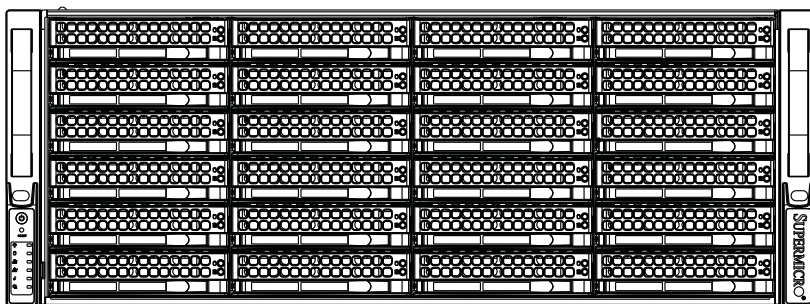# SUPERMICRO®

SuperServer

8048B-TR4FT

USER'S MANUAL

Revision 1.0c

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Manual Revision 1.0c
Release Date: February 15, 2017

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Preface

About This Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of the SuperServer 8048B-TR4FT. Installation and maintenance should be performed by experienced technicians only.

The SuperServer 8048B-TR4FT is a high-end server based on the SC848XTS-R3240BP 4U rackmount chassis and the quad processor X10QBi serverboard, the X10QBi-MEM2 memory module card and the AOM-X10QBi-A I/O card.

Manual Organization

Chapter 1: Introduction

The first chapter provides a checklist of the main components included with the server system and describes the main features of the X10QBi serverboard and the SC848XTS-R3240BP chassis.

Chapter 2: Server Installation

This chapter describes the steps necessary to install the SuperServer 8048B-TR4FT into a rack and check out the server configuration prior to powering up the system. If your server was ordered without processor and memory components, this chapter will refer you to the appropriate sections of the manual for their installation.

Chapter 3: System Interface

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

Chapter 4: Standardized Warning Statements

You should thoroughly familiarize yourself with this chapter for a general overview of safety precautions that should be followed when installing and servicing the SuperServer 8048B-TR4FT.

Chapter 5: Advanced Serverboard Setup

Chapter 5 provides detailed information on the X10QBi 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 SC848XTS-R3240BP server chassis. You should follow the procedures given in this chapter when installing, removing or reconfiguring SATA or peripheral drives and when replacing system power supply units and cooling fans.

Chapter 7: BIOS

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

Appendix A: BIOS Error Beep Codes

Appendix B: System Specifications

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Chapter 6 Advanced Chassis Setup

Chapter 7 BIOS

Appendix A BIOS Error Beep Codes
Appendix B System Specifications

Notes

Chapter 1

Introduction

1-1   Overview

The SuperServer 8048B-TR4FT is a high-end server comprised of four main subsystems: the SC848XTS-R3240BP 4U server chassis and the X10QBi quad processor serverboard (baseboard), eight X10QBi-MEM2 memory module cards and one AOM-X10QBi-A I/O card. Please refer to our website for information on operating systems that have been certified for use with the system (www.supermicro. com).

In addition to the serverboard and chassis, various hardware components have been included with the SuperServer 8048B-TR4FT server, as listed below:

- Four passive heatsinks (SNK-P0048PS)

- One air shroud (MCP-310-41804-0B)

- Four 9-cm cooling fans (FAN-0146L4)

- Three 8-cm rear exhaust fans (FAN-0148L4)

- One SATA backplane (BPN-SAS-846A)

- Twenty-four hot-swap 3.5" HDD trays (MCP-220-00075-0B)

- One rail set (MCP-290-00057-0N)

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

- Supermicro product manuals: http://www.supermicro.com/support/manuals/

- Product drivers and utilities: ftp://ftp.supermicro.com

- Product safety info: http://www.supermicro.com/about/policies/safety_information.cfm

- If you have any questions, please contact our support team at: support@supermicro.com

1-2   Serverboard Features

At the heart of the SuperServer 8048B-TR4FT lies the X10QBi, a quad processor serverboard based on the Intel® C602J chipset and designed to provide maximum performance. The X10QBi acts as a baseboard, into which an I/O card and memory cards may be installed.

The sections below cover the main features of the X10QBi serverboard (see Figure 1-1 for a block diagram of the chipset).

Processors

The X10QBi supports four Intel® Xeon® E7-8800 v3/v4 or E7-4800 v3/v4 series processors (Socket R1 LGA 2011). Please refer to the serverboard description pages on our web site for a complete listing of supported processors (www. supermicro.com).

Memory

The X10QBi uses eight memory cards that install into the eight memory slots on the serverboard. Two cards are assigned to each CPU as follows: SMI slots P1M1/P1M2 for CPU1, SMI slots P2M1/P2M2 for CPU2, SMI slots P3M1/P3M2 for CPU3 and SMI slots P4M1/P4M2 for CPU4.

Each memory card may be populated with up to 12 DIMMs (for a maximum total of ninety-six (96)). With all cards fully populated, the system will support up to a total of 12 TB of DDR4-1866/1600/1333/1066 MHz speed 1GB, 2GB, 4GB, 8GB, 16GB, 32GB or 64GB size ECC RDIMM/3DS LRDIMM memory. See Chapter 5 for details.

Note: Check the Supermicro website (www.supermicro.com) for the latest memory support information.

Serial ATA

A SATA controller is integrated into the Intel C602J chipset to provide two SATA 3.0 and four SATA 2.0 ports, which support RAID 0, 1, 5 and 10. The SATA drives are hot-swappable units.

PCI Expansion Slots

The X10QBi serverboard has the following slots for expansion cards:

- Four (4) PCI Express 3.0 x16 slots
- Seven (7) PCI Express 3.0 x8 slots

1-3   Server Chassis Features

The following is a general outline of the main features of the SC848XTS server chassis.

System Power

The SC848XTS chassis model includes four 1620 Watt power supplies consisting of two active and two backup power modules. In the event your power supply fails, replacement is simple and can be accomplished without tools.

SATA Subsystem

The SC848XTS supports up to twenty-four (24) 3.5" hot-swap hard drives. These drives are connected to a backplane that provides power and control.

Front Control Panel

The SC848XTS chassis includes a control panel below the left handle of the chassis. The control panel provides you with system monitoring and control. LEDs indicate system power, HDD activity, network activity, an information LED and power supply failure. A main power button and a system reset button are also included.

I/O Ports

The chassis provides eight full-height, full-length expansion card slots, a COM port, two USB 2.0 ports and, on the I/O card, a VGA port, two 10 Gb Ethernet ports and a dedicated IPMI Ethernet port.

Cooling System

Four 9-cm and three 8-cm system fans are powered from the chassis and controlled via IPMI.

Air Shrouds

The SC848XTS chassis includes one mylar air shroud, which directs the airflow where cooling is needed. Always use the air shroud included with your server.

Note: if four memory modules are installed, an additional air shroud must be used (p/n MCP-310-41805-0B). See Chapter 6 for details.

Mounting Rails

The SC848XTS includes a set of quick-release rails, and can be placed in a rack for secure storage and use. To setup your rack, follow the instructions described in Chapter 2.

1-4   Memory Modules

The X10QBi-MEM2 memory boards plug directly into the X10QBi baseboard. The memory boards feature a Jordan Creek C114 memory buffer chip. Each of these buffer chips supports two channels (three DIMMs per channel). See Chapter 5 for installation and details.

1-5   I/O Card

The AOM-X10QBi-A I/O card also is inserted directly into the X10QBi baseboard. The I/O card includes an Intel X540 Ethernet controller and an ASP2400 BMC chip to provide dual 10G based-T (RJ45) Ethernet ports and a dedicated IPMI port. This chip also provides onboard video. See Chapter 5 for installation and details.

Figure 1-1. Intel Intel C602J Chipset:
System Block Diagram

Note: This is a general block diagram and may not exactly represent the features on your serverboard. See the previous pages for the actual specifications of your serverboard. This block diagram is intended for your reference only.

Power Connector	SMI2 Slot	SMI2-CH0-3.2GT/s	CPU4
		SMI2-CH1-3.2GT/s	
Power Connector	SMI2 Slot	SMI2-CH2-3.2GT/s	
		SMI2-CH3-3.2GT/s	

QPI 9.6 GT/s

CPU4_S1-PCIE G3x8 in X8slot
CPU4_S2-PCIE G3x8 in X8slot
CPU4_S3-PCIE G3x16 in X16slot

PCIE-G3x32 LANEs

CPU3

SMI2-CH0-3.2GT/s   SMI2 Slot   Power Connector
SMI2-CH1-3.2GT/s
SMI2-CH2-3.2GT/s   SMI2 Slot   Power Connector
SMI2-CH3-3.2GT/s

CPU3_S1-PCIE G3x8 in X8slot
CPU3_S2-PCIE G3x8 in X8slot
CPU3_S3-PCIE G3x16 in X16slot

PCIE-G3x32 LANEs

QPI 9.6 GT/s
QPI 9.6 GT/s
QPI 9.6 GT/s
QPI 9.6 GT/s

Power Connector   SMI2 Slot   SMI2-CH0-3.2GT/s   CPU1   QPI 9.6 GT/s   CPU2   SMI2-CH0-3.2GT/s   SMI2 Slot   Power Connector
SMI2-CH1-3.2GT/s   SMI2-CH1-3.2GT/s
Power Connector   SMI2 Slot   SMI2-CH2-3.2GT/s   SMI2-CH2-3.2GT/s   SMI2 Slot   Power Connector
SMI2-CH3-3.2GT/s   SMI2-CH3-3.2GT/s

CPU1_S2-PCIE G3x8 in X8slot
CPU1_S3-PCIE G3x16 in X16slot

PCIE-G3x24 LANEs

X4 DMI2

PCIE-G3x8 LANEs

IO Slot/x16 slot

CPU2_S1-PCIE G3x8 in X8slot
CPU2_S2-PCIE G3x16 in X16slot
CPU2_S3-PCIE G3x8 in X8slot

PCIE-G3x32 LANEs

USB

Intel C602J

PCIE x1

LPC

SMBus

IO Slot/x8 slot

CPLD
Power Management
Reset & PowerGood

Clock Subsystem
Clock Gen
Clock Buffer

XDP0: CPU1 & CPU4
CPU2 & CPU3

HM
NCT7904D

TPM Chip

1-6   Contacting Supermicro

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Chapter 2

Rack Installation

2-1   Overview

This chapter provides a quick setup checklist to get your chassis up and running. Following these steps in the order given should enable you to have the system operational within a minimal amount of time.

2-2   Unpacking the System

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

Decide on a suitable location for the rack unit that will hold your chassis. 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. The system needs to be 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 your chassis was shipped in should include two sets of rail assemblies and the mounting screws needed for installing the system into the rack. Also included is an optional square hole to round hole converter bracket, for use in racks with round mounting holes. *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).

- Leave approximately 30 inches of clearance in the back of the rack to allow for sufficient airflow and ease in servicing.

- This product is for installation only in a Restricted Access Location (dedicated equipment rooms, service closets and the like).

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 installations, stabilizers should be attached to the rack.

- In multiple rack installations, the racks should be coupled together.

- Always make sure that the rack is stable before extending a component from the rack.

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

General Server Precautions

- Review the electrical and general safety precautions that came with the components you are adding to your chassis.

- 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 upwards.

- 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 hard 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.

2-5   Rack Mounting Instructions

This section provides information on installing the SC848XTS chassis into a rack unit with the rails provided. There are a variety of rack units on the market, which may mean that the assembly procedure will differ slightly. You should also refer to the installation instructions that came with the rack unit you are using.

Note: This rail will fit a rack between 26.5" to 36.4" deep.

Identifying the Inner Rack Rails

The chassis package includes one pair of rack rail assemblies in the rack mounting kit. Each assembly consists of an inner rail that secures to the chassis and an outer rail that is attached directly to the rack.

Figure 2-1. Installing the Inner Rails

Inner Rail Assembly
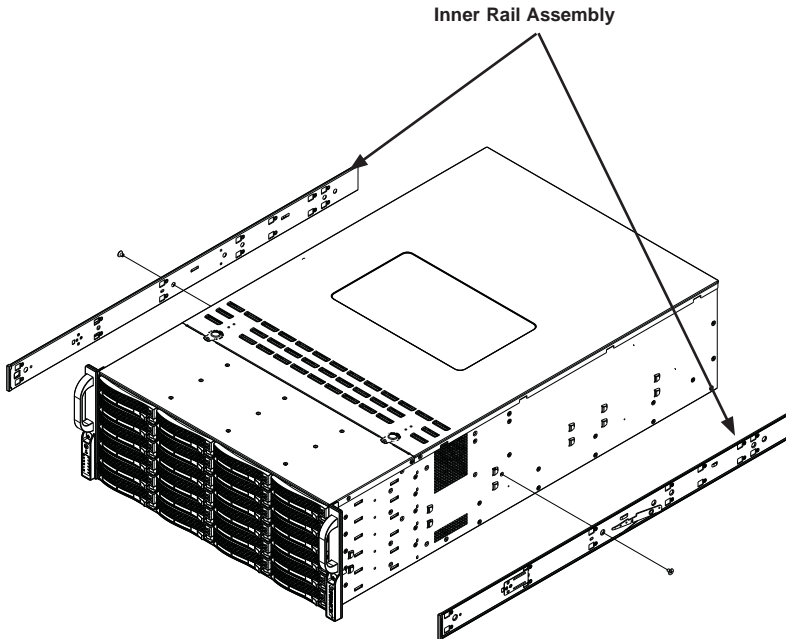
⚠ **Warning:** do not pick up the server by the front handles. They are designed to pull the system from a rack only.

Figure 2-2. Installing the Rails
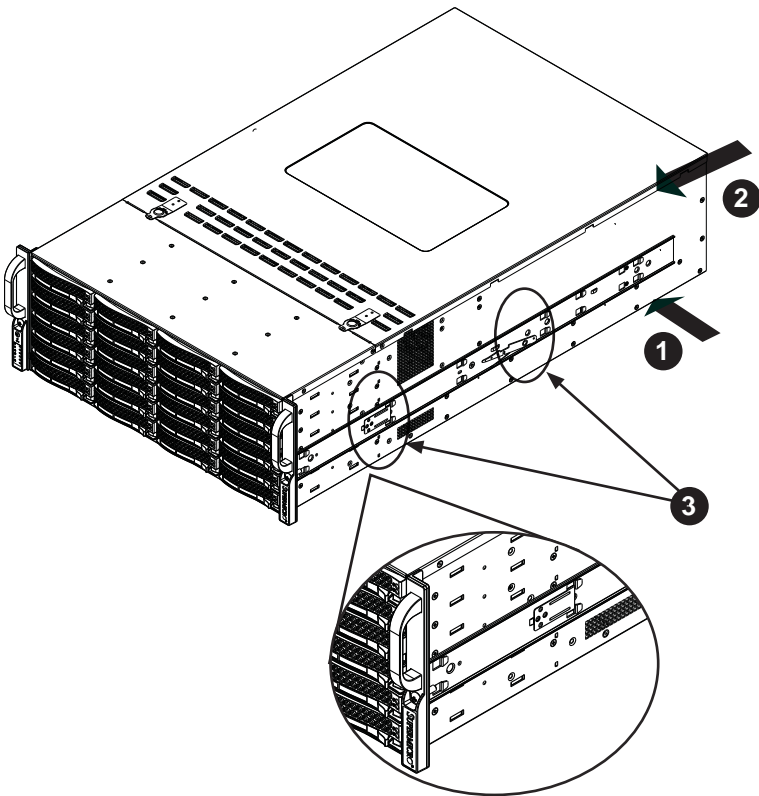
Installing the Inner Rails on the Chassis

Installing the Inner Rails

1. The inner rails are etched with "L" (left side) and "R" (right side). Place one inner rail on the side of the chassis, aligning the hooks of the chassis with the inner rail holes. Make sure the rail faces "outward" so that it will fit with the rack's mounting bracket.

2. Slide the rail toward the front of the chassis to hook the inner rail onto the side of the chassis.

3. Secure the chassis with two flat head M4 x 4mm screws as illustrated.

4. Repeat steps 1-3 for the other inner rack rail.

Figure 2-3. Assembling the Outer Rails
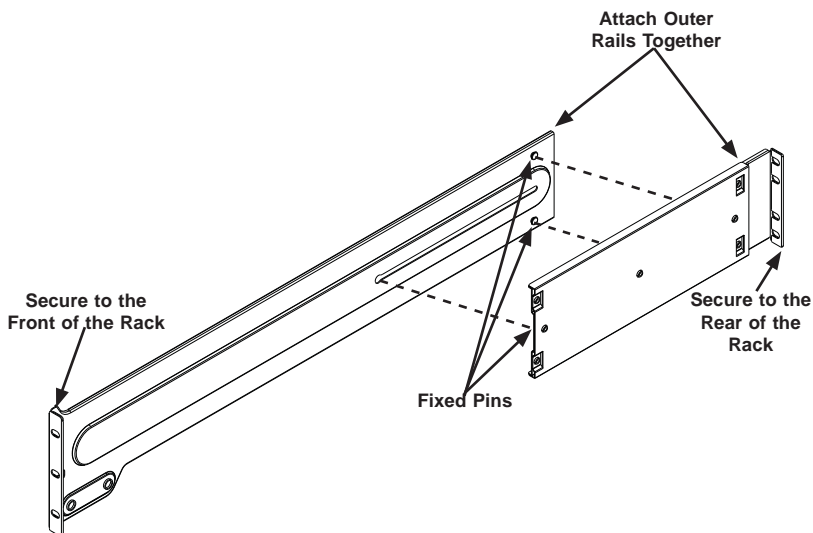
Installing the Outer Rails onto a Rack

Installing the Outer Rails

1. Attach the short bracket to the outside of the long bracket. You must align the pins with the slides. Also, both bracket ends must face the same direction.

2. Adjust both the short and long brackets to the proper distance so that the rail fits snugly into the rack.

3. Secure the long bracket to the front side of the outer rail with two M5 screws and washers and the short bracket to the rear side of the outer rail with three M5 screws and washers. Keep the screws slack so that they may be adjusted later.

4. Repeat steps 1-3 for the left outer rail.

Figure 2-4. Installing the Outer Rails to the Rack
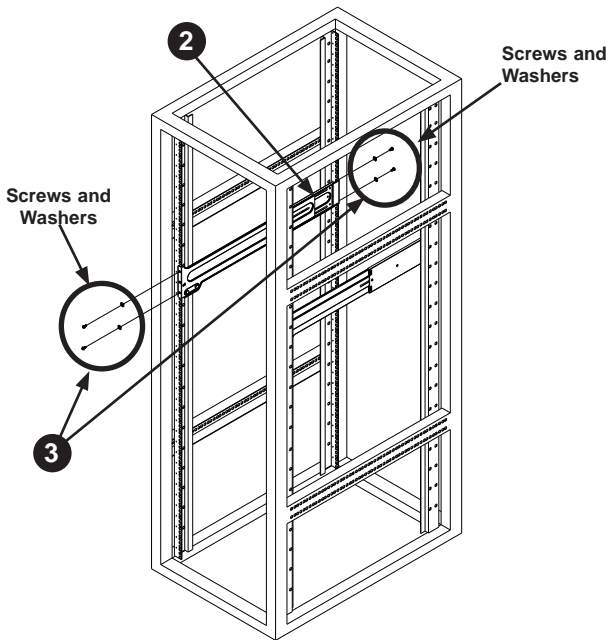
Note: figures are for illustrative purposes only. Always install servers into racks from the bottom up.

⚠ **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.

Figure 2-4. Installing the Chassis into a Rack
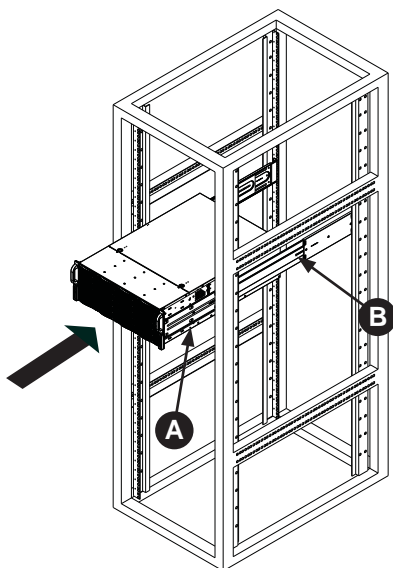
Note: figures are for illustrative purposes only. Always install servers into racks from the bottom up.

Installing the Chassis into a Rack

Installing the Chassis into a Rack:

1. Confirm that chassis includes the inner rails (A) Also, confirm that the outer rails (B) are installed on the rack.

2. Line chassis rails (A) with the front of the rack rails (B).

3. 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 server has been pushed completely into the rack, you should hear the locking tabs "click" into the locked position.

4. Tighten up all the screws on the front side and rear side of both outer rails.

5. (Optional) Insert and tightening the thumbscrews that hold the front of the server to the rack.

Removing the Chassis from the Rack

Caution! It may be dangerous for a single person to off-load the heavy chassis from the rack without assistance. Be sure to have sufficient assistance supporting the chassis when removing it from the rack.

Figure 2-5. Removing the Chassis From the Rack
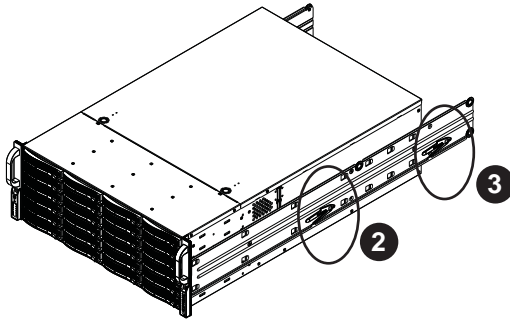
Removing the Chassis from the Rack

1. Pull the chassis forward out the front of the rack until it stops.

2. Press both of the black plastic release latches on each of the inner rails downward simultaneously and move the chassis forward in the rack.

3. When the chassis stops a second time, press both of the black plastic release latches on the rear of the inner rails downward simultaneously to fully remove the chassis from the rack.

Notes

Chapter 3

System Interface

3-1   Overview

There are several LEDs on the control panel as well as others on the drive carriers to keep you constantly informed of the overall status of the system as well as the activity and health of specific components.

This chapter explains the meanings of all LED indicators and the appropriate responses you may need to take.

Figure 3-1. Front LED Panel
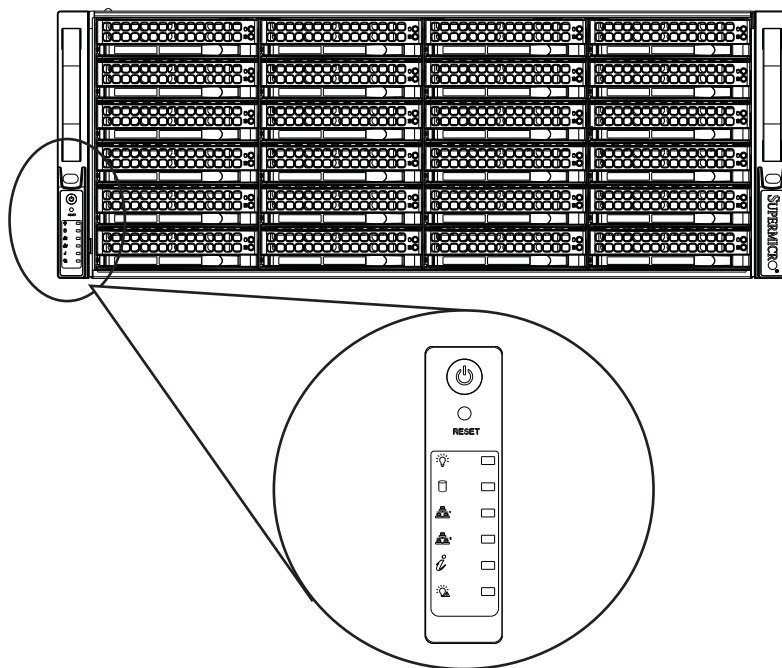
3-2 Control Panel Buttons

There are two push-buttons included on the control panel: a power button and a reset button.

Power

The main power button is used to apply or remove power from the power supply to the server system. Turning off system power with this button removes the main power but keeps standby power supplied to the system, consequently you must unplug the power cord before servicing the system.
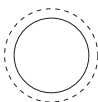
Reset

The reset button is used to reboot the system.

3-3 Control Panel LEDs

The control panel located on the left handle of the SC848 chassis has five LEDs. These LEDs provide you with critical information related to different parts of the system. This section explains what each LED indicates when illuminated and any corrective action you may need to take.

Power

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

HDD

Indicates hard drive activity when flashing.

NIC1

Indicates network activity on GLAN1 when flashing.

NIC2

Indicates network activity on GLAN2 when flashing.

Universal Information LED

See the following table for the status shown by this LED.

Universal Information LED	
Status	**Description**
Continuously on and red	An overheat condition has occurred. (This may be caused by cable congestion.)
Blinking red (1 Hz)	Fan failure: check for an inoperative fan.
Blinking red (0.25 Hz)	Power failure: check for an inoperative power supply.
Solid blue	Local UID has been activated. Use this function to locate the server in a rack environment.
Blinking blue (300 msec)	Remote UID has been activated. Use this function to locate the server from a remote location.

If the server overheats, you should check the following: Use the LEDs to determine the nature of the overheating condition. Confirm that the chassis covers are installed properly. Check the routing of the cables and make sure all fans are present and operating normally. Finally, verify that the heatsinks are installed properly.

3-4   Drive Carrier LEDs

The chassis includes externally accessible SAS/SATA drives. Each drive carrier displays two status LEDs on the front of the carrier.

	LED Color	State	Status
Activity LED	Green	Solid On	SAS drive installed
	Green	Blinking	I/O activity
Status LED	Red	Solid On	Failed drive for SAS/SATA with RSTe support
	Red	Blinking at 1 Hz	Rebuild drive for SAS/SATA with RSTe support
	Red	Blinking with two blinks and one stop at 1 Hz	Hot spare for SAS/SATA with RSTe support
	Red	On for five seconds, then off	Power on for SAS/SATA with RSTe support
	Red	Blinking at 4 Hz	Identify drive for SAS/SATA with RSTe support

Chapter 4

Standardized Warning Statements for AC Systems

4-1 About Standardized Warning Statements

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

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

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

Warning Definition

Warning!

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

警告の定義
この警告サインは危険を意味します。
人身事故につながる可能性がありますので、いずれの機器でも動作させる前に、
電気回路に含まれる危険性に注意して、標準的な事故防止策に精通して下さい。

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

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

Warnung

WICHTIGE SICHERHEITSHINWEISE

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

BEWAHREN SIE DIESE HINWEISE GUT AUF.

INSTRUCCIONES IMPORTANTES DE SEGURIDAD

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

GUARDE ESTAS INSTRUCCIONES.

IMPORTANTES INFORMATIONS DE SÉCURITÉ

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

CONSERVEZ CES INFORMATIONS.

תקנון הצהרות אזהרה

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

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

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

안전을 위한 주의사항

경고!

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

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

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

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

BEWAAR DEZE INSTRUCTIES

Installation Instructions

⚠️ **Warning!**

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

設置手順書

システムを電源に接続する前に、設置手順書をお読み下さい。

警告

将此系统连接电源前，请先阅读安装说明。

警告

將系統與電源連接前，請先閱讀安裝說明。

Warnung

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

¡Advertencia!

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

Attention

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

יש לקרוא את הוראות התקנה לפני חיבור המערכת למקור מתח.

اقر إرشادات التركيب قبل توصيل النظام إلى مصدر للطاقة

시스템을 전원에 연결하기 전에 설치 안내를 읽어주십시오.

Waarschuwing

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

Circuit Breaker

Warning!

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

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

警告

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

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

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

경고!

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

Waarschuwing

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

Power Disconnection Warning

 Warning!

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

電源切断の警告

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

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

警告

在你打开机箱并安装或移除内部器件前，必须将系统完全断电，并移除电源线。

警告

在您打開機殼安裝或移除內部元件前，必須將系統完全斷電，並移除電源線。

Warnung

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

¡Advertencia!

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

Attention

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

אזהרה מפני ניתוק חשמלי

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

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

경고!

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

Waarschuwing

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

Equipment Installation

 Warning!

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

機器の設置

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

警告

只有经过培训且具有资格的人员才能进行此设备的安装、更换和维修。

警告

只有經過受訓且具資格人員才可安裝、更換與維修此設備。

Warnung

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

¡Advertencia!

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

Attention

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

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

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

경고!

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

Waarschuwing

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

Restricted Area

 Warning!

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

アクセス制限区域

このユニットは、アクセス制限区域に設置されることを想定しています。

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

警告

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

אזור עם גישה מוגבלת

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

تم تخصيص هذه الوحدة لتركيبها في مناطق محظورة .
يمكن الوصول إلى منطقة محظورة فقط من خلال استخدام أداة خاصة،
قفل ومفتاح أو أي وسيلة أخرى 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 והמאווררים עדיין עובדים. יש להרחיק למרחק בטוח את האצבעות וכלי עבודה שונים מהפתחים בתוך המאוורר

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

경고!

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

Waarschuwing

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

Power Cable and AC Adapter

 Warning!

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

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

警告

安装此产品时，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 סופרקמיקרו בלבד.

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

경고!

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

Waarschuwing

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

Chapter 5

Advanced Serverboard Setup

This chapter covers the steps required to 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 (ESD).
- 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.

5-2   Connecting Cables

Now that the processors are installed, the next step is to connect the cables to the serverboard.

Connecting Data Cables

The cables used to transfer data from the peripheral devices have been carefully routed in preconfigured systems to prevent them from blocking the flow of cooling air that moves through the system from front to back. If you need to disconnect any of these cables, you should take care to reroute them as they were originally after reconnecting them (make sure the red wires connect to the pin 1 locations). If you are configuring the system, keep the airflow in mind when routing the cables.

The following cables need to be connected for the SuperServer 8048B-TR4FT system:

- One round 76-cm (30") 16-to-16-pin ribbon FP cable (CBL-0071L)
- One power extension cable; one HDD to two HDD and two FDD (CBL-0099)
- Two Cross-over Ipass to4-SATA w/SBs 70cm HD cables (CBL-0294L-01)

5-3   Control Panel Connectors and I/O Ports

The I/O ports on the are located at the rear of the system. See Figure 5-1 and Figure 5-2 below for the locations of the various I/O ports. See Figure 6-1 for the location of these ports on the rear of the chassis.

Figure 5-1. Rear I/O Ports
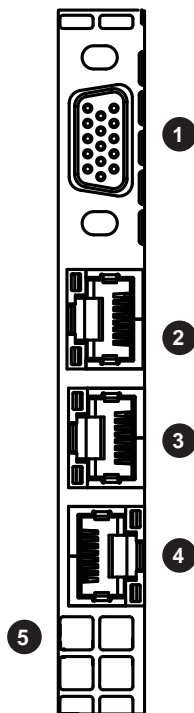
Back Panel I/O Ports	
1.	VGA Port
2.	X540 10 Gb LAN2 Port
3.	X540 10 Gb LAN1 Port
4.	Dedicated IPMI LAN Port
5	UID Switch

Figure 5-2. Rear I/O Ports (Horizontal)
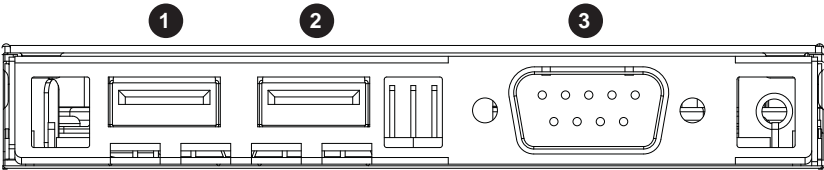
Back Panel I/O Ports	
1.	USB Port
2.	USB Port
3.	Serial (COM) Port

Connecting the Control Panel

JF1 contains header pins for various front control panel connectors. See Figure 5-3 for the pin locations of the various front control panel buttons and LED indicators. Even and odd numbered pins are on opposite sides of each header.

All JF1 wires have been bundled into single keyed ribbon cable to simplify their connection. The red wire in the ribbon cable plugs into pin 1 of JF1. Connect the other end of the cable to the Control Panel printed circuit board, located just behind the system status LEDs in the chassis.

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

Figure 5-3. Front Control Panel Header Pins (JF1)
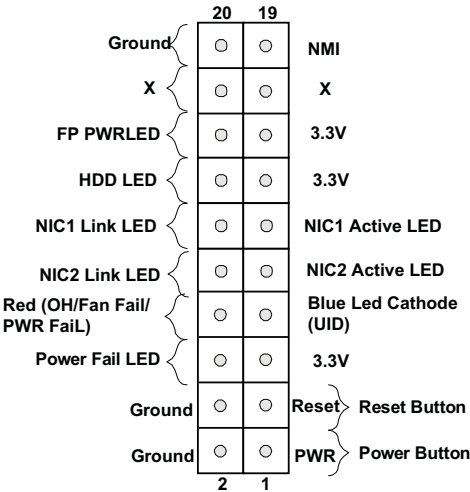
5-4   Processor and Heatsink Installation

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

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 to use an Intel-certified multi-directional heatsink only.

- Install the system board into the chassis before you install the CPU heatsink.

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

- Refer to the Supermicro website for updates on CPU support.

- When one CPU is installed, be sure to installed to CPU Socket 1.

Installing a CPU

1. There are two levers on the Socket R1 LGA 2011. First press and release the load lever labeled "Open 1st".
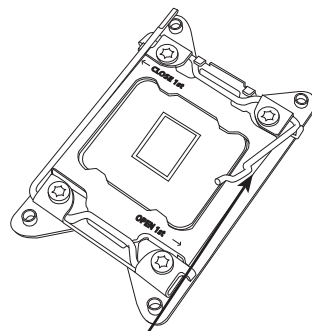
Release the lever labeled "Open 1st"

Note: There are four CPU sockets located on the X10QBi baseboard. Populate the desired number of CPUs on the board starting with CPU Socket 1.

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

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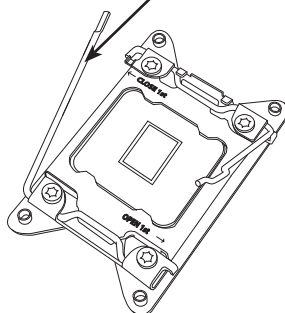
3. With the second lever fully retracted, gently push down on the "Open 1st" lever to loosen the load plate. Lift the load plate with your fingers to open it completely.

Open the load plate.
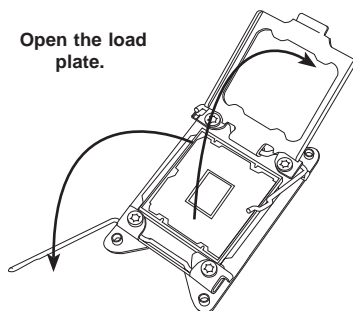
4. Pop the plastic cap marked "Warning" out of the load plate.

5. Holding the CPU carefully above the socket, orient the CPU so that all keys and edges will fit the socket.

IMPORTANT!
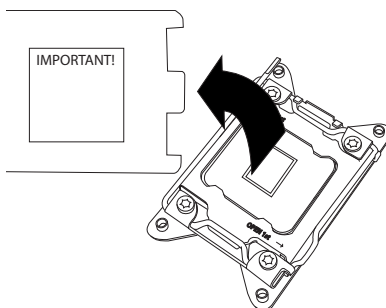
6. Carefully lower the CPU straight down into the socket. Do not move the CPU horizontally, and do not rub the pins of the socket. This may damage the CPU or the socket.
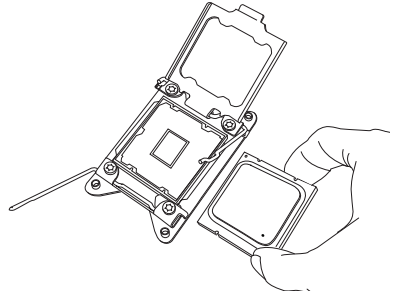
Caution: You can only install the CPU into the socket in one direction. Make sure that the CPU is properly inserted into the socket before closing the load plate. If it does not close properly, do not force it as it may damage your CPU. Instead, open the load plate again and double-check that the CPU is aligned properly.

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

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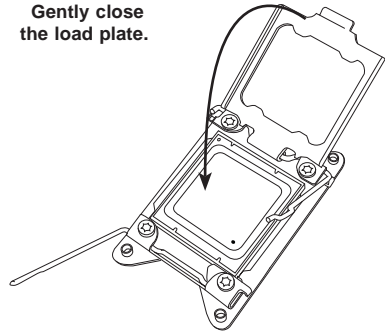
8. Make sure the locking mechanism on the "Close 1st" lever catches the lip of the load plate. Close and lock the "Close 1st" lever.

Push down and lock the lever labeled "Close 1st".

Engage the lip of the load plate and locking portion of the lever."
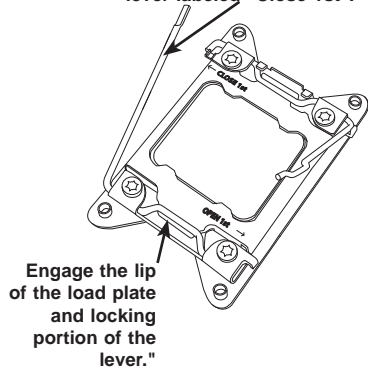
9. Close and lock the "Open 1st" lever.
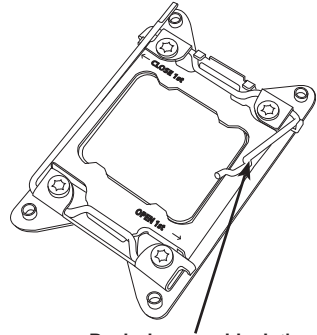
Push down and lock the lever labeled "Open 1st"

Installing a Passive CPU Heatsink

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

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

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

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

Screw#1

Screw#3

Screw#4

Screw#2

Mounting Holes

Serverboard
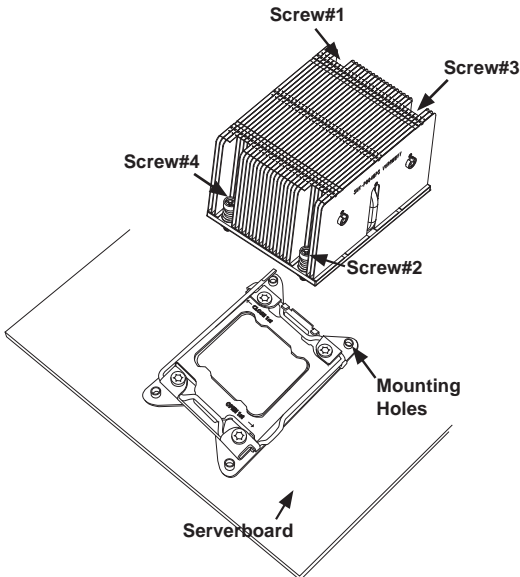
Removing the Heatsink

Caution: 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. <u>Gently</u> wriggle the heatsink to loosen it from the CPU. (Do not use excessive force when wriggling the heatsink!)

3. Once the CPU is loosened, remove the CPU 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 CPU and the heatsink.5-5 Installing Memory

Caution: exercise extreme care when installing or removing DIMMs to prevent any possible damage. DIMMs should be installed with the memory card removed from the baseboard. See the tables on page 5-12 for details on populating memory.

Installing Memory

Insert the desired number of DIMMs into the slots on a memory card in the order shown in Figure 5-4 and Figure 5-5. For best performance, use the memory modules of the same type and speed.

5. Push the release tabs outwards on both ends of the DIMM slot to unlock it.

6. Align the key of the DIMM module with the receptive point on the memory slot.

7. Press both ends of the module straight down into the slot until the module snaps into place.

8. Press the release tabs to the locking positions to secure the DIMM module into the slot.

9. Reverse the steps above to remove DIMM modules.

Memory Support

With all eight cards fully populated, the system will support up to a total of 12 TB of DDR4-1866/1600/1333/1066 MHz speed ECC RDIMM/3DS LRDIMM memory. Check the Supermicro website (www.supermicro.com) for the latest memory support information.

Figure 5-4. X10QBi-MEM2 Memory Card Layout
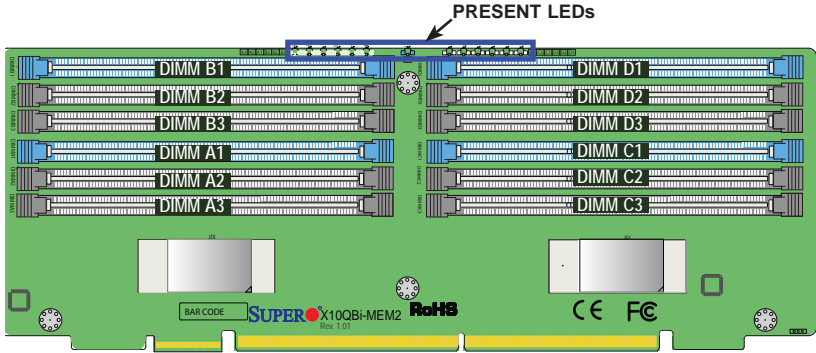
Notes: When installing a DIMM module, be sure to press the module straight down into the slot until it is properly seated and its PRESENT LED (as shown above) turns on.

Figure 5-5. X10QBi-MEM2 Memory Card Image
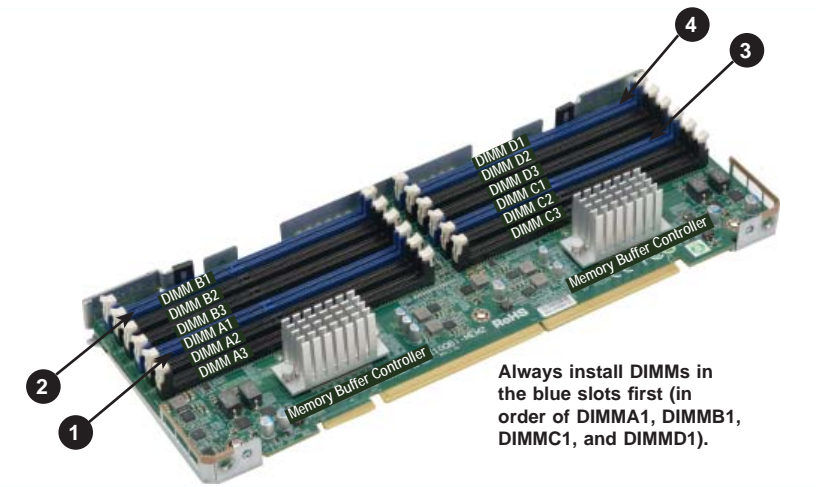
After populating DIMMs on the memory cards, follow the table below to Install one or two populated memory cards for each CPU installed on the baseboard. The baseboard has eight slots to accommodate eight memory cards.

CPUs and their Corresponding Memory Cards		
CPU#	Corresponding DIMM Modules	
	One Memory Card Per CPU	Two Memory Cards Per CPU
CPU 1	SMI Slot P1M1 (populate this slot first)	SMI Slot P1M1 + SMI Slot P1M2
CPU 2	SMI Slot P2M1 (populate this slot first)	SMI Slot P2M1 + SMI Slot P2M2
CPU 3	SMI Slot P3M1 (populate this slot first)	SMI Slot P3M1 + SMI Slot P3M2
CPU 4	SMI Slot P4M1 (populate this slot first)	SMI Slot P4M1 + SMI Slot P4M2

Slots for Memory Cards
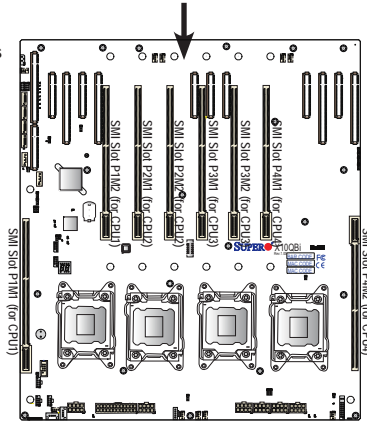
Populating RDIMM/3DS LRDIMM (ECC) Memory Modules

DDR4 ECC RDIMM/LRDIMM (2:1) (for X10QBi-MEM2 R. 1.01)								
Type	Ranks Per DIMM & Data Width	Memory DIMM Capacity		Max Speed (GHz), Voltage (V), Slot per Channel (SPC) and DIMM Per Channel (DPC)				
				2 SPC		3 SPC		
		4Gb	8Gb	1DPC	2DPC	1DPC	2DPC	3DPC
				1.2V	1.2V	1.2V	1.2V	1.2V
RDIMM	SRx4	8GB	16GB	1600	1600	1600	1600	1600[2]
RDIMM	DRx4	16GB	32GB	1600	1600	1600	1600	1333[2]
LRDIMM	QRx4	32GB	64GB	1600	1600	1600	1600	1600
LRDIMM 3DS[1]	8Rx4	64GB	128GB	1600[1]	1600[1]	1600[1]	1600[1]	1333[1]

DDR4 ECC RDIMM/LRDIMM (1:1) (for X10QBi-MEM2 R. 1.01)								
Type	Ranks Per DIMM & Data Width	Maximum DIMM Capacity		Max Speed (GHz), Voltage (V), Slot per Channel (SPC) and DIMM Per Channel (DPC)				
				2 SPC		3 SPC		
		4Gb	8Gb	1DPC	2DPC	1DPC	2DPC	3DPC
				1.2V	1.2V	1.2V	1.2V	1.2V
RDIMM	SRx4	8GB	16GB	1866	1866	1866	1866[2]	1600[2]
RDIMM	DRx4	16GB	32GB	1866	1866	1866	1866[2]	1333[2]
LRDIMM	QRx4	32GB	64GB	1866	1866	1866	1866	1600
LRDIMM 3DS[1]	8Rx4	64GB	128GB	1866[1]	1866[1]	1866[1]	1866[1]	1333[1]

Notes:

Note 1: For the memory modules to work properly, please install DIMMs of the same type, speed and operating frequency to the motherboard. Mixing of DIMMs of different types or speeds is not allowed.

Note 2: For detailed information on memory support and updates, please refer to the Supermicro Recommended Memory List on our website at http://supermicro.com/support/resources/mem.cfm.

5-6 I/O Module Board

Figure 5-6. AOM-X10QBi-A I/O Module Layout
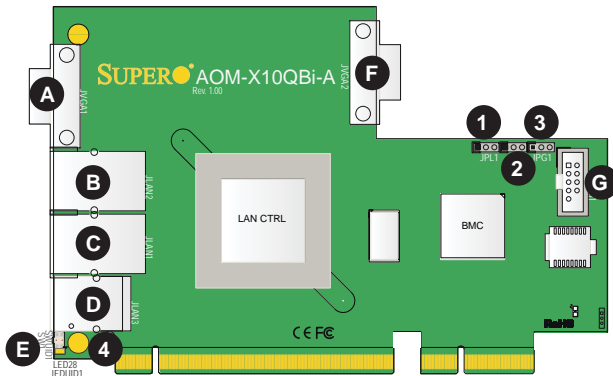
Jumpers			
Location	Jumper	Description	Default
1	JPL1	LAN Enable/Disable	Pins 1-2 (Enabled)
2	JPB1	BMC Enable/Disable	Pins 1-2 (Enabled)
3	JPG1	VGA Enable/Disable	Pins 1-2 (Enabled)

LED			
Location	LED	Description	State
4	LED28	UID LED (JEDUID1)	Blue: Unit Identified

Connectors		
Location	Connector	Description
A	JVG1	VGA Port1
B	JLAN2	LAN Port2
C	JLAN1	LAN Port1
D	JLAN3	LAN Port3
E	SW1	UID Switch
F	JVG2	VGA Port2
G	JCOM1	Debug

Slot for I/O Module
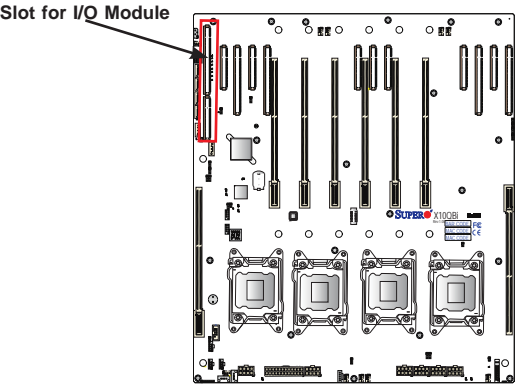
5-7   Adding PCI Expansion Cards

The 8048B-TR4FT supports up to 11 PCI Express cards (four x16 and seven x8 slots).

Installing an Expansion Card

1. After powering down the system, remove the PCI slot shield.

2. Fully seat the card into the slot, pushing down with your thumbs evenly on both sides of the card. Note that each slot is controlled by a specific CPU. To use that slot, the corresponding CPU must be installed (see below).

3. Finish by using a screw to secure the top of the card shield to the chassis.

Figure 5-7. PCI Cards and Corresponding CPUs
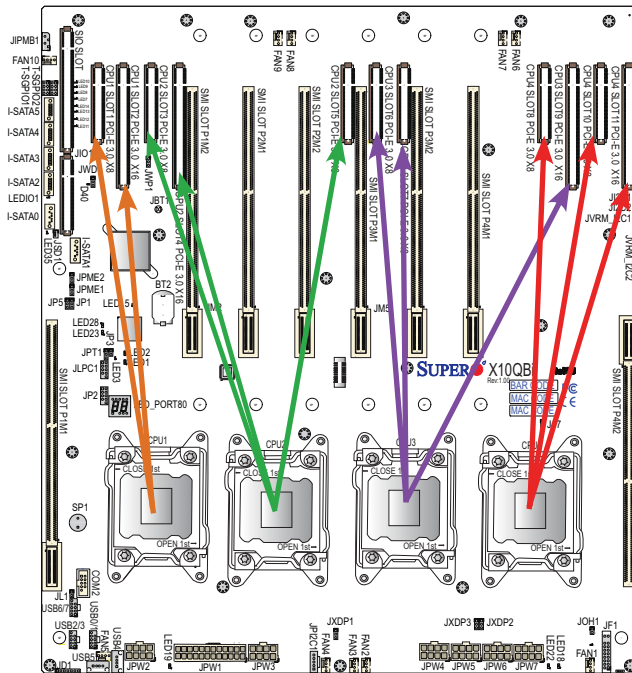
Note: PCI-E slots and CPUs support auto-switching. Refer to the table below for PCI-E slot support. On board rev. 1.01 or below, I-SATA3 and I-SATA 4 are reversed.

PCI-E Expansion Slots
CPU1 supports Slot1 PCI-E 3.0 x8, and Slot2 PCI-E 3.0 x16
CPU2 supports Slot3 PCI-E 3.0 x8, Slot4 PCI-E 3.0 x16, and Slot5 PCI-E 3.0 x8
CPU3 supports Slot6 PCI-E 3.0 x8 Slot7 PCI-E 3.0 x8, and Slot9 PCI-E 3.0 x16
CPU4 supports Slot8 PCI-E 3.0 x8, Slot10 PCI-E 3.0 x8, and Slot11 PCI-E 3.0 x16

5-8 Baseboard Details

Figure 5-8. X10QBi Baseboard Layout
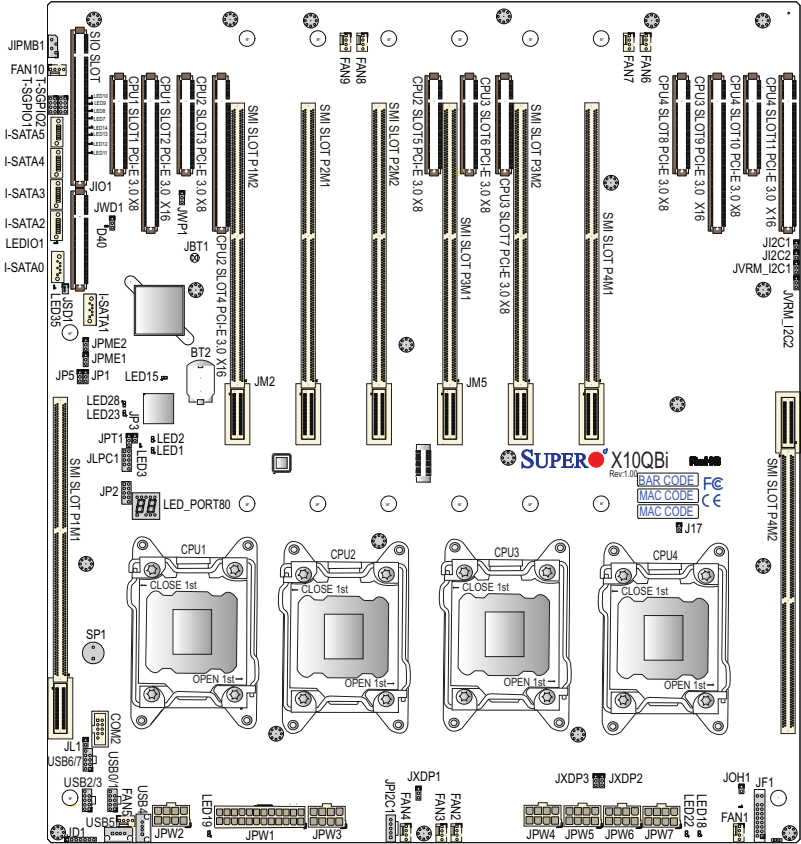
Notes:

1. For the latest CPU/Memory updates, please refer to our website at **http://www.supermicro.com/products/serverboard/** for details.

2. Jumpers/LED Indicators not indicated are for testing only. Components that are not documented are reserved for internal testing only.

3. For the PCI-E slots to work properly, follow the instructions listed on the previous page.

X10QBi Quick Reference

Jumper	Description	Default Setting
JBT1	Clear CMOS	See Section 5-10
JI²C1/JI²C2	SMB to PCI-E Slots	Pins 2-3 (Disabled)
JPB1 (on I/O module)	BMC Enabled	Pins 1-2 (Enabled)
JPG1 (on I/O module)	VGA Enable	Pins 1-2 (Enabled)
JPME1	ME Mode Recovery	Pins 1-2 (Normal)
JPME2	ME Mode Select	Pins 1-2 (Normal)
JPL1 (on I/O module)	GLAN1/GLAN2 Enable	Pins 1-2 (via connected cable)
JPT1	TPM Enable	Pins 1-2 (Enabled)
JWD1	Watch Dog	Pins 1-2 (Reset)

Connectors	Description
FAN1-FAN10	4-pin System/Cooling Fan Headers
BT2	Onboard Battery
COM1	Serial/COM Part 1 (located on the I/O module)
COM2	Serial/COM Port Header 2
I-SATA 0-5	Intel SATA Ports 0-5
JD1	Speaker/Power LED Indicator
JF1	Front Panel Control Header
JIPMB1	4-pin External BMC I²C Header (for an IPMI Card)
JL1	Chassis Intrusion Header
JOH1	Overheat/Fan Fail LED Header
JPI²C1	Power Supply SMBbus I²C Header
JPW1	ATX 24-pin Power Connector
JPW2-JPW7	8-pin Power Connectors
JSD1	SATA DOM (Device on Module) Power Connector
JVG1/2	VGA/Video Port1/Port2 (located on the I/O module)
LAN1/2	Gb Ethernet Ports 1/2 (located on the I/O module)
LAN3 (on the I/O module)	BMC LAN (Dedicated IPMI LAN) (JLAN3)
SP1	Internal Speaker
T-SGPIO 1/2	Serial Link General Purpose I/O Headers
USB0/1, USB2/3, USB6/7	Front Panel Accessible USB Connections
USB4, USB5	Type A Front Panel USB Connectors 4/5
UID	UID Switch (SWUID1/SW1) (on the I/O module)

5-9 Connector Definitions

Power Connectors

A 24-pin main power supply connector (JPW 1) and six 8-pin power connectors (JPW2-JPW7) are located on the X10DBi serverboard. These power connectors meet the SSI EPS 12V specification. Connect these power connectors to your power supply to provide adequate power to your system. Refer to the table on the right for pin definitions.

ATX Power 24-pin 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

12V 8-pin Power Connector Pin Definitions	
Pins	Definition
1 through 4	Ground
5 through 8	+12V

(Required)

Warning: To provide adequate power supply to the system, the 24-pin ATX PWR (JPW1) and all six 8-pin power connectors (JPW2-JPW7) must be connected to the power supply. Failure to do so will void the manufacturer warranty on your power supply and serverboard.

DOM Power Connector

A power connector for SATA DOM (Disk-On-Module) devices is located at JSD1. Connect the appropriate cable here to provide power support for your SATA DOM devices.

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

PW_ON Connector

The Power Button connection is located on pins 1 and 2 of JF1. Momentarily contacting both pins will power on/off the system. This button can also be configured to function as a suspend button (with a setting in the BIOS - See Section 5-10). To turn off the power when the system is in suspend mode, press the button for 4 seconds or longer. Refer to the table on the right for pin definitions.

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

Reset Connector

The reset connector is located on pins 3 and 4 of JF1 and attaches to the reset button on the computer chassis. 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 (OH)/Fan Fail/PWR Fail/ UID LED

Connect an LED cable to the OH/Fan Fail/FP UID connection on pins 7 and 8 of JF1 to provide advanced warnings of chassis overheating or fan failure. It also works as the front panel UID LED indicator. The red LED takes precedence over the blue LED by default. Refer to the table on the right for pin definitions.

OH/Fan Fail/PWR Fail/UID LED Pin Definitions (JF1)	
Pin#	Definition
7	Red+ (Blue LED Cathode)
8	Blue+ (OH/Fan Fail/PWR Fail/ UID LED)

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

NIC1/2 (LAN1/2) LED Indicators

The NIC (Network Interface Controller) LED cLED indicator onnections for GLAN port 1 are located on pins 11 and 12 of JF1, and those of the GLAN Port 2 are on pins 9 and 10. Attach NIC LED cables here to display network activity. Refer to the table on the right for pin definitions.

NIC1/2 LEDs Pin Definitions (JF1)	
Pin#	Definition
9	NIC2 Activity LED
10	NIC2 Link LED
11	NIC1 Activity LED
12	NIC1 Link LED

HDD LED

The HDD LED connection is located on pins 13 and 14 of JF1. Attach the hard drive LED cable here to display disk activity (for any hard drives on the system). See the table on the right for pin definitions

HDD LED Pin Definitions (JF1)	
Pin#	Definition
13	3.3V Standby
14	HD Active

Power On LED

The Power On LED connector is located on pins 15 and 16 of JF1. 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 X10QBi system board has ten system fan headers and ten CPU card fan headers. All these are 4-pin fans and are backward compatible with traditional 3-pin fans. Fan speed control is available via IPMI interface for 4-pin fans only. See the table on the right for more information.

Fan Header Pin Definitions	
Pin#	Definition
1	Ground
2	+12V
3	Tachometer
4	PWR Modulation (4-pin fans only)

Universal Serial Bus (USB)

Three Universal Serial Bus headers provide six USB connections on the baseboard (USB 0/1, 2/3, 6/7). Additionally, two Type A USB connectors (USB4, USB5) are also located on the board (cables not included). Refer to the tables on the right for pin definitions.

Type A USB (USB4/5) Pin Definitions	
Pin#	Definition
1	+5V
2	PO-
3	PO+
4	Ground
5	NA

Backplane Accessible (USB0/1, 2/3, 6/7) USB Connectors Pin Definitions			
USB0/2/6 Pin#	Definition	USB1/3/7 Pin#	Definition
1	+5V	1	+5V
2	PO-	2	PO-
3	PO+	3	PO+
4	Ground	4	Ground
5	NC	5	Key

(NC= No Connection)

Chassis Intrusion

A Chassis Intrusion header is located at JL1 on the system board. Attach an appropriate cable from the chassis to be informed of possible chassis intrusion when the chassis is opened.

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

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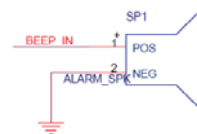
Ethernet LAN Ports

Two Ethernet ports (LAN1/LAN2) are located on the AOM-X10QBi-A I/O module. In addition, a dedicated IPMI LAN is also located on the I/O module to provide KVM support for IPMI 2.0. All these ports accept RJ45 type cables.

LAN Ports Pin Definition			
Pin#	Definition	Pin#	Definition
1	P2V5SB	10	SGND
2	TD0+	11	Act LED
3	TD0-	12	P3V3SB
4	TD1+	13	Link 100 LED (Yellow, +3V3SB)
5	TD1-	14	Link 1000 LED (Yellow, +3V3SB)
6	TD2+	15	Ground
7	TD2-	16	Ground
8	TD3+	17	Ground
9	TD3-	18	Ground

IPMB I²C SMB

A System Management Bus header for IPMI is located at JIPMB1. Connect an appropriate cable here to use the IPMB I²C connection on your system.

SMB Header (JIPMB1) Pin Definitions	
Pin#	Definition
1	Data
2	Ground
3	Clock
4	No Connection

Power SMB (I2C) Connector

Power System Management Bus (I²C) Connector (JPI²C1) monitors power supply, fan and system temperatures. See the table on the right for pin definitions.

PWR SMB (JPI²C1) Pin Definitions	
Pin#	Definition
1	Clock
2	Data
3	PWR Fail
4	Ground
5	+3.3V

T-SGPIO1/2 Headers

Two SGPIO (Serial-Link General Purpose Input/Output) headers are provided on the serverboard. These headers support a Serial Link interface for onboard SATA connections. See the table on the right for pin definitions.

T-SGPIO 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)

Unit Identifier Switch/LED

A Unit Identifier (UID) switch on the AOM-X10QBi-A I/O module, and two LED indicators are located on the baseboard. The UID switch is located next to the LAN ports on the I/O module. The rear UID LED (LED28) is located next to the UID switch. The front panel UID LED is located at pins 7/8 of the Front Control Panel at JF1. Connect a cable to pins 7/8 on JF1 for front panel UID LED indication. When you press the UID switch, both rear UID LED and front panel UID LED indicators will be turned on. Press the UID switch again to turn off both LED indicators. These UID indicators provide easy identification of a system unit that may be in need of service.

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

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

UID LED Status		
Color/State	OS	Status
Blue: On	Windows OS	Unit Identified
Blue: Blinking	Linux OS	Unit Identified

Serial Ports

COM1 is located on the AOM-X10QBi-A I/O module. COM2 is located on the X10QBi baseboard to provide front-accessible serial support. See the table on the right for pin definitions.

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

Video Connectors

Two video (VGA) ports are located on the AOM-X10QBi-A I/O module. Refer to Section 5-6 for locations.

Power LED/Speaker

On the 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 for use with an external speaker. If you wish to use the onboard speaker, close pins 6-7 with a cap.

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

Overheat LED/Fan Fail

The JOH1 header is used to connect an LED indicator to provide warnings of chassis overheating or fan failure. This LED will blink when a fan failure occurs. Refer to the table on right for pin definitions.

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

OH/Fan Fail LED Status	
State	Message
Solid	Overheat
Blinking	Fan Fail

Power SMB (I²C) Connector

The Power System Management Bus (I²C) connector (JPI²C1) is used to monitor onboard power supply, fan and system temperatures. Refer to the table on the right for pin definitions.

| PWR SMB Pin Definitions	
Pin#	Definition
1	Clock
2	Data
3	PMBUS_Alert
4	Ground
5	+3.3V

IPMB

A System Management Bus header for IPMI 2.0 is located at JIPMB1. Connect the appropriate cable here to use the IPMB I²C connection for your system.

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

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 diagram at right for an example of jumping pins 1 and 2. Refer to the serverboard layout page for jumper locations.
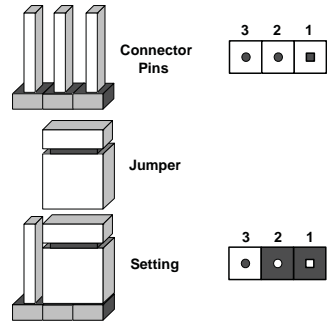
Note: On two-pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.

JBT1 contact pads

CMOS Clear

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

To Clear CMOS

1. First power down the system and unplug the power cord(s). It is also recommended that you remove the onboard battery from the serverboard.

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.*

BMC Enable

Jumper JPB1 allows you to enable the BMC controller on the X10QBi-A I/O module for IPMI/KVM support. The default setting is Normal. Refer to the table on the right for jumper settings.

BMC Enable/Disable Jumper Settings	
Jumper Setting	Definition
Pins 1-2	BMC Enable
Pins 2-3	Normal

VGA Enable

Jumper JPG1 allows the user to enable the onboard VGA1/2 ports on the X10QBi-A I/O module. The default setting is Enabled. See the table on the right for jumper settings.

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

TPM Enable

Jumper JPT1 allows the user to enable TPM (Trusted Platform Module) support to enhance data security. The default setting is Enabled. See the table on the right for jumper settings.

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

Watch Dog Enable/Disable

Watch Dog (JWD1) is a system monitor that can reset the system when a software application hangs. Close pins 1-2 to reset the system if an application hangs. Close pins 2-3 to generate a non-maskable interrupt signal for the application that hangs. Refer to the table on the right for jumper settings. The default setting is Reset. Watch Dog must also be enabled in the BIOS.

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

LAN Enable/Disable

JPL1 enables or disables the LAN Port1/ LAN Port2 on the X10QBi-A I/O module. Refer to the table on the right for jumper settings. The default setting is Enabled.

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

I²C Bus to PCI-Exp. Slots

Use JI²C1 and JI²C2 to connect the System Management Bus (I²C) to the PCI-E slots to improve system performance. These two jumpers are to be set at the same time. The default setting is Open for normal operation. Refer to the table on the right for jumper settings.

I²C for PCI-E Slots Jumper Settings	
Jumper Setting	Definition
Closed	Enabled
Open	Normal

Management Engine (ME) Recovery

Use jumper JPME1 to select ME Firmware Recovery mode, which will limit resource allocation for essential system operation only in order to maintain normal power operation and management. In the single operation mode, an online upgrade will be available via Recovery mode. The default setting is Normal. Refer to the table on the right for jumper settings.

ME Recovery Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Normal
Pins 2-3	ME Recovery

Manufacturer Mode Select

Close pin 2 and pin 3 of jumper JPME2 to bypass SPI flash security and force the system to operate in the Manufacturer mode, allowing the user to flash the system firmware from a host server for system-setting modifications. The default setting is Normal. Refer to the table on the right for jumper settings.

Manufacturer Mode Select Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Normal
Pins 2-3	Manufacturer Mode

5-11 Onboard Indicators

LAN LEDs

Two 10Gbps Ethernet LAN ports are located on the IO Backplane on the serverboard. Each LAN port has two LEDs. The Orange LED indicates activity. The Link LED on the left side of the LAN port may be green, amber or off to indicate the speed of the connection. See the tables on the right for more information.

GLAN LED

Link Speed LED — Activity LED
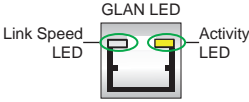
LAN Port Activity LED (Left) LED State		
Color	Status	Definition
Orange	Flashing	Active

10Gbps LAN Link LED Settings	
Color	Definition
Off	No Connection, 10 or 100 Mbps
Green	10 Gbps
Amber	1 Gbps

IPMI Dedicated LAN LEDs

In addition to the LAN Port 1, an IPMI Dedicated LAN is also located on the I/O Backplane. The amber LED on the right indicates connection and activity; while the green LED on the left indicates the speed of the connection. See the tables at right for more information.

IPMI LAN

Link LED — Activity LED
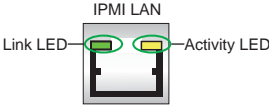
IPMI LAN Link/Speed LED (Left) & Activity LED (Right)		
LED	Color/Status	Definition
Link (Left)	Green: Solid	100 Mbps
	Amber: Solid	1 Gbps
Activity (Right)	Orange: Blinking	Active

5-12 Serial ATA Ports

SATA Ports

Six Serial ATA ports (I-SATA0~5) are located on the X10QBi baseboard (two SATA 3.0 and four SATA 2.0 ports). See the table on the right for pin definitions.

Note: For more information on SATA or RAID configuration, please refer to the Intel SATA HostRAID User's Guide on our website at http://www.supermicro.com.

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 5-9 should appear.

Figure 5-9. 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 5-10. SuperDoctor 5 Interface Display Screen (Health Information)**

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

5-14 Onboard Battery

Caution: There is a danger of explosion if the onboard battery is installed upside down, which will reverse its polarites (see Figure 5-11). This battery must be replaced only with the same or an equivalent type recommended by the manufacturer (CR2032). Dispose of used batteries according to the manufacturer's instructions.

Figure 5-11. Installing the Onboard Battery

LITHIUM BATTERY

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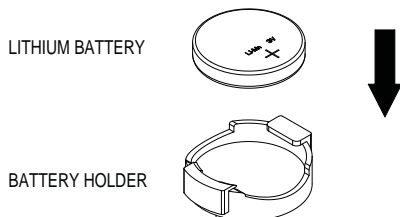
Please handle used batteries carefully. Do not damage the battery in any way; a damaged battery may release hazardous materials into the environment. Do not discard a used battery in the garbage or a public landfill. Please comply with the regulations set up by your local hazardous waste management agency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

Notes

Chapter 6

Advanced Chassis Setup

This chapter covers the steps required to install components and perform maintenance on the SC848XTS-R3240BP chassis. For component installation, follow the steps in the order given to eliminate the most common problems encountered. If some steps are unnecessary, skip ahead to the step that follows.

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

6-1   Static-Sensitive Devices

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

Precautions

- Use a grounded wrist strap designed to prevent static discharge.

- Touch a grounded metal object before removing any board from its antistatic bag.

- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.

- When handling chips or modules, avoid touching their pins.

- Put the serverboard, add-on cards and peripherals back into their antistatic bags when not in use.

- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the serverboard.

Figure 6-1. Front and Rear Chassis Views

Control Panel   Hard Drives (24)

Power Supplies (4)   I/O Ports
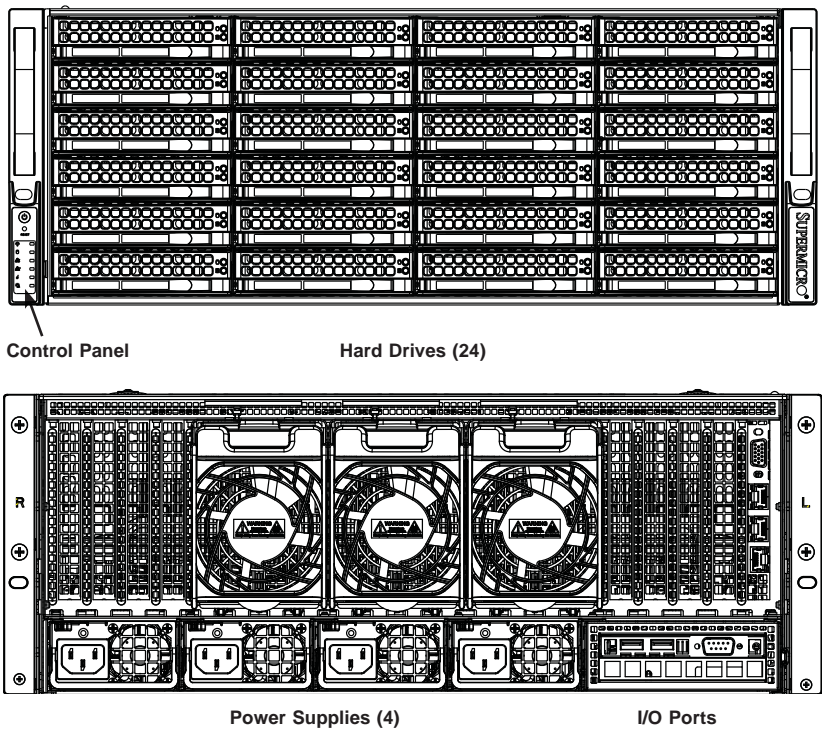
6-2   Control Panel

The control panel is located on the front left handle of the chassis.

See Chapter 3 for details on the LEDs and the control panel buttons.

6-3   Installing Hard Drives

The hard drives are mounted in drive carriers to simplify their installation and removal from the chassis. These carriers also help promote proper airflow for the drive bays. As hot-swappable components, the system may continue running while hard drives are added or replaced to the carriers.

Removing Hard Drive Carriers from the Chassis

1. Press the release button on the drive carrier. This extends the drive carrier handle.

2. Use the handle to pull the drive carrier out of the chassis.

Figure 6-2. Removing a Hard Drive Carrier
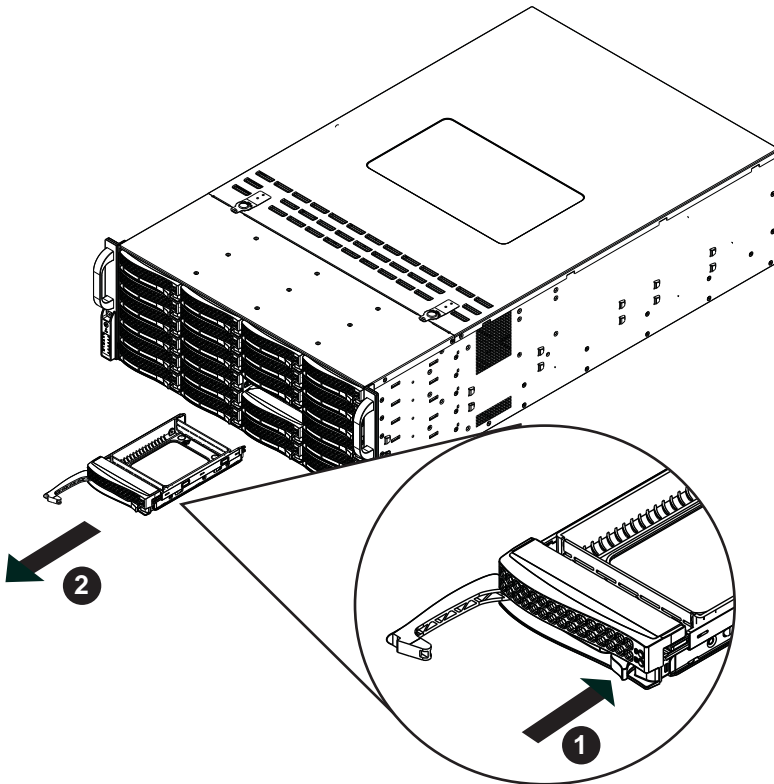
Note: Enterprise level hard disk drives are recommended for use in Supermicro chassis and servers. For information on recommended HDDs, visit the Supermicro website at http://www.supermicro.com/products/nfo/files/storage/SAS-1-CompList-110909.pdf

Warning: Except for short periods of time (swapping hard drives), do not operate the server with the hard drive bays empty.

Installing a Hard Drive to the Carrier

1. Remove the two screws securing the dummy drive to the drive carrier and remove the dummy drive. Place the hard drive carrier on a flat surface such as a desk, table or work bench.

2. Slide the hard drive into the carrier with the printed circuit board side facing down.

3. Carefully align the mounting holes in both the drive carrier and the hard drive.

4. Secure the hard drive to the carrier using six screws.

5. Install the drive carrier back into the chassis. Make sure to close the drive carrier handle to lock the drive carrier in place.

Figure 6-3. Installing a Hard Drive into a Carrier
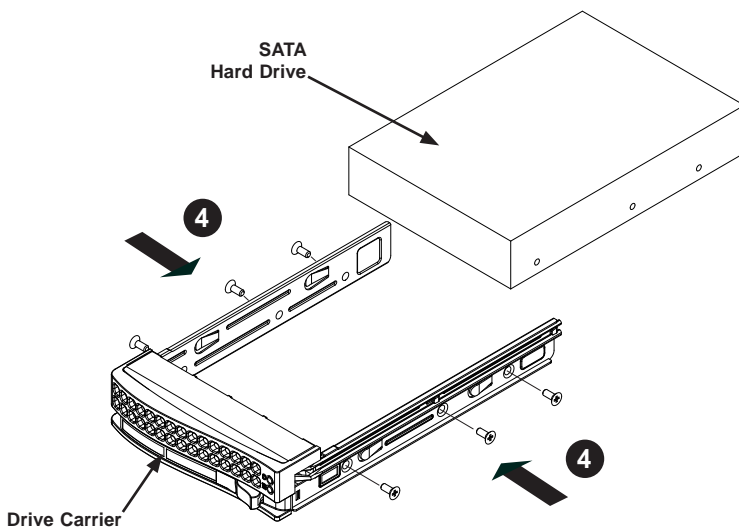
6-4   Accessing the Inside of the System

Removing the Chassis Cover

You will need to access the inside of the system to complete certain procedures such as replacing fans.

Removing the Chassis Cover

1. Power down the system and unplug the cords from the back of the power supplies.
2. Remove the screws securing the top cover to the chassis if these screws are present.
3. Simultaneously press the release tabs to free the top cover from the locked position.
4. Slide the top cover toward the rear of the chassis.
5. Lift the top cover off the chassis.

Figure 6-4. Accessing the Inside of the System
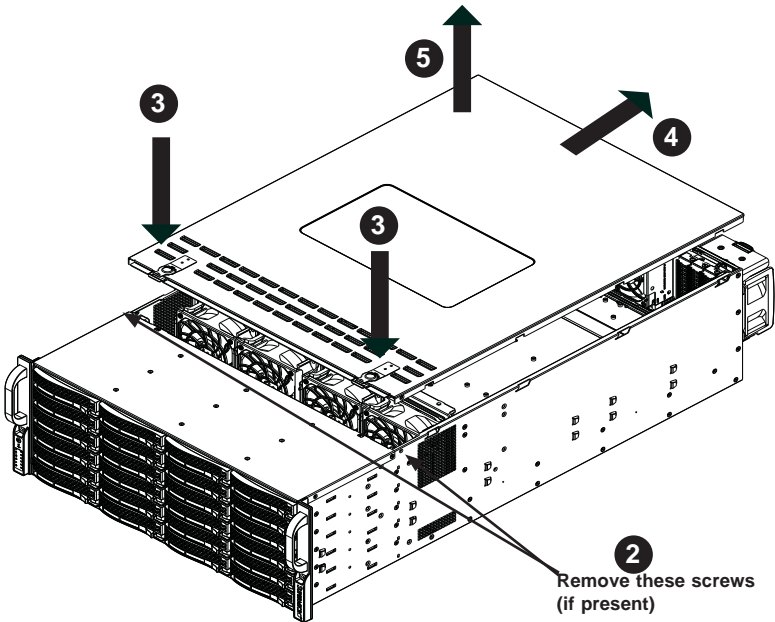
Caution: Except for short periods of time, do NOT operate the server without the cover in place. The chassis cover must be in place to allow proper airflow and prevent overheating.

6-5   Installing the Air Shroud

Air Shrouds

Air shrouds concentrate airflow to maximize fan efficiency. The SC848XTS chassis air shrouds (p/n MCP-310-41804-0B) do not require screws to install them.

Installing the Air Shroud

1. Power down the system, remove the cords from the back of the power supplies and open the chassis top cover.

2. Place the air shroud in the chassis so that it fits between the middle bracket and the rear window.

3. Insert the front hooks of the air shroud into the interstices on the back of the middle fan bracket.

4. Put the top cover back on the chassis, plug the power cords back into the power supplies and power up the system.

Figure 6-5. Installing the Air Shroud
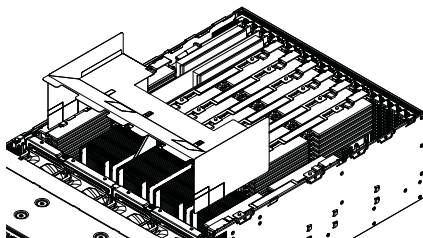
Note: when installing four memory modules as shown below, you must purchase a secondary air shroud from SMC (p/n MCP-310-41805-0B).

Figure 6-6. Secondary Air Shroud Placement
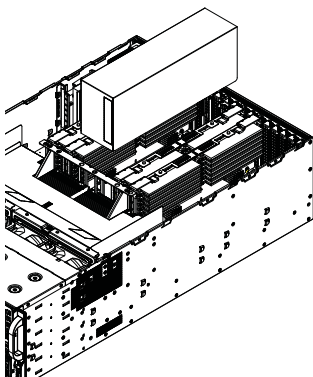
6-6   Cooling System

The SC848XTS chassis contains four 9-cm system fans that provide cooling for the chassis and three 8-cm exhaust fans at the rear of the chassis for expelling hot air. All fans are hot-swappable, there is no need to power down the system when replacing fans.

Replacing a System Fan

1. If necessary, open the chassis top cover while the power is running to determine which fan has failed. (Never run the server for an extended period of time with the chassis top cover open.)

2. Power down the system, unplug the cords from the back of the power supplies and remove the chassis top cover.

3. Press the fan release tab to lift the failed fan from the chassis and pull it completely from the chassis.

4. Place the new fan into the vacant space in the housing while making sure the arrows on the top of the fan (indicating air direction) point in the same direction as the arrows on the other fans.

5. Power up the system and check that the fan is working properly before installing the top cover back onto the chassis.

Figure 6-7. Installing a Front System Fan
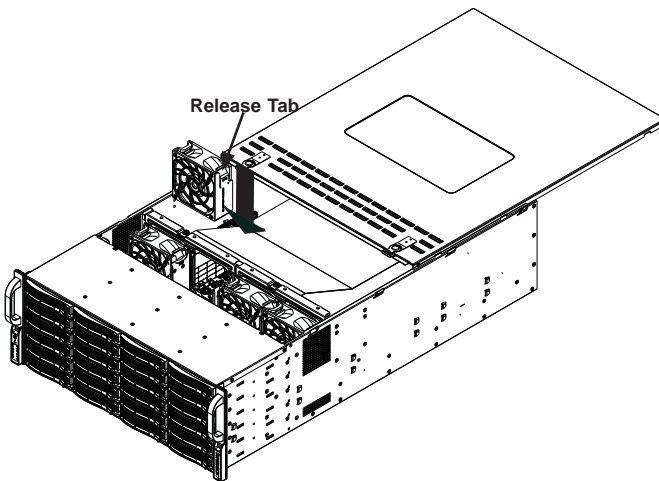
the SC848 chassis includes three hot-swappable external cooling fans that may be replaced without powering down the system.

Replacing an Exhaust Fan

1. Press the release tab on the top of the fan you wish to replace.

2. Pull the fan away from the rear of the fan cage at a slight angle and lift the posts on the base of the fan out of the holes in the fan cage.

3. Place the new fan into the vacated space in the same position as the other fans.

4. Confirm that the fan is working properly.

Figure 6-8. Replacing an Exhaust Fan

Release Tab
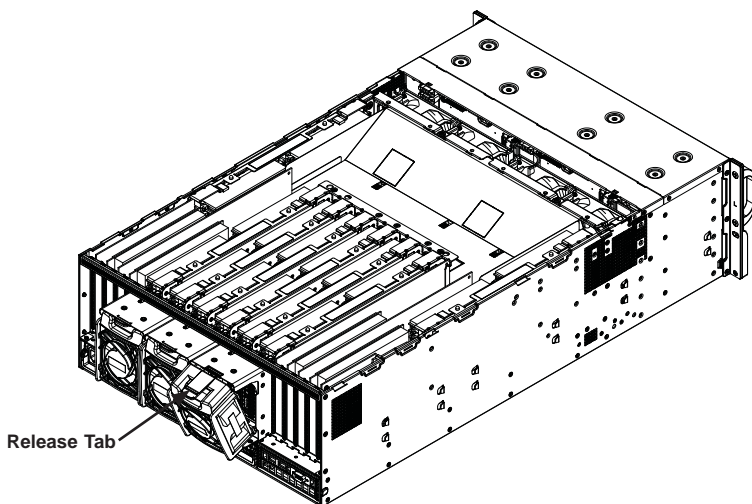
6-7   Power Supply

The 8048B-TR4FT has four (2+2) redundant, high-efficiency 1620 Watt power supplies. The power supply modules are auto-switching capable, enabling them to automatically sense and operate at a 100v to 240v input voltage.

An amber light will be illuminated on the power supply when the power is off. An illuminated green light indicates that the power supply is operating.

Power Supply Replacement

Any one of the power supply modules can be replaced without powering-down the system. Replacement power supply units may be ordered directly from Supermicro.

Changing the Power Supply

1. With the system running, unplug the AC power cord from the failed power supply module.

2. Push and hold the release tab on the back of the power supply.

3. Grasp the handle and pull the power supply out of its bay.

4. Push the replacement power supply module into the empty bay until it clicks into the locked position.

5. Plug the AC power cord back into the new power module.

Figure 6-9. Replacing a Power Supply
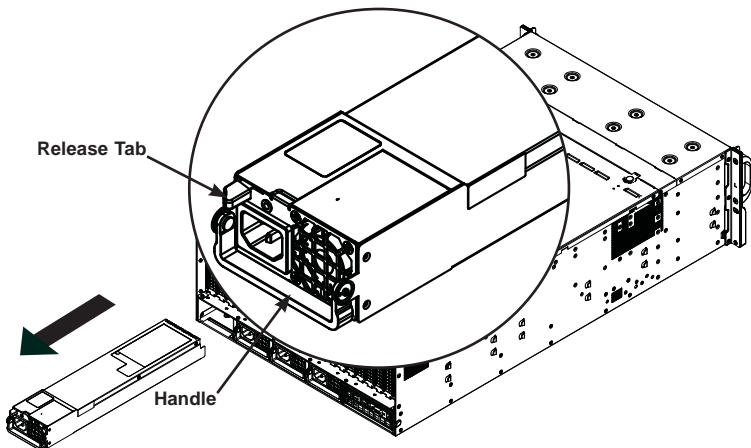
Notes

Chapter 7

BIOS

7-1   Introduction

This chapter describes the AMI BIOS setup utility for the X10QBi Platform. It also provides the instructions on how to navigate the AMI BIOS setup utility screens. The AMI ROM BIOS is stored in a Flash EEPROM and can be easily updated.

Starting BIOS Setup Utility

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

Note: In most cases, the <Del> key is used to invoke the AMI BIOS setup screen. There are a few cases when other keys are used, such as <F3>, <F4>, etc.

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

Note: The AMI BIOS has default informational messages built in. The manufacturer retains the option to include, omit, or change any of these informational 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 setup navigation. These keys include <F3>, <F4>, <Enter>, <ESC>, arrow keys, etc.

Notes: Options printed in **Bold** are default settings. <F3> is used to load optimal default settings. <F4> is used to save the settings and exit the setup utility.

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 <Delete> at the appropriate time during system boot.

Note: For AMI UEFI BIOS Recovery, please refer to the UEFI BIOS Recovery User Guide posted at http://www.supermicro.com/support/manuals/.

Starting 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 the manufacturer be liable for direct, indirect, special, incidental, or consequential damage arising from a BIOS update. If you have to update the BIOS, do not shut down or reset the system while the BIOS is being updated to avoid possible boot failure.

7-2   Main Setup
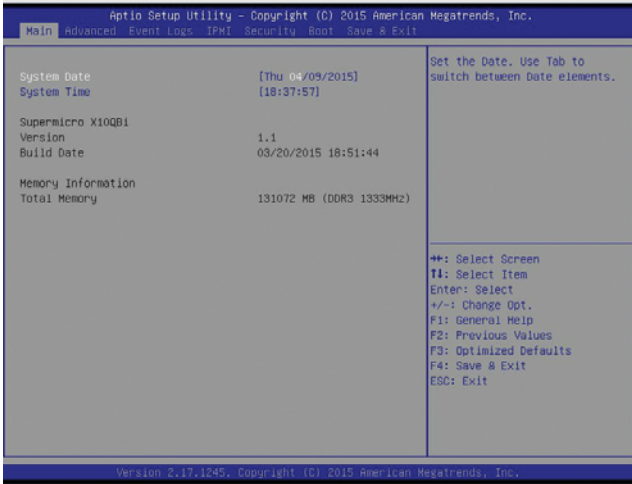
When you first enter the AMI BIOS setup utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab on the top of the screen. The Main BIOS Setup screen is shown below.

The AMI BIOS Main menu displays the following information:

System Date/System Time

Use this item to change the system date and time using the arrow keys. Enter new values through the keyboard and press <Enter>. Press the <Tab> key 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 X10QBi

Version

This item displays the SMC version of the BIOS ROM used in this system.

Build Date

This item displays the date that the BIOS setup utility was built.

Memory Information

Total Memory

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

7-3   Advanced Setup Configurations

Select the Advanced tab to access the following submenu items.
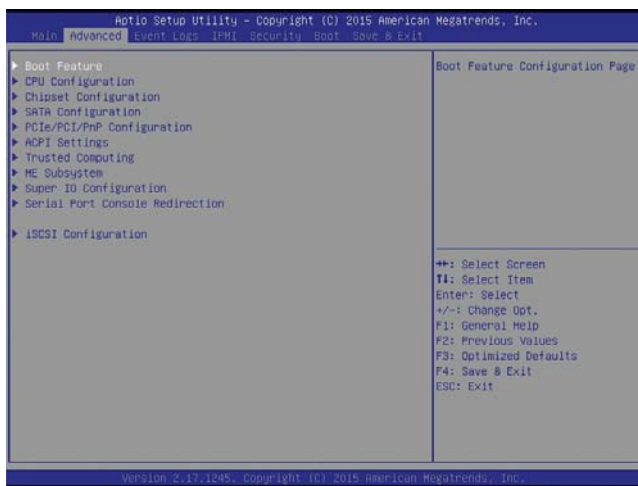
▶**Boot Features**

Boot Configuration

Quiet Boot

Use this item to select bootup screen display between POST messages and the OEM logo. 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 set by the system BIOS. The options are **Force BIOS** and Keep Current.

Bootup Num-Lock

Use this item 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 when an error occurs. The options are Disabled and **Enabled**.

Re-try Boot

If this item is set to Enabled, the system BIOS will continuously try to boot from the selected boot drive. The options are **Disabled**, Legacy Boot, and EFI Boot.

Interrupt 19 Capture

Interrupt 19 is the software interrupt that handles the boot disk function. When this item is set to Immediate, the BIOS ROM of the host adaptors will immediately capture Interrupt 19 at bootup and allow the drives that are attached to these host adaptors to function as bootable disks. If this item is set to Postponed, the BIOS ROM of the host adaptors will only capture Interrupt 19 during bootup from a legacy device. The options are **Immediate** and Postponed.

Power Configuration

Watch Dog Function

If enabled, the Watch Dog timer will allow the system to automatically reboot when a non-recoverable error that lasts for more than five minutes occurs. The options are Enabled and **Disabled.**

Power Button Function

If this item is set to Instant Off, the system will power off immediately as soon as the user presses the power button. If this item is set to 4 Seconds Override, the system will power off when the user presses the power button for 4 seconds or longer. The options are **Instant Off** and 4 Seconds Override.

Restore on AC Power Loss

Use this item to set the power state after a power outage. Select Stay Off for the system power to remain off after a power outage. Select Power On to turn on the system power after a power outage. Select Last State to allow the system to resume its last power state before a power outage. 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 0/Processor 1/Processor 2/Processor 3

This submenu displays the following information of the CPU installed in Socket 1, Socket 2, Socket 3, and Socket 4.

- Processor Socket
- Processor ID
- Processor Frequency
- Microcode Revision
- L1 Cache RAM
- L2 Cache RAM
- L3 Cache RAM
- Processor 0 Version
- Processor 1 Version
- Processor 2 Version
- Processor 3 Version

Clock Spread Spectrum

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

Hyper-Threading

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

Cores Enabled

Use this item to set the number of CPU cores to be enabled in your system. Enter "0" to enable all cores. There are 14 cores available in the system. The default setting is **0**.

Performance/Watt

Select Power Optimized to enable Intel® Turbo Boost Technology support when the Power Performance State P0 has lasted more than two seconds. The options are **Traditional** and Power Optimized.

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 or damage the system during an attack. The options are **Enable** and Disable. (Refer to Intel and Microsoft websites for more information.)

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

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

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

Intel Safer Mode Extensions

Select Enable for Safer Mode Extensions (SMX) support to enhance data security in the processor for Intel Virtualization media support. The options are Enable and **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 Line 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 to speed up data accessing and processing for CPU performance enhancement. 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.

DCU Mode

Use this item to set the data-prefecting mode for the DCU (Data Cache Unit). The options are **32KB 8Way Without ECC** and 16KB 4Way With ECC.

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 **Enable** and Disable.

AES-NI

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

DCA Prefetch Delay

A DCA Prefetcher is used with a TOE (TCP/IP Offload Engine) adapter to prefetch data in order to shorten execution cycles and maximize data processing efficiency. Prefetching data too frequently can saturate the cache directory and delay necessary cache access. This item reduces or increases the frequency the system prefetches data. The options are [8], [16], **[32]**, [40], [48], [56], [64], [72], [80], [88], [96], [104], [112], [120].

Extended APIC (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 item is set to Enable, the APIC ID will be expanded from 8 bits 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.

Down Stream PECI (Platform Environment Control Interface)

Select Enable to allow the client server to interact with the host server directly to achieve better host-client communication in the PECI platform, which will result in power saving and energy use efficiency. The options are **Disable** and Enable.

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

P-state Coordination

This item 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)

C2C3TT (C2-to-C3 Transaction Timer)

This item is used to set the transaction timer from the C2 state to the C3 state. Enter 0 for Auto, which will allow the BIOS to configure the transaction timer automatically. The Default setting is **0 (Auto)**.

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**, and C6 (Retention) state.

CPU C3 Report

Select Enable to allow the BIOS to report the CPU C3 state (ACPI C2) to the operating system. During the CPU C3 state, the CPU clock generator is turned off. The options are 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 Enable to use the "Enhanced Halt State" feature, which will significantly reduce the CPU's power consumption by reducing the CPU's clock cycle and voltage during a "Halt State." The options are Disable and **Enable**.

▶ CPU T State Control

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.

▶ CPU Advanced PM (Power Management) Tuning

▶ Energy Perf (Performance) BIAS

Energy Performance Tuning

Select BIOS to allow the system BIOS to configure the 'Energy-Performance Tuning Bias' setting below. The options are **BIOS** and OS.

Energy/Performance Bias Setting

Use this item to select an appropriate fan setting to achieve maximum system performance (with maximum cooling) or maximum energy efficiency with maximum power saving). The fan speeds are controlled by the firmware management via IPMI 2.0. The options are Performance, **Balanced Performance**, Balanced Power, and Power.

Workload Configuration

Use this item to set the power management setting optimized for regular workload condition. The options are **Balanced (recommended)** and I/O sensitive.

▶Chipset Configuration

▶North Bridge

This feature is used to configure Intel North Bridge settings.

▶Integrated IO Configuration

EV DFX (Device Function On-Hide) Features

When this item 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

▶CPU-PCH DMI/Onboard LAN/CPU1 Slot1 x8/CPU1 Slot2 x16

Use the items below to configure the PCI-E settings for a PCI-E port specified by the user.

The following items will display:

- PCI-E Port Link Status
- PCI-E Port Link Max
- PCI-E Port Link Speed

Link Speed

Use this item to select the PCI-E link speed for the PCI-E port specified by the user. The options for CPU-PCH DMI port and are GEN1 (2.5 GT/s), GEN2 (5 GT/s), and **Auto**. The options for Onboard LAN port, CPU1 Slot1 x8 port, and CPU1 Slot2 x16 port are GEN1 (2.5 GT/s), GEN2 (5 GT/s), GEN3 (8 GT/s), and **Auto**.

▶IIO1 Configuration

▶CPU2 Slot4 x16/CPU2 Slot5 x8/CPU2 Slot3 x8

Use the items below to configure the PCI-E settings for a PCI-E port specified by the user.

The following items will display:

- PCI-E Port Link Status
- PCI-E Port Link Max
- PCI-E Port Link Speed

Link Speed

Use this item to select the PCI-E link speed for the PCI-E port specified by the user. The options are GEN1 (2.5 GT/s), GEN2 (5 GT/s), and **Auto**.

▶IIO2 Configuration

▶CPU3 Slot6 x8/CPU3 Slot7 x8/CPU3 Slot9 x16

Use the items below to configure the PCI-E settings for a PCI-E port specified by the user.

The following items will display:

- PCI-E Port Link Status
- PCI-E Port Link Max
- PCI-E Port Link Speed

Link Speed

Use this item to select the PCI-E link speed for the PCI-E port specified by the user. The options are GEN1 (2.5 GT/s), GEN2 (5 GT/s), and **Auto**.

▶IIO3 Configuration

▶CPU4 Slot8 x8/CPU4 Slot10 x8/CPU4 Slot11 x16

Use the items below to configure the PCI-E settings for a PCI-E port specified by the user.

The following items will display:

- PCI-E Port Link Status
- PCI-E Port Link Max
- PCI-E Port Link Speed

Link Speed

Use this item to select the PCI-E link speed for the PCI-E port specified by the user. The options are GEN1 (2.5 GT/s), GEN2 (5 GT/s), and **Auto**.

▶IOAT Configuration

Enable IOAT

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

No Snoop

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

Disable TPH

Select Enable to de-activate TLP Processing Hint support. The options are **Disable** and Enable.

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

Intel® VT for Directed I/O (VT-d)

Select Enable to enable Intel Virtualization Technology support for Direct I/O VT-d 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 to support Interrupt Remapping to enhance system performance. The options are **Enable** and Disable.

PCI Express Global Options

Power Down Unused Ports

Select Enable to power down the ports that are conneced. The options are **Disable**, Enable, HSX Disable Unused Ports (No IIO Clock Gating), and HSX Disable Unused Ports (IIO Clock Gating).

▶ QPI (Quick Path Interconnect) Configuration

QPI Status

The following information will display:

- Number of CPU
- Number of IIO
- LInk Speed
- Current QPI Link Frequency
- QPI Global MMIO Low Base/Limit
- QPI Global MMIO High Base/Limit
- QPI PCI-E Configuration Base/Siz (Size)

Link Frequency Select

Use this feature to select the desired frequency for QPI Link connections. The options are 6.4GB/s, 7.2GB/s, 8.0GB/s, **Auto,** Auto Limited, and Use Per LInk Setting.

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.

Legacy VGA Socket

Enter the VGA socket number (from 0-7) that will be used to support legacy VGA. The default setting is **0**.

▶ QPI Per Socket Configuration

▶ CPU 0/CPU 1/CPU 2/CPU 3

Bus Resource Allocation Ratio

Use this feature to set the bus resource-allocation ratio (from 0-8). The default setting is **1**.

IO Resource Allocation Ratio

Use this feature to set the IO resource-allocation ratio (from 0-8). The default setting is **1**.

MMIOL Resource Allocation Ratio

Use this feature to set the Memory-Mapped IO resource-allocation ratio (from 0-8). The default setting is **1**.

IIO UniPhy Disable

Select Yes to hide the entire UNIFY in L2 cache. The options are **No** and Yes.

▶**Memory Configuration**

This section displays the following Integrated Memory Controller (IMC) information.

DDR Speed

Use this feature to force a DDR3 memory module to run at a frequency other than what is specified in the specification. The options are **Auto**, 1067, 1333, 1600, 1867, and 2133.

DDR Voltage Level

Select Force to 1.50V to force all DDR memory modules to operate at 1.50V. Select Force to 1.35V to force all DDR memory modules to operate at 1.35V. The options are **Auto**, Force to 1.50V, and Force to 1.35V.

Advanced Clk (Clock) Training

Select Enable for Advanced Clock Training support, which will allow the memory command line to synchronize with the clock line to enhance memory performance. The options are **Enable** and Disable.

Perbit (Per-bit) Deskew Training

Select Enable for Perbit Deskew Training support, which will allow the memory controller to include various adjustable delay circuits in both Read and Write paths on a per-bit base for effective memory interface to maximize memory performance. The options are **Disable** and Enable.

ODT Timing Mode

Use this feature to set the ODT (On-Die Termination) Timing mode for the memory controller to enhance memory performance. The options are **Aggressive Timing** and Conservative Timing.

MxB Rank Sharing Mapping

Use this feature to select the address-mapping setting for memory-rank sharing to enhance extended multimedia platform performance. he options are **Maximum Performance** and Maximum Margin.

3DS LRDIMM (Load-Reduction DIMM) Module Delay

When this item is set to Disabled, the MRC (Memory Regulator Controller) will not use SPD bytes 90-95 for module delay on 3DS LRDIMM memory. The options are **Disabled** and Auto.

Data Scrambling

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

VMSE Lockstep Mode

Select Enabled to support the VMSE Lockstep mode, which will support Lock step mode for the Intel Scalable Memory Interconnect 2 (Intel SMI 2) controller. The options are **2:1 Mode** and 1:1 Mode.

HA (Hash Mode) Early Write Post Mode

Select Enable to support memory hash-method-comparison mode when the system is running at the early stage of POST (Power-On-Self-Test). The options are is **Enable** and Disable.

Command 2 Data Tuning

Select Enabled to fine-tune electrical command paths from the host system to the memory-extension buffer (MXB). The options are **Enabled** and Disabled.

Closed Loop Thermal Throttling

Select Enabled to support Closed-Loop Thermal Throttling which will improve reliability and reduces CPU power consumption via automatic voltage control while the CPU are in idle states. The options are **Disabled** and Enabled.

▶**Memory Topology**

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

- Memory Buffer Controller
- Memory Channel
- DIMM Frequency

▶Memory RAS (Reliability_Availability_Serviceability) Configuration

This submenu will display the following items:

- Current Memory Mode
- Mirroring
- Sparing

Memory Rank Sparing

This item indicates if memory rank sparing is supported by the motherboard. Memory rank sparing enhances system performance. The options are Enabled and **Disabled**.

Spare Error/Memory Correctable Thr (Threshold)

Use this feature to set the correctable error threshold for spare memory modules. The default setting is **10**.

Leaky Bucket Low Bit

Use this feature to set the Low Bit value for the Leaky Bucket algorithm which is used to check the data transmissions between CPU sockets and the memory controller. The default setting is **40**.

Leaky Bucket High Bit

Use this feature to set the High Bit value for the Leaky Bucket algorithm which is used to check the data transmissions between CPU sockets and the memory controller. The default setting is **41**.

Memory Interleaving

Use this feature to set the DIMM memory interleaving mood. The options are NUMA (1-way) Node Interleave, **2-way Node Interleave**, 4-way Interleave, 8 Way Interleaving, Inter-socket, and Auto.

Channel Interleaving

Use this feature to set the DIMM channel interleaving mood. The options are **Auto**, 1-way Interleave, 2-way Interleave, 3-way Interleave, and 4-way Interleave.

Rank Interleaving

Use this feature to select a rank memory interleaving method. **Auto**, 1-way Interleave, 2-way Interleave, 3-way Interleave, and 4-way Interleave.

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.

A7 Mode

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

DDDC Support

Select Enabled to enable Double-Device Data Correction (DDDC) support for the error-correction codes to correct memory errors caused by two failed DRAM devices. The options are **Disable** and Enable.

DDDC Wirekill (Wire-Kill)

Select Enabled for Double-Device Data Correction (DDDC) Wire-kill support which will disable the wire connection between two DRAM devices when they fail. The options are **Disable** and Enable.

DDDC Wirekill (Wire-Kill) Threshold

Use this feature to set the DDDC Wirekill threshold. When the memory errors reach the threshold,wire-connections between the failed DRAM modules will be disconnected. The Default setting is **2**.

Memory Mirroring

Select Enable to enable memory-mirroring support which will create a duplicate copy of the data stored in the memory to enhance data security. The options are **Disable** and Enable.

▶South Bridge

This feature is used to configure Intel South Bridge settings.

▶USB Configuration

The following USB items will display.

- USB Module Version
- USB Devices

Legacy USB Support (Available when USB Functions is not Disabled)

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

EHCI Hand-Off

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

Port 60/64 Emulation

Select Enabled for I/O port 60h/64h emulation support which will provide complete USB keyboard legacy support for the operating system that does not support Legacy USB devices. The options are Disabled and **Enabled**.

▶SATA Configuration

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

SATA Controllers

This item enables or disables the built-in SATA controllers on the motherboard. The options are **Enabled** and Disabled.

Configure SATA As

Use this feature to configure the SATA mode for a devices installed in the SATA port specified by the user. The options are IDE, **AHCI** and RAID.

▶Software Feature Mask Configuration

Low Power Device Detection Support

Select Enabled for the low-power device to be detected by the BIOS. The options are **E**nabled and **Disabled**.

Aggressive LPM Support

Select Enabled for the PCH chip to aggressively enter the Link-Power state. The options are **Enabled** and Disabled.

Alternate ID (Available when RAID is selected in the item above-"Configure SATA as")

Select Enabled for the port specified by the user to report an alternate ID to the system. The options are **Enabled** and Disabled.

SATA Port 0/SATA Port 1/SATA Port 2/SATA Port 3/SATA Port 4/SATA Port 5

This section allows the user to configure the following settings for the SATA port specified by the user.

Software Preserve

Port 0/Port 1/Port 2/Port 3/Port 4/Port 5

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

Hot Plug (Available when AHCI or RAID is selected in the item above-"Configure SATA as")

Select Enabled to support Hot-plugging for the selected SATA port which will allow the user to replace a device without shutting down the system. The options are Enabled and **Disabled.**

Port Multiplier (Available when AHCI or RAID is selected in the item above-"Configure SATA as")

Select Enabled to support port-multiplier for the SATA port specified by the user. The options are Enabled and **Disabled.**

Spin Up Device (Available when AHCI or RAID is selected in the item above-"Configure SATA as")

Select Enabled to allow the PCH to start a COMRESET initialization (from 0 to 1 on an edge detect) to the device. The options are Enabled and **Disabled**.

SATA Device Type

Use this feature to configure the SATA device type for the device installed on selected a SATA port for use of IDE mode, RAID mode or AHCI mode. The options are Solid State Device and **Hard Disk Drive**.

Link L0p Enable

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

▶PCIe/PCI/PnP Configuration

PCI Latency Timer

Use this feature to set the latency timer of each PCI device installed on a PCI bus. Select 64 to set the PCI latency to 64 PCI clock cycles. The options are **32**, 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/SERR Support

Select Enabled to allow a PCI device to generate a PERR (PCI/PCI-E Parity Error) or an SERR (System Error) number for a PCI bus error event. 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 to allow 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 to allow the system BIOS to automatically set the maximum Read Request size 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

This feature allows the user to set the Active State Power Management (ASPM) level for a PCI-E device. Select Force L0s to force all PCI-E links to operate at L0s state. Select Auto to allow the system BIOS to automatically set the ASPM level for the system. Select Disabled to disable ASPM support. The options are **Disabled**, Force L0s, 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**, 40T, 24T, 3584G, 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 32G, 64G, **128G**, 256G, 512G, and 1024G.

CPU1 PCI-E 3.0X8 SLOT2 OPROM/CPU2 PCI-E 3.0X8 SLOT3 OPROM/ PCH PCI-E 2.0X4 SLOT4 OPROM/RSC-R4UFF-A2ED16A SLOT1 PCI-E X16 OPROM/Onboard SAS Option ROM

Select Enabled to enable Option ROM support

CPU1 Slot 1 PCI-E x8 OPROM/CPU1 Slot 2 PCI-E x16 OPROM/CPU2 Slot 3 PCI-E x8 OPROM/CPU2 Slot 4 PCI-E x16 OPROM/CPU2 Slot 5 PCI-E x8 OPROM/CPU3 Slot 6 PCI-E x8 OPROM/CPU3 Slot 7 PCI-E x8 OPROM/CPU4 Slot 8 PCI-E x8 OPROM/CPU3 Slot 9 PCI-E x16 OPROM/CPU4 Slot 10 PCI-E 3.0 x8 OPROM/CPU4 Slot 11 PCI-E x16 OPROM

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 **Enabled** and Disabled.

Onboard Video OPROM

This feature controls how the system executes UEFI (Unified Extensible Firmware Interface), and legacy Option ROM. Select Legacy Only to boot the system using a legacy video device. The options are Do not launch, UEFI Only and **Legacy Only**.

VGA Priority

This feature allows the user to select the graphics adapter to be used as the primary boot device. The options are **Onboard** and Offboard.

Onboard LAN OpROM (Option ROM) Select

Select iSCSI to use the iSCSI Option ROM to boot the computer using a iSCSI network device. Select PXE (Preboot Execution Environment) to use an PXE Option ROM to boot the computer using a PXE network device. The options are iSCSI and **PXE**.

Load Onboard LAN1 Option ROM, Load Onboard LAN2 Option ROM

Select Enabled to enable the onboard LAN1/LAN2 Option ROM. This is to boot the computer using a network device. The default setting for LAN1 Option ROM is **Enabled**, and the default setting 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**.

▶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.

Lock Legacy Resources

Select Enabled for locking legacy-resources support . The options are Enabled and **Disabled**.

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

Configuration

Security Device Support

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

TPM (Trusted-Platform Module) State

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

Pending Operation

Use this item to schedule an operation for the security device. The options are **None**, Enable Take Ownership, Disable Take Ownership, and TPM Clear.

Note: The computer will reboot in order to execute the pending commands and change the state of the security device.

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

TPM Enable Status

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

TPM Active Status

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

TPM Owner Status

This item displays the status of TPM Ownership.

TXT Support

Select Enabled for Intel TXT technology support to improve network security. The options are Enabled and **Disabled**.

▶ME (Management Engine) Subsystem

This feature displays the following ME Subsystem Configuration settings.

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

▶Super IO Configuration

Super IO Chip: This item displays the Super IO chip used in the motherboard.

▶Serial Port 1 Configuration

Serial Port

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

Device Settings

This item displays the settings of Serial Port 1 (COM).

Change Settings

This option specifies the base I/O port address and the Interrupt Request address of Serial Port 1 (COM). Select Disabled to prevent the serial port from accessing any system resources. When this option is set to Disabled, the serial port becomes unavailable. The options are **Auto**, IO=3F8h; IRQ=4; IO=3F8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2F8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=3E8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2E8h; IRQ=IRQ=3, 4, 5, 6, 7, 10, 11, 12.

Device Mode

Use this feature to select the desired mode for a serial port specified. The options are **24MHz/13** and 24MHz.

Device Mode

Use this feature to select the desired mode for a serial port specified. The options are **24MHz/13** and 24MHz.

▶Serial Port 2 Configuration

Serial Port

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

Device Settings

This item displays the settings of Serial Port 2.

Change Settings

This option specifies the base I/O port address and the Interrupt Request address of Serial Port 2 (SOL). Select Disabled to prevent the serial port from accessing any system resources. When this option is set to Disabled, the serial port becomes unavailable. The options are **Auto**, O=2F8h; IRQ=3; IO=3F8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2F8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=3E8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2E8h; IRQ=IRQ=3, 4, 5, 6, 7, 10, 11, 12.

Serial Port 2 Attribute

Use this feature to select the attribute for this serial port. The options are **SOL** (Serial On LAN), and COM.

▶Serial Port Console Redirection

COM 1 Console Redirection

This submenu allows the user to configure the following Console Redirection settings for this port.

Console Redirection

Select Enabled for Console Redirection support. The options are Enabled and **Disabled**.

COM2/SOL Console Redirection

This submenu allows the user to configure the following Console Redirection settings for the SOL Port specified by the user.

Console Redirection

Select Enabled to use the SOL Port for Console Redirection. The options are **Enabled** and Disabled.

▶Console Redirection Settings

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

Terminal Type

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

Bits Per second

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

Data Bits

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

Parity

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

Stop Bits

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

Flow Control

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

VT-UTF8 Combo Key Support

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

Recorder Mode

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

Resolution 100x31

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

Legacy OS Redirection Resolution

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

Putty KeyPad

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

Redirection After BIOS Post

Use this feature to enable or disable legacy console redirection after BIOS POST. When set to Bootloader, legacy console redirection is disabled before booting the OS. When set to Always Enable, legacy console redirection remains enabled when booting the OS. The options are **Always Enable** and Bootloader.

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

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

Console Redirection (for EMS)

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

▶Console Redirection Settings (for EMS)

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

Out-of-Band Management Port

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

Terminal Type

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

Bits Per Second

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

Flow Control

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

The setting for each these features is displayed:

Data Bits, Parity, Stop Bits

▶iSCSI Configuration

This item displays iSCSI configuration information:

iSCSI Initiator Name

This item displays the name of the iSCSI Initiator, which is an unique name used in the world. The name must use IQN format. The following actions can also be performed:
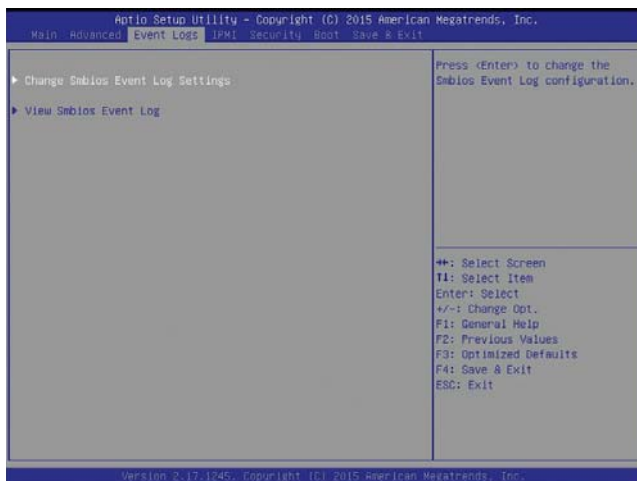
▶**Add an Attempt**

▶**Delete Attempts**

▶**Change Attempt Order**

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.

**Erasing Settings**

Erase Event Log

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

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.

7-5   IPMI

Select the IPMI (Intelligent Platform Management Interface) tab to access the following submenu items.
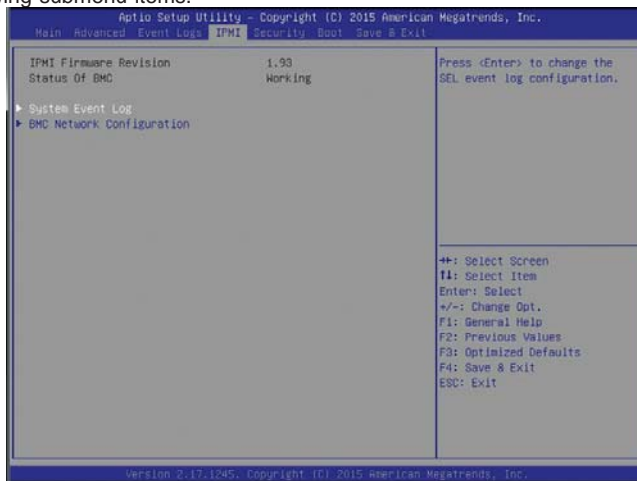
These items indicates your system IPMI firmware revision number and status.

- IPMI Firmware Revision
- IPMI Statu

▶System Event Log

Enabling/Disabling Options

SEL Components

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

Erasing Settings

Erase SEL

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

When SEL is Full

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

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

▶BMC Network Configuration

Update IPMI LAN Configuration

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

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

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

Station IP Address

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

Subnet Mask

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

Station MAC Address

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

Router IP Address

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

7-6   Security

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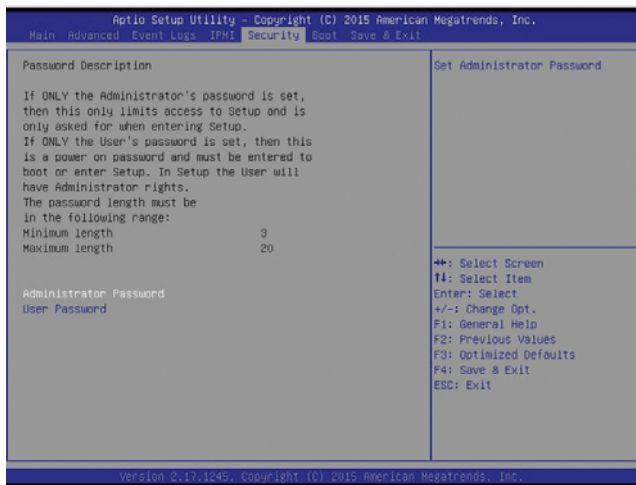

Administrator Password

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

User Password

Use this item to set a user password which is required to log into the system and to enter the BIOS setup utility. The length of the password should be from 3 characters to 20 characters long.

7-7   Boot

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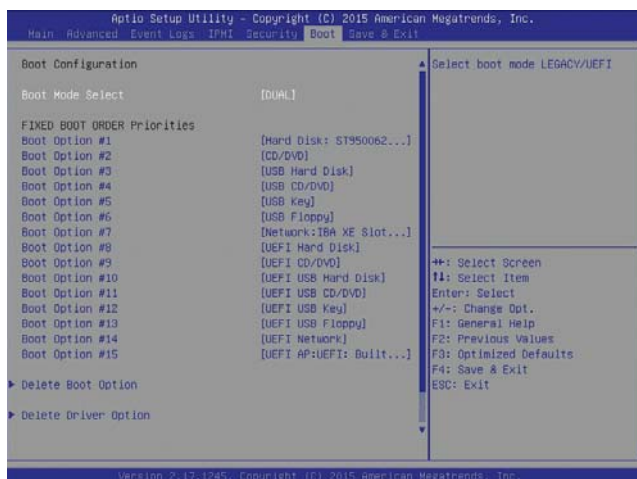
Boot Mood Select

Use this item to configure boot mood select settings for the machine. The options are Legacy, UEFI, and **Dual**.

Fixed Boot Order Priorities

This option prioritizes the order of bootable devices that the system to boot from. Press [ENTER] on each entry from top to bottom to select devices.

- Boot Option #1 Boot Option #15

▶**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.

▶**Delete Driver Option**

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

   Delete Driver Option

   Select the target driver to delete.

▶**Hard Disk Drive BBS Priorities**

This item sets the boot sequence of available hard disk drives.
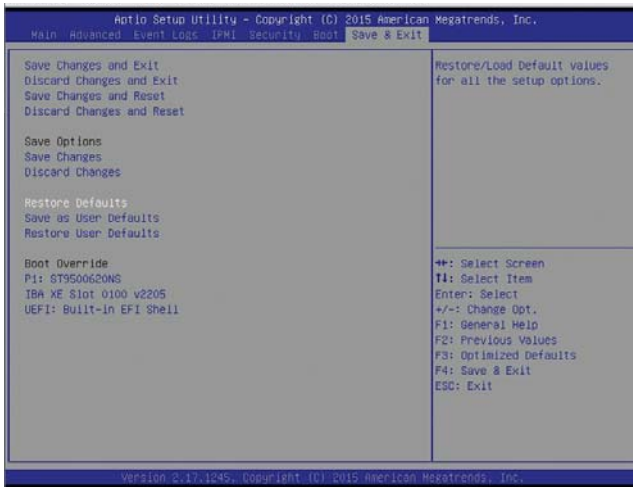
- Boot Option #1

▶**Network Drive BBS Priorities**

- Boot Option #1

▶**UEFI Application Boot Priorities**

- Boot Option #1

7-8   Save & Exit

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

Save Changes and Exit

When completing the system configuration changes, select this option to save the changes and exit from the BIOS setup utility. When a dialog box appears, asking you if you want to save configuration and exit, select Yes to save the changes and exit from the BIOS setup utility.

Discard Changes and Exit

Select this option to quit the BIOS setup without making any changes to the system configuration. Select Discard Changes and Exit, and press <Enter>. When the dialog box appears, asking you if you want to exit the BIOS setup without saving, select **Yes** to quit BIOS without saving the changes.

Save Changes and Reset

When completing the system configuration changes, select this option to save the changes and reboot the computer so that the new system configuration settings can take effect.

Save Options

Save Changes

Select this option and press <Enter> to save all changes you've made so far and return to the AMI BIOS utility. When the dialog box appears, asking you if you want to save configuration, select **Yes** to save the changes, or select No to return to the BIOS without making changes.

Discard Changes

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

Restore Defaults

Select this feature and press <Enter> to load the optimized default settings that help optimize system performance. When the dialog box appears, asking you if you want to load optimized defaults, select **Yes** to load the optimized default settings, or select No to abandon optimized defaults.

Save as User Defaults

Select this feature and press <Enter> to save the current settings as the user's defaults. When the dialog box appears, asking you if you want to save values as user's defaults, select **Yes** to save the current values as user's default settings, or select No to keep the defaults previously saved as the user's defaults.

Restore User Defaults

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

Boot Override

This feature allows the user to override the Boot Option Priority sequence set in the Boot menu, and boot the system with one of the listed devices instead. This is a one-time override.

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.

X10 Motherboard BIOS Error Beep Codes		
Beep Code/LED	**Error Message**	**Description**
1 beep	Refresh	Ready to boot
5 short beeps + 1 long beep	Memory error	No memory detected in the system
5 beeps	No Con-In or No Con-Out devices	Con-In includes USB or PS/2 keyboard, PCI or Serial Console Redirection, IPMI KVM or SOL. Con-Out includes Video Controller, PCI or Serial Console Redirection, IPMI SOL.
X10 IPMI Error Codes		
1 Continuous Beep	System OH	System Overheat

Notes

Appendix B

System Specifications

Processors

Four Intel® Xeon® E7-8800 v3/v4 or E7-4800 v3/v4 series processors
(Socket R1 LGA 2011)

Note: please refer to our website for details on supported processors.

Chipset

Intel C602J chipset

BIOS

16MB SPI Flash EEPROM with AMI® BIOS

Memory Capacity

Eight memory cards to support of up to ninety-six (96) DIMM's for a total
system memory of up to 12 TB of DDR4-1866/1600/1333/1066 MHz speed
1GB, 2GB, 4GB, 8GB, 16GB, 32GB or 64GB size ECC RDIMM/3DS LRDIMM
memory.

Note: refer to Section 5-5 for details on installation.

Note: Check the Supermicro website for the latest memory support information.

SATA Drive Bays

Up to twenty-four (24) hot-swap drive bays to house 3.5" hard drives.

PCI Expansion

The SuperServer 8048B-TR4FT has the following expansion slots available:

- Four (4) PCI Express 3.0 x16 slots
- Seven (7) PCI Express 3.0 x8 slots

Boards

One X10QBi baseboard (proprietary form factor)

Dimensions: (LxW) 19 x 17 in. (482.6 x 431.8 mm)

Eight X10QBi-MEM2 memory boards

One AOM-X10QBi-A I/O card

Chassis

SC848XTS-R3240BP (4U rackmount)

Dimensions: (WxHxD) 17.2 x 1.7 x 32.1 in. (437 x 43 x 815 mm)

Weight

Gross (Bare Bone): 150 lbs. (68 kg.)

System Cooling

The system has Four 9-cm and three 8-cm system fans and three 8-cm rear exhaust fans (fan speed controlled by IPMI)

System Input Requirements

AC Input Voltage: 100 - 240V AC auto-range

Rated Input Current: 11.5 - 5.5A max

Rated Input Frequency: 50 to 60 Hz

Power Supply (2+2 redundant)

Rated Output Power: 1620W (Part# PWS-1K62P-1R)

Rated Output Voltages: +12V (84A at 100-120VAC, 100A at 120-140VAC, 135A at 180-264VAC), +5Vsb (4A)

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 A, EN 55022 Class A, EN 61000-3-2/-3-3, CISPR 22 Class A

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

Safety: CSA/EN/IEC/UL 60950-1 Compliant, UL or CSA Listed (USA and Canada), CE Marking (Europe)

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

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