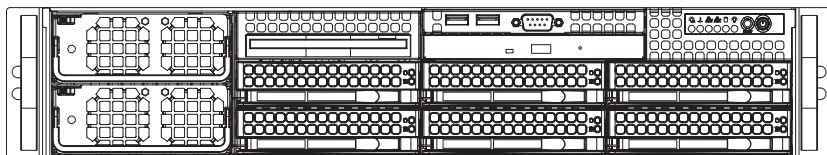


SUPERO[®]

A+ SERVER
2042G-TRF
2042G-6RF



USER'S MANUAL

Revision 1.0f

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Manual Revision 1.0f
Release Date: March 11, 2014

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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 A+ SERVER 2042G-TRF/6RF. Installation and maintenance should be performed by experienced technicians only.

The A+ SERVER 2042G-TRF/6RFs are high-end quad processor servers based on the SC828TQ+-R1400LPB 2U rackmount server chassis and the Super H8QG6/i-F serverboard. The H8QG6/i-F supports four AMD 6000 processors. Please refer to our web site for an up-to-date list of supported processors.

The A+ SERVER 2042G-TRF contains an H8QGi-F serverboard without SAS2 features while the A+ SERVER 2042G-6RF contains an H8QG6-F serverboard with SAS2 features.

Manual Organization

Chapter 1: Introduction

The first chapter provides a checklist of the main components included with the server system and describes the main features.

Chapter 2: Server Installation

This chapter describes the steps necessary to install the A+ SERVER 2042G-TRF/6RF into a rack and check out the server configuration prior to powering up the system. If your server was ordered without the processor and memory components, this chapter will refer you to the appropriate sections of the manual for their installation.

Chapter 3: System Interface

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

Chapter 4: Warning Statements for AC Systems

You should thoroughly familiarize yourself with this chapter for a general overview of safety precautions that should be followed when installing and servicing the A+ SERVER 2042G-TRF/6RF.

Chapter 5: Advanced Serverboard Setup

Chapter 5 provides detailed information on the H8QG6/i-F serverboards, including the locations and functions of connectors, headers and jumpers. Refer to this chapter when adding or removing processors or main memory and when reconfiguring the serverboard.

Chapter 6: Advanced Chassis Setup

Refer to Chapter 6 for detailed information on the SC828TQ+-R1400LPB 2U rackmount server chassis. You should follow the procedures given in this chapter when installing, removing or reconfiguring SAS or peripheral drives and when replacing system power supply units and cooling fans.

Chapter 7: BIOS

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

Appendix A: BIOS Error Beep Codes

Appendix B: Installing Windows

Appendix C: System Specifications

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Appendix A BIOS Error Beep Codes

Appendix B System Specifications

Chapter 1

Introduction

1-1 Overview

The A+ SERVER 2042G-TRF/6RF is a high-end server that is comprised of two main subsystems: the SC828TQ+-R1400LPB 2U server chassis and the H8QG6/i-F quad processor serverboard. Please refer to our web site for information on operating systems that have been certified for use with the 2042G-TRF/6RF (www.supermicro.com).

In addition to the serverboard and chassis, various hardware components are included, as listed below:

- One (1) Mini-SATA to USB adapter for slim DVD (CDM-USATA-G-O-P)
- One (1) Slim SATA DVD kit (MCP-260-00027-0N)
- One (1) Black slim SATA DVD, TEAC or Panasonic (DVM-TEAC-DVD-SBT or DVM-PNSC-DVD-SBT)
- Four (4) 2U Passive CPU Heatsinks for AMD Socket G34 (SNK-P0043P)
- One (1) USB/COM port tray (MCP-220-00007-01)
- SAS/SATA Accessories:
 - One (1) SAS/SATA backplane (BPN-SAS-828TQ)
 - Two (2) 61.5-cm 8pin to 8pin cables for SGPIO (CBL-0157L-01)
 - Two (2) 48-cm SATA round cables (CBL-0227L)
 - Two (2) 55-cm SATA round cables (CBL-0228L)
 - Two (2) 65-cm SATA round cables (CBL-0230L)
 - One (1) 70-cm Internal USB cable for slim USB DVD-ROM (CBL-0341L)
 - Six (6) hot-swap drive carriers (MCP-220-00001-01)

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.

- Product manuals: <http://www.supermicro.com/support/manuals/>
- Product drivers and utilities: <ftp://ftp.supermicro.com>
- Product safety information:
http://super-dev/about/policies/safety_information.cfm

For support, email support@supermicro.com.

1-2 Serverboard Features

At the heart of the A+ SERVER 2042G-TRF is one H8QGi-F quad processor serverboard. For the A+ SERVER 2042G-6RF, the serverboard is H8QG6-F. Both are based on the SR5690/SR5670/SP5100 chipset.

Processors

The H8QG6/i-F supports four AMD Opteron 6000 series (Socket G34 type) processors. Please refer to our web site for a complete listing of supported processors (www.supermicro.com).

Memory

The H8QG6/i-F has thirty-two (32) single/dual/tri/quad channel DIMM slots supporting up to 1 TB of DDR3-1333/1066/800 registered ECC or 256 GB of DDR3 Unbuffered ECC/non-ECC SDRAM. See Chapter 5 Section 6 for more details on installing memory into the system.

SAS (2042G-6RF Only)

An LSI 2008 SAS2 controller is integrated into the H8QG6-F to provide an eight port SAS (Serial Attached SCSI) subsystem, which is RAID 0, 1, and 10 supported. (Optional RAID 5 support is available with the iButton installed.) The SAS drives are hot-swappable units. SR and IT modes are supported but not IR.

Note: The operating system you use must have RAID support to enable the hotswap capability and RAID function of the SAS drives.

Serial ATA

The South Bridge (SP5100) of the chipset includes a Serial ATA controller for six 3Gb/s SATA drives. The hot-swappable SATA drives are connected to a backplane that provides power, bus termination and configuration settings. RAID 0, 1, and 10 are supported. Refer to the support area of our web site for procedures on setting up RAID on your system.

PCI Expansion Slots

The H8QG6/i-F board has two PCI Express 2.0 x16 slots and two PCI Express 2.0 x8 slots or one UIO slot.

Ethernet Ports

An Intel® network controller is integrated into each of the serverboards to support two Gigabit LAN ports (100/1000Base-T/1000BaseTX, RJ45 output).

Onboard Controllers/Ports

Onboard I/O backpanel ports on the serverboard include one COM port, a VGA port, two USB ports, a dedicated IPMI LAN port and two Gigabit LAN (NIC) ports.

Graphics Controller

The H8QG6/i-F features an integrated Matrox G200eW graphics chip, which includes 16 MB of DDR2 memory.

IPMI

IPMI (Intelligent Platform Management Interface) is a hardware-level interface specification that provides remote access, monitoring and administration for Supermicro server platforms. IPMI allows server administrators to view a server's hardware status remotely, receive an alarm automatically if a failure occurs, and power cycle a system that is non-responsive.

UIO

The H8QG6/i-F is a specially-designed serverboard that features Supermicro's UIO (Universal I/O) technology. UIO serverboards have a PCI-Express x8 signals that can support PCI-E cards or any one of several types of UIO card types to add SAS ports, additional LAN ports, InfiniBand®, etc. to the serverboard. This allows you to tailor the serverboard to your own needs.

Note: The server does not come with a UIO card installed.

Other Features

Other onboard features that promote system health include voltage monitors, auto-switching voltage regulators, chassis and CPU overheat sensors, virus protection and BIOS rescue.

1-3 Server Chassis Features

The 2042G-TRF/6RF server is housed by the SC828TQ+-R1400LPB chassis.

System Power

The SC828 chassis features a redundant (two separate power modules) 1400W high-efficiency power supply with I²C. This power redundancy feature allows you to replace a failed power supply without shutting down the system.

SAS/SATA Subsystem

The SC828 chassis was designed to support six hot-swappable SAS or SATA hard drives.

Front Control Panel

The control panel provides system monitoring and control. LEDs indicate system power, HDD activity, network activity, system overheat and power supply failure. A main power button and a system reset button are also included. In addition, two USB ports and a COM port have been incorporated into the front of the chassis for convenient access.

I/O Backplane

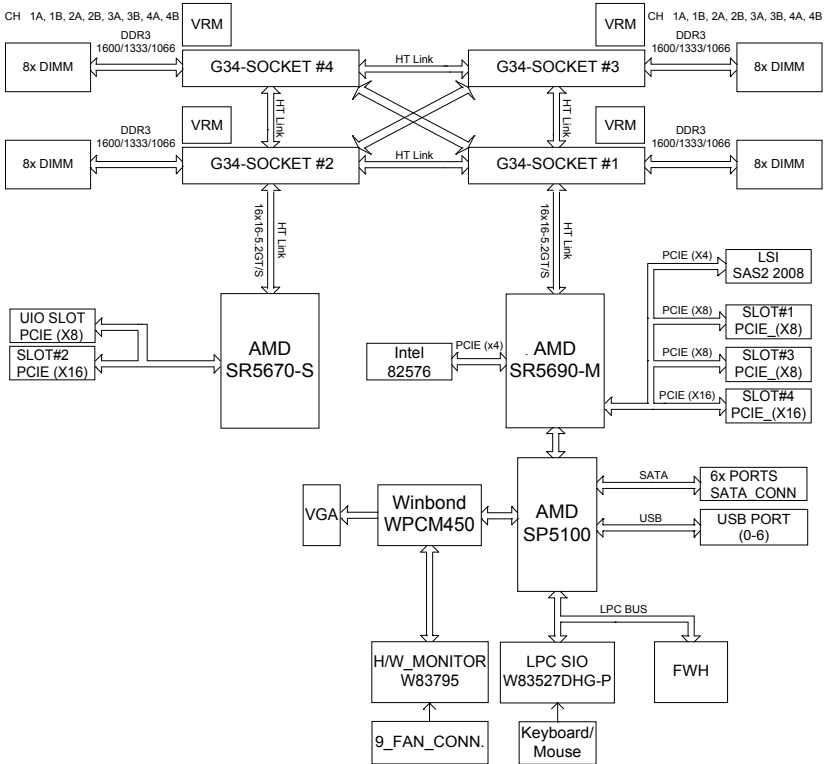
The I/O backplane includes one COM port, a VGA port, two USB 2.0 ports, PS/2 mouse and keyboard ports, two gigabit Ethernet ports and one dedicated Ethernet port for IPMI. Two x16, one x8 and one UIO or x8 low profile PCI-E expansion cards may be added to the system.

Cooling System

The SC828 chassis has an innovative cooling design that includes six 8-cm heavy-duty hot-swap fans located in the middle section of the chassis. The power supply module also includes a cooling fan. All chassis and power supply fans operate continuously. An air shroud channels the airflow from the system fans to efficiently cool the processors and memory.

**Figure 1-1. SR5690/SR5670/SP5100 Chipset:
System Block Diagram**

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



1-4 Contacting Supermicro

Headquarters

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San Jose, CA 95131 U.S.A.

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Web Site: www.supermicro.com.tw

Technical Support:

Email: support@supermicro.com.tw

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Chapter 2

Server Installation

2-1 Overview

This chapter provides a quick setup checklist to get your 2042G-TRF/6RF up and running. Following these steps in the order given should enable you to have the system operational within a minimum amount of time. This quick setup assumes that your system has come to you with the processors and memory preinstalled. If your system is not already fully integrated with a serverboard, processors, system memory etc., please turn to the chapter or section noted in each step for details on installing specific components.

2-2 Unpacking the System

You should inspect the box the 2042G-TRF/6RF was shipped in and note if it was damaged in any way. If the server itself shows damage you should file a damage claim with the carrier who delivered it.

Decide on a suitable location for the rack unit that will hold the 2042G-TRF/6RF. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. You will also need it placed near a grounded power outlet. Be sure to read the Rack and Server Precautions in the next section.

2-3 Preparing for Setup

The box the 2042G-TRF/6RF was shipped in should include two sets of rail assemblies, two rail mounting brackets and the mounting screws you will need to install the system into the rack. Follow the steps in the order given to complete the installation process in a minimum amount of time. Please read this section in its entirety before you begin the installation procedure outlined in the sections that follow.

Choosing a Setup Location

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

- This product is for installation only in a Restricted Access Location (dedicated equipment rooms, service closets and the like).
- This product is not suitable for use with visual display work place devices according to §2 of the the German Ordinance for Work with Visual Display Units.

2-4 Warnings and Precautions!

Rack Precautions

- Ensure that the leveling jacks on the bottom of the rack are fully extended to the floor with the full weight of the rack resting on them.
- In single rack installation, stabilizers should be attached to the rack. In multiple rack installations, the racks should be coupled together.
- Always make sure the rack is stable before extending 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 (Tmra).

Reduced Airflow

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

Mechanical Loading

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

Circuit Overloading

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

Reliable Ground

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



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

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

2-5 Installing the System into a Rack

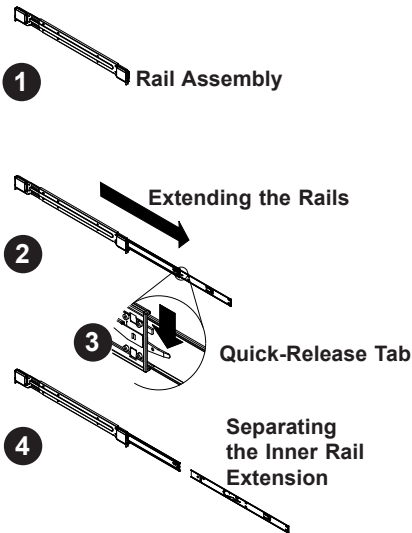
This section provides information on installing the SC828 chassis into a rack unit with the quick-release rails provided. There are a variety of rack units on the market, which may mean the assembly procedure will differ slightly. You should also refer to the installation instructions that came with the rack unit you are using.

Note: This rail will fit a rack between 26" and 33.5" deep.

Separating the Sections of the Rack Rails

The chassis package includes two rail assemblies in the rack mounting kit. Each assembly consists of two sections: an inner fixed chassis rail that secures directly to the server chassis and an outer fixed rack rail that secures directly to the rack itself.

Figure 2-1: Separating the Rack Rails



Separating the Inner and Outer Rails

1. Locate the rail assembly in the chassis packaging.
2. Extend the rail assembly by pulling it outward.
3. Press the quick-release tab.
4. Separate the inner rail extension from the outer rail assembly.

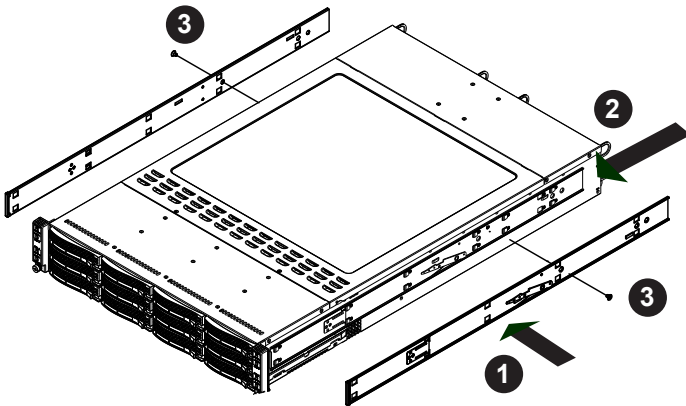
Installing the Inner Rail Extension

The SC828 chassis includes a set of inner rails in two sections: inner rails and inner rail extensions. The inner rails are pre-attached to the chassis, and do not interfere with normal use of the chassis if you decide not to use a server rack. The inner rail extension is attached to the inner rail to mount the chassis in the rack.

Installing the Inner Rails (Figure 2-2)

1. Place the inner rail extensions on the side of the chassis aligning the hooks of the chassis with the rail extension holes. Make sure the extension faces "outward" just like the pre-attached inner rail.
2. Slide the extension toward the front of the chassis.
3. Secure the chassis with two screws as illustrated. Repeat steps for the other inner rail extension.

Figure 2-2: Installing the Inner Rail Extensions



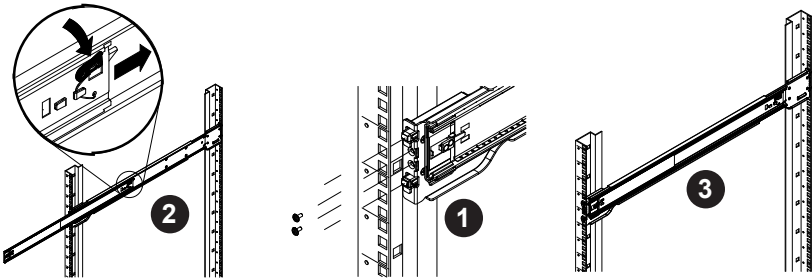
Outer Rack Rails

Outer rails attach to the rack and hold the chassis in place. The outer rails for the SC828 chassis extend between 30 inches and 33 inches.

Installing the Outer Rails to the Rack (Figure 2-3)

1. Secure the back end of the outer rail to the rack, using the screws provided.
2. Press the button where the two outer rails are joined to retract the smaller outer rail.
3. Hang the hooks of the rails onto the rack holes and if desired, use screws to secure the front of the outer rail onto the rack.
4. Repeat steps 1-3 for the remaining outer rail.

Figure 2-3. Assembling the Outer Rails

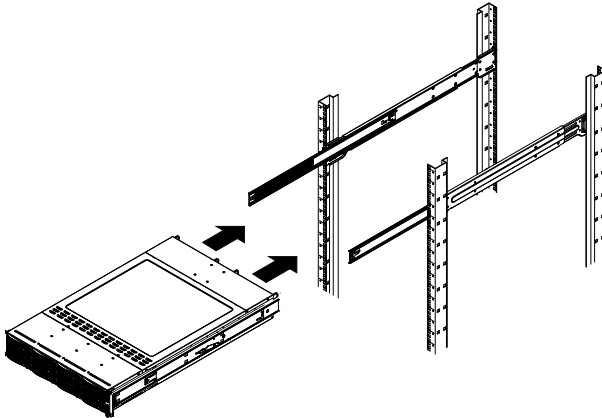


Installing the Chassis into a Rack (Figure 2-4)

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 secure the to hold the front of the chassis to the rack.



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

Figure 2-4: Installing the Rack Rails

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

2-6 Checking the Serverboard Setup

After you install the 2042G-TRF/6RF in the rack, you will need to open the top cover to make sure the serverboard is properly installed and all the connections have been made.

Accessing the Inside of the System

1. First, release the retention screws that secure the system to the rack.
2. Grasp the two handles on either side and pull the system straight out until it locks (you will hear a "click").
3. Next, release the thumbscrew at the middle rear of the top cover. Then depress the two buttons on the top of the chassis to release the top cover.
4. Push the cover away from you (toward the rear of the chassis) until it stops. You can then lift the top cover from the chassis to gain full access to the inside of the server.
5. To remove the system from the rack completely, depress the locking tabs in the chassis rails (push the right-side tab down and the left-side tab up) to continue to pull the system out past the locked position.

Checking the Components and Setup

- You may have up to four processors already installed in the serverboard. Each processor needs its own heatsink. See Chapter 5 for instructions on processor and heatsink installation.
- Your server system may have come with system memory already installed. Make sure all DIMMs are fully seated in their slots. For details on adding system memory, refer to Chapter 5.
- If desired, you can install an add-on card to the system. See Chapter 5 for details on installing PCI add-on cards.
- Make sure all power and data cables are properly connected and not blocking the chassis airflow. See Chapter 5 for details on cable connections.

2-7 Preparing to Power On

Next, you should check to make sure the peripheral drives and the SAS drives and SAS backplane have been properly installed and all connections have been made.

Checking the Drives

- All drives are accessible from the front of the server. For servicing the DVD-ROM, you will need to remove the top chassis cover. The SAS disk drives can be installed and removed from the front of the chassis without removing the top chassis cover.
- A slim DVD-ROM should be preinstalled in your server. Refer to Chapter 6 if you need to reinstall a DVD-ROM to the system.
- Depending upon your system's configuration, your system may have one or more drives already installed. If you need to install SAS drives, please refer to Chapter 6.

Checking the Airflow

- Airflow is provided by six 8-cm fans and an air shroud. The system component layout was carefully designed to direct sufficient cooling airflow to the components that generate the most heat.
- Note that all power and data cables have been routed in such a way that they do not block the airflow generated by the fans.

Providing Power

1. Plug the power cords from the power supplies unit into a high-quality power strip that offers protection from electrical noise and power surges. It is recommended that you use an uninterruptible power supply (UPS).
2. Depress the power on button on the front of the chassis.

Notes

Chapter 3

System Interface

3-1 Overview

There are several LEDs on the control panel as well as others on the SAS drive carriers to keep you constantly informed of the overall status of the system as well as the activity and health of specific components. There are also two buttons on the chassis control panel and an on/off switch on the power supply. This chapter explains the meanings of all LED indicators and the appropriate response you may need to take.

3-2 Control Panel Buttons

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

RESET



Reset

Use the reset button to reboot the system.



Power

The main power button is used to apply or remove power from the power supply to the server system. Turning off system power with this button removes the main power but keeps standby power supplied to the system.

3-3 Control Panel LEDs

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



Power Fail

Indicates a power supply module has failed. The second power supply module will take the load and keep the system running but the failed module will need to be replaced. Refer to Chapter 6 for details on replacing the power supply. This LED should be off when the system is operating normally



Information LED

Alerts operator of several states, as noted in the table below.

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



NIC2

Indicates network activity on GLAN2 when flashing.



NIC1

Indicates network activity on GLAN1 when flashing.



HDD

Indicates IDE channel activity. This light indicates SAS or DVD-ROM drive activity when flashing.



Power

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

3-4 SAS Drive Carrier LEDs

Each SAS drive carrier has two LEDs:

- **Green:** When illuminated, the green LED on the front of the SAS drive carrier indicates drive activity. A connection to the backplane enables this LED to blink on and off when that particular drive is being accessed.
- **Red:** The SES2 compliant backplane activates the red LED to indicate a drive failure. If one of the SAS drives fail, you should be notified by your system management software. Please refer to Chapter 6 for instructions on replacing failed SAS drives.

Notes

Chapter 4

Standardized Warning Statements for AC Systems

4-1 About Standardized Warning Statements

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

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

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

Warning Definition



Warning!

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

警告の定義

この警告サインは危険を意味します。

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

此警告符号代表危險。

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

此警告符號代表危險。

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

Warnung

WICHTIGE SICHERHEITSHINWEISE

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

BEWAHREN SIE DIESE HINWEISE GUT AUF.

INSTRUCCIONES IMPORTANTES DE SEGURIDAD

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

GUARDE ESTAS INSTRUCCIONES.

IMPORTANTES INFORMATIONS DE SÉCURITÉ

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

CONSERVEZ CES INFORMATIONS.

תקנת הצהרות אזהרה

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

יש לקרוא את הנספח במלוואו לפני התקנת או הגדרת הרכיבים במארוזי סופרמיקרו.

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

안전을 위한 주의사항

경고!

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

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

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

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

BEWAAR DEZE INSTRUCTIES

Installation Instructions



Warning!

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

設置手順書

システムを電源に接続する前に、設置手順書をお読み下さい。

警告

将此系统连接电源前，请先阅读安装说明。

警告

將系統與電源連接前，請先閱讀安裝說明。

Warnung

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

¡Advertencia!

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

Attention

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

יש לקרוא את הוראות התקנה לפני חיבור המערכת למקור מתח.

اقرأ 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

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

Warnung

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

¡Advertencia!

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

Attention

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

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

هذا المنتج يعتمد على معدات الحماية من الدوائر القصيرة التي تم تثبيتها في المبنى

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

경고!

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

Waarschuwing

Dit product is afhankelijk van de kortsluitbeveiliging (overspanning) van uw 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.

電源切斷の警告

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斷され、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.

אזהרה!

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

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

אזהרה!

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

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

경고!

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

Waarschuwing

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

Restricted Area



Warning!

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

アクセス制限区域

このユニットは、アクセス制限区域に設置されることを想定しています。

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

警告

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

אזור עם גישה מוגבלת

אזהרה!

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

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

경고!

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

Waarschuwing

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

Battery Handling



Warning!

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

電池の取り扱い

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

警告

電池更換不當會有爆炸危險。請只使用同類電池或製造商推薦的功能相當的電池更換原有電池。請按製造商的說明處理廢舊電池。

警告

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

Warnung

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

Attention

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

¡Advertencia!

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

אזהרה!

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

סילוק הסוללות המשומשות יש לבצע לפי הוראות היצרן.

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

경고!

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

Waarschuwing

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

Redundant Power Supplies



Warning!

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

冗長電源装置

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

警告

此部件连接的电源可能不止一个，必须将所有电源断开才能停止给该部件供电。

警告

此装置连接的电源可能不只一个，必须切断所有电源才能停止对该装置的供电。

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

אזהרה!

ליחידה יש יותר מחיבור אחד של ספק. יש להסיר את כל החיבורים על מנת לרוקן את היחידה.

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

경고!

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

Waarschuwing

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

Backplane Voltage



Warning!

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

バックプレーンの電圧

システムの稼働中は危険な電圧または電力が、バックプレーン上にかかっています。

修理する際にはご注意ください。

警告

当系統正在进行时，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，背板上有很危險的電壓或能量，進行維修時務必小心。

Warnung

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

¡Advertencia!

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

Attention

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

מתח בפנל האחורי

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

هناك خطر من التيار الكهربائي أو الطاقة الموجودة على اللوحة
عندما يكون النظام يعمل كن 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 instalación del equipo debe cumplir con las normas de electricidad locales y
nacionales.

Attention

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

תיאום חוקי החשמל הארצי

אזהרה!

התקנת הציוד חייבת להיות תואמת לחוקי החשמל המקומיים והארציים.

تركيب المعدات الكهربائية يجب أن يمتثل للقوانين المحلية والوطنية المتعلقة بالكهرباء

경고!

현 지역 및 국가의 전기 규정에 따라 장비를 설치해야 합니다.

Waarschuwing

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

Product Disposal



Warning!

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

製品の廃棄

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

警告

本产品的废弃处理应根据所有国家的法律和规章进行。

警告

本產品的廢棄處理應根據所有國家的法律和規章進行。

Warnung

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

¡Advertencia!

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

Attention

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

סילוק המוצר

אזהרה!

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

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

경고!

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

Waarschuwing

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

Hot Swap Fan Warning



Warning!

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

ファン・ホットスワップの警告

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

警告

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

אזהרה!

כאשר מסירים את חלקי המאוורר מהמארז, יתכן והמאווררים עדיין עובדים. יש להרחיק למרחק בטוח את האצבעות וכלי עבודה שונים מהפתחים בתוך המאוורר

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

경고!

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

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

Power Cable and AC Adapter



Warning!

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

電源コードとACアダプター

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

警告

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

警告

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

Warnung

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

¡Advertencia!

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

Attention

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

חשמליים ומתאמי AC

!אזהרה

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

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

경고!

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

Waarschuwing

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

Notes

Chapter 5

Advanced Serverboard Setup

This chapter covers the steps required to install the H8QG6/i-F serverboard into the chassis, connect the data and power cables and install add-on cards. All serverboard jumpers and connections are also described. A layout and quick reference chart are included in this chapter for your reference. Remember to completely close the chassis when you have finished working with the serverboard to better cool and protect the system.

5-1 Handling the Serverboard

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

Precautions

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

Unpacking

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

5-2 Serverboard Installation

This section explains the first step of physically mounting the H8QG6/i-F into the SC828 chassis. Following the steps in the order given will eliminate the most common problems encountered in such an installation. To remove the serverboard, follow the procedure in reverse order.

Installing to the Chassis

1. Access the inside of the system by removing the screws from the back lip of the top cover of the chassis, then pull the cover off.
2. The H8QG6/i-F requires a chassis big enough to support a 16.48" x 13" (418 x 330 mm) serverboard, such as Supermicro's SC828 .
3. Make sure that the I/O ports on the serverboard align properly with their respective holes in the I/O shield at the back of the chassis.
4. Carefully mount the serverboard to the serverboard tray by aligning the board holes with the raised metal standoffs that are visible in the chassis.
5. Insert screws into all the mounting holes on your serverboard that line up with the standoffs and tighten until snug (if you screw them in too tight, you might strip the threads). Metal screws provide an electrical contact to the serverboard ground to provide a continuous ground for the system.
6. Finish by replacing the top cover of the chassis.

5-3 Connecting Cables

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

Connecting Data Cables

The ribbon cables used to transfer data from the peripheral devices have been carefully routed to prevent them from blocking the flow of cooling air that moves through the system from front to back. If you need to disconnect any of these cables, you should take care to keep them routed as they were originally after reconnecting them (make sure the red wires connect to the pin 1 locations). The following data cables (with their locations noted) should be connected. (See the layout on page 5-9 for connector locations.)

- SAS/SATA drive data cables (SAS0-5/SATA0-5)
- Control Panel cable (JF1)
- DVD-ROM drive cable (J3)
- USB cable (USB5/6)
- COM port cable (COM2)

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

Connecting Power Cables

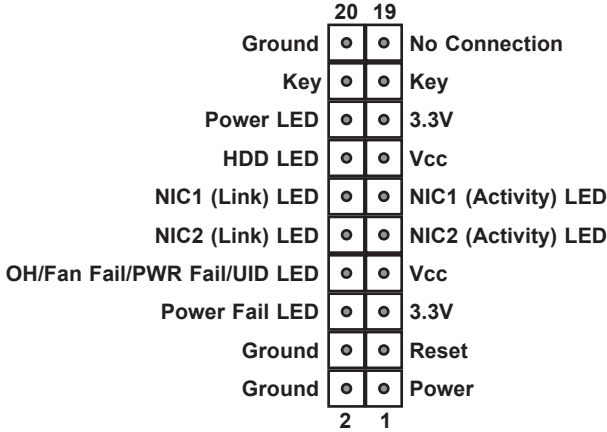
The H8QG6/i-F has a 24-pin primary power supply connector (JPW1) for connection to the ATX power supply. In addition, there are three 8-pin secondary power connectors (JPW2/JPW3/JPW4) that also must be connected to your power supply. See Section 5-9 for power connector pin definitions.

Connecting the Control Panel

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

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

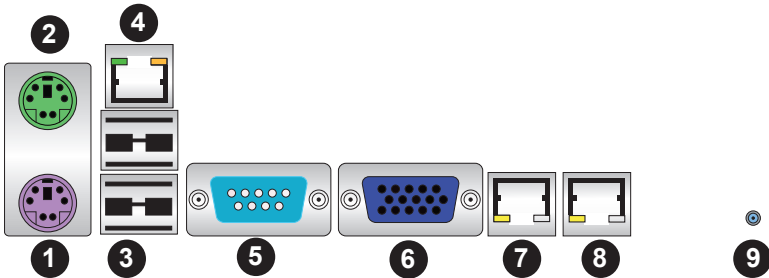
Figure 5-1. Control Panel Header Pins



5-4 I/O Ports

The I/O ports are color coded. See Figure 5-2 below for the colors and locations of the various I/O ports.

Figure 5-2. I/O Ports



Rear I/O Ports	
1. Keyboard	6. VGA Port
2. PS/2 Mouse	7. LAN1
3. USB0/1	8. LAN2
4. IPMI LAN	9. UID
5. COM1	

5-5 Installing the Processor and Heatsink

Exercise extreme caution when handling and installing the processor. Always connect the power cord last and always remove it before adding, removing or changing any hardware components.

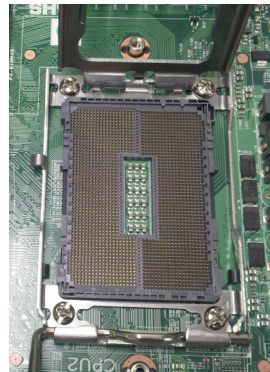
Installation Procedure

Follow the procedures as listed below to install the motherboard into a chassis.

1. Install the processor(s) and the heatsink(s).
2. Install the motherboard in the chassis.
3. Install the memory and add-on cards.
4. Finally, connect the cables and install the drivers.

Installing the Processors

1. Begin by removing the cover plate that protects the CPU. Lift the lever on the CPU socket until it points straight up.
2. With the lever raised, lift open the silver CPU retention plate.



3. Use your thumb and your index finger to hold the CPU. Locate and align pin 1 of the CPU socket with pin 1 of the CPU. Both are marked with a triangle.
4. Align pin 1 of the CPU with pin 1 of the socket. Once aligned, carefully place the CPU into the socket. *Do not drop the CPU on the socket, move the CPU horizontally or vertically or rub the CPU against the socket or against any pins of the socket, which may damage the CPU and/or the socket.*
5. With the CPU inserted into the socket, inspect the four corners of the CPU to make sure that it is properly installed and flush with the socket. Then, gently lower the silver CPU retention plate into place.



Triangle

6. Carefully press the CPU socket lever down until it locks into its retention tab. For a dual-CPU system, repeat these steps to install another CPU into the CPU#2 socket (and into CPU#2, #3 and #4 sockets for a quad-CPU configuration).

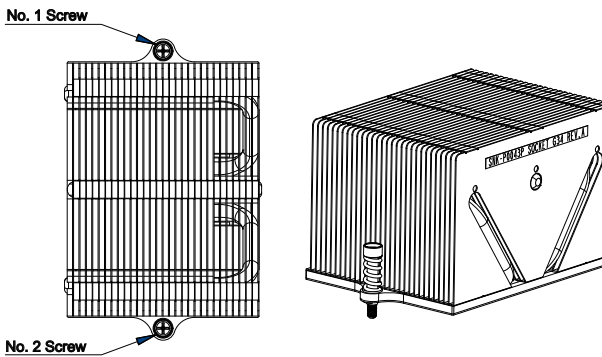


Note: in single, dual and quad-CPU configurations, memory must be installed in the DIMM slots associated with the installed CPU(s).

Installing a Passive CPU Heatsink

1. Do not apply any thermal grease to the heatsink or the CPU die -- the required amount has already been applied.
2. Place the heatsink directly on top of the CPU so that the heat sink screws are aligned with the mounting holes on the back plate.
3. Make sure the screwdriver torque setting is no more than 5.0 Kgf-cm (4.3 lb-in) and keep the heat sink direction vertical.
4. Tighten each screw a few turns at a time while alternating between the two until fully tightened.

Figure 5-3. SNK-0043P Heatsink



Removing the Heatsink

Warning: We do not recommend removing the CPU or the heatsink. However, if you do need to remove the heatsink, please follow the instructions below to prevent damage to the CPU or other components.

1. Unscrew the heatsink screws from the motherboard a few turns at a time, alternating between the two until the screws can be removed.
2. Gently wriggle the heatsink to loosen it from the CPU. (Do not use excessive force when wriggling the heatsink!)
3. Once the heatsink is loose, remove it from the CPU socket.
4. Clean the surface of the CPU and the heatsink, removing the used thermal grease. Reapply the proper amount of thermal grease on the surface before re-installing the CPU and the heatsink.

5-6 Installing Memory

Exercise extreme caution when installing or removing memory modules to prevent any possible damage.

Installing Memory

1. Insert each memory module vertically into its slot, paying attention to the notch along the bottom of the module to prevent inserting the module incorrectly (see Figure 2-1).
2. Install to slots CPU1/DIMM1A and CPU1/DIMM1B first, then to CPU1/DIMM2A and CPU1/DIMM2B, etc. Always install in pairs and in the numerical order of the DIMM slots. See support information below.
3. Gently press down on the memory module until it snaps into place.
4. With two CPUs installed, repeat step 2 to populate the CPU2 DIMM slots. Always install pairs of DIMMs to both CPU DIMM slots for more efficient operation.

Note: Memory modules of 1 GB, 2 GB, 4 GB, 8 GB, 16 GB or 32 GB size are supported. It is highly recommended that you remove the power cord from the system before installing or changing memory modules. Please refer to our web site for memory that has been tested on the H8QG6/i-F serverboard.

Memory Support

The H8QG6/i-F serverboard supports thirty-two (32) single/dual/tri/quad-channel, DDR3-1600/1333/1066 Mhz SDRAM memory modules.

Populating four adjacent slots at a time with memory modules of the same size and type will result in interleaved (128-bit) memory, which is faster than non-interleaved (64-bit) memory.

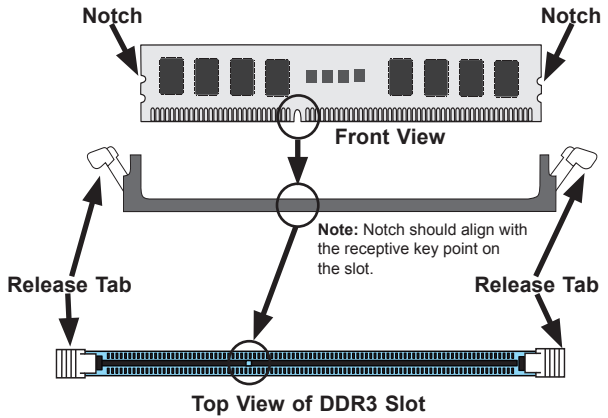
Maximum Memory

The H8QG6/i-F serverboard supports a maximum memory of up to 256 GB of ECC/Non-ECC UDIMM or up to 1 TB of ECC RDIMM SDRAM.

Figure 5-4. Installing DIMM into Slot

To Install: Insert module vertically and press down until it snaps into place. Pay attention to the alignment notch at the bottom.

To Remove: Use your thumbs to gently push the release tabs near both ends of the module. This should release it from the slot.



Memory Population for Optimal Performance -For a Motherboard with One CPU (CPU1) Installed									
# DIMMS	CPU	Channel 1		Channel 2		Channel 3		Channel 4	
4 DIMMs	CPU1	P1-1A		P1-2A		P1-3A		P1-4A	
8 DIMMs	CPU1	P1-1A	P1-1B	P1-2A	P1-2B	P1-3A	P1-3B	P1-4A	P1-4B

Memory Population for Optimal Performance -For a Motherboard with Two CPUs (CPU1 & CPU2) Installed									
# DIMMS	CPU	Channel 1		Channel 2		Channel 3		Channel 4	
8 DIMMs	CPU1	P1-1A		P1-2A		P1-3A		P1-4A	
	CPU2	P2-1A		P2-2A		P2-3A		P2-4A	
16 DIMMs	CPU1	P1-1A	P1-1B	P1-2A	P1-2B	P1-3A	P1-3B	P1-4A	P1-4B
	CPU2	P2-1A	P2-1B	P2-2A	P2-2B	P2-3A	P2-3B	P2-4A	P2-4B

Memory Population for Optimal Performance – For a Motherboard with Four CPUs (CPU1, CPU2, CPU3 & CPU4) Installed									
# DIMMS	CPU	Channel 1		Channel 2		Channel 3		Channel 4	
16 DIMMs	CPU1	P1-1A		P1-2A		P1-3A		P1-4A	
	CPU2	P2-1A		P2-2A		P2-3A		P2-4A	
	CPU3	P3-1A		P3-2A		P3-3A		P3-4A	
	CPU4	P4-1A		P4-2A		P4-3A		P4-4A	
32 DIMMs	CPU1	P1-1A	P1-1B	P1-2A	P1-2B	P1-3A	P1-3B	P1-4A	P1-4B
	CPU2	P2-1A	P2-1B	P2-2A	P2-2B	P2-3A	P2-3B	P2-4A	P2-4B
	CPU3	P3-1A	P3-1B	P3-2A	P3-2B	P3-3A	P3-3B	P3-4A	P3-4B
	CPU4	P4-1A	P4-1B	P4-2A	P4-2B	P4-3A	P4-3B	P4-4A	P4-4B

DIMM Module Population Configuration

For memory to work properly, follow the tables below for memory installation:

Per Channel DIMM Populations Options					
DIMM Type	DIMM A	DIMM B	Max. MHz, 1.5V DIMMs	Max. MHz, 1.35V DIMMs	Max. GB/ Channel
Unbuffered DIMM	SR or DR	Empty	1600 MHz	1333 MHz	8 GB
	SR	SR	1600 MHz		8 GB
	DR	DR	1333 MHz		16 GB
Registered DIMM	SR or DR	Empty	1600 MHz	1333 MHz	16 GB
	SR	SR	1600 MHz		16 GB
	DR	DR	1600 MHz		32 GB
	QR	Empty	1333 MHz	1066 MHz	32 GB
	QR	QR	1066 MHz	800 MHz	64 GB
Load Reduced DIMM	QR	Empty		1333 MHz	32 GB
	QR	QR		1333 MHz	64 GB

Note 1: Due to OS limitations, some operating systems may not show more than 4 GB of memory.

Note 2: Due to memory allocation to system devices, the amount of memory that remains available for operational use will be reduced when 4 GB of RAM is used. The reduction in memory availability is disproportional.

Possible System Memory Allocation & Availability		
System Device	Size	Physical Memory Available (4 GB Total System Memory)
Firmware Hub flash memory (System BIOS)	1 MB	3.99 GB
Local APIC	4 KB	3.99 GB
Area Reserved for the chipset	2 MB	3.99 GB
I/O APIC (4 Kbytes)	4 KB	3.99 GB
PCI Enumeration Area 1	256 MB	3.76 GB
PCI Express (256 MB)	256 MB	3.51 GB
PCI Enumeration Area 2 (if needed) -Aligned on 256-M boundary-	512 MB	3.01 GB
VGA Memory	16 MB	2.85 GB
TSEG	1 MB	2.84 GB
Memory available for the OS & other applications		2.84 GB

5-7 Adding PCI Add-On Cards

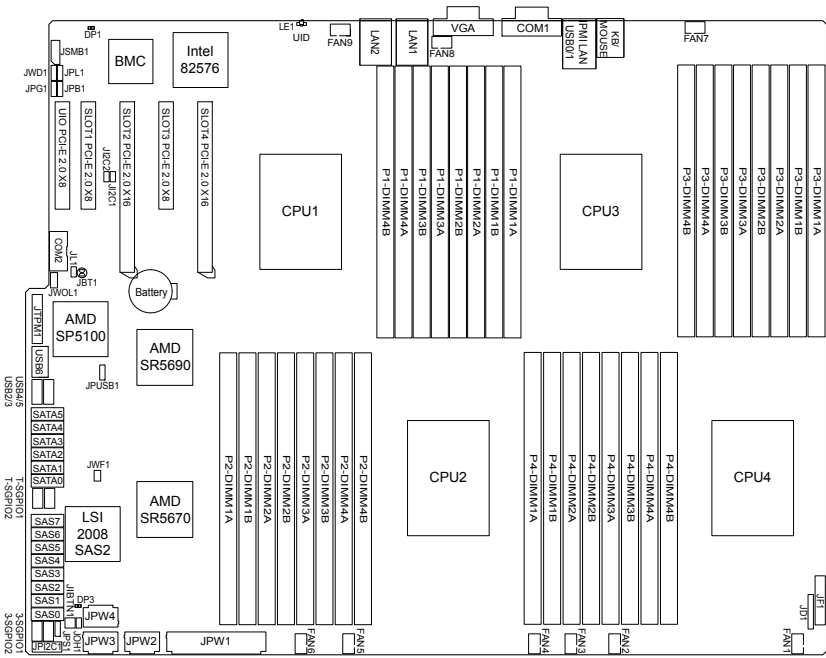
The 2042G-TRF/6RF can accommodate low-profile (only) add-on cards installed into all the PCI slots included on the H8QG6/i-F.

Installing an Add-on Card

1. Begin by removing the PCI slot shield for the slot you wish to populate.
2. Fully seat the card into the riser card slot, pushing down with your thumbs evenly on both sides of the card.
3. Finish by using a screw to secure the top of the card shield to the chassis. The PCI slot shields protect the serverboard and its components from EMI and aid in proper ventilation, so make sure there is always a shield covering each unused slot.

5-8 Serverboard Details

Figure 5-5. H8QG6/i-F Layout
(not drawn to scale)



Notes:

Jumpers not indicated are for test purposes only.

Not all ports, jumpers or LED Indicators are available on all serverboards.

H8QG6/i-F Quick Reference

Jumper	Description	Default Setting
JBT1	CMOS Clear	(See Section 5-9)
JI²C1/JI²C2	I²C to PCI-E Slot Enable/Disable	Both Open (Disabled)
JPB1	BMC Enable/Disable	Pins 1-2 (Enabled)
JPG1	VGA Enable/Disable	Pins 1-2 (Enabled)
JPL1	LAN 1/2 Enable/Disable	Pins 1-2 (Enabled)
JPS1	SAS Controller Enable/Disable (only on H8QG6-F)	Pins 1-2 (Enabled)
JPUSB1	USB Wakeup	Pins 1-2 (Enabled)
JWD1	Watch Dog	Pins 1-2 (Reset)

LED	Description
LAN Ports	LEDs for the LAN Ethernet ports
Dedicated IPMI LAN	LEDs for the dedicated IPMI LAN Ethernet port
LE1	LED for UID Button
DP1	LED for IPMI Heartbeat
DP3	LED for Serverboard Power-On

Connector	Description
COM1/COM2	COM1 Serial Port/Header
FAN 1-9	Chassis/CPU Fan Headers
IPMI LAN	Dedicated IPMI LAN Port
JD1	Speaker Header
JF1	Front Panel Connector
JIBTN1	RAIDKey for RAID 5 SAS support (only on H8QG6-F)
JL1	Chassis Intrusion Header
JOH1	Overheat Warning Header
JPI2C1	Power I ² C Header
JPW1	24-pin Main ATX Power Connector
JPW2/3/4	+12V 8-pin CPU Power Connectors
JSMB1	System Management Bus Header (SMBus)
JTPM1	Trusted Platform Module Header
JWF1	Compact Flash Card Power Connector
JWOL1	Wake-On-LAN Header
LAN1/2	Gigabit Ethernet (RJ45) Ports
PS2 Mouse/Keyboard	PS2 Mouse/Keyboard connectors
SAS0~3, SAS4~7	SAS Ports (only on H8QG6-F)
SATA0 ~ SATA5	SATA Ports
3-SGPIO1/3-SGPIO2	Serial General Purpose I/O Header for SAS (only on H8QG6-F)
T-SGPIO1/T-SGPIO2	Serial General Purpose Input/Output Header for SATA
UID	Unit Identifier Button
USB0/1, USB6, USB2/3, USB4/5	Universal Serial Bus (USB) Ports, Type-A Ports and Headers
VGA	VGA Connector

5-9 Connector Definitions

Power Connectors

A 24-pin main power supply connector (JPW1) and three 8-pin CPU PWR connectors (JPW2/JPW3) on the motherboard. These power connectors meet the SSI EPS 12V specification. In addition to the 24-pin ATX power connector, the 12V 8-pin CPU PWR connectors at JPW2/JPW3 must also be connected to your power supply. See the table on the right for pin definitions.

Warning: To prevent damage to the power supply or motherboard, please use a power supply that contains a 24-pin and three 8-pin power connectors. Be sure to connect these connectors to the 24-pin (JPW1) and the three 8-pin (JPW2 and JPW3) power connectors on the motherboard. Failure in doing so will void the manufacturer warranty on your power supply and motherboard.

PW_ON Connector

The PW_ON connector is on pins 1 and 2 of JF1. This header should be connected to the chassis power button. See the table on the right for pin definitions.

Reset Connector

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

Overheat/Fan Fail LED (OH)

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

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

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

Required Connection

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

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

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

OH/Fan Fail LED Status	
State	Indication
Solid	Overheat
Blinking	Fan fail

NIC2 (LAN2) LED

The LED connections for LAN2 are on pins 9 and 10 of JF1. Attach LAN LED cables to display network activity. See the table on the right for pin definitions.

NIC2 LED Pin Definitions (JF1)	
Pin#	Definition
9	Activity
10	Link

NIC1 (LAN1) LED

The LED connections for LAN1 are on pins 11 and 12 of JF1. Attach LAN LED cables to display network activity. See the table on the right for pin definitions.

NIC1 LED Pin Definitions (JF1)	
Pin#	Definition
11	Activity
12	Link

HDD LED

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

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

Power On LED

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

Power LED Pin Definitions (JF1)	
Pin#	Definition
15	5V Stby
16	Control

NMI Button

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

NMI Button Pin Definitions (JF1)	
Pin#	Definition
19	Control
20	Ground

Video Connector

A Video (VGA) connector is located below the COM Port on the IO backplane. This connector is used to provide video and CRT display.

Universal Serial Bus Ports

Two Universal Serial Bus ports (USB 2.0) are located beside the Keyboard and Mouse PS2 ports. One additional Type A port (USB6) is also included on the motherboard. See the table on the right for pin definitions.

Universal Serial Bus Ports Pin Definitions (USB 0/1, USB6)			
USB0/1		USB6	
Pin #	Definition	Pin #	Definition
1	+5V	1	+5V
2	PO-	2	PO-
3	PO+	3	PO+
4	Ground	4	Ground

USB Headers

Four USB 2.0 headers (USB2/3 and USB4/5) are also included on the motherboard. These may be connected to provide front side access. A USB cable (not included) is needed for the connection. See the table on the right for pin definitions.

Universal Serial Bus Headers Pin Definitions (USB2/3, USB4/5)			
JUSB2, JUSB3			
Pin #	Definition	Pin #	Definition
1	+5V	2	+5V
3	PO-	4	PO-
5	PO+	6	PO+
7	Ground	8	Ground
9	Key	10	NC

Note: NC indicates no connection.

LAN1/2 (Ethernet Ports)

Two Gigabit Ethernet ports (designated LAN1 and LAN2) are located beside the VGA port. Additionally, there is a dedicated LAN port for IPMI on top of the two rear USB ports. These Ethernet ports accept RJ45 type cables.



LAN Ports (LAN1/2) Pin Definition			
Pin#	Definition	Pin#	Definition
1	P2V5SB	10	SGND
2	TD0+	11	Act LED
3	TD0-	12	P3V3SB
4	TD1+	13	Link 100 LED (Yellow, +3V3SB)
5	TD1-	14	Link 1000 LED (Yellow, +3V3SB)
6	TD2+	15	Ground
7	TD2-	16	Ground
8	TD3+	17	Ground
9	TD3-	18	Ground

Note: NC indicates no connection.

JIBTN1 Header

A RAIDKey header, located at JIBTN1, provides RAID function support in order to use RAID 5 SAS support. This connector is only available on the H8QG6-F serverboard,

Fan Headers

This motherboard has nine fan headers (Fan1 to Fan9). These 4-pin fans headers are backward compatible with 3-pin fans. However, fan speed control is available for 4-pin fans only. The fan speeds are controlled by the BIOS. See the table on the right for pin definitions

Fan Header Pin Definitions	
Pin#	Definition
1	Ground
2	+12V
3	Tachometer
4	PWR Modulation

Serial Ports

The COM1 serial port is located beside the VGA port. Refer to the motherboard layout for the location of the COM2 header. See the table on the right for pin definitions.

Serial Port Pin Definitions (COM1/COM2)			
Pin #	Definition	Pin #	Definition
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	Ground	10	NC

Note: NC indicates no connection.

SGPIO

The T-SGPIO1/ T-SGPIO2 (Serial General Purpose Input/Output) headers provide a bus between the SATA controller and the backplane to provide SATA enclosure management functions. Connect the appropriate cable from the backplane to the T-SGPIO1 header to utilize SATA management functions on your system.

Likewise, the 3-SGPIO1/3-SGPIO2 headers provide the same function between the SAS controller and the backplane, and have the same pin definitions (only on H8QG6-F).

SGPIO Header Pin Definitions (T-SGPIO1/T-SGPIO2)			
Pin#	Definition	Pin #	Definition
1	NC	2	Data
3	Ground	4	Data
5	Load	6	Ground
7	CLK	8	NC

Note: NC indicates no connection.

Wake-On-LAN

The Wake-On-LAN header is designated JWOL. See the table on the right for pin definitions. You must have a LAN card with a Wake-On-LAN connector and cable to use the Wake-On-LAN feature.

Wake-On-LAN Pin Definitions (JWOL)	
Pin#	Definition
1	+5V Standby
2	Ground
3	Wake-up

SMBus Header

The header at SMBus is for the System Management Bus. Connect the appropriate cable here to utilize SMB on the system. See the table on the right for pin definitions.

SMBus Header (SMBus) Pin Definitions (JSMB1)	
Pin#	Definition
1	Data
2	Ground
3	Clock
4	No Connection

Power SMB (I²C)

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

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

ATX PS/2 Keyboard and PS/2 Mouse Ports

The ATX PS/2 keyboard and PS/2 mouse are located next to the Back Panel USB Ports 0/1 on the motherboard. See the table at right for pin definitions.

PS/2 Keyboard/Mouse Pin Definitions			
PS2 Keyboard		PS2 Mouse	
Pin#	Definition	Pin#	Definition
1	KB Data	1	Mouse Data
2	No Connection	2	No Connection
3	Ground	3	Ground
4	Mouse/KB VCC (+5V)	4	Mouse/KB VCC (+5V)
5	KB Clock	5	Mouse Clock
6	No Connection	6	No Connection

VCC: with 1.5A PTC (current limit)

Chassis Intrusion

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

Chassis Intrusion Pin Definitions (JL1)	
Pin#	Definition
1	Battery voltage
2	Intrusion signal

Overheat LED

Connect an LED to the JOH1 header to provide warning of chassis overheating. See the table on the right for pin definitions.

Overheat LED Pin Definitions (JOH1)	
Pin#	Definition
1	3.3V
2	OH Active

Power LED/Speaker

On the JD1 header, pins 1~3 are used for power LED indication, and pins 4~7 are for the speaker. See the tables on the right for pin definitions. If you wish to use the onboard speaker, you should close pins 6~7 with a jumper. Connect a cable to pins 4~7 of JD1 to use an external speaker.

PWR LED Connector Pin Definitions	
Pin Setting	Definition
Pin 1	Anode (+)
Pin2	Cathode (-)
Pin3	NA

Speaker Connector Pin Definitions	
Pin Setting	Definition
Pins 4~7	External Speaker
Pins 6~7	Internal Speaker

Unit Identifier Button

There is a Unit Identifier (UID) button on the rear I/O of the board. There is another UID button located on the control panel. When you push either UID button, both Rear UID and Front Panel UID Indicators will illuminate. Push either button again to turn off both indicators. These UID indicators provide easy identification of a system unit that may be in need of service.

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

Compact Flash Card PWR Connector

A Compact Flash Card Power Connector is located at JWF1.

Trusted Platform Module Header

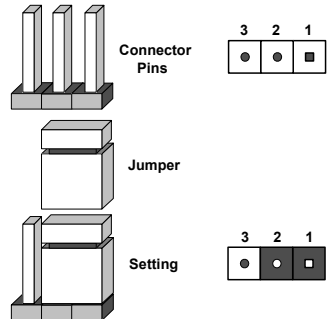
This header is used to connect a Trusted Platform Module (TPM), available separately from a third-party vendor. A TPM is a security device that allows encryption and authentication of hard drives, disallowing access if the TPM associated with it is not installed in the system. See the table on the right for pin definitions.

Trusted Platform Module Header Pin Definitions (JTPM1)			
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

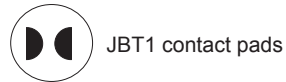
5-10 Jumper Settings

Explanation of Jumpers

To modify the operation of the motherboard, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. See the diagram at right for an example of jumping pins 1 and 2. Refer to the motherboard 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, which will also clear any passwords. Instead of pins, this jumper consists of contact pads to prevent accidentally clearing the contents of CMOS.

To Clear CMOS

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

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

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

Note 3. Clearing CMOS will also clear all passwords.

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

I²C to PCI-Express Slot

JI²C1/JI²C2 allows you to enable the I²C bus to communicate with the PCI-Express slot. For the jumpers to work properly, please set both jumpers to the same setting. If enabled, both jumpers must be enabled. If disabled, both jumpers must be disabled. See the table on the right for jumper settings.

I ² C to PCI-Express Slot Jumper Settings (JI ² C1/JI ² C2)	
Jumper Setting	Definition
Closed	Enabled
Open	Disabled

Watch Dog Enable/Disable

JWD1 enables the Watch Dog function, a system monitor that takes action when a software application freezes the system. Jumping pins 1-2 will have WD reboot the system if a program freezes. Jumping pins 2-3 will generate a non-maskable interrupt for the program that has frozen. See the table on the right for jumper settings. Watch Dog must also be enabled in BIOS.

Watch Dog Jumper Settings (JWD1)	
Jumper Setting	Definition
Pins 1-2	Reset
Pins 2-3	NMI
Open	Disabled

Note: When Watch Dog is enabled, the user must write their own application software to disable the Watch Dog Timer.

LAN1/2 Enable/Disable

Change the setting of jumper JPL1 to enable or disable the LAN1 and LAN2 Ethernet ports. See the table on the right for jumper settings. The default setting is enabled.

LAN1/2 En/Disable Jumper Settings (JPL1)	
Jumper Setting	Definition
Pins 1-2	Enabled
Pins 2-3	Disabled

SAS Enable/Disable

JPS1 allows you to enable or disable the SAS controller for the H8QG6-F serverboard only. The default position is on pins 1 and 2 to enable SAS. See the table on the right for jumper settings.

SAS Enable/Disable Jumper Settings (JPS1)	
Jumper Setting	Definition
Pins 1-2	Enabled
Pins 2-3	Disabled

VGA Enable/Disable

JPG1 allows you to enable or disable the VGA port. The default position is on pins 1 and 2 to enable VGA. See the table on the right for jumper settings.

VGA Enable/Disable Jumper Settings (JPG1)	
Jumper Setting	Definition
Pins 1-2	Enabled
Pins 2-3	Disabled

USB Wake-Up

JPUSB1 jumper allows you to "wake up" the system by pressing a key on the USB keyboard or by clicking the USB mouse of your system. These jumpers are used in conjunction with the USB Wake-Up function in the BIOS. See the table on the right for jumper settings and jumper connections. (the default is Enabled)

Backpanel USB Wake-Up Enable (JPUSB1) Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Enabled (default)
Pins 2-3	Disabled

BMC Jumper

JPB1 is used to enable or disable the BMC (Baseboard Management Control) Chip and the onboard IPMI connection. This jumper is used together with the IPMI settings in the BIOS. The default position is on pins 1 and 2 to Enable BMC. See the table on the right for jumper settings.

BMC Jumper Enable (JPB1) Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Enabled (default)
Pins 2-3	Disabled

5-11 Onboard Indicators

LAN1/LAN2 LEDs

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

LAN LED (Connection Speed Indicator)	
LED Color	Definition
Off	10 MHz
Green	100 MHz
Amber	1 GHz

Dedicated IPMI LAN LEDs

A dedicated IPMI LAN is also included on the H8QG6/i-F serverboard. The amber LED on the right indicates activity, while the green LED on the left indicates the speed of the connection. See the table at right for more information.

IPMI LAN Link LED (Left) & Activity LED (Right)		
Color	Status	Definition
Green: Solid	Link (Left)	100 Mb/s
Amber: Blinking	Activity (Right)	Active

Power LED

DP3 is an Onboard Power LED. When this LED is lit, it means power is present on the serverboard. Be sure to turn off the system and unplug the power cord(s) before removing or installing components.

Power LED (DP3)	
State	System Status
On	Standby power present on motherboard
Off	No power connected

IPMI LED

The serverboard contains an IPMI LED (DP1) located near the corner above the PCI-E slots. When this LED is lit, it means a connection is active for the built-in IPMI on the serverboard.

Note: This LED is not installed on non-IPMI boards.

IPMI LED (DP1)	
State	System Status
On	Active connection
Off	No connection

UID LED (LE1)

A rear UID LED Indicator, located at LE1, works in conjunction with the rear UID switch to provide easy identification for a unit that might be in need of service. Refer to Page 2-13 for further UID details.

5-12 SAS and SATA Drive Connections

SATA Ports

There are no jumpers to configure the SATA ports, which are designated SATA0 through SATA5. See the table on the right for pin definitions.

SATA Ports Pin Definitions (SATA0-SATA5)	
Pin #	Definition
1	Ground
2	TXP
3	TXN
4	Ground
5	RXN
6	RXP
7	Ground

SAS Ports

There are eight SAS ports included on the H8QG6-F motherboard. See the table on the right for pin definitions.

Note: JPS1 must be set correctly to enable the SAS controller.

SAS Ports Pin Definitions (SAS0 ~ SAS7)			
Pin#	Definition	Pin #	Definition
1	Ground	2	TXP
3	TXN	4	Ground
5	RXN	6	RXP
7	Ground		

5-13 Enabling SATA RAID

Now that the hardware is set up, you must install the operating system and the SATA RAID drivers, if you wish to use RAID with your SATA drives. The installation procedure differs depending on whether you wish to have the operating system installed on a RAID array or on a separate non-RAID drive. See the instructions below for details.

Serial ATA (SATA)

Serial ATA (SATA) is a physical storage interface that employs a single cable with a minimum of four wires to create a point-to-point connection between devices. This connection is a serial link that supports a SATA transfer rate from 150 MBps. The serial cables used in SATA are thinner than the traditional cables used in Parallel ATA (PATA) and can extend up to one meter in length, compared to only 40 cm for PATA cables. Overall, SATA provides better functionality than PATA.

Installing the OS/SATA Driver

Before installing the OS (operating system) and SATA RAID driver, you must decide if you wish to have the operating system installed as part of a bootable RAID array or installed to a separate non-RAID hard drive. If on a separate drive, you may install the driver either during or after the OS installation. If you wish to have the OS on a SATA RAID array, you must follow the procedure below and install the driver during the OS installation.

Building a Driver Diskette

You must first build a driver diskette from Supermicro drivers for your system. Drivers can be found at <ftp://ftp.supermicro.com>. (You will have to create this disk on a computer that is already running and with the OS installed.)

Note: Window's Vista, Windows 2008 or later Windows OS systems can use a USB stick instead of a floppy. For older systems, you must have an external USB floppy when building the driver diskette.

Building a Driver Diskette

1. Install your system drives from the FTP website. A display as shown in Figure 5-9 will appear.
2. Click on the icon labeled "Build Driver Diskettes and Manuals" and follow the instructions to create a floppy disk with the drivers on it.
3. Once it's been created, remove the floppy and insert the installation CD-ROM for the Windows Operating System you wish to install into the CD drive of the new system you are about to configure.

Enabling SATA RAID in the BIOS

Before installing the Windows operating system, you must change some settings in the BIOS. Boot up the system and hit the <Delete> key to enter the BIOS Setup Utility. After the setup utility loads,

1. Use the arrow keys to move to the "Exit" menu. Scroll down using the arrow keys to "Load Optimal Defaults" and press <Enter>. Select "OK" to confirm, then <Enter> to load the default settings.
2. Use the arrow keys to move to the "Advanced" menu, then scroll down to "IDE configuration". On this submenu, scroll down to "OnChip SATA Type" and choose the "RAID" option (Figure 5-6). "RAID Codebase" submenu appears. This setting allows you to select the codebase for your RAID setup. Options are either Adaptec or DotHill.

Figure 5-6. BIOS Setup Screen



3. Press the <Esc> key twice and scroll to the "Exit" menu. Select "Save Changes and Exit" and press <Enter>, then press <Enter> again to verify.
4. After exiting the BIOS Setup Utility, the system reboots. When prompted during the startup, to use the DotHill RAID Utility program press <CTRL+R> (Figure 5-7), or to use the Adaptec RAID Utility program press <CTRL+A> (Figure 5-8).

Figure 5-7. DotHill RAID Utility Program Screen

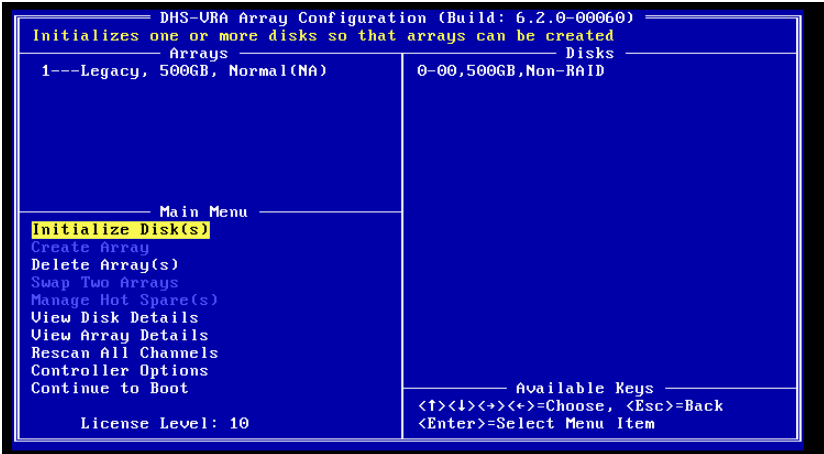
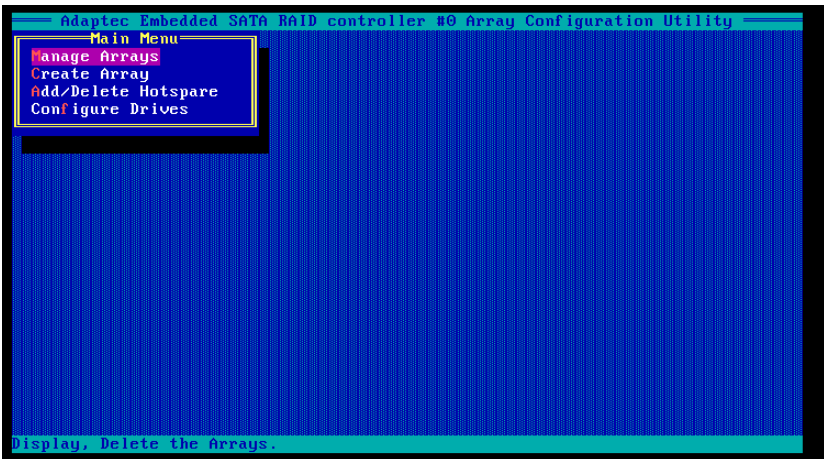


Figure 5-8. Adaptec RAID Utility Program Screen



Using the DotHill and Adaptec RAID Utility

The RAID Utility program allows you to define the drives you want to include in the RAID array and the mode and type of RAID.

Installing the RAID Driver During OS Installation

You may also use the procedure below to install the RAID driver during the Windows OS installation:

1. With the Windows OS installation CD-ROM in the CD drive, restart the system.
2. Press <Enter> again to continue with the Windows setup.
3. When you see the prompt, hit the <F6> key to enter Windows setup.
4. Eventually a blue screen will appear with a message that begins "Windows could not determine the type of one or more storage devices . . ." When you see the screen, hit the <S> key to "Specify Additional Device", then insert the driver diskette you just created into the floppy drive.
5. Highlight "Manufacturer Supplied Hardware Support Disk" and hit the <Enter> key.
6. Highlight the first "Adaptec RAID" driver shown and press the <Enter> key to install it.

5-14 Installing Software

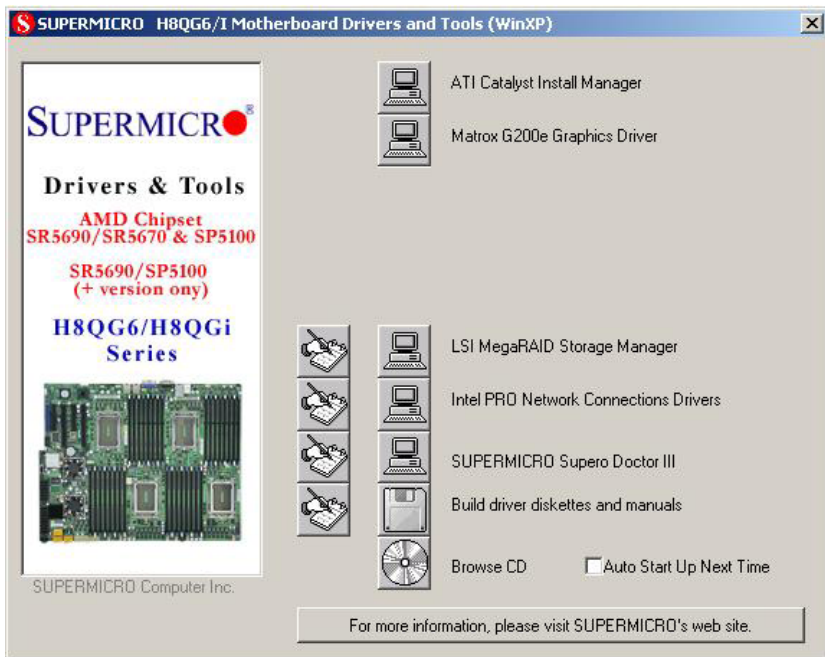
The Supermicro ftp site contains drivers and utilities for your system at <ftp://ftp.supermicro.com>. Some of these must be installed, such as the chipset driver.

After accessing the ftp site, go into the CDR_Images directory and locate the ISO file for your motherboard. 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 motherboard here, where you may download individual drivers and utilities.

After creating a CD/DVD with the ISO files, insert the disk into the CD/DVD drive on your system and the display shown in Figure 5-9 should appear.

Figure 5-9. Driver/Tool Installation Display Screen



Note: Click the icons showing a hand writing on paper to view the readme files for each item. Click the computer icons to the right of these items to install each item (from top to the bottom) one at a time. After installing each item, you must reboot 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 III

The SuperDoctor® III program is a web-based management tool that supports remote management capability. It includes Remote and Local Management tools. The local management is called SD III Client. The SuperDoctor III program allows you to monitor the environment and operations of your system. SuperDoctor III displays crucial system information such as CPU temperature, system voltages and fan status. See the figures below for examples of the SuperDoctor III interface.

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

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

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

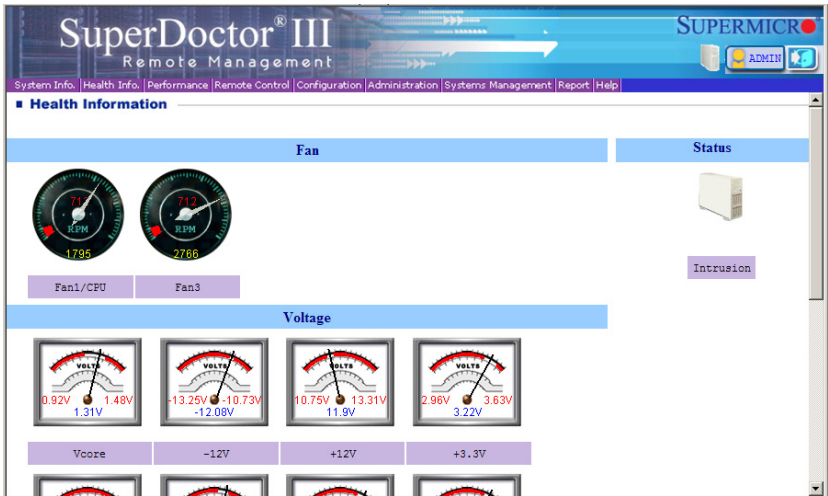
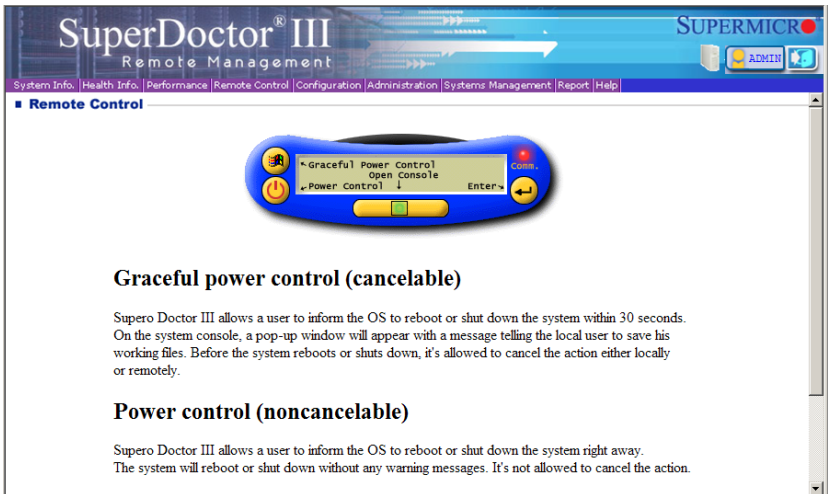


Figure 5-11. SuperDoctor III Interface Display Screen (Remote Control)

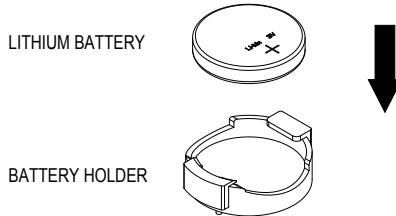


Note: The SuperDoctor III program and User's Manual can be downloaded from the Supermicro web site at <http://www.supermicro.com/products/accessories/software/SuperDoctorIII.cfm>. For Linux, we recommend that you use the SuperDoctor II application instead.

5-15 Serverboard Battery

Caution: There is a danger of explosion if the onboard battery is installed upside down, which will reverse its polarities (see Figure 5-12). This battery must be replaced only with the same or an equivalent type recommended by the manufacturer (CR2032). Dispose of used batteries according to the manufacturer's instructions.

Figure 5-12. Installing the Onboard Battery



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

Chapter 6

Advanced Chassis Setup

This chapter covers the steps required to install components and perform maintenance on the SC828TQ+-R1400LPB chassis. For component installation, follow the steps in the order given to eliminate the most common problems encountered. If some steps are unnecessary, skip ahead to the step that follows.

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

6-1 Static-Sensitive Devices

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

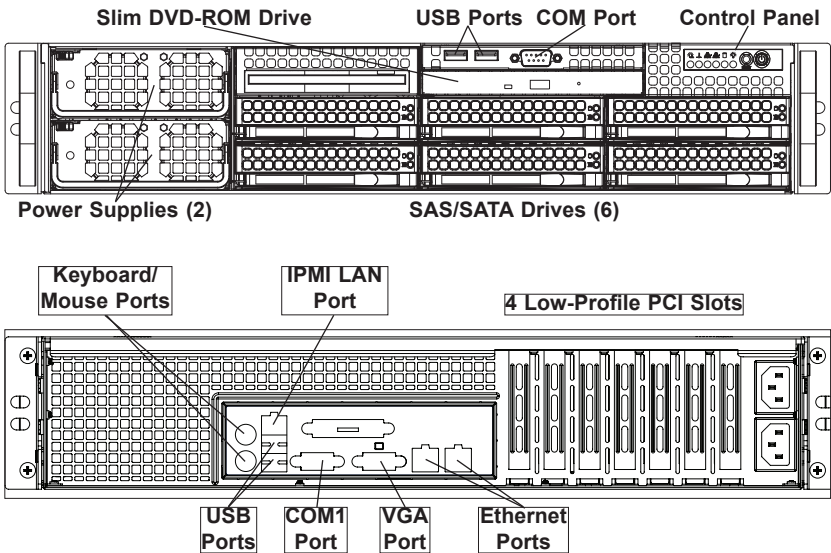
Precautions

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

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.

Figure 6-1. Front and Rear Chassis Views

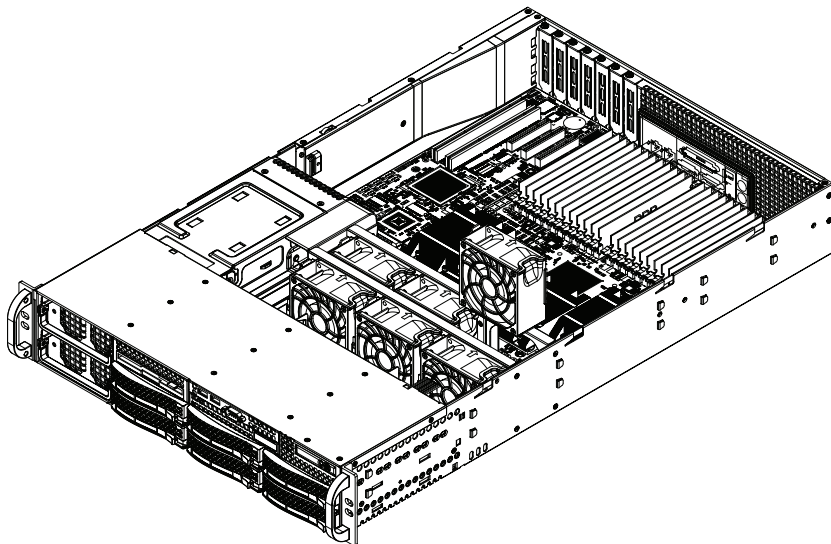


6-2 Control Panel

The control panel (located on the front of the chassis) must be connected to the JF1 connector on the serverboard to provide you with system status indications. A ribbon cable has bundled these wires together to simplify the connection. Connect the cable from JF1 on the serverboard to JP4 on the Control Panel PCB (printed circuit board). Make sure the red wire plugs into pin 1 on both JF1 and JP4. Pull all excess cabling out of the airflow path. The LEDs inform you of system status. See Chapter 3 for details on the LEDs and the control panel buttons. Details on JF1 can be found in Chapter 5.

6-3 System Fans

Six 8-cm heavy-duty hot-swap fans provide the cooling for the server. The fans are configured as a set of three with two fans placed back to back to maximize airflow. It is very important that the chassis top cover is properly installed in order for the cooling air to circulate properly through the chassis and cool the components. See Figure 6-2 for details.

Figure 6-2. Removing System Cooling Fans

System Fan Failure

Fan speed is controlled by system temperature via a BIOS setting. If a fan fails, the remaining fans will ramp up to full speed and the overheat/fan fail LED on the control panel will turn on. Replace any failed fan at your earliest convenience with the same type and model (the system can continue to run with a failed fan). Remove the top chassis cover while the system is still running to determine which of the fans has failed.

Replacing System Fans

Removing a fan

1. Remove the chassis cover (see page 6-7 for procedure).
2. Press the tabs on the sides of the fan to unlock and remove the fan and its housing.
3. The fan's power connections will automatically detach. System power does not need to be shut down since the fans are hot-pluggable.

Installing a new fan

1. Replace the failed fan with an identical 8-cm, 12 volt fan (available from Supermicro, p/n FAN-0099L4).
2. Position the new fan into the space vacated by the failed fan previously removed. A "click" can be heard when the fan is fully installed in place and the power connections are made.
3. If the system power is on, the hot-plug feature will cause the fan to start immediately upon being connected to its header on the serverboard.
4. Replace the chassis cover.

6-4 Drive Bay Installation/Removal

Accessing the Drive Bays

SAS/SATA Drives: You do not need to access the inside of the chassis or remove power to replace or swap SAS/SATA drives. Proceed to the next step for instructions.

Note: You must use standard 1" high, SAS/SATA drives.

DVD-ROM: For installing/removing the DVD-ROM drive, you will need to gain access to the inside of the server by removing the top cover of the chassis. Proceed to the "DVD-ROM Installation" section later in this chapter for instructions.

SAS/SATA Drive Installation

The SAS/SATA drives are mounted in drive carriers to simplify their installation and removal from the chassis. These carriers also help promote proper airflow for the drives. For this reason, even empty carriers without SAS/SATA drives installed must remain in the chassis.

Mounting a SAS/SATA drive in a drive carrier

1. Install a drive into the carrier with the printed circuit board side facing down so that the mounting holes align with those in the carrier.
2. Secure the drive to the carrier with six screws, as shown in Figure 6-3.

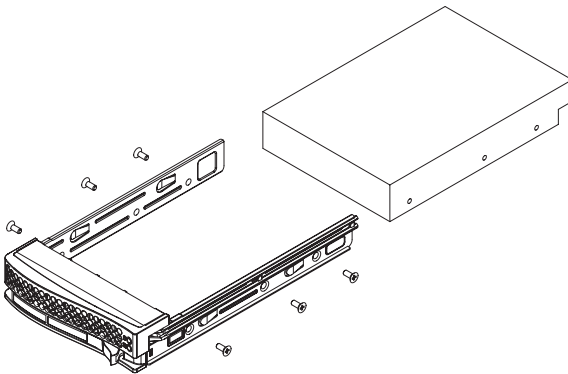
The SAS/SATA drive carriers are located in the front of the chassis, making them easily accessible for installation and removal. These drives are hot-swappable, meaning that they can be installed and removed while the system is running.

Installing/removing SAS/SATA drives

1. To remove a SAS/SATA drive, first push the release button located beside the drive's LEDs
2. Swing the handle fully out and use it to pull the SAS/SATA drive carrier straight out (see Figure 6-4).

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

Figure 6-3. Mounting a SAS/SATA Drive in a Carrier

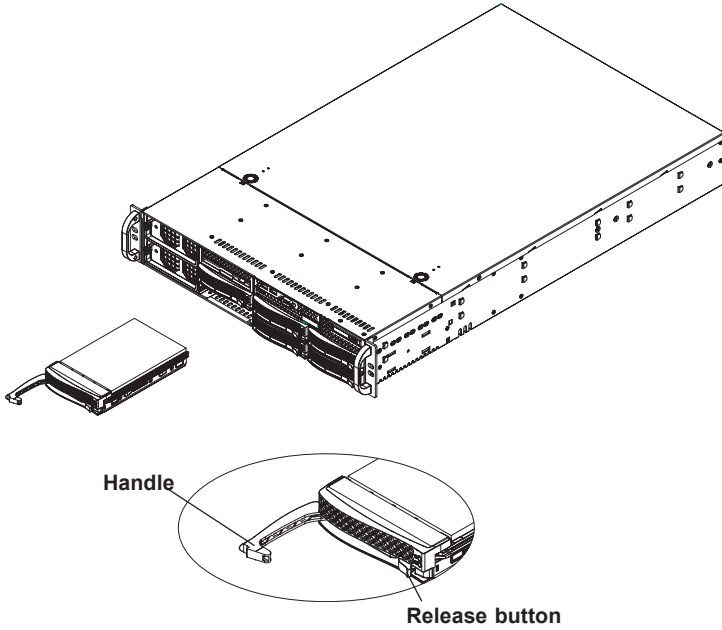


Use caution when working around the SAS/SATA backplane. Do not touch the backplane with any metal objects and make sure no ribbon cables touch the backplane or obstruct the holes, which aid in proper airflow.

Important: Regardless of how many SAS/SATA hard drives are installed, all drive carriers must remain in the drive bays to maintain proper airflow.

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

Figure 6-4. Removing a SAS/SATA Drive Carrier

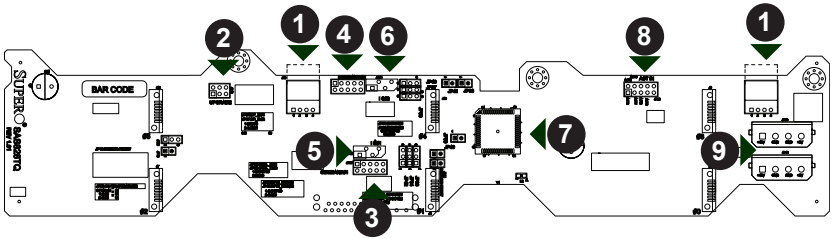


Important: All of the SAS/SATA drive carriers must remain in the drive bays to maintain proper cooling airflow.

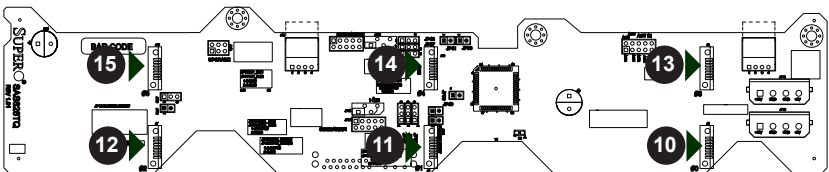
SAS/SATA Drive Backplane

The SAS/SATA drives plug into a backplane that provides power, drive ID and bus termination. A RAID controller can be used with the backplane to provide data security. The operating system you use must have RAID support to enable the hot-swap capability of the SAS/SATA drives. The backplane is already preconfigured, so there are no jumpers or switches present on it.

Figure 6-5. Backplane Connections



SAS/SATA Backplane Connections	
1. CD-ROM/Floppy Drive Power	9. 4-pin Power Connectors
2. Upgrade Connector	10. SAS/SATA Port #0
3. Sideband Connector #1	11. SAS/SATA Port #1
4. Sideband Connector #2	12. SAS/SATA Port #2
5. I2C Connector #1	13. SAS/SATA Port #3
6. I2C Connector #2	14. SAS/SATA Port #4
7. MG9072 Chip	15. SAS/SATA Port #5
8. ACT_IN	



DVD-ROM Drive Installation

The top cover of the chassis must be opened to gain full access to the DVD-ROM drive bay. The 2042G-TRF/6RF accommodates only slim type DVD-ROM drives. Side mounting brackets are typically needed to mount a slim DVD-ROM drive in the server. You must power down the system before installing or removing IDE components.

6-5 Power Supply

The chassis has a 1400 watt redundant 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.

Power Supply Failure

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 PWR Fail LED will illuminate and remain on until the failed unit has been replaced. Replacement units can be ordered directly from Supermicro (see contact information in the Preface). The power supply units have a hot-swap capability, meaning you can replace the failed unit without powering down the system.

Removing/Replacing the Power Supply

You do not need to shut down the system to replace a power supply unit. The backup power supply module will keep the system up and running while you replace the failed hot-swap unit. Replace with the same model (see part number in Appendix D), which can be ordered directly from Supermicro.

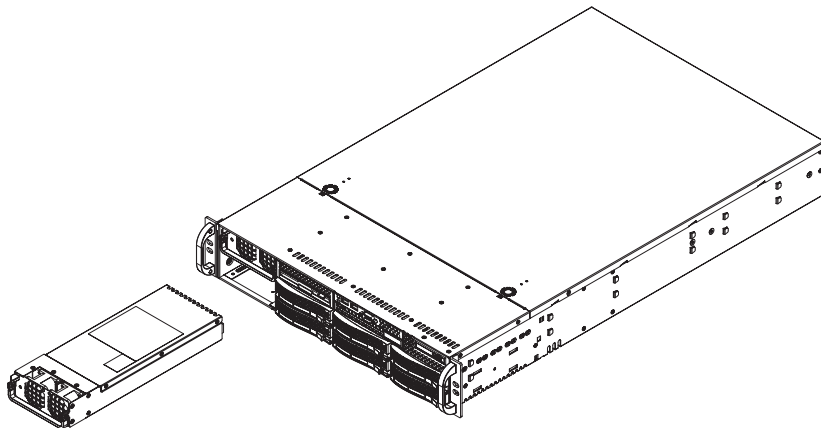
Removing the power supply

1. First unplug the power cord from the failed power supply module. The top/bottom power socket corresponds to the top/bottom power module.
2. Depress the locking tab on the power supply module.
3. Use the handle to pull the module straight out.

Installing a new power supply

1. Replace the failed hot-swap unit with another identical power supply unit.
2. Push the new power supply unit into the power bay until you hear a click.
3. Finish by plugging the AC power cord back into the socket.

Figure 6-6. Removing a Power Supply Module



Notes

Chapter 7

BIOS

7-1 Introduction

This chapter describes the AMIBIOS™ Setup utility for the H8QG6/i-F serverboard. The AMI BIOS is stored in a flash chip and can be easily upgraded using a floppy disk-based program.

Note: Due to periodic changes to the BIOS, some settings may have been added or deleted and might not yet be recorded in this manual. Please refer to the Manual Download area of our web site for any changes to BIOS that may not be reflected in this manual.

Starting the Setup Utility

To enter the BIOS Setup Utility, hit the <Delete> key while the system is booting-up. (In most cases, the <Delete> key is used to invoke the BIOS setup screen. There are a few cases when other keys are used, such as <F1>, <F2>, etc.) Each main BIOS menu option is described in this manual.

The Main BIOS screen has two main frames. The left frame displays all the options that can be configured. "Grayed-out" options cannot be configured. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it. (Note that BIOS has default text messages built in. We retain the option to include, omit, or change any of these text messages.) Settings printed in **Bold** are the default values.

A " ►" indicates a submenu. Highlighting such an item and pressing the <Enter> key will open the list of settings within that submenu.

The BIOS setup utility uses a key-based navigation system called hot keys. Most of these hot keys (<F1>, <F10>, <Enter>, <ESC>, <Arrow> keys, etc.) can be used at any time during the setup navigation process.

7-2 Main Menu

When you first enter AMI BIOS Setup Utility, you will see the Main Menu screen. You can always return to the Main Menu by selecting the **Main** tab on the top of the screen with the arrow keys.

The Main Menu screen provides you with a system overview, which includes the version, built date and ID of the AMIBIOS, the type, speed and number of the processors in the system and the amount of memory installed in the system.

System Time/System Date

You can edit this field to change the system time and date. Highlight *System Time* or *System Date* using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in DAY/MM/DD/YYYY format. The time is entered in HH:MM:SS format. Please note that time is in a 24-hour format. For example, 5:30 A.M. appears as 05:30:00 and 5:30 P.M. as 17:30:00.

7-3 Advanced Settings Menu

► Boot Features

Quick Boot

If Enabled, this option will skip certain tests during POST to reduce the time needed for the system to boot up. The options are **Enabled** and Disabled.

Quiet Boot

If Disabled, normal POST messages will be displayed on boot-up. If **Enabled**, this display the OEM logo instead of POST messages.

Add On ROM Display Mode

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

Bootup Num Lock

This option selects the power-on state for the NUM lock to either **On** or Off.

Wait for F1 if Error

This setting controls the system response when an error is detected during the boot sequence. When enabled, BIOS will stop the boot sequence when an error is detected, at which point you will need to press the F1 button to re-enter the BIOS setup menu. The options are **Enabled** and Disabled.

Hit 'DEL' Message Display

Use this option to **Enable** or Disable the "Press DEL to run setup" message in POST.

Interrupt 19 Capture

Select Enabled to allow ROMs to trap Interrupt 19. The options are **Enabled** and Disabled.

Restore on AC Power Loss

This sets the action that occurs when an AC power loss occurs. Options include Power Off, Power On and **Last State**.

Watch Dog Timer

This sets the Watch Dog Timer. Options include Enabled or **Disabled**.

► Processor & Clock Options**CPU Configuration**

This displays static information on the Module Version, AGESA Version, Physical Count and Logical Count for the system's processor(s) and clock.

CPU Information

This setting is used to select which physical CPU's information to display. Options include **Processor 0** or Processor 1. The information for the selected processor includes Processor number, Revision, Cache L1/L2/L3, Speed, NB CLK, Able to Change Frequency and uCode Patch Level.

Note: Zero is always the "Boot Strap Processor" or main CPU with all others being "Application Processors".

GART Error Reporting

This option should remain disabled for normal operation. The driver developer may enable this option for testing purposes. Options are Enabled or **Disabled**.

Microcode Update

This setting **Enables** or Disables microcode updating.

Power Now

This setting is used to **Enable** or Disable the AMD Power Now feature.

ACPI SRAT Table

This option **Enables** or Disables the building of the ACPI SRAT Table.

CPU DownCore Mode

This option sets the CPU DownCore Mode for your system. If you change this option then a cold reset is required. Options include **Auto Mode**, Maximum Core Level, No Leveling, 2 Cores, 4 Cores, 6 Cores, 8 Cores, 10 Cores and 12 Cores.

C1E Support

This option enables or **disables** C1E Support for your system.

▶ Advanced Chipset Control

Chipset Information

Chipset Information is displayed at the top of this menu on the chipset CIMx version used.

▶ NorthBridge Chipset Configuration

▶ Memory Configuration

Bank Interleaving

This option allows you to enable Bank Interleaving in the system. Options include **Auto** and Disabled.

Node Interleaving

This option allows you to enable Node Interleaving in the system. Options include Auto and **Disabled**.

Channel Interleaving

This option allows you to enable Channel Interleaving in the system. The options are **Auto** and Disabled.

CS Sparing Enable

This option will reserve a spare memory rank in each node when enabled. Options are Enable and **Disable**.

Bank Swizzle Mode

This sets the Bank Swizzle Mode to either **Enabled** or Disabled.

► ECC Configuration

ECC Mode

This submenu sets the level of ECC protection. Options include Disabled, **Basic**, Good, Super, Max and User. Selecting User activates the other option for user setting.

Note: The "Super" ECC mode dynamically sets the DRAM scrub rate so all of memory is scrubbed in 8-hours.

DRAM ECC Enable

This setting allows hardware to report and correct memory errors automatically, maintaining system integrity. Options are **Enabled** or Disabled.

► DRAM Timing Configuration

DRAM Timing Config

This setting specifies the DRAM timing configuration. Options are **Auto** and Manual.

Memory Timing Parameters

This selects the which node's timing parameters to display. The only selection for this option is **CPU Node 0**.

Clock Speed Information

Clock speed information for memory is also displayed under this Northbridge Chipset Configuration page.

IOMMU

This setting is used to disable or set the GART size in systems without AGP. Options include Enabled and **Disabled**.

OHCI/EHCI HC Device Functions

These settings allow you to either **Enable** or Disable functions for OHCI or EHCI bus devices.

USB 2.0 Controller Mode

Use this setting to configure the USB 2.0 Controller in either **Hi-Speed** (480 Mps) or Full Speed (12 Mps) mode.

Legacy USB Support

Select "Enabled" to enable the support for USB Legacy. Disable Legacy support if there are no USB devices installed in the system. "Auto" disabled Legacy support if no USB devices are connected. The options are Disabled, **Enabled** and Auto.

► IDE/SATA Configuration

OnChip SATA Channel

This setting allows you to **Enable** or Disable the OnChip SATA channel.

OnChip SATA Type

Use this setting to set the OnChip SATA type. Options include **Native IDE**, RAID, AHCI and Legacy IDE.

RAID Codebase

This submenu appears when you choose "RAID" from the "OnChip SATA Type" setting above. This setting allows you to select the codebase for your RAID setup. Options are either Adaptec or **DotHill**.

SATA IDE Combined Mode

This setting allows you to **Enable** or Disable the SATA IDE combined mode.

PATA Channel Configuration

This allows you to set PATA channel configuration. Options include **SATA as Primary** or SATA as secondary.

► Primary/Secondary/Third IDE Master/Slave

LBA/Large Mode

LBA (Logical Block Addressing) is a method of addressing data on a disk drive. The options are Disabled and **Auto**.

Block (Multi-Sector Transfer)

Block mode boosts IDE drive performance by increasing the amount of data transferred. Only 512 bytes of data can be transferred per interrupt if block mode is not used. Block mode allows transfers of up to 64 KB per interrupt. Select "Disabled" to allow the data to be transferred from and to the device one sector at a time. Select "Auto" to allows the data transfer from and to the device occur multiple sectors at a time if the device supports it. The options are **Auto** and Disabled.

PIO Mode

PIO (Programmable I/O) mode programs timing cycles between the IDE drive and the programmable IDE controller. As the PIO mode increases, the cycle time decreases. The options are **Auto**, 0, 1, 2, 3, and 4. Select Auto to allow BIOS to auto detect the PIO mode.

Use this value if the IDE disk drive support cannot be determined. Select 0 to allow BIOS to use PIO mode 0, which has a data transfer rate of 3.3 MBs. Select 1 to allow BIOS to use PIO mode 1, which has a data transfer rate of 5.2 MBs. Select 2 to allow BIOS to use PIO mode 2, which has a data transfer rate of 8.3 MBs. Select 3 to allow BIOS to use PIO mode 3, which has a data transfer rate of 11.1 MBs. Select 4 to allow BIOS to use PIO mode 4, which has a data transfer rate of 16.6 MBs. This setting generally works with all hard disk drives manufactured after 1999. For other disk drives, such as IDE CD-ROM drives, check the specifications of the drive.

DMA Mode

Selects the DMA Mode. Options are **Auto**, SWDMA0, SWDMA1, SWDMA2, MWDMA0, MDWDMA1, MWDMA2, UDMA0, UDMA1, UDMA2, UDMA3, UDMA4 and UDMA5. (SWDMA=Single Word DMA, MWDMA=Multi Word DMA, UDMA=UltraDMA.)

S.M.A.R.T.

Self-Monitoring Analysis and Reporting Technology (SMART) can help predict impending drive failures. Select "Auto" to allow BIOS to auto detect hard disk drive support. Select "Disabled" to prevent AMI BIOS from using the S.M.A.R.T. Select "Enabled" to allow AMI BIOS to use the S.M.A.R.T. to support hard drive disk. The options are Disabled, Enabled, and **Auto**.

32-Bit Data Transfer

Select "Enabled" to activate the function of 32-Bit data transfer. Select "Disabled" to deactivate the function. The options are **Enabled** and Disabled.

Hard Disk Write Protect

Use this setting to Enable or **Disable** hard disk write protection for your system. This is effective only if the device is accessed through the BIOS.

IDE Detect Timeout (Sec)

Use the +/- keys to adjust and select the time out for detecting ATA/ATAPI devices. The default value is **35**.

► PCI/PNP Configuration

Clear NVRAM

Select Yes to clear NVRAM during boot-up. The options are Yes and **No**.

Plug & Play O/S

Select Yes to allow the OS to configure Plug & Play devices. (This is not required for system boot if your system has an OS that supports Plug & Play.) Select **No** to allow AMIBIOS to configure all devices in the system.

PCI Latency Timer

This option sets the latency of all PCI devices on the PCI bus. Select a value to set the PCI latency in PCI clock cycles. Options are 32, **64**, 96, 128, 160, 192, 224 and 248.

PCI IDE Busmaster

Use this setting to **Enable** or Disable BIOS enabled uses of PCI Busmastering for reading or writing to IDE drives.

Slot 1 ~ Slot 4 PCI-E OPROM

These four settings (Slot 1 through Slot 4) allow you to **enable** or disable the numbered slot's Op ROM, except for the VGA card.

UIO PCI-E OPROM

This setting allows you to **enable** or diable the UIO slot Op ROM, except for the VGA card.

Onboard NIC Option ROM Select

This setting allows you to disable or select the onboard NIC option ROM. Options include **Disabled**, PXE and iSCSI.

► SuperI/O Configuration

Serial 1 Address

This option specifies the base I/O port address and Interrupt Request address of serial port 1. Select "Disabled" to prevent the serial port from accessing any system resources. When this option is set to *Disabled*, the serial port physically becomes unavailable. Select "3F8/IRQ4" to allow the serial port to use 3F8 as its I/O port address and IRQ 4 for the interrupt address. Options include Disabled, **3F8/IRQ4**, 3E8/IRQ4 and 2E8/IRQ3

Serial 2 Address

This option specifies the base I/O port address and Interrupt Request address of serial port 2. Select "Disabled" to prevent the serial port from accessing any system resources. When this option is set to "Disabled", the serial port physically becomes unavailable. Select "2F8/IRQ3" to allow the serial port to use 2F8 as its I/O port address and IRQ 3 for the interrupt address. Options include Disabled, **2F8/IRQ3**, 3E8/IRQ4 and 2F8/IRQ3.

► Remote Access Configuration

Remote Access

Use this option to **Enable** or Disable Remote Access in your system. If enabled, the settings below will appear.

Serial Port Number

Use this setting to select the serial port for console redirection. Options include COM1, COM2 or **COM3**. The displayed base address and IRQ for the serial port changes to reflect the selection you make.

Note: Make sure the selected port is enabled.

Serial Port Mode

Selects the serial port settings to use. Options are (**115200 8, n, 1**), (57600 8, n, 1), (38400 8, n, 1), (19200 8, n, 1) and (09600 8, n, 1).

Flow Control

Selects the flow control to be used for console redirection. Options are **None**, Hardware and Software.

Redirection After BIOS POST

Options are Disable (no redirection after BIOS POST), Boot Loader (redirection during POST and during boot loader) and **Always** (redirection always active). Note that some OS's may not work with this set to Always.

Terminal Type

Selects the type of the target terminal. Options are **ANSI**, VT100 and VT-UTF8.

VT-UTF8 Combo Key Support

Allows you to **Enable** or Disable VT-UTF8 combination key support for ANSI/VT100 terminals.

Sredir Memory Display Delay

Use this setting to set the delay in seconds to display memory information. Options are **No Delay**, 1 sec, 2 secs and 4 secs.

► Hardware Health Configuration

CPU Overheat Temperature

This setting allows you to specify the type of alarm for CPU overheating. Options include The Early Alarm and **The Default Alarm**.

Other items in the submenu are systems monitor displays for the following information:

CPU1 Temperature, CPU2 Temperature, CPU3 Temperature, CPU4 Temperature, System Temperature, Fan 1-9 Reading, Chipset FAN1-2, CPU1 VCore, CPU2 VCore, CPU3 VCore, CPU4 VCore, 3.3V Vcc (V), + 5Vin, +12V Vcc (V), CPU1~4 DIMM Voltage, Chipset SR56x0 Voltage, 3.3V standby, Battery Voltage

CPU Temperature Display (CTD)

CPU Temperature descriptions are defined as:

Low → [Tctl Value = Lowest Value, Tctl Value = -45]

Medium → [Tctl Value = -46, Tctl Value = 60]

High → [Tctl Value = -61 and Above]

Note: Only CPU temperature (Low, Medium, High) and system temperature (RT1) are required to be displayed in BIOS and in-system monitoring software. Other Motherboard components such as memory, chipset, SAS and 10Gb controllers, and others are not required to display temperatures. For debugging and testing purposes, BIOS and system monitoring software can show motherboard components' temperatures (such as memory, chipset, SAS and 10Gb controllers). However for SMCi standard release version BIOS and system monitoring software, motherboard components' temperatures are NOT required to be displayed.

CPU Overheating Alarm (COA)

CPU Overheating Alarm (COA) has “**Early Alarm**” and “**Default Alarm**” (default) options in the BIOS, and is required to be implemented in all fan speed control modes.

The **Early Alarm** is enabled when the Tctl value = 65, and is disabled when the Tctl value drops from 65 to 62.

The **Default Alarm** (default setting) is enabled when the Tctl value = 70, and is disabled when the Tctl value drops from 70 to 67.

When COA (either Early or Default Alarm) is *enabled*, the following actions are required to be executed:

- System overheating LED is required to be ON and to solid red.
- Onboard buzzer or speaker is required to be ON and to be a continuous sound.
- All system fans are required to be operated at full speed.
- System monitoring software (such as Super Doctor and IPMI if available) is required to report and record CPU overheating events in the event logs.

When COA (either Early or Default Alarm) is *disabled*, the following actions are required to be executed:

- System overheating LED is required to be OFF.
- Onboard buzzer or speaker is required to be OFF.
- All system fans are required to be returned to a normal, non-CPU-overheating LFSC condition.

Condition	When a CPU is overheating
Front Panel Overheating LED	On and Solid Red
Onboard Buzzer or Speaker	On and Continuous Sound
System Fan Speed Controls	Full Speed
BMC	Report PROCHOT
BMC Event Log	Record PROCHOT
Super Doctor	Report PROCHOT
Super Doctor Event Log	Record PROCHOT

► System Fan Monitor

This submenu contains lists the system fans and contains RPM information for them.

Fan Speed Control Modes

This submenu allows you to determine how the system will control the speed of the onboard fans. The options are Full Speed/FS (Max Cooling), Performance/PF (Better Cooling), **Balanced/BL** (Balance between performance and energy saving), Energy Saving/ES (Lower Power and Noise).

A display also showing the speeds of FAN1 Speed ~ FAN11 Speed is shown on this page.

▶ ACPI Configuration

ACPI Aware O/S

Use this setting to enable or disable ACPI support for the operating system if it supports ACPI. Options include **Yes** (enable ACPI support) or **No** (disable ACPI support).

ACPI Version Features

Use this setting to determine which ACPI version to use. Options are ACPI v1.0, **ACPI v2.0** and ACPI v3.0.

ACPI APIC Support

Determines whether to include the ACPI APIC table pointer in the RSDT pointer list. The available options are **Enabled** and **Disabled**.

Headless Mode

Use this setting to enable or **disable** headless operation mode through ACPI.

WHEA Support

Use this setting to **enable** or disable Windows Hardware Error Architecture.

▶ IPMI Configuration

This menu shows static information about the IPMI firmware revision and status of the BMC, as well as options for IPMI configuration.

▶ View BMC System Event Log

Pressing the Enter key will open the following settings. Use the "+" and "-" keys to navigate through the system event log.

Clear BMC System Event Log

Selecting this and pressing the Enter key will clear the BMC system event log.

► Set LAN Configuration

Use the "+" and "-" keys to choose the desired channel number. This displays Channel Number and Channel Number Status information.

► IP Address

This submenu sets the IP address source as either Static or **DHCP**. Selecting Static allows you to manually set the IP Address, Subnet Mask and Gateway Address.

In the field provided here enter the IP address in the decimal form of xxx.xxx.xxx.xxx with xxx having a value of less than 256 and in decimal form only. The IP address and current IP address in the BMC are shown.

► MAC Address

In the field provided here enter the MAC address in the hex form of xx.xx.xx.xx.xx.xx with xx in hex form only. The current MAC address in the BMC is shown.

► Subnet Mask

In the field provided here enter the Subnet address in the decimal form of xxx.xxx.xxx.xxx with xxx having a value of less than 256 and in decimal form only. The current subnet address in the BMC is shown.

► Gateway Address

In the field provided here enter the Gateway address in the decimal form of xxx.xxx.xxx.xxx with xxx having a value of less than 256 and in decimal form only. The current Gateway address in the BMC is shown.

► Event Log Configuration

View Event Log

Pressing the Enter key will open the event log. Use the "↑" and "↓" keys to navigate through the system event log.

Mark All Events as Read

Selecting this and pressing the Enter key marks all events as read in the event log.

Clear Event Log

Selecting this and pressing the Enter key clears the system event log.

SR56x0 (RD890S) PCIE Error Log

This setting allows you set an error log ofr PCIE errors. Options include Yes or No.

7-4 Security Settings Menu

AMI BIOS provides a Supervisor and a User password. If you use both passwords, the Supervisor password must be set first.

Change Supervisor Password

Select this option and press <Enter> to access the sub menu, and then type in the password.

Change User Password

Select this option and press <Enter> to access the sub menu, and then type in the password.

Boot Sector Virus Protection

This option is near the bottom of the Security Setup screen. Select "Disabled" to deactivate the Boot Sector Virus Protection. Select "Enabled" to enable boot sector protection. When "Enabled", AMI BIOS displays a warning when any program (or virus) issues a Disk Format command or attempts to write to the boot sector of the hard disk drive. The options are Enabled and **Disabled**.

7-5 Boot Settings Menu

► Boot Device Priority

This feature allows you to prioritize the boot sequence from the list of available devices. A device that is in parenthesis has been disabled in the corresponding type menu.

► Removable Drives

This feature allows you to specify the boot sequence from the list of available removable drives. A device that is in parenthesis has been disabled in the corresponding type menu.

► **Hard Disk Drives**

This feature allows you to specify the boot sequence from the list of available hard disk drives. A device that is in parenthesis has been disabled in the corresponding type menu.

► **CD/DVD Drives**

This feature allows you to specify the boot sequence from the list of available CD/DVD drives. A device that is in parenthesis has been disabled in the corresponding type menu.

► **USB Drives**

This feature allows you to specify the boot sequence from the list of available USB drives. A device that is in parenthesis has been disabled in the corresponding type menu.

► **Network Drives**

This feature allows you to specify the boot sequence from the list of available network drives. A device that is in parenthesis has been disabled in the corresponding type menu.

Retry Boot Device

This setting allows you to enable or **disable** auto retry of all boot devices.

7-6 Exit Menu

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

Save Changes and Exit

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

Discard Changes and Exit

Select this option to quit 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>.

Discard Changes

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

Load Optimal Defaults

To set this feature, select Load Optimal Defaults from the Exit menu and press <Enter>. Then Select "OK" to allow BIOS to automatically load the Optimal Defaults as the BIOS Settings. The Optimal settings are designed for maximum system performance, but may not work best for all computer applications.

Load Fail-Safe Defaults

To set this feature, select Load Fail-Safe Defaults from the Exit menu and press <Enter>. The Fail-Safe settings are designed for maximum system stability, but not maximum performance.

Appendix A

BIOS Error Beep Codes

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

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

Fatal errors are those which will not allow the system to continue the boot-up 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 (on the following page) correspond to the number of beeps for the corresponding error. All errors listed, with the exception of Beep Code 8, are fatal errors.

A-1 AMIBIOS Error Beep Codes

Beep Code	Error Message	Description
1 beep	Refresh	Circuits have been reset (Ready to power up)
5 short, 1 long	Memory error	No memory detected in system
1 long, 8 short	Video error	Video adapter disabled or missing

Notes

Appendix B

System Specifications

Processors

Quad AMD Opteron 6000 series (AMD Socket G34 type) processors

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

Chipset

One AMD SR5690 chipset and one SP5100 Southbridge chipset

BIOS

16 Mb AMIBIOS SPI Flash ROM

Memory Capacity

Thirty-Two (32) single/dual/tri/quad channel DIMM slots supporting up to 1 TB of DDR3-1333/1066/800 registered ECC or 256 GB of DDR3 Unbuffered ECC/non-ECC SDRAM

Note: interleaved memory requires DIMMs to be installed in pairs - refer to Section 5-6 for details.

SATA Controller

AMD SR5690 on-chip controller to support six 3 Gb/s Serial ATA (RAID 0, 1, 10 supported)

SAS Controller

(2042G-6RF only) Onboard LSI-2008 SAS2 controller for eight SAS drives (RAID 0, 1 and 10 supported). RAID 5 is supported with the use of an optional RAIDKey for RAID 5 SAS support (only on H8QG6-F serverboard)

Drive Bays

Six (6) hot-swap drive bays to house six (6) standard SAS drives

Peripheral Drives/Bays

One (1) slim DVD-ROM drive

Expansion Slots

Supports the use of two PCI-E x16, one PCI-E x8 (in a x16 slot), one PCI-E x8 or one UIO slot.

Serverboard

H8QG6/i-F (proprietary ATX form factor)

Dimensions: 16.48" x 13" (418 x 330 mm)

Chassis

SC828TQ+-R1400LPB (2U rackmount)

Dimensions (both): (WxHxD) 17.2 x 3.5 x 27.75 in. (473 x 89 x 705 mm)

Weight

Gross (Bare Bone): 65.5 lbs. (29.8 kg.)

System Cooling

Six heavy-duty 8-cm cooling fans (fan speed controlled by BIOS setting)

System Input Requirements

AC Input Voltage: 180-240 VAC

Rated Input Current: 7.2A (180V) to 9.5 (240V)

Rated Input Frequency: 50-60 Hz

Efficiency: 80+ (Gold Level)

Power Supply

Rated Output Power: 1400W w/PMBus (Part# PWS-1K41F-1R)

Rated Output Voltages: +12V (116A), +5Vsb (6A)

Operating Environment

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

Non-Operating Temperature: -5° to 70° C (-40° to 158° F)

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

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

Regulatory Compliance

Electromagnetic Emissions:

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

Electromagnetic Immunity:

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

Safety:

EN 60950/IEC 60950-Compliant

UL Listed (USA)

CUL Listed (Canada)

TUV Certified (Germany)

CE Marking (Europe)

California Best Management Practices Regulations for Perchlorate Materials:

This Perchlorate warning applies only to products containing CR (Manganese Dioxide) Lithium coin cells. "Perchlorate Material-special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate"

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