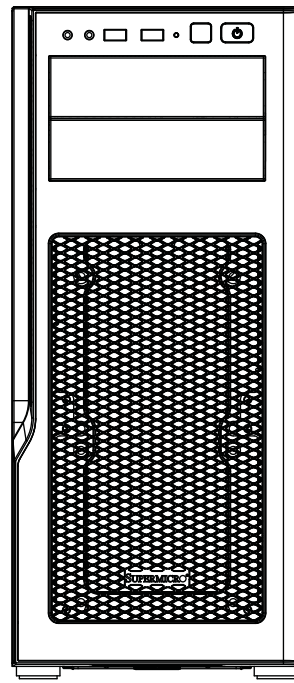
5038AD-I



User's Manual

Revision 1.0

The information in this User's Manual has been carefully reviewed and is believed to be accurate. The vendor assumes no responsibility for any inaccuracies that may be contained in this document, makes no commitment to update or to keep current the information in this manual, or to notify any person or organization of the updates. **Please Note: For the most up-to-date version of this manual, please see our web site at www.supermicro.com.**

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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.

Manual Revision 1.0
Release Date: November 17, 2015

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 system 5037A-T. Installation and maintenance should be performed by experienced technicians only.

The system 5038AD-I is a high-end system based on the GS5A-753R mid-tower chassis and the C7X99-OCE motherboard.

Manual Organization

Chapter 1: Introduction

The first chapter provides a checklist of the main components included with the system and describes the main features of the C7X99-OCE motherboard and the GS5A-753R chassis.

Chapter 2: System Installation

This chapter describes the steps necessary to setup the system 5038AD-I and check out the system 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 system 5038AD-I.

Chapter 5: Advanced Motherboard Setup

Chapter 5 provides detailed information on the C7X99-OCE motherboard, including the locations and functions of connections, headers and jumpers. Refer to this chapter when adding or removing processors or main memory and when reconfiguring the motherboard.

Chapter 6: Advanced Chassis Setup

Refer to Chapter 6 for detailed information on the GS5A-753R 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: System Specifications

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Chapter 6 Advanced Chassis Setup

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BIOS

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Chapter 1

Introduction

1-1 Overview

The 5038AD-I is a high-end system comprised of two main subsystems: the GS5A-753R mid-tower chassis and the C7X99-OCE single Intel® processor motherboard. Please refer to our web site for information on operating systems that have been certified for use with the system 5038AD-I (www.supermicro.com).

In addition to the motherboard and chassis, various hardware components have been included with the system 5038AD-I, as listed below:

- One (1) rear exhaust fan
- Two (2) chassis 3.5" HDD cage (MCP-220-GS504-0N)
- One (1) chassis 2.5" HDD cage (MCP-220-GS505-0N)
- Optional:
  - One (1) active CPU heatsink (SNK-P0050AP4)
  - One (1) 12-cm PWM fan (FAN-0124L4)

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

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

1-2 Motherboard Features

At the heart of the system 5038AD-I lies the C7X99-OCE, a single processor motherboard based on the Intel X99 Express chipset. Below are the main features of the C7X99-OCE. (See Figure 1-1 for a block diagram of the chipset).

Processors

The C7X99-OCE supports a single Intel® processor in an Intel LGA 2011-3 (R3) socket. With the Intel X99 Express chipset built in, the C7X99-OCE motherboard offers substantial system performance and storage capability for overclocking platforms in a sleek package. Please refer to our website (http://www.supermicro.com/products/) for processor and memory support updates.

Other chipset features include:

- Direct Media Interface (up 10 Gb/s transfer, Full Duplex)
- Intel® Matrix Storage Technology and Intel Rapid Storage Technology
- Dual NAND Interface
- Intel I/O Virtualization (VT-d) Support
- Intel Trusted Execution Technology Support
- PCI Express 3.0 Interface (up to 8 GT/s)
- SATA Controller (up to 6Gb/sec)
- Advanced Host Controller Interface (AHCI)

Memory

The C7X99-OCE has eight (8) DIMM slots that can support up to 64GB of unbuffered, non-ECC UDIMM (1 GB, 2 GB, 4GB and 8GB size) DDR4 2133~3000(OC) MHz speed SDRAM. See Chapter 5 for details.

SATA

A SATA controller is integrated into the chipset to provide a SATA3 subsystem that supports six (6) I-SATA (I-SATA 0~5) and four (4) S-SATA (S-SATA0~3) SATA 3.0 (6Gb/s) ports. RAID 0, 1, 5, and 10 is supported by the I-SATA ports, but not by the S-SATA ports.

PCI Expansion Slots

The C7X99-OCE has the following available expansion ports on the motherboard:

- Four (4) PCI Express 3.0 x16s (run at 16/16/NA/8 or 16/16/8/8)
- Two (2) PCI Express 2.0 x1 (in x4) slots

Onboard Controllers/Ports

Both the motherboard and chassis include the following I/O ports:

- Eight (8) USB 3.0 ports (six (6) rear I/O panel and two (2) front panel)
- Two (2) RJ-45 rear I/O panel connector
- One (1) Serial port header (COM1) on the motherboard
- One (1) rear I/O panel High Definition Audio 7.1 channel connector (supported by Realtek ALC1150)
- One (1) front panel Audio Header
- One (1) S/PDIF out on the rear side of the chassis

Other Features

Other onboard features of the motherboard include:

- ACPI/ASPM Power Management
- Main Switch Override Mechanism
- Internal/External Modem Ring-On
- Power-on mode for AC power recovery
- Onboard monitors: CPU core, +3.3V, +5V, +/- 12V, +3.3V Stby, +5V Stby, VBAT, HT, Memory PCH Temperature, System Temperature, and CPU Temperature
- CPU 6+1 phase switching voltage regulator
- CPU/System overheat LED and control
- CPU Thermal Trip and Monitor support
- Fan status monitoring with firmware 4-pin fan low-noise speed control
- PECI (Platform Environment Configuration Interface) 2.0 support
- System resource alert via SuperDoctor® III, NMI
- BIOS flash upgrade utility
- ROHS 6/6 (Full Compliance, Lead Free)

Recovery from AC Power Loss

Basic I/O System (BIOS) provides a setting for you to determine how the system will respond when AC power is lost and then restored to the system. You can choose for the system to remain powered off, (in which case you must press the power switch to turn it back on), or for it to automatically return to a power-on state. See the Advanced BIOS Setup section to change this setting. The default setting is **Last State**.

PC Health Monitoring

This section describes the PC health monitoring features of the board. All have an onboard System Hardware Monitoring chip that supports PC health monitoring. An onboard voltage monitor will scan these onboard voltages continuously: CPU core, +3.3V, +5V, +/- 12V, +3.3V Stby, +5V Stby, VBAT, HT, Memory PCH Temperature, System Temperature, and CPU Temperature. Once a voltage becomes unstable, a warning is given, or an error message is sent to the screen. The user can adjust the voltage thresholds to define the sensitivity of the voltage monitor.

Fan Status Monitor with Firmware Control

PC health monitoring in the BIOS can check the RPM status of the cooling fans. The onboard CPU and chassis fans are controlled by Thermal Management via SIO.

Environmental Temperature Control

The thermal control sensor monitors the CPU temperature in real time and will turn on the thermal control fan whenever the CPU temperature exceeds a user-defined threshold. The overheat circuitry runs independently from the CPU. Once the thermal sensor detects that the CPU temperature is too high, it will automatically turn on the thermal fans to prevent the CPU from overheating. The onboard chassis thermal circuitry can monitor the overall system temperature and alert the user when the chassis temperature is too high.

Note: To avoid possible system overheating, please be sure to provide adequate airflow to your system.

System Resource Alert

This feature is available when the system is used with SuperDoctor III in the Windows OS environment or used with SuperDoctor II in Linux. SuperDoctor is used to notify the user of certain system events. For example, you can also configure SuperDoctor to provide you with warnings when the system temperature, CPU temperatures, voltages and fan speeds go beyond predefined thresholds.

ACPI Features

ACPI stands for Advanced Configuration and Power Interface. The ACPI specification defines a flexible and abstract hardware interface that provides a standard way to integrate power management features throughout a PC system, including its hardware, operating system and application software. This enables the system to automatically turn on and off peripherals such as CD-ROMs, network cards, hard disk drives and printers.

In addition to enabling operating system-directed power management, ACPI also provides a generic system event mechanism for Plug and Play, and an operating system-independent interface for configuration control. ACPI leverages the Plug and Play BIOS data structures, while providing a processor architecture-independent implementation.

Slow Blinking LED for Suspend-State Indicator

When the CPU goes into a suspend state, the chassis power LED will start to blink to indicate that the CPU is in suspend mode. When the user presses any key, the CPU will "wake up", and the LED will automatically stop blinking and remain on.

Power Supply

As with all computer products, a stable power source is necessary for proper and reliable operation. It is even more important for processors that have high CPU clock rates.

This motherboard accommodates 24-pin ATX power supplies. Although most power supplies generally meet the specifications required by the CPU, some are inadequate. In addition, the 12V 8-pin power connector located at JPW2 is also required to ensure adequate power supply to the system. Also your power supply must supply 1.5A for the Ethernet ports.

1-3 Chassis Features

Supermicro's GS5A gaming chassis (GS5A-753R) offers extreme storage and cooling opportunities in a sleek, attractive form. It can house a powerful ATX form factor motherboard supporting outstanding gaming-level high performance.

Key Features

- Black anodized brushed aluminum fascia front panel with two USB 3.0 ports
- Removable 3.5” and 2.5” HDD/SSD cages with tool-less trays for up to 10 drives
- Tool-less 5.25” device installation with trays to support 3.5” and 2.5” drives additionally
- Cable management holes with rubber grommets for clean builds
- Removable magnetic dust filters
- One click front grille access
- Large motherboard tray cut-out for better CPU cooling

System Power

The 5038AD-I features a single 750 Watt power supply. This power supply unit has been designed to operate at a low noise level to make it ideal for use in a noise-sensitive environment.

Hard Drives

The GS5A-753R chassis standard configuration includes two 5.25" drive bays, four 2.5" drive bays, and six combination bays that can house either 3.5" or 2.5" drives.

- Each 5.25" bay can be configured to accept a 3.5"drive, or one or two 2.5" drives with optional bracket (MCP-220-00044-ON).
- The four 2.5" bays are housed in a removable cage.
- Top and bottom removable cages can each accomodate three 2.5" or 3.5" drives.

Front Control Panel

The front control panel on the system 5038AD-I includes an HDD monitoring LED, the main power button, and a reset button, two USB 3.0 ports, a headphone port and a microphone port. See Chapter 3 for details.

Fans and Cooling

The chassis includes two 120mm PWM fans in the front and one 120mm PWM fan in the rear. Other fan mounts and configurations are possible.

- Two front fans can be upgraded to 140mm.
- Three fans can be mounted on the chassis top, 120mm or 140mm.
- One fans can be mounted on the chassis bottom, 120mm.
- Fans can be mounted on the chassis side, two 120mm or one 140mm.

In addition, the chassis supports conventional water cooled CPU heat sink.

1-4 Contacting Supermicro

Headquarters

Address:	Super Micro Computer, Inc. 980 Rock Ave. San Jose, CA 95131 U.S.A.
Tel:	+1 (408) 503-8000
Fax:	+1 (408) 503-8008
Email:	marketing@supermicro.com (General Information) support@supermicro.com (Technical Support)
Website:	www.supermicro.com

Europe

Address:	Super Micro Computer B.V. Het Sterrenbeeld 28, 5215 ML 's-Hertogenbosch, The Netherlands
Tel:	+31 (0) 73-6400390
Fax:	+31 (0) 73-6416525
Email:	sales@supermicro.nl (General Information) support@supermicro.nl (Technical Support) rma@supermicro.nl (Customer Support)
Website:	www.supermicro.nl

Asia-Pacific

Address:	Super Micro Computer, Inc. 3F, No. 150, Jian 1st Rd. Zhonghe Dist., New Taipei City 235 Taiwan (R.O.C)
Tel:	+886-(2) 8226-3990
Fax:	+886-(2) 8226-3992
Email:	support@supermicro.com.tw
Website:	www.supermicro.com.tw

Notes

Chapter 2

Installation

2-1 Overview

This chapter provides a quick setup checklist to get your 5038AD-I 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 motherboard preinstalled.

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 system. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. You will also need it plugged into a grounded power outlet. Be sure to read the Warnings and Precautions in the next section.

2-3 Warnings and Precautions!

- Review the electrical and general safety precautions in Chapter 4.
- Use a regulating uninterruptible power supply (UPS) to protect the system from power surges, voltage spikes and to keep your system operating in case of a power failure.
- Allow the power supply units to cool before touching them.

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 system features two removable side covers, allowing easy access to the system interior.

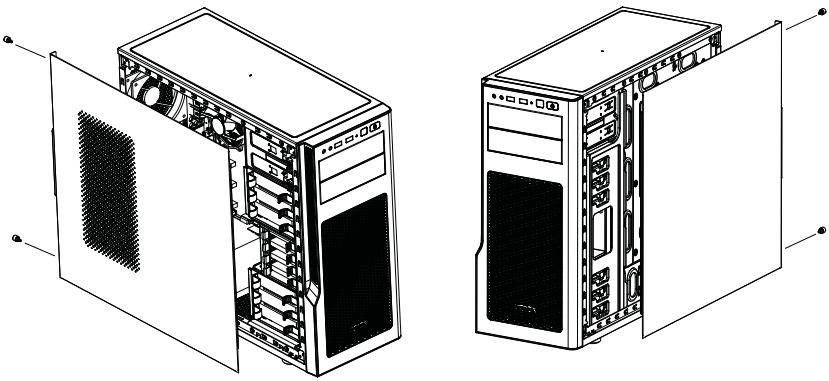
Caution: Except for short periods of time, do not operate the system without the cover in place. The chassis cover must be in place to allow proper airflow.

Left Side and Right Side Covers

Removing a Side Chassis Cover

1. Power down the system.
2. Remove the two thumb screws on the rear of the chassis.
3. Slide the cover back toward the rear of the chassis.

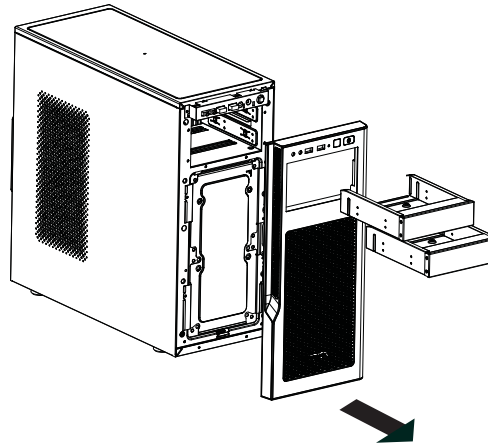
Figure 2-1. Removing the Chassis Side Covers



Front Bezel

Remove the front bezel by pulling it off from the bottom of the bezel. This should only be necessary when replacing the front fans.

Figure 3-3. Removing the Front Bezel



Notes

Chapter 3

System Interface

3-1 Overview

The control panel on the 5038AD-I has one HDD LED, a power button and a reset button. This LED keeps you constantly informed of hard drive status and activity.

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.

Reset

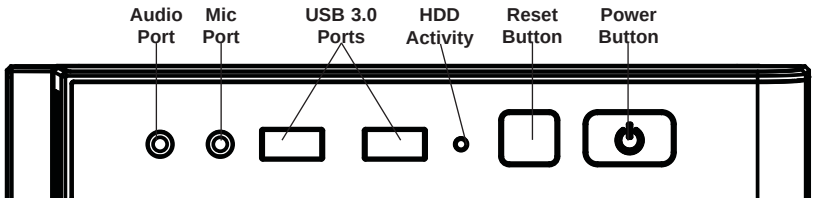
Use the reset button to reboot the system.

3-3 Front Panel Components

The 5038AD-I features a front panel allowing easy access to the system power and communication ports. The in addition to the Power and Reset buttons the following ports are available on the front panel:

- Two USB 3.0 ports
- Audio port
- Mic port

Figure 3-1. Front Panel Components



Chapter 4

Standardized Warning Statements for AC Systems

4-1 About Standardized Warning Statements

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

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

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

Warning Definition

Warning!

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

警告の定義

この警告サインは危険を意味します。

人身事故につながる可能性がありますので、いずれの機器でも動作させる前に、

電気回路に含まれる危険性に注意して、標準的な事故防止策に精通して下さい。

此警告符号代表危险。

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

此警告符號代表危險。

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

Warnung

WICHTIGE SICHERHEITSHINWEISE

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

BEWAHREN SIE DIESE HINWEISE GUT AUF.

INSTRUCCIONES IMPORTANTES DE SEGURIDAD

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

GUARDE ESTAS INSTRUCCIONES.

IMPORTANTES INFORMATIONS DE SÉCURITÉ

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

CONSERVEZ CES INFORMATIONS.

תקנון הצהרות אזהרה

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

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

تحذير! هذا الرمز يعني خطر انك في حالة يمكن أن تتسبب في اصابة جسدية .
قبل أن تعمل على أي معدات،كن على علم بالمخاطر الناجمة عن الدوائر
الكهربائية
وكن على دراية بالممارسات الوقائية لمنع وقوع أي حوادث
استخدم رقم البيان المنصوص في نهاية كل تحذير للعثور ترجمتها

안전을 위한 주의사항

경고!

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

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

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

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

BEWAAR DEZE INSTRUCTIES

Installation Instructions

Warning!

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

設置手順書

システムを電源に接続する前に、設置手順書をお読み下さい。

警告

将此系统连接电源前,请先阅读安装说明。

警告

將系統與電源連接前，請先閱讀安裝說明。

Warnung

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

¡Advertencia!

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

Attention

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

.יש לקרוא את הוראות התקנה לפני חיבור המערכת למקור מתח

اقر إرشادات التركيب قبل توصيل النظام إلى مصدر للطاقة

시스템을 전원에 연결하기 전에 설치 안내를 읽어주십시오.

Waarschuwing

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

Circuit Breaker

Warning!

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

サーキット・ブレーカー

この製品は、短絡（過電流）保護装置がある建物での設置を前提としています。

保護装置の定格が250 V、20 Aを超えないことを確認下さい。

警告

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

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

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

경고!

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

Waarschuwing

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

Power Disconnection Warning

Warning!

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

電源切断の警告

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

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

警告

在你打开机箱并安装或移除内部器件前，必须将系统完全断电，并移除电源线。

警告

在您打開機殼安裝或移除內部元件前，必須將系統完全斷電，並移除電源線。

Warnung

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

¡Advertencia!

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

Attention

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

אזהרה מפני ניתוק חשמלי

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

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

경고!

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

Waarschuwing

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

Equipment Installation

Warning!

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

機器の設置

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

警告

只有经过培训且具有资格的人员才能进行此设备的安装、更换和维修。

警告

只有經過受訓且具資格人員才可安裝、更換與維修此設備。

Warnung

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

¡Advertencia!

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

Attention

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

אזהרה !

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

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

경고!

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

Waarschuwing

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

Restricted Area

Warning!

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

アクセス制限区域

このユニットは、アクセス制限区域に設置されることを想定しています。

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

警告

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

אזור עם גישה מוגבלת

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

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

경고!

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

Waarschuwing

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

Battery Handling

Warning!

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

電池の取り扱い

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

警告

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

警告

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

Warnung

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

Attention

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

¡Advertencia!

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

אזהרה !

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

סילוק הסוללות המשומשות יש לבצע לפי הוראות היצרן.

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

경고!

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

Waarschuwing

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

Redundant Power Supplies

Warning!

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

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

警告

此部件连接的电源可能不止一个，必须将所有电源断开才能停止给该部件供电。

警告

此裝置連接的電源可能不只一個，必須切斷所有電源才能停止對該裝置的供電。

Warnung

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

¡Advertencia!

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

Attention

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

אם קיים יותר מספק אחד

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

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

경고!

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

Waarschuwing

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

Backplane Voltage

Warning!

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

バックプレーンの電圧

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

警告

当系统正在进行时，背板上有很危险的电压或能量，进行维修时务必小心。

警告

當系統正在進行時，背板上有危險的電壓或能量，進行維修時務必小心。

Warnung

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

¡Advertencia!

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

Attention

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

מתח בפנל האחורי

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

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

경고!

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

Waarschuwing

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

Comply with Local and National Electrical Codes

Warning!

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

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

警告

设备安装必须符合本地与本国电气法规。

警告

設備安裝必須符合本地與本國電氣法規。

Warnung

Die Installation der Geräte muss den Sicherheitsstandards entsprechen.

¡Advertencia!

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

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

תיאום חוקי החשמל הארצי

אזהרה !

התקנת הציוד חייבת להיות תואמת לחוקי החשמל המקומיים והארציים.

تركيب المعدات الكهربائية يجب أن يمتثل للقوانين المحلية والوطنية المتعلقة بالكهرباء

경고!

현 지역 및 국가의 전기 규정에 따라 장비를 설치해야 합니다.

Waarschuwing

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

Product Disposal

Warning!

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

製品の廃棄

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

警告

本产品的废弃处理应根据所有国家的法律和规章进行。

警告

本產品的廢棄處理應根據所有國家的法律和規章進行。

Warnung

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

¡Advertencia!

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

Attention

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

סילוק המוצר

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

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

경고!

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

Waarschuwing

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

Hot Swap Fan Warning

Warning!

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

ファン・ホットスワップの警告

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

警告

当您从机架移除风扇装置，风扇可能仍在转动。小心不要将手指、螺丝起子和其他物品太靠近风扇

警告

當您從機架移除風扇裝置，風扇可能仍在轉動。小心不要將手指、螺絲起子和其他物品太靠近風扇。

Warnung

Die Lüfter drehen sich u. U. noch, wenn die Lüfterbaugruppe aus dem Chassis genommen wird. Halten Sie Finger, Schraubendreher und andere Gegenstände von den Öffnungen des Lüftergehäuses entfernt.

¡Advertencia!

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

Attention

Il est possible que les ventilateurs soient toujours en rotation lorsque vous retirerez le bloc ventilateur du châssis. Prenez garde à ce que doigts, tournevis et autres objets soient éloignés du logement du bloc ventilateur.

אזהרה !
כאשר מסירים את חלקי המאוורר מהמארז, יתכן והמאווררים 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

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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 סופרקמיקרו 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.

Chapter 5

Advanced Motherboard Setup

This chapter covers the steps required to connect the C7X99-OCE data and power cables and install add-on cards. All motherboard 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 motherboard to better cool and protect the system.

5-1 Handling the Motherboard

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 motherboard from bending, keep one hand under the center of the board to support it when handling. The following measures are generally sufficient to protect your equipment from electric static discharge.

Precautions

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

5-2 Connecting 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 in Section 5-7 for connector locations.)

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

Connecting Power Cables

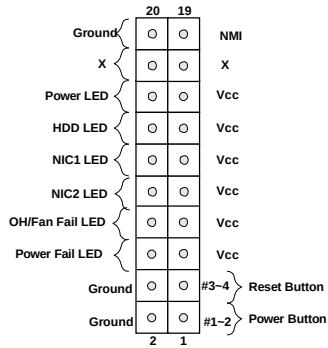
The C7X99-OCE has a 24-pin primary power supply connector (JPW1) for connection to the ATX power supply. In addition, an 8-pin processor power connector (JPW2) must also be connected to your power supply. See Section 5-8 for power connector pin definitions.

Connecting the Control Panel

JF1 contains header pins for various front control panel connectors. See Figure 5-1 for the pin definition.

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 LED on the chassis. See Section 5-8 for details and pin descriptions.

Figure 5-1. Control Panel Header Pins

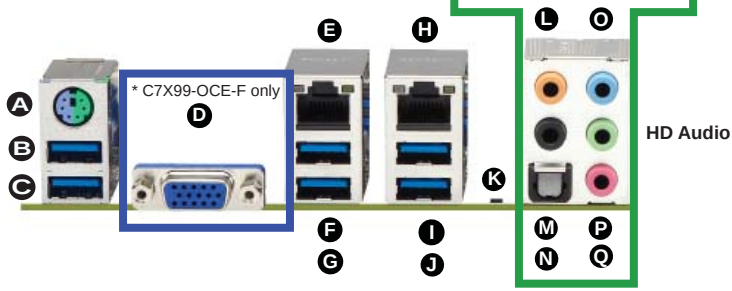


5-3 I/O Ports

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

Figure 5-2. I/O Ports

A. PS/2 Keyboard/Mouse Port	H. Gb LAN Port 2	L. Center/LFE Out
B. USB 3.0 Port 14	I. USB 3.0 Port 12	M. Surround Out
C. USB 3.0 Port 15	J. USB 3.0 Port 13	N. S/PDIF Out
D. VGA Port*	K. Clear CMOS	O. Line In
E. Gb LAN Port 1 (shared IPMI*)		P. Line Out
F. USB 3.0 Port 10		Q. Mic In
G. USB 3.0 Port 11		



5-4 Processor and Heatsink Installation

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

Important:

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.

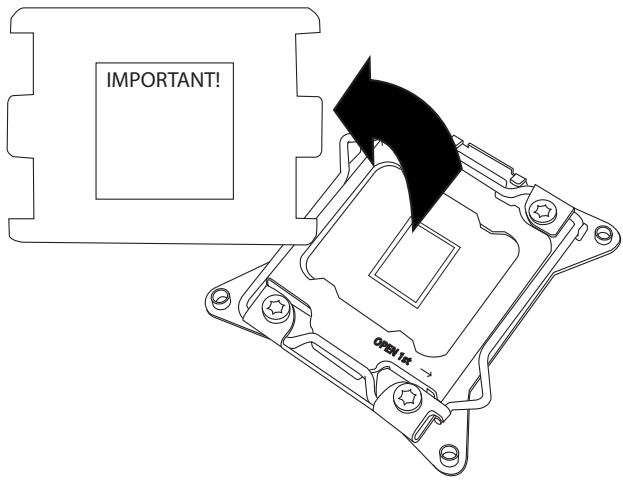
Make sure to install the system board into the chassis before you install the CPU heatsink.

When receiving a motherboard without a processor pre-installed, make sure that the plastic CPU socket cap is in place and none of the socket pins are bent; otherwise, contact your retailer immediately.

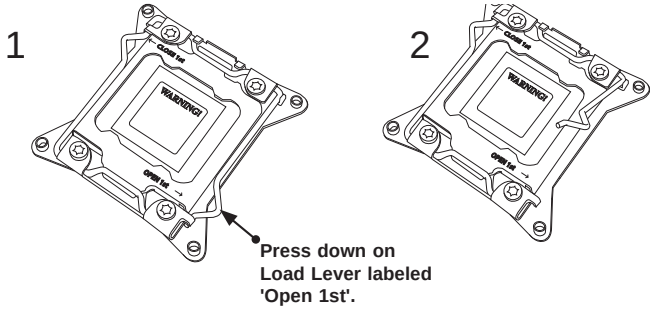
Refer to the Supermicro website for updates on CPU support.

Installing the Processor

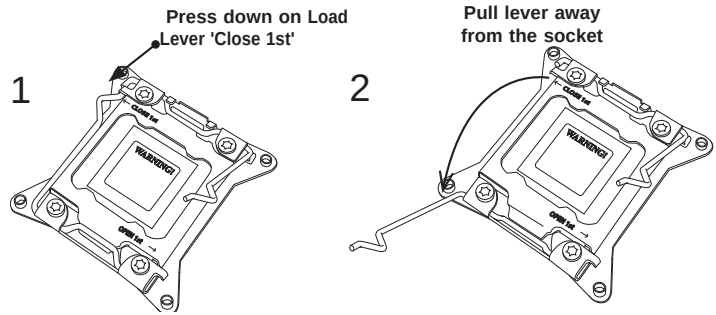
1. Using your thumb and the index finger, remove the 'WARNING' plastic cap from the socket.



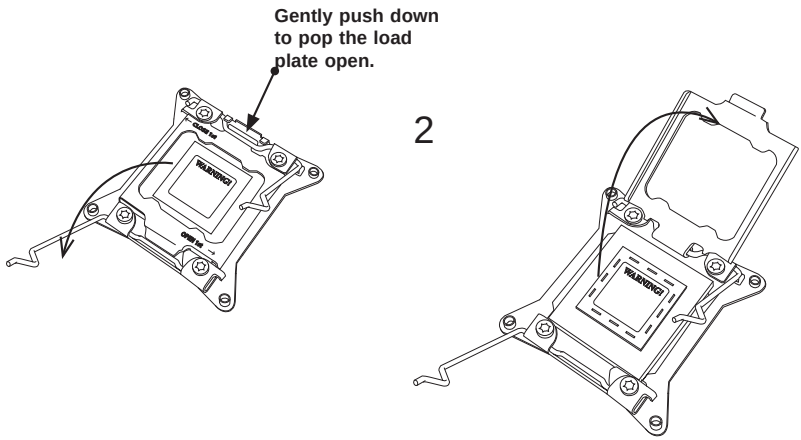
2. There are two load levers on the LGA2011-3 socket. To open the socket cover, first press and release the load lever labeled 'Open 1st'.



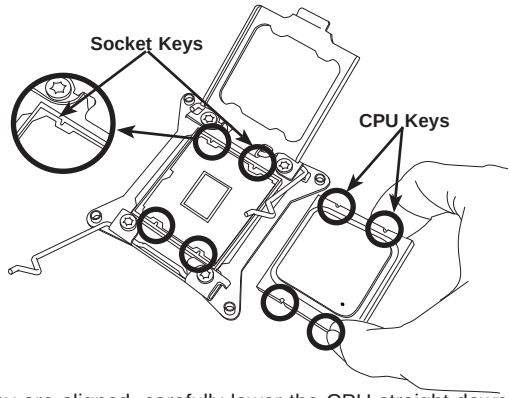
3. Press the second load lever labeled 'Close 1st' to release the load plate that covers the CPU socket from its locking position.



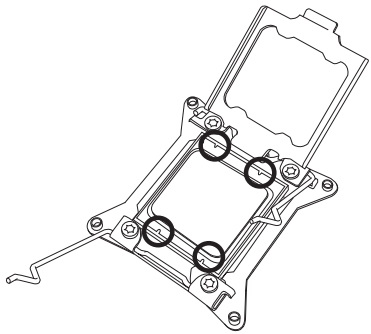
4. With the 'Close 1st' lever fully retracted, gently push down on the 'Open 1st' lever to open the load plate. Lift the load plate to open it completely.



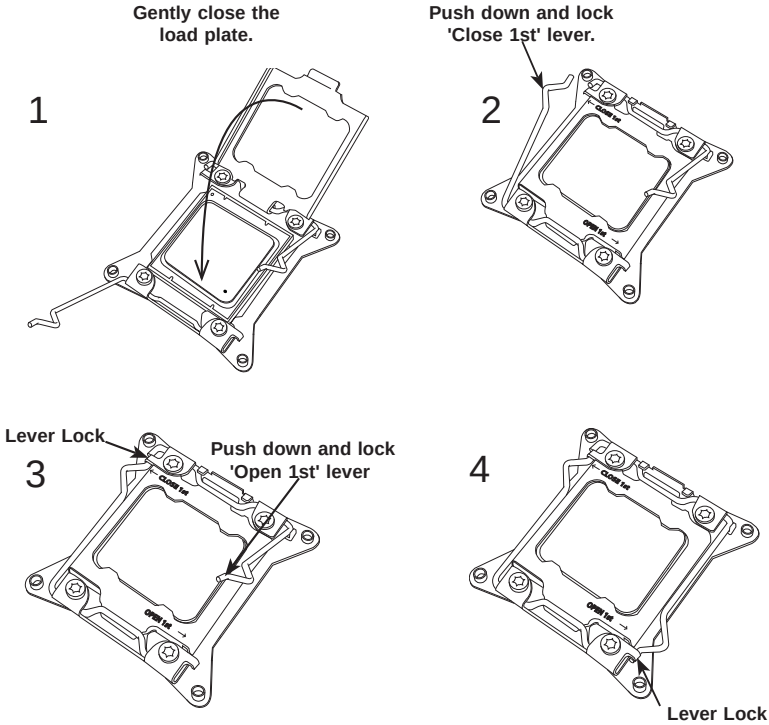
5. Use your thumb and index finger to hold the CPU on its edges. Align the CPU keys, which are semi-circle cutouts, against the socket keys.



6. Once they are aligned, carefully lower the CPU straight down into the socket. (Do not drop the CPU on the socket. Do not move the CPU horizontally or vertically. Do not rub the CPU against the surface or against any pins of the socket to avoid damaging the CPU or the socket.)
7. With the CPU inside the socket, inspect the four corners of the CPU to make sure that the CPU is properly installed.



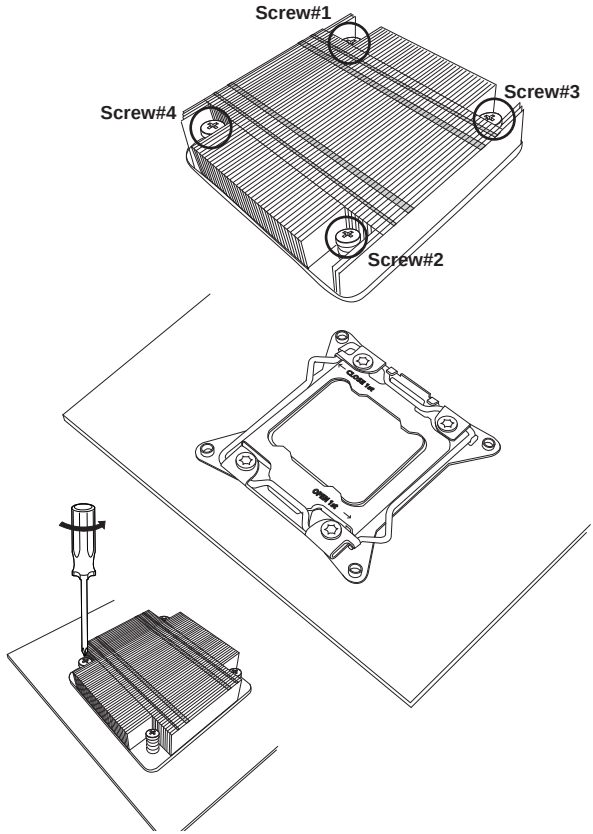
8. Close the load plate with the CPU inside the socket. Lock the 'Close 1st' lever first, then lock the 'Open 1st' lever second. Use your thumb to gently push the load levers down to the lever locks.



Warning: The CPU will only seat inside the socket in one direction. Make sure it is properly inserted 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 a CPU Heatsink

1. Apply the proper amount of thermal grease to the heatsink.
2. Place the heatsink on top of the CPU so that the two mounting holes on the heatsink are aligned with those on the retention mechanism.

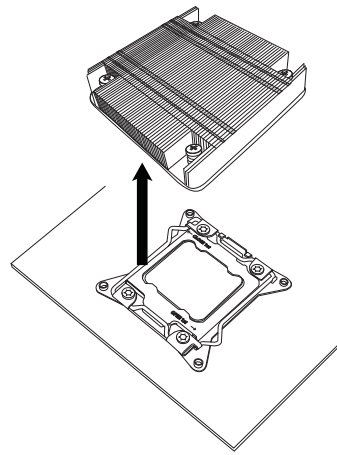


Note: Graphic drawings included in this manual are for reference only. They might look different from the components installed in your system.

Removing a Heatsink

Warning: 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 uninstall the heatsink to avoid damaging the CPU or other components.

1. Unplug the power cord from the power supply.
2. Loosen the screws.
3. Gently wriggle the heatsink to loosen it. (Do not use excessive force when wriggling the heatsink.)



4. Once the heatsink is loosened, remove it from the motherboard.

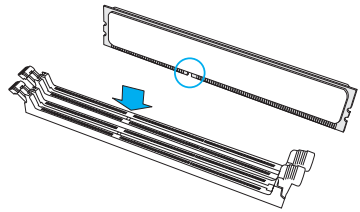
5-5 Installing Memory Modules

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

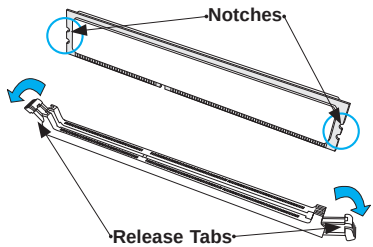
CAUTION! Exercise extreme care when installing or removing DIMM modules to prevent any possible damage.

DIMM Installation

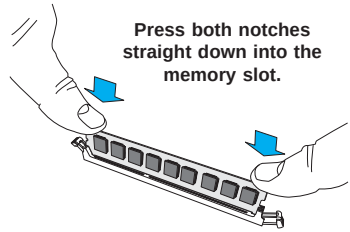
1. Insert the desired number of DIMMs into the memory slots, starting with DIMMA1 (see the next page for the location). For the system to work properly, please use the memory modules of the same type and speed in the same motherboard.
2. Push the release tabs outwards on both ends of the DIMM slot to unlock it.



3. Align the key of the DIMM module with the receptive point on the memory slot.
4. Align the notches on both ends of the module against the receptive points on the ends of the slot.



5. Use two thumbs together to 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 C7X99-OCE supports up to 64GB of unbuffered, non-ECC UDIMM DDR4 2133~3000(OC) MHz speed memory in eight (8) 288-pin 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.

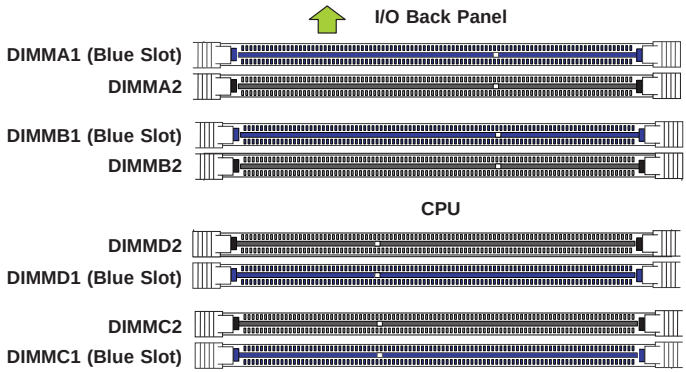
Note: For memory optimization, use only DIMM modules that have been validated by Supermicro. For the latest memory updates, please refer to our website at http://www.supermicro.com/products/motherboard.

Memory Population Guidelines

When installing memory modules, the DIMM slots should be populated in the following order: DIMMA1, DIMMB1, DIMMC1, DIMMD1 then DIMMA2, DIMMB2, DIMMC2, DIMMD2.

- Always use DDR4 DIMM modules of the same size, type and speed.

Recommended Population (Balanced)								
DIMMA1	DIMMB1	DIMMC1	DIMMD1	DIMMA2	DIMMB2	DIMMC2	DIMMD2	Total System Memory
4GB	4GB							8GB
4GB	4GB	4GB	4GB					16GB
4GB	4GB	4GB	4GB	4GB	4GB			24GB
4GB	4GB	4GB	4GB	4GB	4GB	4GB	4GB	32GB
8GB	8GB							16GB
8GB	8GB	8GB	8GB					32GB
8GB	8GB	8GB	8GB	8GB	8GB			48GB
8GB	8GB	8GB	8GB	8GB	8GB	8GB	8GB	64GB



5-6 Adding PCI Add-On Cards

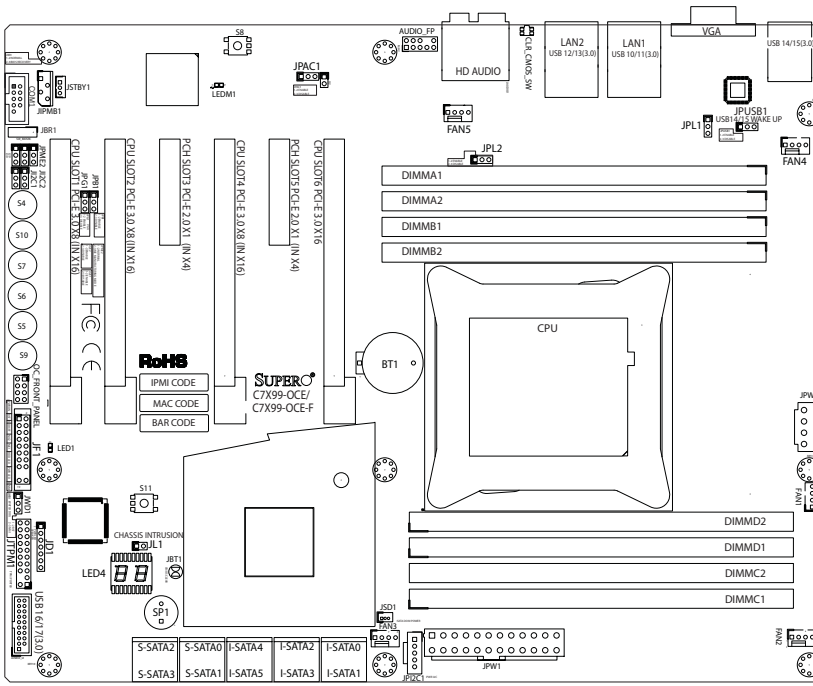
The 5038AD-I can accommodate standard size add-on cards populated in all slots on the C7X99-OCE motherboard.

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 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 motherboard and its components from EMI and aid in proper ventilation, so make sure there is always a shield covering each unused slot.

5-7 Motherboard Details

Figure 5-3. C7X99-OCE Layout



C7X99-OCE Quick Reference		
Jumper	**Description**	**Default**
JBT1*	Clear CMOS (on board)	(See Chpt. 2)
JI²C1/JI²C2	SMB to PCI Slots	Off (Disabled)
JPAC1	Audio Enable	Pins 1-2 (Enabled)
JPL1/JPL2	LAN1/LAN2 Enable	Pins 1-2 (Enabled)
JPME2	Intel Recovery Mode	Pins 2-3 (Disabled)
JWD1	Watch Dog Enable	Pins 2-3 (NMI)
JBR1	BIOS Recovery Mode	Pins 2-3 (Disabled)
JPUSB1	USB Wake Up Enable (Back Panel)	Pins 1-2 (Enabled)
JPB1	BMC Enable/Disable (C7X99-OCE-F only)	Pins 1-2 (Enabled)

** For the C7X99-OCE-F, reboot time may be longer after clearing CMOS. This is due to the additional IPMI functions.*

LED	Description	Color/State	Status
LEDM1	BMC Heartbeat*	Green: Blinking	BMC Normal
LED4	Status Display (C7X99-OCE only)	Digital Readout	Download the status codes below**
LED1	Power LED	On: Steady	System On and Running

***Download the AMI status codes at http://www.ami.com/support/doc/ami_aptio_4.x_status_codes_pub.pdf*

Connector	Description
I/O Back Panel	See Back Panel I/O Connectors, below right
Audio FP	Front Panel Audio Header
BT1	Onboard Battery
Fan 1,2,3,4,5	System/CPU Fan Headers (Fan1: CPU Fan)
JD1	Speaker/buzzer (Pins 1~4: External Speaker, Pins 3~4: Buzzer)
JF1	Front Panel Control Header
JL1	Chassis Intrusion Header
JPW1	24-pin ATX Main Power Connector (Required)
JPW2	+12V 4-pin CPU power Connector (Required)
JSD1	SATA DOM (Disk On Module) Power Connector
JSTBY1	Standby Power Header
SP1	Internal Speaker/Buzzer
I-SATA0~4, 5~9	(Intel X99) Serial ATA (SATA 3.0) Ports 0~9 (6Gb/sec)
USB 16/17	Front Panel Accessible USB 3.0 Headers 16/17
OC FRONT PANEL	Header for the Over-Clocking Control Panel
S4	Power Button
S11	BIOS Restore
S5, S6, S7	Over-Clocking Buttons OC1(15%), OC2(20-25%), OC3 (User-Defined in BIOS)
S9	Home Button, Default setting (non-OC)
S10	Memory Overclocking Button
S8	Clear CMOS Button (on board)
JPI2C1	Power Supply SMBbus I2C Header.
JTPM1	Trusted Platform Module Header
JIPMB1	System Management Bus header (for IPMI only)

5-8 Connector Definitions

ATX Main PWR & CPU PWR Connectors

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

12V 8-pin Processor Power Pin Definitions (JPW2)

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

Required Connection

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	+5V
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 (LAN)

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
Flashing	Fan Fail

NMI Button

The non-maskable interrupt buttonheader is located on pins 19 and 20 of JF1. Refer to the table on the rightfor pin definitions.

NMI Pin Definitions (JF1)

Pin#	Definition
19	NMI
20	Ground

Power Fail

Connect an LED cable to the Power Fail connection to provide a warning that a power failure has occured. Refer to the table on the right for pin definitions.

Power Fail LED Pin Definitions (JF1)

Pin#	Definition
5	Vcc
6	Power Fail LED

Power Fail LED Status

State	Definition
Off	Normal
Flashing	Power Fail

Reset Button

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

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

Power Button

The Power Button connection is located on pins1 and 2 of JF1. Momentarily contacting both pins will power on/off the system. This button can also be configured to function as a suspend button (with a setting in the BIOS - see Chapter 4). To turn off the power in the suspend mode, press the button for at least 4 seconds. Refer to the table on the right for pin definitions.

Power Button Pin Definitions (JF1)	
Pin#	Definition
1	Signal
2	+3V Standby

Fan Headers

The C7X99-OCE has five fan headers (Fan 1~Fan 5). 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. This allows the fan speeds to be automatically adjusted based on the motherboard temperature. Refer to the table on the right for pin definitions.

Fan Header Pin Definitions (Fan1 ~ Fan5)	
Pin#	Definition
1	Ground (Black)
2	2.5A/+12V (Red)
3	Tachometer
4	PWM_Control

Chassis Intrusion

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.

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

Internal Buzzer

The Internal Buzzer (SP1) can be used to provide audible indications for various beep codes. See the table on the right for pin definitions.

Internal Buzzer Pin Definition (SP1)

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

Speaker

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 a cable. See the table on the right for pin definitions.

Speaker Connector Pin Definitions (JD1)

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

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 (JSD1)

Pin#	Definition
1	5V
2	Ground
3	Ground

Standby Power Header (STBY1)

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

Standby Power Pin Definitions

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

System Management Bus

A System Management Bus header for the IPMI slot is located at IPMB. Connect the appropriate cable here to use the IPMB I2C connection on your system. For the C7X99-OCE-F only.

System Management Bus (JIPMB1)

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

TPM Header/Port 80

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

TPM/Port 80 Header Pin Definitions

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

Power Supply I²C Connector

The Power Supply (I²C) connector can be used to monitor the status of the power supply, fan and system temperature. See the table on the right for pin definitions.

PWR Supply I2C Pin Definitions (SMB_PS)

Pin#	Definition
1	Clock
2	Data
3	PWR Fail
4	Ground

Front Panel Audio Header (AUDIO FP)

A 10-pin Audio header is supported on the motherboard. This header allows you to connect the motherboard to a front panel audio control panet, if needed. Connect an audio cable to the audio header to use this feature (not supplied). See the table at right for pin definitions for the header.

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

OC Front Panel (OC FRONT PANEL)

This header is for the optional Over-Clocking (OC) control panel. Attach the control panel's cable to this header. The OC control panel enables over-clocking control and management from the front of the chassis. See Section 5-11 for more details.

Universal Serial Bus (USB)

Six USB 3.0 ports (10/11, 12/13, 14/15) are located on the I/O back panel. In addition, one USB 3.0 header (USB 16/17) is also located on the motherboard to provide front chassis access using USB cables (not included). These ports are backward compatible with the USB 2.0 standard. See the tables below for pin definitions.

Back Panel USB (2.0) #0/1, USB (3.0) #2/3, #12/13 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) Header #14/15 Pin Definitions

Pin#	Pin#	Signal Name	Description
1	10	VBUS	Power
2	11	D-	USB 2.0 Differential Pair
3	12	D+	
4	13	Ground	Ground of PWR Return
5	14	StdA_SSRX-	SuperSpeed Receiver
6	15	StdA_SSRX+	Differential Pair
7	16	GND_DRAIN	Ground for Signal Return
8	17	StdA_SSTX-	SuperSpeed Transmitter
9	18	StdA_SSTX+	Differential Pair

Ethernet Ports

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

Note: Please refer to the LED Indicator Section for LAN LED information.

LAN Ports
Pin Definition (LAN1/LAN2)

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-	18	Ground

(NC: No Connection)

Back Panel High Definition Audio (HD Audio)

This motherboard features a 5.1+2 Channel High Definition Audio (HDA) codec that provides 10 DAC channels. The HD Audio connections simultaneously supports multiple-streaming 5.1 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.

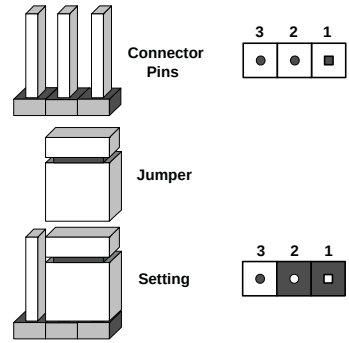
VGA Port (C7X99-OCE-F only)

A VGA port is located next to the USB ports 0/1 on the I/O backpanel. Use this port to connect to a compatible VGA display.

5-9 Jumper Settings

Explanation of Jumpers

To modify the operation of the motherboard, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. See the motherboard 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.

CMOS Clear

JBT1 is used to clear CMOS, which will also clear any passwords. Instead of pins, this jumper consists of contact pads to prevent accidentally clearing the contents of CMOS.

To Clear CMOS

1. First power down the system and unplug the power cord(s). It is also recommended that you remove the onboard battery from the motherboard.
2. With the power disconnected, short the CMOS pads with a metal object such as a small screwdriver.
3. Remove the screwdriver (or shorting device).
4. Reconnect the power cord(s) and power on the system.

Note 1. For an ATX power supply, you must completely shut down the system, remove the AC power cord, and then short JBT1 to clear CMOS.

Note 2. Be sure to remove the onboard CMOS Battery before you short JBT1 to clear CMOS.

Note 3. Clearing CMOS will also clear all passwords.

Note 4: *Do not use the PW_ON connector to clear CMOS.*

LAN1/LAN2 Enable/Disable

Jumpers JPL1/JPL2 enable or disable LAN ports 1/2 on the motherboard. See the table on the right for jumper settings. The default setting is enabled.

GLAN Enable Jumper Settings (JPL1/JPL2)

Pin#	Definition
1-2	Enabled (default)
2-3	Disabled

PCI Slot SMB Enable

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 (I2C1/ I2C2)

Jumper Setting	Definition
Short (Default)	Enabled
Open	Disabled

Audio Enable

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 (JPAC1)

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

Watch Dog Enable/Disable

Watch Dog (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 Jumper Settings (JWD1)

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

USB Wake Up

Use jumper JPUSB to activate the "wake-up" function of the USB ports by pressing a key on a USB keyboard or clicking the USB mouse connected. This jumper is used together with a USB Wake-Up feature in the BIOS. Enable this jumper and the USB support in the BIOS to wake up your system via USB devices.

Note: Use JPUSB1 for the USB ports on the back panel.

USB Wake-Up Jumper Settings (JPUSB1)

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

Over-Clock Management Buttons

Press these buttons to activate and manage the over-clocking feature of the motherboard. These buttons will allow the CPU to run above its rated speed. This is an advanced feature and should only be used by experienced users. Refer to the table on `the right for a description of each button.

Over-Clocking Buttons Switch Settings

Switch Setting	Definition
S10 On	Memory Overclock (Set in BIOS)
S5 On	15% Over-Clock
S6 On	20-25% Over-Clock
S7 On	User Defined (Set in BIOS)
S9	Reset to Default (No Over-Clock)

Manufacturing Mode

Close Pin 2 and Pin 3 of Jumper JPME2 to bypass SPI flash security and force the system to operate in Manufacturing Mode, allowing the user to flash the system firmware from a host system for system setting modifications. See the table on the right for jumper settings.

Manufacture Mode (JPME2) Jumper Settings

Pin#	Definition
1-2	Normal (Default)
2-3	Manufacture Mode

VGA Enable/Disable

Close Pin 2 and Pin 3 of jumper JPG1 to disable the onboard graphics device. See the table on the right for jumper settings.

VGA Enable/Disable Jumper Settings (JPG1)

Pin#	Definition
1-2	Normal (Default)
2-3	VGA Disabled

BIOS Recovery Switch

The BIOS Recovery Switch (JBR1) is used to enable or disable the BIOS Recovery feature of the motherboard. Slide the switch from the default position to begin the recovery process. See Appendix D for details.

BIOS Recovery Jumper Settings (JBR1)

State	Definition
Off	Normal (Default)
On	Recover

Off **On**

Power Button (POWER BUTTON)

In addition to the soft power switch provided in JF1, your motherboard is equipped with a 'soft' power button on the motherboard. This switch works the same way as the soft power switch on JF1.

BIOS Restore (BIOS RESTORE)

When pressed, the BIOS Restore Button will look for, and load a file named 'SUPER.ROM' from an installed USB memory device, in any of the USB ports. It will then proceed to update the BIOS. Do NOT turn off the system when BIOS is updating.

BMC Enable/Disable (JPB1)

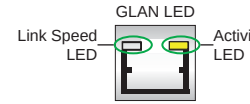
Close Pin 2 and Pin 3 of jumper JPB1 to disable the onboard Baseboard Management Controller (BMC). See the table on the right for jumper settings.

Note: this feature is for the C7X99-OCE-F only.

5-10 Onboard Indicators

LAN LEDs

One LAN port is located on the I/O backpanel of the motherboard. This Ethernet LAN port has two LEDs (Light Emitting Diode). 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 Port Activity LED (Left) LED State		
Color	Status	Definition
Orange	Flashing	Active

1Gbps LAN Link LED Settings (For X##xxx-MB)	
Color	Definition
Off	No Connection, 10 Mbps
Green	100 Mbps
Amber	1 Gbps

BMC Heartbeat

LEDM1 is a status indicator for the onboard Baseboard Management Controller (BMC). See the table on the right for status display definitions.

Note: this feature is for the C7X99-OCE-F only.

BMC Heartbeat LED LED Status (LEDM1)	
Status	Definition
Off	System Off
On, blinking	BMC running normal

Power LED

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 layout below for the LED location.

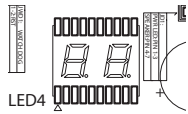
Power LED Indicator LED Status (LED1)	
Status	Definition
Off	System Off
On	System on, or System off and PWR Cable Connected

Status Display (LED4)

LED4 is made up of two alpha-numeric displays that will display a status or POST code, when the motherboard is powered on. Please download the following AMI publication for a complete list of POST codes:

http://www.ami.com/support/doc/ami_aptio_4.x_status_codes_pub.pdf

Note: This feature is for the C7X99-OCE motherboard only.



5-11 SATA Connections

SATA Connections

Ten Serial ATA (SATA) 3.0 connectors (I-SATA0~5, S-SATA0~3) are supported on the board. All SATA 3.0 ports are supported by the Intel X99 PCH chip. RAID 0,1,5,10 are supported on I-SATA 0~5. These high speed ports support transfer rates of up to 6Gb/s. See the table on the right for pin definitions.

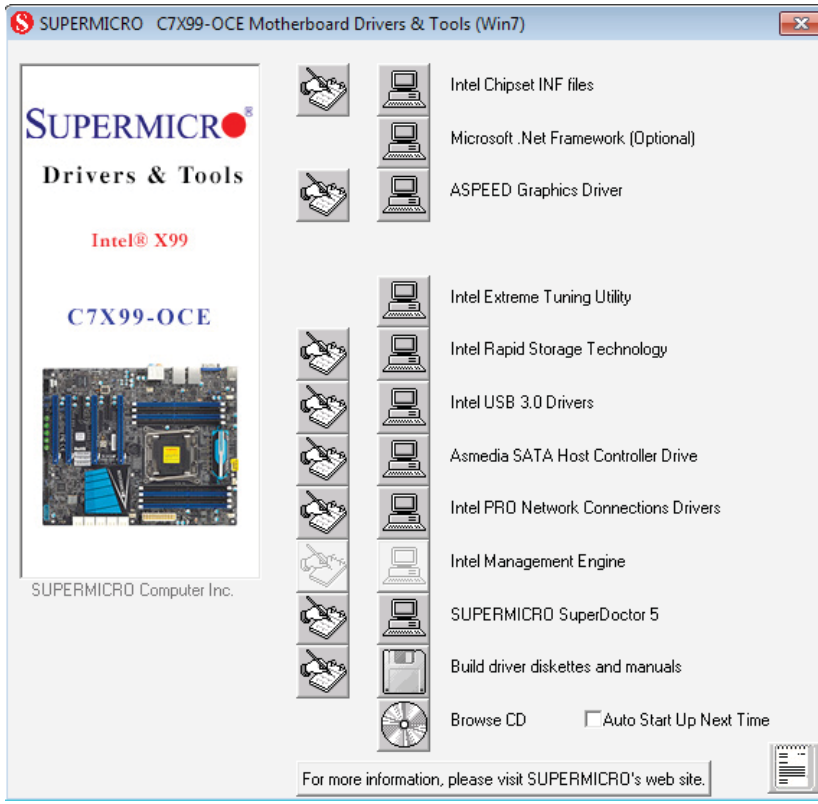
SATA 3.0 Connectors Pin Definitions (I-SATA0~5, S-SATA0~3)

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

5-13 Installing Drivers

After all the hardware and operating system have been installed, you need to install certain drivers. The necessary drivers are all included on the Supermicro CD that came packaged with your motherboard. After inserting this CD into your CD-ROM drive, the display shown in Figure 5-6 should appear. (If this display does not appear, click on the My Computer icon and then on the icon representing your CD-ROM drive. Finally, double click on the S "Setup" icon.)

Figure 5-6. Driver Installation Display Screen



Click the icons showing a hand writing on paper to view the readme files for each item. Click the tabs to the right of these *in order from top to bottom* to install each item one at a time. **After installing each item, you must reboot the system before moving on to the next item on the list.** You should install everything here except for the SUPER Doctor utility, which is optional. The bottom icon with a CD on it allows you to view the entire contents of the CD.

SuperDoctor 5

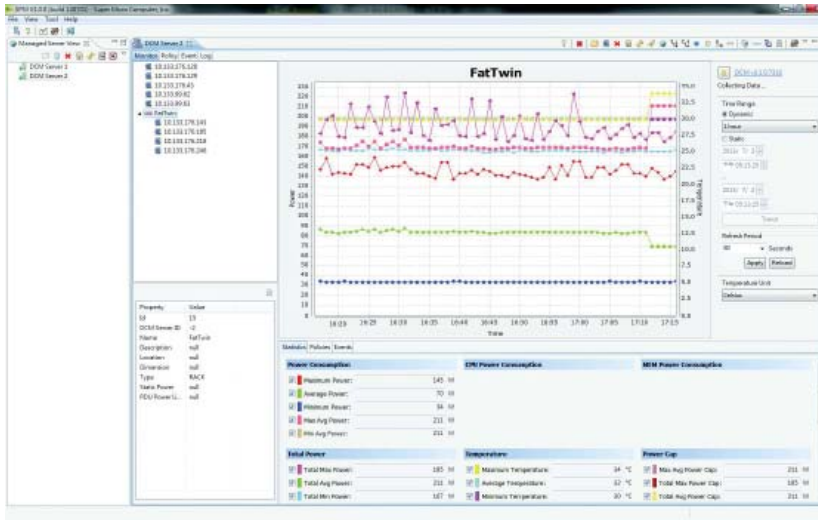
The Supermicro SuperDoctor® 5 is a hardware and operating system services monitoring program that functions in a command-line or web-based interface in Windows and Linux operating systems. The program monitors system health information such as CPU temperature, system voltages, system power consumption,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

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

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

Figure 5-7. SuperDoctor 5 Interface Display Screen (Health Information)

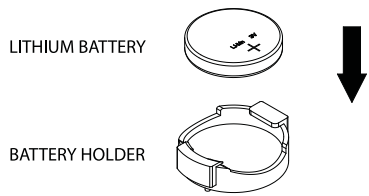
Figure 5-8. SuperDoctor 5 Interface Display Screen (Remote Control)



5-14 Motherboard Battery

Caution: There is a danger of explosion if the onboard battery is installed upside down, which will reverse its polarites (see Figure 5-9). This battery must be replaced only with the same or an equivalent type recommended by the manufacturer (CR2032). Dispose of used batteries according to the manufacturer's instructions.

Figure 5-9. Installing the Onboard Battery



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

Notes

Chapter 6

Advanced Chassis Setup

This chapter covers the steps required to install components and perform simple maintenance. 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

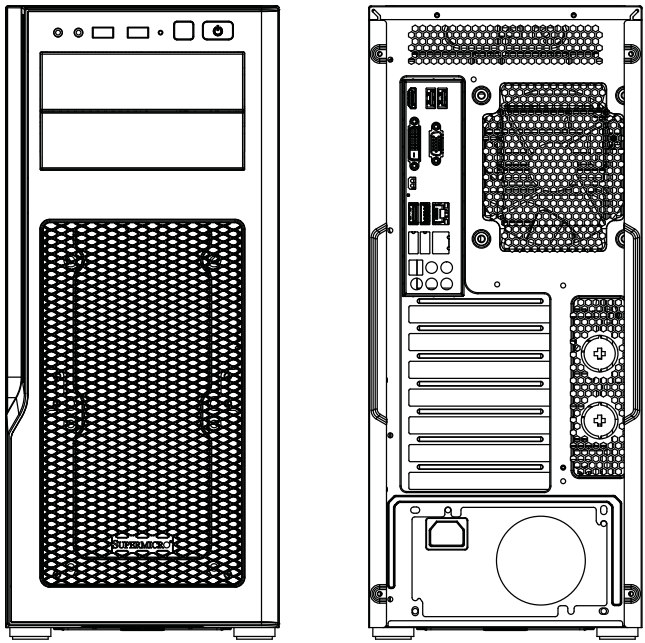
Static electrical discharge can damage electronic components. To prevent damage to any printed circuit boards (PCBs), it is important to handle them very carefully. The following measures are generally sufficient to protect your equipment from static discharge.

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

Note: The components in the following figures are representitive for illustration purposes only.

Figure 6-1. Front and Rear View



6-2 Removing Power from the System

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

1. Use the operating system to power down the system, following the on-screen prompts.
2. After the system has completely shut-down, carefully grasp the head of the power cord and gently pull it out of the back of the power supply.
3. Disconnect the cord from the power strip or wall outlet.

6-3 Accessing the Inside of the System

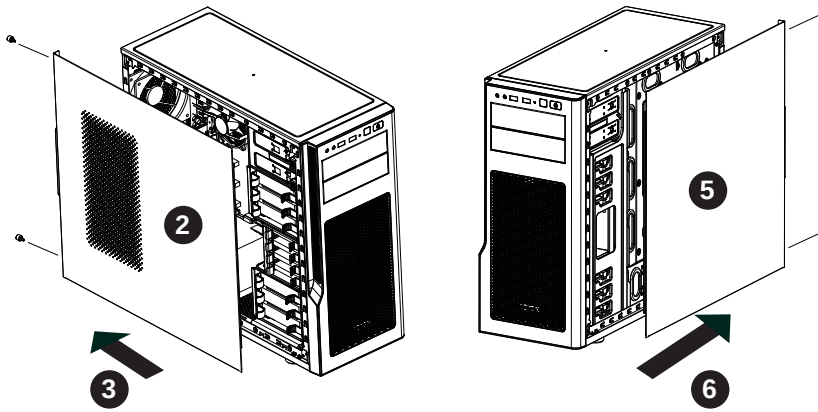
Caution: Except for short periods of time, do not operate the system without the cover in place. The chassis cover must be in place to allow proper airflow and prevent overheating.

Left Side and Right Side Covers

Removing a Side Chassis Cover

1. Power down the system as described in section 6-2.
2. Remove the two thumb screws on the rear of the chassis.
3. Slide the cover back toward the rear of the chassis.

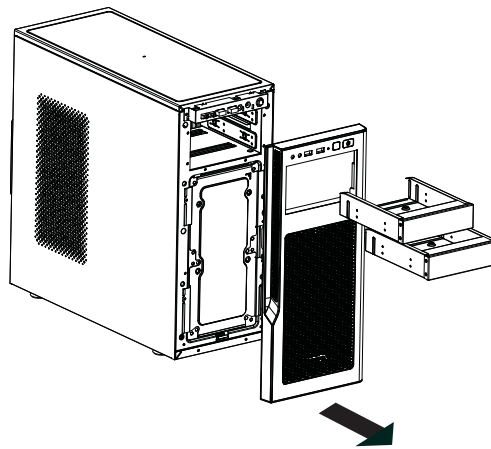
Figure 6-2. Removing the Chassis Side Covers



Front Bezel

Remove the front bezel by pulling it off from the bottom of the bezel. This should only be necessary when replacing the front fans.

Figure 6-3. Removing the Front Bezel



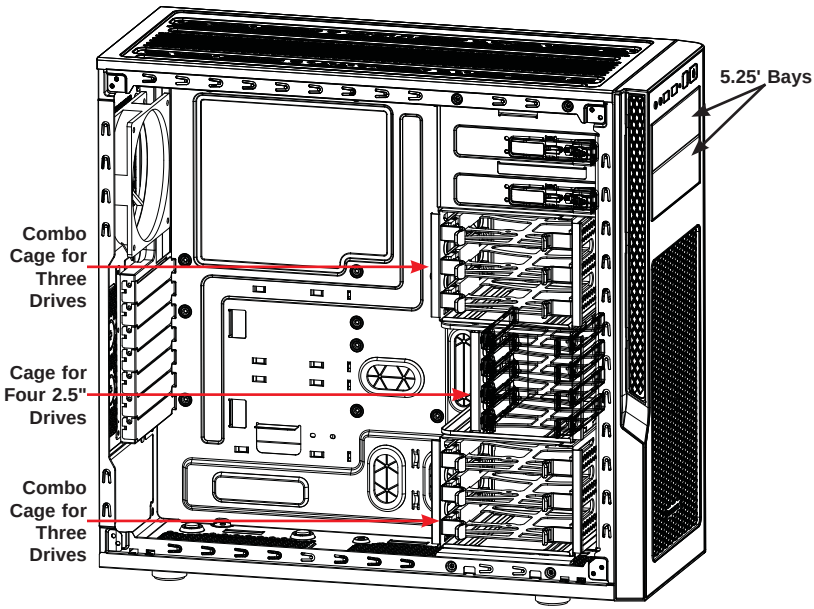
6-4 Installing Drives

Warning: Enterprise level hard disk drives are recommended for use in Supermicro chassis and servers. For information on recommended HDDs, visit the Supermicro Web site at http://www.supermicro.com/products/nfo/files/storage/SBB-HDDCompList.pdf

The standard configuration includes two 5.25" drive bays, four 2.5" drive bays, and six combination bays that can house either 3.5" or 2.5" drives.

- Each 5.25" bay can be configured to accept a removable media drive, such as DVD, or a storage device, such as a 3.5" HDD, 2.5" HDD, or solid state drive.
- The four 2.5" bays are housed in a removable cage.
- Two additional removable cages can each accomodate three 2.5" or 3.5" drives.

Figure 6-4. Drive Bays

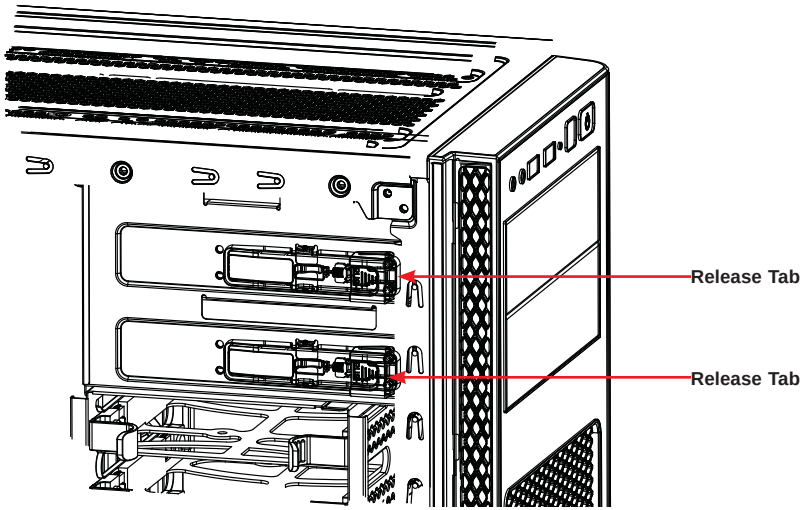


Installing a DVD Drive in the 5.25" Drive Bay

Replace a drive tray with a DVD drive.

1. Open the chassis left side cover.
2. Locate and press the release tab for the drive tray where you want to place the DVD drive.

Figure 6-5. Release Tabs for the Drive Tray



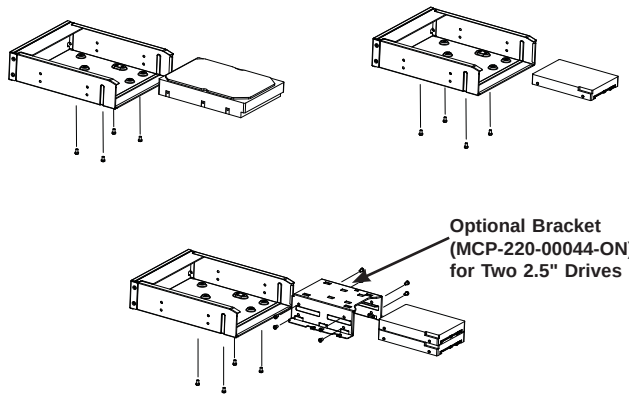
3. Push the drive tray toward the front of the chassis and out.
4. Slide the DVD drive into the chassis until it clicks into place.

Installing a Storage Device in the 5.25" Drive Tray

You can install a 3.5" drive, one or two 2.5" disk drives or solid state drives.

1. Open the chassis left side cover.
2. Locate and press the release tab (Figure 6-5) for the drive tray in which you want to place the drive.

Figure 6-6. Storage Device Configurations for 5.25" Bays



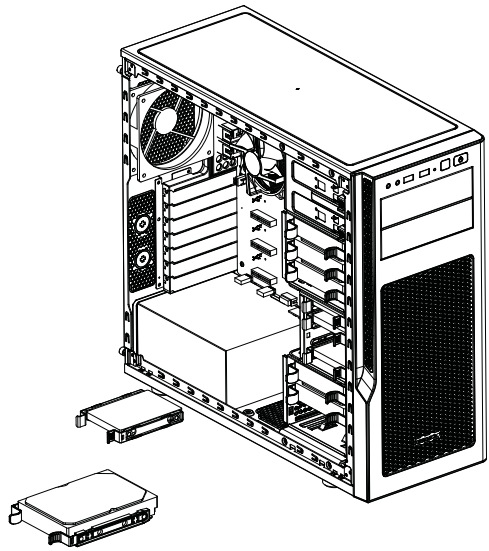
3. Push the drive tray toward the front of the chassis and out.
4. Secure the storage drive to the drive tray with screws through the bottom of the tray. To install two 2.5" drives, use the optional bracket (P/N MCP-220-00044-0N) as shown.
5. Slide the drive tray into the chassis until it clicks into place.

Installing Disk Drives into the Cage

You can install up to four 2.5" drives into the dedicated center cage. You can also install three drives into each of the upper and lower combination cages.

1. Open the chassis left side cover.
2. Remove the drive mounting bracket from the cage. Pinch the tabs and pull out.

Figure 6-7. Installing Drives and Mounting Brackets in to the Cage



3. Secure the drive into the mounting bracket.
   - For 2.5" drives in the dedicated bays (center cage), flex the drive bracket and drop the drive in with the connector side facing into the chassis.
   - For 3.5" drives in the combo bays (top or bottom cages), flex the drive bracket and drop the drive in with the connector side facing into the chassis.
   - For 2.5" drives in the combo bays, use screws through the bottom of the bracket to secure the drive with the connector side facing into the chassis.
4. Slide the assembly into the cage.
5. Connect the storage device cables from the motherboard.

Figure 6-8. Mounting Tray for 3.5" Drive

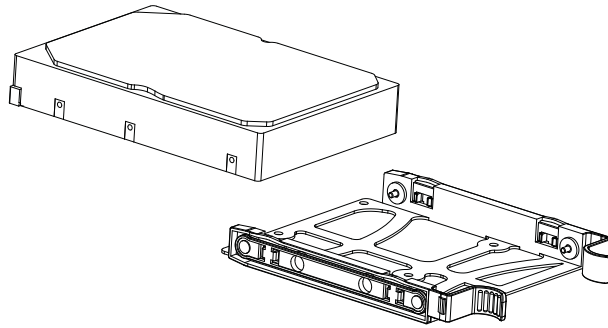
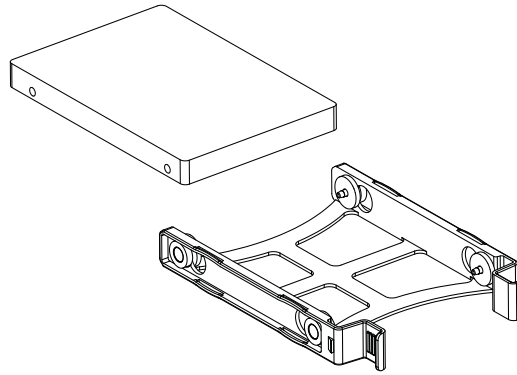


Figure 6-9. Mounting Tray for 2.5" Drive



Note: Refer to the following FTP site for RAID setup guidelines: <ftp://ftp.supermicro.com/driver/SAS/LSI/LSI_SAS_EmbMRAID_SWUG.pdf> and Supermicro's web site for additional inmformation < http://www.supermicro.com/support/manuals/>.

6-5 Installing the Motherboard

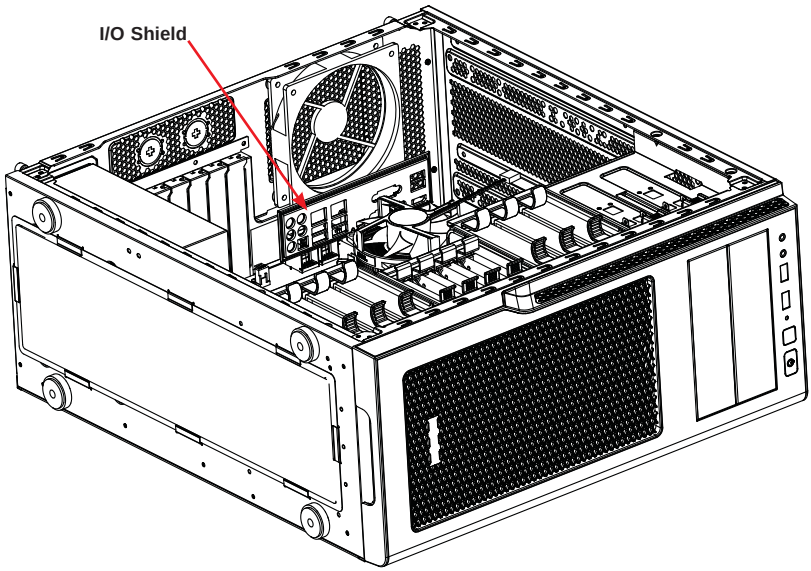
Installing the I/O Shield

The shield encloses the I/O ports at the rear of the chassis. Install it before installing the motherboard. The motherboard package should include a compatible shield.

Installing the I/O Shield

1. Open the chassis left side cover.
2. With the illustrations facing outward, place the shield into the space provided at the rear of the chassis.

Figure 6-10. Installing the I/O Shield



Motherboard Standoffs

Standoffs prevent short circuits by securing space between the motherboard and the chassis surface. Three standoffs are pre-installed. Some motherboards require additional standoffs. The chassis accessory box contains standoffs and rounded Phillips head screws.

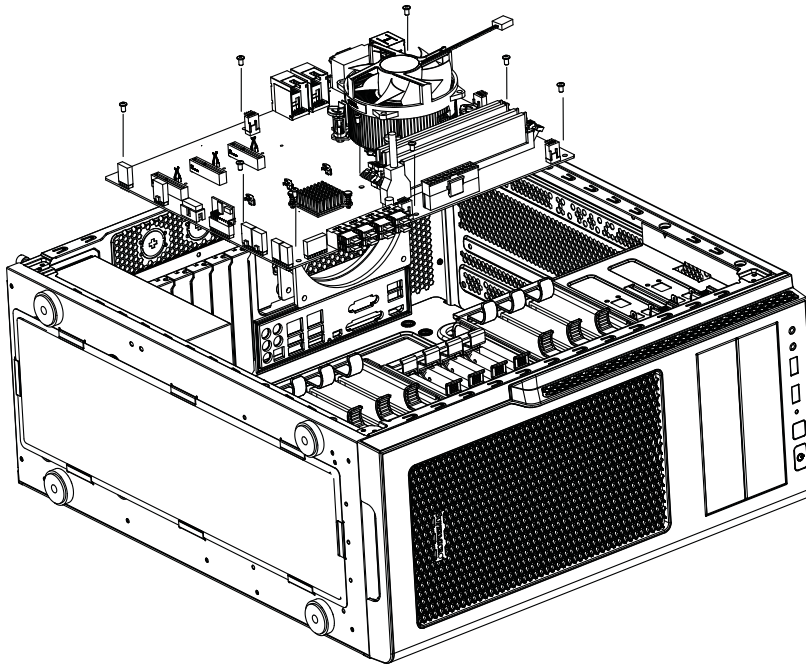
Compare the mounting holes in the motherboard to those in the chassis and add or remove standoffs as needed. Secure the hexagonal standoff, rounded side up, by screwing it into the mounting base of the chassis. Once all standoffs are in place, you are ready to mount the motherboard.

Motherboard Installation

Installing the Motherboard

1. Review the documentation that came with your motherboard. Become familiar with component placement, requirements, precautions, and cable connections.
2. Install standoffs in the locations required by your motherboard.

Figure 6-11. Installing the Motherboard



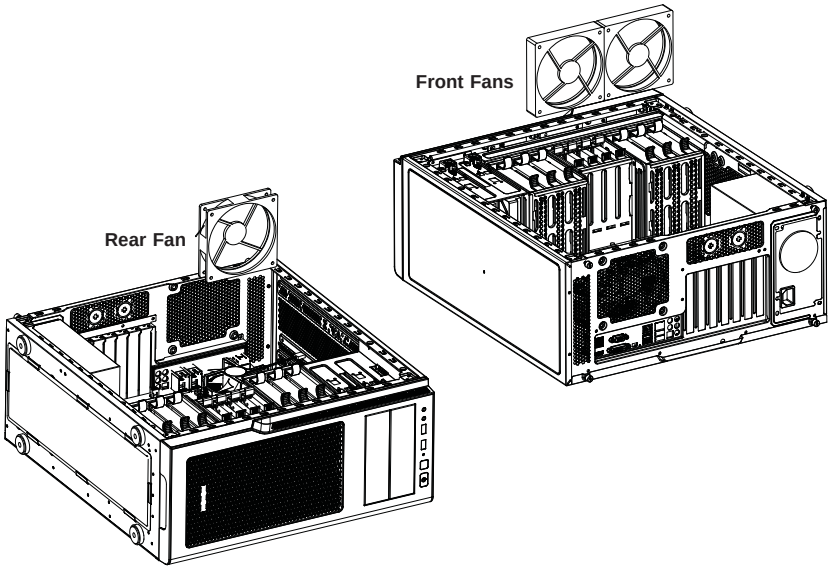
3. Lay the motherboard on the chassis, aligning the standoffs.
4. Secure the motherboard to the standoffs using the rounded, Phillips head screws. Do not exceed eight inch-pounds of torque when tightening the screws.
5. Secure the CPU, heatsinks, and other components to the motherboard as described in the motherboard documentation.
6. Connect the cables between the motherboard and other components such as the chassis, front panel, drives, fans and power supply.
7. Replace the chassis cover, plug the power cord into the rear of the power supply and power up the system.

6-6 Fans and Cooling

The chassis includes two 120mm PWM fans in the front and one 120mm PWM in the rear. Other fan mounts and configurations are possible.

- Two front fans can be upgraded to 140mm.
- Three fans can be mounted on the chassis top, 120mm or 140mm.
- One fan can be mounted on the chassis bottom, 120mm.
- Fans can be mounted on the chassis side: two 120mm or one 140mm.

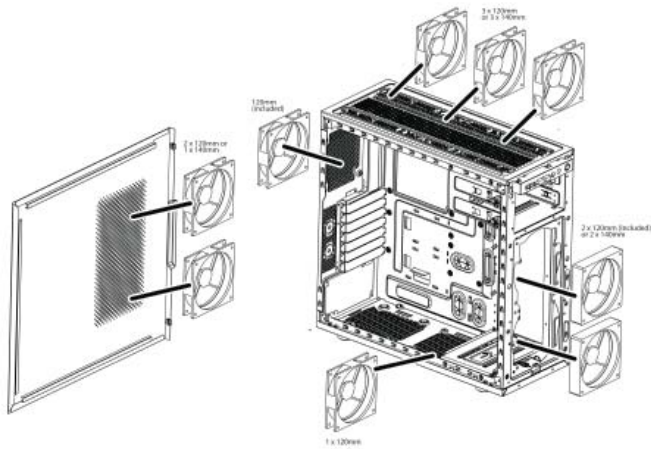
Figure 6-12. Standard Fan Placement



Adding or Changing Fans

- To upgrade the standard front fans, remove the chassis front cover.
- To add a fan to the chassis bottom, the lower 3.5" HDD cage must be removed. See Figure 6-13.

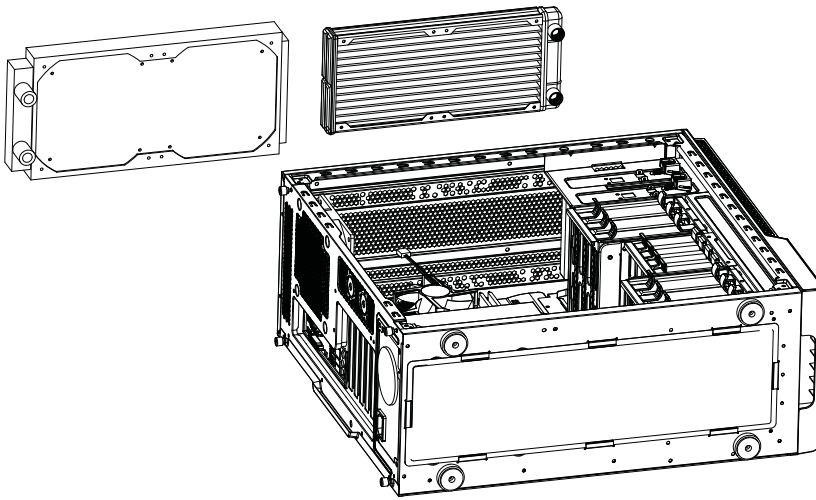
Figure 6-13. All Possible Fan Placements



Water Cooled Heat Sink

The chassis supports a water cooled CPU heat sink. A 120 mm radiator can be placed over the rear fan. A 240 mm radiator can be place just under the top of the chassis. Consult your water cooling kit instructions for installation.

Figure 6-14. Example 240 mm Radiator



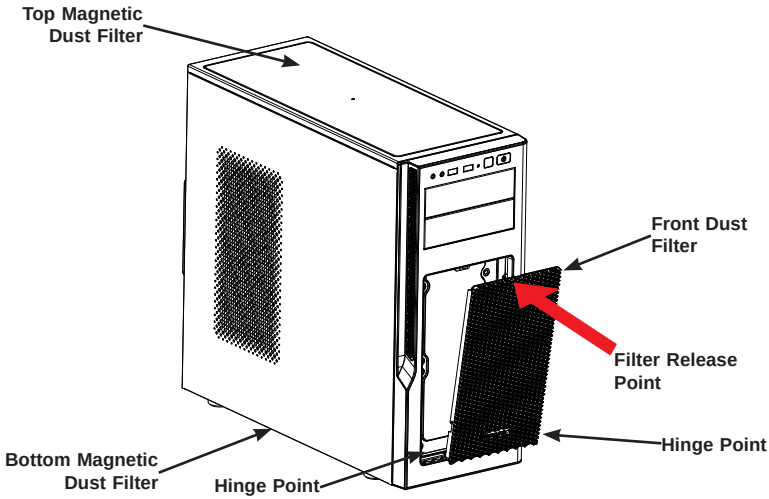
Air Flow

Make sure cables do not obstruct the cooling airflow.

Dust Filters

The chassis features a dust filter in front of the front fans, and two magnetic dust filters, one on top of the chassis and one on the bottom. They can be lifted off and cleaned to improve system air flow circulation.

Figure 6-15. Dust Filters



Cleaning the Front Dust Filter

1. Disengage the filter by pushing on the top edge center. The top pops loose.
2. Rotate the filter top downward to release it from the hinge points on the bottom.
3. Clean the filter.
4. Replace the filter by aligning it in the bottom hinge points, then pushing the top edge back into place. Push the top center until it clicks in.

The top and bottom magnetic filters can be simply lifted off for cleaning.

6-7 Installing Expansion Cards

Installing an Expansion Card

1. Power down the system as described in section 6-2 and open the left side chassis cover.
2. Remove the blank PCI shield from the rear of the chassis by removing the thumb screw.
3. Insert the expansion card into the motherboard expansion slot while aligning the expansion card bracket with the opening in the rear of the chassis.
4. Secure the expansion card bracket to the rear of the chassis with the thumb screw.
5. Replace the chassis side cover and power up the system.

6-8 Power Supply

The 5038AD-I system comes with a 750 Watt power supply. Mount it on the rear floor of the chassis. The power supply fan may be on top (recommended) or under the power supply.

Notes

Chapter 7

BIOS

7-1 Introduction

This chapter describes the AMI BIOS Setup Utility for the C7X99-OCE 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.

Note: In most cases, the <Delete> key is used to invoke the AMI BIOS setup screen.

Each BIOS menu option is described in this manual. The Main BIOS Setup screen has two main areas. The top area is the Main Navigation, and the main area is for the Setup Section. Icons that do not respond when the mouse pointer is hovering on top are not configurable.

The AMI BIOS GUI Setup Utility uses a mouse pointer navigation system similar to standard graphical user interfaces. Hover and click an icon to select a section, click a down arrow to select from an options list.

Except for the Home screen you may press the <F1> on any screen under the Setup Section to see a list of Hot Keys that are available.

How To Change the Configuration Data

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

Note: For the purposes of this manual, options that are printed in **Bold** are default settings.

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 GUI Setup Utility. From the Setup Home screen, you can access the other Setup Sections.

7-2 Setup Home

The first screen of the AMI BIOS GUI Setup Utility is the Setup Home screen. You can always return to the Setup Home screen by clicking the Home icon on the top of the screen. The Setup Home screen is shown below.

The Overclocking menu item jumps directly to the Setup's Overclocking Section, which is described in detail later in this manual.

By default, some advanced menu options are hidden from display (in the CPU Overclocking section for example). Clicking Expert Mode ON or OFF will display or hide these options from the menu. In this chapter, all Expert Mode option items are **bold and underlined**.

The Save and Load icon brings up a pop-up menu that enables the user to choose from different saving options at the end of the session.

Load Optimized Defaults

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

Save All Settings Only

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

Save Settings to OC3

Select this option to save the current settings to the OC3 hardware button.

Exit Without Save

Select this option to quit the BIOS Setup without making any permanent changes to the system configuration, and reboot the computer.

Save and Reset

When you have completed the system configuration changes, select this option to save the changes, leave the BIOS Setup Utility, and reboot the computer for the new system configuration parameters can take effect.

Save and Exit Setup

When you have completed the system configuration changes, select this option to save the changes, and leave the BIOS Setup Utility.

7-3 System Information

The System Information Screen displays the motherboard's configuration.

Motherboard

The following information are displayed in this section:

- **Motherboard Model Name -** C7X99-OCE (-F).
- **BIOS Version -** this item displays the BIOS version number.
- **Build Date -** displays the BIOS build date.

System Date

This item sets and displays the system date. Click the up and down arrows to adjust the date.

System Time

This item sets and displays the system time. Click the up and down arrows to adjust the system time.

CPU

The following information are be displayed in this section:

- **Type and Speed of CPU -** indicates the brand, model name, model number of the CPU and it's rated clock speed.
- **CPU Signature -** displays the unique signature embedded in the CPU.
- **CPU Speed -** this item shows the current CPU speed.
- **Microcode Patch -** displays the CPU's microcode patch version.

Memory

The following information are be displayed in this section:

- **Total Memory -** shows the total detected system memory.
- **Memory Frequency -** displays the system memory's detected speed.

PCH

The following information are be displayed in this section:

- **PCH Name -** displays the name of the PCH chip (if detected).
- **PCH Stepping-** shows the PCH chip's stepping number.

7-4 Processor (CPU)

Set all options for the processor in this section.

Information

The following CPU information will be displayed:

- **CPU Model Number and Clock Frequency**
- **CPU Signature -** displays the unique signature emebedded in CPU.
- **CPU Speed** - displays the CPU's rated speed.
- **Microcode Patch** - displays the CPU's microcode patch version.
- **L1 Cache** - displays the L1 cache size.
- **L2 Cache** - displays the L2 cache size.
- **L3 Cache** - displays the L3 cache size.

Performance

Hyper-threading [ALL]

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

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

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

PPIN Control

Select Enable to unlock the PPIN control. 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)

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

DCU Streamer Prefetcher (Available when supported by the CPU)

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

DCU IP Prefetcher (Available when supported by the CPU)

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

Direct Cache Access (DCA Support)

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

X2APIC

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

AES-NI

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

Intel® Virtualization Technology

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

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

Power Management

Power Technology

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

If the above is set to 'Custom' the following options are displayed:

EIST

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

Turbo Mode

This feature allows processor cores to run faster than the frequency recommended by the manufacturer. The options are Disabled and **Enabled.**

P-STATE Coordination

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

Package C-State limit

This feature allows the user to set the limit on the C-State package register. The options are C0/C1 State, C2 State, C6 (Non Retention) State**,** and **C6 (Rentention) State.**

CPU C3 Report

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

CPU C6 Report

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

Enhanced Halt State (C1E)

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

7-5 Overclocking

Set all options for the Overclocking in this section.

CPU Overclocking

Load SMC CPU OC Setting

This item has optimized pre-configured overclock settings. Select one to activate. The options are **Manual**, 4.2GHz, 4.3GHz, 4.4GHz, 4.5GHz, 4.6GHz, 4.7GHz, and 4.8GHz.

1-Core Ratio Limit

This increases (multiplies) 1 clock speed in the CPU core in relation to the bus speed when one CPU core is active. Press "+" or "-" on your keyboard to change the value. Enter 0 to use the manufacturer's default setting.

2-Core Ratio Limit

This increases (multiplies) 2 clock speeds in the CPU core in relation to the bus speed when two CPU cores are active. Press "+" or "-" on your keyboard to change the value. Enter 0 to use the manufacturer's default setting.

3-Core Ratio Limit

This increases (multiplies) 3 clock speeds in the CPU core in relation to the bus speed when three CPU cores are active. Press "+" or "-" on your keyboard to change the value. Enter 0 to use the manufacturer's default setting.

4-Core Ratio Limit

This increases (multiplies) 4 clock speeds in the CPU core in relation to the bus speed when four CPU cores are active. Press "+" or "-" on your keyboard to change the value. Enter 0 to use the manufacturer's default setting.

5-Core Ratio Limit

This increases (multiplies) 5 clock speeds in the CPU core in relation to the bus speed when four CPU cores are active. Press "+" or "-" on your keyboard to change the value. Enter 0 to use the manufacturer's default setting.

6-Core Ratio Limit

This increases (multiplies) 6 clock speeds in the CPU core in relation to the bus speed when four CPU cores are active. Press "+" or "-" on your keyboard to change the value. Enter 0 to use the manufacturer's default setting.

7-Core Ratio Limit

This increases (multiplies) 7 clock speeds in the CPU core in relation to the bus speed when four CPU cores are active. Press "+" or "-" on your keyboard to change the value. Enter 0 to use the manufacturer's default setting.

8-Core Ratio Limit

This increases (multiplies) 8 clock speeds in the CPU core in relation to the bus speed when four CPU cores are active. Press "+" or "-" on your keyboard to change the value. Enter 0 to use the manufacturer's default setting.

CPU Cache Ratio

This item adjusts the CPU Internal Bus Speed Ratio. The maximum should be the same as the CPU Ratio. Press "+" or "-" on your keyboard to change the value. Enter 0 to use the manufacturer's default setting.

BCLK Ratio

This option selects the BLCK clock ratio ratio for the processor. The options are **1.00**, 1.25, 1.67 and 2.50.

BCLK Clock Frequency (1/100 MHz)

Use this item to set the CPU clock override value for the host system. Press "+" or "-" on your keyboard or on-screen keypad to change the value. The default setting is **10000**.

Internal PLL Overvoltage

Enable this option for better stability when overclocking. The options are **Disabled**, and Enabled.

CPU BCLK Filter PLL Frequency

This option selects the speed of the CPU BCLK Filter PLL Frequency for the processor. The options are **High Frequency 3.2GHz**, and Lower Frequency 1.6GHz. CPU BCLK Filter Frequency. Choose 1.6 for better overclocking capabilities

LCPLL or SBPLL Select

This option selects between LCPLL (resonant circuit-based PLL) and SBPLL (Self-Biased PLL). The options are **LCPLL**, and SBPLL.

CPU Non Turbo Ratio Override

Use this item to set CPU ratio override when not in turbo mode. Press "+" or "-" on your keyboard or on-screen keypad to change the value. The default setting is dependent on the type of CPU installed.

CPU Power Setting

Enhanced Intel SpeedStep Technology

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

Turbo Mode

This feature allows processor cores to run faster than the frequency recommended by the manufacturer. The options are Disabled and **Enabled.** If this feature is set to Enabled, the following items will display:

CPU Turbo Setting

Package TDP Lock Enable

Select Enabled to lock the Thermal Design Power (TDP) value for the processor. The options are **Disabled** and Enabled.

Long Duration Power Limit (Watt)

This feature configures Package Power Limit 1, in watts. When the limit is exceeded, the CPU ratio is lowered after a period of time (see item below). A lower limit can save power and protect the CPU, while a higher limit improves performance. Use the number keys on your keyboard to enter the value. The default setting is dependent on the CPU.

Long Duration Power Limit Time (Seconds)

This item allows the user to determine how long the CPU should operate at the power limit set by the user for the item above, if the power limit is exceeded. Use the number keys on your keyboard to enter the value. The default setting is **8**.

Short Duration Power Limit Switch

Select Enabled for power limit switch Package Power Limit 2. The settings are Disabled and **Enabled**.

Short Duration Power Limit (Watt)

This feature configures Package Power Limit 2, in watts. When the limit is exceeded, the CPU ratio is lowered immediately. A lower limit can save power and protect the CPU, while a higher limit improves performance. Use the number keys on your keyboard to enter the value. The default setting is dependent on the CPU. The default setting is dependent on the CPU.

Package Current Lock

Select Enabled to lock the current CPU package values. The options are Enabled and **Disabled**.

Processor Current Limit (1/8 Amp)

This feature allows the user to set the maximum electric current value for the Intel CPU cores. The default setting is dependent on the type of CPU installed.

Disable OverClocking Lock

If this feature is set to Enabled, the OverClocking Lock will be deactivated. The options are Disabled and **Enabled**.

Voltage Configuration

CPU Voltage Mode

Use this feature to select the CPU voltage mode. The options are Override and **Adaptive**.

CPU Adaptive Voltage Target (mV)

Use this feature to set the CPU voltage Target(mV) value from 0mV to 2000mV. Enter **0** to use the manufacture default value.

CPU Cache Voltage Mode

Use this feature to select the CPU voltage mode. The options are Override and **Adaptive**.

CPU Cache Adaptive Voltage Target (mV)

Use this feature to set the CPU voltage Target(mV) value from 0mV to 2000mV. Enter **0** to use the manufacture default value.

System Agent Voltage Offset (mV)

Use this feature to set the System Agent Voltage Offset value from -1000mV to 998mV. Enter **0** to use the manufacture default value.

Offset Prefix

Use this feature to set the Offset value as a positive (+) number or a negative (-) number. Press "+" or "-" on your keyboard to make a selection. The default setting is **"+"**.

Overclocking SVID and FIVR Options

SVID Control Enable

Select Enabled to enable SVID control for Intel SVID Protocol support. If this setting is set to Disabled, there will be no change made to SVID until the CPU powers down. The options are **Enabled** and Disabled.

SVID Override Voltage Target (mV)

Use this feature to set the value for SVID Override Voltage Target (up to 2500 mV). Enter 0 to use the manufacture default value.

FIVR Faults Enable

Select Enabled to enable FIVR Faults support. If this setting is set to Disabled, there will be no change made to FIVR Faults settings until the CPU powers down. The options are **Enabled** and Disabled.

FIVR Efficiency Enable

Select Enabled to enable FIVR Efficiency support. If this setting is set to Disabled, there will be no change made to FIVR Efficiency status until the CPU powers down. The options are **Enabled** and Disabled.

CPU Overclocking

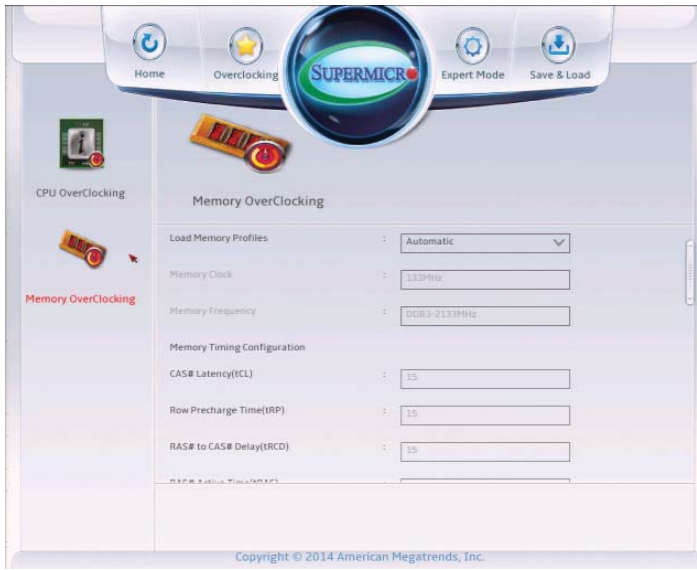
CPU Input Voltage

WARNING! Carefully select the CPU input voltage. Selecting a voltage that exceeds the processor's capability will burn the CPU.

Increasing the CPU input voltage will also increase the CPU temperature, make sure that your cooling system is adequate.

The options are 1.81V, 1.85V, 1.90V, 1.95V, 2.00V, 2.05V, 2.10V, 2.15V, 2.20V, 2.25V, 2.30V, 2.35V, 2.40V, 2.45V, and 2.50V.

Memory Overclocking



Load Memory Profiles

Use this feature to set Performance Memory Profiles which may cause impact on memory behavior*. Select Automatic to allow the BIOS to automatically set Performance Memory Profiles. Select Manual to manually configure Performance Profiles. The options are **Automatic,** Manual, XMP Profile 1 and XMP Profile 2.

If Automatic is selected, the installed memory will run at 2133MHz if the detected memory is rated at 2400MHz or above, and run at 1867MHz if the memory detected is rated at 1867MHz.

If Manual, XMP Profile 1 or XMP Profile 2 is selected, the following options will be available. These options will only appear if XMP (Extreme Memory Profile) Memory is/are installed:

Memory Clock

This option selects the Memory Clock Multiplier. The options are **133MHz** and 100MHz.

Memory Frequency

This option selects the type/speed of the memory installed. The options are DDR3-1066MHz, DDR3-1333MHz, DDR3-1600MHz, DDR3-1800MHz, DDR3-2000MHz, DDR-2200MHz, DDR-2400MHz, and DDR-2600MHz. **Default speed is auto detected.**

Memory Timing Configuration (Expert Mode)

CAS# Latency (tCL)

This option configures the Cas Latency Range. Enter a number between 4-18. The default is **9**.

Row Precharge Time (tRP)

This option selects the Ras Precharge Range. Enter a number between 1-38. The default is **11**.

RAS# to CAS# Delay (tRCD)

This option configures the Row to Col Delay Range. Enter a number between 1-38. The default is **11**.

RAS# Active Time (tRAS)

This option selects the Ras Active Time. Enter a number between 1-586. The default is **28**.

Write to Read Delay (tWR)

This option configures the Minimum Write Recovery Time. Enter a number between 1-38. The default is **12**.

Row Refresh Cycle Time (tRFC)

This option selects the Minimum Refresh Recovery Delay Time. Enter a number between 1-9363. The default is **128**.

Write to Read Delay (tWTR)

This option configures the Minimum Internal Write to Read Command Delay Time. Enter a number between 1-38. The default is **6**.

Active to Active Delay (tRRD)

This option selects the Minimum Row Active To Row Active Delay Time. Enter a number between 1-38. The default is **5**.

Read CAS# Precharge (tRTP)

This option configures the Internal Read to Precharge Command Delay Time. Enter a number between 1-38. The default is **6**.

Four Active Window Delay (tFAW)

This option selects the Minimum Four Activate Window Delay Time. Enter a numeric value between 1-586. The default is **24**.

Row Cycle Time (tRC)

This option configures the Minimum Active to Active/Refresh Delay Time (tRCmin). Enter a numeric value between 1-586. The default is **39**.

tRRDR

This option configures the Read to Read Different Rank dead cycle Back to back READ to WRITE from different rank separation parameter. Enter a numeric value from 1- 7. The default is **3**.

tRRDD

This option configures the Read to Read Different DIMM dead cycle back to back READ to WRITE from different DIMM separation parameter. Enter a numeric value from 1- 7. The default is **4**.

tWWDR

This feature configures the Write to Write Different Rank dead cycle back to back READ to WRITE from different rank separation parameter. Enter a numeric value from 1- 7. The default is **5**.

tWWDD

This option configures the Write to Write Different DIMM dead cycle back to back READ to WRITE from different dimm separation parameter. Enter a numeric value from 1 -7. The default is **5**.

tWRDR

This option sets the Write to Read Different Rank dead cycle Back to back READ to WRITE from different rank separation parameter. Enter a numeric value from 1 -31. The default is **4**.

tRWDD

This feature configures the Read to Write Different DIMM dead cycle back to back READ to WRITE from different DIMM separation parameter. Enter a numeric value from 1 -31. The default is **6**.

tRWDR

This option configures the Read to Write Different Rank dead cycle Back to back READ to WRITE from different rank separation parameter. Enter a numeric value from 1 - 31. The default is **6**.

tRWSR

This feature sets the Read to Write Same Rank dead cycle Back to back READ to WRITE from same rank separation parameter. Enter a numeric value from 1 - 31. The default is **0**.

tWRDD

This feature configures the Write to Read Different DIMM dead cycle back to back READ to WRITE from different DIMM separation parameter. Enter a numeric value from 1 - 7. The default is **4**.

7-6 Chipset

Set all options for the Chipset in this section.

System Agent

The following will be displayed:

- **System Agent Bridge Name** - this displays the System Agent bridge name.
- **System Agent RC Version** - indicates the System Agent RC version.
- **VT-d Capability** - this item indicates whether VT-d is supported.

Enable IOAT

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

No Snoop

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

Relaxed Ordering

Select Enable to enable Relaxed Ordering support which will allow certain transactions to violate the strict-ordering rules of PCI bus for a transaction to be completed prior to other transactions that have already been enqueued. The options are **Disable** and Enable.

Intel VT for Directed I/O (VT-d)

Select Enabled to enable Intel Virtualization Technology support for Direct I/O VT-d by reporting the I/O device assignments to the Virtual Machine Manager (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.

Interrupt Remapping

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

PCH I/O

The following will be displayed:

- **PCH Name** - this displays the chipset name.
- **PCH RC Version** - indicates the PCH RC version.
- **PCH Stepping** - this item displays the PCH stepping..

Azalia (HD Audio)

This item controls the detection of the Azalia (HD Audio) device. The settings are Enabled and **Disabled**.

On Board Chip

Onboard USB Controller (USB 14/15)

This feature Enables or Disables the USB controller for USB ports 14/15. The options are Disabled and **Enabled**.

Onboard USB Controller (USB 16/17)

This feature Enables or Disables the USB controller for USB ports 16/17. The options are Disabled and **Enabled**.

USB Wake up from S5 Support (USB 14/15)

This feature Enables or Disables the ability of the system to 'wake-up' from the S5 sleep state through USB port 14/15. The options are Disabled and **Enabled**.

7-7 Memory

Set all options for the System Memory in this section.

Memory Information

This item information on the memory modules installed on the motherboard.

- **DIMMA1~DIMMD2** - this item displays the type of memory that are detected for each memory slot.

Memory Configuration

Enforce POR

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

Memory Frequency

Use this feature to set the maximum memory frequency for onboard memory modules. The options are **Auto**, 1333, 1400, 1600, 1800, 1867, 2000, 2133, 2200, 2400, 2600, and 2667.

Data Scrambling

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

DRAM RAPL Baseline

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

Set Throttling Mode

Use this feature to activate Closed Loop Thermal Throttling (CLTT), which uses the DIMM memory temperature as input to make adjustments to the throttling based on variations in system's fan speed. The options are Disabled, and **CLTT**.

Socket Interleave Below 4GB

Select Enabled for the memory above the 4G Address space to be split between two sockets. The options are Enable and **Disable**.

A7 Mode

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

7-8 I/O

Set all options for the I/O in this section.

SATA

SATA Controller

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

Configure SATA as

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

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

Support Aggressive Link Power Management

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

SATA Port 0 ~ SATA Port 5

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

- Model number of drive and capacity

Port 0 ~ Port 5 Spin Up Device

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

Port 0 ~ Port 5 SATA Device Type

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

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

Serial ATA Port 0~ Port 5

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

- Model number of drive and capacity

Port 0 ~ Port 5 SATA Device Type

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

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

Support Aggressive Link Power Management

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

Load EFI Driver for RAID

This option enables the system to load the RAID EFI driver during system boot. Select Enabled to load the EFI driver, select **Disabled** to load the legacy driver for system boot.

Serial ATA Port 0~ Port 5

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

- Model number of drive and capacity

Port 0 ~ Port 5 Spin Up Device

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

Port 0 ~ Port 5 SATA Device Type

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

sSATA

sSATA Controller

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

Configure sSATA as

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

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

Support Aggressive Link Power Management

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

sSATA Port 0~ Port 3

This item displays the information detected on the installed on the sSATA port. specified by the user.

- Model number of drive and capacity
- Software Preserve Support

sSATA Port 0~ Port 3

Select Enabled to enable an sSATA port specified by the user. The options are Disabled and Enabled.

sSATA Port 0 ~ Port 3 Spin Up Device

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

Port 0 ~ Port 3 sSATA Device Type

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

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

sSATA Port 0~ Port 3

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

Port 0 ~ Port 3 sSATA Device Type (Available when a SATA port is detected)

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

PCIe/PCI/PnP

NB PCIE Setting

CPU SLOT1 PCI-E 3.0 X8 (IN X16) - Gen X

Set this option to configure the Gen X setting of this PCIE slot . The options are **Auto,** Gen1 (2.5 GT/s), Gen2 (5 GT/s) and Gen3 (8 GT/s).

CPU Port2 Bifurcate

This option distributes PCI-E Port2 to SLOT2 and SLOT4, or SLOT4 only. The options are **Slot2 and Slot4** and Slot4.

CPU SLOT2 PCI-E 3.0 X8 (IN X16) - Gen X

Set this option to configure the Gen X setting of this PCIE slot . The options are **Auto,** Gen1 (2.5 GT/s), Gen2 (5 GT/s) and Gen3 (8 GT/s).

CPU SLOT4 PCI-E 3.0 X8 (IN X16) - Gen X

Set this option to configure the Gen X setting of this PCIE slot . The options are **Auto,** Gen1 (2.5 GT/s), Gen2 (5 GT/s) and Gen3 (8 GT/s).

CPU SLOT6 PCI-E 3.0 X16 - Gen X

Set this option to configure the Gen X setting of this PCIE slot . The options are **Auto,** Gen1 (2.5 GT/s), Gen2 (5 GT/s) and Gen3 (8 GT/s).

Detect Non-Compliant Device

Set this option to configure the motherboard to detect any non-compliant PCIE device installed on any of the PCIE slots. The options are Enabled and **Disabled**.

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

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

CPU SLOT1 PCI-E 3.0 X8 (IN X16) OPROM,
CPU SLOT2 PCI-E 3.0 X8 (IN X16) OPROM,
PCH SLOT3 PCI-E 2.0 X1 (IN X4) OPROM,
CPU SLOT4 PCI-E 3.0 X8 (IN X16) OPROM,
PCH SLOT5 PCI-E 2.0 X1 (IN X4) OPROM,
CPU SLOT6 PCI-E 3.0 X16 OPROM

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

Onboard LAN Option ROM Type

Select an option to enable Option ROM support to boot the computer using a network device specified by the user. The options are Disabled, **Legacy** and EFI.

Onboard LAN1 Option ROM/Onboard LAN2 Option ROM

Select PXE (Preboot Execution Environment) to boot the computer using a PXE device installed in a LAN port specified. Select Disabled to prevent system boot using a device installed in a LAN port. The options for Onboard LAN1 Option ROM/ Onboard LAN2 Option ROM are **Disabled** and PXE.

Onboard Video Option ROM (C7X99-OCE-F Only)

Select the type of Video Option ROM support. The options are Disabled, **Legacy** and EFI.

VGA Priority

Use this item to select the graphics device to be used as the primary video display for system boot. The options are **Onboard VGA**, CPU SLOT1 PCI-E 3.0 X8 (IN X16), CPU SLOT2 PCI-E 3.0 X8 (IN X16), PCH SLOT3 PCI-E 2.0 X1 (IN X4), CPU SLOT4 PCI-E 3.0 X8 (IN X16), PCH SLOT5 PCI-E 2.0 X1 (IN X4), and CPU SLOT6 PCI-E 3.0 X16.

USB Settings

The following will be displayed:

- **USB Devices** - this displays a list of the detected USB devices.

Legacy USB Support

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

XHCI Hand-Off

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

EHCI Hand-Off

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

XHCI Mode

This feature handles the operation mode for the XHCI (Extensible Host Controller Interface) controller. The settings are **Smart Auto**, Auto, Enabled, and Disabledl.

EHCI1

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

EHCI2

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

PCH-FW (Firmware)

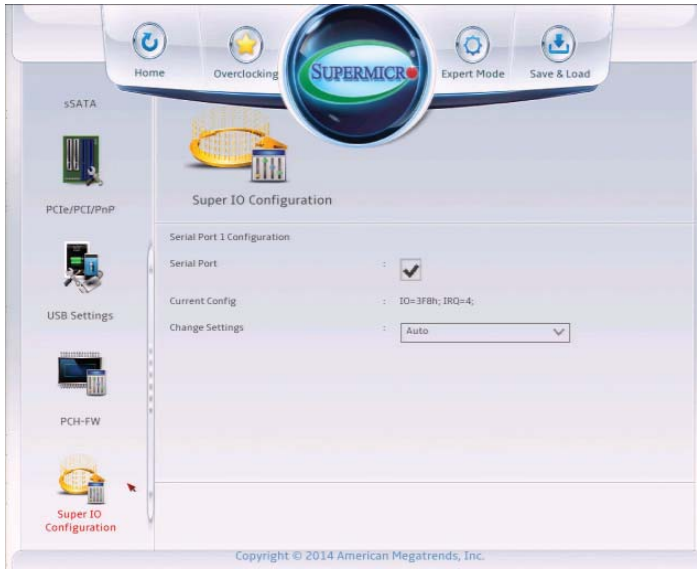
The following information for the PCH Firmware.

- **ME FW Version** - displays the Management Engine version number.
- **ME Firmware Mode** - displays the Management Engine mode.
- **ME Firmware Type** - displays the Management Engine firmware type.
- **ME Firmware SKU** - displays the Management Engine SKU size.

ME FW Image Re-Flash

This item will update the PCH Firmware from an omage in a USB Flashdrive attached to a USB port. The options are **Enabled** and Disabled.

Super IO Configuration



Enable Serial Port 1

This item will Enable or Disable Serial Port 1 (COM1). Place a tick mark on the box to enable Serial Port 1. The default is **Enabled**.

Current Config (IRQ)

This item displays the current IRQ setting for Serial Port 1 (COM1).

Change (IRQ) Settings

This item configures the IRQ setting for Serial Port 1 (COM1).

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

7-9 Booting

The different boot settings and options for the motherboard are in this section.

Boot Device Settings

Boot Mode Select

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

Fixed Boot Order Priorities

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

- Dual Boot Order #1
- Dual Boot Order #2
- Dual Boot Order #3
- Dual Boot Order #4
- Dual Boot Order #5
- Dual Boot Order #6
- Dual Boot Order #7
- Dual Boot Order #8
- Dual Boot Order #9
- Dual Boot Order #10
- Dual Boot Order #11
- Dual Boot Order #12
- Dual Boot Order #13
- Dual Boot Order #14

Network Drive BBS Priorities

- Legacy Boot Order #1, the options are **[IBA GE Slot 0500 ...]** and Disabled.

BIOS Features

Bootup Numlock State

This option sets the state to which the NumLock key is configured when booting. The default is **checked (Activated)**.

Quiet Boot

This option sets the state to which the system buzzer is configured when booting. The default is **checked (On),** the buzzer is silent.

AddOn ROM Display Mode

This item sets the display mode for the Option ROM. Select Keep Current to use the current AddOn ROM Display setting. Select Force BIOS to use the Option ROM display mode set by the system BIOS. The options are **Force BIOS** and Keep Current.

Wait for "F1" for Error

This option sets whether the system will wait for the user to press "F1" when an error is detected during POST. The default is **checked (On)**.

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.

Retry Boot

Select Enabled to force the system to reboot when system fails to boot. The options are **Disabled** and Enabled.

Watch Dog Function

If enabled, the Watch Dog timer will allow the system to reboot when it is unresponsive for more than 5 minutes. The default is **unchecked (Off)**.

Power Button Function

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

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

CSM Support

This option enables the Compatibility Support Module (CSM) which permits the loading of a traditional OS or the use of a traditional OpROMs. The options are **Enabled** and Disabled.

EUP Support

EuP, or Energy Using Product is a European energy-saving specification that sets a standard on the maximum total power consumption on electrical products. Select Enabled to activate EUP support, select **Disabled** for normal S5 sleep mode (system wakeup capability).

Fast Boot

This option sets fast system boot, quick POST, etc . The default is **unchecked (Off)**.

Security Settings

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

- If the Administrator password is defined ONLY - this controls access to the BIOS setup ONLY.
- If the User's password is defined ONLY - this password will need to be entered upon each system boot, and will also have Administrator rights in the setup.
- Passwords must be at least 3 and up to 20 characters long.

Administrator Password

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

User Password

Use this feature to set the User Password, which is required everytime the system boots. The length of the password should be from 3 characters to 20 characters long.

Secure Boot Menu

The following items will be displayed:

- **System Mode** - indicates the current system mode.
- **Secure Boot** - this item indicates if Secure Boot is activated or not.

Secure Boot

Select Enabled for Secure Boot flow control. This feature is available when the platform key (PK) is pre-registered, the platform operates in the user mode, and CSM is disabled in the Setup utility. The options are **Disabled** and Enabled.

Secure Boot Mode

This feature allows selection of the Secure Boot Mode between Standard and Custom. Selecting Custom enables users to change the Image Execution Policy and manage Secure Boot Keys. The options are **Custom** and Standard.

Key Management

(if Secure Boot Mode is set to 'Custom')

Key Management allows experienced users to modify Secure Boot Variables.

Default Key Provision

This item will load the default key provision. The options are **Enabled** and Disabled.

Enroll All Factory Default Keys

This item will install the factory default secure variables. The options are **Yes** and No.

Save All Secure Boot Variables

This item will save all the revised secure boot variables. The options are **Yes** and No.

Platform Key

This item displays the current Platform Key status.

Delete PK

This item deletes a previously installed Platform Key.

Set New PK

This item uploads and installs a secure Platform Key. You may insert a factory default key or load from a file. The file formats accepted are: 1) Public Key Certificate

a. EFI Signature List

b. EFI CERT X509 (DER Encoded)

c. EFI CERT RSA2048 (bin)

d. EFI SERT SHA256 (bin)

2) EFI Time Based Authenticated Variable

When prompted, select "Yes" to load Factory Defaults or "No' to load from a file.

Key Exchange Key

This item displays the current Key Exchange Key status.

Delete KEK

This item deletes a previously installed Key Exchange Key.

Set New KEK

This item uploads and installs a Key Exchange Key. You may insert a factory default key or load from a file. When prompted, select "Yes" to load Factory Defaults or "No' to load from a file.

Append KEK

This item uploads and adds a Key Exchange Key into the Key Management. You may insert a factory default key or load from a file. When prompted, select "Yes" to load Factory Defaults or "No' to load from a file.

Authorized Signatures

This item displays the current Authorized Signatures status.

Delete DBT

This item deletes a previously installed Authorized Signature.

Set New DBT

This item uploads and installs an Authorized Signature . You may insert a factory default key or load from a file. The file formats accepted are: 1) Public Key Certificate

a. EFI Signature List

b. EFI CERT X509 (DER Encoded)

c. EFI CERT RSA2048 (bin)

d. EFI SERT SHA256 (bin)

2) EFI Time Based Authenticated Variable

When prompted, select "Yes" to load Factory Defaults or "No' to load from a file.

Append DBT

This item uploads and adds an Authorized Signature into the Key Management. You may insert a factory default key or load from a file. When prompted, select "Yes" to load Factory Defaults or "No' to load from a file.

Forbidden Signatures

This item displays the current Forbidden Signatures status.

Delete DBX

This item deletes a previously installed Forbidden Signature.

Set New DBX

This item uploads and installs a Forbidden Signature . You may insert a factory default key or load from a file. The file formats accepted are: 1) Public Key Certificate

a. EFI Signature List

b. EFI CERT X509 (DER Encoded)

c. EFI CERT RSA2048 (bin)

d. EFI SERT SHA256 (bin)

2) EFI Time Based Authenticated Variable

When prompted, select "Yes" to load Factory Defaults or "No' to load from a file.

Append DBX

This item uploads and adds an Forbidden Signature into the Key Management. You may insert a factory default key or load from a file. When prompted, select "Yes" to load Factory Defaults or "No' to load from a file.

7-10 Management

Set all options for the System Management feature in this section.

ACPI Settings

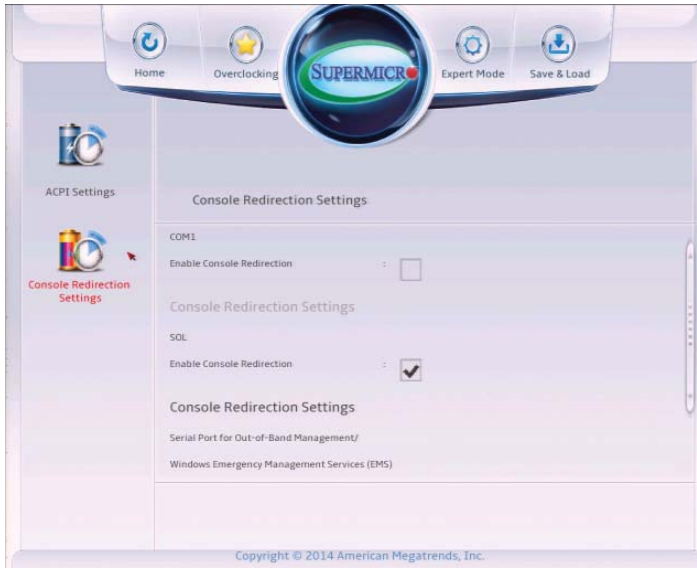
ACPI Sleep State

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

High Precision Event Timer

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

Console Redirection Settings



COM 1

Enable Console Redirection

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

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

Console Redirection Settings

Terminal Type

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

Bits Per second

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

Data Bits

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

Parity

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

Stop Bits

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

Flow Control

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

VT-UTF8 Combo Key Support

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

Recorder Mode

Select Enabled to capture the data displayed on a terminal and send it as text messages to a remote system. The options are Enabled (checked) and **Disabled (unchecked).**

Resolution 100x31

Select Enabled for extended-terminal resolution support. The options are **Enabled (checked)** and Disabled (unchecked)**.**.

Legacy OS Redirection Resolution

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

Putty KeyPad

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

Redirection After BIOS Post

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

SOL

Enable Console Redirection

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

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

Console Redirection Settings

Terminal Type

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

Bits Per second

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

Data Bits

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

Parity

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

Stop Bits

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

Flow Control

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

VT-UTF8 Combo Key Support

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

Recorder Mode

Select Enabled to capture the data displayed on a terminal and send it as text messages to a remote system. The options are **Disabled (unchecked)** and Enabled (checked).

Resolution 100x31

Select Enabled for extended-terminal resolution support. The options are Disabled (unchecked) and **Enabled (checked)**.

Legacy OS Redirection Resolution

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

Putty KeyPad

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

Redirection After BIOS Post

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

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

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

Enable Console Redirection

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

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

Console Redirection Settings

Out-of-Band Management Port

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

Terminal Type

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

Bits Per Second

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

Flow Control

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

The setting for each these features is displayed:

Data Bits, Parity, Stop Bits

7-11 IPMI

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

IPMI

The following will be displayed:

- **IPMI Firmware Revision** - This item indicates the IPMI firmware revision used in your system.
- **IPMI Status** - This item indicates the status of the IPMI firmware installed in your system.

System Event Log

SEL Components

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

Erasing Settings

Erase SEL

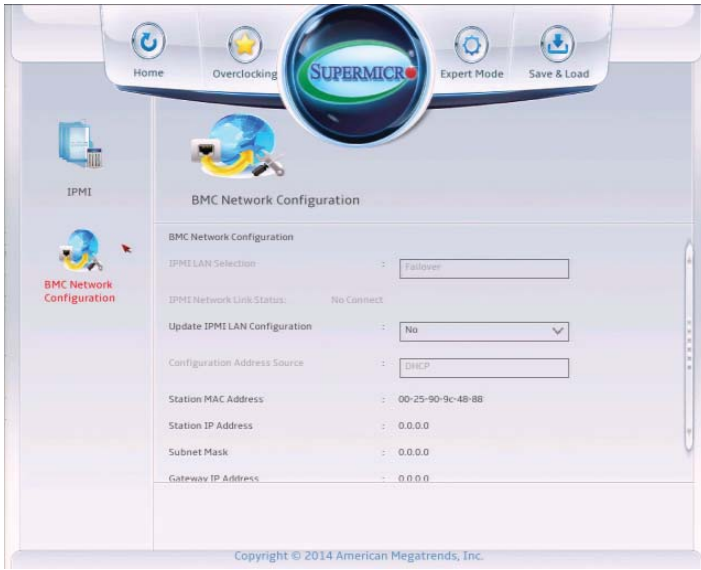
Select Yes, On next reset to erase all system event logs upon next system reboot. Select Yes, On every reset to erase all system event logs upon each system reboot. Select No to keep all system event logs after each system reboot. The options are **No,** Yes, On next reset, and Yes, On every reset.

When SEL is Full

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

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

BMC Network Configuration



The following items will be displayed:

BMC Network Configuration

- **IPMI LAN Selection -** IPMI LAN Selection status
- **IPMI Network Link Status -** Connection status

Update IPMI LAN Configuration

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

Configuration Address Source (Available when the item above - Update IPMI LAN Configuration is set to Yes)

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

Station IP Address

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

Subnet Mask

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

Station MAC Address

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

Gateway IP Address

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

When you have completed the system configuration changes, select this option to save the changes and reboot the computer so that the new system configuration settings can take effect. Select Save Changes and Exit, and press <Enter>. When the dialog box appears, asking you if you want to exit the BIOS setup without saving, click **Yes** to quit BIOS without saving the changes, or click No to quit the BIOS and save changes.

7-12 UEFI BIOS Recovery Instructions

Attention! 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, hands-off control to a computer system at bootup.

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

A UEFI BIOS flash chip consists of a recovery BIOS block, comprised of two boot blocks and a main BIOS block (a main BIOS image). The boot block contains critical BIOS codes, including memory detection and recovery codes for the user to flash a new BIOS image if the original main BIOS image is corrupted. When the system power is on, the boot block codes execute first. Once that 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 boot crashes. However, when the BIOS boot block crashes, you will need to follow the procedures in Appendix D.

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.

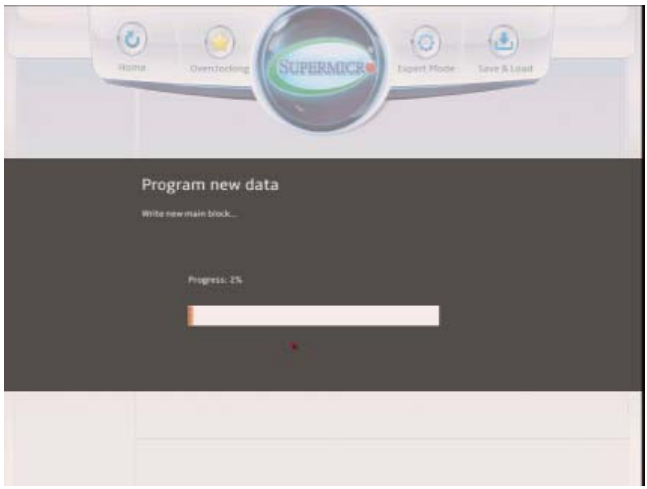
Note: If you cannot locate the "SUPER.ROM" file in your driver disk, visit our website at www.supermicro.com to download the BIOS image into a USB flash device (save in the root folder) and rename it "SUPER.ROM" for BIOS recovery use.

2. Insert the USB device that contains the new BIOS image ("SUPER.ROM") into any available USB port Be sure the file is saved in the very top (root) folder.
3. Set the JBR1 switch on the motherboard to recovery mode and power on the system. If the screen appears as below, press <DEL> to continue.

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

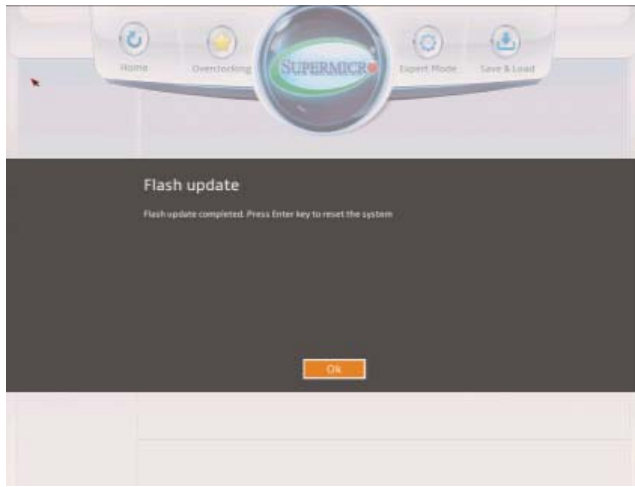
Note: At this point, you may decide if you want to start with BIOS Recovery. If you decide to proceed with BIOS Recovery, follow the procedures below.

5. To continue with BIOS Recovery, select the item- "Proceed with flash update". You will see the progress of BIOS Recovery as shown on the screens below.



Note: *Do not interrupt* the BIOS programming until it is completed.

6. After the BIOS Recovery process is complete, click OK to reboot the system.



Notes

Appendix A

BIOS Error Beep Codes

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

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

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

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

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

Notes

Appendix B

System Specifications

Processors

Single processor in an LGA 2011-3 socket

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

Chipset

Intel X99 Express

BIOS

128 Mb AMI BIOS® SPI Flash BIOS

Memory Capacity

Four (4) DIMM slots that can support up to 64GB of unbuffered, non-ECC UDIMM (1 GB, 2 GB, 4GB and 8GB size) DDR4 2133~3000(OC) MHz speed SDRAM.

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

SATA Controller

Intel on-chip controller for six-port I-SATA and four-port S-SATA 3.0 system (RAID supported for I-SATA)

Drive Bays

Six (6) 3.5" HDD drive bays and four (4) 2.5" SSD/HDD drive bays

Peripheral Drive Bays

Two 5.25" drive bays can be used for peripheral devices

Expansion Slots

Supports the use of standard size PCI add-on cards: four (4) PCI Express 3.0 x16 and two (2) PCI Express 2.0 x1 (in x4) slots.

Motherboard

C7X99-OCE (ATX form factor),
Dimensions: ATX form factor: (12.0" x 9.6") (304.8 mm x 243.84 mm)

Chassis

GS5A-753R Form Factor: mid tower,
Dimensions (as tower): HxWxD: 18.1" x 7.9" x 19.4" (460mm x 200mm x 493mm)

Weight

Gross (Bare Bone): 24.2 lbs. (10.98 kg)

System Cooling

Two (2) 12-cm low-noise front cooling fans and one (1) 12-cm low noise exhaust fan

System Input Requirements

AC Input Voltage: 100-240 VAC
Rated Input Current: 7A (115V) to 3.5A (240V)
Rated Input Frequency: 50/60 Hz

Power Supply

Rated Output Power: 750W (Part# PWS-753-PQ)
Rated Output Voltages: +3.3V (15A), +5V (20A), +12V (17A), -12V (0.5A), +5Vsb (3A))

Operating Environment

Operating Temperature: 10º to 35º C (50º to 95º F)
Non-operating Temperature: -40º to 70º C (-40º to 158º F)
Operating Relative Humidity: 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”

(continued from front)

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