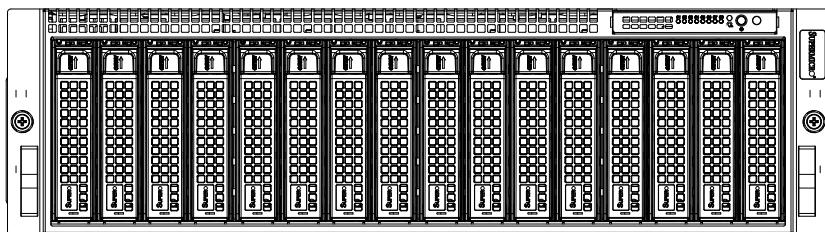




SUPERSERVER®

5038MR-H8TRF



USER'S MANUAL

Revision 1.0a

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Manual Revision 1.0a
Release Date: June 05, 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. Installation and maintainance should be performed by experienced technicians only.

Please refer to the server specifications page on our Web site for updates on supported memory, processors and operating systems (<http://www.supermicro.com>).

Notes

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:
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If you have any questions, please contact our support team at:

support@supermicro.com

This manual may be periodically updated without notice. Please check the Supermicro Web site for possible updates to the manual revision level.

Warnings

Special attention should be given to the following symbols used in this manual.



Warning! Indicates important information given to prevent equipment/property damage or personal injury.



Warning! Indicates high voltage may be encountered when performing a procedure.

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Notes

Chapter 1

Introduction

1-1 Overview

The SuperServer 5038MR-H8TRF is a high-density multi-node server comprised of the SC938BH-R1620BP 3U server chassis and eight hot-pluggable computing nodes, each with an X10SRD-F single processor motherboard. Certified operating systems are listed at www.supermicro.com.

In addition to the above components, the server includes:

- SAS backplane supporting the HDDs (BPN-SAS-938H)
- Four 8-cm system cooling fans (FAN-0133L4)
- One rackmount rail kit (MCP-290-00057-0N)

Per node:

- Expansion card (AOC-CGP-I2-O-P)
- Heatsink (SNK-P0047PS+)
- One air shroud (MCP-310-93802-0B)
- Riser Card: (RSC-RR1U-E8-O-P)

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

For support, email support@supermicro.com.

1-2 Serverboard Features

Each computing node of the SuperServer 5038MR-H8TRF features the X10SRD-F, a single processor motherboard based on the Intel PCH C612 chipset. Below are the main features. Figure 1-1 displays a block diagram of the chipset.

Processors

The serverboard supports a single Intel Xeon E5-2600/E5-1600 v3 series processor in LGA2011 sockets (Socket R3). Refer to the Supermicro web site for a complete listing of supported processors (www.supermicro.com).

Memory

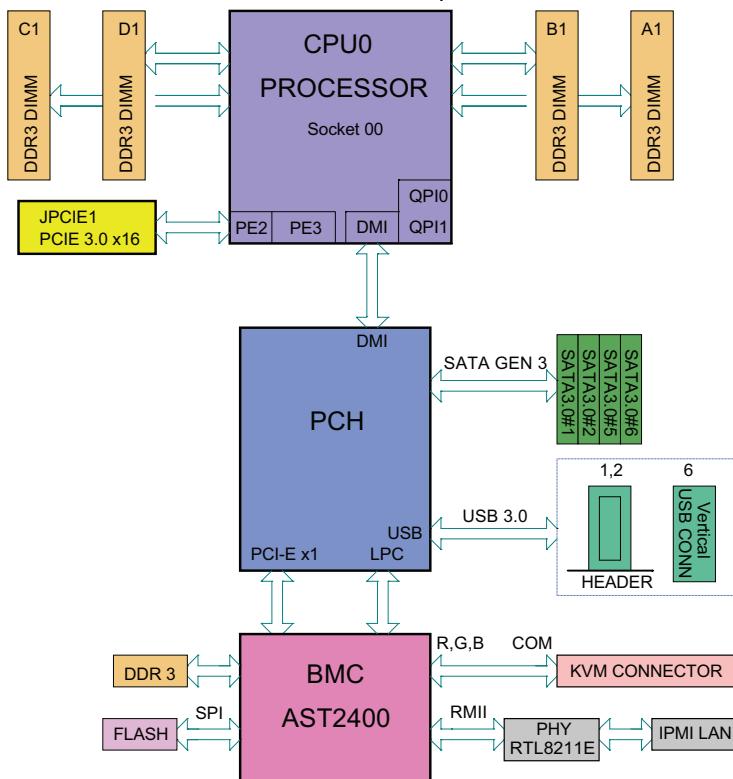
The serverboard has four memory sockets that can support up to 256 GB RDIMM (Registered DIMMs) or LRDIMM. (Load-Reduced DIMMs). Memory must be ECC DDR4, 2133/1866/1600 Hz.

Input/Output Ports

The rear I/O ports for each node include two Gb LAN ports, a dedicated IPMI LAN port, two USB 2.0 ports (with KVM dongle), one COM port, and one VGA port.

SATA Controller

Each node has two SATA3 ports on the back panel, two SATA3 ports onboard and two SATA2/SAS for add-on cards.



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

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

1-3 Server Chassis Features

The 5038MR-H8TRF is built upon the SC938BH-R1620BP chassis. Details and related procedures can be found in Chapter 6. The following is a general outline of the main features of the chassis.

System Power

The chassis features dual redundant 1620 W hot-plug power modules. They have 80 Plus certification at Platinum Level (96%) high-efficiency. The system will continue to operate if one module fails or is replaced.

Hard Drives

The chassis supports up to sixteen 3.5" hot-swap hard drives, connected through a SAS backplane.

PCI Expansion Slots

Each node allows one PCI-E x8 low profile expansion card, using a riser card.

User Interface

The chassis front control panel provides system monitoring and power control. Multicolor LEDs indicate the status of each computing node. In addition, an LED alerts the failure of a power supply module.

Cooling System

The chassis has an efficient cooling design that features four 8-cm high-performance fans. Fan speed can be controlled based on the system temperature using IPMI.

Each power supply module also includes a cooling fan.

1-4 Contacting Supermicro

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Email: support@supermicro.com.tw
Web Site: www.supermicro.com.tw

Notes

Chapter 2

Server Installation

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

2-1 Unpacking the System

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

2-2 Preparing for Setup

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

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

Choosing a Setup Location

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

2-3 Warnings and Precautions

Rack Precautions

- Ensure that the leveling jacks on the bottom of the rack are fully extended to the floor with the full weight of the rack resting on them.
- In single rack installation, stabilizers should be attached to the rack. In multiple rack installations, the racks should be coupled together.
- Always make sure the rack is stable before extending a component from the rack.
- You should extend only one component at a time - extending two or more simultaneously may cause the rack to become unstable.

Server Precautions

- Review the electrical and general safety precautions in Chapter 4.
- Determine the placement of each component in the rack *before* you install the rails.
- Install the heaviest server components on the bottom of the rack first, and then work up.
- Use a regulating uninterruptible power supply (UPS) to protect the server from power surges, voltage spikes and to keep your system operating in case of a power failure.
- Allow the hot plug SAS drives and power supply modules to cool before touching them.
- Always keep the rack's front door and all panels and components on the servers closed when not servicing to maintain proper cooling.

Rack Mounting Considerations

Ambient Operating Temperature

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

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:

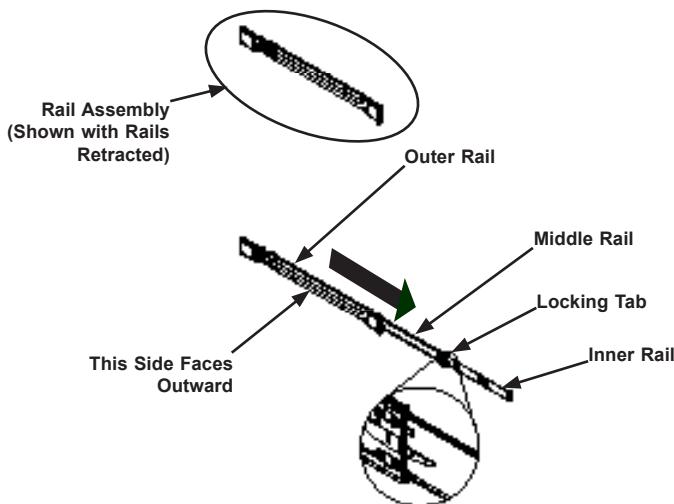
- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.
- Slide rail mounted equipment is not to be used as a shelf or a work space.

2-4 Installing the System into a Rack

This section provides information on installing the server into a rack unit with the rack rails provided. There are a variety of rack units on the market, so the assembly procedure may differ slightly. Refer to the installation instructions that came with your rack. **Note:** This rail will fit a rack between 26.5" and 36.4" deep.

Identifying the Sections of the Rack Rails

The chassis package includes two rail assemblies. Each assembly consists of three sections: An inner rail that secures directly to the chassis, an outer rail that secures to the rack, and a middle rail which extends from the outer rail. These assemblies are specifically designed for the left and right side of the chassis.



**Figure 2-1. Identifying the Outer Rail, Middle Ra.
(Left Rail Assembly Shown)**

Rail

Releasing the Inner Rail

Each inner rail has a locking latch. This latch prevents the server from coming completely out of the rack when the chassis is pulled out for servicing.

To mount the rail onto the chassis, first release the inner rail from the outer rails.

Releasing Inner Rail from the Outer Rails

1. Pull the inner rail out of the outer rail until it is fully extended as illustrated below.
2. Press the locking tab down to release the inner rail.
3. Pull the inner rail all the way out.
4. Repeat for the other outer rail.

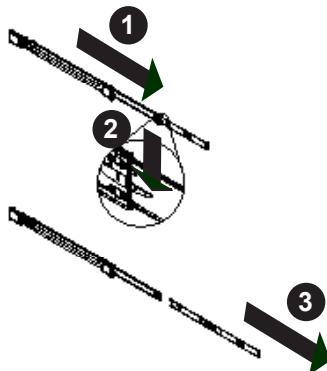


Figure 2-2. Extending and Releasing the Inner Rail

Installing the Inner Rails on the Chassis

Installing the Inner Rails

1. Identify the left and right inner rails. They are labeled.
2. Place the inner rail firmly against the side of the chassis, aligning the hooks on the side of the chassis with the holes in the inner rail.
3. Slide the inner rail forward toward the front of the chassis until the quick release bracket snaps into place, securing the rail to the chassis.
4. Optionally, you can further secure the inner rail to the chassis with a screw.
5. Repeat for the other inner rail.

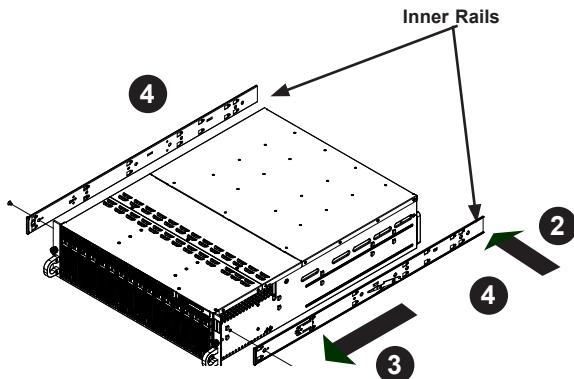


Figure 2-3. Installing the Inner Rails

Installing the Outer Rails onto the Rack

Installing the Outer Rails

1. Press upward on the locking tab at the rear end of the middle rail.
2. Push the middle rail back into the outer rail.
3. Hang the hooks on the front of the outer rail onto the square holes on the front of the rack. If desired, use screws to secure the outer rails to the rack.
4. Pull out the rear of the outer rail, adjusting the length until it just fits within the posts of the rack.
5. Hang the hooks of the rear section of the outer rail onto the square holes on the rear of the rack. Take care that the proper holes are used so the rails are level. If desired, use screws to secure the rear of the outer rail to the rear of the rack.
6. Repeat for the other outer rail.

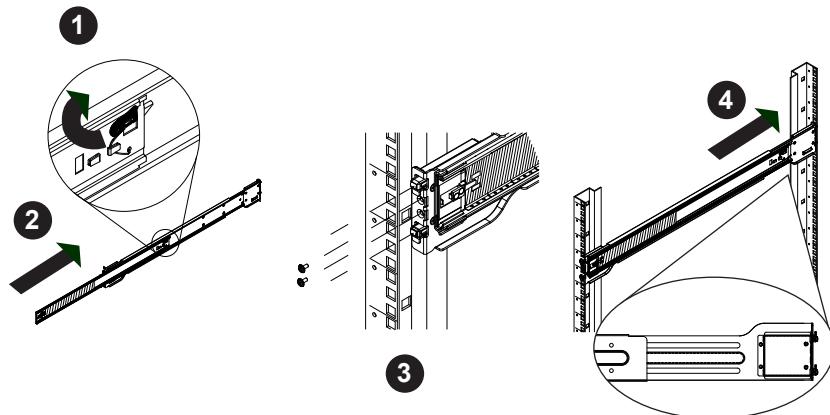


Figure 2-4. Extending and Mounting the Outer Rails



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.

Do not use a two post "telco" type rack.

Sliding the Chassis onto the Rack Rails



Warning: Mounting the system into the rack requires at least two people to support the chassis during installation. Please follow safety recommendations printed on the rails.

Installing the Chassis into a Rack

1. Extend the outer rails as illustrated above.
2. Align the inner rails of the chassis with the outer rails on the rack.
3. Slide the inner rails into the outer rails, keeping the pressure even on both sides. When the chassis has been pushed completely into the rack, it should click into the locked position.
4. Optional screws may be used to hold the front of the chassis to the rack.

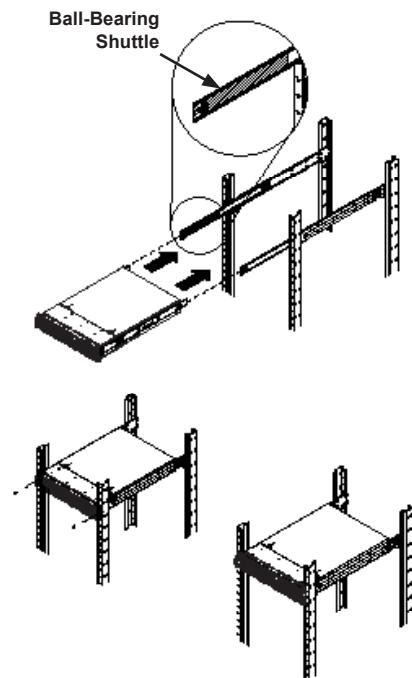


Figure 2-5. Installing into a Rack

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



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

Chapter 3

System Interface

3-1 Overview

The server includes a control panel on the front that houses the chassis power buttons and status monitoring lights. Each node has a power button and status lights on the rear. There are status lights on each of the hard drives, and status lights for the power supply visible from the back of the chassis.

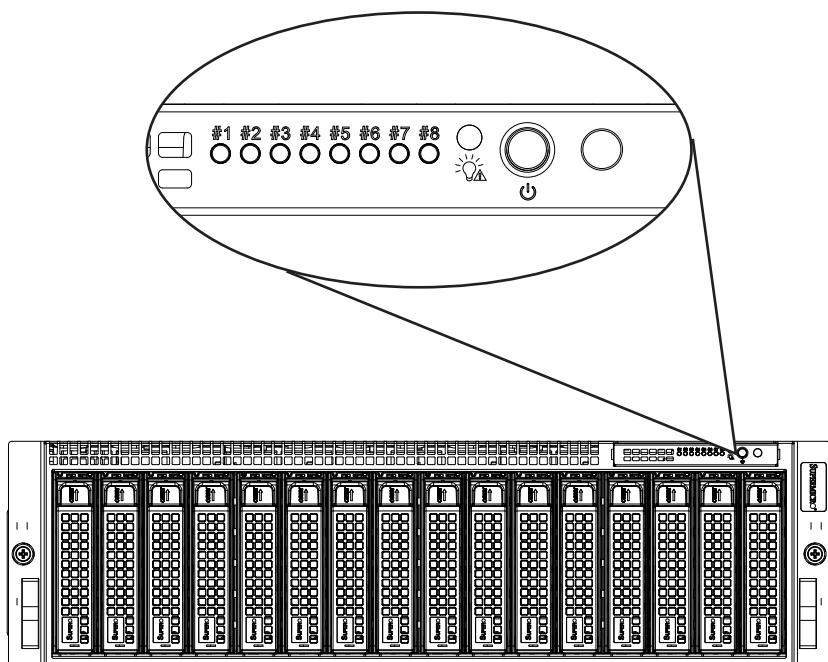


Figure 3-1. Chassis Front Control Panel

3-2 Control Panel Buttons

The chassis includes two push-buttons that control power to the system.



Power

The main power switch 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. Therefore, you must unplug system before servicing.



Reset

The reset button is used to reboot the system.

3-3 Control Panel LEDs

There are LEDs that provide status information about the system.



Power Fail

This red LED is illuminated when one of the power supplies fails while any node is powered on. It is off during normal operation.

Node Status LEDs

The control panel features eight numbered node status LEDs, which indicate the status of each serverboard node.



Figure 3-2. Node Status LEDs

LED Appearance	Description
Solid Green	The node is powered on and operating normally
Blinking Green	The node is in the process of shutting down
Solid Red	The node is detecting an overheated condition
1Hz Blinking Red	The node is detecting a fan failure
.25Hz Blinking Red	The node is detecting a power failure
Solid Blue	The node local UID is on
1Hz Blinking Blue	The node remote UID is on
No Illumination	The node is powered-down

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.

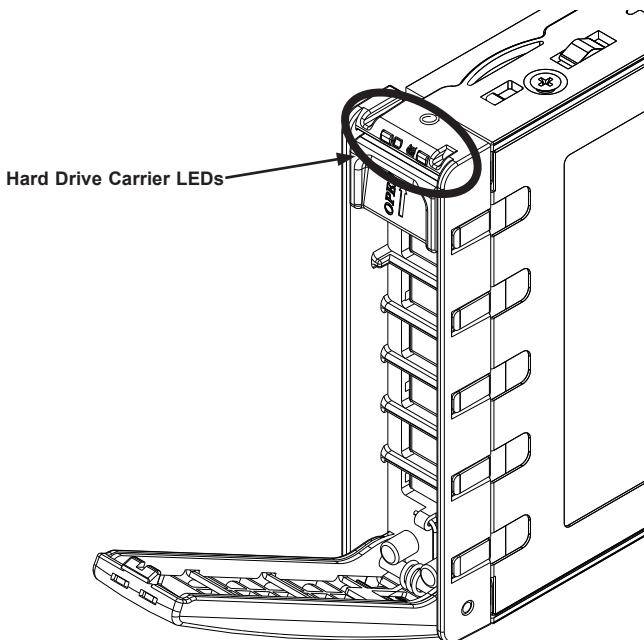


Figure 3-2. Hard Drive Carrier LEDs

	LED Color	Blinking Pattern	Behavior for Device
Activity LED	Blue	Solid On	SAS drive installed
	Blue	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

3-5 Node Controls

Status LEDs

Individual LEDs are located on the back of each serverboard node on the rear of the chassis.

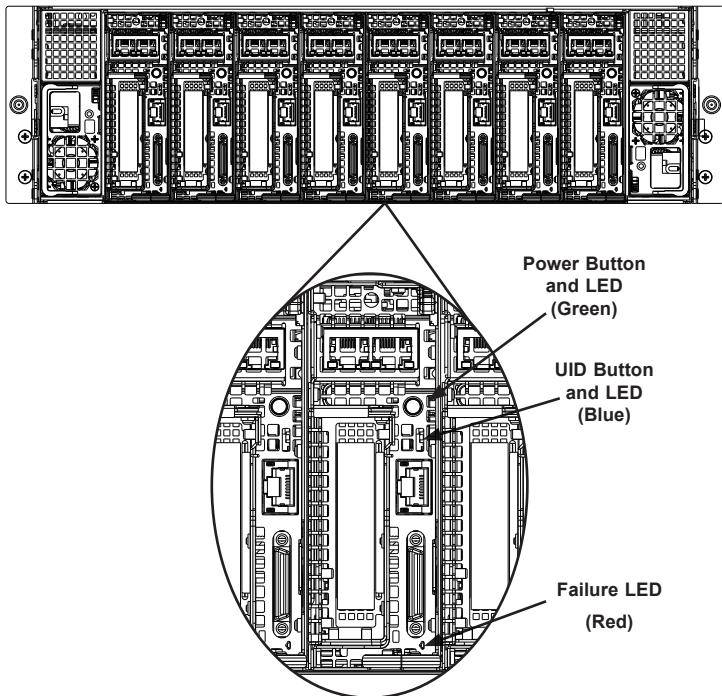


Figure 3-3. Rear Node LED Indicators

Power Button and LED

This button will power on the node individually. It is illuminated green when the node is powered on, it is off when the node is powered off.

UID Button and LED

This button is used to identify the node within the system. It is illuminated blue when activated, it is off when inactive.

Failure LED

This LED is illuminated red when a failure has occurred and off during normal operation. If illuminated, check that the two corresponding hard drives are fully inserted into their bays with their handles completely pushed in. Check also that the fan is operating properly and that the node is fully inserted into its bay.

3-6 Power Supply LEDs

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

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

Chapter 4

Standardized Warning Statements for AC Systems

About Standardized Warning Statements

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

Read this 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。

此警告符号代表危險。

您目前所處的工作環境可能讓您受傷。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 התקני התעשייה, על מנת להזהיר את המשתמש מפני חבלה פיזית אפשרית. במידת או יותר או שאלות או היקלחות בבעיה כלשה, יש ליזור קשר עם מוחלחת תמייה טכנית של סופרמייקרו. טכנאים מוסמכים בלבד רשאי לתקן או להגידו את הרכיבים. יש לקרוא את הנ篇章 במלואו לפני התקנת או הגדרת הרכיבים במאורי סופרמייקרו.

اَكَفَ حَالَةٍ وُكِيَ اَيْ تَتَسَبَّبُ فِي اَصَابَةٍ جَسْدَهُ هَذَا الرَّهْزُ عُ خَطَرٌ ! تَحْذِيرٌ .
قَبْلَ اَيْ تَعْوِلَ عَلَى اَيْ هَذَنَاتِ، كَيْ عَلَى عَلَنِ بِالْوَخَاطِرِ الْأَجْوَهُ عَيْ الْذَّوَائِزِ
الْكَهْرِيَّاتِ .

وَكَيْ عَلَى دَرَاهُ بِالْوَوَارِسَاتِ الْبَقَائِيَّةِ لَوْعُ وَقَعَ اَيْ حَادِثٍ
اَسْتَخِذْ رَقْنَ الْبَلِيِّ الْوَصُّصِ فَهَاهُ كُلَّ تَحْذِيرٍ لِلْعَشْرِ تَزْجُوْهَا

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 waarschuwingssymbool 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 במבנה למונעת קצר חשמלי. יש לוודא כי המכשיר המגן מפני הקצר החשמלי הוא לא יותר מ-20A-60VDC.

هذا المنتج يعتمد على معدات الحماية مه 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 kortsleutbeveiliging (overspanning) van uw elektrische installatie. Controleer of het beveiligde apparaat 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 châssis pour installer ou enlever des composants de système.

ازהרה מפני ניתוק חשמלי!

ازהרה!

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

يجب فصل جميع مصادر انطاقت وإزالت سلك انكهرباء من وحدة امداد انطاقت قبل

انصل إلى إمدادات انطاقت نهبيكم تشبييج أو إزالت مكباتن الجهاز

경고!

시스템에 부품들을 장착하거나 제거하기 위해서는 새시 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.

ازهاره!

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

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

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.

אזרע עם גישה מוגבלת
אזהרה!

יש להתקין את היחידה באזוריים שיש בהם הגבלת גישה. הגישה ניתנת בעזרת
'כל' אבטחה בלבד (מפתח, מנעול וכד.).

تحصيص هذه الأندية نترك بها فمناطق محظورة تم .
يمكن انتصيل إن منطقة محظورة فقط من خلال استخدام أداة خاصة
أو أوس هُنْ أُخْرِي نلاًمما قم ومقتاح

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.

ازהה!

קיימת סכנת פיצוץ של הסוללה במידה והוחלפה בדרך לא תקינה. יש להחליף את הסוללה בסוג החותם מחברת יצרן מומלצת. סילוק הסוללות המשומשות יש לבצע לפי הוראות היצרן.

هناك خطر من انفجار في حالة اسحبدال البطارية بطريقة غير صحيحة فعليل اسحبدال البطارية

فقط بنفس النوع أو ما يعادلها مما أوصى به الشرمة المصنعة جخلص من البطاريات المنسحุมة وفقا لتعليمات الشرمة 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 Strom 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
אוורהה!

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

قد يكون لهذا الجهاز عدة اتصالات بوحدات امداد الطاقة .
يجب إزالة كافة الاتصالات لغسل 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りています。

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.

מתוח בפנل האחורי
אוורה!

קיימות סכנת מתוח בפנל האחורי בזמן תפעול המערכת. יש להיזהר ממהלך
העובדה.

هناك خطر من التيار الكهربائي أو الطاقة المبجدة على اللحمة
عندما يكن النظام يعمل كه حذرا عند خدمة هذا الجهاز

경고!

시스템이 동작 중일 때 후면판 (Backplane)에는 위험한 전압이나 에너지가 발생
합니다. 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 הארץ
אוורה!

התקנת הציג חיבת לחיות תואמת לחוקי החשמל המקומיים והארציים.

تركيب المعدات الكهربائية يجب أن يتناسب 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.

التخلص النهائي من هذا المنتج ينبغي التعامل معه وفقاً لجميع القوانين واللائح البيئية عند

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!



Hazardous moving parts. Keep away from moving fan blades. 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

警告!回転部品に注意。運転中は回転部(羽根)に触れないでください。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!

警告！危险的可移动性零件。请务必与转动的风扇叶片保持距离。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

危險的可移動性零件。請務必與轉動的風扇葉片保持距離。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

Gefährlich Bewegende Teile. Von den bewegenden Lüfterblätter fern halten. 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!

Riesgo de piezas móviles. Mantener alejado de las aspas del ventilador. Los ventiladores podran dar vuelta cuando usted quite el montaje del ventilador del chasis. Mantenga los dedos, los destornilladores y todos los objetos lejos de las aberturas del ventilador

Attention

Pieces mobiles dangereuses. Se tenir a l'écart des lames du ventilateur Il est possible que les ventilateurs soient toujours en rotation lorsque vous retirez le bloc ventilateur du châssis. Prenez garde à ce que doigts, tournevis et autres objets soient éloignés du logement du bloc ventilateur.

ازهرا!

חלקים נעים מסוימים. התרחק מלהבי המא Orr בפיעולה כאשר מסירים את חלקו המא Orr מהמארז, יתכן והמא Orrים עדיין עובדים. יש להרחק בטווח את הא צבעות וכלי עבודה שונים מהפתחים בתוך המא Orr

تحذير! أجزاء متحركة خطيرة. ابتعد عن شفرات المروحة المتحركة. من الممكن أن المروحة لا تزال تدور عند إزالة كتلة المروحة من الهيكل يجب إبقاء الأصابع ومفكات البراغي وغيرها من الأشياء بعيداً عن الفتحات في كتلة المروحة.

경고!

움직이는 위험한 부품. 회전하는 송풍 날개에 접근하지 마세요. 새시로부터 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

Gevaarlijk bewegende onderdelen. Houd voldoende afstand tot de bewegende ventilatorbladen. 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!

Warning! When installing the product, use the provided or designated connection or procure cables, power cables and AC adaptors complying with local codes and safety requirements including proper cord size and plug. 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、提供または指定および購入された接続ケーブル、電源コードとACアダプターを、該当する地域の条例や安全基準に適合するコードサイズやプラグと共に使用下さい。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或采购的连接线,电源线和电源适配器·包含遵照当地法规和安全要求的合规的电源线尺寸和插头.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

安装此產品時,請使用本身提供的或指定的或採購的連接線,電源線和電源適配器·包含遵照當地法規和安全要求的合規的電源線尺寸和插頭.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

Nutzen Sie beim Installieren des Produkts ausschließlich die von uns zur Verfügung gestellten Verbindungskabeln, Stromkabeln und/oder Adaptern, die Ihre örtlichen Sicherheitsstandards einhalten. Der Gebrauch von anderen Kabeln und Adaptern können Fehlfunktionen oder Feuer verursachen. Die Richtlinien untersagen das Nutzen von UL oder CAS zertifizierten Kabeln (mit UL/CSA gekennzeichnet), an Geräten oder Produkten die nicht mit Supermicro gekennzeichnet sind.

¡Advertencia!

Cuando instale el producto, utilice la conexión provista o designada o procure cables, Cables de alimentación y adaptadores de CA que cumplan con los códigos locales y los requisitos de seguridad, incluyendo el tamaño adecuado del cable y el enchufe. El uso de otros cables y adaptadores podría causar un mal funcionamiento o un incendio. La Ley de Seguridad de Aparatos Eléctricos y de Materiales prohíbe El uso de cables certificados por UL o CSA (que tienen el certificado UL / CSA en el código) para cualquier otros dispositivos eléctricos que los productos designados únicamente por Supermicro. Attention

Attention

Lors de l'installation du produit, utilisez les cables de connection fournis ou désigné ou achetez des cables, cables de puissance et adaptateurs respectant les normes locales et les conditions de sécurité y compris les tailles de cables et les prises électriques appropriées. L'utilisation d'autres cables et adaptateurs peut provoquer un dysfonctionnement ou un incendie. Appareils électroménagers et la Loi sur la Sécurité Matériel interdit l'utilisation de câbles certifiés- UL ou CSA (qui ont UL ou CSA indiqué sur le code) pour tous les autres appareils électriques sauf les produits désignés par Supermicro seulement.

AC כבלים شاملים ומותאמים! !אזהרה!

אשר נרכשו או AC כאשר מתקנים את המוצר, יש להשתמש בכבליים, ספקים ומתחמים בהתאם לצורכי התקנה, ואשר בהתאם לדרישות הבטיחות המקומיות, כולל מידת נוכנה של הcabל והתקע . שימוש בכל או מותאם מסווג אחד, עלול לנגרום לתקלה או קצף השם. בהתאם לחוקי השימוש במכשורי החשמל והוויי הבטיחות, קיים איסור להשתמש בעבר (UL/CSA) (אשר מופיע עליהם קוד של UL-CSA-או ב UL -כבליים המוסמכים ב Supermicro כל מוצר شامل אחד, אלא רק ב מוצר אשר בהתאם ע"י.

عند تركيب المنتج، قم باستخدام التوصيات المتوفرة أو المحددة أو قم بشراء الكابلات الكهربائية ومحولات التيار المتزددة مع الالتزام بقوانيين ومتطلبات السلامة المحلية لها في ذلك حجم الموصول والقبسات السليمة. استخدام أي كابلات ومحولات أخرى قد يتسبب في عطل أو حريق. يحظر قانون السلامة للأجهزة الكهربائية والمعدات استخدام مع أي معدات أخرى غير المنتجات المعنية (UL/CSA) والتي تحمل علامة CSA أو UL الكابلات المعتمدة من قبل Supermicro والمحددة من قبل.

전원 케이블 및 AC 어댑터

경고! 제품을 설치할 때 현지 코드 및 적절한 굽기의 코드와 플러그를 포함한 안전 요구 사항을 준수하여 제공되거나 지정된 연결 혹은 구매 케이블, 전원 케이블 및 AC 어댑터를 사용하십시오.

다른 케이블이나 어댑터를 사용하면 오작동이나 화재가 발생할 수 있습니다. 전기 용품 안전법은 UL 또는 CSA 인증 케이블 (코드에 UL / CSA가 표시된 케이블) 을 Supermicro가 지정한 제품 이외의 전기 장치에 사용하는 것을 금지합니다.

Stroomkabel en AC-Adapter

Waarschuwing! Bij het aansluiten van het Product uitsluitend gebruik maken van de geleverde Kabels of een andere geschikte aan te schaffen Aansluitmethode, deze moet altijd voldoen aan de lokale voorschriften en veiligheidsnormen, inclusief de juiste kabeldikte en stekker. Het gebruik van niet geschikte Kabels en/of Adapters kan een storing of brand veroorzaken. Wetgeving voor Elektrische apparatuur en Materiaalveiligheid verbied het gebruik van UL of CSA -gecertificeerde Kabels (met UL/CSA in de code) voor elke andere toepassing dan de door Supermicro hiervoor beoogde Producten.

Chapter 5

Advanced Serverboard Setup

This chapter covers the steps required to install processors and heatsinks to the X10SRD-F serverboard, connect the data and power cables and install add-on cards. All serverboard jumpers and connections are described and a layout and quick reference chart are included in this chapter. Remember to close the chassis completely when you have finished working on the serverboard to protect and cool the system sufficiently.

5-1 Handling the Serverboard

Static electrical discharge can damage electronic components. To prevent damage to printed circuit boards, it is important to handle them very carefully (see Chapter 4). Also note that the size and weight of the serverboard can cause it to bend if handled improperly, which may result in damage. To prevent the serverboard from bending, keep one hand under the center of the board to support it when handling.

The following measures are generally sufficient to protect your equipment from static discharge.

Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing any board from its antistatic bag.
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the serverboard, add-on cards and peripherals back into their antistatic bags when not in use.

Unpacking

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

5-2 Installing the Processor and Heatsink

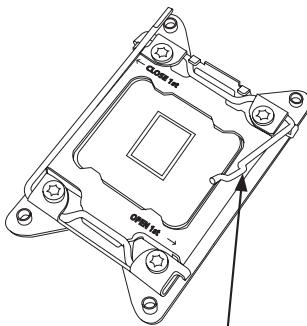
Notes:

- Always remove the power cord before adding, removing or changing a CPU.
- When receiving a serverboard without a processor pre-installed, make sure that the plastic CPU socket cap is in place and none of the socket pins are bent; otherwise, contact your retailer immediately.
- If you buy a CPU separately, use only an Intel-certified, multi-directional heatsink.
- Avoid placing direct pressure to the top of the processor package.
- Install the processor into the CPU socket before installing the heatsink.
- Refer to the Supermicro web site for updates on CPU support.

Installing an LGA 2011 Processor

Installing a CPU

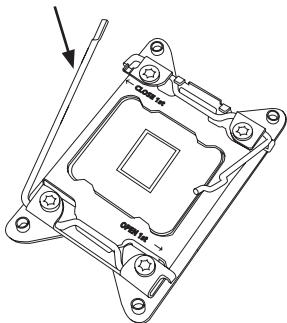
1. There are two levers on the LGA 2011 socket. First press and release the load lever labeled "Open 1st".



Release the lever labeled "Open 1st"

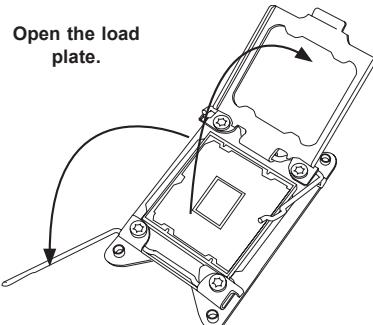
2. Press the second load lever labeled "Close 1st" to release the load plate from its locked position.

Release the lever labeled "Close 1st"



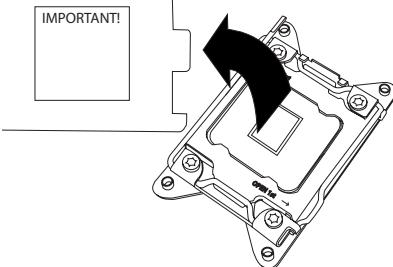
3. With the second lever fully retracted, gently push down on the "Open 1st" lever to loosen the load plate. Lift the load plate with your fingers to open it completely.

Open the load plate.

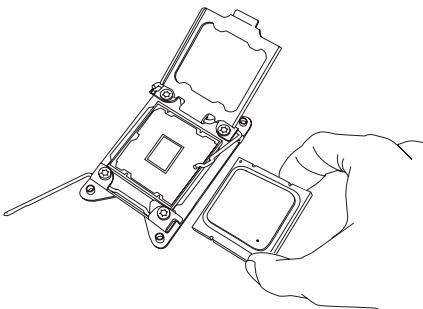


4. Pop the plastic cap marked "Warning" out of the load plate.
5. Holding the CPU carefully above the socket, orient the CPU so that all keys and edges will fit the socket.

IMPORTANT!



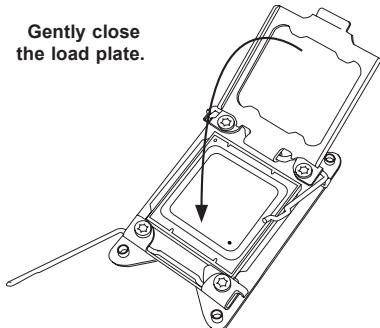
6. Carefully lower the CPU straight down into the socket. Do not move the CPU horizontally, and do not rub the pins of the socket. This may damage the CPU or the socket.



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.

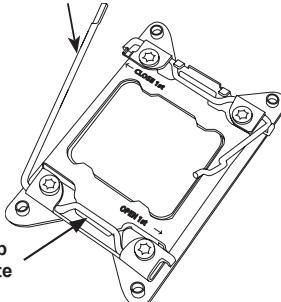
Gently close the load plate.



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.

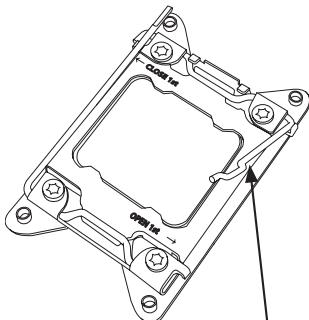
Push down and lock the lever labeled "Close 1st".

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 CPU Heatsink

Installing a Heatsink

1. Place the heatsink on top of the CPU so that the four mounting holes are aligned with those on the retention mechanism.
2. Screw in two diagonal screws (#1 and #2) until just snug—do not over-tighten and damage the CPU. Screw in the remaining screws.
3. Finish the installation by fully tightening all four screws.

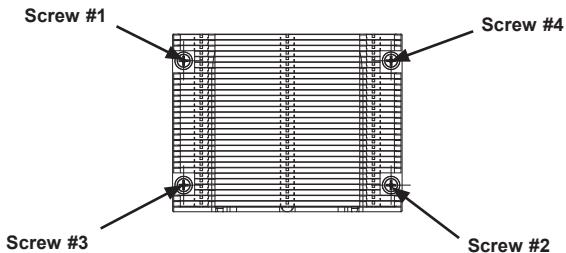


Figure 5-1. Heatsink Screw Order

Removing the Heatsink

Caution: We do not recommend removing the CPU or the heatsink. If you do need to remove the heatsink, please follow the instructions below to prevent damage to the CPU or the CPU socket.

1. Unplug the power cord from the power supply.
2. Unscrew and remove the heatsink screws in the opposite sequence shown in the picture above.
3. Hold the heatsink and gently wriggle it to loosen it from the CPU. (Do not use excessive force!)
4. Once the heatsink is loosened, remove it from the CPU.
5. Clean the surface of the CPU and the heatsink to get rid of the old thermal grease. Reapply the proper amount of thermal grease before re-installing the heatsink.

5-3 Input/Output Ports

The I/O ports at the rear of the server are pictured below.

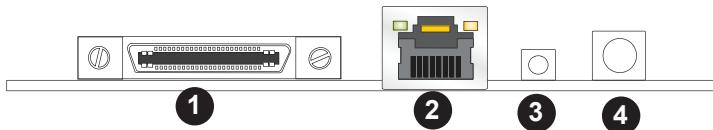


Figure 5-2. Rear Panel I/O Ports

1. KVM Port
2. IPMI dedicated LAN
3. Power Button and LED
4. UID Button

5-4 Installing Memory

Memory Support

The X10SRD-F supports up to 256 GB of DDR4 ECC LRDIMM and RDIMM at 1333/1600/2133 MHz in four DIMM slots. For best performance, install memory modules of the same type and same speed in the slots as indicated. For the latest memory updates, refer to the Supermicro website at www.supermicro.com/products/motherboard.

Memory Population Guidelines

When installing memory modules, the DIMM slots should be populated in the following order: DIMMA1, DIMMB1, DIMMC1 and DIMMD1.

- Always use DDR4 DIMM modules of the same size, type and speed.
- Mixed DIMM speeds can be installed. However, all DIMMs will run at the speed of the slowest DIMM.
- The motherboard will support one DIMM module or three DIMM modules installed. For best memory performance, install DIMM modules in pairs.

Recommended Population (Balanced)				
DIMMA1 Slot	DIMMB1 Slot	DIMMC1 Slot	DIMMD1 Slot	Total System Memory
2GB	2GB			4GB
2GB	2GB	2GB	2GB	8GB
4GB	4GB			8GB
4GB	4GB	4GB	4GB	16GB
8GB	8GB			16GB
8GB	8GB	8GB	8GB	32GB
16GB	16GB			32GB
16GB	16GB	16GB	16GB	64GB
32GB	32GB			64GB
32GB	32GB	32GB	32GB	128GB
32GB	32GB	32GB	32GB	128GB

Caution: Exercise care when installing or removing DIMM modules to prevent damage.

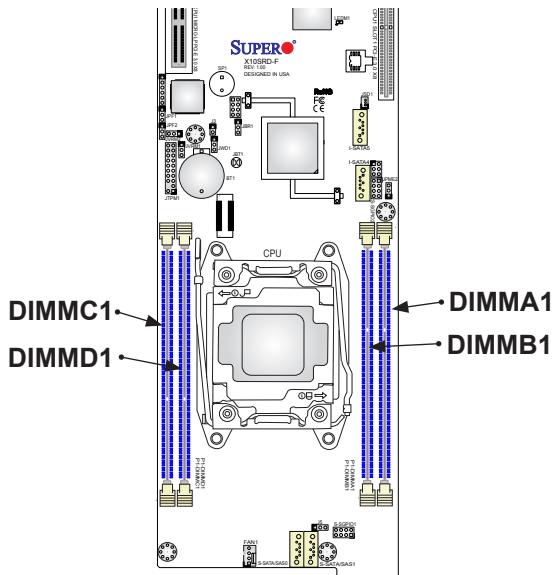


Figure 5-3. DIMM Slot Labels

Insert the desired number of DIMMs into the memory slots, starting with slot DIMMA1.

Installing DIMMs

1. Push the release tabs outwards on both ends of the DIMM slot to unlock it.
2. Insert each DIMM vertically into its slot. Pay attention to the notch along the bottom of the module to prevent inserting the DIMM module incorrectly..
3. Use two thumbs together to press on both ends of the module straight down into the slot until the module snaps into place.

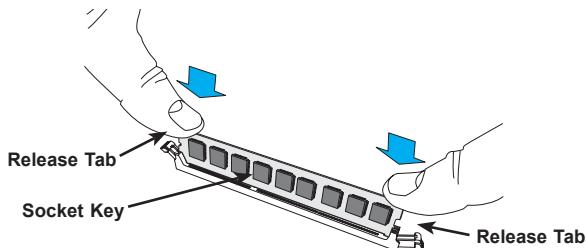


Figure 5-4. Installing DIMM into Slot

5-5 Serverboard Details

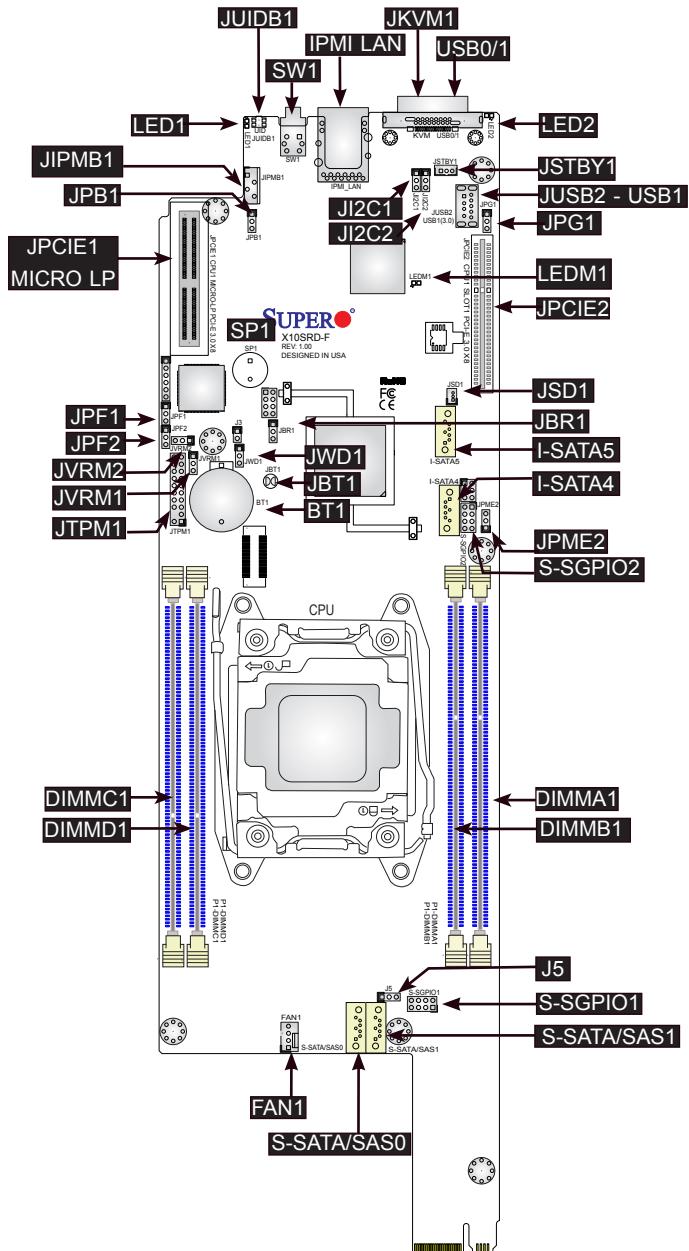


Figure 5-5. X10SRD-F Component Locations (not drawn to scale)

Connectors	Description
BT1	Onboard Battery
CPU	LGA 2011 Socket for a single Intel Xeon E5-2600/E5-1600 v3 series CPU
FAN1	System Fan Header
IPMI_LAN	IPMI Dedicated LAN Port
I-SATA4, I-SATA5	SATA 3.0 Ports supported by Intel PCH
JIPMB1	System Management Bus Header for the IPMI Slot
JPCIE1	MicroLP PCI-E 3.0 X8 Slot
JPCIE2	Slot1 PCI-E 3.0 X8 Slot
JSD1	SATA Disk On Module (DOM) Power Connector
JSTBY1	Standby Power Header
JTPM1	Trusted Platform Module (TPM) Header
JUIDB1	UID Button
JUSB2	USB 3.0 Header (USB1)
KVM	Keyboard/Video/Mouse connector
S-SATA/SAS0	For SAS AOC use
S-SATA/SAS1	For SAS AOC use
SP1	Internal Speaker / Buzzer
S-SGPIO1	Serial Link General Purpose Header
S-SGPIO2	Serial Link General Purpose Header
SW1	Power Button
USB0/1	Backpanel USB 2.0 Ports 0/1

Jumper	Description	Default Setting
J5	Storage Type Configuration	Pins 1-2 (BP HDD)
JBR1	BIOS Recovery	Pins 1-2 (Normal)
GBT1	CMOS Clear	Open
J12C1, J12C2	SMB to PCI Slots	Pins 2-3 (Disabled)
JPB1	BMC Enable/Disable	Pins 1-2 (Enabled)
JPF1, JPF2	Power Force On	Open: Normal, Closed: Force On
JPG1	Onboard VGA Enable/Disable	Pins 1-2 (Enabled)
JPME2	ME Manufacturing Mode	Pins 1-2 (Normal)
JVRM1, JVRM2	I2C Bus for VRM	Pins 1-2 (BMC: Normal)
JWD1	Watch Dog Timer RST	Pins 1-2 (Reset)

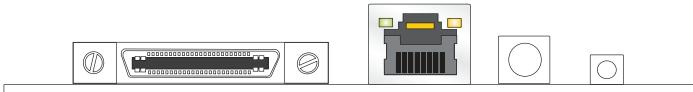
LED	Description	Color/State	Status
LED1	UID LED	Blue: On	Unit Identified
LED2	System/Fan Fail LED	Red: solid or blinking	Heat or power failure
LEDM1	BMC Heartbeat LED	Green: Blinking	BMC Normal

5-6 Connector Definitions

Power Connectors

The X10SRD-F motherboard is powered through the slide-in connection at the front of the board. No connecting cables are necessary.

Rear Input/Output Panel



KVM Port

The KVM port supports two USB, VGA and UART interface. Attach a compatible KVM connector to this port.

IPMI Port

A dedicated IPMI LAN port is located next to the KVM port to provide dedicated network connection for IPMI 2.0.

Power Button & LED

A power button (SW1) and LED is located next to the IPMI port. Push this button to turn on or off the motherboard. When lit, this node motherboard is turned on.

UID Button

The Unit ID Button (JUIDB1) is used in conjunction with the UID switch in front of the chassis and the UID LED located next to it. When the switch is turned on, the UID LED lights up to assist the operator in finding the node in a rack of many.

Other Connectors

Universal Serial Bus (USB)

One USB 3.0 header (USB1) is located the on the motherboard. There are also two ports (USB 0/1) available through the KVM port. (Cables are not included.) See the table on the right for pin definitions.

TPM Header

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

Trusted Platform Module Header Pin Definitions			
Pin #	Definition	Pin #	Definition
1	LCLK	2	GND
3	LFRAME	4	No Pin
5	LRESET	6	VCC5
7	LAD3	8	LAD2
9	VCC3	10	LAD1
11	LAD0	12	GND
13	RSV0	14	RSV1
15	SB3V	16	SERIRQ
17	GND	18	CLKRUN
19	LPCPD	20	RSV2

SATA DOM Power

The SATA Disk-on-Module (DOM) power on JSD1 is used to supply power to solid-state storage devices.

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

Serial Link General Purpose I/O Headers

Two Serial-Link General Purpose Input/Output (S-SGPIO1 and S-SGPIO2) headers are supported on the motherboard. These headers are used to communicate with the enclosure management chip in the system.

Serial_Link-SGPIO Pin Definitions			
Pin#	Definition	Pin	Definition
1	NC	2	NC
3	Ground	4	Data Out
5	Load	6	Ground
7	Clock	8	NC

NC = No Connection

Fan Header

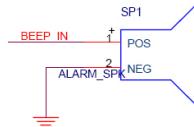
This motherboard has one system fan header (FAN1). This 4-pin fan header is backward compatible with the traditional 3-pin fan headers. However, fan speed control is available for 4-pin fans only. The fan speeds are controlled by Thermal Management via the IPMI 2.0 interface.

Fan Header Pin Definitions	
Pin#	Definition
1	Ground
2	+12V
3	Tachometer
4	Pulse Width Modulation (PWM)

Internal Buzzer

The internal buzzer, located at SP1, can be used to provide audible alarms for various beep codes.

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



IPMB I²C SMB

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

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

I-SGPIO2 Header

A Serial-Link General Purpose Input/Output header (I-SGPIO2) supports onboard I-SATA 4/5.

I-SGPIO Pin Definitions			
Pin#	Definition	Pin	Definition
1	NC	2	NC
3	Ground	4	Data
5	Load	6	Ground
7	Clock	8	N

NC = No Connection

DOM Power Connectors

Two power connectors for SATA DOM (Disk On Module) devices are located at JSD1 and JSD2. These connectors are used with Supermicro SuperDOMs to provide backward-compatible power support to non-Supermicro SATADOMs that require external power supply.

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

Unit Identifier Buttons/UID LED Indicators

A rear unit identifier button (JUIDB2) is located next to the COM port. The connection for the front UID button is located on pin 13 of JF1. The rear UID LED (LED1) is located next to the rear UID button, and the front UID LED connection is located on pin 7 of JF1. When you press the rear UID button, both front and rear UID LED indicators will be turned on. Press the UID button again to turn off the LEDs. The UID indicators provide easy identification of a system unit that may be in need of service.

Note: UID can also be triggered via IPMI. For more information on IPMI, please refer to the IPMI User's Guide posted on our website.

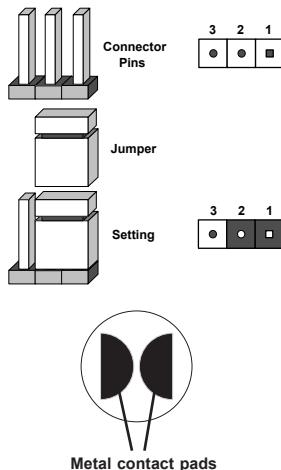
UID Button	
Pin#	Definition
1	Ground
2	Ground
3	Button In
4	Button In

5-7 Jumper Settings

Explanation of Jumpers

To modify the operation of the serverboard, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. See the diagram at right for an example of jumping pins 1 and 2. Refer to the serverboard layout page for jumper locations.

Note: On two-pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.



CMOS Clear

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

To clear CMOS

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

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

Notes

- "■" indicates the location of "Pin 1".
- Jumpers/LEDs not indicated are for testing purposes only. Also, components that are not documented in this manual are reserved for internal use only.

VGA Enable

JPG1 allows the user to enable the onboard VGA connector (through the KVM). Close Pins 1-2 to use this function. The default setting is Enabled.

VGA Enable/Disable Jumper Settings (JPG1)	
Pin#	Definition
1-2	Enabled (Default)
2-3	Disabled

Watch Dog

Watch Dog (JWD1) is a system monitor that can reboot the system when a software application hangs. Close pins 1-2 to reset the system if an application hangs. Close pins 2-3 to generate a non-maskable interrupt signal for the application that hangs. Watch Dog must also be enabled in the BIOS.

Watch Dog Jumper Settings	
Pin#	Definition
1-2	Reset (default)
2-3	NMI
Open	Disabled

Manufacturing Mode

Close pins 2 and 3 of jumper JPME2 to bypass SPI flash security and force the system to operate in the Manufacturing Mode, allowing the user to flash the system firmware from a host server for system setting modifications.

Manufacturing Mode Jumper Settings	
Pin#	Definition
1-2	Normal (Default)
2-3	Manufacturing Mode

BIOS Recovery Enable

Close pins 2 and 3 of jumper JBR1 for BIOS recovery. The default setting is on pins 1 and 2 for normal operation. .

BIOS Recovery Jumper Settings	
Pin#	Definition
1-2	Normal
2-3	BIOS Recovery

SMB (I²C) Bus to PCI Slots

Jumpers JI²C1 and JI²C2 allow you to connect the System Management Bus (SMB) to PCI-E and PCI slots. The default setting is set to **Disabled**.

I ² C to PCI Slots Jumper Settings	
Pin#	Definition
On	Enabled
Off	Disabled (Default)

BMC Enable/Disable

Jumper JPB1 allows you to enable the embedded BMC (Baseboard Management) Controller to provide IPMI 2.0/KVM support on the motherboard.

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

I²C Bus for VRM

Jumpers JVRM1 and JVRM2 allow the BMC or the PCH to access CPU and memory VRM controllers.

VRM Pin Definitions	
Pin #	Definition
1-2	BMC (Default)
2-3	PCH

Power Force On Enable/Disable

Jumpers JPF1 and JPF2 allow you to enable (force on) or disable the Power Force On function. If enabled, the power will always stay on automatically. If this function is disabled (the normal setting), the you will need to press the power button to power on the system.

Power Force On Jumper Settings	
Jumper Setting	Definition
Open	Normal
Closed	Force On

Storage Type Configuration

Use jumper J5 to select the storage drive configuration.

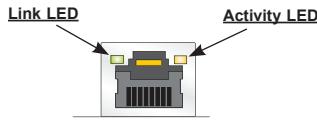
Storage Type (J5) Pin Definitions	
Pin #	Definition
1-2	BP HDD with SATA (Default)
2-3	LSI AOC connected to SAS1/SAS2

5-8 Onboard Indicators

IPMI Dedicated LAN Port

A dedicated IPMI LAN port is located on the rear I/O panel. The amber LED on the right indicates activity, while the LED on the left indicates the speed of the connection. See the tables at right for more information.

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



Unit ID LED

The Unit LED at LED1 is controlled by the Unit ID Button. It enables the user to pinpoint this particular motherboard that may be in need of service. Turn on the UID button in the front of the chassis or on the motherboard's I/O panel to identify the unit in need of servicing.

System/Fan Fail LED

LED2 indicates a system or fan failure when illuminated. Please see the table on the right for message descriptions.

System/Fan Fail LED	
Color/State	Definition
Off	System Normal
Red, solid	System Overheat
Red, blinking, fast (1 Hz)	Fan Failure
Red, blinking, slow (0.25 Hz)	Power Failure

BMC Heartbeat LED

A BMC Heartbeat LED is located at LEDM1 on the motherboard. When LEDM1 is blinking, BMC is functioning normally.

BMC Heartbeat LED	
Color/State Definition	
Green, Blinking	Normal

5-9 SATA Ports

Two SATA 3.0 connectors (I-SATA4, I-SATA5) and two SAS 3.0 connectors (SAS0, SAS1) are located on the motherboard to provide Serial Link connections. I-SATA ports are supported by the Intel PCH C612 chipset, and SAS ports are supported by the Intel SCU chip.

5-10 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 5-6 should appear.

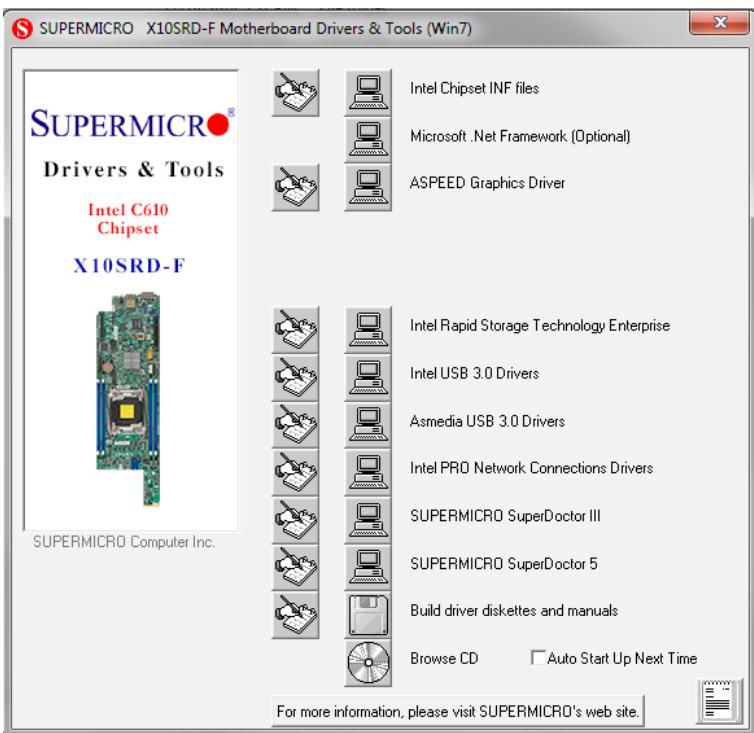


Figure 5-6. Driver Installation Display Screen

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

SuperDoctor® 5

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

SuperDoctor 5 comes in local and remote management versions and can be used with Nagios to maximize your system monitoring needs. With SuperDoctor 5 Management 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 5-7. SuperDoctor 5 Interface Display Screen (Health Information)



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

Note: The SuperDoctor 5 program and User's Manual can be downloaded from the Supermicro web site at http://www.supermicro.com/products/nfo/sms_sd5.cfm. For Linux, we recommend that you use the SuperDoctor II application instead.

5-11 Onboard Battery

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

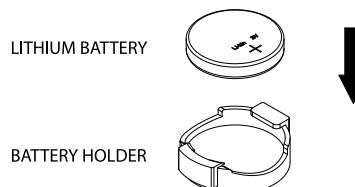


Figure 5-9. Installing the Onboard Battery

Notes

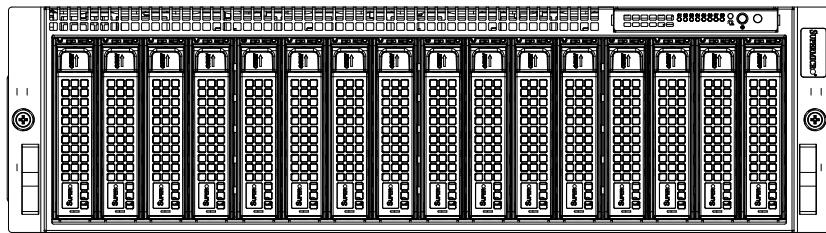
Chapter 6

Advanced Chassis Setup

6-1 Overview

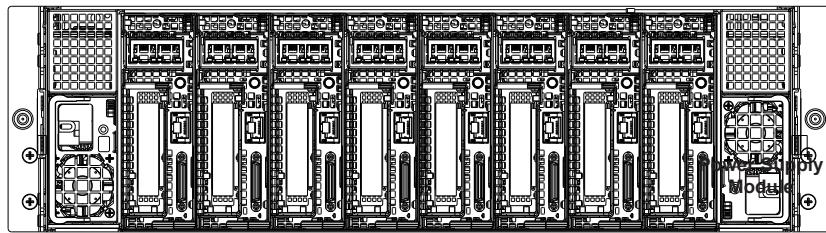
This chapter covers the steps required to install components and perform maintenance on the chassis. The only tool required is a Phillips screwdriver.

Review the warnings and precautions listed in the manual before setting up or servicing this chassis. These include information in Chapter 2: *Warning Statements for AC Systems* and the warning/precautions listed in the setup instructions..



HDD Bays (16)

Figure 6-1. Front View



Power Supply Module

Computing Nodes (8)

Figure 6-2. Rear View

6-2 Removing Power from the System

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

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

6-3 Removing the Chassis Cover

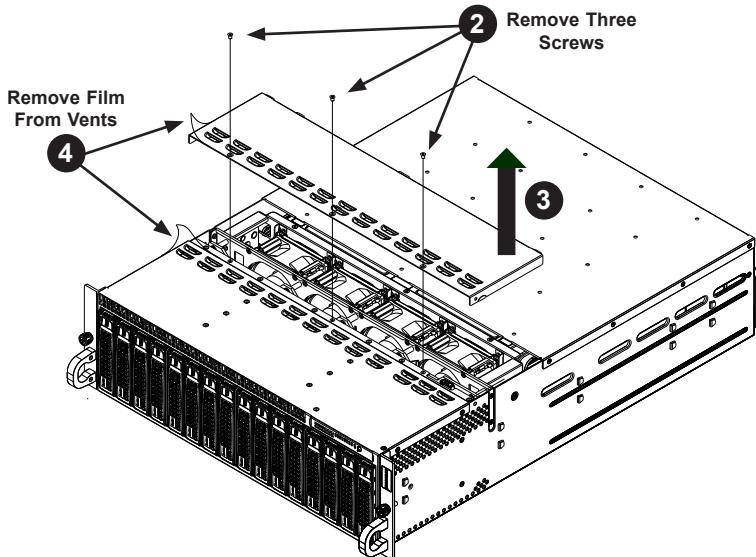


Figure 6-3. Removing the Chassis Cover

IMPORTANT: Before operating the system for the first time, remove the protective film covering the ventilation openings on the top of the chassis. These vents provide proper ventilation and cooling for the system.

Removing the Chassis Cover and Protective Film

1. Disconnect the chassis from any power source.
2. Remove the three screws which secure the top cover to the chassis as illustrated above.
3. Lift the top cover up and off the chassis.
4. Peel off the protective film covering the top cover and the top of the chassis
5. Check that all ventilation openings on the top cover and the top of the chassis are clear and unobstructed.

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.

6-4 Corresponding Nodes, Fans and Hard Drives

The chassis contains eight individual motherboards contained in separate nodes. Each node controls two hard drives and shares a fan with the node beside it. Note that if a node is pulled out of the chassis, the hard drives associated with that node will power-down.

Corresponding Nodes, Fans and HDDs		
Node	Fan	HDDs
Node 1	Fan 1	HDDs A1 and A2
Node 2	Fan 1	HDDs B1 and B2
Node 3	Fan 2	HDDs C1 and C2
Node 4	Fan 2	HDDs D1 and D2
Node 5	Fan 3	HDDs E1 and E2
Node 6	Fan 3	HDDs F1 and F2
Node 7	Fan 4	HDDs G1 and G2
Node 8	Fan 4	HDDs H1 and H2

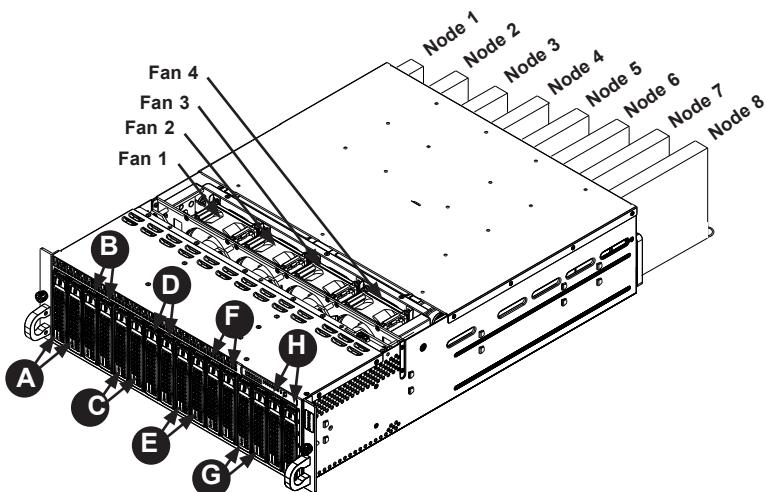


Figure 6-4. Corresponding Nodes, Fans and HDDs

6-5 Removing Motherboard Nodes

The chassis comes equipped with eight removable nodes, each one containing an individual motherboard. Removing these nodes will also power-down the corresponding hard drives. See the table in Section 6-4 to determine which hard drives are controlled by each node.

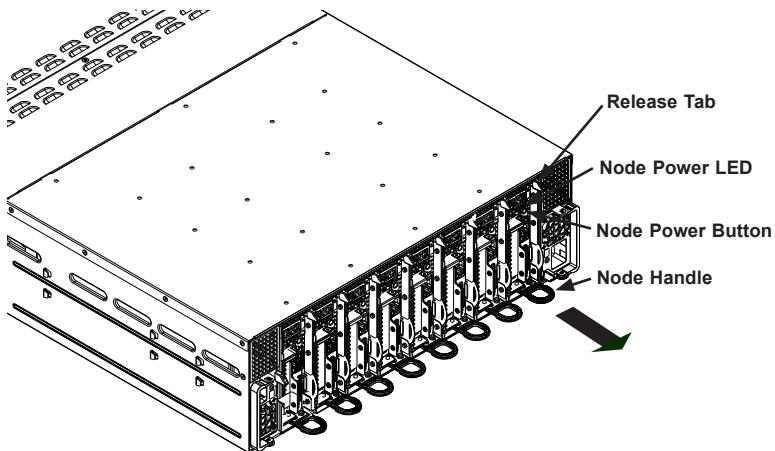


Figure 6-5. Removing Nodes from the System

Removing Nodes from the System

1. Power-down the individual node by pressing that node's power button.
2. Press and hold down the release tab on the back of the node.
3. Using the node's handle, pull the node from the chassis.

Caution: Except for short periods of time while swapping nodes, do not operate the server with the node bays empty. In the unlikely event of a node failure, remove the failed node and replace it with the dummy node that was included with the system..

6-6 Installing Hard Drives

The chassis features sixteen hot-swappable hard drives. These hard drives are contained in drive carriers and may be removed without powering-down the system.

Removing Hard Drive Carriers from the Chassis

1. Press the release button on the drive carrier, which will extend the drive carrier handle.
2. Use the drive carrier handle to pull the drive out of the chassis.

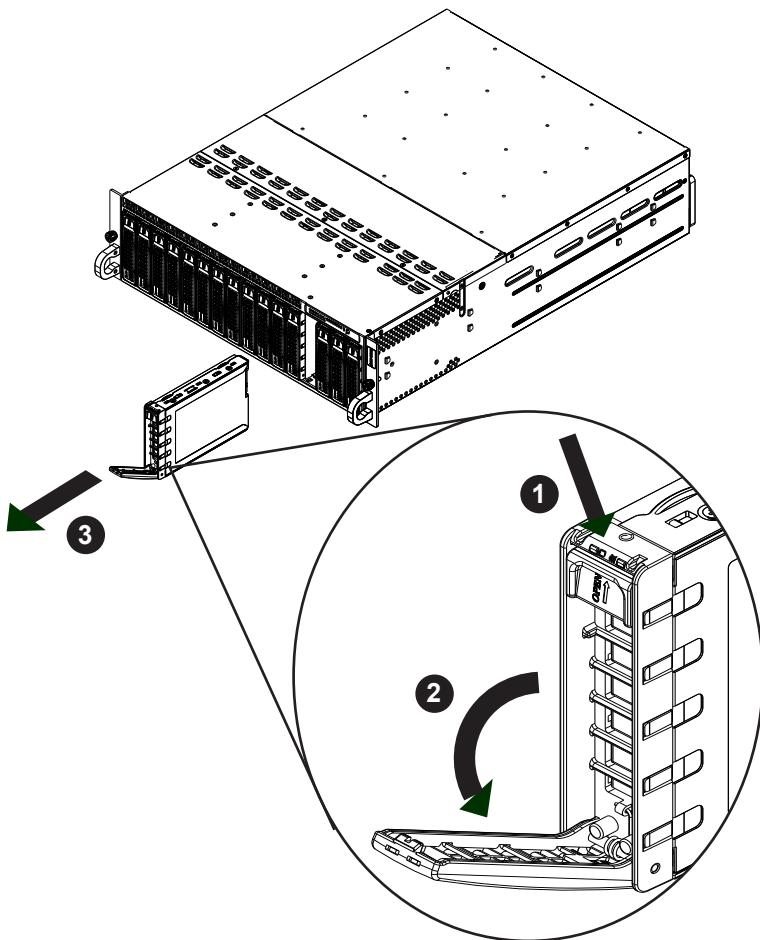


Figure 6-6. Removing a Hard Drive

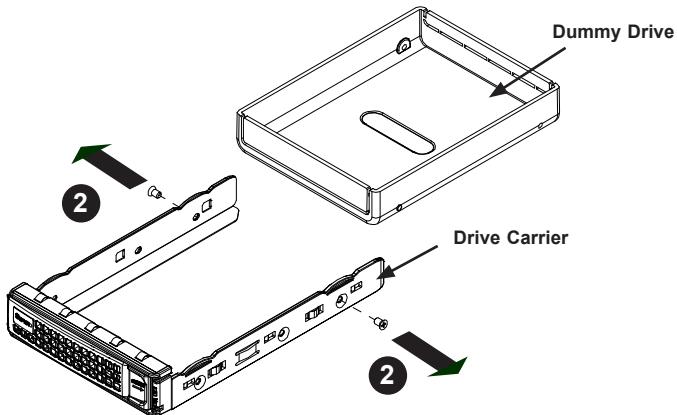


Figure 6-7. Removing a Dummy Drive from the Drive Carrier

The hard drives are mounted in drive carriers to simplify their installation and removal from the chassis. These carriers also help promote proper airflow through the drive bays.

Removing the Dummy Drive from the Drive Carrier

1. Remove the hard drive carrier from the chassis as described in the previous section and lay the drive carrier on a flat surface.
2. Remove the two screws securing the dummy drive to the drive carrier.
3. Lift the dummy drive from the drive carrier.

Caution: Except for short periods of time (swapping hard drives), do not operate the server with the hard drive carriers removed from the bays, regardless of how many hard drives are installed, for proper airflow.

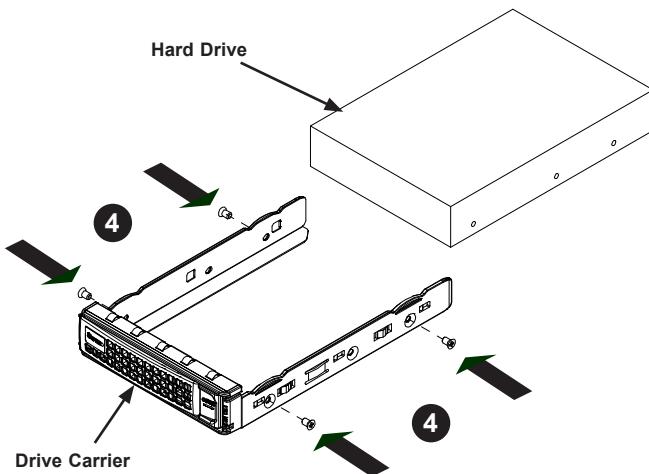


Figure 6-8. Installing a Hard Drive

Installing a Hard Drive into the Drive Carrier

1. Place the hard drive carrier on a flat surface.
2. Insert the hard drive into the carrier with the printed circuit board side facing downward and so that the mounting holes in the drive align with those in the drive carrier.
3. Secure the hard drive to the carrier with the four screws included with the hard drive.
4. Use the open handle of the drive carrier to insert the drive carrier into the open drive bay.
5. Secure the drive carrier into the drive bay by closing the drive carrier handle

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

6-7 Installing an Air Shroud

Air shrouds concentrate airflow to maximize fan efficiency. Use an air shroud for each node. Make sure that the expansion card (if present) and all components are installed in each node before installing the air shroud.

Installing the Air Shroud

- Place the air shroud over the motherboard. The air shroud sits behind the system fans and goes over the top of the motherboard and its components. Secure by inserting screws through the tabs and tightening.

6-8 System Fans

Four 8-cm fans circulate air through the chassis to lower the internal temperature. The system fans are designed to be easily changed, with no tools required and no need to remove any other parts inside the chassis. See Section 6-4 to determine which nodes and hard drives are cooled by each system fan.

Replacing a System Fan

1. Determine which fan must be replaced. Use IPMI or open the chassis top cover while the system is operating and observe. Do not run the server for an extended period of time with the top cover open.
2. Remove the failed fan's power cord from the backplane.
3. Simultaneously squeeze both release tabs on the top of the fan module.
4. Lift the fan module up and out of the chassis.
5. Place the replacement fan into the vacant space in the fan bracket 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.
6. Put the fan back into the chassis and reconnect the cable.
7. Confirm that the fan is working properly before replacing the chassis cover.

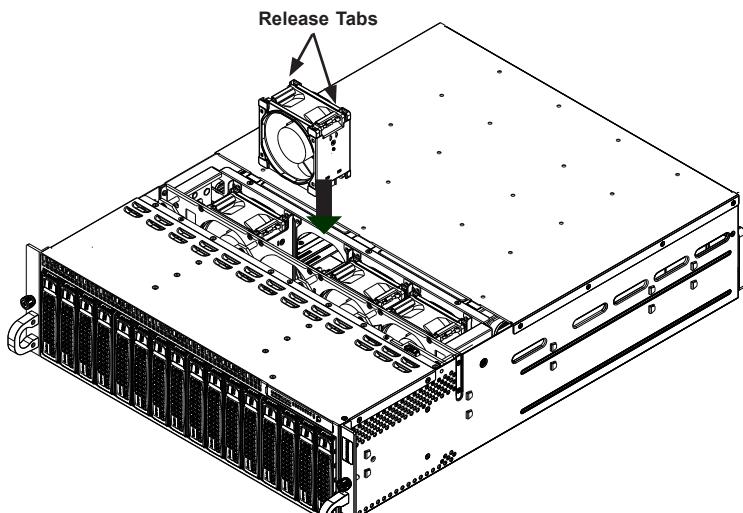


Figure 6-9. System Fan Placement

6-9 Power Supply

The 5038MR-H8TRF has a 1620 watt redundant hot-plug power supply consisting of two power modules. Each power supply module has an auto-switching capability, which enables it to automatically sense and operate at a 100V - 240V input voltage.

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

Replacing a Power Supply Module

If either of the two power supply modules fail, the other module will take the full load and allow the system to continue operation without interruption. The Power Fail LED will illuminate and remain on until the failed unit has been replaced. Replacement units can be ordered directly from Supermicro. The power supply units have a hot-plug capability, meaning you can replace the failed unit without powering down the system.

Replacement power supply units may be ordered directly from Supermicro or certified distributors.

Changing the Power Supply

1. Unplug the AC power cord from the failed power supply. The system can continue running.
2. Press the release tab at the top of the power supply.
3. Push and hold the release tab on the back of the power supply.
4. Pull the power supply out using the handle provided.
5. Push the replacement power supply module into the power bay until it clicks into the locked position.
6. Plug the AC power cord back into the power supply module.

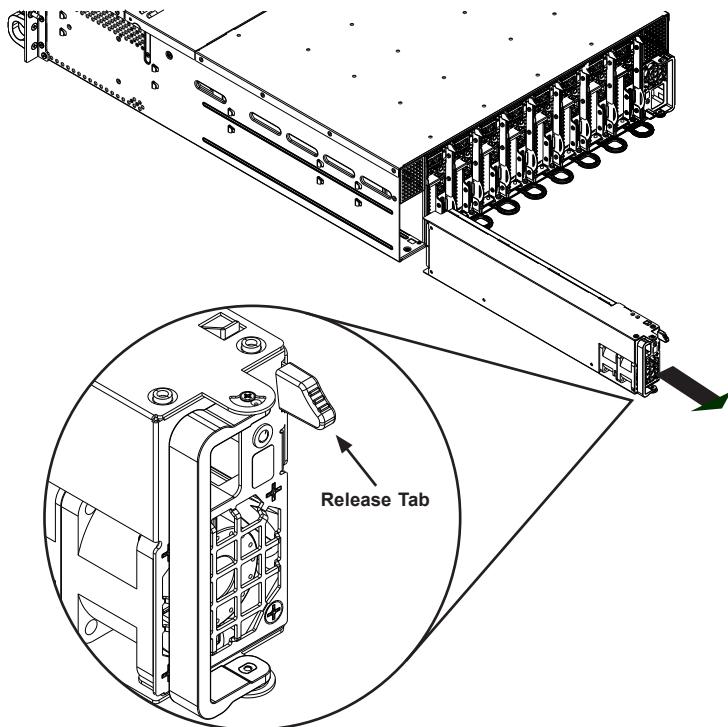


Figure 6-10. Changing the Power Supply

6-10 Removing and Installing the Backplane

The backplane is attached to the fan bracket, which is located in the midsection of the chassis. In the unlikely event of a backplane failure, follow the instructions below to replace it.

Removing the Backplane and Fan Bracket Assembly

Removing the Backplane and Fan Bracket from the Chassis

1. Power down the system and disconnect it from any power source and remove the chassis cover.
2. Disconnect all cabling to the backplane.
3. Remove the six screws securing the fan bracket to the chassis and set them aside for later use.
4. Lift the fan bracket and backplane out of the chassis.

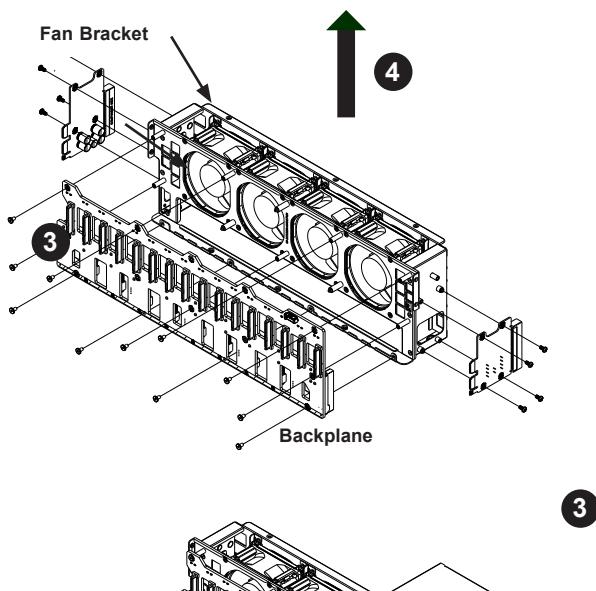


Figure 6-11. Removing the Fan Bracket and Backplane

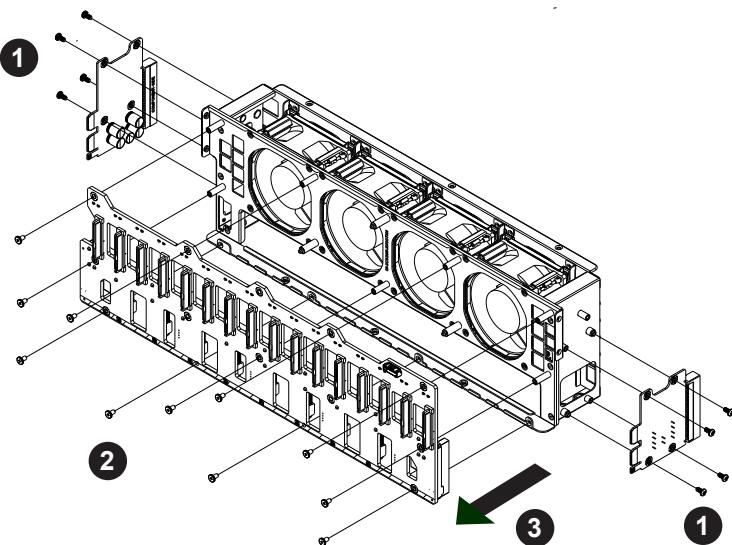


Figure 6-7. Removing the Backplane from the Fan Bracket

Removing the Backplane from the Fan Bracket

Removing the Backplane

1. Remove the eight screws securing the two side mounting brackets to the sides of the fan bracket and set them aside for later use. Remove the side mounting brackets.
2. Remove the eleven screws securing the backplane to the fan bracket and set these screws aside for later use.
3. Hold the backplane by its edges and carefully remove it from the fan bracket.

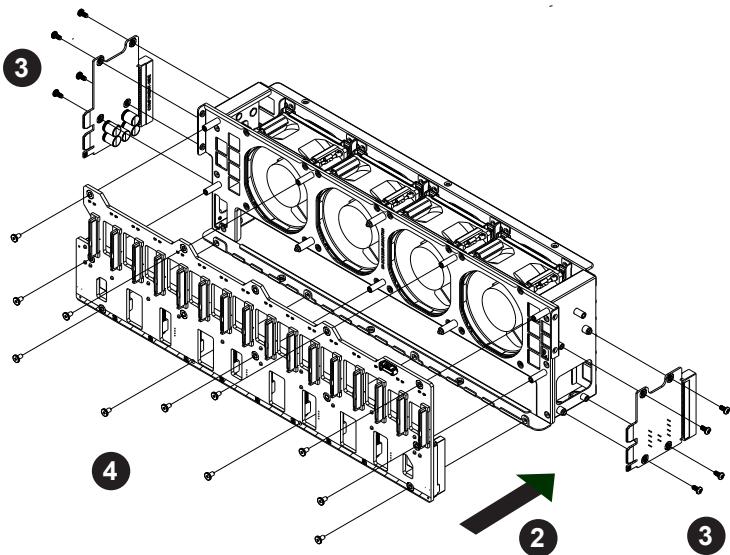


Figure 6-8. Installing the Backplane onto the Fan Bracket

Installing the Backplane onto the Fan Bracket

Installing the Backplane

1. Ensure that all power has been disconnected from the chassis.
2. Hold the backplane by its edges and carefully place it against the fan mounting bracket, aligning the mounting holes in the backplane with those in the fan bracket.
3. Secure the two side mounting brackets to the backplane with the eight screws previously set aside.
4. Secure the backplane to the front of the fan bracket using the eleven screws previously set aside.
5. Reconnect all wiring to the backplane.

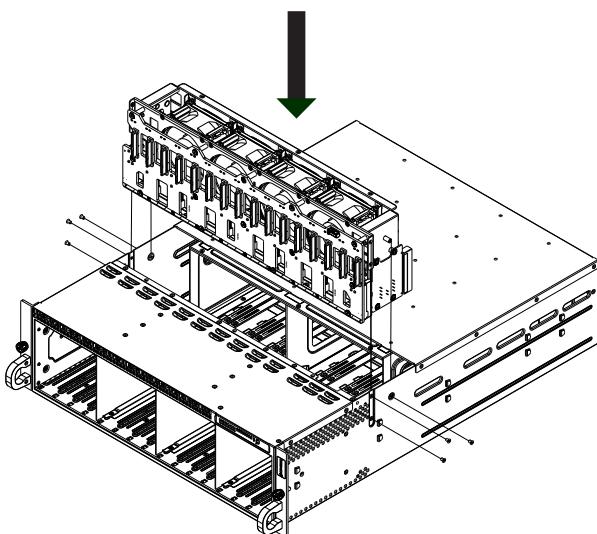


Figure 6-9. Installing the Backplane and Fan Bracket

Installing the Backplane and Fan Bracket Assembly

Installing the Backplane and Fan Bracket

1. Ensure that the chassis has been disconnected from any power source.
2. Reconnect the wiring to the backplane.
3. Insert the fan bracket and backplane assembly into the chassis as illustrated above.
4. Secure the fan bracket to the chassis with the six screws that were previously set aside.

Chapter 7

BIOS

7-1 Introduction

This chapter describes the AMI BIOS setup utility for the X10SRD-F. 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 **** key while the system is booting up.

Note: In most cases, the **** 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.

Note 1: Options printed in **Bold** are default settings.

Note 2: **<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 @ <http://www.supermicro.com/support/manuals/>.

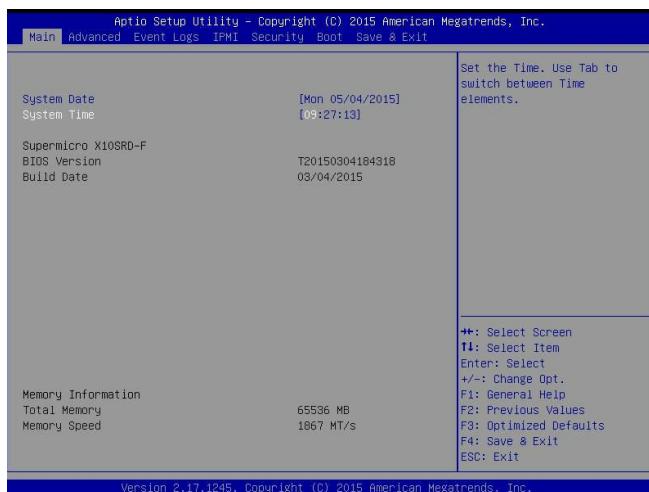
Starting the Setup Utility

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.

Caution: 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

This item displays the system date in Day MM/DD/YY format (e.g. Wed 10/12/2011).

System Time

This item displays the system time in HH:MM:SS format (e.g. 15:32:52).

Supermicro X10SRD-F

BIOS Version

This item displays the 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

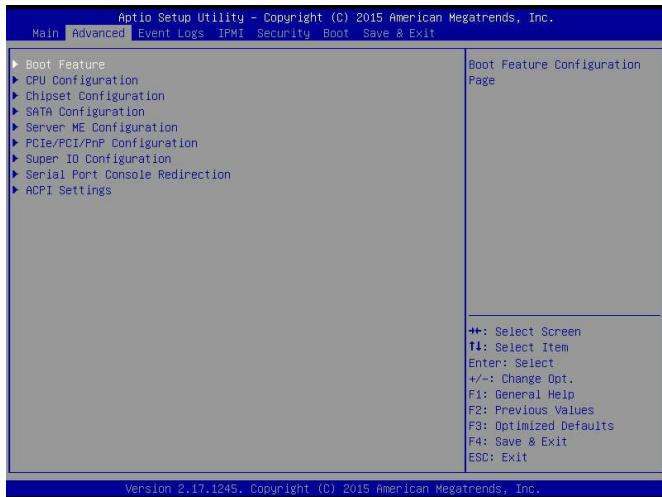
This displays the amount of memory that is available in the system.

Memory Speed

This displays the detected system memory speed.

7-3 Advanced Setup Configurations

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



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

►BOOT Feature

Quiet Boot

This option allows the bootup screen options to be modified between POST messages or 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

This sets the display mode for Option ROM. The options are **Force BIOS** and **Keep Current**.

Bootup Num-Lock

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

Wait For 'F1' If Error

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

Interrupt 19 Capture

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

►Power Configuration

Watch Dog Function

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

Power Button Function

This feature controls how the system shuts down when the power button is pressed. Select 4-Seconds Override to force the user to press and hold the Power Button for 4 seconds before the system turns off. Select Instant Off if you want the system to instantly power off when the Power Button is pressed. The options are **4 Seconds Override** and **Instant Off**.

Restore on AC Power Loss

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

►CPU Configuration

The following CPU information will be displayed:

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

Clock Spread Spectrum

Select **Enable** to use the feature of Clock Spectrum, which will allow the BIOS to monitor and attempt to reduce the level of Electromagnetic Interference caused by the components whenever needed. Select **Disabled** to enhance system stability. The options are **Disabled** and **Enabled**.

Hyper-Threading (ALL)

Set to **Enabled** to use the processor's Hyper Threading Technology feature. The options are **Enabled** and **Disabled**.

Cores Enabled

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

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

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

PPIN Control

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

Hardware Prefetcher (Available when supported by the CPU)

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

Adjacent Cache Prefetch (Available when supported by the CPU)

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

DCU Streamer Prefetcher

This feature enables prefetch of the next L1 data line based on multiple loads in the same cache line. The options are **Enable** and **Disable**.

DCU IP Prefetcher

Set this feature to Enabled to activate the L1 Data Prefetcher based on sequential load history. The options are **Enable** and **Disable**.

Direct Cache Access (DCA)

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

X2APIC

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

AES-NI

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

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

Select Enabled to use the feature of Virtualization Technology to allow one platform to run multiple operating systems and applications in independent partitions, creating multiple "virtual" systems in one physical computer. The options are **Enable** and **Disable**. **Note:** If there is any change to this setting, you will need to power off and restart the system for the change to take effect. Please refer to Intel's web site for detailed information.

►Advanced Power Management Configuration

Power Technology

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

**If the item above is set to "Custom," CPU P State/C State/T State will display:*

Energy Performance Tuning

When enabled, this item selects whether the BIOS or Operating System can turn on the energy performance bias tuning. The options are Enable and **Disable**.

Energy Performance BIAS Setting

This feature allows balancing Power Efficiency vs Performance. This will override whatever setting is in the Operating System. The options are Performance, **Balanced Performance**, Balanced Power, and Power.

Energy Efficient Turbo

Use this feature to enable energy efficient turbo mode. The options are **Enable** and Disable.

►CPU P State Control

EIST (P-States)

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

Turbo Mode

Select Enable for processor cores to run faster than the frequency specified by the manufacturer. The options are Disable and **Enable**.

P-state Coordination

Use this item to configure the processor's P-State coordination settings. During a P-State, the voltage and frequency of the processor will be reduced when it is in operation. This makes the processor more energy efficient, resulting in further energy gains. The options are **HW_ALL**, **SW_ALL** and **SW-ANY**.

►CPU C State Control

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 caches is turned off. The options are **Enable** and Disable.

Enhanced Halt State (C1E)

Select Enabled to enable "Enhanced Halt State" support, which will significantly reduce the CPU's power consumption by minimizing CPU's clock cycles and voltage use during a "Halt State." The options are **Disable** and **Enable**.

►CPU T State Control

ACPI (Advanced Configuration Power Interface) T-States

If this item is set to Enable, CPU throttling will be supported by the operating system to reduce power consumption. The options are **Enable** and **Disable**.

►Chipset Configuration

►North Bridge

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

►IIO Configuration

EV DFX (Device Function On-Hide) Features

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

► IIO1 Configuration

CPU1 MICRO-LP PCI-E 3.0 X8 SLOT Link Speed

Use this item to configure the link speed of a PCI-E port specified by the user. The options are Gen 1 (Generation 1) (2.5 GT/s), Gen 2 (Generation 2) (5 GT/s) and **Gen 3 (Generation 3) (8 GT/s)**.

CPU1 SLOT1 PCI-E 3.0 X8 SLOT Link Speed

Use this item to configure the link speed of a PCI-E port specified by the user. The options are Gen 1 (Generation 1) (2.5 GT/s), Gen 2 (Generation 2) (5 GT/s) and **Gen 3 (Generation 3) (8 GT/s)**.

► IOAT Configuration

Enable I/OAT

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**.

Relaxed Ordering

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

► Intel VT for Directed I/O (VT-d)

Intel® VT for Directed I/O (VT-d)

Select Enable to use Intel Virtualization Technology support for Direct I/O VT-d support by reporting the I/O device assignments to the VMM (Virtual Machine

Monitor) through the DMAR ACPI Tables. This feature offers fully-protected I/O resource sharing across Intel platforms, providing greater reliability, security and availability in networking and data-sharing. The options are **Enable** and **Disable**.

Interrupt Remapping

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

► **QPI (Quick Path Interconnect) Configuration**

QPI Status

The following information will display:

- Number of CPU
- Number of IIO

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

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

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

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

Isoc Mode

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

► **Memory Configuration**

Enforce POR

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

Memory Frequency

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

Data Scrambling

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

Enable ADR

Select Enabled for ADR (Automatic Diagnostic Repository) support to enhance memory performance. The options are Enabled and **Disabled**.

DRAM RAPL (Running Average Power Limit) Baseline

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

Set Throttling Mode

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

A7 Mode

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

►DIMM Information

This item displays the status of a DIMM module specified.

- DIMMA1
- DIMMA2
- DIMMB1
- DIMMB2
- DIMMC1
- DIMMC2
- DIMMD1
- DIMMD2

►Memory RAS (Reliability Availability Serviceability) Configuration

Use this submenu to configure the following Memory RAS settings.

RAS Mode

Select Enable to enable RAS support to enhance reliability, availability and serviceability of onboard memory modules. The options are **Enable** and **Disable**.

Memory Rank Sparing

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

Patrol Scrub

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

Patrol Scrub Interval

Use this item to specify the number of hours (between 0 to 24) required for the system to complete a full patrol scrubbing. Enter 0 for patrol scrubbing to be performed automatically. The default setting is **24**.

Demand Scrub

Demand Scrubbing is a process that allows the CPU to correct correctable memory errors found in 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 corrected as well. Select Enable to use Demand Scrubbing for ECC memory correction. The options are **Enable** and **Disable**.

Device Tagging

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

►South Bridge Configuration

The following South Bridge information will display:

- USB Configuration
- USB Module Version
- USB Devices

Legacy USB Support

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

XHCI Hand-Off

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

EHCI Hand-Off

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

Port 60/64 Emulation

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

USB 3.0 Support

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

EHCI1

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

EHCI2

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

XHCI Pre-Boot Driver

Select Enabled to enable XHCI (Extensible Host Controller Interface) support on a pre-boot drive specified by the user. The options are Enabled and **Disabled**.

►SATA Configuration

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

SATA Controller

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

Configure SATA as

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

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

Support Aggressive Link Power Management

When this item is set to Enabled, the SATA AHCI controller manages the power usage of the SATA link. The controller will put the link in a low power mode during extended periods of I/O inactivity, and will return the link to an active state when I/O activity resumes. The options are **Enabled** and **Disabled**.

SATA Port 0~ Port 5

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

- Model number of drive and capacity
- Software Preserve Support

Port 0~ Port 5

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

Port 0 ~ Port 5 Hot Plug

This feature designates the port specified for hot plugging. Set this item to Enabled for hot-plugging support, which will allow the user to replace a SATA disk drive without shutting down the system. The options are **Enabled** and Disabled.

Port 0 ~ Port 5 Spin Up Device

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

Port 0 ~ Port 5 SATA Device Type

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

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

Serial ATA Port 0~ Port 5

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

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

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

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

Support Aggressive Link Power Management

When this item is set to Enabled, the SATA AHCI controller manages the power usage of the SATA link. The controller will put the link in a low power mode during extended periods of I/O inactivity, and will return the link to an active state when I/O activity resumes. The options are **Enabled** and Disabled.

SATA RAID Option ROM/UEFI Driver

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

Serial ATA Port 0~ Port 5

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

- Model number of drive and capacity
- Software Preserve Support

Port 0~ Port 5

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

Port 0 ~ Port 5 Hot Plug

This feature designates the port specified for hot plugging. Set this item to Enabled for hot-plugging support, which will allow the user to replace a SATA disk drive without shutting down the system. The options are **Enabled** and **Disabled**.

Port 0 ~ Port 5 Spin Up Device

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

Port 0 ~ Port 5 SATA Device Type

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

►Server ME (Management Engine) Configuration

This feature displays the following system ME 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

►PCIe/PCI/PnP Configuration

The following PCI information will be displayed:

- PCI Bus Driver Version
- PCI Devices Common Settings:

PCI PERR/SERR Support

Select Enabled to allow a PCI device to generate a PERR/SERR number for a PCI Bus Signal 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 Support (Available if the system supports Single-Root Virtualization)

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

Maximum Payload

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

Maximum Read Request

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

ASPM Support

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

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

MMIOHBase

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

MMIO High Size

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

CPU1 MICRO-LP PCI-E 3.0 X8 SLOT OPROM, CPU1 SLOT1 PCI-E 3.0 X8 SLOT 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 Disabled, Legacy and EFI.

Onboard Video Option ROM

Use this item to select the Onboard Video Option ROM type. The options are **Legacy** and EFI.

VGA Priority

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

Network Stack

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

►Super IO Configuration**Super IO Chip AST2400****►Serial Port 1 Configuration/Serial Port 2 Configuration****Serial Port 1/Serial Port 2**

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

Device Settings

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

Change Port 1 Settings/Change Port 2 Settings

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

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

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

Serial Port 2 Attribute

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

►Serial Port Console Redirection

COM 1 Console Redirection

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

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

►COM1 Console Redirection Settings

Terminal Type

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

Bits Per second

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

Data Bits

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

Parity

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

Stop Bits

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

Flow Control

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

VT-UTF8 Combo Key Support

Select Enabled to enable VT-UTF8 Combination Key support for ANSI/VT100 terminals. The options are **Enabled** 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 item to select the number of rows and columns used in Console Redirection for legacy OS support. The options are **80x24** and **80x25**.

Putty Keypad

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

Redirection After BIOS Post

Use this feature to enable or disable legacy Console Redirection after BIOS POST. When 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**.

SOL/COM2

SOL/COM2 Console Redirection

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

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

►SOL/COM2 Console Redirection Settings

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

Terminal Type

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

Bits Per second

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

Data Bits

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

Parity

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

Stop Bits

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

Flow Control

Use this feature to set the flow control for Console Redirection to prevent data loss caused by buffer overflow. Send a "Stop" signal to stop sending data when the receiving buffer is full. Send a "Start" signal to start 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.

EMS (Emergency Management Services) Console Redirection

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

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

►EMS 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.

Out-of-Band Management Port

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

Terminal Type

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

Bits Per Second

This item sets the transmission speed for a serial port used in Console Redirection. Make sure that the same speed is used in 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

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

The setting for each these features is displayed:

Data Bits, Parity, Stop Bits

►ACPI Settings

WHEA Support

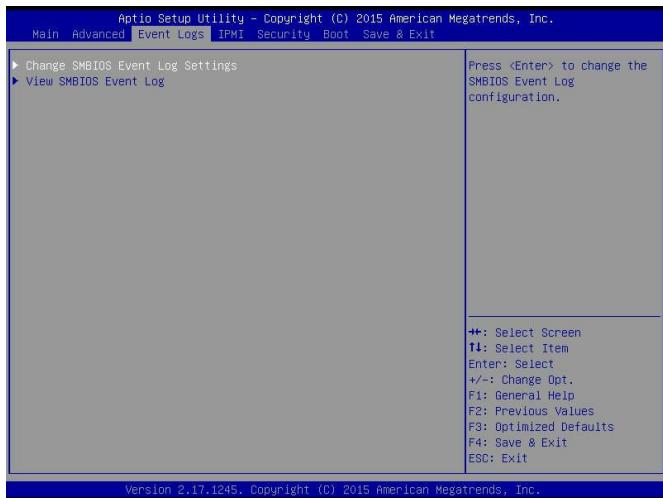
Select Enabled to support the Windows Hardware Error Architecture (WHEA) platform and provide a common infrastructure for the system to handle hardware errors within the Windows OS environment to reduce system crashes and to enhance system recovery and health monitoring. The options are **Enabled** and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

High Precision Timer

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

7-4 Event Logs

Use this feature to configure Event Log settings.



►Change SMBIOS Event Log Settings

SMBIOS Event Log

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

Runtime Error Logging Support

Change this item to enable or disable runtime error logging. The options are **Enabled** and **Disabled**.

Memory Correction Error Threshold

Change this item to define the system's memory correction error threshold. Directly enter a numeric value. The default value is **10**.

Erasing Settings

Erase Event Log

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

SMBIOS Event Log Standard Settings

Log System Boot Event

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

MECI (Multiple Event Count Increment)

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

METW (Multiple Event Count Time Window)

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

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

►View SMBIOS Event Log

This item allows the user to view the event in the system event log. Select this item and press <Enter> to view the status of an event in the log.

Date/Time/Error Code/Severity

7-5 IPMI Settings

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



settings.

IPMI Firmware Revision

This item indicates the IPMI firmware revision used in your system.

IPMI Status

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

▶ System Event Log

Enabling/Disabling Options

SEL Components

Select Enabled for all system event logging at bootup. The options are **Enabled** and **Disabled**.

Erasing Settings

Erase SEL

Select Yes, On next reset to erase all system event logs upon next system reboot.
Select Yes, On every reset to erase all system event logs upon each system reboot.

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

When SEL is Full

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

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

►BMC Network Configuration

The following items will be displayed:

IPMI LAN Selection

This item displays the IPMI LAN setting. The default setting is **Failover**.

IPMI Network Link Status

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

Update IPMI LAN Configuration

This feature allows the user to decide if the BIOS should configure the IPMI setting at next system boot. The options are **No** and Yes. If the option is set to Yes, the user is allowed to configure the IPMI settings at next system boot.

Configuration Source

This feature selects whether the IP address, Subnet Mask and Gateway Address are automatically assigned by the network's DHCP server (Dynamic Host and Configuration Protocol) "Dynamic" or manually entered by the user "Static". When Dynamic is selected, all the options below are automatically assigned to the system by itself or by an external DHCP server. If Static is selected, the IP Address, Subnet Mask and Gateway Address must be manually entered below. The options are Static and **DHCP**.

Station IP Address

Enter the IP address for this machine. This should be in decimal and in dotted quad form (i.e., 192.168.10.253). The value of each three-digit number separated by dots should not exceed 255.

Subnet Mask

Subnet masks tell the network which subnet this machine belongs to. The value of each three-digit number separated by dots should not exceed 255.

Station MAC Address

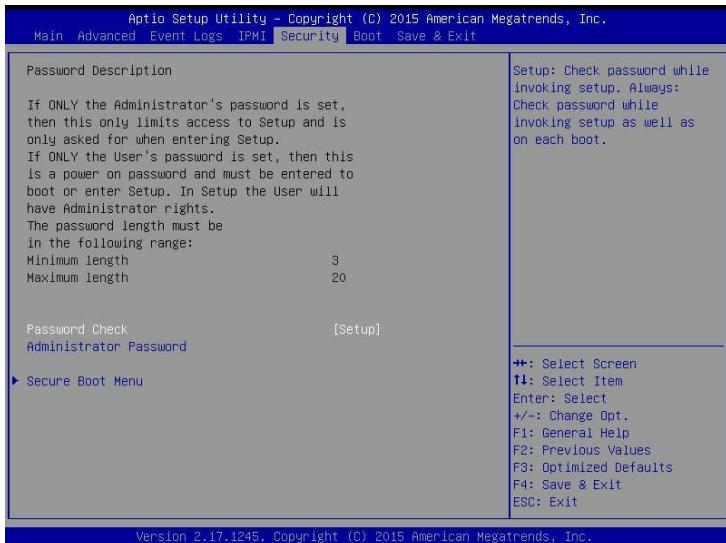
MAC addresses are 6 two-digit hexadecimal numbers (Base 16, 0 ~ 9, A, B, C, D, E, F) separated by dots (i.e., 00.30.48.D0.D4.60).

Gateway IP Address

Enter the Gateway or Router address (i.e., 192.168.10.1).

7-6 Security

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



Password Check

Select Setup for the system to check for a password at Setup. Select Always for the system to check for a password at bootup or upon entering the BIOS Setup utility. The options are **Setup** and **Always**.

Administrator Password

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

►Secure Boot Menu

This section displays the contents of the following secure boot features:

- System Mode
- Secure Boot

Secure Boot

Use this item to enable secure boot. The options are **Disabled** and **Enabled**.

Secure Boot Mode

Use this item to select the secure boot mode. The options are **Standard** and **Custom**.

CSM Support

Select Enabled to support the EFI Compatibility Support Module (CSM), which provides compatibility support for traditional legacy BIOS for system boot. The options are **Enabled** and **Disabled**.

►Key Management

This submenu allows the user to configure the following Key Management settings.

Default Key Provision

Select Enabled to install the default Secure-Boot keys set by the manufacturer. The options are **Disabled** and **Enabled**.

►Enroll All Factory Default Keys

Select Yes to install all default secure keys set by the manufacturer. The options are **Yes** and **No**.

Save All Secure Boot Variables

This feature allows the user to decide if all secure boot variables should be saved.

Platform Key (PK)

This feature allows the user to configure the settings of the platform keys.

►Set New PK

Select Yes to load the new platform keys (PK) from the manufacturer's defaults. Select No to load the platform keys from a file. The options are **Yes** and **No**.

Key Exchange Key (KEK)

This feature allows the user to configure the settings of the key exchange keys.

►Set New KEK

Select Yes to load the KEK from the manufacturer's defaults. Select No to load the KEK from a file. The options are Yes and No.

►Append KEK

Select Yes to add the KEK from the manufacturer's defaults list to the existing KEK. Select No to load the KEK from a file. The options are Yes and No.

Authorized Signatures

This feature allows the user to configure the settings of the authorized signatures.

►Set New DB

Select Yes to load the DB from the manufacturer's defaults. Select No to load the DBT from a file. The options are Yes and No.

►Append DB

Select Yes to add the DB from the manufacturer's defaults list to the existing DBT. Select No to load the DBT from a file. The options are Yes and No.

Authorized TimeStamps

This feature allows the user to configure the settings of the authorized timestamps.

►Set New DBT

Select Yes to load the DBT from the manufacturer's defaults. Select No to load the DBT from a file. The options are Yes and No.

►Append DBT

Select Yes to add the DBT from the manufacturer's defaults list to the existing DBT. Select No to load the DBT from a file. The options are Yes and No.

Forbidden Signatures

This feature allows the user to configure the settings of the forbidden signatures.

►Set New DBX

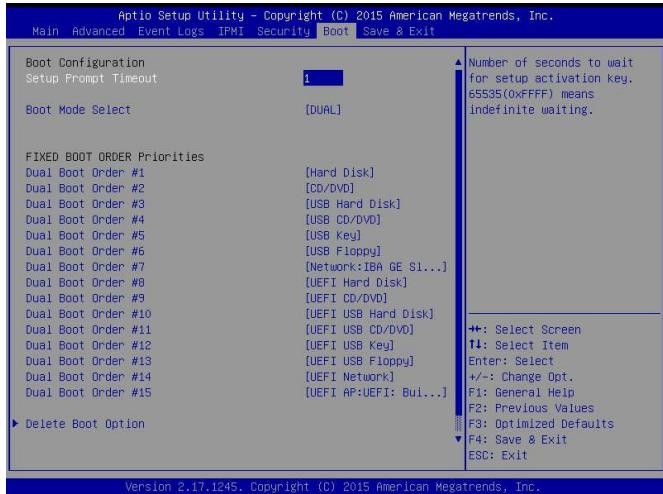
Select Yes to load the DBX from the manufacturer's defaults. Select No to load the DBX from a file. The options are Yes and No.

►Append DBX

Select Yes to add the DBX from the manufacturer's defaults to the existing DBX. Select No to load the DBX from a file. The options are Yes and No.

7-7 Boot

Use this feature to configure Boot Settings:



Boot Configuration

Setup Prompt Timeout

Use this item to indicate the length of time (the number of seconds) for the BIOS to wait before rebooting the system when the setup activation key is pressed. Enter the value of 65535 (0xFFFF) for the BIOS to wait indefinitely. The default setting is 1.

Boot Mode Select

Use this item to select the type of device that the system is going to boot from. The options are Legacy, UEFI, and **Dual**. The default setting is 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.

- Dual Boot Order #1
- Dual Boot Order #2

- Dual Boot Order #3
- Dual Boot Order #4
- Dual Boot Order #5
- Dual Boot Order #6
- Dual Boot Order #7
- Dual Boot Order #8
- Dual Boot Order #9
- Dual Boot Order #10
- Dual Boot Order #11
- Dual Boot Order #12
- Dual Boot Order #13
- Dual Boot Order #14
- Dual Boot Order #15

►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.

►Network Drive BBS Priorities

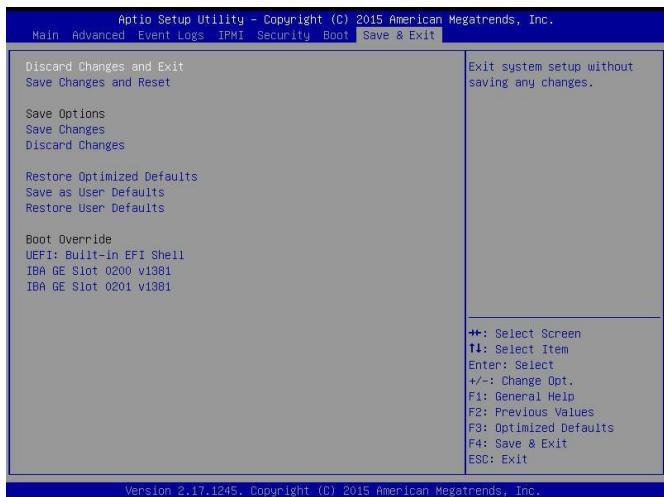
- Legacy Boot Order #1 - This feature sets the system boot order of detected devices. The options are [**the list of detected boot device(s)**] and Disabled.
- Legacy Boot Order #2 - This feature sets the system boot order of detected devices. The options are [**the list of detected boot device(s)**] and Disabled.

►UEFI Application Boot Priorities

- UEFI Boot Order # - This feature sets the system boot order of detected devices. The options are [**the list of detected boot device(s)**] and Disabled.

7-8 Save & Exit

Select the Exit tab from the BIOS Setup Utility screen to enter the Exit BIOS Setup screen.



Discard Changes and Exit

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

Save Changes and Reset

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

Save Options

Save Changes

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

Discard Changes

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

Restore Optimized Defaults

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

Save As User Defaults

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

Restore User Defaults

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

Boot Override

Listed on this section are other boot options for the system (i.e., Built-in EFI shell). Select an option and press <Enter>. Your system will boot to the selected boot option. 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 the 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 Serverboard 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.
1 beep per device	Refresh	1 beep or each USB device detected

X10 IPMI Error Codes		
1 Continuous Beep	System OH	System Overheat

Notes

Appendix B

UEFI BIOS Recovery Instructions

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

B-1 An Overview to the UEFI BIOS

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

B-2 How to Recover the UEFI BIOS Image (-the Main BIOS Block)

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

Note: Follow the BIOS recovery instructions below for BIOS recovery when the main BIOS boot crashes. However, when the BIOS boot block crashes, you will need to follow the procedures below for BIOS recovery.

B-3 To Recover the Main BIOS Block Using a USB-Attached Device

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

The file system supported by UEFI is FAT (including FAT12, FAT16, and FAT32) installed on a bootable or non-bootable USB-attached device. However, the BIOS might need several minutes to locate the SUPER.ROM file if the media size becomes too large because it contains too many folders and files.

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

1. Using a different machine, copy the "Super.ROM" binary image file into the disc Root "\" Directory of a USB device or a writeable CD/DVD.
- Note:** If you cannot locate the "Super.ROM" file in your driver disk, visit our website at www.supermicro.com to download the BIOS image into a USB flash device and rename it "Super.ROM" for BIOS recovery use.
2. Insert the USB device that contains the new BIOS image ("Super.ROM") into your USB drive and power on the system
3. While powering on the system, please keep pressing <Ctrl> and <Home> simultaneously on your keyboard until the following screen (or a screen similar to the one below) displays.

Caution: Please **stop** pressing the <Ctrl> and <Home> keys immediately when you see the screen (or a similar screen) below; otherwise, it will trigger a system reboot.

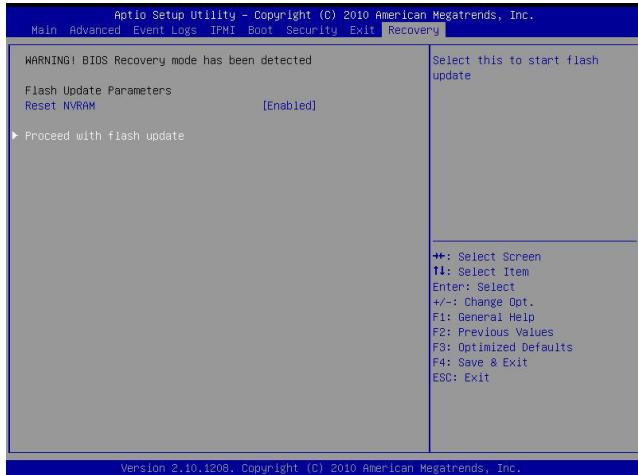


Note: On the other hand, if the following screen displays, please load the "Super.ROM" file to the root folder and connect this folder to the system. (You can do so by inserting a USB device that contains the new "Super.ROM" image to your machine for BIOS recovery.)



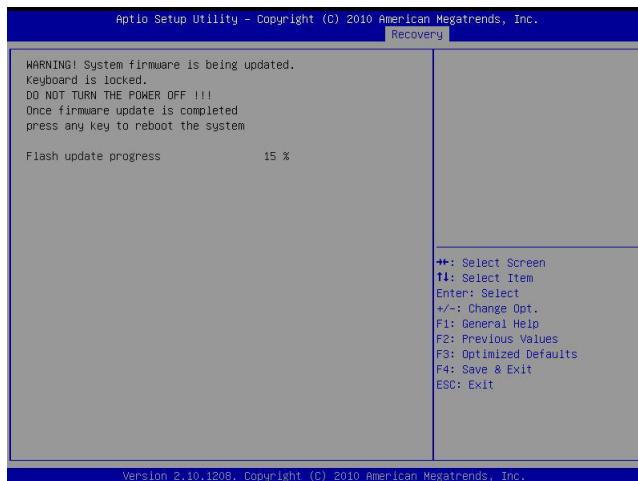
4. After locating the new BIOS binary image, the system will enter the BIOS Recovery menu as shown below.

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



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

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



6. After the process of BIOS recovery is completed, press any key to reboot the system.



7. Using a different system, extract the BIOS package into a bootable USB flash drive.
8. When a DOS prompt appears, enter FLASH.BAT BIOSname.### at the prompt.

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

9. After seeing the message that BIOS update is completed, unplug the AC power cable from the power supply to clear the CMOS, and then plug the AC power cable in the power supply again to power on the system.
10. Press continuously to enter the BIOS Setup utility.
11. Press <F3> to load default settings.
12. After loading default settings, press <F4> to save the settings and exit the BIOS Setup utility.

Appendix C

System Specifications

Processors

Single Intel Xeon E5-2600/E5-1600 v3 series processors in LGA2011 sockets

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

Chipset

Intel PCH C612 chipset

BIOS

128 Mb SPI AMI BIOS® SM Flash BIOS

Memory Capacity

Per node, four sockets supporting up to 256 GB RDIMM and LRDIMM, ECC DDR4, 2133/1866/1600 Hz

SATA Controller

Two SATA3 ports on the back panel; two SATA3 ports onboard; two SATA2/SAS for AOC

Drive Bays

Sixteen hot-swap drive bays to house 3.5" hard drives

Expansion Slots

Per node, one PCI-E 3.0 x8 low profile with riser card

Serverboard

X10SRD-F (Proprietary form factor)

Dimensions: 4.75" x 15.95" (12.07 cm x 40.51 cm)

Chassis

SC938BH-R1620BP (2U rackmount)

Dimensions: (WxHxD) 17.2 x 5.21 x 23.2 in. (437 x 133 x 589 mm)

Weight

Gross Weight: 88 lbs. (39.9 kg.)

Net Weight: 62 lbs. (28.2 kg)

System Cooling

Four 8-cm high-performance fans

System Input Requirements

AC Input::

1000W Output @ 100-120V, 12-10A, 50-60Hz

1200W Output @ 120-140V, 12-10A, 50-60Hz

1620W Output @ 180-240V, 10.5-8A, 50-60Hz

Power Supply

1620W high-efficiency redundant power supply w/ PMBus

Rated Output Power: 1620W (Part# PWS-1K02A-1R)

Rated Output Voltages:

1000W: +12V/84A; +5Vsb/4A

1200W: +12V/100A; +5Vsb/4A

1620W: +12V/150A; +5Vsb/4A

Operating Environment

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

Expanded Operating Temperature: 5°C to 40°C (41°F to 104°F)^{1,2}

Non-Operating Temperature: -40°C to 70°C (-40°F to 158°F)

Operating Relative Humidity: 8% to 90% (non-condensing)

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

Note 1: When operating in the expanded temperature range, system performance is equivalent to the normal operating temperature range.

Note 2: When operating in the expanded temperature range, select a CPU for which the TDP is between 85 W to 145 W. Do not use frequency optimized SKUs, E5-2667 v3, E5-2643 v3, E5-2637 v3, and E5-2623 v3.

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

(continued from front)

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