATX power supply. In addition, the 8-pin secondary power connector (JPWR2) must also be connected to your power supply. See Section 5-9 for power connector pin definitions.

Connecting the Control Panel

JF1 contains header pins for various front control panel connectors. See Figure 5-1 for the pin locations of the various front control panel buttons and LED indicators.

All JF1 wires have been bundled into a single ribbon cable to simplify this connection. Make sure the red wire plugs into pin 1 as marked on the board. The other end connects to the Control Panel PCB board, located just behind the system status LEDs on the chassis. See Chapter 5 for details and pin descriptions.

Figure 5-1. Control Panel Header Pins

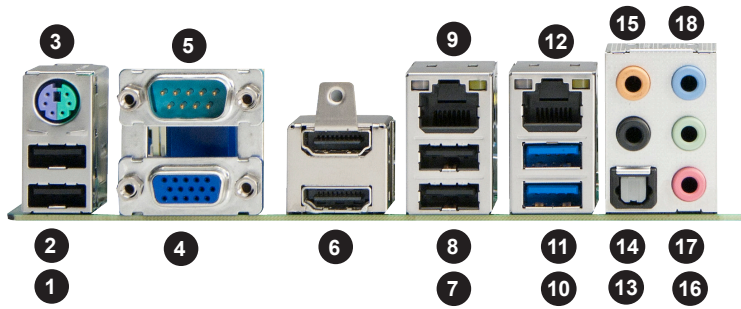


5-4 I/O Ports

The I/O ports are color coded in conformance with the PC 99 specification. See Figure 5-2 below for the colors and locations of the various I/O ports.

Back Panel

Figure 5-2. Backplane I/O Panel



Backplane I/O Panel		
1. USB 2.0 Port 9	7. USB 2.0 Port 13	13. SPDIF Out
2. USB 2.0 Port 8	8. USB 2.0 Port 10	14. Surround Out
3. Keyboard/Mouse	9 Gb LAN Port 1	15. Center/LFE Out
4. VGA Port	10. USB 3.0 Port 4	16. Mic In
5. Serial Port (COM1)	11. USB 3.0 Port 3	17. Line Out
6. HDMI1/HDMI2 Ports	12. Gb LAN Port 2	R. Line In

5-5 Processor and Heatsink Installation

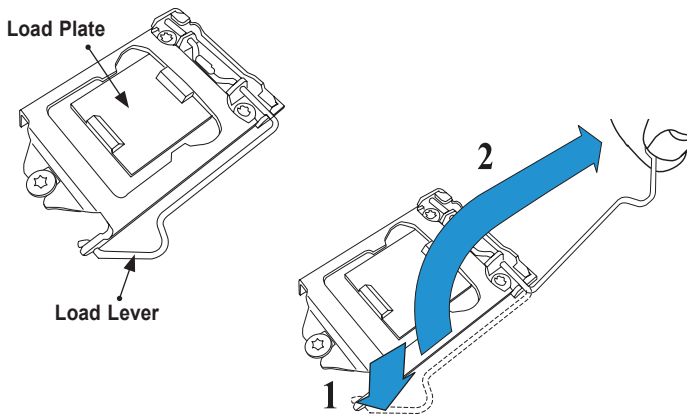
When handling the processor package, avoid placing direct pressure on the label area of the fan.

Notes:

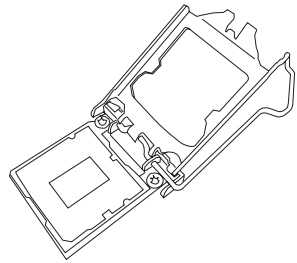
- Always connect the power cord last and always remove it before adding, removing or changing any hardware components. Make sure that you install the processor into the CPU socket before you install the CPU heatsink.
- If you buy a CPU separately, make sure that you use an Intel-certified multi-directional 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 web site for updates on CPU support.

Installing the LGA1155 Processor

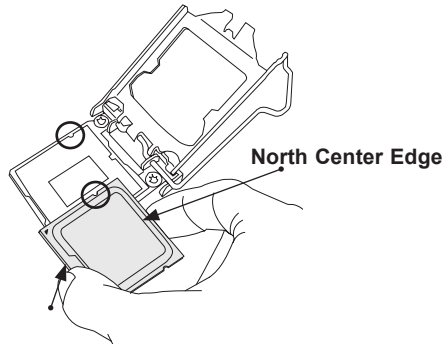
1. Press the load lever to release the load plate, which covers the CPU socket, from its locking position.



2. Gently lift the load lever to open the load plate. Remove the plastic cap.

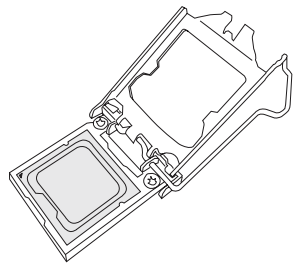


3. Use your thumb and your index finger to hold the CPU at the North center edge and the South center edge of the CPU.

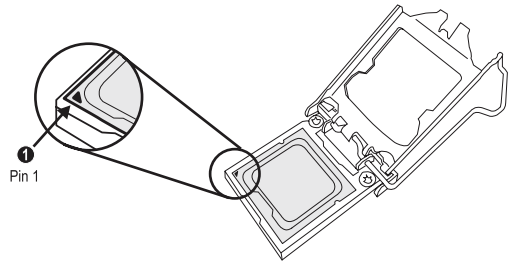


South Center Edge

4. Align the CPU key that is the semi-circle cutouts against the socket keys. Once it is aligned, carefully lower the CPU straight down into the socket. (Do not drop the CPU on the socket. Do not move the CPU horizontally or vertically.

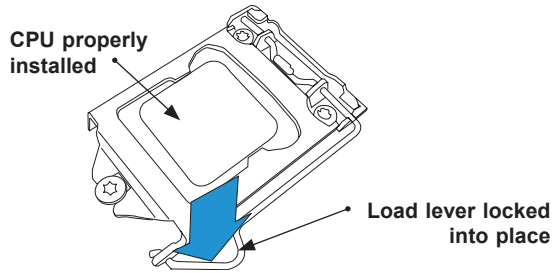


1. Do not rub the CPU against the surface or against any pins of the socket to avoid damaging the CPU or the socket.)



2. With the CPU inside the socket, inspect the four corners of the CPU to make sure that the CPU is properly installed.

3. Use your thumb to gently push the load lever down to the lever lock.



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

Installing an Active CPU Heatsink with Fan

1. Locate the CPU fan power connector on the motherboard. (Refer to the layout on the right for the CPU Fan location.)

2. Position the heatsink so that the heatsink fan wires are closest to the CPU fan power connector and are not interfered with other components.

3. Inspect the CPU fan wires to make sure that the wires are routed through the bottom of the heatsink.

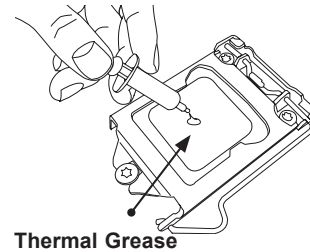
4. Remove the thin layer of the protective film from the heatsink.

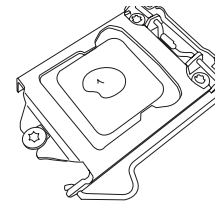
Caution: CPU overheat may occur if the protective film is not removed from the heatsink.

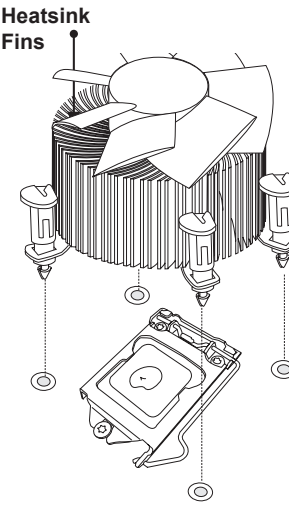
5. Apply the proper amount of thermal grease on the CPU.

Note: if your heatsink came with a thermal pad, please ignore this step.

6. If necessary, rearrange the wires to make sure that the wires are not pinched between the heatsink and the CPU. Also make sure to keep clearance between the fan wires and the fins of the heatsink.





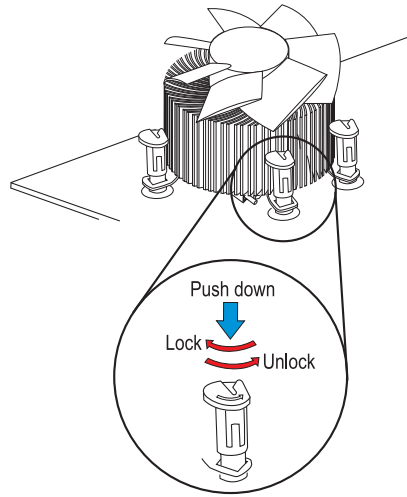


Recommended Supermicro heatsink:
SNK-P0046A4 active heatsink

1. Align the four heatsink fasteners with the mounting holes on the motherboard. Gently push the pairs of diagonal fasteners (#1 & #2, and #3 & #4) into the mounting holes until you hear a click. Also, make sure to orient each fastener so that the narrow end of the groove is pointing outward.

2. Repeat Step 7 to insert all four heatsink fasteners into the mounting holes.

3. Once all four fasteners are securely inserted into the mounting holes, and the heatsink is properly installed on the motherboard, connect the heatsink fan wires to the CPU fan connector.

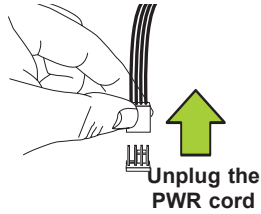


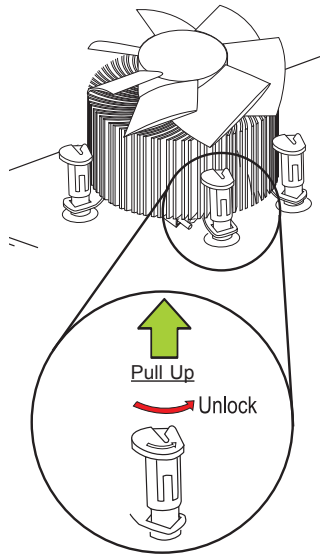
Removing the Heatsink

Caution: We do not recommend that the CPU or the heatsink be removed. However, if you do need to remove the heatsink, please follow the instructions below to remove the heatsink and to prevent damage done to the CPU or other components.

Active Heatsink Removal

1. Unplug the power cord from the power supply.
2. Disconnect the heatsink fan wires from the CPU fan header.
3. Use your finger tips to gently press on the fastener cap and turn it counterclockwise to make a 1/4 (90^0) turn, and pull the fastener upward to loosen it.
4. Repeat Step 3 to loosen all fasteners from the mounting holes.
5. With all fasteners loosened, remove the heatsink from the CPU.





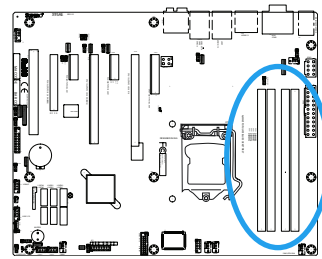
5-6 Installing DDR3 Memory

Note: Check the Supermicro website for recommended memory modules.

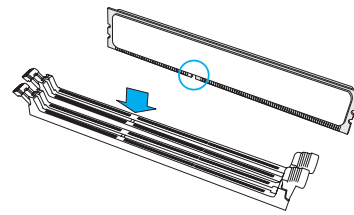
CAUTION

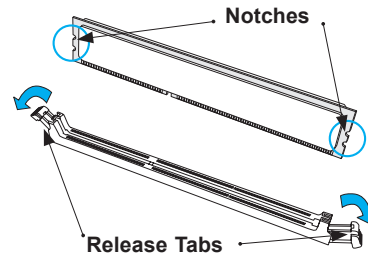
Exercise extreme care when installing or removing DIMM modules to prevent any possible damage.

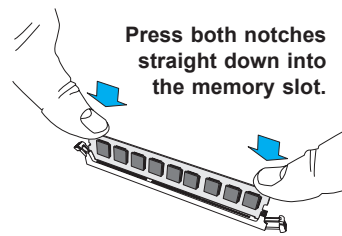
DIMM Installation



1. Insert the desired number of DIMMs into the memory slots, starting with DIMMA2 (Slot 2, Channel A, see the next page for the location). For best performance, please use the memory modules of the same type and speed in the same bank.
2. Push the release tabs outwards on both ends of the DIMM slot to unlock it.
3. Align the key of the DIMM module with the receptive point on the memory slot.
4. Align the notches on both ends of the module against the receptive points on the ends of the slot.
5. Use two thumbs together to press the notches on both ends of the module straight down into the slot until the module snaps into place.
6. Press the release tabs to the lock positions to secure the DIMM module into the slot.





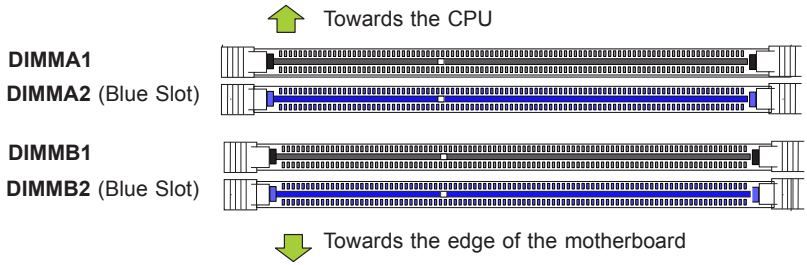


Removing Memory Modules

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

Memory Support

The X9SAE Motherboard Series supports up to 32GB of Unbuffered (UDIMM) DDR3 ECC/Non-ECC 1600/1333 MHz in four memory slots. Populating these DIMM modules with a pair of memory modules of the same type and same size will result in interleaved memory, which will improve memory performance. Please refer to the table below:



Memory Population Guidelines

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

- Always use DDR3 DIMM modules of the same size, type and speed.
- Mixed DIMM speeds can be installed. However, all DIMMs will run at the speed of the slowest DIMM.
- The motherboard will support one DIMM module or three DIMM modules installed. For best memory performance, install DIMM modules in pairs.

Recommended Population (Balanced)				
DIMMA2 Slot	DIMMB2 Slot	DIMMA1 Slot	DIMMB1 Slot	Total System Memory
2GB	2GB			4GB
2GB	2GB	2GB	2GB	8GB
4GB	4GB			8GB
4GB	4GB	4GB	4GB	16GB
8GB	8GB			16GB
8GB	8GB	8GB	8GB	32GB

5-7 Adding PCI Add-On Cards

The 5037A-IL can accommodate standard size add-on cards populated in all slots on the X9SAE serverboard.

Installing an Add-on Card

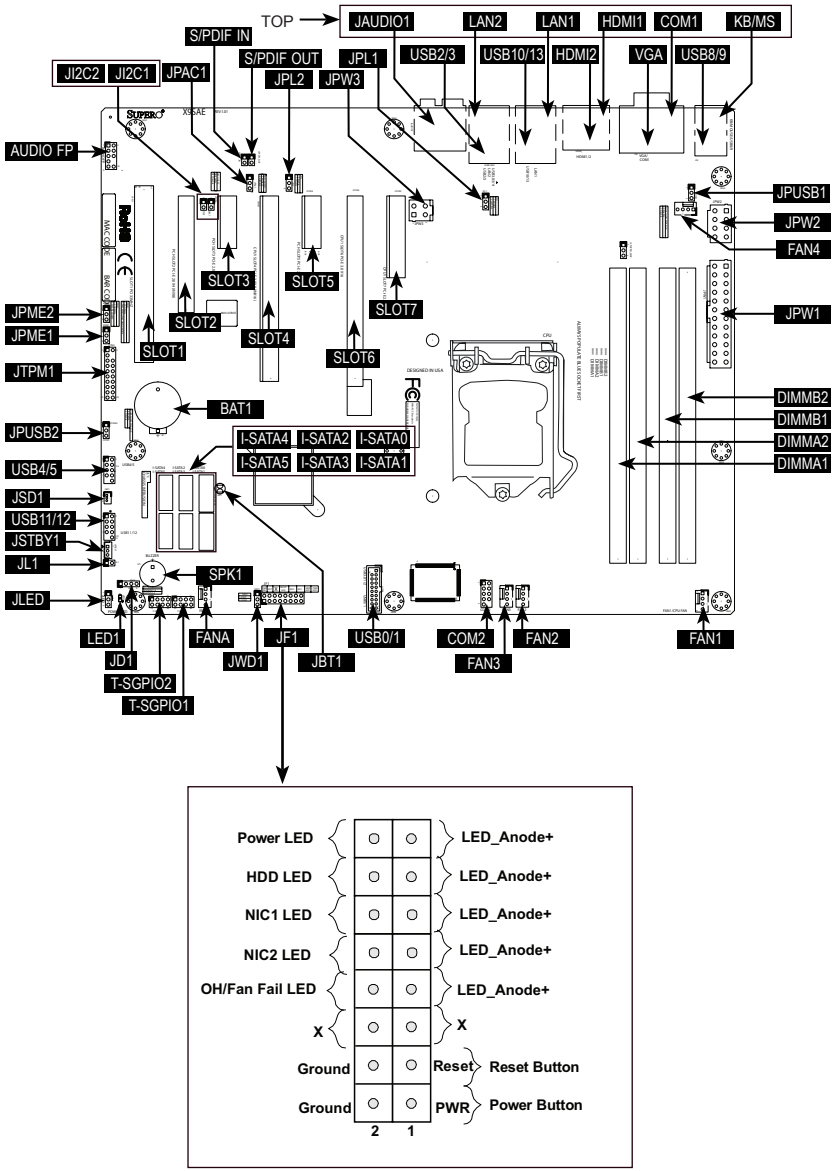
1. Begin by removing the PCI slot shield for the slot you wish to populate.

2. Fully seat the card into the card slot, pushing down with your thumbs evenly on both sides of the card.

3. Finish by using a screw to secure the top of the card shield to the chassis. The PCI slot shields protect the serverboard and its components from EMI and aid in proper ventilation, so make sure there is always a shield covering each unused slot.

5-8 Serverboard Details

Figure 5-3. X9SAE Layout



X9SAE Motherboard Series Jumpers		
Jumper	Description	Default
JBT1	CMOS Clear	N/A
JI²C1/JI²C2	SMB to PCI Slots	Off (Disabled)
JPAC1	Audio Enable	Pins 1-2 (Enabled)
JPL1/JPL2	LAN1/LAN2 Disable/Enable	Pins 1-2 (Enabled)
JPME1	Intel ME Recovery Mode	Pins 1-2 (Disabled)
JPME2	Intel ME Manufacturing Mode	Pins 1-2 (Disabled)
JPUSB1/JPUSB2	USB Wake-Up (JPUSB1: Backpanel, JPUSB2: Headers)	Pins 1-2 (Enabled)
JWD1	Watch Dog Timer Reset	Pins 1-2 (Reset)

X9SAE Motherboard Series LED Indicators			
LED	Description	Color/State	Status
LED1	Onboard Standby PWR LED	Green: Solid on	Power On

X9SAE Motherboard Series Headers/Connectors	
Connector	Description
AUDIO FP	Front Panel Audio Header
JAUDIO	High-Definition Audio Connectors (on the I/O back panel)
BAT1, SPK1	Onboard Battery, Internal Speaker/Buzzer
COM1, COM2	COM1 Port (Back Panel), COM2 Serial Port Header
FAN1~FAN4, FANA	System/CPU Fan Headers (FAN1: CPU Fan, FANA: I/O Cards)
JD1	Speaker/buzzer (Pins 1-2: Buzzer, Pins 1~4: External Speaker)
JF1	Front Panel Control Header
JLED	Power LED Indicator Header
JPW1	24-pin ATX Main Power Connector (Required)
JPW2	+12V 8-pin CPU power Connector (Required)
JPW3	+12V 4-pin Auxilliary power Connector
KB/MS	Keyboard/Mouse Connectors
LAN1/LAN2	Gigabit (RJ45) Ports (LAN1/2)
S/PDIF IN, S/PDIF OUT	SPDIF (Sony/Philips Digital Interface) In/Out Headers
JSD1	SATA DOM (Device_On_Module) Power Connector
SLOT1	PCI 33MHz Slot
SLOT2	PCI-E 2.0 x4 (in x8) Slot
SLOT3, SLOT5	PCI-E 2.0 x1 Slot
SLOT4	X9SAE-V: PCI-E 3.0 x8 (in x16)
SLOT6	PCI-E 3.0 x16 Slot (X9SAE-V: PCI-E 3.0 x8 (in x16) Slot)
SLOT7	PCI-E 2.0 x4 Slot
HDMI1, HDMI2	Backpanel HDMI Ports
JL1	Chassis Intrusion Header
JSTBY	Legacy Wake on LAN Header
JTPM1	TPM (Trusted Platform Module) 1.2 Header
I-SATA0 / I-SATA1	Serial ATA (SATA 3.0) Ports 0/1 (6Gb/sec)
I-SATA 2~I-SATA5	Serial ATA (SATA 2.0) Ports 2~5 (3Gb/sec)
USB 8/9, 10/13	Backpanel USB 2.0 8/9, 10/13
USB 2/3	Backpanel USB 2.0 2/3 (USB 3.0 3/4)
USB 0/1	Front Panel Accessible USB 2.0 Headers 0/1 (USB 3.0 1/2)
USB 4/5, 11/12	Front Panel Accessible USB 2.0 Headers 4/5, 11/12
T-SGPIO1, T-SGPIO2	Serial General Purpose I/O Headers (for SATA)
VGA	Backpanel VGA Port

5-9 Connector Definitions

ATX Main PWR (JPW1) and CPU PWR Connectors (JPW2)

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

ATX Power 24-pin Connector Pin Definitions (JPW1)

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

Warning: To prevent damage to the power supply or serverboard, please use a power supply that contains a 24-pin and two 8-pin power connectors. Be sure to connect these to the 24-pin and the two 8-pin power connectors on your serverboard to supply adequate power to your system. Failure to do so will void the manufacturer warranty on the power supply and serverboard.

Ethernet Ports

Two Gigabit Ethernet ports (LAN1/ LAN2) are located next to the HD Audio Connector on the I/O Back-panel to provide network connections. These ports accept RJ45 type cables.

LAN Ports Pin Definition

Pin#	Definition		
1	P2V5SB	10	SGND
2	TD0+	11	Act LED
3	TD0-	12	P3V3SB
4	TD1+	13	Link 100 LED (Green, +3V3SB)
5	TD1-	14	Link 1000 LED (Yellow, +3V3SB)
6	TD2+	15	Ground
7	TD2-	16	Ground
8	TD3+	17	Ground
9	TD3-	88	Ground

(NC: No Connection)

(Back_Panel) High Definition Audio (HD Audio)

This motherboard features a 7.1+2 Channel High Definition Audio (HDA) codec that provides 10 DAC channels. The HD Audio connections simultaneously supports multiple-streaming 7.1 sound playback with 2 channels of independent stereo output through the front panel stereo out for front, rear, center and subwoofer speakers. Use the Advanced software included in the CD-ROM with your motherboard to enable this function.

(BP) HD Audio	
Conn#	Signal
1	S/P DIF Out
2	Surround Out
3	CEN/LFE Out
4	Mic In
5	Line Out
6	Line In

Universal Serial Bus (USB)

Four Universal Serial Bus 2.0 ports #2, #3, #8, #9, #10, #13, USB 3.0 #3, #4, are located on the I/O back panel. USB 2.0 headers #4/5, #11/12, #0/1 and USB 3.0 header #1/2 are used to provide front chassis access using USB cables (not included). See the tables below for pin definitions.

Front Panel USB (2.0) Header Pin Definitions			
Pin #	Definition	Pin #	Definition
1	+5V	2	+5V
3	USB_PN2	4	USB_PN3
5	USB_PP2	6	USB_PP3
7	Ground	8	Ground
9	Key	10	Ground

Back Panel USB (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 (3.0) Pin Definitions		
Pin#	Signal Name	Description
1	VBUS	Power
2	IntA_P1_SSRX-	USB 3.0 Port 1 SuperSpeed RX-
3	IntA_P1_SSRX+	USB 3.0 Port 1 SuperSpeed RX+
4	GND	GND
5	IntA_P1_SSTX-	USB 3.0 Port 1 SuperSpeed TX-
6	IntA_P1_SSTX+	USB 3.0 Port 1 SuperSpeed TX+
7	GND	GND
8	IntA_P1_D-	USB 3.0 Port 1 D- (USB 2.0 Signal D-)
9	IntA_P1_D+	USB 3.0 Port 1 D- (USB 2.0 Signal D+)
10	ID	Over Current Protection
11	IntA_P2_D+	USB 3.0 Port 2 D+ (USB 2.0 Signal D+)
12	IntA_P2_D-	USB 3.0 Port 2 D- (USB 2.0 Signal D-)
13	GND	GND
14	IntA_P2_SSTX+	USB 3.0 Port 2 SuperSpeed TX+
15	IntA_P2_SSTX-	USB 3.0 Port 2 SuperSpeed TX-
16	GND	GND
17	IntA_P2_SSRX+	USB 3.0 Port 2 SuperSpeed RX+
18	IntA_P2_SSRX-	USB 3.0 Port 2 SuperSpeed RX-
19	VBUS	Power

Front Accessible Audio Header

A 10-pin Audio header is also located on the motherboard. This header allows you to use the on-board sound for audio playback. Connect an audio cable to the audio header to use this feature. See the tables at right for pin definitions for these headers.

10-in Audio Pin Definitions	
Pin#	Signal
1	Microphone_Left
2	Audio_Ground
3	Microphone_Right
4	Audio_Detect
5	Line_2_Right
6	Ground
7	Jack_Detect
8	Key
9	Line_2_Left
10	Ground

Power Button

The connection for the power button is on pins 1 and 2 of JF1. The chassis power button should be connected here. See the table on the right for pin definitions.

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

Reset Connector

The reset header is located on pins 3 and 4 of JF1. Attach the reset switch on the computer chassis to these pins. See the table on the right for pin definitions.

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

Overheat/Fan Fail LED (JOH1)

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

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

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

NIC1/NIC2 (LAN1/LAN2)

The NIC (Network Interface Controller) LED connection for LAN port 1 is located on pins 11 and 12 of JF1, and the LED connection for LAN Port 2 is on Pins 9 and 10. NIC1 LED and NIC2 LED are 2-pin NIC LED headers. Attach NIC LED cables to NIC1 and NIC2 LED indicators to display network activities. Refer to the table on the right for pin definitions.

LAN1/LAN2 LED Pin Definitions (JF1)	
Pin#	Definition
9/11	LED VCC
10/12	Ground

HDD LED

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

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

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	LED VCC
16	Ground

HDD LED

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

HDD LED Pin Definitions (JF1)	
Pin#	Definition
13	+5V
14	HD Active

NIC1/NIC2 (LAN1/LAN2)

The NIC (Network Interface Controller) LED connection for LAN port 1 is located on pins 11 and 12 of JF1, and the LED connection for LAN Port 2 is on Pins 9 and 10. NIC1 LED and NIC2 LED are 2-pin NIC LED headers. Attach NIC LED cables to NIC1 and NIC2 LED indicators to display network activities. Refer to the table on the right for pin definitions.

LAN1/LAN2 LED Pin Definitions (JF1)	
Pin#	Definition
9/11	Vcc
10/12	Ground

Overheat (OH)/Fan Fail

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

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

OH/Fan Fail Indicator Status	
State	Definition
Off	Normal
On	Overheat
Flash-ing	Fan Fail

Speaker (JD1)

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

Speaker Connector Pin Definitions

Pin Setting	Definition
Pins 3~4	Internal Speaker
Pins1~4	External Speaker

12V 8-pin Power Connector Pin Definitions

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

12V 4-pin Power Connector Pin Definitions

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

Fan Headers (FAN 1 ~ FAN 4, FAN A)

The X9SAE Motherboard Series has five fan headers (Fan 1~Fan 4 and Fan A). These fans are 4-pin fan headers. Although pins 1-3 of the fan headers are backward compatible with the traditional 3-pin fans, we recommend the use 4-pin fans to take advantage of the fan speed control in the BIOS Hardware Monitoring section. This allows the BIOS to automatically adjust fan speeds based on the motherboard's detected system temperature. Refer to the table on the right for pin definitions.

Fan Header Pin Definitions

Pin#	Definition
1	Ground (Black)
2	2.5A/+12V (Red)
3	Tachometer
4	PWM_Control

Chassis Intrusion Pin Definitions (JL1)

Pin#	Definition
1	Intrusion Input
2	Ground

Chassis Intrusion (JL1)

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

Internal Buzzer (SPK1)

The Internal Buzzer (SPK1) can be used to provide audible indications for various beep codes. See the table on the right for pin definitions.

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

Speaker (JD1)

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

Speaker Connector Pin Definitions	
Pin Setting	Definition
Pins 3~4	Internal Speaker
Pins1~4	External Speaker

Onboard Power LED (JLED)

An onboard Power LED header is located at JLED. This Power LED header is connected to the Front Control Panel located at JF1 to indicate the status of system power. See the table on the right for pin definitions.

Onboard PWR LED Pin Definitions	
Pin#	Definition
1	VCC
2	No Connection
3	Connection to PWR LED in JF1

Serial Ports (COM1 ~ COM2)

In addition to COM1, which is located on the I/O back panel, there is another Serial port header on the motherboard for COM2. See the table on the right for pin definitions.

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

DOM PWR Connector (JSD1)

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

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

Legacy Wake-On-LAN (JSTBY)

The legacy Wake-On-LAN header is located at JWOL on the motherboard. See the table on the right for pin definitions. (This feature is provided for legacy I/O expansion cards.)

Wake-On-LAN Pin Definitions (JWOL)

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

SPDIF IN / SPDIF OUT (JSPDIF_IN/ JSPDIF_OUT)

The SP/DIF In (JSPDIF_IN) and SP/DIF Out (JSPDIF_OUT) are used for digital audio. You will also need the appropriate cables to use these features.

SPDIF_In Pin Definitions

Pin#	Definition
1	S/PDIF_In
2	Ground

SPDIF_Out Pin Definitions

Pin#	Definition
1	S/PDIF_Out
2	Ground

TPM Header (JTPM1)

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

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)

T-SGPIO Headers (T-SGPIO1/2)

The T-SGPIO1 and T-SGPIO2 (Serial-Link General Purpose Input/Output) headers are located near the SATA connectors on the motherboard. These headers are used to communicate with the enclosure management chip in the system. See the table on the right for pin definitions. Refer to the board layout below for the locations of the headers.

Serial_Link-SGPIO Pin Definitions

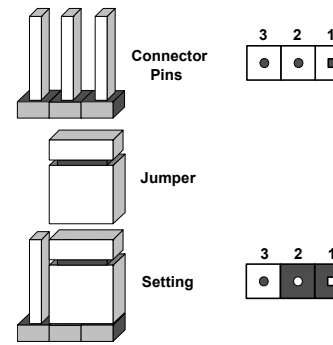
Pin#	Definition	Pin	Definition
1	NC	2	NC
3	Ground	4	DATA Out
5	Load	6	Ground
7	Clock	8	NC

5-10 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 serverboard layout pages for jumper locations.

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



LAN Port Enable/Disable (JPL1/JPL2)

Jumpers JPL1/JPL2 enables or disables LAN Port 1/2 on the motherboard. See the table on the right for jumper settings. The default setting is enabled.

GLAN Enable Jumper Settings	
Pin#	Definition
1-2	Enabled (default)
2-3	Disabled

CMOS Clear (JBT1)

JBT1 is used to clear the saved system setup stored in the CMOS chip. To clear the contents of the CMOS, completely shut down the system, remove the AC power cord and then short JBT1 with a jumper. Remove the jumper before powering on the system again. This will erase all user settings and revert everything to their factory-set defaults.

PCI Slot SMB Enable (I^2C1/I^2C2)

Use Jumpers I^2C1/I^2C2 to enable PCI SMB (System Management Bus) support to improve system management for the PCI slots. See the table on the right for jumper settings.

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

ME Manufacturing Mode (JPME2)

Close pins 2-3 of JPME2 to enable ME Manufacturing Mode. See the table on the right for jumper settings. Note: ME Manufacturing Mode may be enabled without changing this jumper through the BIOS setup. See PCH-FW Configuration -> Firmware Update Configuration in the BIOS Setup. The /ME parameter must be specified when updating with the DOS utility.

JPME2 Jumper Settings

Both Jumpers	Definition
Pins 1-2	Disabled
Pins 2-3	Enabled

ME Recovery Mode (JPME1)

Close pins 2-3 of JPME1 to enable ME Recovery Mode. See the table on the right for jumper settings.

JPME1 Jumper Settings

Both Jumpers	Definition
Pins 1-2	Disabled
Pins 2-3	Enabled

Audio Enable (JPAC1)

JPAC1 allows you to enable or disable the onboard audio support. The default position is on pins 1 and 2 to enable onboard audio connections. See the table on the right for jumper settings.

Audio Enable/Disable Jumper Settings

Both Jumpers	Definition
Pins 1-2	Enabled
Pins 2-3	Disabled

Watch Dog Timer Reset (JWD1)

Watch Dog Timer Reset (JWD1) 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 Timer Reset Jumper Settings

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

USB Wake-Up (JPUSB1/JUSB2)

Use the JPUSB jumpers to enable system "wake-up" via a USB device. These jumpers allow you to "wake-up" the system by pressing a key on the USB keyboard or by clicking the USB mouse of your system. The JPUSB jumpers are used together with the USB Wake-Up function in the BIOS. Enable both the jumper and the BIOS setting to activate this function. See the table on the right for jumper settings and jumper connections. Use JUSB1 for back panel USB ports and JUSB2 for front panel USB headers/ports.

USB Wake-Up Jumper Settings

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

5-11 Onboard Indicators

LAN 1/LAN 2 LEDs

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

LAN 1/LAN 2 Link LEDs (Green/Amber/Off)	
LED Color	Definition
Off	No Connection or 10 Mbps
Green	100 Mbps
Amber	1 Gbps

Onboard Power LED (LED1)

An Onboard Power LED is located at LED1 on the motherboard. When LED1 is on, the AC power cable is connected. Make sure to disconnect the power cable before removing or installing any component. See the motherboard layout for the LED location.

Onboard PWR LED Indicator LED Status	
Status	Definition
Off	System Off
On	System on, or System off and PWR Cable Connected

5-12 SATA Ports

SATA Connections (I-SATA0~I-SATA5)

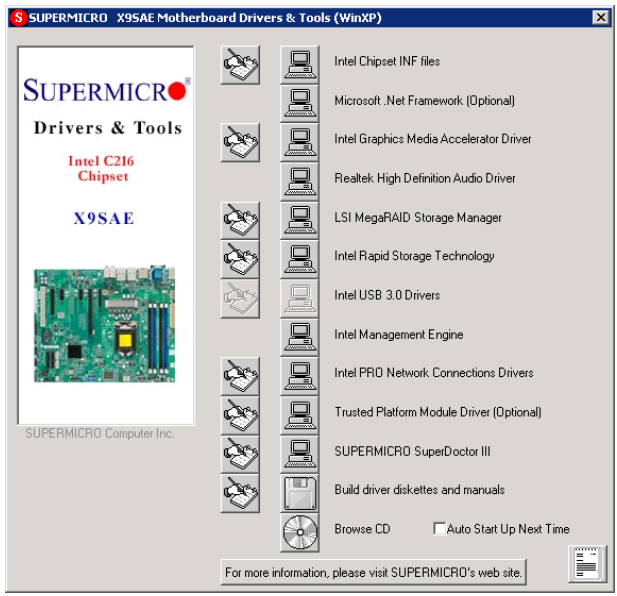
Two 6Gb/s I-SATA 3.0 connectors (I-SATA 0/1) are located on the motherboard. In addition, four I-SATA 2.0 (I-SATA 2~5) connectors are also located on the board. The SATA 3.0 ports support RAID 0, 1 while the SATA 2.0 ports support RAID 0, 1, 5 &10. See the table on the right for pin definitions.

X9SAE Motherboard Series SATA Connector Types	
Port#	Connection Type
I-SATA 0/1,	SATA 3.0
I-SATA 2/3/4/5	SATA 2.0

SATA 2.0/3.0 Connectors Pin Definitions	
Pin#	Signal
1	Ground
2	SATA_TXP
3	SATA_TXN
4	Ground
5	SATA_RXN
6	SATA_RXP
7	Ground

5-13 Installing Software

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



Driver/Tool Installation Display Screen

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

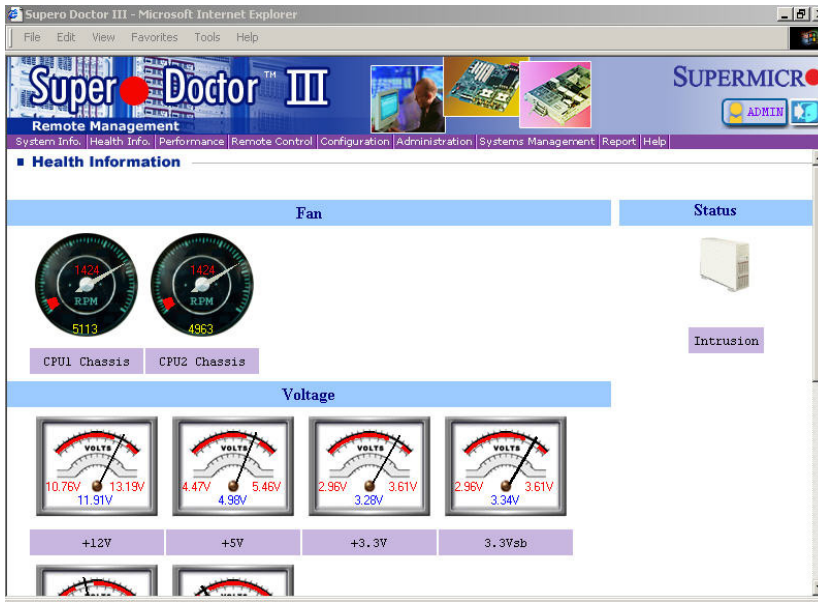
SuperDoctor III

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

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

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

Supero Doctor III Interface Display Screen (Health Information)



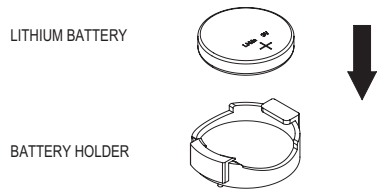
Supero Doctor III Interface Display Screen (Remote Control)

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

For Linux, we recommend using SuperDoctor II.

5-14 Onboard Battery

Figure 4-1. Installing the Onboard Battery



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

Chapter 6

Advanced Chassis Setup

This chapter covers the steps required to install components and perform simple maintenance on the SC732D4-500B chassis. Following the component installation steps in the order given will eliminate most common problems. If some steps are unnecessary, skip ahead to the step that follows.

Tools Required: The only tool you will need is a Philips screwdriver.

6-1 Static-Sensitive Devices

Static electrical discharge 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 static discharge.

Precautions

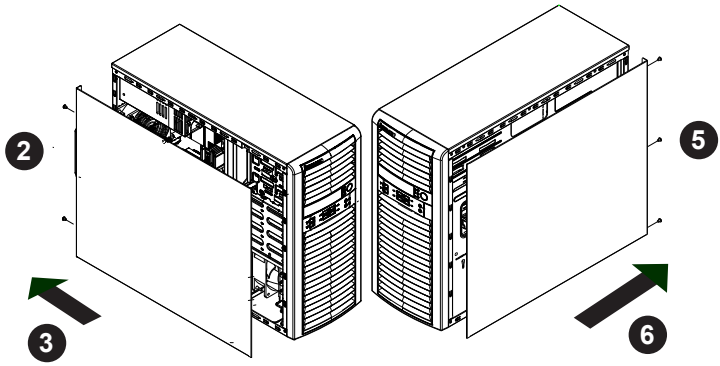
- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing any board from its antistatic bag.
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid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

Unpacking

The serverboard is shipped in antistatic packaging. When unpacking the board, make sure the person handling it is static protected.

6-2 Accessing the Inside of the System

Figure 6-1. Removing the Chassis Side Covers



The SC732 features two removable side covers, allowing easy access to the chassis interior.

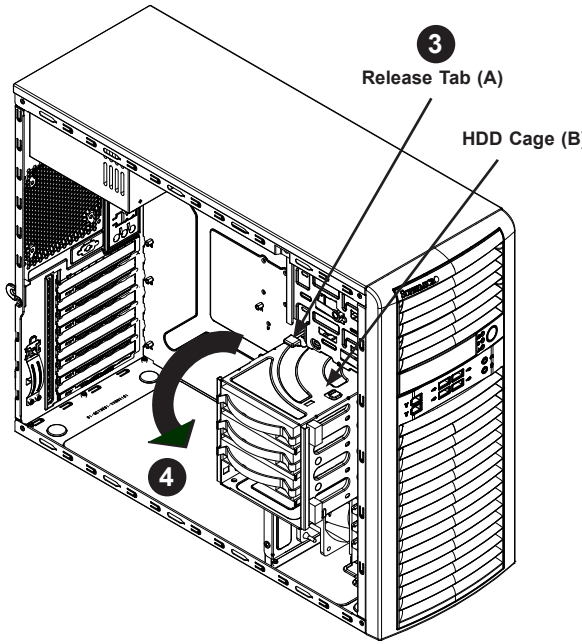
Removing the Side Covers

1. Power down the server and remove the power cord from the rear of the power supply.
2. Remove the two screws securing the left side cover to the chassis.
3. Slide the left cover toward the rear of the chassis.
4. Lift the left cover from the chassis.
5. Remove the three screws securing the right side cover to the chassis.
6. Slide the right cover toward the rear of the chassis
7. Lift the right cover from the chassis.

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

6-3 Rotating the Hard Drive Cage

Figure 6-2. Rotating the Hard Drive Cage



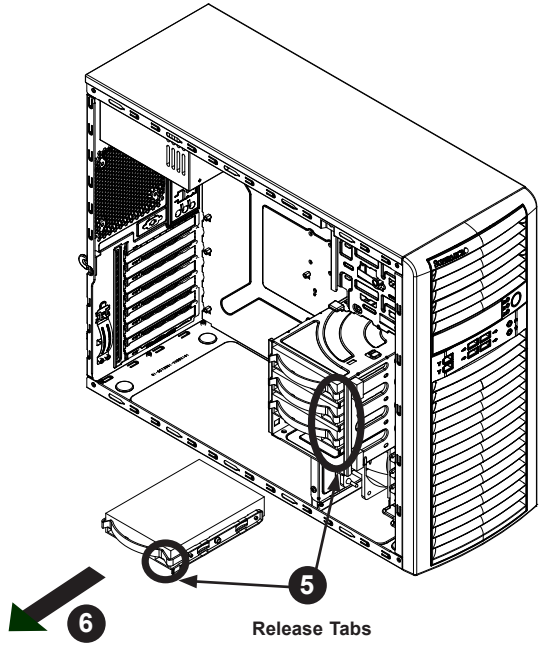
In order to access and install components in the chassis interior, it is necessary to rotate the hard drive cage (B). This will provide sufficient room to install and configure the chassis components.

Rotating the Hard Drive Cage

1. Power down the server, remove the power cord from the rear of the power supply.
2. Remove the side cover. (See page 6-2).
3. Lift the release tab (A).
4. Rotate the hard disk drive cage (B) outward.

6-4 Removing and Installing 3.5" Hard Drives

Figure 6-3. Removing a Hard Drive Carrier from the Hard Drive Cage

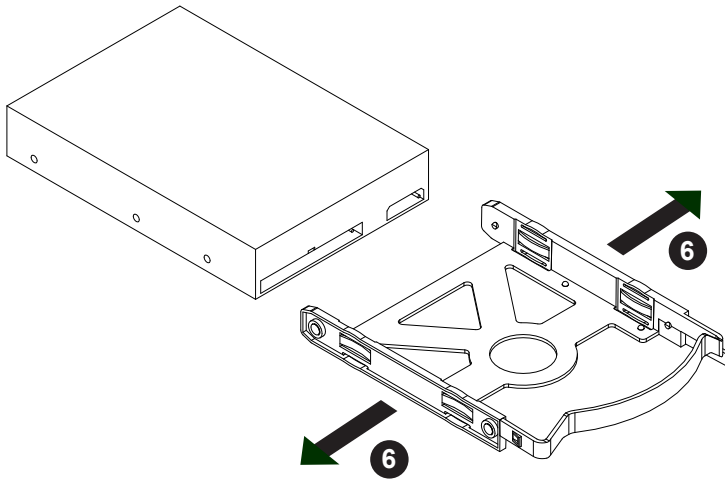


The SC732 chassis must be powered-down before hard drives can be removed from the hard drive carriers.

Removing and Installing 3.5" Hard Drives

1. Power down the server and remove the power cord from the rear of the power supply.
2. Remove the side cover as described on page 6-2.
3. Disconnect all of the cables from the hard drive.
4. Rotate the hard drive cage outward 90 degrees as described on page 6-3.
5. Press the release tab on the side of the hard drive carrier that is to be removed from the hard drive cage.
6. Gently slide the hard drive carrier out of the hard drive cage.
7. If a hard drive is already present, remove it by carefully pulling the sides of the hard drive carrier outward.

Figure 6-4. Removing a 3.5" Hard Drive from a Hard Drive Carrier



8. Remove the hard drive from the hard drive carrier.

9. Insert the new hard drive into the hard drive carrier.

Warning: Only enterprise level HDDs are recommended for use in this chassis.

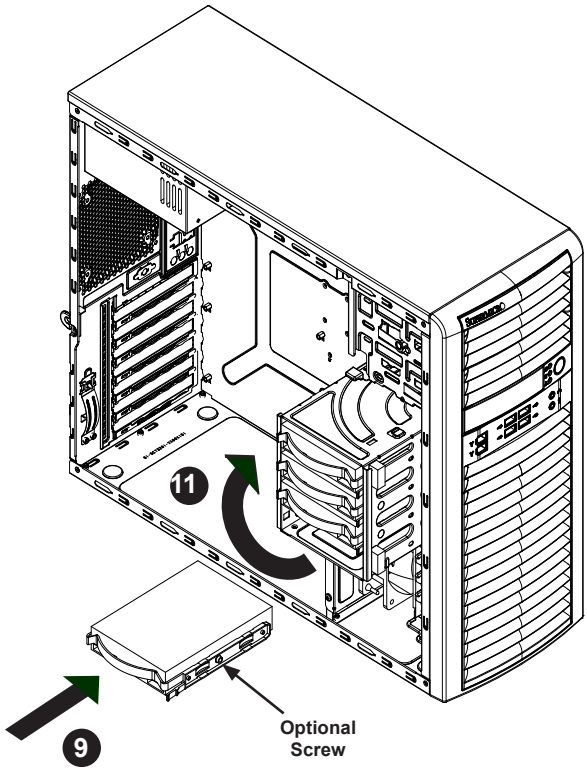
10. Insert the hard drive carrier into the hard drive cage, sliding it towards the back of the the hard drive cage until it clicks into a locked position.

11. If desired, each hard drive carrier may be secured to the exterior of the hard drive cage using one optional screw.

12. Rotate the hard drive cage 90 degrees inward, returning it to the closed, operational position in the chassis.

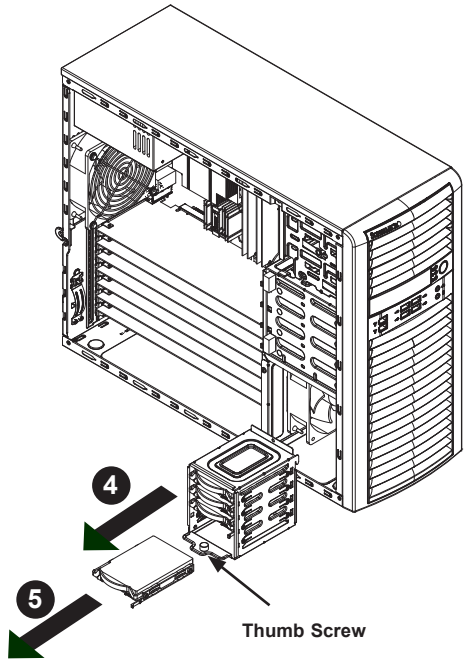
13. Connect the related cables to the hard drives.

Figure 6-5. Installing a Hard Drive Carrier into the Hard Drive Cage



6-5 Removing and Installing 2.5" Hard Drives (Optional)

Figure 6-6. Removing a 2.5" Hard Drive

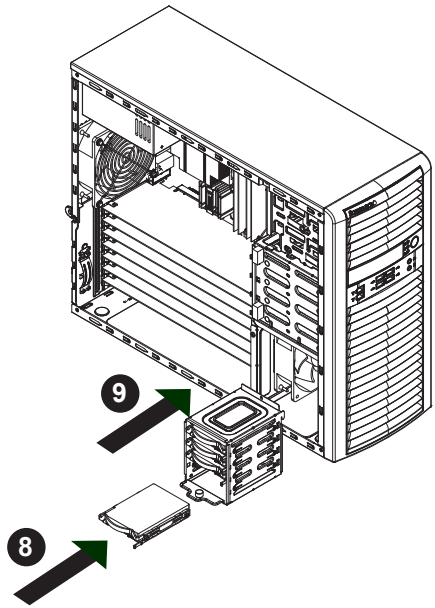


The SC732 chassis supports an optional hard drive cage (MCP-220-73201-0N) for up to four 2.5" hard drives. The server must be powered-down before hard drives can be removed from the hard drive cage.

Removing and Installing 2.5" Hard Drives

1. Power down the server, remove the cover and remove the power cord from the rear of the power supply.
2. Loosen the thumb screw securing the 2.5" hard drive cage to the chassis.
3. Disconnect all cables from the hard drive.
4. Slide the 2.5" hard drive cage out of the chassis.
5. If a hard drive is already present, remove it by carefully pulling the sides of the hard drive carrier outward.
6. Remove the hard drive from the hard drive carrier.

Figure 6-7. Installing 2.5" Hard Drives



7. Insert the new hard drive into the hard drive carrier.

8. Insert the hard drive carrier into the hard drive cage, sliding it towards the back of the the hard drive cage until it clicks into a locked position.

9. Slide the 2.5" hard drive cage back into the chassis and tighten the thumb screw to secure the cage.

10. Connect the related cables to the hard drive

Warning: Only enterprise level HDDs are recommended for use in this chassis.

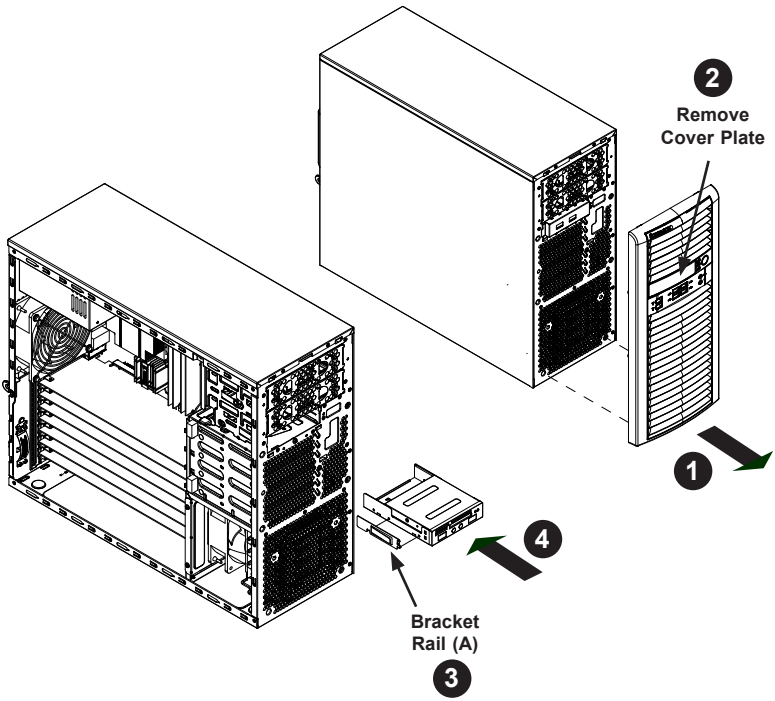
6-6 Installing a 3.5" Device (Optional)

The SC732D chassis has one 3.5" device slot, which supports an optional device, such as an all-in-one card reader.

Installing a 3.5" Device

1. Remove the front bezel from the chassis by lifting it upwards from the bottom, and pulling off the front of the chassis.
2. Remove the cover plate from the 3.5" device slot on the front of the chassis.
3. Install the bracket rail (A) onto one side of the 3.5" device, by inserting the pins of the bracket into the mounting holes on one side of the 3.5" device.
4. Slide the 3.5" device into the chassis.
5. See Section 6-8: Installing the Front Bezel.

Figure 6-8. Installing a 3.5" Device



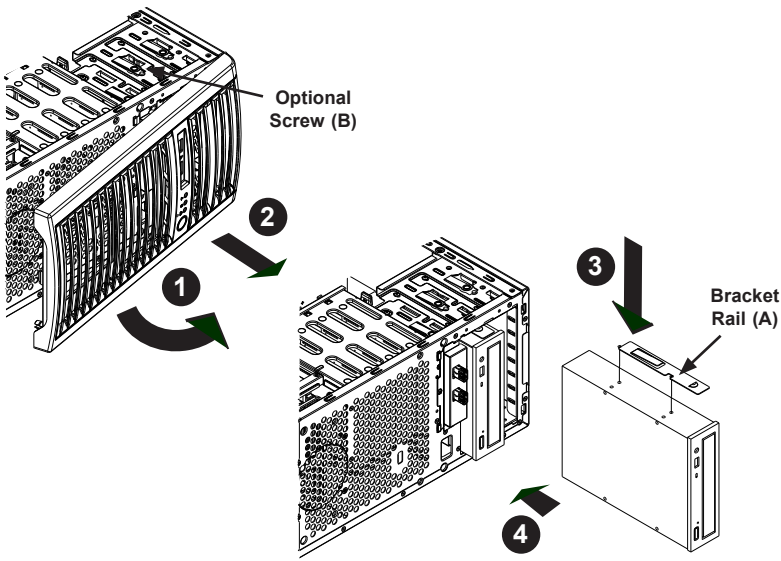
6-7 Installing a 5.25" Optical Device (Optional)

The SC732 chassis has two optical device slots, which support up to two optional devices, such as DVD-ROM drives.

Installing an Optical Device

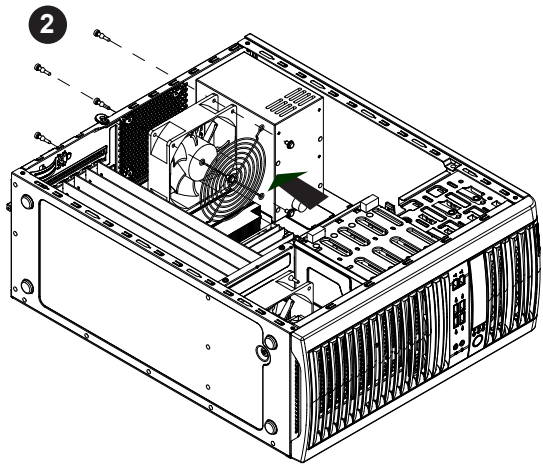
1. Power down the server, remove the cover and remove the power cord from the rear of the power supply.
2. Remove the front bezel from the chassis by lifting it upwards from the bottom, and pulling off the front of the chassis.
3. Remove the cover plate from the optical device slot on the front of the chassis.
4. Install the bracket rail (A) onto one side of the optical device, by inserting the pins of the bracket into the mounting holes on one side of the 3.5" optical device.
5. Slide the optical device into the chassis.
6. If desired, screws may be used where indicated below (B) to secure the optical device into chassis.

Figure 6-9. Installing the Optical Device



6-8 Installing System Fans

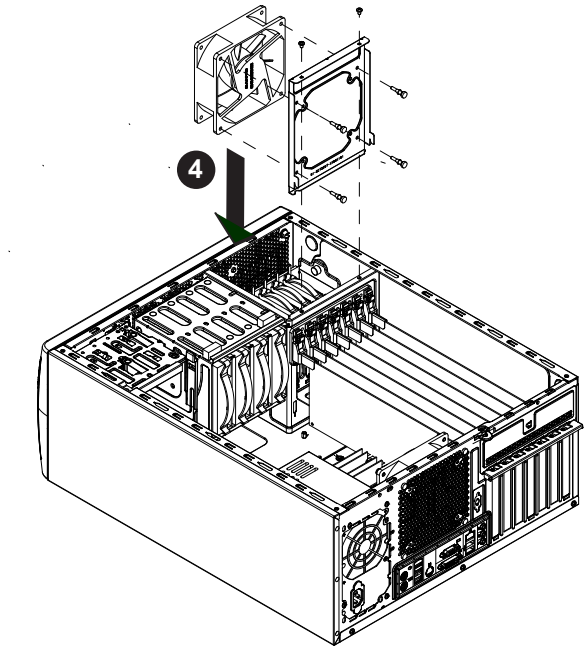
Figure 6-10. Installing the Rear Exhaust Fan



Installing the Rear Exhaust Fan

1. Power down the server and remove the power cord from the rear of the power supply.
2. Remove the side cover. (See page 6-2).
3. Insert the four rubber pins through mounting holes in the rear of the chassis and through the mounting holes in the rear fan.
4. Pull the rubber pins through the mounting holes of the fan to secure the fan to the chassis.
5. Connect the fan cable to the motherboard.

Figure 6-11. Installing the Front Cooling Fan (Optional)



Installing the Front Cooling Fan (Optional)

1. Power down the server,and remove the power cord from the rear of the power supply.
2. Remove the side cover. (See page 6-2).
3. Insert the four rubber pins through the front fan bracket and into the mounting holes in the front fan.
4. Pull the rubber pins through the mounting holes of the system fan to secure the fan to the fan bracket.
5. Lower the fan module into the chassis, aligning the holes at the top of the front fan bracket with the holes in the chassis.
6. Secure the fan to the chassis using the two screws provided.
7. Connect the fan power cable to the motherboard.

6-9 Installing the Front Bezel

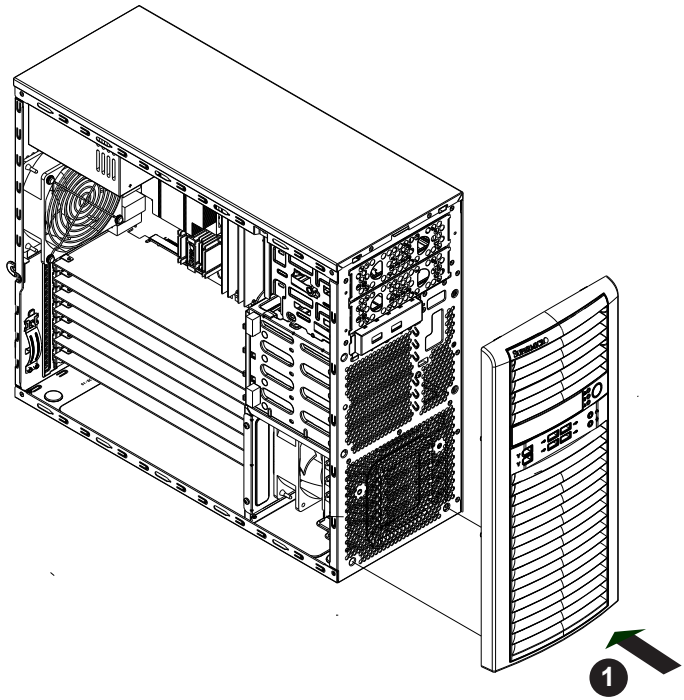
Front Bezel Installation

1. Insert the tabs on the front bezel into the mounting holes on the front of the chassis.

2. Ensure that the cover fits snugly.

This completes the installation of major components in the SC732 chassis.

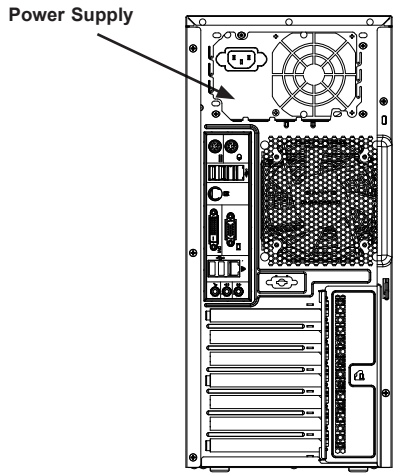
Figure 6-12. Installing the Front Bezel



6-10 Power Supply

The UP workstation SYS-5037A-IL includes a 500 Watt fixed power supply. In the unlikely event that it becomes necessary to replace the power supply, follow the instructions below.

Figure 6-13. Removing the Power Supply



Changing the Power Supply

1. Power down the server and remove the power cord from the rear of the power supply.
2. Remove the side cover. (See page 6-2).
3. Disconnect the motherboard cables.
4. Remove the screws securing the power supply to the chassis, which are located on the rear of the chassis. Set these screws aside for later use.
5. Gently lift the power supply out of the chassis.
6. Replace the failed power supply with an identical power supply model.
7. Secure the new power supply using the screws previously set aside.
8. Close the side cover.
9. Plug the AC power cord back into the module and power-up the system.

Chapter 7

BIOS

7-1 Introduction

This chapter describes the AMI BIOS Setup Utility for the X9SAE Motherboard Series. The ROM BIOS is stored in a Flash EEPROM and can be easily updated. This chapter describes the basic navigation of the AMI BIOS Setup Utility setup screens.

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

Starting BIOS Setup Utility

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

Note: In most cases, the <Delete> key is used to invoke the AMI BIOS setup screen. There are a few cases when other keys are used, such as <F1>, <F2>, etc.

Each main BIOS menu option is described in this manual. The Main BIOS setup menu screen has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured. Options in blue can be configured by the user. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it. (**Note**: the AMI BIOS has default text messages built in. Supermicro retains the option to include, omit, or change any of these text messages.)

The AMI BIOS Setup Utility uses a key-based navigation system called "hot keys". Most of the AMI BIOS setup utility "hot keys" can be used at any time during the setup navigation process. These keys include <F1>, <F10>, <Enter>, <ESC>, arrow keys, etc.

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

How To Change the Configuration Data

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

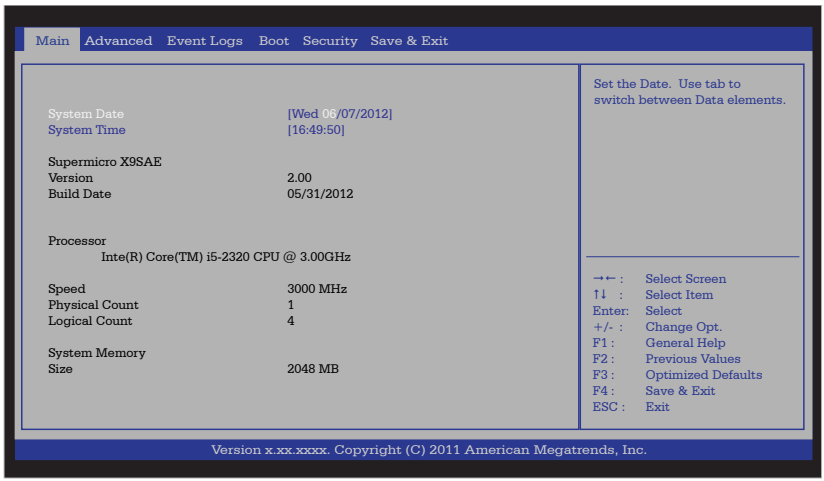
How to Start the Setup Utility

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

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

7-2 Main Setup

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



System Overview: The following BIOS information will be displayed:

System Time/System Date

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

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

The following BIOS items will also be displayed:

Supermicro X9SAE

Version

Build Date

The AMI BIOS will automatically display the status of the processor used in the motherboard as shown below:

Processor

Speed

Physical Count

Logical Count

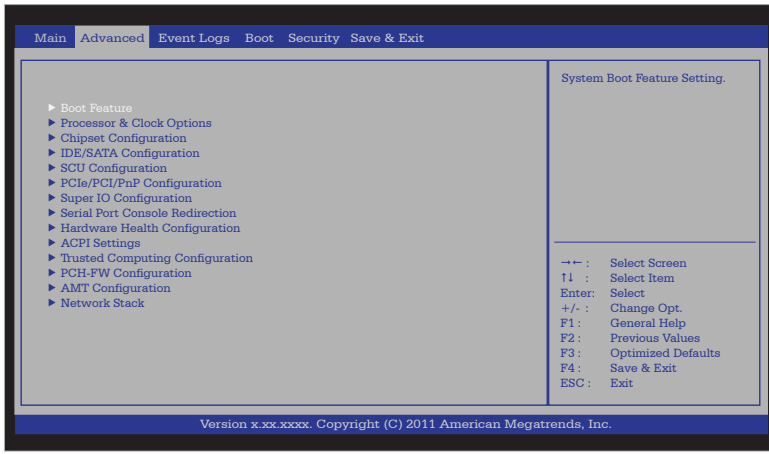
System Memory

This displays the size of memory available in the system:

Size

7-3 Advanced Setup Configurations

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



▶Boot Feature

Quiet Boot

Use this feature 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 feature to set the display mode for Option ROM. The options are **Force BIOS** and Keep Current.

Bootup Num-Lock

This feature selects the Power-on state for the Numlock key. The options are Off and **On**.

Wait For 'F1' If Error

This forces the system to wait until the 'F1' key is pressed if an error occurs. The options are Disabled and **Enabled**.

Interrupt 19 Capture

Interrupt 19 is the software interrupt that handles the boot disk function. When this item is set to Enabled, the ROM BIOS of the host adaptors will "capture" Interrupt 19 at bootup and allow the drives that are attached to these host adaptors to function

as bootable disks. If this item is set to Disabled, the ROM BIOS of the host adaptors will not capture Interrupt 19, and the drives attached to these adaptors will not function as bootable devices. The options are **Enabled** and Disabled.

▶Power Configuration

Watch Dog Function

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

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 Second 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 last power state before a power loss. The options are Power-On, Power-Off and **Last State**.

Deep Sx Power Policies

Select Enabled to enable Deep Sleep State support. The settings are Enabled and **Disabled.**

▶Processor & Clock Options

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

Clock Spread Spectrum

If Enabled, the BIOS will monitor the level of Electromagnetic Interference caused by the components and will attempt to decrease the interference whenever needed. The options are Enabled and **Disabled**.

Hardware Prefetcher (Available when supported by the CPU)

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

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

Select Enabled for the CPU to prefetch both cache lines for 128 bytes as comprised. Select Disabled for the CPU to prefetch both cache lines for 64 bytes. The options are Disabled and **Enabled**.

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

Select Enabled to use the Intel Virtualization Technology to allow one platform to run multiple operating systems and applications in independent partitions, creating multiple "virtual" systems in one physical computer. The options are **Enabled** and Disabled.

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

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

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

Intel® AES-NI

This feature enables or disables the processor's Advanced Encryption Standard support. The options are **Disabled** and Enabled**.**

Active Processor Cores

Enables selection of the number of the processor's core to acivate. (Please refer to Intel's web site for more information.) The options are **All**, 1, 2, 3 and 4.

Power Technology

Use this feature to select a power-saving scheme for the motherboard. The options are Disabled, **Energy Efficient** and Custom. If Custom is selected, the following options become available:

▶Turbo Boost Technology (Available when Intel® EIST technology is Enabled)

This feature allows processor cores to run faster than marked frequency in specific conditions.

Turbo Mode

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

Factory Long Duration Power Limit

This feature displays the value of the processor power consumption limit (in Watts) set by the manufacturer for a long duration time window.

Long Duration Power Limit

Use this feature to set the processor power consumption limit (in Watts) value for a long duration time window.

Factory Long Duration Maintained

This feature displays the manufacture-preset time value in milliseconds when the Long Duration Power Limit is maintained.

Long Duration Maintained

Use this feature to set the time value when the Long Duration Power Limit is maintained.

Recommended Short Duration Power Limit

The system's power consumption may exceed the processor's default power setting and the Short Duration Power Limit when operating in the turbo mode. This feature displays the Short Duration Power Limit value recommended by the manufacturer for turbo mode operation. By increasing this value, the processor can provide better performance for a short duration operation. The default setting is **1.25* Long Duration** (that means, 1.25 times the value of Long Duration Power Limit indicated above.)

Short duration power limit

The system's power consumption may exceed the processor's default power setting and the Short Duration Power Limit when operating in the turbo mode. By increasing this value, the processor can provide better performance for a short duration operation.

Chipset Configuration

WARNING: Setting the wrong values in the following sections may cause the system to malfunction.

▶CPU Bridge Configuration

This item displays the current CPU Revision, Current CPU1 Memory Frequency, Memory Type and Memory Reference Code Revision.

Memory Frequency

This feature allows the user to select the memory speed. Under normal conditions, please set this to Auto. The options are **Auto**, Force DDR-1066, and Force DDR-1333.

▶Integrated IO Configuration

This item displays the current North Bridge Revision.

VT-d

Select Enabled to enable Intel's Virtualization Technology support for Direct I/O VT-d by reporting the I/O device assignments to VMM through the DMAR ACPI Tables. This feature offers fully-protected I/O resource-sharing across the Intel platforms, providing the user with greater reliability, security and availability in networking and data-sharing. The settings are Enabled and **Disabled**.

Active State Power Management

Select Enabled to start Active-State Power Management for signal transactions between L0 and L1 Links on the PCI Express Bus. This maximizes power-saving and transaction speed. The options are Enabled and **Disabled**.

PCIE Maximum Read Request

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

PCI Express Port

This feature can force to enable or disable the onboard PCI Express port. The options are Disabled, Enabled and **Auto.**

PCI Express Port - Gen X

This feature forces Gen1 or Gen2 support on the PCI Express Graphics (PEG) port. The options are **Auto**, Gen1 and Gen2**.**

De-emphasis Control

This feature configures de-emphasis control on the PEG port. The options are **-3.5 dB**, and -6 dB**.**

The following options are available if the CPU supports and Integrated Graphics Device (IGD).

Aperture Size

This feature selects the Aperture Size. The options are Disabled, 128MB, **256MB** and 512M.

DVMT Pre-Allocated

This feature selects the pre-allocated fixed memory size for the Integrated Graphics Device (IGD). The options are Disabled, 32M, **64M,** 96M, 128M, 160M, 192M, 224M, 256M, 288M, 320M, 352M, 384M, 416M, 448M, 480M, 512M and 1024M.

DVMT Total Gfx Mem

This feature selects the total memory size for the Integrated Graphics Device (IGD). The options are 128M, **256M,** and MAX.

Gfx Low Power Mode

This feature enables low power mode for the Gfx. Applicable for SFF only. The options are **Enabled** and Disabled.

Graphics Performance Analyzers

This feature enables or disables the Intel Graphics Performance Analyzer counters. The options are Enabled and **Disabled**.

▶GT - Power Management Control

These options appear only if the CPU supports IGD:

RC6 (Render Standby)

This feature enables or disables render standby by the Internal Graphics Device (IGD). The options are Disabled and **Enabled**.

RC6+ (Deep RC6)

This item enables or disables Deep RC6 (RC6+) support by the Internal Graphics Device (IGD). The options are Disabled and **Enabled**.

GT OverClocking Support

This item enables or disables GT over clocking support by the Internal Graphics Device (IGD). The options are **Disabled** and Enabled.

▶South Bridge Configuration

This item displays the current South Bridge configuration.

USB Functions

This feature will enable or disable the motherboard's USB functions. The options are **Enabled** and Disabled.

USB 3.0 Functions

This feature will enable or disable the motherboard's USB 3.0 functions. The options are **Enabled** and Disabled.

Legacy USB Support

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

Port 60/64 Emulation

This feature enables or disables I/O port 60h/64h emulation support. This should be enabled for complete USB keyboard legacy support for non-USB-aware Operating Systems. The options are Disabled and **Enabled**.

BIOS EHCI Hand-Off

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

XHCI Hand-off

Select Enabled for Operating Systems without XHCI hand-off support. The XHCI ownership change will be claimed by the XHCI driver. The settings are **Enabled** and Disabled.USB 3.0 Functions

Azalia HD Audio (available if JPAC1 jumper is enabled)

This feature enables or disables the motherboard's built-in High Definition (HD) audio. The options are **Enabled** and Disabled.

Frontside Audio Mode (available if Azalia HD Audio is enabled)

This feature selects between AC'97 legacy audio and HD audio. The options are **HD Audio** and AC'97.

▶IDE/SATA Configuration

When this submenu is selected, the AMI BIOS automatically detects the presence of the IDE Devices and displays the following items:

SATA Mode

This item selects the mode for the installed drives. The options are Disabled, IDE Mode, **AHCI Mode** and RAID Mode.

AHCI Mode

The following items are displayed when AHCI Mode is selected:

Aggressive LPM Support

This feature Enables or Disables Agressive Link Power Management support for Cougar Point B0 stepping and later. The options are **Enabled** and Disabled.

SATA Port0~Port5

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

Hot Plug

Set this item to Enabled to enable hot-plugging. The options are Enabled and **Disabled**.

Staggered Spin Up

Set this item to Enabled to enable Staggered Spin-up support. The options are Enabled and **Disabled**.

IDE Mode

The following items are displayed when IDE Mode is selected:

IDE Legacy / Native Mode Selection

This feature enables support for either legacy or native mode. The options are **Native** and Legacy.

SATA Port0~Port5

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

RAID Mode

The following items are displayed when RAID Mode is selected:

SATA Port0~Port5

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

Hot Plug

Set this item to Enabled to enable hot-plugging. The options are Enabled and **Disabled**.

▶PCIe/PCI/PnP Configuration

This feature allows the user to set the PCI/PnP configurations for the following items:

PCI Latency Timer

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

Above 4G Decoding

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

PERR# Generation

PERR (Parity Error) is for reporting address parity errors. It is shared among all PCI devices. The options are Disabled and **Enabled**.

SERR# Generation

SERR (System Error) is for reporting system errors, or any other fatal system errors. It is shared among all PCI devices. The options are Disabled and Enabled.

PCI-E Slot 5 OPROM

Use this feature to enable or disable PCI-E Slot 5 slot Option ROM. The options are Disabled and **Enabled.**

Onboard LAN Option ROM Select

Use this feature to select which option ROM the system will use. The options are **PXE**, and iSCSI.

Onboard LAN1/LAN2 Option ROM

This feature enables or disables the onboard ROM option for LAN1 and LAN2. The options are **Disabled** and Enabled.

Boot Graphics Adapter Priority

Use the feature to select the graphics controller to be used as the primary boot device. The options are Slot 6 VGA, **Offboard**, and Onboard .

▶Super IO Configuration

Serial Port 1 / Serial Port 2

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

Serial Port 1 / Serial Port 2 Settings

This option specifies the base I/O port address and the Interrupt Request address of Serial Port 1 ~ 2. Select Auto to let the BIOS automatically assign the base I/O and IRQ address.

The options for Serial Port 1 are

Auto,

IO=3F8h; IRQ=4,

IO=3F8h; IRQ=3 through IRQ=12,

IO=2F8h; IRQ=3 through IRQ=12,

IO=3E8h; IRQ=3, through IRQ=12)

and

IO=2E8h; IRQ=3 through IRQ=12).

The options for Serial Port 2 are

Auto,

IO=2F8h; IRQ=3,

IO=3F8h; IRQ=3 through IRQ=12,

IO=2F8h; IRQ=3 through IRQ=12,

IO=3E8h; IRQ=3, through IRQ=12)

and

IO=2E8h; IRQ=3 through IRQ=12).

▶Serial Port Console Redirection

COM1/COM2 Console Redirection

Use this feature to enable console redirection for COM1 and COM2 ports. The options are Enabled and **Disabled**.

▶Console Redirection Settings

Configure the following options for the Console Redirection Settings. The most common settings are set as default:

Terminal Type : Select ANSI, VT100, **VT100+**, or VT-UTF8

Bits per Second (BPS): 9600, 19200, 38400, 57600, or **115200**

Data Bits: **8** or 7

Parity: **None**, Even, Odd, Mark, or Space

Stop Bits: **1** or 2

Flow Control: **None** or Hardware RTS/CTS

VT-UTF8 Combo Key Support: **Enabled** or Disabled

Recorder Mode: **Disabled** or Enabled

Resolution 100x31: **Enabled** or Disabled

Legacy OS Redirection Resolution: **80x25** or 80x24

puTTY Keypad: **VT100**, LINUX, XTERM6, SCO,ESCN, VT400

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

Use this feature to enable console redirection for Serial Port for Out-of-Band Management and Windows Emergency Management Services (EMS). The options are Enabled and **Disabled**.

▶Console Redirection Settings

Configure the following options for the Console Redirection Settings. The most common settings are set as default:

Out-of-Band Mgmt Port: **COM1**, COM2, COM3 (PCI, Bus0, Dev0, Func0)

Terminal Type : Select ANSI, VT100, VT100+, or **VT-UTF8**

Bits per Second (BPS): 9600, 19200, 57600, or **115200**

Data Bits: **8** or 7

Parity: **None**, Even, Odd, Mark, or Space

Stop Bits: **1** or 2

▶Hardware Health Configuration

Fan Speed Control Mode

This feature allows the user to decide how the system controls the speeds of the onboard fans. The CPU temperature and the fan speed are correlative. When the CPU on-die temperature increases, the fan speed will also increase for effective system cooling. Select "Full Speed" to allow the onboard fans to run at full speed (of 100% Pulse Width Modulation Duty Cycle) for maximum cooling. This setting is recommended for special system configuration or debugging. Select "Standard" for the onboard fans to run at 50% of the Initial PWM Cycle in order to balance the needs between system cooling and power saving. This setting is recommended for regular systems with normal hardware configurations. The options are Full Speed, **Standard,** and Optimal.

CPU Temperature

This feature displays the CPU temperature status in text ("Low", "Medium" or "High"):

Low – This level is considered as the 'normal' operating state. The CPU temperature is well below the CPU 'Temperature Tolerance'. The motherboard fans and CPU will run normally as configured in the BIOS (Fan Speed Control).

User intervention: No action required.

Medium – The processor is running warmer. This is a 'precautionary' level and generally means that there may be factors contributing to this condition, but the CPU is still within its normal operating state and below the CPU 'Temperature Tolerance'. The motherboard fans and CPU will run normally as configured in the BIOS. The fans may adjust to a faster speed depending on the Fan Speed Control settings.

User intervention: No action is required. However, consider checking the CPU fans and the chassis ventilation for blockage.

High – The processor is running hot. This is a 'caution' level since the CPU's 'Temperature Tolerance' has been reached (or has been exceeded) and may activate an overheat alarm:

The information provided above is for your reference only. For more information on thermal management, please refer to Intel's Web site at www.Intel.com.

System Temperature / Peripheral Temperature / PCH Temperature

This feature displays the temperature readings from the system sensor (chassis) and peripheral devices.

Fan 1 ~ Fan 4, Fan A Reading

This feature displays the fan speed readings from fan interfaces Fan1 through Fan4 and Fan A.

VCORE, 12V, VDIMM, 5VCC, VTT, AVCC, 3.3VCC, VSB, VBAT

This feature displays the current voltages of the above voltage monitors.

▶ACPI Settings

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

High Precision Event Timers

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

Suspend Mode

This setting allows you to configure the ACPI (Advanced Configuration and Power Interface) sleep state for your system when it is in the Suspend mode. The options are Suspend Disabled, and **S3 (STR)**. S3 (STR) is the deepest sleep state in these options.

WHEA Support

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

▶Trusted Computing Configuration

TPM Support

This feature enables or disables the BIOS TPM support. The options are Disable and **Enable**. Note that the OS will not reveal the security device.

▶Intel TXT(LT) Configuration

Secure Mode Extensions (SMX)

This feature can be configured if it is supported by the processor. Enable this feature to activate Intel TXT, below. The options are Enabled and **Disabled.**

Intel TXT (LT) Support

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

▸PCH-FW Configuration

This option displays Management Engine information and configurable features.

▸Firmware Update Configuration

This option enables or disables the Management Engine firmware image reflash function. The options are Enabled and **Disabled**.

▸AMT Configuration

Intel AMT

This option enables Intel AMT support. The options are **Enabled** and Disabled.

BIOS Hotkey Pressed

This option enables or disables the BIOS Hotkey. The options are Enabled and **Disabled.**

MEBx Selection Screen

This option enables or disables the MEBx selection screen. The options are Enabled and **Disabled.**

Hide Un-configure ME Confirmation Prompt

This option enables or disables the "Un-configure ME" confirmation prompt. The options are Enabled and **Disabled.**

MEBx Debug Message Output

This option enables or disables the MEBx Debug Message Output. The options are Enabled and **Disabled.**

Un-Configure ME

This option allows the option to Un-Configure ME without a password. The options are Enabled and **Disabled.**

AMT Wait Timer

This option specifies a set time (in seconds) to wait before sending "ASF_GET_BOOT_OPTIONS". The default is **0.** Enter any whole number greater than 0 to activate.

Disable ME

This option temporarily sets the Management Engine to soft disable. The options are Enabled and **Disabled.**

ASF

This option enables or disables Alert Specification Format. The options are **Enabled** and Disabled.

Activate Remote Assistance Process

This option enables or disables the Remote Assistance Process (triggers CIRA boot). The options are Enabled and **Disabled.**

USB Configure

This option enables or disables the USB configuration function. The options are **Enabled** and Disabled.

PET Progress

This option enables or disables PET Events Progress to receive PET events. The options are **Enabled** and Disabled.

Watch Dog Timer

Allows AMT to reset or power down the system if the operating system or BIOS hangs or crashes. The options are **Disabled**, and Enabled.

OS WatchDog Timer / BIOS WatchDog Timer

These options appear if Watch Dog Timer (above) is enabled. This is a timed delay in seconds, before a system power down or reset after a BIOS or operating system failure is detected. Directly enter the value, in seconds.

▶Network Stack

Set this item to Enabled to activate the Network Stack (PXE and UEFI). The options are Enable and **Disable Link**. When enabled, the following options appear:

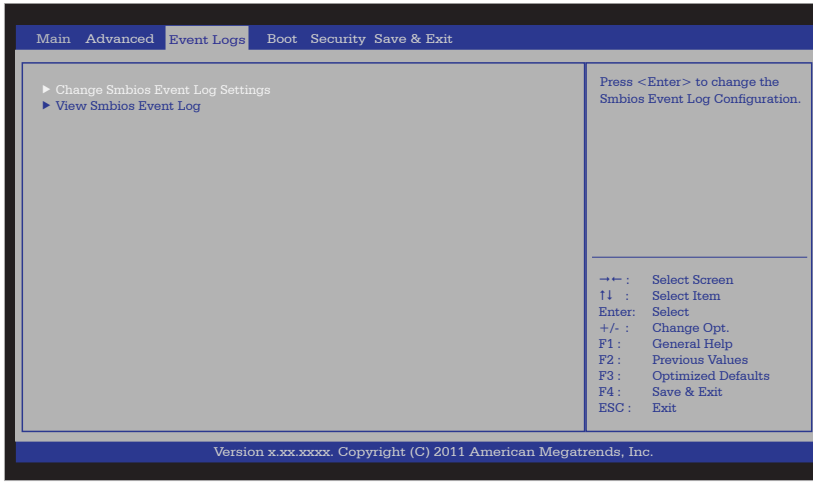
Ipv4 PXE Support

This feature enables Ipv4 boot support. If disabled, an Ipv4 PXE boot option will not be created. The options are **Enable** and Disable Link.

Ipv6 PXE Support

This feature enables Ipv6 boot support. If disabled, an Ipv6 PXE boot option will not be created. The options are **Enable** and Disable Link.

7-4 Event Logs



▶Change SmBIOS Event Log Settings

Smbios Event Log

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

Erase Settings

Erase Event Log

This option erases all logged events. The options are **No**, Yes, Next reset and Yes, Every reset.

When Log is Full

This option automatically clears the Event Log memory of all messages when it is full. The options are **Do Nothing** and Erase Immediately.

SmBIOS Event Log Standard Settings

Log System Boot Event

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

MECI

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

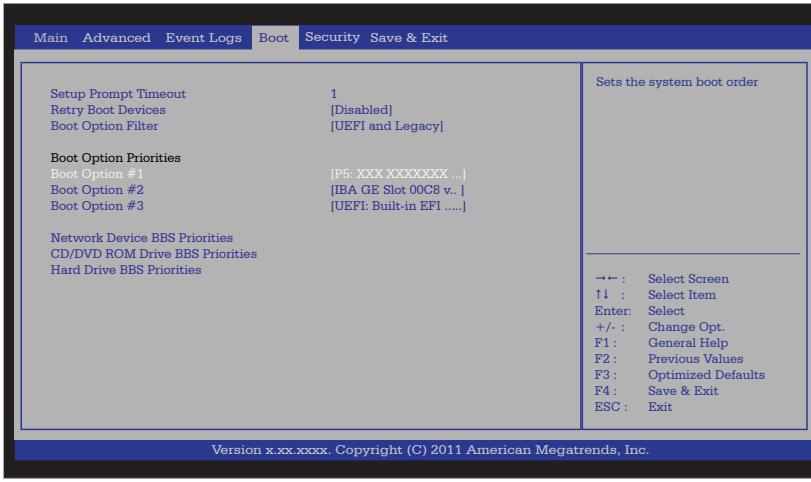
METW

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

View SmBIOS Event Log

This feature displays the contents of the SmBIOS Event Log.

7-5 Boot Settings



Setup Prompt Timeout

Number of seconds to wait for setup activation key. Enter 65535 (0xFFFF) to wait indefinitely.

Retry Boot Devices

This item will force the BIOS to continuously retry to boot from legacy devices. The options are **Disabled** and Enabled.

Boot Option Filter

This item selects which set of devices the BIOS boots from. The options are **UEFI and Legacy**, Legacy Only and UEFI Only.

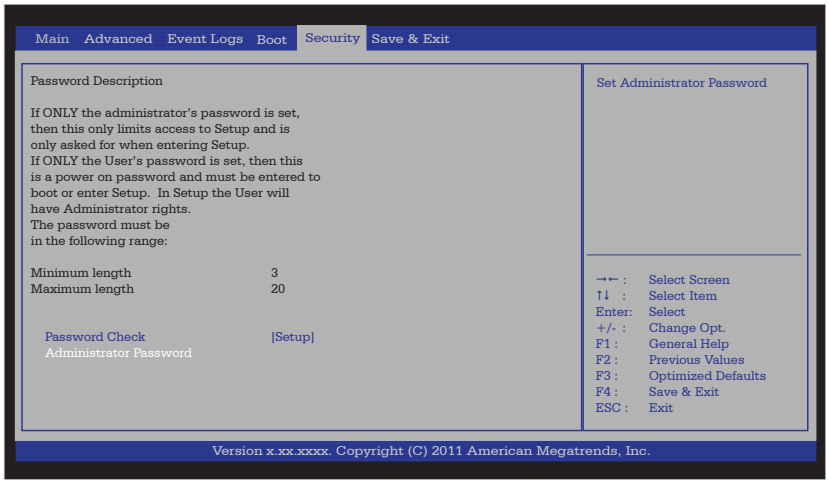
Boot Option #1, #2, #3, ...

This item determines from the installed boot devices, the order where the BIOS boots from. The options are **UEFI: Built-n EFI Shell**, [other detected devices], and Disabled.

Network Device BBS Priorities,
CD/DVD ROM Drive BBS Priorities,
Hard Drive BBS Priorities,

These options appear only if any of the devices are installed and detected by the BIOS. This feature sets the order of legacy devices in their particular groups. The boot options are dependent on what devices are installed in the system.

7-6 Security Settings



- Passwords must be at least 3 and up to 20 characters long.

Password Check

This option activates a password prompt everytime the system boots or only during BIOS setup. The options are **Setup** and Always.

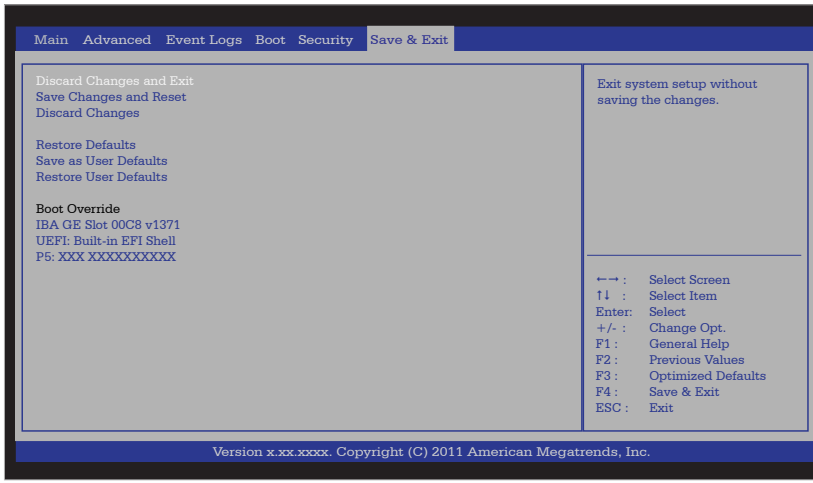
Administrator Password

Press Enter to create a new, or change an existing Administrator password. If Adminstrator Password is defined, the following will appear:

User Password:

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

7-7 Save & Exit Options



Discard Changes and Exit

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

Save Changes and Reset

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

Discard Changes

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

Restore Defaults

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

Save As User Defaults

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

Restore User Defaults

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

Boot Override

Set this feature to override a previously defined boot device. The available devices will be listed below.

Appendix A

BIOS Error Beep Codes

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

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

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

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

A-1 BIOS Error Beep Codes

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

Notes

Appendix B

UEFI BIOS Recovery Instructions

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

An Overview to the UEFI BIOS

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

How to Recover the UEFI BIOS Image (-the Main BIOS Block)

An AMIBIOS flash chip consists of a boot sector block and a main BIOS code block (a main BIOS image). The boot sector block contains critical BIOS codes, including memory detection and recovery codes for the user to flash a new BIOS image if the original BIOS image is corrupted. When the system power is on, the boot sector codes execute first. Once it is completed, the main BIOS code will continue with system initialization and bootup.

Note: Follow the BIOS Recovery instructions below for BIOS recovery when the main BIOS block crashes. However, when the BIOS Boot sector crashes, you will need to send the motherboard back to Supermicro for RMA repair.

To Recover the Main BIOS Block Using a USB-Attached Device

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

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

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

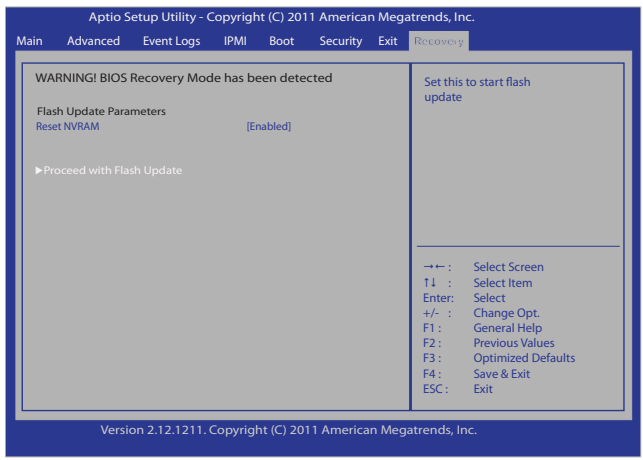
Note: If you cannot locate the "Super.ROM" file in your driver disk, visit our website at www.supermicro.com to download the BIOS image into a USB flash device and rename it to "Super ROM" for BIOS recovery use.

2. Insert the USB device that contains the new BIOS image ("Super. Rom") into your USB drive and power on the system

3. While powering on the system, keep pressing <Ctrl> and <Home> simultaneously on your PS2 or USB keyboard until your hear two short beeps. This may take from a few seconds to one minute.

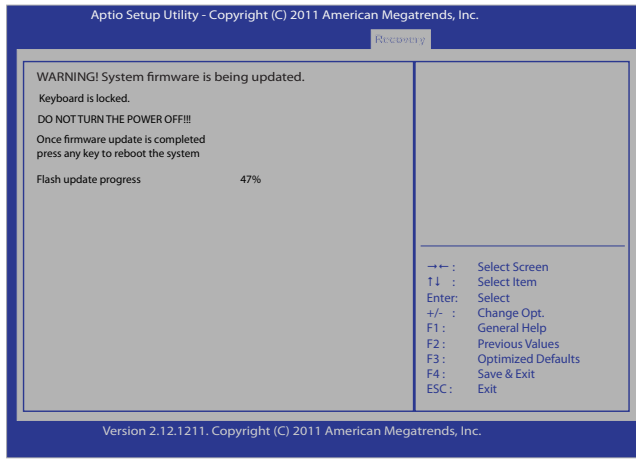
4. After locating the new BIOS binary image, the system will enter the BIOS Recovery page as shown below.

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

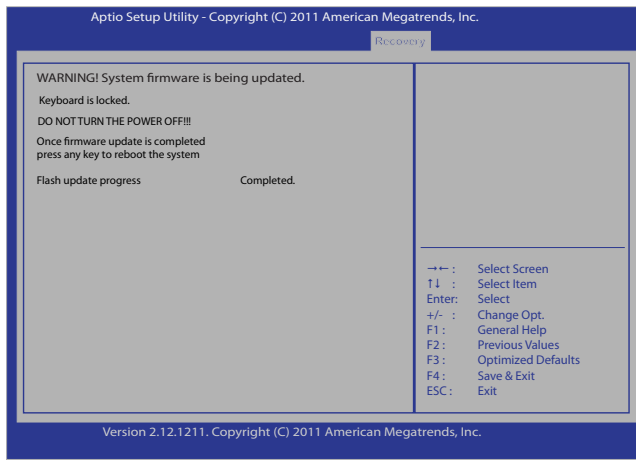


5. When the screen as shown above displays, using the arrow key, select the item- "Proceed with flash update" and press the <Enter> key. You will see the progress of BIOS Recovery as shown in the screen below.

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



6. After the process of BIOS Recovery is complete, press any key to reboot the system.



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

8. When a DOS prompt appears, type AMI.BAT BIOSname.### at the prompt.

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

9. After seeing the message that BIOS update is completed, unplug the AC power cable to clear CMOS, and then plug in the AC power cable to power on the system.

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

11. Press <F3> to load default settings.

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

Appendix C

System Specifications

Processors
Intel® Xeon® E3-1200 v2 series, Xeon E3-1200 series, Core i7/i5/i3, Pentium®, and Celeron® processor in an LGA 1155 socket H2.

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

Chipset
Intel C216

BIOS
128 Mb AMI BIOS® SPI Flash BIOS

Memory Capacity
Four slots support up to 32 GB of unbuffered, ECC or Non-ECC DDR3 UDIMM memory (1600/1333 MHz)

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

SATA Controller
SATA 3.0 controller (up to 6 Gb/sec)

Drive Bays
Supports up to eight SATA hard drives with four 3.5" hard drive bays and four optional internal 2.5" hard drives.

Peripheral Drive Bays
One 3.5" drive bay
Two 5.25" device bays

Expansion Slots
Supports the use of seven full-height, full-length PCI add-on cards.

Serverboard
X9SAE
Dimensions: 12" x 9.6", (30.48cm x 24.38cm)

Chassis

SC732D4-500B Form Factor: mid tower
Dimensions (as tower): (WxHxD) 7.6 x 16.7 x 20.68 in. (193 x 424 x 525.3 mm)

Weight

Gross 32.5 lbs (14.7 kg)
Net (bare bone) 27 lbs (12.2 kg)

System Cooling

1x 12cm (1850rpm) rear exhaust fan
1x 12cm (1850rpm) front cooling fan (optional)

System Input Requirements

AC Input Voltage: 100-240V
Rated Input Current: 7A to 3.5A
Rated Input Frequency: 50-60 Hz

Power Supply

Rated Output Power: 500W (Part# PWS-502-PQ)
Rated Output Voltages: +3.3V (15A), +5V (20A), +12V1 (17A), +12V2 (17A), +12V3 (17A) +12V4(18A) -12V (0.5A), +5Vsb (3A)

Operating Environment

Operating Temperature: 5º to 35º C (41º to 95º F)
Non-operating Temperature: -40º to 60º C (-40º to 140º F)
Operating Relative Humidity: 8% to 90% (non-condensing)
Non-operating Relative Humidity: 5% to 95% (non-condensing)

Regulatory Compliance

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

Electromagnetic Immunity: EN 55024/CISPR 24, (EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11)
Safety: CSA/EN/IEC/UL 60950-1 Compliant, UL or CSA Listed (USA and Canada), CE Marking (Europe)

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

Disclaimer (cont.)

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