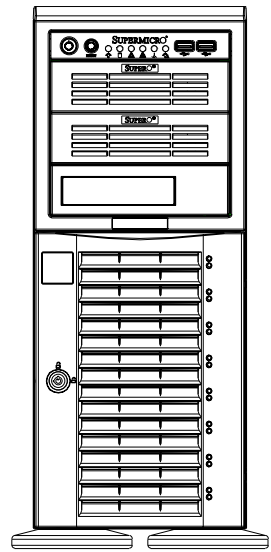
SUPERMICRO®

SuperWorkstation

7048A-T



USER'S MANUAL

1.0

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Manual Revision 1.0
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Preface

About This Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of the SuperWorkstation 7048A-T. Installation and maintenance should be performed by experienced technicians only.

The SuperWorkstation 7048A-T is a high-end system based on the SC743TQ-1200B-SQ tower/4U rackmount chassis and the X10DAi serverboard.

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 X10DAi serverboard and the SC743TQ-1200B-SQ chassis.

Chapter 2: Server Installation

This chapter describes the steps necessary to setup the SuperWorkstation 7048A-T into a rack and check out the server configuration prior to powering up the system. If your system was ordered without processor and memory components, this chapter will refer you to the appropriate sections of the manual for their installation.

Chapter 3: System Interface

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

Chapter 4: Standardized Warning Statements

You should thoroughly familiarize yourself with this chapter for a general overview of safety precautions that should be followed when installing and servicing the SuperWorkstation 7048A-T.

Chapter 5: Advanced Serverboard Setup

Chapter 5 provides detailed information on the X10DAi serverboard, including the locations and functions of connections, headers and jumpers. Refer to this chapter when adding or removing processors or main memory and when reconfiguring the serverboard.

Chapter 6: Advanced Chassis Setup

Refer to Chapter 6 for detailed information on the SC743TQ-1200B-SQ chassis. You should follow the procedures given in this chapter when installing, removing or reconfiguring drives and when replacing system power supply units and cooling fans.

Chapter 7: BIOS

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

Appendix A: BIOS Error Beep Codes

Appendix B: System Specifications

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Appendix A BIOS Error Beep Codes

Appendix B System Specifications

Chapter 1

Introduction

1-1 Overview

The 7048A-T is a high-end workstation comprised of two main subsystems: the SC743TQ-1200B-SQ tower/4U chassis and the X10DAi dual Intel® Xeon® processor serverboard. Please refer to our web site for information on operating systems that have been certified for use with the SuperWorkstation 7048A-T (www.supermicro.com).

In addition to the serverboard and chassis, various hardware components have been included with the SuperWorkstation 7048A-T, as listed below:

- Two 8-cm hot-swap PWM "SuperQuiet" chassis fans (FAN-0104L4)
- One 9-cm PWM "SuperQuiet" exhaust fan (FAN-0103L4)
- Two active CPU heatsinks (SNK-P0050AP4)
- SATA Accessories
  One SATA backplane (CSE-SAS-743TQ)
  Eight hot-swap drive carriers (MCP-220-00092-0B)
- Optional:
  One rackmount kit (CSE-PT26L-B)

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

- Supermicro product manuals: http://www.supermicro.com/support/manuals/
- Product drivers and utilities: ftp://ftp.supermicro.com
- Product safety info: http://super-dev/about/policies/safety_information.cfm

1-2 Serverboard Features

At the heart of the SuperWorkstation 7048A-T lies the X10DAi, a dual processor serverboard based on the Intel® C612 chipset. Below are the main features of the X10DAi. (See Figure 1-1 for a block diagram of the chipset).

Processors

The X10DAi supports single or dual Intel E5-2600 v3 processors in LGA 2011 sockets (Socket R). Please refer to the serverboard description pages on our web site for a complete listing of supported processors (www.supermicro.com).

Memory

The X10DAi has 16 DIMM slots that can support up to 1024 GB of RDIMM (Registered DIMMs) or LRDIMM (Load-Reduced DIMMs) ECC DDR4-2133/1866/1600 memory. See Chapter 5 for details.

SATA

A SATA controller is integrated into the chipset, which provides support for ten SATA 3.0 ports on the serverboard. RAID 0, 1, 5 and 10 (RAID 5 is not supported with Linux OS) are supported. The X10DAi also provides two power connectors for SATA DOMs (Device-On-Module).

PCI Expansion Slots

The X10DAi has three PCI-E 3.0 x16, two PCI-E 3.0 x8 and one PCI-E 2.0 x4 (in a x8 slot) slots.

Onboard Controllers/Ports

The rear I/O ports include one USB 2.0 port, five USB 3.0 ports, two Gb Ethernet ports and six HDA (High Definition Audio) ports.

1-3 Chassis Features

The SC743TQ-1200B-SQ is an ATX form factor chassis that can be used as a tower or mounted in a 4U rackmount configuration. The following is a general outline of the main features of the SC743TQ-1200B-SQ chassis.

System Power

The 7048A-T features a single 1200W power supply. This power supply unit has been designed to operate at a low noise level to make it ideal for use in a workstation environment.

SATA Subsystem

The SC743TQ-1200B-SQ chassis was designed to support eight SATA hard drives, which are hot-swappable units.

Front Control Panel

The control panel on the SuperWorkstation 7048A-T provides you with system monitoring and control. LEDs indicate system power, HDD activity, network activity, overheat conditions and power supply failure. A main power button and a system reset button are also included.

Note: the power supply fail LED indicates the power supply fan has failed.

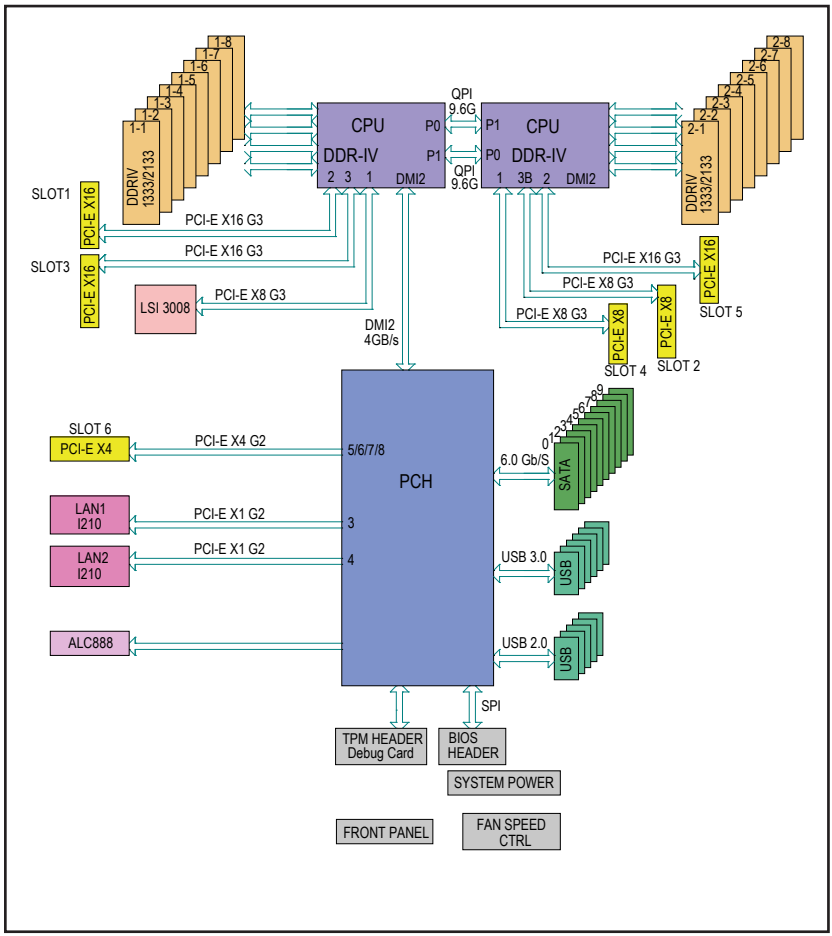
Cooling System

The SC743TQ-1200B-SQ chassis has an innovative "Super Quiet" cooling design that provides sufficient cooling at very low noise level - ideal for a workplace environment. The chassis includes one 8-cm hot-plug PWM (Pulse Width Modulation) system cooling fan located in the middle of the chassis and a 9-cm PWM exhaust fan is also located at the rear of the chassis.

The power supply has two fans for redundancy; if one fan fails the other will incease its rpm to compensate. This may cause the system to run louder than usual. See details in Chapter 6.

Figure 1-1. Intel C612 Chipset:
System Block Diagram

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



1-4 Contacting Supermicro

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Notes

Chapter 2

Installation

2-1 Overview

This chapter provides a quick setup checklist to get your SuperWorkstation 7048A-T up and running. Following these steps in the order given should enable you to have the system operational within a minimum amount of time. This quick setup assumes that your system has come to you with the processor and memory preinstalled. If your system is not already fully integrated with a serverboard, processor, system memory etc., please turn to the chapter or section noted in each step for details on installing specific components.

The 7048A-T may be employed either as a tower or mounted in a rack as a 4U rackmount chassis. If using it as a tower unit, please read the Server Precautions in the next section before using the system for the first time.

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

2-3 Preparing for Setup

The box the system was shipped in may include two sets of rail assemblies, two rail mounting brackets and mounting screws needed for installing the system into a rack (optional kit). Follow the steps in the order given to complete the installation process in a minimum amount of time. Please read this section in its entirety before you begin the installation procedure outlined in the sections that follow.

Choosing a Setup Location

- Leave enough clearance in front of the rack to enable you to open the front door completely (~25 inches) and approximately 30 inches of clearance in the back of the rack to allow for sufficient airflow and ease in servicing.

- This product is not suitable for use with visual display work place devices acccording to §2 of the the German Ordinance for Work with Visual Display Units.

2-4 Warnings and Precautions

Rack Precautions

- Ensure that the leveling jacks on the bottom of the rack are fully extended to the floor with the full weight of the rack resting on them.

- In single rack installation, stabilizers should be attached to the rack. In multiple rack installations, the racks should be coupled together.

- Always make sure the rack is stable before extending the server from the rack.

- You should extend only one component at a time - extending two or more simultaneously may cause the rack to become unstable.

Server Precautions

- Review the electrical and general safety precautions in Chapter 4.

- Determine the placement of each component in the rack *before* you install the rails.

- Install the heaviest server components on the bottom of the rack first, and then work up.

- Use a regulating uninterruptible power supply (UPS) to protect the server from power surges, voltage spikes and to keep your system operating in case of a power failure.

- Allow the hot plug SAS/SATA drives and power supply modules to cool before touching them.

- Always keep the rack's front door and all panels and components on the servers closed when not servicing to maintain proper cooling.

Rack Mounting Considerations

Ambient Operating Temperature

If installed in a closed or multi-unit rack assembly, the ambient operating temperature of the rack environment may be greater than the ambient temperature of the room. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature (Tmra).

Reduced Airflow

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

Mechanical Loading

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

Circuit Overloading

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

Reliable Ground

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

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

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

2-4 Installing the System into a Rack

This section provides information on installing the system into a rack unit. Rack installation requires the use of the optional rackmount kit.

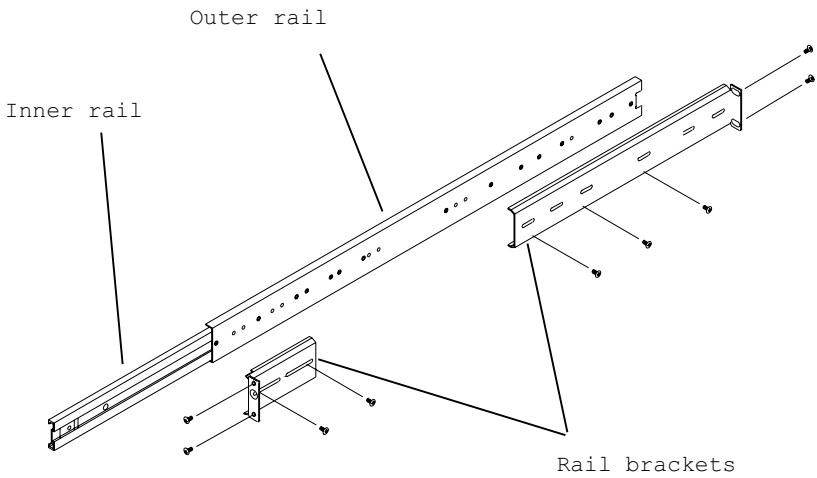
There are a variety of rack units on the market, which may mean the assembly procedure will differ slightly. The following is a guideline for installing the system into a rack with the rack rails provided in the rackmount kit. You should also refer to the installation instructions that came with the rack unit you are using.

Identifying the Sections of the Rack Rails

The optional rackmount kit includes two rack rail assemblies. Each of these assemblies consist of three sections: an inner fixed chassis rail that secures to the chassis, an outer rack rail that secures directly to the rack itself and two rail brackets, which also attack to the rack (see Figure 2-1.) The inner and outer rails must be detached from each other to install.

To remove the inner chassis rail, pull it out as far as possible - you should hear a "click" sound as a locking tab emerges from inside the rail assembly and locks the inner rail. Depress the locking tab to pull the inner rail completely out. Do this for both assemblies (one for each side).

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



Warning: When initially installing the server to a rack, test that the rail locking tabs engage to prevent the server from being overextended. Have a rack lift in place as a precaution in case the test fails.

Installing the Chassis Rails

You will need to remove the top cover and the feet to add rack rails to the chassis. First, remove the top and right covers (top and left covers when standing as a tower chassis) by first removing the screws that secure them to the chassis. Depress the button on the top (side if tower) of the chassis to release the cover and then pull the cover off. Then unscrew the four feet and remove them from the chassis (see Figure 2-2).

You can now attach rack rails to the top and bottom (now the sides) of the chassis. First add the rack handles. Then position the inner chassis rail sections you just removed along the side of the chassis making sure the screw holes line up. Note that these two rails are left/right specific. Screw the rail securely to the side of the chassis (see Figure 2-3). Repeat this procedure for the other rail on the other side of the chassis. You will also need to attach the rail brackets when installing into a telco rack.

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

Warning: In any instance of pulling the system from the rack, always use a rack lift and follow all associated safety precautions.

Figure 2-2. Preparing to Install the Chassis Rails

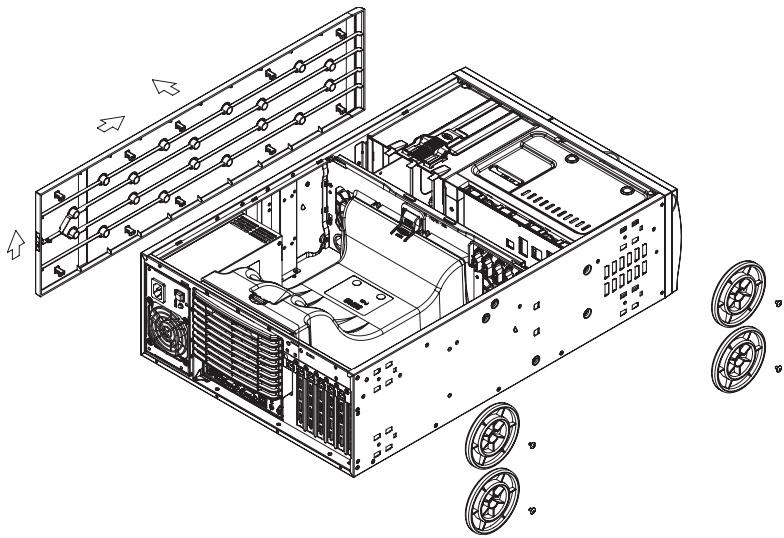
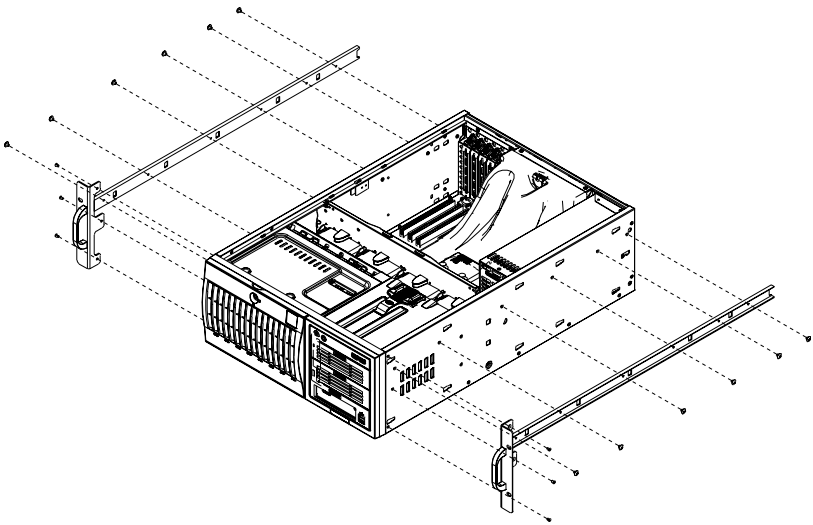


Figure 2-3. Installing the Rails to the Chassis



Installing the Rack Rails

Determine where you want to place the SuperWorkstation 7048A-T in the rack. (See Rack and Server Precautions in Section 2-3.) Position the fixed rack rail/sliding rail guide assemblies at the desired location in the rack, keeping the sliding rail guide facing the inside of the rack. Screw the assembly securely to the rack using the brackets provided. Attach the other assembly to the other side of the rack, making sure both are at the exact same height and with the rail guides facing inward.

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

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

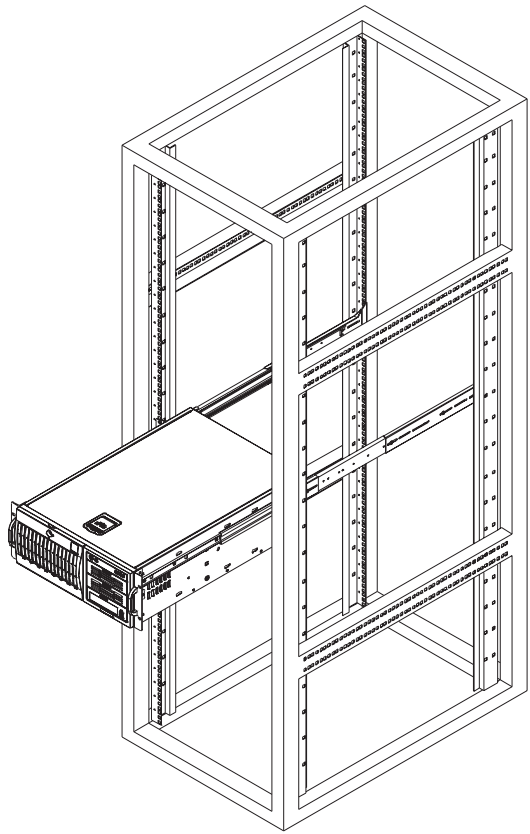
Warning: Slide rail mounted equipment is not to be used as a shelf or a work space.

Installing the System into the Rack

You should now have rails attached to both the chassis and the rack unit. The next step is to install the system into the rack. You should have two brackets in the rack mount kit. Install these first keeping in mind that they are left/right specific (marked with "L" and "R"). Then, line up the rear of the chassis rails with the front of the rack rails. Slide the chassis rails into the rack rails, keeping the pressure even on both sides (you may have to depress the locking tabs when inserting).

When the system has been pushed completely into the rack, you should hear the locking tabs "click". Finish by inserting and tightening the thumbscrews that hold the front of the chassis to the rack (see Figure 2-4).

Figure 2-4. Installing the System into a Rack



Note: Figure is for illustrative purposes only. Always install servers to the bottom of a rack first.

Notes

Chapter 3

System Interface

3-1 Overview

The control panel on the 7048A-T has several LEDs and two buttons. There are also two LEDs on each hard drive carrier. These LEDs keep you constantly informed of the overall status of the system and the activity and health of specific components.

3-2 Control Panel Buttons

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

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 Control Panel LEDs

The control panel located on the front of the SC743TQ-1200B-SQ chassis has six LEDs that provide you with critical information related to different parts of the system. This section explains what each LED indicates when illuminated and any corrective action you may need to take.

Power

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

HDD

This LED indicates hard drive activity when flashing.

NIC1

Indicates network activity on LAN1 when flashing.

NIC2

Indicates network activity on LAN2 when flashing.

Overheat/Fan Fail

When this LED flashes, it indicates a chassis fan failure. When on continuously it indicates an overheat condition, which may be caused by cables obstructing the

airflow in the system or the ambient room temperature being too warm. Check the routing of the cables and make sure all fans are present and operating normally. You should also check to make sure that the chassis covers are installed. Finally, verify that the heatsinks are installed properly (see Chapter 5). This LED will remain flashing or on as long as the indicated condition exists.

Power Fail

Indicates a power supply fan has failed. The power supply module has a redundant backup fan that will increase its rpm to compensate, but the power module should be replaced as soon as it's convenient.

3-4 Drive Carrier LEDs

Note: the LEDs of some drive carriers may not function depending on the number of drives that are supported by the serverboard and/or backplane.

- **Green:** When illuminated, the green LED on the front of the hard drive carrier indicates drive activity. A connection to the drive backplane enables this LED to blink on and off when that particular drive is being accessed.

- **Red:** The backplane activates the red LED to indicate a drive failure. If one of the hard drives fail, you should be notified by your system management software. Please refer to Chapter 6 for instructions on replacing failed hard drives.

Notes

Chapter 4

Standardized Warning Statements for AC Systems

4-1 About Standardized Warning Statements

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

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

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

Warning Definition

Warning!

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

警告の定義

この警告サインは危険を意味します。

人身事故につながる可能性がありますので、いずれの機器でも動作させる前に、

電気回路に含まれる危険性に注意して、標準的な事故防止策に精通して下さい。

此警告符号代表危险。

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

此警告符號代表危險。

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

Warnung

WICHTIGE SICHERHEITSHINWEISE

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

BEWAHREN SIE DIESE HINWEISE GUT AUF.

INSTRUCCIONES IMPORTANTES DE SEGURIDAD

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

GUARDE ESTAS INSTRUCCIONES.

IMPORTANTES INFORMATIONS DE SÉCURITÉ

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

CONSERVEZ CES INFORMATIONS.

תקנון הצהרות אזהרה

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

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

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

안전을 위한 주의사항

경고!

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

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

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

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

BEWAAR DEZE INSTRUCTIES

Installation Instructions

Warning!

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

設置手順書

システムを電源に接続する前に、設置手順書をお読み下さい。

警告
将此系统连接电源前,请先阅读安装说明。

警告
將系統與電源連接前，請先閱讀安裝說明。

Warnung

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

¡Advertencia!

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

Attention

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

יש לקרוא את הוראות התקנה לפני חיבור המערכת למקור מתח.

اقر إرشادات التركيب قبل توصيل النظام إلى مصدر للطاقة

시스템을 전원에 연결하기 전에 설치 안내를 읽어주십시오.

Waarschuwing

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

Circuit Breaker

Warning!

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

サーキット・ブレーカー

この製品は、短絡(過電流)保護装置がある建物での設置を前提としています。

保護装置の定格が250 V、20 Aを超えないことを確認下さい。

警告

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

מוצר זה מסתמך על הגנה המותקנת במבנים למניעת קצר חשמלי. יש לוודא המכשיר המגן מפני הקצר החשמלי הוא לא יותר מ-60VDC, 20A

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

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

경고!

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

Waarschuwing

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

Power Disconnection Warning

Warning!

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

電源切断の警告

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

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

警告

在你打开机箱并安装或移除内部器件前,必须将系统完全断电,并移除电源线。

警告

在您打開機殼安裝或移除內部元件前，必須將系統完全斷電，並移除電源線。

Warnung

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

¡Advertencia!

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

Attention

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

אזהרה !

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

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

경고!

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

Waarschuwing

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

Equipment Installation

Warning!

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

機器の設置

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

警告

只有经过培训且具有资格的人员才能进行此设备的安装、更换和维修。

警告

只有經過受訓且具資格人員才可安裝、更換與維修此設備。

Warnung

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

¡Advertencia!

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

Attention

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

אזהרה !

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

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

경고!

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

Waarschuwing

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

Restricted Area

Warning!

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

アクセス制限区域

このユニットは、アクセス制限区域に設置されることを想定しています。

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

警告

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

אזור עם גישה מוגבלת

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

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

경고!

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

Waarschuwing

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

Battery Handling

Warning!

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

電池の取り扱い

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

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

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

Warnung

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

Attention

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

¡Advertencia!

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

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

סילוק הסוללות המשומשות יש לבצע לפי הוראות היצרן.

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

경고!

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

Waarschuwing

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

Redundant Power Supplies

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 והמאוררים עדיין עובדים. יש להרחיק למרחק בטוח את האצבעות וכלי עבודה שונים מהפתחים בתוך המאוורר

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

경고!

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

Waarschuwing

Het is mogelijk dat de ventilator nog draait tijdens het verwijderen van het ventilatorsamenstel uit het chassis. Houd uw vingers, schroevendraaiers en eventuele andere voorwerpen uit de buurt van de openingen in de ventilatorbehuizing.

Power Cable and AC Adapter

Warning!

When installing the product, use the provided or designated connection cables, power cables and AC adaptors. Using any other cables and adaptors could cause a malfunction or a fire. Electrical Appliance and Material Safety Law prohibits the use of UL or CSA -certified cables (that have UL/CSA shown on the code) for any other electrical devices than products designated by Supermicro only.

電源コードとACアダプター

製品を設置する場合、提供または指定された接続ケーブル、電源コードとACアダプターを使用下さい。他のケーブルやアダプタを使用すると故障や火災の原因になることがあります。電気用品安全法は、ULまたはCSA認定のケーブル(UL/CSEマークがコードに表記)を Supermicroが指定する製品以外に使用することを禁止しています。

警告

安装此产品时,请使用本身提供的或指定的连接线,电源线和电源适配器.使用其它线材或适配器可能会引起故障或火灾。除了Supermicro所指定的产品,电气用品和材料安全法律规定禁止使用未经UL或CSA认证的线材。(线材上会显示UL/CSA符号)。

警告

安裝此產品時,請使用本身提供的或指定的連接線,電源線和電源適配器.使用其它線材或適配器可能會引起故障或火災。除了Supermicro所指定的產品,電氣用品和材料安全法律規定禁止使用未經UL或CSA認證的線材。(線材上會顯示UL/CSA符號)。

Warnung

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

¡Advertencia!

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

Attention

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

חשמליים ומתאמי AC

אזהרה !

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

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

경고!

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

Waarschuwing

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

Notes

Chapter 5

Advanced Serverboard Setup

This chapter covers the steps required to install the X10DAi serverboard into the chassis, connect the data and power cables and install add-on cards. All serverboard jumpers and connections are also described. A layout and quick reference chart are included in this chapter for your reference. Remember to completely close the chassis when you have finished working with the serverboard to better cool and protect the system.

5-1 Handling the Serverboard

Electrostatic discharge (ESD) can damage electronic components. To prevent damage to any printed circuit boards (PCBs), it is important to handle them very carefully (see previous chapter). To prevent the serverboard from bending, keep one hand under the center of the board to support it when handling. The following measures are generally sufficient to protect your equipment from electric static discharge.

Precautions

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

Unpacking

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

5-3 Connecting Cables

Now that the serverboard is installed, the next step is to connect the cables to the board. These include the data (ribbon) cables for the peripherals and control panel and the power cables.

Connecting Data Cables

The cables used to transfer data from the peripheral devices have been carefully routed 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). See the layout in Section 5-8 for connector locations.

Connecting Power Cables

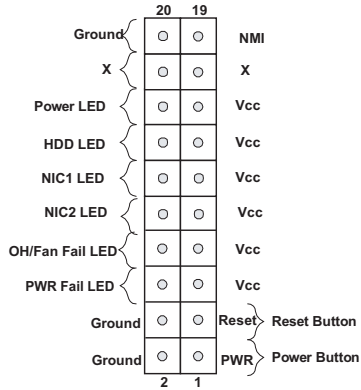
The X10DAi has a 24-pin primary power supply connector (J24) for connection to the ATX power supply. In addition, two 8-pin secondary power connectors (JPWR1 and JPWR2) must also be connected to your power supply. See Section 5-9 for power connector pin definitions.

Connecting the Control Panel

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

All JF1 wires have been bundled into a single ribbon cable to simplify this connection. Make sure the red wire plugs into pin 1 as marked on the board. The other end connects to the Control Panel PCB board, located just behind the system status LEDs on the chassis. See Section 5-9 for details and pin descriptions.

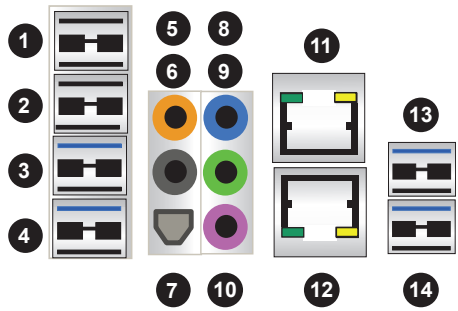
Figure 5-1. Control Panel Header Pins



5-4 I/O Ports

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

Figure 5-2. I/O Ports



I/O Ports	
1. USB1 Port (USB 2.0)	8. Line In
2. USB0 Port (USB 2.0)	9. Line Out
3. USB6 Port (USB 3.0)	10. Mic In
4. USB5 Port (USB 3.0)	11. LAN1 Port
5. CEN/LFE Out	12. LAN2 Port
6. Surround Out	13. USB8 Port (USB 3.0)
7. SPDIF Out	14. USB7 Port (USB 3.0)

5-5 Processor and Heatsink Installation

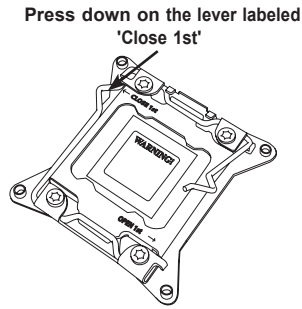
Warning: When handling the processor package, avoid placing direct pressure on the label area of the fan.

Notes:

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

Installing an LGA 2011 Processor

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

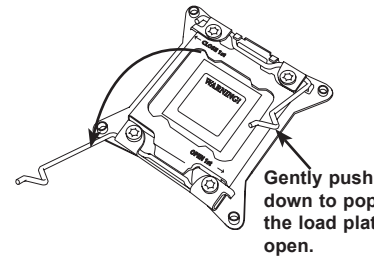


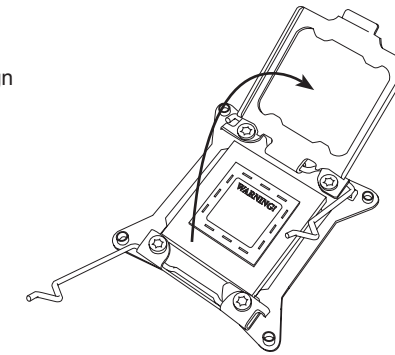
3. With the lever labeled 'Close 1st' fully retracted, gently push down on the 'Open 1st' lever to open the load plate. Lift the load plate to open it completely.

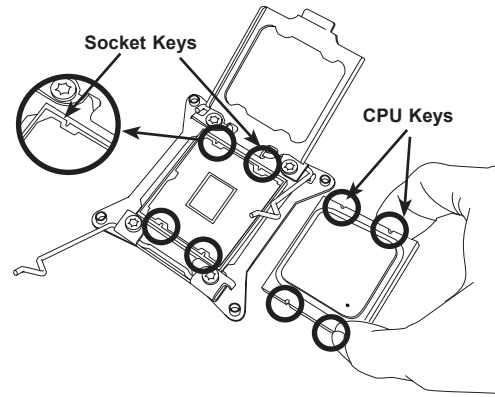
4. Using your thumb and the index finger, remove the 'WARNING' plastic cap from the socket.

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

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 and do not rub the CPU against any pins of the socket, which may damage the CPU or the socket.)



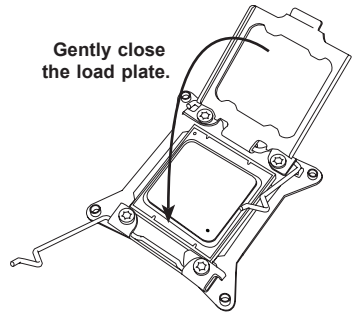


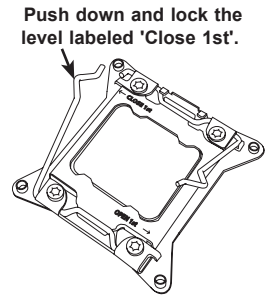


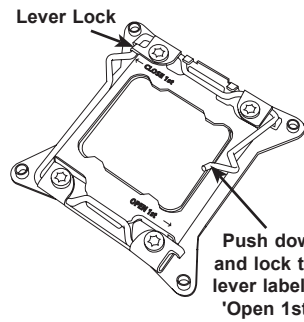
Warning: You can only install the CPU to the socket in one direction. Make sure that the CPU is properly inserted into the socket before closing the load plate. If it doesn't close properly, do not force it as it may damage your CPU. Instead, open the load plate again and double-check that the CPU is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

7. With the CPU in the socket, inspect the four corners of the CPU to make sure that they are flush with the socket.

8. Close the load plate. Lock the lever labeled 'Close 1st', then lock the lever labeled 'Open 1st'. Use your thumb to gently push the load levers down until the lever locks.







Installing a CPU Heatsink

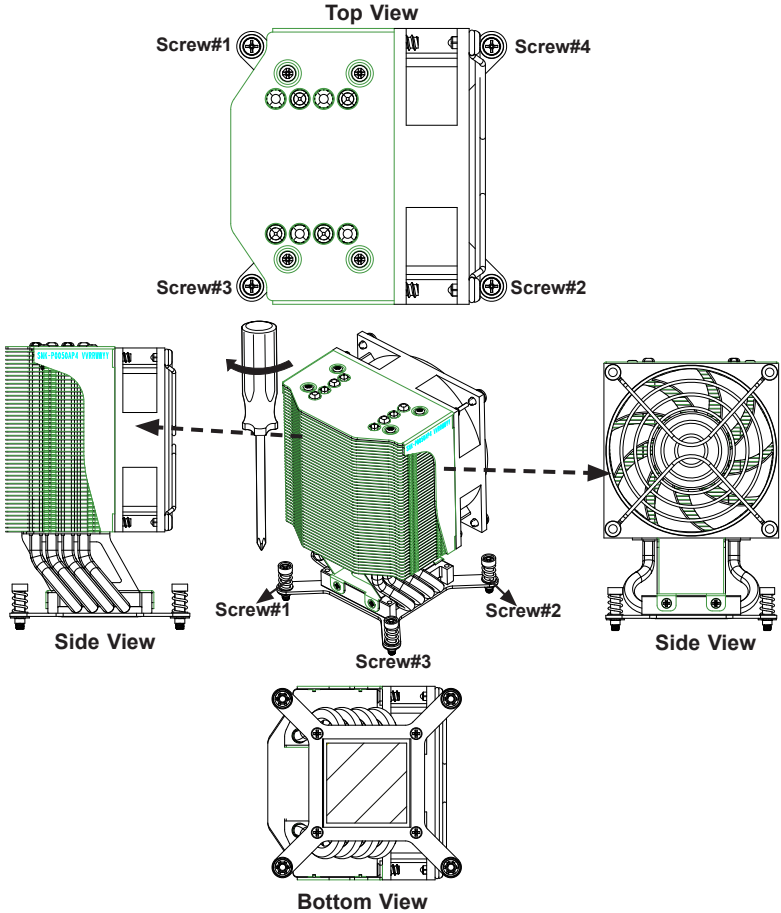
1. Do not apply any thermal grease to the heatsink or the CPU die; the required amount has already been applied.

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

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

4. Finish the installation by fully tightening all four screws.

Figure 5-3. Installing a Heatsink



Removing the Heatsink

Warning: We do not recommend that the CPU or the heatsink be removed. However, if you do need to uninstall the heatsink, please follow the instructions below to uninstall the heatsink to prevent damage done to the CPU or the CPU socket.

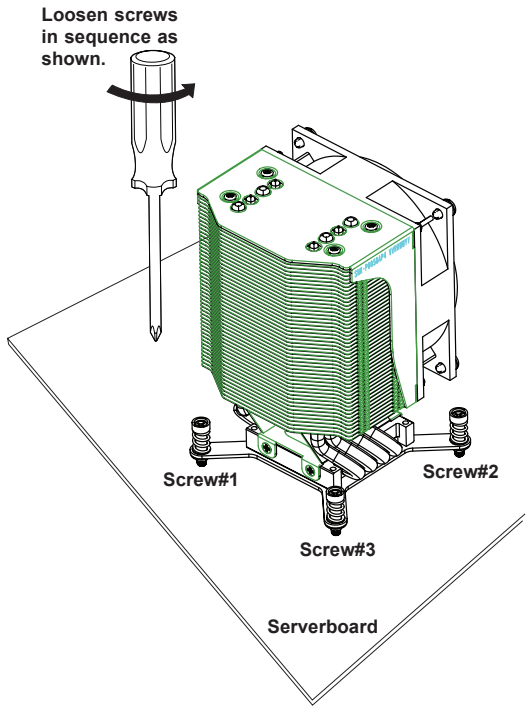
1. Unscrew the heatsink screws from the serverboard in the sequence as shown in the illustration below.

2. Gently wriggle the heatsink to loosen it from the CPU. (Do not use excessive force when wriggling the heatsink!)

3. Once the heatsink is loosened, remove it from the CPU socket.

4. Remove the used thermal grease and clean the surface of the CPU and the heatsink, Reapply the proper amount of thermal grease on the surface before reinstalling the heatsink.

Figure 5-4. Removing a Heatsink



5-6 Installing Memory Modules

Caution: To prevent any possible damage, exercise extreme care when installing or removing DIMMs. Be sure to use memory modules of the same type, same speed, same frequency on the same serverboard. Mixing of memory modules of different types and speeds is not allowed.

Installing & Removing DIMMs

1. Insert the desired number of DIMMs into the memory slots, starting with P1 DIMMA1. For best performance, please use the memory modules of the same type and speed in the same bank. See the DIMM Installation Charts on the following page.

2. Press down the release tabs on the ends of a memory slot. Insert each DIMM vertically into its slot. Pay attention to the notch along the bottom of the module to prevent inserting the DIMM incorrectly.

3. Using both thumbs, gently press down on the DIMM until it snaps into place in the slot. Repeat for all DIMMs.

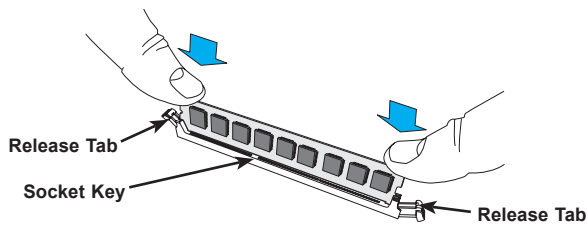
4. Reverse the steps above to remove a DIMM from its slot.

Memory Support

The X10DAi supports up to 1024 GB of RDIMM (Registered DIMMs) or LRDIMM (Load-Reduced DIMMs) ECC DDR4-2133/1866/1600 memory.

Notes: Memory speed support is pending on the CPUs installed on the serverboard. For the latest memory updates, please refer to the Tested Memory List posted on our website (http://www.supermicro.com/products/serverboard).

Figure 5-5. DIMM Installation



Processor & Memory Module Population Configuration

Processors and their Corresponding Memory Modules								
CPU#	Corresponding DIMM Modules							
CPU 1	P1-DIMMA1	P1-DIMMB1	P1-DIMMC1	P1-DIMMD1	P1-DIMMA2	P1-DIMMB2	P1-DIMMC2	P1-DIMMD2
CPU2	P2-DIMME1	P2-DIMMF1	P2-DIMMG1	P2-DIMMH1	P2-DIMME2	P2-DIMM F2	P2-DIMMG2	P2-DIMMH2

Processor and Memory Module Population for Optimal Performance	
Number of CPUs+DIMMs	CPU and Memory Population Configuration Table
1 CPU & 2 DIMMs	CPU1 P1-DIMMA1/P1-DIMMB1
1 CPU & 4 DIMMs	CPU1 P1-DIMMA1/P1-DIMMB1, P1-DIMMC1/P1-DIMMD1
1 CPU & 5~8 DIMMs	CPU1 P1-DIMMA1/P1-DIMMB1, P1-DIMMC1/P1-DIMMD1 + Any memory pairs in P1-DIMMA2/P1-DIMMB2/P1-DIMMC2/P1-DIMMD2 slots
2 CPUs & 4 DIMMs	CPU1 + CPU2 P1-DIMMA1/P1-DIMMB1, P2-DIMME1/P2-DIMMF1
2 CPUs & 6 DIMMs	CPU1 + CPU2 P1-DIMMA1/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1, P2-DIMME1/P2-DIMMF1
2 CPUs & 8 DIMMs	CPU1 + CPU2 P1-DIMMA1/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1, P2-DIMME1/P2-DIMMF1/P2-DIMMG1/P2-DIMMH1
2 CPUs & 10~16 DIMMs	CPU1/CPU2 P1-DIMMA1/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1, P2-DIMME1/P2-DIMMF1/P2-DIMMG1/P2-DIMMH1 + Any memory pairs in P1, P2 DIMM slots
2 CPUs & 16 DIMMs	CPU1/CPU2 P1-DIMMA1/P1-DIMMB1/P1-DIMMC1/P1-DIMMD1, P2-DIMME1/P2-DIMMF1/P2-DIMMG1/P2-DIMMH1,P1-DIMMA2/P1-DIMMB2/P1-DIMMC2/P1-DIMMD2, P2-DIMME2/P2-DIMMF2/P2-DIMMG2/P2-DIMMH2

Populating RDIMM/LRDIMM ECC Memory Modules

Type	Ranks Per DIMM and Data Width	DIMM Capacity (GB)		Speed (MT/s) Voltage (V)					
				1 Slot Per Channel	2 Slots Per Channel				
				1DPC	1DPC	2DPC	1DPC		
		4Gb	8Gb	1.2V	1.2V	1.2V	1.2V	1.2V	1
RDIMM	SRx4	8GB	16GB	2133	2133	1866	2133	1866	1
RDIMM	SRx8	4GB	8GB	2133	2133	1866			
RDIMM	DRx8	8GB	16GB	2133	2133	1866	2133	1866	1
RDIMM	DRx4	16GB	32GB	2133	2133	1866			
LRDIMM	QRx4	32GB	64GB	2133	2133	2133	2133	2133	1

5-7 Adding PCI Add-On Cards

The 7048A-T can accommodate standard size add-on cards populated in all slots on the X10DAi serverboard.

Installing an Add-on Card

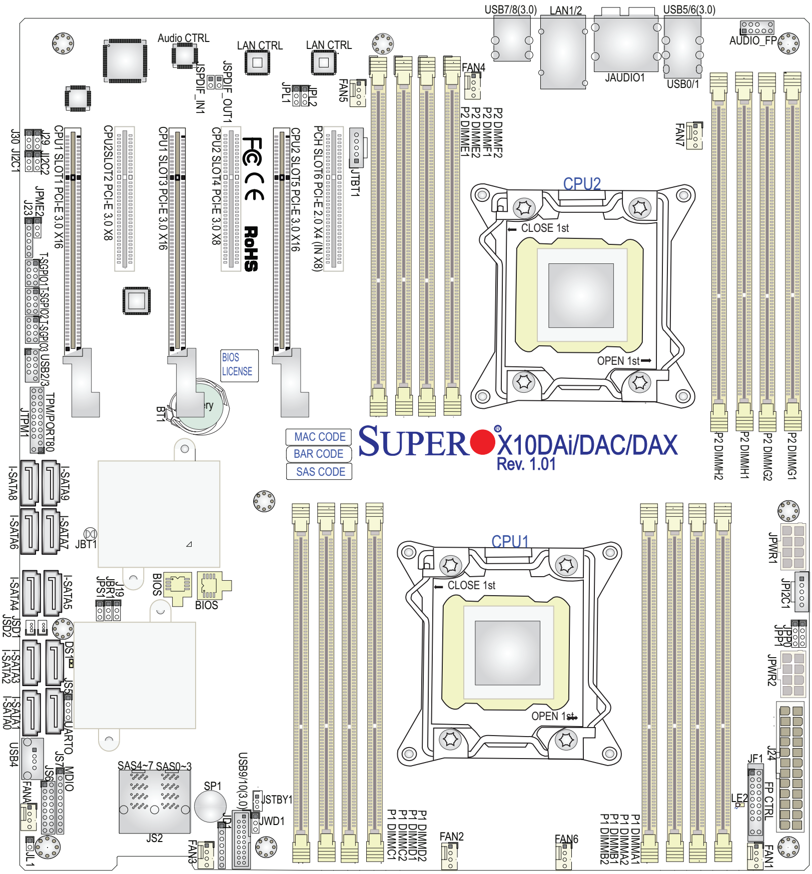
1. Begin by removing the PCI slot shield for the slot you wish to populate.

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

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

5-8 Serverboard Details

Figure 5-6. X10DAi Layout



Notes:

- "▪" indicates the location of "Pin 1".
- Jumpers not indicated are for test purposes only.
- SAS components are not included on the X10DAi,

X10DAi Quick Reference

LED	Description	State	Status
LE2	Standby PWR LED	Green: On	SB Power On

Jumper	Description	Default Setting
JBT1	Clear CMOS	See Section 5-10
JI^{2}C1/JI^{2}C2	SMBus to PCI-E Slots	Pins 2-3 (Normal)
JPL1	GLAN1 & GLAN2 Enable/Disable	Pins 1-2 (Enabled)
JPL2	GLAN2 Enable/Disable	Pins 1-2 (Enabled)
JPME2	Manufacturer Model Select	Pins 1-2 (ME Mode)
JWD1	Watch Dog	Pins 1-2 (Reset)

Connector	Description
Audio_FP (JA1)	Audio Connector for Front Access
JAudio1	7.1 HD (8-channel High-Definition) Audio Connector
CPU1 Slot1/Slot3	PCI-E 3.0 x16 Slots (available when CPU1 is installed)
CPU2 Slot5	PCI-E 3.0 x16 Slot (available when CPU2 is installed)
CPU2 Slot2	PCI-E 3.0 x8 Slot (available when CPU2 is installed)
CPU2 Slot4	PCI-E 3.0 x8 Slot (available when CPU2 is installed)
PCH Slot6	PCI-E 2.0 x4 in x8 Slot
FAN1-7, FANA	CPU/System Fan Headers
J24	ATX 24-Pin Power Connector
JD1	Speaker/Power LED Indicator
JF1	Front Panel Control Header
JL1	Chassis Intrusion Header
JPI^{2}C1	Power Supply SMBbus I^{2}C Header
JPWR1/JPWR2	12V 8-Pin Power Connectors
JSD1/JSD2	Powered SATA DOM Connectors 1/2
JSPDIF_In	SPDIF (Sony/Philips Digital Interface) In Header
JSPDIF_Out	SPDIF (Sony/Philips Digital Interface) Out Header
JTBT1	GPIO (General-Purpose I/O) Header for Thunderbolt Add-on Card
JTPM1	TPM (Trusted Platform Module)/Port 80 Header
LAN1/LAN2	Gb Ethernet Ports 1/2
I-SATA0-9	SATA Ports (supported by Intel PCH)
STBY1	Standby Power Header
T-SGPIO 1/2/3	Serial-Link General_Purpose IO Headers 1/2/3
USB 0/1 (2.0)	Rear USB 2.0 Ports
USB2/3, USB9/10	Front-accessible USB 2.0 (USB2/3) and 3.0 (USB9/10) Headers
USB 4 (2.0)	Type A USB 2.0 Connector USB 4
USB5/6/7/8	Rear USB 3.0 Ports

5-9 Connector Definitions

Main ATX Power Supply Connector

The main power supply connector (J24) meets the SSI EPS 12V specification. Refer to the table on the right for the pin definitions of the ATX 24-pin power connector. You must also connect the 8-pin power connectors to your power supply (see below).

Main ATX Power Connector Pin Definitions

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

Caution: To prevent damage to the power supply or serverboard, please be sure to connect the 24-pin and the two 8-pin power connectors on your serverboard to the power supply. Failure to do so will void the manufacturer warranty on the power supply and serverboard.

Processor Power Connectors

JPWR1 and JPWR2 must also be connected to the power supply to provide power for the processors. See the table on the right for pin definitions.

Processor Power Connectors Pin Definitions

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

Required Connection

Power Button

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

Power Button Pin Definitions (JF1)

Pin#	Definition
1	Signal
2	Ground

Reset Connector

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

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

Power Fail LED

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

PWR Fail LED Pin Definitions (JF1)	
Pin#	Definition
5	3.3V
6	PWR Supply Fail

Overheat/Fan Fail LED (OH)

Connect an LED to pins 7 and 8 of JF1 to provide advanced warning of chassis overheating or fan failure. Refer to the table on the right for pin definitions.

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

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

NIC1/NIC2 LEDs

The LED connections for the LAN1 and LAN2 ports are on pins 11-12 and 9-10 of JF1, repectively. Attach an LED cable to display network activity. See the table for pin definitions.

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

HDD LED

The HDD LED connection is located on pins 13 and 14 of JF1. This LED is used to display SATA drive activity. See the table on the right for pin definitions.

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

Power On LED

The Power On LED connector is located on pins 15 and 16 of JF1 (use JLED for a 3-pin connector). This connection is used to provide LED indication of power being supplied to the system. See the table on the right for pin definitions.

Power LED Pin Definitions (JF1)	
Pin#	Definition
15	3.3V
16	PWR LED

NMI Button

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

NMI Button Pin Definitions (JF1)

Pin#	Definition
19	Control
20	Ground

Fan Headers

The X10DAi has eight fan headers, all of which are 4-pin fans. However, pins 1-3 of the fan headers are backward compatible with the traditional 3-pin fans. The onboard fan speeds are controlled by IPMI. See the table on the right for pin definitions.

Fan Header Pin Definitions (FAN1-8)

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

Internal Speaker

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

Internal Buzzer Pin Definition

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

Power LED/Speaker

On JD1 header, pins 1-3 are used for power LED indication, and pins 4-7 are for the speaker. See the tables on the right for pin definitions. Please note that the speaker connector pins (4-7) are used with an external speaker. If you wish to use the onboard speaker, you should close pins 6-7 with a jumper.

PWR LED Connector Pin Definitions

Pin Setting	Definition
Pin 1	Anode (+)
Pin2	Cathode (-)
Pin3	NA

Speaker Connector Pin Settings

Pin Setting	Definition
Pins 4-7	External Speaker
Pins 6-7	Internal Speaker

Chassis Intrusion

The Chassis Intrusion header is designated JL1. Attach an appropriate cable from the chassis to inform you of a chassis intrusion when the chassis is opened

Chassis Intrusion Pin Definitions

Pin#	Definition
1	Intrusion Input
2	Ground

TPM Header/Port 80

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

TPM/Port 80 Header Pin Definitions

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

Standby Power Header

The Standby Power header is located at STBY1 on the serverboard. See the table on the right for pin definitions.

Standby Power Pin Definitions

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

Power SMB (I^2C) Connector

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

PWR SMB Pin Definitions

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

Ethernet Ports

Two Gigabit Ethernet ports (LAN1/2) are located on the I/O back panel on the serverboard All these ports accept RJ45 type cables. Please refer to the LED Indicator Section for LAN LED information.

SGPIO Header

Three SGPIO (Serial General Purpose Input/Output) headers are designated T-SGPIO1, T-SGPIO2 and T-SGPIO3. These headers are used to communicate with the system's enclosure management chip. See the table on the right for pin definitions.

SGPIO Header Pin Definitions

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

NC = No Connection

DOM Power Connector

Two power connectors for SATA DOM (Disk On Module) devices are located at JSD1 and JSD2. Connect an appropriate cable here to provide power support for your DOM devices.

DOM PWR Pin Definitions

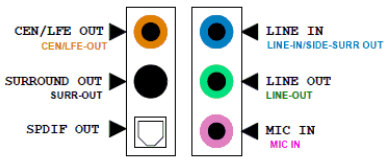
Pin#	Definition
1	+5V
2	Ground
3	Ground

7.1 HD (High-Definition) Audio

This serverboard features a 7.1 Channel High-Definition Audio (HDA) codec that provides 8 DAC channels. The HD audio supports multiple-streaming 7.1 sound playback through the frontpanel stereo output via subwoofer speakers. Download the appropriate software from our website to enable this function.

7.1 HD Audio

Conn#	Signal
1	SPDIF_Out
2	Surround_Out
3	CEN/LFE_Out
4	Mic_In
5	Line_Out
6	Line_In



HD Audio

10-Pin 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

Front Accessible Audio Header

A 10-pin audio header (AUDIO_FP), located next to USB ports 0-4, allows you to use the onboard sound for audio playback. Connect an audio cable to the audio header to use this feature. See the tables above for the pin definitions of the onboard audio headers.

Universal Serial Bus (USB)

Six Universal Serial Bus (USB) ports are located on the rear I/O panel. The USB5/6 and USB7/8 ports support 3.0 connections, while USB0/1 support 2.0 connections. Two USB headers on the board provide four USB connections (USB2/3, 9/10) for front access. USB2/3 support USB 2.0, and USB9/10 support USB 3.0 connections. In addition, a Type A USB header (USB4) also provides a USB 2.0 connection. USB cables are not included for front access. See the tables on the right for pin definitions.

Rear USB0/1 (2.0) Pin Definitions

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

Front Panel USB (2.0) 2/3, 4, Pin Definitions

USB 2/4		USB 3	
Pin #	Definition	Pin #	Definition
1	+5V	2	+5V
3	USB_PN2	4	USB_PN3
5	USB_PP2	6	USB_PP3
7	Ground	8	Ground
9	Key	10	Ground

Rear USB5/6, 7/8, Front Panel USB9/10 (3.0) 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

SPDIF_In/SPDIF_Out Headers

The SPDIF In (JSPDIF_In) and SPDIF Out (JSPDIF_Out) headers are located next to the LAN controller on the serverboard. Place a cap on each header for audio support. You will also need to have a cable to use each connection.

SPDIF_In Pin Definitions

Pin#	Definition
1	S/PDIF_In
2	Ground

SPDIF_Out Pin Definitions

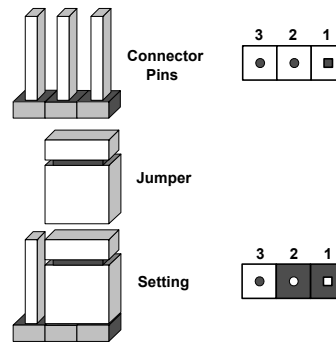
Pin#	Definition
1	S/PDIF_Out
2	Ground

5-10 Jumper Settings

Explanation of Jumpers

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

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



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

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

GLAN Enable/Disable

JPL1 enables/disables both LAN ports 1 and 2, while JPL2 enables/disables LAN2 only. See the table on the right for jumper settings. The default setting is enabled.

LAN Jumper Settings

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

LAN Enable/Disable Jumpers

Jumpers	LAN Ports Supported
JPL1	Enable/Disable LAN1 & LAN2
JPL2	Enable/Disable LAN2

Watch Dog Enable/Disable

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

Watch Dog Jumper Settings

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

Management Engine

Jumper JPME2 allows the user to flash the system firmware from a host server to modify system settings. Close this jumper to bypass SPI flash security, and force ME into recovery mode in order to use recovery jumpers. See the table on the right for jumper settings.

ME Mode Select Jumper Settings

Jumper Setting	Definition
Pins 1-2	Manufacture Mode
Pins 2-3	Normal

5-11 Onboard Indicators

LAN1/2 LEDs

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

LAN1/2 LED (Connection Speed Indicator)	
LED Color	Definition
Off	No Connection or 10 Mb/s
Green	100 Mb/s
Amber	1 Gb/s

Onboard Power LED

An Onboard Power LED is designated LE2 on the serverboard. When this LED is on, the system is on. Be sure to turn off the system and unplug the power cord before removing or installing components. See the table at right for more information.

Onboard PWR LED Indicator LED Definitions	
LED Color	Status
Off	System Off (PWR cable not connected)
Green	System On
Green: Flashing Quickly	ACPI S1 State

5-12 SATA Ports

SATA Ports

Two SATA3 Ports (I-SATA0/1), colored in white, and four SATA2 Ports (I-SATA2~5) are located on the serverboard. These ports provide serial-link signal connections, which are faster than the connections of Parallel ATA. See the table on the right for pin definitions.

SATA Port Pin Definitions			
Pin#	Definition	Pin #	Definition
1	Ground	2	TXP
3	TXN	4	Ground
5	RXN	6	RXP
7	Ground		

5-13 Installing Software

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

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

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

After creating a CD/DVD with the ISO files, insert the disk into the CD/DVD drive on your system and the display shown in Figure 5-7 should appear.

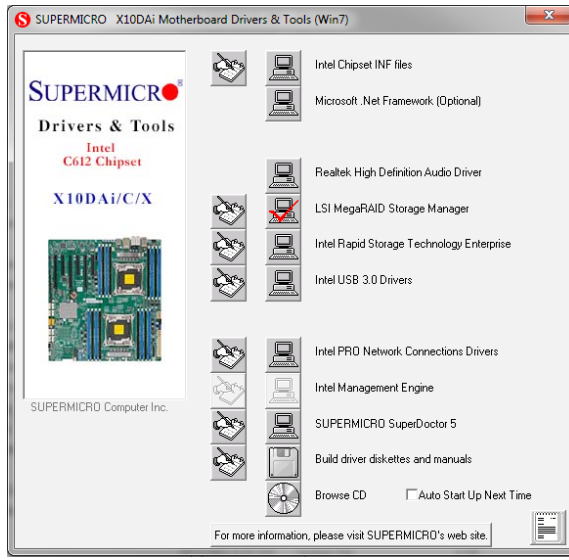


Figure 5-7. Driver/Tool Installation Display Screen

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

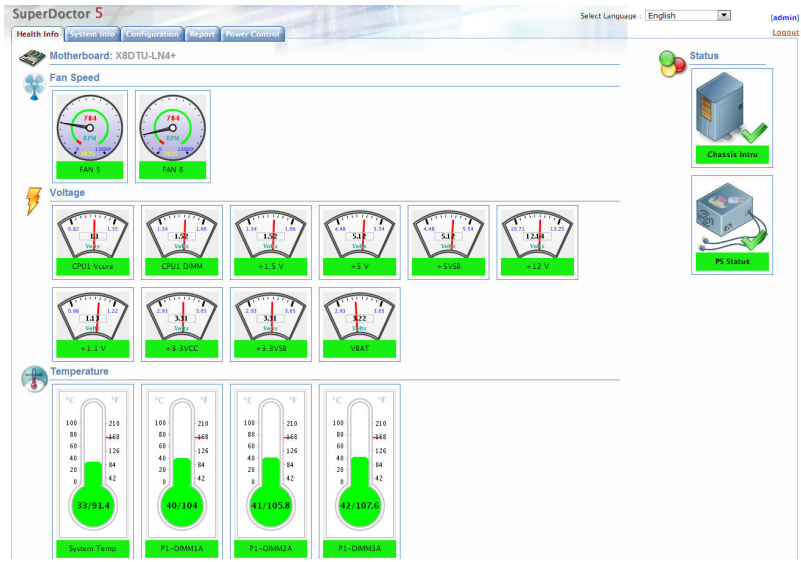
SuperDoctor® 5

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

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

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

Figure 5-8. SuperDoctor 5 Interface Display Screen (Health Information)

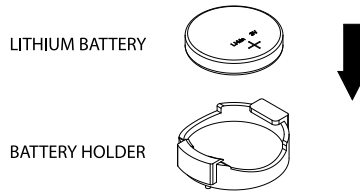


Note: The SuperDoctor 5 program and User's Manual can be downloaded from the Supermicro web site at http://www.supermicro.com/products/nfo/sms_sd5.cfm.

5-14 Onboard Battery

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

Figure 5-9. Installing the Onboard Battery



Notes

Chapter 6

Advanced Chassis Setup

This chapter covers the steps required to install components and perform simple maintenance on the SC743TQ-1200B-SQ chassis. Following the component installation steps in the order given will eliminate most common problems. If some steps are unnecessary, skip ahead to the step that follows.

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

6-1 Static-Sensitive Devices

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

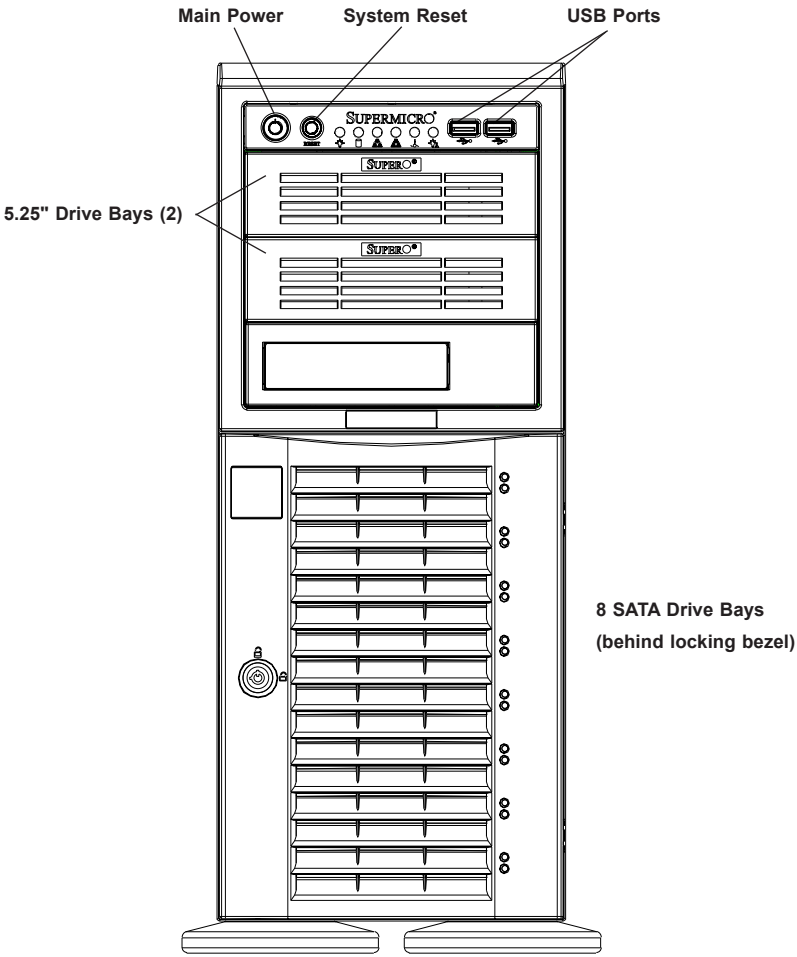
Precautions

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

Unpacking

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

Figure 6-1. Chassis Front View



6-2 Front Control Panel

The front control panel must be connected to the JF1 connector on the serverboard to provide you with system status and alarm indications. A ribbon cable has bundled these wires together to simplify this connection.

Connect the cable from JF1 on the serverboard (making sure the red wire plugs into pin 1) to the appropriate comnnector on the front control panel PCB (printed circuit board). Pull all excess cabling over to the control panel side of the chassis. The LEDs on the control panel inform you of system status - see Figure 6-2 for details. See Chapter 5 for details on JF1.

Figure 6-2. Front Control Panel LEDs

Power  Indicates power is being supplied to the system.

HDD  On the 7048A-T, this LED indicates hard drive activity when flashing.

NIC1 

Indicates network activity on LAN port 1.

NIC2 

Indicates network activity on LAN port 2

Overheat/Fan Fail  When this LED flashes, it indicates a fan failure. When on continuously it indicates an overheat condition (see Chapter 3 for details).

Power Fail  Indicates a power supply fan failure. An alarm will also sound, which can be turned off with the reset switch on the back of the power supply.

6-3 System Fans

Two 8-cm PWM chassis fans provide air intake while one 9-cm PWM exhaust fan expels hot air from the chassis. All are low-noise fans that result in "Whisper-Quiet" operation (~28 dB). The fans should be connected to headers on the serverboard (see Chapter 5).

The power supply includes redundant cooling fans. If one fan fails, the remaining fan will ramp up its rpm to provide sufficient cooling. The Power Fail LED will illuminate and an audible alarm will sound, which can be silenced with a button on the power supply. If a power supply fan fails, you should replace the power supply at your earliest convenience.

Fan Failure

Under normal operation, the chassis fans, the exhaust fan and the power supply fans run continuously. The chassis fans are hot-pluggable and can be replaced without powering down the system.

Replacing Fans

Removing a Fan

1. First locate the failed fan by removing the top/left chassis cover (see Chapter 2 for details). Locate the fan that has stopped working.

2. Depress the locking tab on the failed fan: on a chassis fan, push the tab on the side of the housing inward, on the exhaust fan push down on the colored tab.

3. With the tab depressed, pull the unit straight out (see Figure 6-3). The wiring for these fans has been designed to detach automatically.

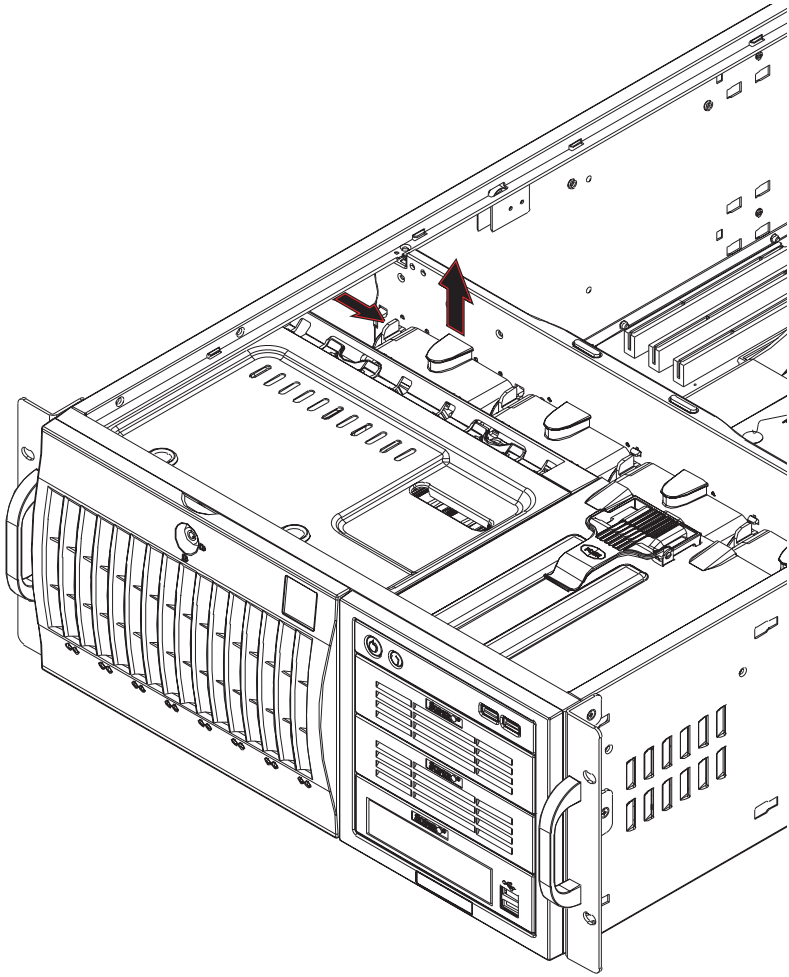
Installing a New Fan

1. Replace the failed fan with an identical one (available from Supermicro)

2. Install it in the same position and orientation as the one you removed; it should click into place when fully inserted.

3. Check that the fan is working then replace the top/left side chassis panel.

Figure 6-3. Removing a Chassis Fan



6-4 Drive Bay Installation

A total of eight SATA drives may be housed in the SC743TQ-1200B-SQ chassis. The drive IDs are preconfigured as 0 through 7 in order from bottom to top (or from left to right if rackmounted).

A bezel covers the drive area but does not need to be removed to access the drives; simply swing open the bezel. If you wish to remove the bezel piece, push on the three tabs on the inside of the left lip of the front chassis cover. Then slightly swing out the same (left) side of the cover - about ½ inch only. Remove by pushing on the open side of the cover to remove it from the chassis (do not try to swing or pull it straight out after opening the left side).

Caution: Regardless of how many SATA drives are installed, all drive carriers must remain in the drive bays to promote proper airflow.

Installing/Removing SATA Drives

The SATA drive carriers are all easily accessible at the front of the chassis. These drives are hot-swappable, meaning they can be removed and installed without powering down the system.

1. Open the front bezel then push the release button located beside the drive LEDs.

2. Swing the handle fully out and then use it to pull the unit straight out.

Note: Your operating system must have RAID support to enable the hot-swap capability of the SATA drives.

Mounting a SATA drive in a Drive Carrier

The SATA drive carriers help to promote proper airflow for the system. For this reason, even carriers without SATA drives must remain in the chassis.

1. Insert the drive into the carrier with the printed circuit board side facing down so that the mounting holes align with those in the carrier.

2. Secure the drive to the carrier with four screws (see Figure 6-5).

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

Figure 6-4. Removing a SATA Drive Carrier

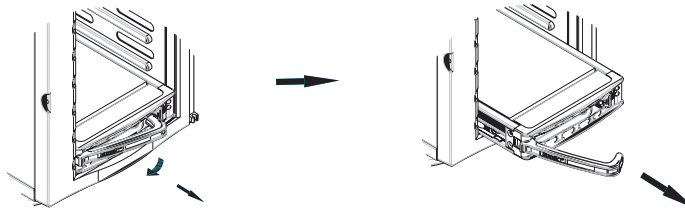
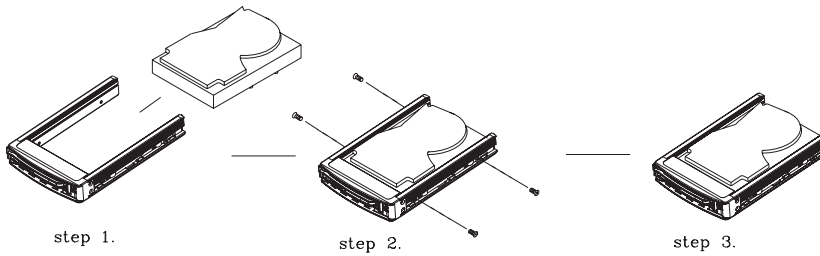


Figure 6-5. Mounting a SATA Drive in a Carrier



Warning: Use extreme caution when working around the SATA backplane. Do not touch the backplane with any metal objects and make sure no ribbon cables touch the backplane or obstruct the airflow holes.

SATA Backplane

The SATA drives plug into a drive backplane. A data cable for each drive and two LED cables need to be connected from the serverboard to the appropriate connectors on the backplane. Note that you cannot cascade the SATA backplane.

Installing Components in the 5.25" Drive Bays

The 7048A-T has two 5.25" drive bays. Components such as an extra DVD-ROM drive can be installed into these 5.25" drive bays.

Removing the Empty Drive Bay

1. First power down the system.
2. Remove the top/left chassis cover to access the drive components.
3. With the cover off, remove the screws that secure the drive carrier to the chassis (one side only) then push the entire empty drive carrier out from the back.

Adding a DVD-ROM Drive

1. Remove the guide plates (one on each side) from the empty drive carrier and screw them into both sides of the DVD-ROM drive using the holes provided.
2. Slide the DVD-ROM into the bay and secure it to the chassis with the drive carrier screws you first removed.
3. Attach the power and data cables to the drive.
4. Replace the top/left chassis cover and restore power to the system.

6-5 Power Supply

The SuperWorkstation 7048A-T has a single 1200 watt power supply. This power unit is equipped with low-noise technology, making the system ideal for workstation environments.

The power supply has an auto-switching capability that enable it to automatically sense and operate with 100 or 240 volt inputs.

Power Supply Failure

If the power supply unit fails, the system will shut down and you will need to replace the power supply unit. Replace with the same model, which can be ordered directly from Supermicro. As there is only one power supply unit, the system must be powered down before removing and/or replacing the power supply for whatever reason.

Replacing the Power Supply

1. First power down the system.
2. Unplug the power cord from the power supply module.
3. Remove the screws that secure the module to the chassis then pull it completely out.
4. Replace the failed unit with another unit of the exact same part number.
5. Gently but firmly push the new unit all the way into the open bay.
6. Secure it to the chassis using the screws you previously removed.
7. Finish by replacing the chassis left/top cover and then plugging the power cord back into the new module you just added.
8. Push the power button to restart the system.

Notes

Chapter 7

BIOS

7-1 Introduction

This chapter describes the AMI BIOS setup utility for the X10DAi/X10DAC/X10DAX. The ROM BIOS is stored in a Flash EEPROM and can be easily updated. This chapter describes the basic navigation of the AMI BIOS setup utility screens.

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

Starting BIOS Setup Utility

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

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

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

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

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

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

How To Change the Configuration Data

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

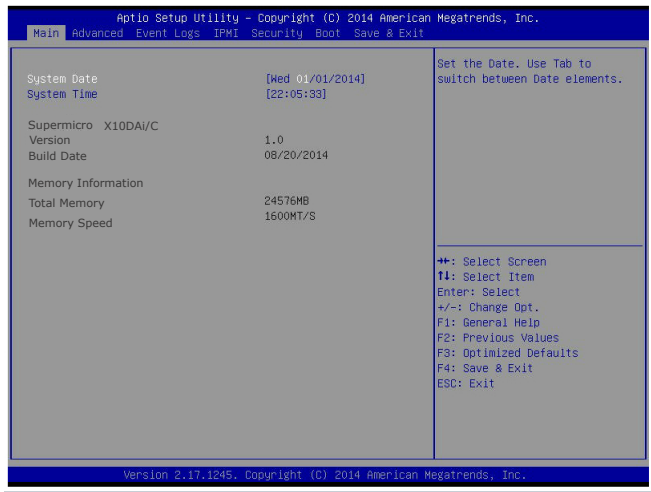
How to Start the Setup Utility

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

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

7-2 Main Setup

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



The following Main menu items will be displayed:

System Date/System Time

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

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

Supermicro X10DAi/C

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

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

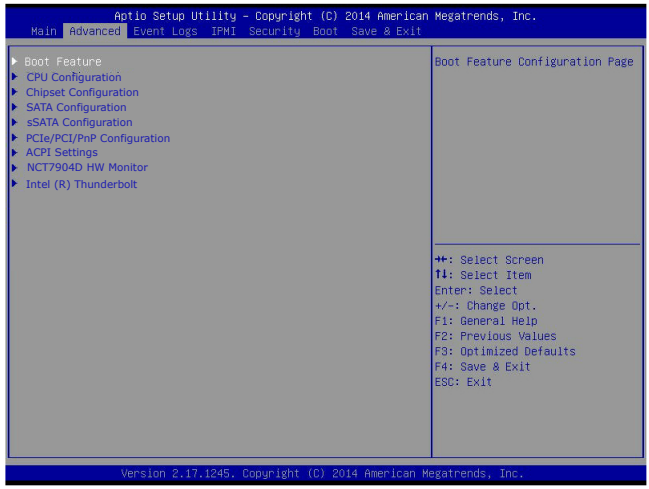
Memory Information

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

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

7-3 Advanced Setup Configurations

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



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

▶Boot Feature

Quiet Boot

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

AddOn ROM Display Mode

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

Bootup Num-Lock State

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

Wait For 'F1' If Error

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

INT19 (Interrupt 19) Trap Response

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

Re-try Boot

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

Power Configuration

EuP

Select Enabled for EuP (Energy using Product) support to conserve energy use and enhance power performance. The options are Enabled and **Disabled.**

Watch Dog Function

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

Power Button Function

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

Restore on AC Power Loss

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

▶CPU Configuration

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

- Processor Socket
- Processor ID
- Processor Frequency
- Processor Max Ratio
- Processor Min Ratio
- Microcode Revision
- L1 Cache RAM
- L2 Cache RAM
- L3 Cache RAM
- Processor 0 Version
- Processor 1 Version

Clock Spread Spectrum

Select Enabled to allow the BIOS to monitor and attempt to reduce the level of Electromagnetic Interference caused by the components whenever needed. The options are **Disabled** and Enabled.

Hyper-Threading (All)

Select Enable to support Intel's Hyper-threading Technology to enhance CPU performance. The options are **Enable** and Disable.

Cores Enabled

This feature allows the user to set the number of CPU cores to enable. Enter "0" to enable all cores. There are 10 cores available in the system. The default setting is **0**.

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

Select Enable for Execute Disable Bit Technology support, 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 to damage the system during an attack. This feature is used in conjunction with the items: "Clear MCA," "VMX," "Enable SMX," and "Lock Chipset" for Virtualization media support. The options are **Enable** and Disable. (Refer to Intel and Microsoft websites for more information.)

PPIN Control

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

Hardware Prefetcher (Available when supported by the CPU)

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

Adjacent Cache Prefetch (Available when supported by the CPU)

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

> **Note**: Please reboot the system for changes on this setting to take effect. Please refer to Intel's website for detailed information.

DCU (Data Cache Unit) Streamer Prefetcher (Available when supported by the CPU)

If set to Enable, the DCU Streamer Prefetcher will prefetch data streams from the cache memory to the DCU (Data Cache Unit) to speed up data accessing and processing to enhance CPU performance. The options are Disable and **Enable**.

DCU IP Prefetcher

If set to Enable, the IP prefetcher in the DCU (Data Cache Unit) will prefetch IP addresses to improve network connectivity and system performance. The options are **Enable** and Disable.

Direct Cache Access (DCA)

Select Enable to use Intel DCA (Direct Cache Access) Technology to improve the efficiency of data transferring and accessing. The options are **Auto**, Enable, and Disable.

X2APIC (Advanced Programmable Interrupt Controller)

Based on Intel's Hyper-Threading architecture, each logical processor (thread) is assigned 256 APIC IDs (APIDs) in 8-bit bandwidth. When this feature is set to Enable, the APIC ID will be expanded from 8 bits (X2) to 16 bits to provide 512 APIDs to each thread to enhance CPU performance. The options are **Disable** and Enable.

AES-NI

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

Intel Virtualization Technology

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

▶ Advanced Power Management Configuration

Advanced Power Management Configuration

Power Technology

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

If the option is set to Custom, the following items will display:

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

EIST (P-states)

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

Turbo Mode

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

P-state Coordination

This feature is used to change the P-state (Power-Performance State) coordination type. P-state is also known as "SpeedStep" for Intel processors. Select HW_ALL to change the P-state coordination type for hardware components only. Select SW_ALL to change the P-state coordination type for all software installed in the system. Select SW_ANY to change the P-state coordination type for a software program in the system. The options are **HW_All,** SW_ALL, and SW_ANY.

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

Package C State limit

Use this item to set the limit on the C-State package register. The options are C0/1 state, C2 state, C6 (non-Retention) state, **C6 (Retention) state**, and No Limit.

CPU C3 Report

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

CPU C6 Report (Available when Power Technology is set to Custom)

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

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. You will need to reboot the system for the change of this setting to take effect. The options are Disable and **Enable**.

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

ACPI (Advanced Configuration Power Interface) T-States

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

▶Chipset Configuration

Warning! Please set the correct settings for the items below. A wrong configuration setting may cause the system to malfunction.

▶North Bridge

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

▶IIO Configuration

EV DFX (Device Function On-Hide) Feature

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

▶IIO0 Configuration

IIO1 Port 1A Link Speed

Use this item to configure the link speed of a PCI-E device installed on the PCI-E slot specified by the user. The options are Gen1 (2.5 GT/s), Gen2 (5 GT/s), Gen3 (8 GT/s), and **Auto**.

IIO1 Port 2A Link Speed

Use this item to configure the link speed of a PCI-E device installed on the PCI-E slot specified by the user. The options are Gen1 (2.5 GT/s), Gen2 (5 GT/s), Gen3 (8 GT/s), and **Auto**.

IIO1 Port 3A Link Speed

Use this item to configure the link speed of a PCI-E device installed on the PCI-E slot specified by the user. The options are Gen1 (2.5 GT/s), Gen2 (5 GT/s), Gen3 (8 GT/s), and **Auto**.

▶IIO1 Configuration

IIO2 Port 1A Link Speed

Use this item to configure the link speed of a PCI-E device installed on the PCI-E slot specified by the user. The options are Gen1 (2.5 GT/s), Gen2 (5 GT/s), Gen3 (8 GT/s), and **Auto**..

IIO2 Port 2A Link Speed

Use this item to configure the link speed of a PCI-E device installed on the PCI-E slot specified by the user. The options are Gen1 (2.5 GT/s), Gen2 (5 GT/s), Gen3 (8 GT/s), and **Auto**.

IIO2 Port 3C Link Speed

Use this item to configure the link speed of a PCI-E device installed on the PCI-E slot specified by the user. The options are Gen1 (2.5 GT/s), Gen2 (5 GT/s), Gen3 (8 GT/s), and **Auto**.

▶IOAT (Intel® IO Acceleration) Configuration

Enable IOAT

Select Enable to enable Intel I/OAT (I/O Acceleration Technology) support, which will significantly reduce 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 earlier. The options are **Disable** and Enable.

▶ Intel VT for Directed I/O (VT-d)

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

Intel® VT for Directed I/O (VT-d)

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

Interrupt Remapping

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

Coherency Support (Non-Isoch)

Select Enable for the Non-Iscoh VT-d engine to pass through DMA (Direct Memory Access) to enhance system performance. The options are **Enable** and Disable.

Coherency Support (Isoch)

Select Enable for the Iscoh VT-d engine to pass through ATS to enhance system performance. The options are Enable and **Disable**.

▶QPI (Quick Path Interconnect) Configuration

▶QPI General Configuration

QPI Status

The following information will display:

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

Link Frequency Select

Use this item to select the desired frequency for QPI Link connections. The options are 6.4GB/s, 8.0GB/s, 9.6GB/s, **Auto,** and Auto Limited.

Link L0p Enable

Select Enable for Link L0p support. The options are **Enable** and Disable.

Link L1 Enable

Select Enable for Link L1 support. The options are **Enable** and Disable.

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

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

Isoc Mode

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

▶Memory Configuration

Enforce POR

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

Memory Frequency

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

Data Scrambling

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

DRAM RAPL (Running Average Power Limit) Baseline

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

Set Throttling Mode

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

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.

▶DIMM Information

This item displays the status of a DIMM module as detected by the BIOS.

P1-DIMMA1/A2, P1-DIMMB1/B2, P1-DIMMC1/C2, P1-DIMMD1/D2, P2-DIMME1/E2, P2-DIMMF1/F2, P2-DIMMG1/G2, and P2-DIMMH1/H2

▶Memory RAS (Reliability_Availability_Serviceability) Configuration

Use this submenu to configure the following Memory RAS settings.

RAS Mode

When Disable is selected, RAS is not supported. When Mirror is selected, the motherboard maintains two identical copies of all data in memory for data backup. When Lockstep is selected, the motherboard uses two areas of memory to run the same set of operations in parallel to boost performance. The options are **Disable**, Mirror, and Lockstep Mode.

Memory Rank Sparing

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

Patrol Scrub

Patrol Scrubbing is a process that allows the CPU to correct correctable memory errors detected on a memory module and send the correction to the requestor (the original source). When this item is set to Enable, the PCH (Platform Control Hub) will read and write-back one cache line every 16K cycles if there is no delay caused by internal processing. By using this method, roughly 64 GB of memory behind the PCH will be scrubbed every day. The options are **Enable** and Disable.

Patrol Scrub Interval

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

Demand Scrub

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

Device Tagging

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

▶South Bridge Configuration

The following South Bridge information will display:

▶USB Configuration

- USB Module Version
- USB Devices

Legacy USB Support

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

XHCI (Extensible Host Controller Interface) 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 (Enhanced Host Controller Interface) 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**.

Port 60/64 Emulation

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

USB 3.0 Support

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

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**.

Azalia

Select Enabled to enable onboard Azalia audio devices. Select Auto for the BOIS to automatically enable Azalia support when an onboard Azalia device is detected. The settings are **Auto**, Enabled, and Disabled.

Azalia PME Enable

Select Enabled to enable PME (Power Management Event) support for Azalia. The settings are Enabled and **Disabled**.

▶SATA Configuration

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

SATA Controller

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

Configure SATA as

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

**If the item 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~ Port 5

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

- Model number of drive and capacity
- Software Preserve Support

SATA Port 0~ Port 5

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

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 indicates that a SATA port specified by the user is installed (present) or not.

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

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

**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.

SATA RAID Option ROM/UEFI Driver

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

SATA/sSATA RAID Boot Select

Select SATA Controller to boot the system from a SATA RAID device. Select sSATA Controller to boot the system from a S-SATA RAID device. Select Both to boot the system either from a SATA RAID device or from an sSATA RAID device. Please note that the option-Both is not supported by the Windows Server 2012/R2 OS. The options are None, Both, SATA Controller, and **sSATA Controller**.

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
- Software Preserve Support

Port 0~ Port 5

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

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 Configuration

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

sSATA Controller

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

Configure sSATA as

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

**If the 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 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.

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

Support Aggressive Link Power Management

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

sSATA RAID Option ROM/UEFI Driver

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

SATA/sSATA RAID Boot Select

Select SATA Controller to use a device supported by the SATA connector for system boot. Select sSATA Controller to use a device supported by the sSATA connector for system boot. The options are None, SATA Controller, **sSATA Controller**, and Both.

sSATA Port 0~ Port 3

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

- 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.

▶PCIe/PCI/PnP Configuration

PCI Devices Common Settings

PCI Latency Timer

Use this item to configure the PCI latency timer for a device installed on a PCI bus. Select 32 to set the PCI latency timer to 32 PCI clock cycles. The options are **32**, 64, 96, 128, 160, 192, 224 and 248 (PCI Bus Clocks).

VGA Palette Snoop

Select Enabled to support VGA palette register snooping which will allow the PCI cards that do not contain their own VGA color palette to examine the video cards palette and mimic it for proper color display. The options are **Disabled** and Enabled.

PCI PERR# Generation

Select Enabled for the BIOS to generate a PERR number when a runtime PERR (PCI/PCI-E Parity Error) event occurs on a PCI/PCI-E slot for PERR reporting. The options are Enabled and **Disabled**.

PCI SERR# Support

Select Enabled for the BIOS to generate a SERR number when a runtime SERR (System Error) event occurs on a PCI/PCI-E slot for SERR reporting. The options are Enabled and **Disabled**.

PCI PERR/SERR Support

Select Enabled to support PERR (PCI/PCI-E Parity Error)/SERR (System Error) runtime error reporting for a PCI/PCI-E slot. 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**.

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

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

Maximum Payload

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

Maximum Read Request

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

ASPM Support

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

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

MMIOHBase

Use this item to select the base memory size according to memory-address mapping for the PCH. The base memory size must be between 4032G to 4078G. The options are **56T**, 48T, 24T, 2T, 512G, and 256G.

MMIO High Size

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

PCI Devices Option ROM Setting

CPU1 Slot 1 PCI-E x16 OPROM (Option ROM)/CPU2 Slot 2 PCI-E x8 OPROM (Option ROM)/CPU1 Slot 3 PCI-E x16 OPROM (Option ROM)/CPU2 Slot 4 PCI-E x8 OPROM (Option ROM)/CPU1 Slot 5 PCI-E x16 OPROM (Option ROM)/PCH Slot 6 PCI-E x4 OPROM (Option ROM)/Onboard LSI 3008 OPROM (Option ROM)

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

Onboard LAN Option ROM Type

Select Legacy to boot the computer using a Legacy device installed on the motherboard. The options are **Legacy** and EFI.

Onboard LAN1 Option ROM/Onboard LAN2 Option ROM

Use this option to select the type of device installed in LAN Port1, LAN Port2 or the onboard video device used for system boot. The default setting for LAN1 Option ROM is **PXE**, for LAN2 Option ROM is **Disabled**.

Network Stack

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

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

Configuration

Security Device Support

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

TPM State

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

Pending Operation

Use this item to schedule a TPM-related operation to be performed by a security device for system data integrity. Your system will reboot to carry out a pending TPM operation. The options are **0**, Enable Take Ownership, Disable Take Ownership, and TPM Clear.

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

Current Status Information

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

▶ACPI Settings

WHEA Support

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

High Precision Timer

Select Enabled to activate the High Precision Event Timer (HPET) that produces periodic interrupts at a much higher frequency than a Real-time Clock (RTC) does in

synchronizing multimedia streams, providing smooth playback 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.

NUMA (Available when the OS supports this feature)

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

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 only (Suspend to RAM)**.

PCI AER (Advanced Error-RepoArting) Support

Select Enabled to support Advanced Error-Reporting for onboard PCI devices. The options are **Disabled** and Enabled.

▶NCT7904D HW Monitor

This submenu displays system health monitoring information on the following items as detected by the BIOS:

- CPU1 Temperature
- CPU2 Temperature
- PCH Temperature
- System Temperature
- Fan1 Speed - Fan7 Speed & FanA Speed
- 1.05V
- 1.5V
- 5VSB
- 5V
- 12V

- CPU1 VCore/CPU2 VCore
- VDIMM AB/VDIMM CD/VDIMM EF/VDIMM GH
- 3.3V
- 3.3VSB
- VBAT

▶Intel® Thunderbolt

This feature is used to enable hot-plug support in the BIOS setup when the OS does not support PCI-E or SHPC hot-plugging.

The following items will be displayed:

- Thunderbolt Specification
- Intel Sample Code Version
- Thunderbolt Host Chip

BIOS Hot-Plug Support

Select Enabled to enable BIOS hot-plug support which will allow the user to replace a component or disk drive without shutting down the system. The options are **Enabled** and Disabled.

Intel Thunderbolt Technology

Select Enabled to support Intel Thunderbolt Technology to enhance system performance. The options are **Enabled** and Disabled.

Security Level

Use this item to set the security level for Intel Thunderbolt features. The options are Legacy Mode, **Unique ID**, One Time Saved Key, and DP++ only.

Wake From Thunderbolt Devices

Select Enabled to allow the system to "wake-up" a PCI devices while in "Thunderbolt state". The options are **Enabled** and Disabled.

AIC Support

Select Enabled for the system to execute the Go2Sx command before going to sleep. The options are Enabled and **Disabled**.

Thunderbolt PCIe Cache-line Size

Use this item to set the PCI-E cache-line size to be used in THE Thunderbolt subtree. The options are 0, 1, 2, 4, 8, 16, **32**, 64 and 128.

SMI/Notify Support

If this item is set to Enabled, SMI (Structure of Management Information) notification will be provided for Thunderbolt Technology support. The options are Enabled and **Disabled**.

Ignore Thunderbolt Option ROM

Select Enabled to ignore Thunderbolt Option ROM, which will not allow the system to boot up from a PCI-E device used in the Thunderbolt technology. The options are **Enabled** and Disabled.

Thunderbolt SwSMI Delay

Use this item to set the time delay setting to allow a PCI-E device used in the Thunderbolt technology to be detected by the BIOS before system boot. The default setting is **0 (=Disabled)**.

TBT Device IO Resource Support

Select Enabled to allocate IO resources to be used by "Thunderbolt devices". The options are Enabled and Disabled.

Reserved Mem (Memory) per Phy (Physical) Slot

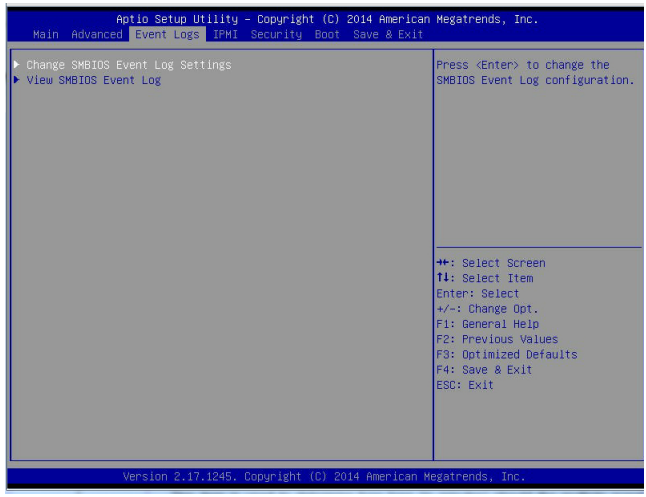
Use this item to specify the size of memory that the BIOS should allocate for each PCI-E physical slot when the onboard PCI-E devices will consume more than the total size of memory available on the motherboard. The default setting is **32**.

Reserved PMem (Prefetchable Memory) per Phy (Physical) Slot

Use this item to specify the size of prefetchable memory that the BIOS should allocate for each PCI-E physical slot when the onboard PCI-E devices will consume more than the total size of memory available on the motherboard. The default setting is **32**.

7-4 Event Logs

Use this feature to configure Event Log settings.



▶Change SMBIOS Event Log Settings

This feature allows the user to configure SMBIOS Event settings.

Enabling/Disabling Options

SMBIOS Event Log

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

Runtime Error Logging Support

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

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

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

PCI-Ex (PCI-Express) Error Enable

Select Yes for the BIOS to correct errors occurred in the PCI-E slots. The options are Enabled and **Disabled**.

Memory Correctable Error Threshold

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

Erasing Settings

Erase Event Log

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

When Log is Full

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

SMBIOS Event Log Standard Settings

Log System Boot Event

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

MECI (Multiple Event Count Increment)

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

METW (Multiple Event Count Time Window)

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

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

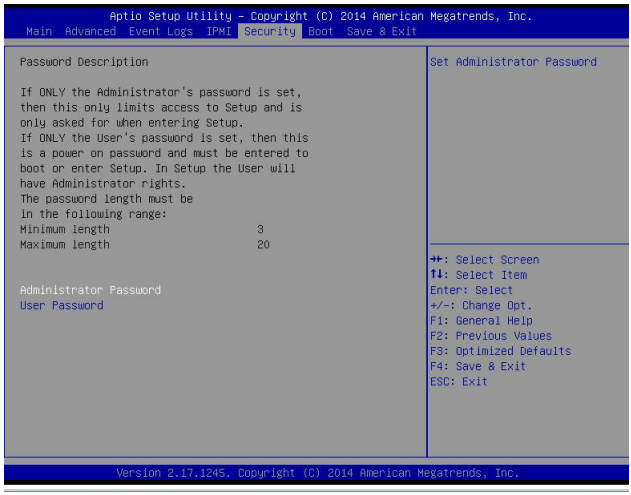
▶View SMBIOS Event Log

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

Date/Time/Error Code/Severity

7-5 Security Settings

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



Administrator Password

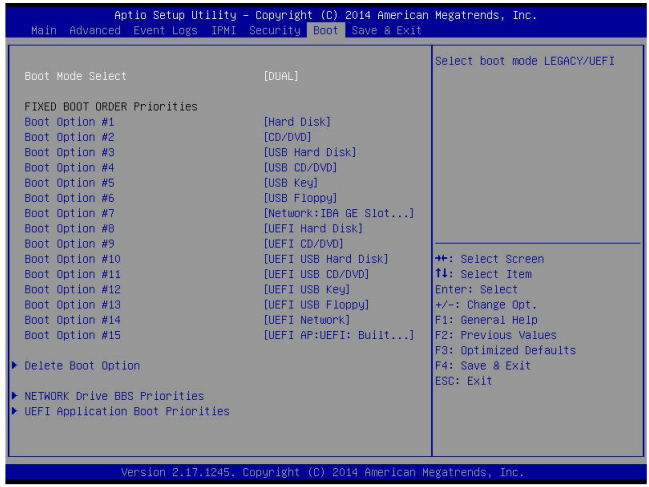
Use this feature to set the administrator password which is required before the user entering the BIOS setup utility. The length of the password should be from 3 characters to 20 characters long.

User Password

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

7-6 Boot Settings

Use this feature to configure Boot Settings:



Boot Configuration

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
- Dual Boot Order #15

▶Add New Boot Option

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

Add Boot Option

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

Path for Boot Option

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

Create

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

▶Delete Boot Option

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

Delete Boot Option

Select the target boot device to delete.

▶Hard Disk Drive BBS Priorities

- Boot Order #1
- Boot Order #2

▶Network Drive BBS Priorities

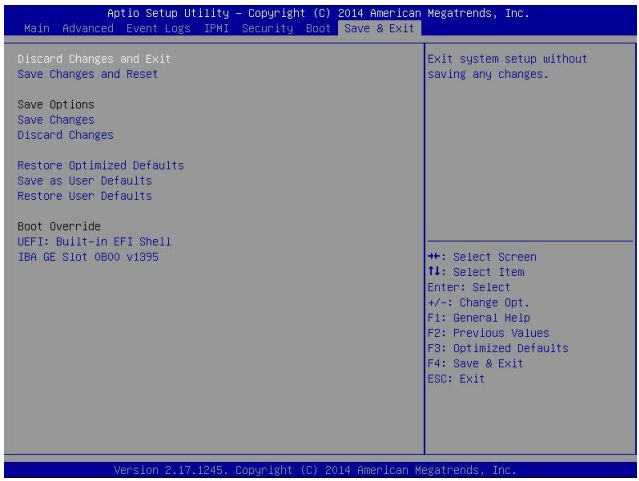
- Boot Order #1

▶UEFI Application Boot Priorities

- UEFI Boot Order #1

7-7 Save & Exit

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



Discard Changes and Exit

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

Save Changes and Reset

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

Save Options

Save Changes

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

Discard Changes

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

Restore Optimized Defaults

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

Save as User Defaults

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

Restore User Defaults

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

Boot Override

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

Notes

Appendix A

BIOS Error Beep Codes

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

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

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

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

BIOS Error Beep Codes		
Beep Code/LED	**Error Message**	**Description**
1 beep	Refresh	Circuits have been reset. (Ready to power up)
5 short beeps + 1 long beep	Memory error	No memory detected in the system
5 beeps	No Con-In or Con-Out devices	Con-In includes USB or PS/2 keyboard, PCI or Serial Console Redirection. Con-Out includes Video Controller, PCI or Serial Console Redirection.

Notes

Appendix B

System Specifications

Processors

Two Intel E5-2600 processors in LGA 2011 sockets

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

Chipset

Intel C612

BIOS

8 Mb AMI SPI Flash EEPROM

Memory Capacity

Sixteen DIMM sockets supporting up to 1024 GB of DDR4-2133/1866/1600/ RDIMMs or LRDIMMs

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

SATA Controller

Intel on-chip controller for ten-port SATA 3.0 system

Drive Bays

Eight hot-swap drive bays to house eight SATA drives

Expansion Slots

Supports the use of three standard size PCI-E 3.0 x16, two PCI-E 3.0 x8 and one PCI-E 2.0 x4 (in a x8 slot) slots.

Serverboard

X10DAi (Extended ATX form factor)

Dimensions: 12" x 13" (305 x 330 mm)

Chassis

SC743TQ-1200B-SQ Form Factor: tower/4U rackmount

Dimensions (as tower): (WxHxD) 7 x 17.2 x 25.5 in. (178 x 437 x 648 mm)

Weight

Gross (Bare Bone): 64 lbs. (29.1 kg.)

System Cooling

Two 8-cm low-noise chassis fans

One 9-cm low-noise exhaust fan

System Input Requirements

AC Input Voltage: 100-240 VAC

Rated Input Current: 8A (115V) to 12A (240V)

Rated Input Frequency: 50-60 Hz

Power Supply

Rated Output Power: 1200W w/PFC (Part# PWS-1K25P-PQ)

Rated Output Voltages: +3.3V (20A), +5V (20A), +12V (99A), -12V (0.3A), +5Vsb (3A)

Power Supply Efficiency Rating: 94% (peak)

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”

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