SUPER®

X9SCE-F

USER'S MANUAL

Revision 1.0

Preface

About This Manual

This manual is written for system integrators, PC technicians and knowledgeable PC users. It provides information for the installation and use of the SUPER● X9SCE-F motherboard product series. This product is intended to be professionally installed and serviced by a technician.

About This Motherboard

The X9SCE-F motherboard is a proprietary form-factor, high-density motherboard designed for microcloud node applications.

The X9SCE-F supports an Intel® Xeon E3-1200 & E3-1200 v. 2 series and 3rd Gen. Core i3 CPU on an H2 socket (LGA 1155) and the Intel C204 PCH chipset. This motherboard also features support for up to 32 GB DDR3 ECC UDIMMM memory, two SATA 3.0 ports on the backplane (6 Gb/sec), one 10/100 IPMI LAN, and a KVM connector on the I/O panel. These features enable the X9SCE-F to deliver a cost-effective microcloud solution in a small form-factor package.

Manual Organization

Chapter 1 describes the features, specifications and performance of the motherboard and provides detailed information about the C204 chipset.

Chapter 2 provides hardware installation instructions. Read this chapter when installing the processor, memory modules and other hardware components into the system. If you encounter any problems, see **Chapter 3**, which describes troubleshooting procedures for video, memory and system setup stored in the CMOS. **Chapter 4** includes an introduction to the BIOS and provides detailed information on running the CMOS Setup utility.

Appendix A lists Driver Installation Instructions.

Appendix B provides the UEFI BIOS Recovery Instructions.

Conventions Used in the Manual:

Special attention should be given to the following symbols for proper installation and to prevent damage done to the components or injury to yourself:

Warning: Critical information to prevent damage to the components or injury to yourself.

Important: Important information given to ensure proper system installation or to relay safety precautions.

Note: Additional Information given to differentiate various models or provides information for correct system setup.

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Chapter 1

Introduction

1-1   Overview

Congratulations on purchasing your computer motherboard from an acknowledged leader in the industry. Supermicro boards are designed with the utmost attention to detail and to provide you with the highest standards in quality and performance.

This motherboard was intended to be used in an SMC system. It is not sold as a stand-alone product unit. The following items are included in the shipping package.

- One (1) Supermicro Motherboard

- One (1) Quick Reference Guide (QRG)

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 motherboard.

SMCI product manuals: http://www.supermicro.com/support/manuals/

Product Drivers and utilities: ftp://ftp.supermicro.com/

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

SUPER●° X9SCE-F Image
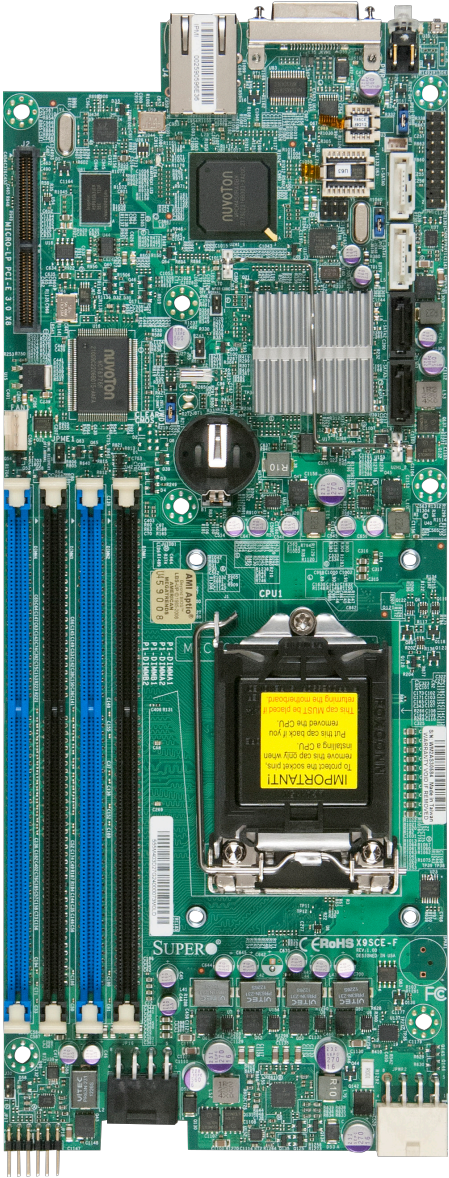
Note: All graphics and images shown in this manual were based upon the latest PCB Revision available at the time of publishing of the manual. The motherboard you've received may or may not look exactly the same as the image shown in this manual.

Motherboard Layout

JKVM1

UID SW
UID LED
PWR
SW
J4
BIOS
JPB
JSD1
LED4
HEARTBEAT LED
MICRO-LP PCI-E 3.0 X8
I-SATA0
JPG1
I-SATA1
JPME2
I-SATA2
JBT1
I-SATA3
JWD1
JPME1
SUPER● X9SCE-F
Rev. 1.0a
CPU1
P1-DIMMA1
P1-DIMMA2
P1-DIMMB1
P1-DIMMB2
FC
JPWR2
JP16
JP17 JP18
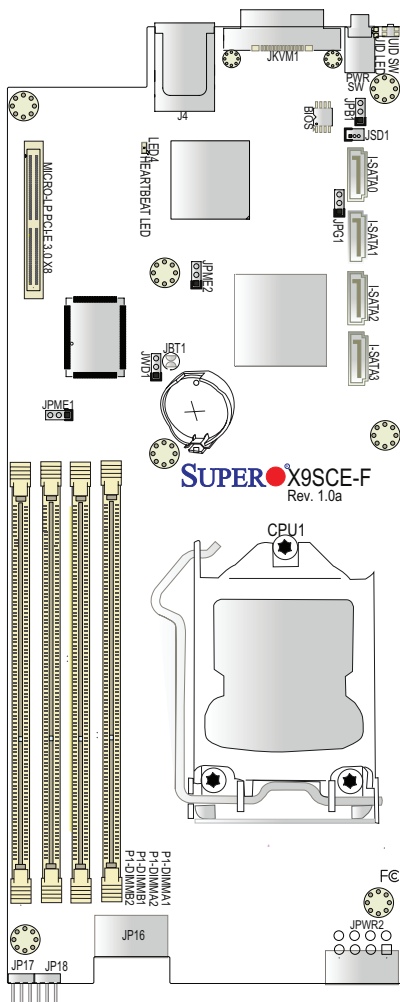
Important Notes to the User

- Jumpers/Components not indicated are for testing only. See Chapter 2 for detailed information on jumpers, I/O ports and JF1 front panel connections.

- "■" indicates the location of "Pin 1".

- This motherboard supports up to 12 nodes/trays; each node/tray supports four 2.5" or two 3.5" HDDs.
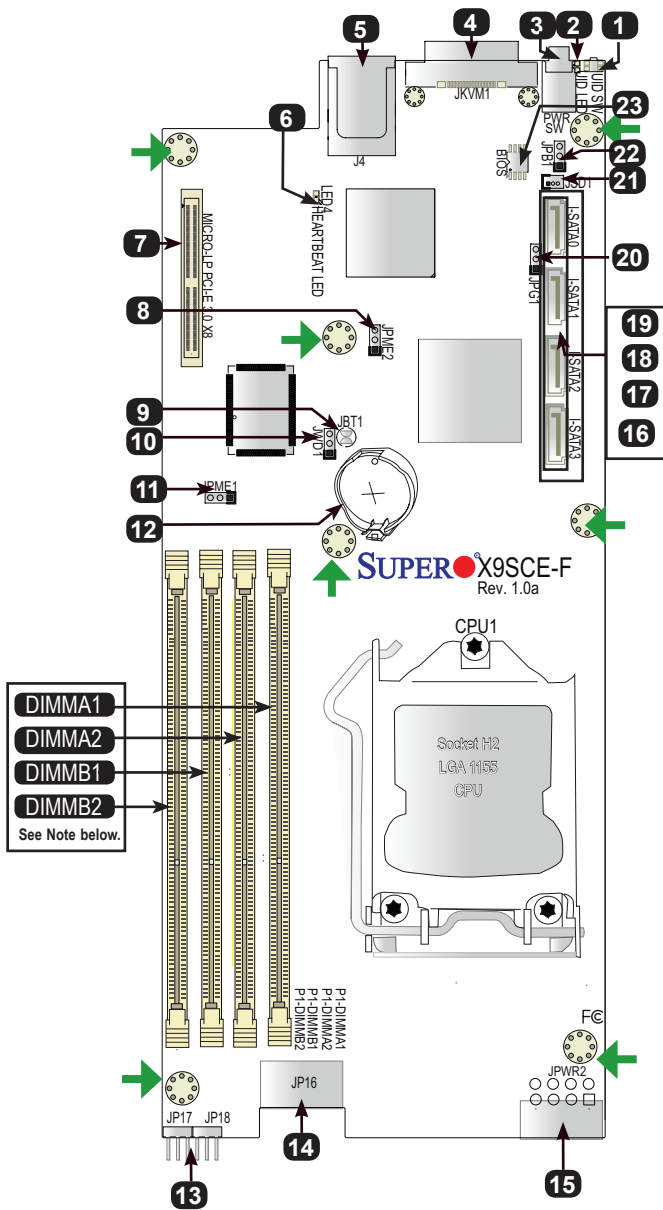
Note: DIMMA1-DIMMB2 memory slots only support very low profile unbuffered (VLP UDIMM) memory modules.

Jumpers/Ports/Connectors

Jumpers			
8	JPME2	ME Manufacturing Mode	Pins 1-2 (Normal)
9	JBT1	CMOS Reset	Short contact pads to reset CMOS
10	JWD1	Watch Dog Timer RST/NMI Selection	Pins 1-2 (Reset)
11	JPME1	ME Recovery Mode Select	Pins 1-2 (Normal)
20	JPG1	Onboard VGA Enable/Disable	Pins 1-2 (Enabled)
22	JPB1	BMC Enable/Disable	Pins 1-2 (Enabled)

Connectors & LED Indicators		
1/2	UID SW/LED	Unit Identifier Switch and LED Indicator
3	PWR SW/LED	Power Switch and PWR LED
4	JKVM1	Keyboard, Video, Mouse Backpanel Connector
5	IPMI_LAN	RJ45 IPMI Port
6	LED4	IPMI Status (Heartbeat)
7	MICRO-LP	PCI-E 3.0/2.0 x8 Micro LP (Low Profile) Slot
12	BT1	On-board Battery
13	JP17, JP18	Motherboard Interface to PDB
14	JP16	Power Output for Hard Disk Drive (12V and 5V)
15	JPWR2	Power Connector from PDB
16~19	I-SATA3,2,1,0	I-SATA Ports. I-SATA0/1 supports SATA 3.0 (6Gb/s)
21	JSD1	Disk-On-Module (DOM) Power Connector
23	BIOS	BIOS Chip

Note: This motherboard supports up to 12 nodes/trays; each node/tray supports four (4) 2.5" or two (2) 3.5" disk drives.

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Motherboard Features

CPU	Single Intel® Xeon E3-1200 & E3-1200 v. 2 series and 3rd Gen. Core i3 CPU on an H2 socket (LGA 1155)
Memory	Four (4) DIMM slots support up to 32 GB of Dual-Channel Unbuffered ECC *1600/1333/1066 MHz DDR3 very low profile (VLP) memory in 4 DIMM modules (*See the note on Expansion Slots.)
	DIMM sizes
	DIMM 1 GB, 2 GB, 4 GB and 8GB
Chipset	Intel® C204 PCH
Expansion Slots	One (1) PCI-E Micro-LP (Low Profile) x 8 Slot
	*BIOS Rev. 2.0 or above is required for support of new E3-1200 v. 2 processors, which support PCI-E 3.0 & DDR3 1600 MHz memory.
Graphics	One Video (KVM) Port supported by Matrix G200W
Network Connections	One (1) Dual Channel RJ-45 Gigabit LAN IPMI Dedicated LAN Port w/Activity LED
I/O Devices	**SATA/SAS Connections**
	SATA 2.0 Ports Two (2) SATA/SAS Ports from SCU
	SATA 3.0 Ports Two (2) (SATA 0/1) (on IF Backpanel)
	USB Devices
	one (1) Internal Type A USB connector.
	Serial Ports
	One (1) COM port on the KVM (Keyboard/Video/Mouse) connector
BIOS	8 MB SPI AMI BIOS® SM Flash BIOS
	Play and Plug, ACPI 1.0/2.0/3.0, USB Keyboard, RTC wakeup and SMBIOS 2.3 support
Power	ACPI/ACPM Power Management
	Main Switch Override Mechanism
	One (1) Disk-On-Module (DOM) Power Connector (SATA)
	Power-on mode for AC power recovery

PC Health Monitoring	CPU Monitoring
	Onboard voltage monitors for CPU core,+1.8V, +3.3V,+5V, +12V, +3.3V Stdby, +5V Stdby, VBAT, VCCP, Memory, Chipset
	Tachometer Monitoring
	CPU Thermal Trip support
	Thermal Monitor 2 (TM2) support
System Management	PECI (Platform Environment Configuration Interface) 2.0 support
	System resource alert via Supero Doctor III
	SuperoDoctor III, Watch Dog
	Unit ID LED, System/CPU overheat LED
CD Utilities	BIOS flash upgrade utility
	Drivers and software for Intel® C204 PCH chipset utilities
Other	ROHS 6/6 (Full Compliance, Lead Free)
	One (1) TPM Header
Dimensions	4.75" x 15.95"

BLOCK DIAGRAM RoHS 6/6
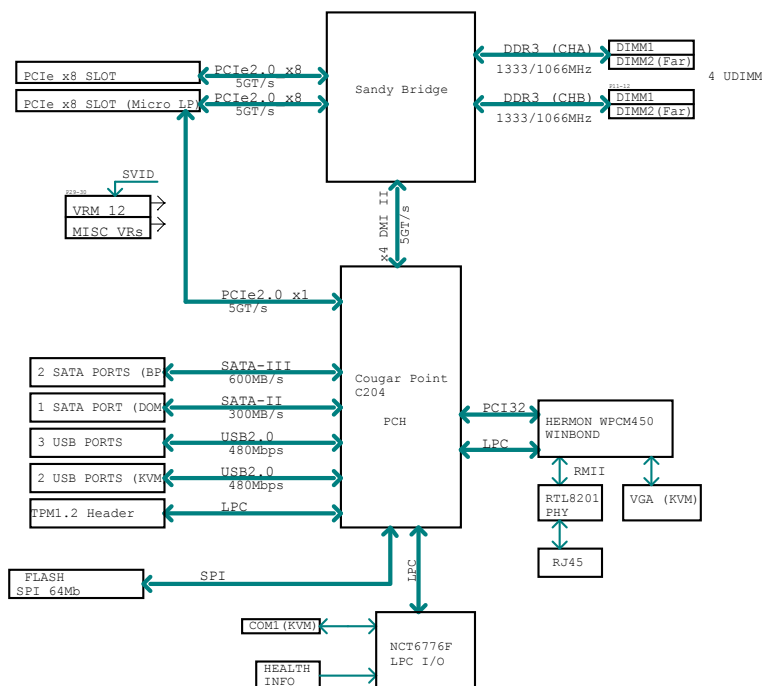
X9SCE-F Block Diagram

Note: This is a general block diagram. Please see the Motherboard Features pages for details on the details of motherboard features.

1-2   Chipset Overview

The X9SCE-F supports a single Intel® Xeon E3-1200 series processor in an H2 Socket (LGA 1155). Built around the Intel C204 chipset, this motherboard provides substantial enhancement to system performance and storage capability for entry-level to mid-range blade servers in a microcloud platform.

The high-speed Direct Media Interface (DMI) featured in the Intel C204 chipset supports high-speed Direct Media Interface (DMI) for chip-to-chip true isochronous communication, providing up to 2 Gb/s of software-transparent data transfer rate on each read/write direction. In addition, the X9SCE-F also features a TCO (Time Controlled Operations) timer which allows the system to recover from a software/hardware lock and perform tasks, including ECC Error Reporting, Function Disable and Intruder Detect.

Intel C204 Express Chipset Features

- Direct Media Interface (up 4 Gb/s transfer, Full Duplex)

- Intel® Intel Rapid Storage Technology

- Intel I/O Virtualization (VT-d) Support

- Intel Trusted Execution Technology Support

- PCI Express 2.0 Interface (up to 5.0 GT/s)

- SATA Controller

    - 6 Gb/s on up to two ports

    - 3 Gb/s on all ports

- Advanced Host Controller Interface (AHCI)

1-3   PC Health Monitoring

This section describes the PC health monitoring features of the X9SCE-F. The motherboard has an onboard System Hardware Monitor chip that supports PC health monitoring.

Recovery from AC Power Loss

BIOS provides a setting for you to determine how the system will respond when AC power is lost and then restored to the system. You can choose for the system to remain powered off (in which case you must hit the power switch to turn it back on) or for it to automatically return to a power on state. See the Power Lost Control setting in the BIOS chapter of this manual to change this setting. The default setting is **Last State**.

Onboard Voltage Monitoring

The onboard voltage monitor will scan the following voltages continuously: CPU core, +1.8V, +3.3V,+5V, +12V, +3.3V Stdby, +5V Stdby, VBAT, VCCP, Memory, Chipset. Once a voltage becomes unstable, it will give a warning or send an error message to the screen. The User can adjust the voltage thresholds to define the sensitivity of the voltage monitor by using SD III.

Fan Status Monitor with Software

The PC health monitor can check the RPM status of the cooling fans via Supero Doctor III.

BIOS Support for USB Keyboard

If the USB keyboard is the only keyboard in the system, it will function like a normal keyboard during system boot-up.

1-4   Power Supply

As with all computer products, a stable power source is necessary for proper and reliable operation. It is even more important for processors that have high CPU clock rates of 1 GHz and faster.

The **Super●˚** X9SCE-F accommodates the SMC 1620W power supply through the PDB and SATA back plane.

1-5   Super I/O

The Super I/O provides one high-speed, 16550 compatible serial communication ports (UARTs). This UART includes a 16-byte send/receive FIFO, a programmable baud rate generator, complete modem control capability and a processor interrupt system. It also provides legacy speed with baud rate of up to 115.2 Kbps as well as an advanced speed with baud rates of 250 K, 500 K, or 1 Mb/s, which support higher speed modems.

The Super I/O provides functions that comply with ACPI (Advanced Configuration and Power Interface), which includes support of legacy and ACPI power management through a SMI or SCI function pin. It also features auto power management to reduce power consumption.

Notes

Chapter 2

Installation

2-1 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 section in its entirety before installing or configuring components in the Supermicro chassis.

Battery Handling

Warning!

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

電池の取り扱い

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

警告

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

警告

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

Warnung

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

Attention

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

¡Advertencia!

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

אזהרה!

קיים 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 قم باستبدال البطارية

فقط بنفس النوع أو ما يعادلها كما أوصت به الشركة المصنعة

تخلص من البطاريات المستعملة وفقا لتعليمات الشركة المصنعة

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.

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.

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.

2-2   Static-Sensitive Devices

Electrostatic-Discharge (ESD) can damage electronic components. To prevent damage to your system board, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

Precautions

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

• Touch a grounded metal object before removing the board from the antistatic bag.

• Handle the 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 and peripherals back into their antistatic bags when not in use.

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

• Use only the correct type of onboard CMOS battery. Do not install the onboard upside down battery to avoid damaging the components.

Unpacking

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

2-3   Motherboard Installation

All motherboards have standard mounting holes to fit a blade-type chassis. Make sure that the locations of all the mounting holes for both motherboard and chassis match. Although a chassis may have both plastic and metal mounting fasteners, metal ones are highly recommended because they ground the motherboard to the chassis. Make sure that the metal standoffs click in or are screwed in tightly. Then use a screwdriver to secure the motherboard onto the motherboard tray.

Caution: Some components are very close to the mounting holes. Please take pre-cautionary measures to prevent damage to these components when installing the motherboard to the chassis.

Tools Needed

Philips Screwdriver

Pan head screws (7 pieces)

Standoffs (7 pieces)
(Only if needed)

Note: The above items are not provided with this motherboard.

Location of Mounting Holes

There are seven (7) mounting holes on the X9SCE-F motherboard. These holes correspond to screw holes in a matching motherboard tray that slides into a blade-type chassis. Please refer to the illustrations on the next page for a typical blade chassis installation.

Image rotated 90°
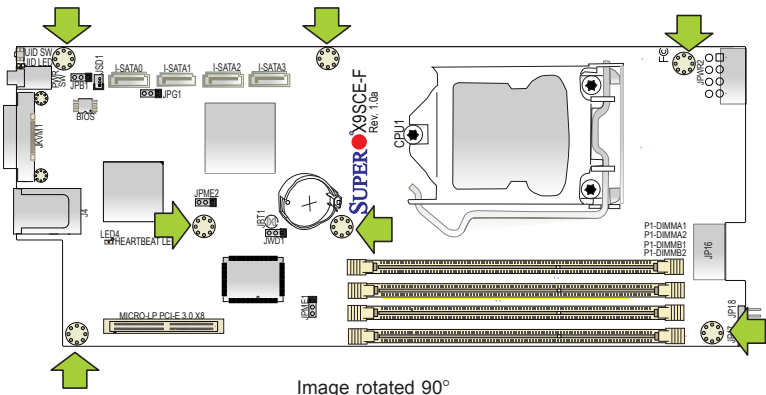
Caution: To avoid damaging the motherboard and its components, please do not use a force greater than 8 lb/inch on each mounting screw during motherboard installation.

Installation Instructions

1 Locate the mounting holes on the motherboard. Refer to the layout on the previous page for mounting hole locations.

2 Locate the matching mounting holes on the motherboard mounting tray. Install standoffs needed. Align the mounting holes on the motherboard against the mounting holes on the motherboard tray.

Stand Off
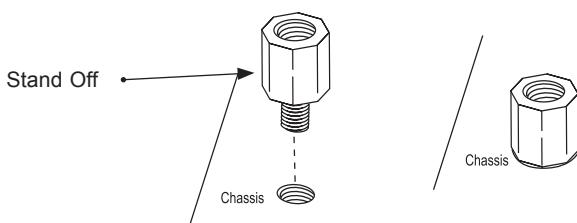
Chassis

Chassis

3 Install the motherboard carefully to avoid damaging motherboard components.

4 Insert a Pan head #6 screw into a mounting hole on the motherboard and its matching mounting hole on the chassis, using the Philips screwdriver.

Motherboard

Motherboard
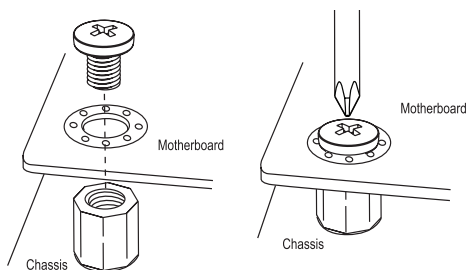
Chassis

Chassis

5 Repeat Step 4 to insert #6 screws to all mounting holes.
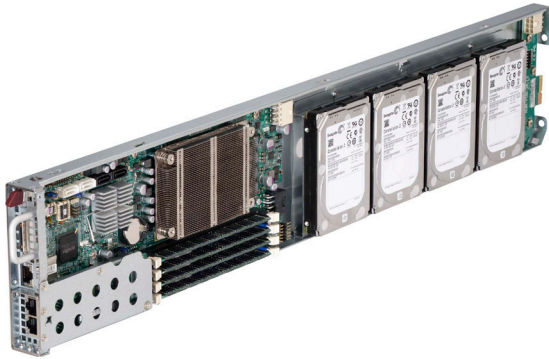
The image above shows the X9SCE-F motherboard mounted on a tray to be installed in the Supermicro CSE-939H-R1K63B 3U chassis.

The X9SCE-F board

The image above shows the the X9SCE-F motherboard mounted on a tray and the way it is installed as one of the nodes in a server chassis.

The image above shows the server chassis with 12 nodes.

2-4   System Memory

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

✎ **Note**: Check the Supermicro website for a list of memory modules that have been validated with the X9SCE-F motherboard.

How to Install DDR3 DIMMs

1. Insert the desired number of DIMMs into the memory slots, starting with DIMMA2, then DIMMB2, then DIMMA1, DIMMB1. Pay attention to the notch along the bottom of the module to prevent incorrect DIMM module installation.

2. Insert each DIMM module vertically and snap it into place. Repeat step 1 to install more memory, if needed. See instructions on the next page.

Memory Support

This motherboard supports up to 32GB of Unbuffered ECC DDR3 1066/1333/1600* MHz VLP (Very Low Profile) memory in 4 DIMM slots. (*BIOS rev. 2.0 is needed for support of new E3-1200 v2 CPUs, which support PCI-E 3.0 and DDR3 1600 MHz memory.)

Installing and Removing DIMMs
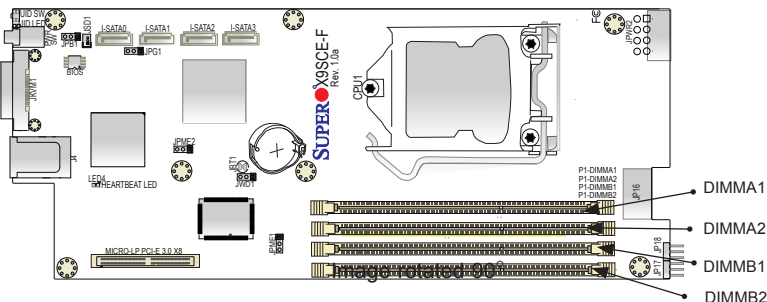
Installing and Removing DIMMs

1 Position the DIMM module's bottom key so that it aligns with the receptive point on the slot.
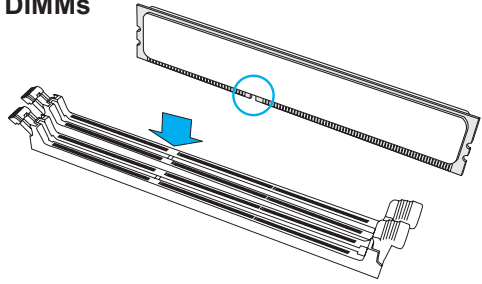
Notches

Release

2 Push a Lock/Release tab to the Release position. Make sure that the side notches of the DIMM module aligns with the Lock/ Release tab of the slot as it is pressed in.

Release
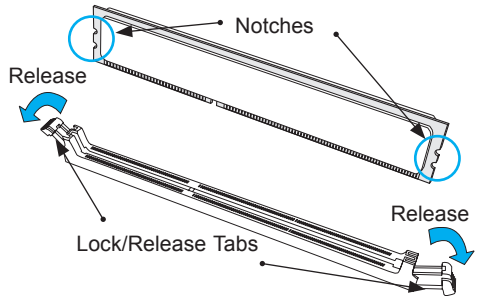
Lock/Release Tabs

3 Insert the DIMM module vertically and press down until the module snaps into place.

Press Down
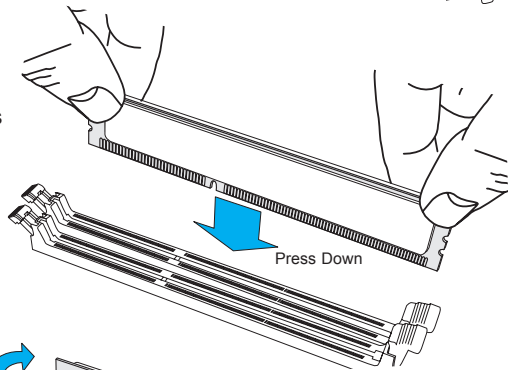
4 When the module is properlly inserted, the Lock/Release tabs will automatically secure the DIMM module, locking it into place.
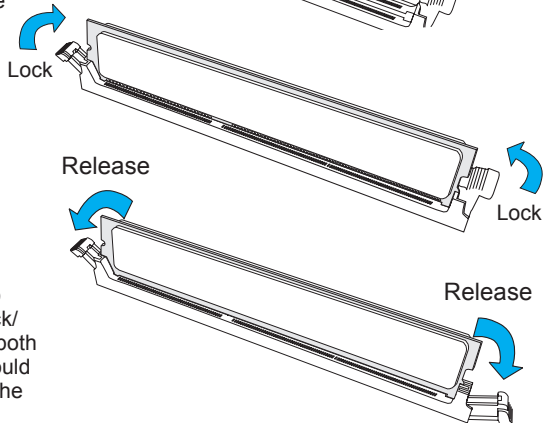
Lock

Release

Lock

5 **To Remove:**
Use your thumbs to gently push the Lock/ Release tabs near both ends of the module. This should release it from the slot. Pull the DIMM module upwards.

Release

Memory Population Guidelines

Notes:

1. When installing memory modules, the DIMM slots should be populated in the following order: DIMMA2, DIMMB2, DIMMA1 and DIMMB1.

2. Always use DDR3 DIMM modules of the same size, type and speed.

3. The motherboard will support one DIMM module or three DIMM modules installed. For best memory performance, install DIMM modules in pairs.

Recommended Population (Balanced)				
DIMMA2	**DIMMB2**	**DIMMA1**	**DIMMB1**	**Total System Memory**
2GB DIMM	2GB DIMM			4GB
2GB DIMM	2GB DIMM	2GB DIMM	2GB DIMM	8GB
4GB DIMM	4GB DIMM			8GB
4GB DIMM	4GB DIMM	4GB DIMM	4GB DIMM	16GB
8GB DIMM	8GB DIMM			16GB
8GB DIMM	8GB DIMM	8GB DIMM	8GB DIMM	32GB

2-5   Connectors/I/O Ports

The I/O ports are color coded in conformance with the PC 99 specification. See the figure below for the colors and locations of the various I/O ports.

Back Panel Connectors and I/O Ports

Image rotated 90°
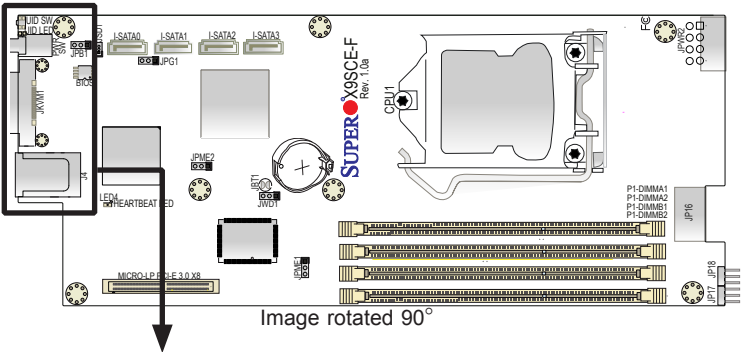
I/O Port Locations and Definitions

1. UID Button and LED
2. Power Button and LED
3. KVM (Keyboard/Video/Mouse) via Serial Port
4. IPMI_LAN Port
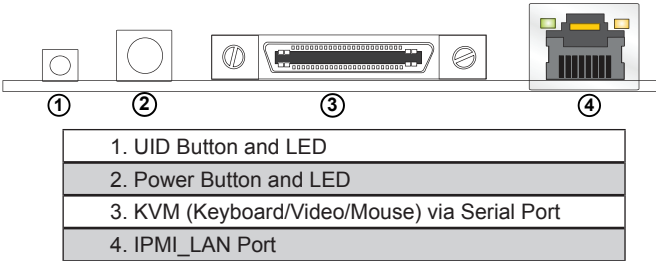
Back Panel Connectors

UID Button/LED Indicator

The Unit ID (UID) Button is used in con-junction with the UID switch in front of the chassis, and the UID LED located next to it. When the switch is turned on, the UID LED will turn on to indicate the unit that might be in need of service.
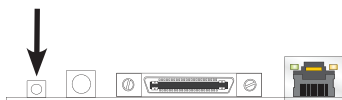
Power Button & LED

A Power Button and LED is located next to the IPMI_LAN port. Push this button to turn on the motherboard. When the LED is on, the power of this motherboard is turned on.
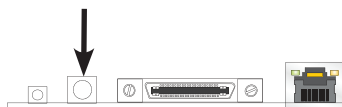
KVM Port

The KVM port (JKVM) supports key-board, VGA, mouse via UART interface. Please attach a compatible KVM connec-tor/switch to this port.
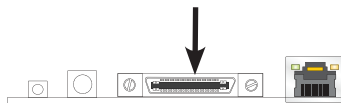
IPMI_LAN Port

A dedicated IPMI_LAN port is located next to the KVM port to provide dedi-cated network connection for IPMI 2.0. This port accepts RJ45 type cables.
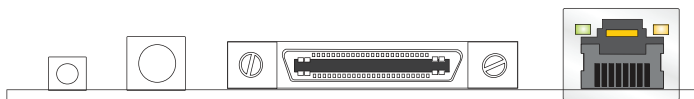
Back Panel Connectors

2-6   Connecting Cables

This section provides brief descriptions and pin-out definitions for onboard connectors or headers. Be sure to use the correct cable for each header or connector.

IF + POWER

This edge connector, located on the opposite end of the motherboard from the I/O back panel, is used to connect the motherboard to the back plane of the server chassis. Through this connector, the motherboard receives its power and communicates with other components installed in the system.

SATA DOM Power

The SATA DOM Power header on JSD1 is used to supply power to SATA Disk-on-Module (DOM) solid-state storage devices. See the table on the right for pin definitions.

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

Image rotated 90°

A IF + Power

B SATA DOM Power
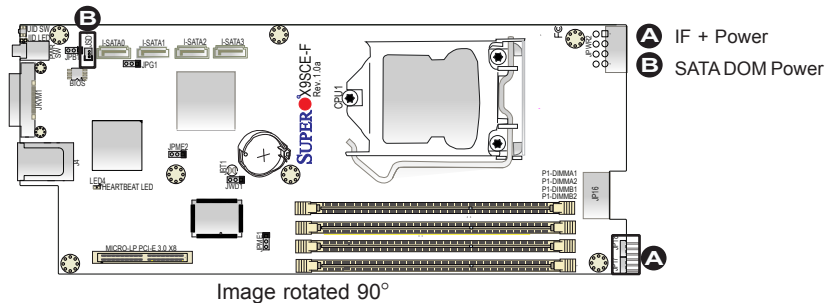
2-7   Jumper Settings

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.

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

Jumper

Connector Pins

3   2   1

Top View

3   2   1

Top View

Connector Pins with a Jumper
installed on pins 1 and 2.
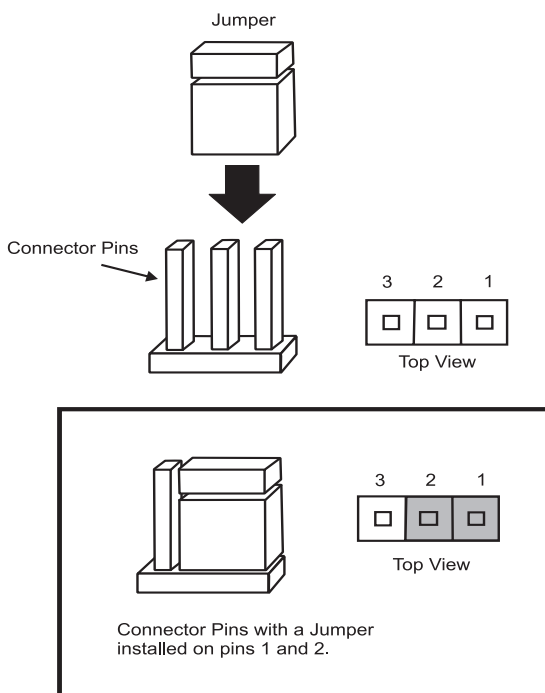
CMOS Clear (JBT1)

JBT1 is used to clear CMOS. Instead of pins, this "jumper" consists of contact pads to prevent accidental clearing of CMOS. To clear CMOS, use a metal object such as a small screwdriver to touch both pads at the same time to short the connection. Always remove the AC power cord from the system before clearing CMOS.

Metal contact pads

> ☞ **Important:** You must completely shut down the system, remove the AC power cord, and then short JBT1 to clear CMOS. Clearing CMOS will also clear all passwords.

BMC Enable/Disable (JPB1)

Jumper JPB1 allows you to enable the embedded BMC (Baseboard Management) Controller to provide IPMI 2.0/KVM support on the motherboard. See the table on the right for jumper settings..

BMC Enable Jumper Settings	
Pin#	Definition
1-2	Enabled (default)
2-3	Disabled
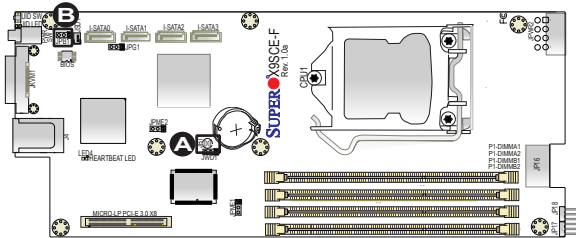
Ⓐ CMOS Clear
Ⓑ BMC Enable/Disable

Image rotated 90°

VGA Enable (JPG1)

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

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

Watch Dog RST/NMI Selection (JWD1)

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

Watch Dog Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Reset (default)
Pins 2-3	NMI
Open	Disabled
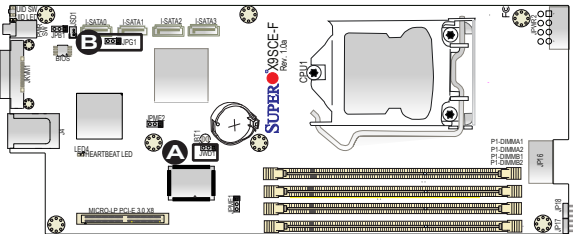
Ⓐ VGA Enable
Ⓑ Watch Dog Enable

Image rotated 90°

2-8   Onboard Indicators

Link LED   **Activity LED**

IPMI

IPMI Dedicated LAN Port

An IPMI Dedicated LAN port is installed on the I/O back panel. The yellow LED on the right indicates activity, while the green LED on the left indicates the speed of the connection. See the tables at right for more information.

IPMI LAN Link Speed LED (Left) & Connection Activity LED (Right)		
LED	Color/State	Definition
Off	Off	No Connection or 10 Mbps
Activity	Amber: Blinking	Active
Speed	Green: Solid On	100 Mbps

Ⓐ
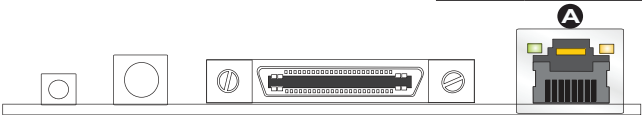
Back Panel Connectors

IPMI Heartbeat LED

An IPMI Heartbeat LED is located at LED4. When LED4 blinks, the IPMI functions properly. Refer to the table on the right for details. Also see the layout below for the LED location.

IPMI Heartbeat LED Indicator (LED4) LED State	
Blinking	IPMI is ready for use
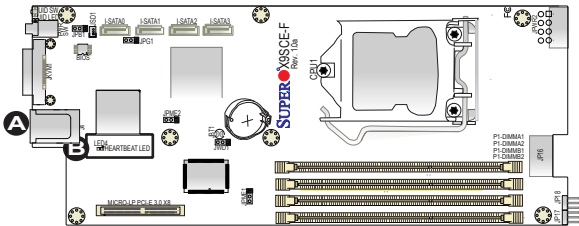
Ⓐ IPMI LAN Port

Ⓑ IPMI Heartbeat LED

Image rotated 90°

Unit ID LED

The Unit LED is controlled by the Unit ID Button. It indicates a unit that may be in need of service. Turn on the UID button in the front of the chassis or on the mother-board's I/O panel to identify the failed unit.

Unit ID LED LED Status	
On (Steady)	Unit ID switch is on

Image rotated 90°
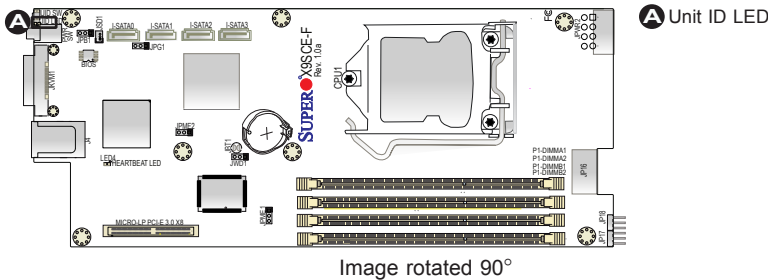
2-9 SATA Connections

Note the following conditions when connecting the SATA cables:

SATA Connections (SATA4)

Four Serial ATA (SATA) (I-SATA 0-3) connectors are located on the mother-board. I-SATA0/1 supports SATA 3.0, and I-SATA2/3 supports SATA 2.0. These Serial Link connections provide faster data transmission than legacy Parallel ATA. See the table on the right for pin definitions.

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

Image rotated 90°

Ⓐ I-SATA 0
Ⓑ I-SATA 1
Ⓒ I-SATA 2
Ⓓ I-SATA 3
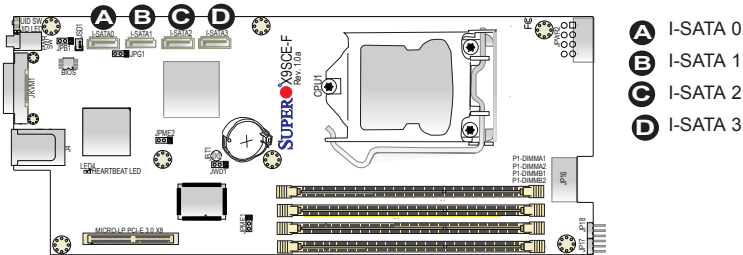
Notes

Chapter 3

Troubleshooting

3-1   Troubleshooting Procedures

Use the following procedures to troubleshoot your system. If you have followed all of the procedures below and still need assistance, refer to the 'Technical Support Procedures' and/or 'Returning Merchandise for Service' section(s) in this chapter. Always disconnect the AC power cord before adding, changing or installing any hardware components.

Before Power On

1. Be sure to unplug the power cable before installing or removing the components.)

2. Make sure that there are no short circuits between the motherboard and chassis.

3. Disconnect all ribbon/wire cables from the motherboard, including those for the keyboard and mouse. Also, be sure to remove all add-on cards.

No Power

1. Make sure that there are no short circuits between the motherboard and chassis.

2. Make sure that all jumpers are set to their default positions.

3. Check if the 115V/230V switch on the power supply is properly set.

4. Turn the power switch on and off to test the system.

5. The battery on your motherboard may be old. Check to make sure that it still supplies ~3VDC. If it does not, replace it with a new one.

No Video

1. If the power is on, but you have no video-in this case, you will need to remove all the add-on cards and cables first.

2. Remove all memory modules and turn on the system.

Memory Errors

1. Make sure that all DIMM modules are properly installed and fully seated in the slots.

2. Please check Section 2-4 and make sure that you are using the correct memory. Also, it is recommended that you use the memory modules of the same type and speed for all DIMMs in the system.

3. Check for bad DIMM modules or slots by swapping modules between slots to see if you can locate the faulty modules.

4. Check the power supply voltage 115V/230V switch.

If You Lose the System's Setup Configuration

1. Please be sure to use a high quality power supply. A poor quality power supply may cause the system to lose the CMOS setup information. Refer to Section 1-5 for details on recommended power supplies.

2. The battery on your motherboard may be old. Check to verify that it still supplies ~3VDC. If it does not, replace it with a new one.

3. If the above steps do not fix the Setup Configuration problem, contact your vendor for repairs.

3-2   Technical Support Procedures

Before contacting Technical Support, please make sure that you have followed all the steps listed below. Also, note that as a motherboard manufacturer, Supermicro does not sell directly to end users, so it is best to first check with your distributor or reseller for troubleshooting services. They should know of any possible problem(s) with the specific system configuration that was sold to you.

1. Please go through the 'Troubleshooting Procedures' and 'Frequently Asked Question' (FAQ) sections in this chapter or see the FAQs on our website (http://www.supermicro.com/support/faqs/) before contacting Technical Support.

2. BIOS upgrades can be downloaded from our website at (http://www.supermicro.com/support/bios/).

   ✎ **Note:** Not all BIOS can be flashed. Some cannot be flashed; it depends on the modifications to the boot block code.

3. If you've followed the instructions above to troubleshoot your system, and still cannot resolve the problem, then contact Supermicro's technical support and provide them with the following information:

- Motherboard model and PCB revision number
- BIOS release date/version (this can be seen on the initial display when your system first boots up)
- System configuration (OS version, peripheral devices, power supply type, etc)

    An example of a Technical Support form is on our website at (http://www.supermicro.com/support/contact.cfm).

4. Distributors: For immediate assistance, please have your account number ready when placing a call to our technical support department. We can be reached by e-mail at support@supermicro.com, by phone at: (408) 503-8000, option 2, or by fax at (408)503-8019.

3-3   Frequently Asked Questions

Question: What type of memory does my motherboard support?

Answer:

The X9SCE-F supports up to 32GB of **unbuffered** ECC DDR3 1066/1333/1600 MHz, two-way interleaved or non-interleaved Very Low Profile (VLP) DIMM memory. See Section 2-5 for details on installing memory.

Question: Why does Microsoft Windows show less memory than what is physically installed?

Answer: Microsoft implemented a design change in Windows XP with Service Pack 2 (SP2) and Windows Vista. This change is specific to the Physical Address Extension (PAE) mode behavior which improves driver compatibility. For more information, please read the following article at Microsoft's Knowledge Base website at: http://support.microsoft.com/kb/888137.

Question: How do I update my BIOS?

Answer: It is recommended that you **do not** upgrade your BIOS if you are not experiencing any problems with your system. Updated BIOS files are located on our web site at http://www.supermicro.com/support/bios/. Please check our BIOS warning message and the information on how to update your BIOS on our website. Select your motherboard model and download the BIOS (.rom) file to your computer. Also, check the current BIOS revision and make sure that it is newer than your BIOS before downloading. You may choose the zip file or the .exe file. If you choose the zipped BIOS file, please unzip the BIOS file onto a bootable device or a USB pen/thumb drive. To flash the BIOS, run the batch

file named "ami.bat" with the new BIOS ROM file from your bootable device or USB pen/thumb drive. Use the following format:

F:\> ami.bat BIOS-ROM-filename.xxx <Enter>

> **Notes:** Always use the file named "ami.bat" to update the BIOS and insert a space between "ami.bat" and the filename. The BIOS-ROM-filename will bear the motherboard name (i.e., X9SCD) and build version as the extension. For example, "X9SCD0.526".

When completed, your system will automatically reboot. If you choose the .exe file, please run the .exe file under Windows to create the BIOS flash floppy disk. Insert the floppy disk into the system you wish to flash the BIOS. Then, boot the system to the floppy disk. The BIOS utility will automatically flash the BIOS without any prompts. Please note that this process may take a few minutes to complete. Do not be concerned if the screen is paused for a few minutes.

Warning: Do not shut down or reset the system while updating the BIOS to prevent possible system boot failure!

When the BIOS flashing screen is completed, the system will reboot and will show "Press F1 or F2". At this point, you will need to load the BIOS defaults. Press <F1> to go to the BIOS setup screen, and press <F9> to load the default settings. Next, press <F10> to save and exit. The system will then reboot.

> **Note:** The SPI BIOS chip installed on this motherboard is not removable. To repair or replace a damaged BIOS chip, please send your motherboard to RMA at Supermicro for service.

If your BIOS crashes and your motherboard will no longer boot, please read Appendix C - UEFI BIOS Recovery Instructions for instructions.

Question: What's on the CD that came with my motherboard?

Answer: The supplied compact disc has quite a few drivers and programs that will greatly enhance your system. We recommend that you review the CD and install the applications you need. Applications on the CD include chipset drivers for Windows, security and audio drivers.

3-4   Battery Removal and Installation

Battery Removal

To remove the onboard battery, follow the steps below:

1. Power off your system and unplug your power cable.

2. Locate the onboard battery as shown below.

3. Using a tool such as a pen or a small screwdriver, push the battery lock outwards to unlock it. Once unlocked, the battery will pop out from the holder.

4. Remove the battery.

Battery Lock
Battery
Battery Holder
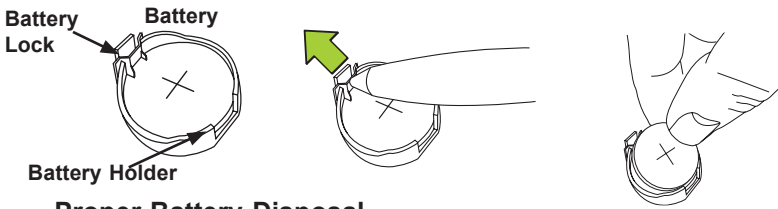
Proper Battery Disposal

Warning! 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.

Battery Installation

1. To install an onboard battery, follow the steps 1& 2 above and continue below:

2. Identify the battery's polarity. The positive (+) side should be facing up.

3. Insert the battery into the battery holder and push it down until you hear a click to ensure that the battery is securely locked.

Warning: When replacing a battery, be sure to only replace it with the same type.

This side up

1

2   **Press down until you hear a click.**

3-5 Returning Merchandise for Service

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service will be rendered. You can obtain service by calling your vendor for a Returned Merchandise Authorization (RMA) number. When returning to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and mailed prepaid or hand-carried. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

This warranty only covers normal consumer use and does not cover damages incurred in shipping or from failure due to the alteration, misuse, abuse or improper maintenance of products.

During the warranty period, contact your distributor first for any product problems.

Chapter 4

BIOS

4-1   Introduction

This chapter describes the AMI BIOS Setup Utility for the X9SCE-F motherboard. The AMI ROM BIOS is stored in a Flash EEPROM and can be easily updated. This chapter describes the basic navigation of the AMI BIOS Setup Utility setup screens.

Note: For instructions on BIOS recovery, please refer to the instruction guide posted at http://www.supermicro.com/support/manuals/.

Starting BIOS Setup Utility

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

Note: In most cases, the <Delete> key is used to invoke the AMI BIOS setup screen. 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 setup menu screen has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured. Options in blue can be configured by the user. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it. (**Note**: the AMI BIOS has default text messages built in. Supermicro retains the option to include, omit, or change any of these text messages.)

The AMI BIOS Setup Utility uses a key-based navigation system called "hot keys". Most of the AMI BIOS setup utility "hot keys" can be used at any time during the setup navigation process. These keys include <F1>, <F10>, <Enter>, <ESC>, arrow keys, etc.

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

How To Change the Configuration Data

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

How to Start the Setup Utility

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

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

4-2   Main Setup

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

```
           Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
  Main  Advanced  Event Logs  IPMI  Boot  Security  Exit

                                                     Set the Date. Use Tab to
                                                     switch between Date elements.
  System Date                    [Thu 12/06/2012]
  System Time                    [11:58:43]

  Supermicro X9SCE
  Version                        2.00
  Build Date                     09/21/2012


  Processor
      Intel(R) Xeon(R) CPU E3-1280 V2 @ 3.60GHz
  Speed                          3600 MHz
  Physical Count                 1                   →←: Select Screen
  Logical Count                  8                   ↑↓: Select Item
                                                     Enter: Select
  System Memory                                      +/–: Change Opt.
  Size                           8192 MB             F1: General Help
                                                     F2: Previous Values
                                                     F3: Optimized Defaults
                                                     F4: Save & Exit
                                                     ESC: Exit



           Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.
```

System Overview: The following BIOS information will be displayed:

System Time/System Date

Use this option 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/YY format. The time is entered in HH:MM:SS format. (**Note:** The time is in the 24-hour format. For example, 5:30 P.M. appears as 17:30:00.)

Supermicro X9SCE

Version

Build Date

Processor

The AMI BIOS will automatically display the status of processor as shown below:

Processor

Speed

Physical Count

Logical Count

System Memory

This displays the size of memory available in the system:

Size

4-3   Advanced Setup Configurations

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

```
                  Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
           Main  Advanced  Event Logs  IPMI  Boot  Security  Exit

        ▶ Boot Feature                                   System Boot Feature Setting.
        ▶ CPU Configuration
        ▶ Chipset Configuration
        ▶ IDE/SATA Configuration
        ▶ PCIe/PCI/PnP Configuration
        ▶ Super IO Configuration
        ▶ Serial Port Console Redirection
        ▶ Hardware Health Configuration
        ▶ ACPI Settings
        ▶ ME Subsystem


                                                         →←: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit


                  Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.
```

▶Boot Feature

Quiet Boot

This feature allows the user to select the bootup screen display between POST messages and the OEM logo. Select Disabled to display the POST messages. Select Enabled to display the OEM logo instead of the normal POST messages. The options are **Enabled** and Disabled.

AddOn ROM Display Mode

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

Bootup Num-Lock

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

Wait For 'F1' If Error

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

INT19 Trap Response

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

Watch Dog Function

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

Power Button Function

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

Restore on AC Power Loss

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

▶CPU Configuration

> **Note**: Take Caution when changing the Advanced settings. An incorrect value may cause system to become unstable. When this occurs, revert to the default setting.

Clock Spread Spectrum

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

Intel® Hyper Threading Technology

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

Active Processor Cores

Set to Enabled to use a processor's Second Core and beyond. (Please refer to Intel's web site for more information.) The options are **All,** 1, 2 and 3.

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

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

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

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

Hardware Prefetcher (Available when supported by the CPU)

If set to Enabled, the hardware prefetcher will prefetch streams of data and instructions from the main memory to the L2 cache in the forward or backward manner to improve CPU performance. The options are Disabled and **Enabled**.

Adjacent Cache Line Prefetch (Available when supported by the CPU)

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

Intel® AES-NI

Set to Enabled to use the processor's Advanced Encryption Standard (AES) feature. The options are Enabled and **Disabled**.

Power Technology

This feature determines what power-saving scheme the motherboard uses. The options are Disabled, **Energy Efficient** and Custom. If Custom is selected, the following options become available:

> **EIST (Available when Power Technology is set to Custom)**
>
> EIST (Enhanced Intel SpeedStep Technology) allows the system to automatically adjust processor voltage and core frequency in an effort to reduce

power consumption and heat dissipation. **Please refer to Intel's web site for detailed information.** The options are Disabled and **Enabled**.

CPU C3 Report (Available when Power Technology is set to Custom)

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

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

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

CPU C7 Report (Available when Power Technology is set to Custom)

Select Enabled to allow the BIOS to report the CPU C7 State (ACPI C3) to the operating system. CPU C7 State is a processor-specific low C-State. The options are **Enabled** and Disabled.

C1E Support (Available when Power Technology is set to Custom)

Select Enabled to enable Enhanced C1 Power State to boost system per-formance. The options are **Enabled** and Disabled.

▶Turbo Boost Technology (Available if Intel® EIST technology is Enabled)

Turbo Mode

This feature allows processor cores to run faster than marked frequency in specific conditions. The options are Disabled and **Enabled.**

Long duration power limit - this is the processor power consumption limit (in Watts) during a long duration time window.

Long duration maintained - this is the time in milliseconds where the Long Duration Power Limit is maintained.

Short duration power limit - During Turbo Mode, the system may exceed the processor's default power setting and exceed the Short Duration Power limit. By increasing this value, the processor can provide better performance for a short duration.

▶**Chipset Configuration**

WARNING: Setting the wrong values in the following sections may cause the system to malfunction.

▶**CPU Bridge Configuration**

This item displays the current CPU Revision, Current CPU1 Memory Frequency, Memory Type and Memory Reference Code Revision.

Memory Frequency

This feature allows the user to select the memory speed. Under normal conditions, please set this to Auto. The options are **Auto**, Force DDR-1066, Force DDR-1333, and Force DDR-1600.

▶**Integrated I/O Configuration**

This item displays the current North Bridge Revision.

Intel VT-d

Select Enabled to enable Intel's Virtualization Technology support for Direct I/O VT-d by reporting the I/O device assignments to VMM through the DMAR ACPI Tables. This feature offers fully-protected I/O resource-sharing across the Intel platforms, providing the user with greater reliability, security and availability in networking and data-sharing. The settings are Enabled and **Disabled**.

Active State Power Management

Select Enabled to start Active-State Power Management for signal transactions between L0 and L1 Links on the PCI Express Bus. This maximizes power-saving and transaction speed. The options are Enabled and **Disabled**.

PCIE Maximum Read Request

This feature selects the setting for the PCIE maximum read request size. The options are **Auto,** 128 Bytes**,** 256 Bytes, 512 Bytes, 1024 Bytes, 2048 Bytes, and 4096 Bytes**.**

PCI Express Port

This feature enables or disables the PCI Express port. The options are Disabled, Enabled and **Auto.**

PCI Express Port - Gen X

This feature enables or disables the PCI Express Gen X port. The options are Disabled, Enabled and **Auto.**

De-emphasis Control

Use this feature to configure the de-emphasis control on PEG. The options are **-6 dB** and -3.5 dB.

Detect Non-Compliance Device

This feature enables or disables the detection of a non-compliant device that is attached to the PCI Express Graphics (PEG) port. The options are **Disabled**, and Enabled**.**

▶**South Bridge Configuration**

This item displays the current South Bridge Revision.

USB Functions

This feature allows the user to decide the number of onboard USB ports to be enabled. The Options are Disabled and **Enabled**.

Legacy USB Support (available if USB Functions above is Enabled)

Select Enabled to use Legacy USB devices. If this item is set to Auto, Legacy USB support will be automatically enabled if a legacy USB device is installed on the motherboard, and vise versa. The settings are Disabled, **Enabled** and Auto.

BIOS EHCI Hand-Off (available if USB Functions above is Enabled)

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

Port 60/64 Emulation (available if USB Functions above is Enabled)

Select Enabled to activate I/O port 60h/64h emulation support. This must be enabled for complete USB keyboard legacy support for Operating Systems that are not compatible with USB devices. The settings are **Enabled** and Disabled.

▶**IDE/SATA Configuration**

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

SATA Mode

This item selects the mode for the installed drives. The options are Disabled, IDE Mode, **AHCI Mode** and RAID Mode.

IDE Mode

The following items are displayed when IDE Mode is selected:

IDE Legacy / Native Mode Selection

Use this feature to specify the operating mode of the integrated SATA controllers. The options are **Native** and Legacy.

SATA Port0~Port5

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

AHCI Mode

The following items are displayed when AHCI Mode is selected:

Aggressive Link Power Management

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

SATA Port0~Port5

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

Hot Plug

Set this item to Enabled for hot-plugging support. The options are **Enabled** and Disabled.

Staggered Spin Up

Set this item to Enabled for Staggered Spin-up support. The options are Enabled and **Disabled**.

RAID Mode

The following items are displayed when RAID Mode is selected:

PCH RAID CodeBase

Select Intel to enable the Intel SATA Host RAID Utility. Select LSI to use the LSI Host RAID Utility. The options are **Intel** and LSI.

SATA Port0~Port5

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

Hot Plug

Set this item to Enabled to enable hot-plugging. The options are **Enabled** and Disabled.

▶PCIe/PCI/PnP Configuration

This feature allows the user to set the PCI/PnP configurations for the following items:

PCI Latency Timer

This feature sets the latency Timer of each PCI device installed on a PCI bus. Select 64 to set the PCI latency to 64 PCI clock cycles. The options are 32, **64**, 96, 128, 160, 192, 224 and 248.

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

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

PERR# Generation

Select Enabled to allow a PCI device to generate a PERR number for a PCI Bus Signal Error Event. The options are Enabled and **Disabled**.

SERR# Generation

Select Enabled to allow a PCI device to generate an SERR number for a PCI Bus Signal Error Event. The options are Enabled and **Disabled**.

Launch Storage OpROM Policy

Use this feature to select the Option ROM to boot the system when there are multiple UEFI and Legacy storage Option ROMs available in the system. The options are Do not launch, UEFI only, Legacy only, **Legacy first**, and UEFI first.

SMC Riser Card on Micro-LP

Use this feature to select what riser card to use on the Micro-LP slot. The options are No Riser and **RSC-MLP-E8R**.

Micro-LP PCI-E Slot OPROM

Use this feature to enable or disable the Micro-LP PCI-E slot OPROM option. The options are **Enabled** and Disabled.

▶**Super IO Device Configuration**

Serial Port 1

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

Serial Port 1 Settings

This option specifies the base I/O port address and the Interrupt Request address of Serial Port 1. Select **Auto** to allow the serial port to automatically assign system resources. The options for Serial Port 1 are **Auto**, (IO=3F8h; IRQ=4), (IO=3F8h; IRQ=3, (IO=2F8h; IRQ=3), (IO=3E8h; IRQ=5), (IO=2E8h; IRQ=7).

▶**Serial Port Console Redirection**

COM 1, SOL

These two submenus allow the user to configure the following Console Redirection settings for a COM Port specified by the user.

COM1, SOL Console Redirection

Select Enabled to use a COM Port selected by the user for Console Redirection. The options are Enabled and Disabled. The default setting for COM1 is **Disabled**, and for SOL is **Enabled**.

▶**Console Redirection Settings**

Terminal Type

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

Bits Per second

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

Data Bits

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

Parity

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

Stop Bits

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

Flow Control

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

VT-UTF8 Combo Key Support

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

Recorder Mode

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

Resolution 100x31

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

Legacy OS Redirection Resolution

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

Putty KeyPad

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

Redirection After BIOS Post

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

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

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

Console Redirection (for EMS)

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

▶Console Redirection Settings (for EMS)

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

Out-of-Band Management Port

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

Terminal Type

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

Bits Per Second

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

Flow Control

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

Data Bits, Parity, Stop Bits

The setting for each of these items is displayed.

▶Hardware Health Configuration

Fan Speed Control Mode

This feature allows the user to decide how the system controls the speeds of the onboard fans. The CPU temperature and the fan speed are correlative. When the CPU on-die temperature increases, the fan speed will also increase for effective system cooling. Select "Full Speed" to allow the onboard fans to run at full speed (of 100% Pulse Width Modulation Duty Cycle) for maximum cooling. This setting is recommended for special system configuration or debugging. Select "Standard" for the onboard fans to run at 50% of the Initial PWM Cycle in order to balance the needs between system cooling and power saving. This setting is recommended for regular systems with normal hardware configurations. Select "Optimal" for the onboard fans to run at 30% of the Initial PWM Cycle for best power efficiency and maximum quietness. The options are Full Speed (@100% of PWM Cycle), **Standard** (@50% of PWM Cycle), and Optimal (@30% of PWM Cycle).

CPU, System, Peripheral Temperature

This feature displays the current temperature of the above monitors.

Fan1 Speed

This feature displays the fan speed reading from the Fan 1 interface.

VCORE, 12V, VDIMM, 5VCC, VCC PCH, AVCC, 3.3VCC, VSB, VBAT

This feature displays the current voltages of the above voltage monitors.

▶ACPI Settings

Use this feature to configure Advanced Configuration and Power Interface (ACPI) power management settings for your system.

High Precision Event Timers

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

Suspend Mode

This setting allows you to configure the ACPI (Advanced Configuration and Power Interface) sleep state for your system when it is in the Suspend mode. The options are Suspend Disabled, **S1 (POS)**, and S3 (STR). S3 (STR) is the deepest sleep state in these options.

WHEA Support

This feature Enables the Windows Hardware Error Architecture (WHEA) support for the Windows 2008 operating system (and later versions). The options are **Enabled** and Disabled.

▶ME Subsystem

This feature displays the following ME Subsystem Configuration settings.

- **ME BIOS Interface Version**

- **ME Version**

4-4   Event Logs

```
                Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
         Main   Advanced   Event Logs   IPMI   Boot   Security   Exit

      ▶ Change Smbios Event Log Settings                    Press <Enter> to change the
                                                            Smbios Event Log configuration.
        View Smbios Event Log




                                                            ↔: Select Screen
                                                            ↑↓: Select Item
                                                            Enter: Select
                                                            +/-: Change Opt.
                                                            F1: General Help
                                                            F2: Previous Values
                                                            F3: Optimized Defaults
                                                            F4: Save & Exit
                                                            ESC: Exit


                Version 2.15.1229. Copyright (C) 2012 American Megatrends, Inc.
```

▶Change Smbios Event Log Settings

The following options are available:

Smbios Event Log

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

Erase Event Log

This option erases all logged events. The options are **No**, Yes, Next reset and Yes, Every reset.

When Log is Full

This option automatically clears the Event Log memory of all messages when it is full. The options are **Do Nothing** and Erase Immediately.

MECI

The Multiple Event Count Increment (MECI) counter counts the number of occurrences a duplicate event must happen before the MECI counter is incremented. This is a numeric value.

METW

The Multiple Event Time Window (METW) defines number of minutes must pass between duplicate log events before MECI is incremented. This is in minutes, from 0 to 99.

View Smbios Event Log

Displays the Smbios Event Log stored in memory.

4-5   IPMI Configuration

Intelligent Platform Management Interface (IPMI) is a set of common interfaces that IT administrators can use to monitor system health and to manage the system as a whole. For more information on the IPMI specifications, please visit Intel's website at www.intel.com.

```
                    Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
     Main  Advanced  Event Logs  IPMI  Boot  Security  Exit

    IPMI Firmware Revision          1.85              Press <Enter> to change the
    IPMI STATUS                     Working           SEL event log configuration.
 ▶ System Event Log
 ▶ BMC network configuration




                                                      →←: Select Screen
                                                      ↑↓: Select Item
                                                      Enter: Select
                                                      +/-: Change Opt.
                                                      F1: General Help
                                                      F2: Previous Values
                                                      F3: Optimized Defaults
                                                      F4: Save & Exit
                                                      ESC: Exit



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```

▶System Event Log

This feature is used to change the System Event Log (SEL) configuration.

SEL Components - Change this item to enable or disable all features of System Event Logging. The options are Enabled and **Disabled**. When Enabled, the following can be configured:

Erase SEL - This option erases all logged SEL events. The options are **No**, Yes, On Next reset and Yes, On Every reset.

When SEL Full

This option automatically clears the System Event Log memory of all messages when it is full. The options are **Do Nothing** and Erase Immediately.

▶BMC Network Configuration

Set this feature to configure the IPMI LAN adapter with a network address.

Update IPMI LAN Configuration

Select Yes to update the IPMI LAN configuration. The options are Yes and **No**.

Configuration Address Source

This feature selects whether the IP address, Subnet Mask and Gateway Address are automatically assigned by the network's DHCP server (Dynamic Host and Configuration Protocol) "Dynamic" or manually entered by the user "Static". If Static is selected, the IP Address, Subnet Mask and Gateway Address must be manually entered below. The options are Static, Dynamic and **Do Nothing**. The following items are displayed when Static is selected:

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

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

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

Current Gateway IP Address - Enter the Gateway or Router address this machine will use (i.e., 192.168.10.1).

4-6   Boot

```
                 Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
       Main  Advanced  Event Logs  IPMI  Boot  Security  Exit

    Setup Prompt Timeout          1                           Number of seconds to wait for
    Retry Boot Devices            [Disabled]                  setup activation key.
    Boot option filter            [UEFI and Legacy]           65535(0xFFFF) means indefinite
                                                              waiting.

    Boot Option Priorities
    Boot Option #1                [IBA GE Slot 0200 v1381]
    Boot Option #2                [P0: ST9160511NS   ...]
    Boot Option #3                [UEFI: Built-in EFI ...]

    Network Device BBS Priorities
    Hard Drive BBS Priorities

  ▶ Delete Boot Option                                        →←: Select Screen
                                                              ↑↓: Select Item
                                                              Enter: Select
                                                              +/-: Change Opt.
                                                              F1: General Help
                                                              F2: Previous Values
                                                              F3: Optimized Defaults
                                                              F4: Save & Exit
                                                              ESC: Exit


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```

Use this feature to configure Boot Settings:

Setup Prompt Timeout

Number of seconds to wait for setup activation key. Enter 65535 (0xFFFF) to wait indefinitely.

Retry Boot Devices

Select this option to retry booting from the configured boot devices if the systems fail to boot initially. The options are **Disabled** and Enabled.

Boot Option Filter

Use this feature to control what devices the system can boot from. The options are **UEFI and Legacy,** Legacy Only, and UEFI Only.

Boot Option #1, Boot option #2, Boot Option #3, etc

The settings are **Built-in EFI Shell**, [any detected boot device] and Disabled.

Network Device BBS Priorities

This feature displays the settings of boot devices detected by the BIOS.

▶Delete Boot Option

This feature allows the user to delete any previously-defined boot device from the Boot Options Priority.

4-7   Security

```
                Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
          Main   Advanced   Event Logs   IPMI   Boot   Security   Exit

          Password Description                                      Setup: Check password while
                                                                    invoking setup. Always: Check
          If ONLY the Administrator's password is set,              password while invoking setup
          then this only limits access to Setup and is              as well as on each boot.
          only asked for when entering Setup.
          If ONLY the User's password is set, then this
          is a power on password and must be entered to
          boot or enter Setup. In Setup the User will
          have Administrator rights.
          The password length must be
          in the following range:
          Minimum length                    3
          Maximum length                    20                      ++: Select Screen
                                                                    ↑↓: Select Item
          Password Check                    [Setup]                 Enter: Select
          Administrator Password                                    +/-: Change Opt.
                                                                    F1: General Help
                                                                    F2: Previous Values
                                                                    F3: Optimized Defaults
                                                                    F4: Save & Exit
                                                                    ESC: Exit



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```

Password Check

Use this feature to determine when a password entry is required. Select Setup to require the password only when entering setup. Select Always to require the password when entering setup and on each boot. The options are **Setup** and Always.

Administrator Password

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

4-8   Exit

Select the Exit tab from the BIOS Setup Utility screen to enter the Exit BIOS Setup screen.
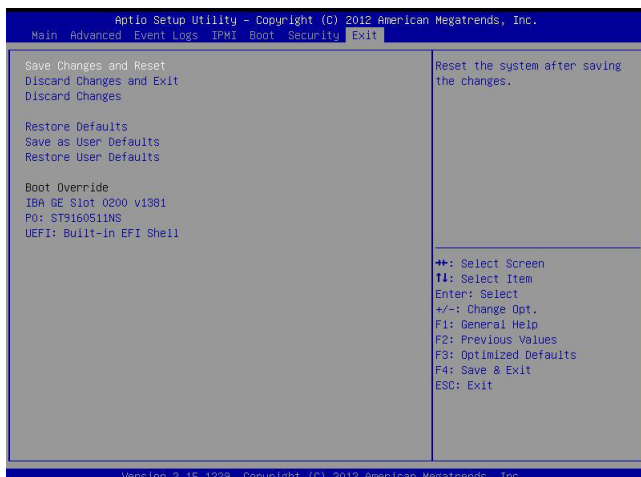
Save Changes and Reset

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

Discard Changes and Exit

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

Discard Changes

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

Restore Defaults

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

Save As User Defaults

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

Restore User Defaults

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

Boot Override

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

Notes

Appendix A

Software Installation Instructions

A-1   Installing Software Programs

After you've installed the operating system, a screen as shown below will appear. You are ready to install software programs and drivers that have not yet been installed. To install these programs, click the icons to the right of these items.

Note: To install the Windows OS, please refer to the instructions posted on our Website at http://www.supermicro.com/support/manuals/.
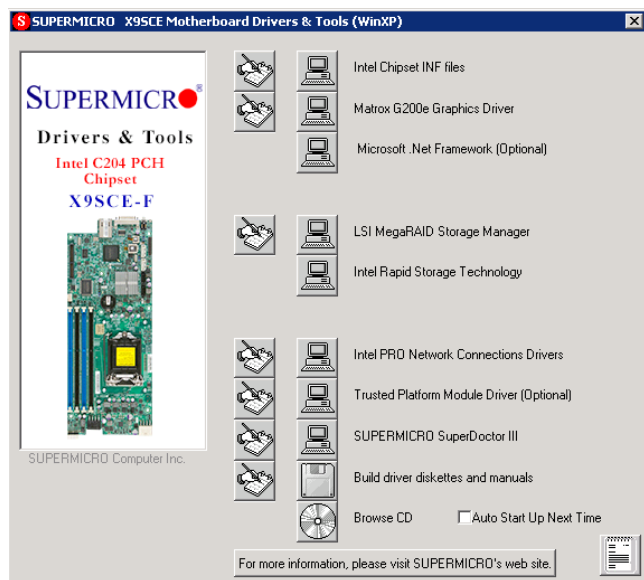
Driver/Tool Installation Display Screen

Note 1. Click the icons showing a hand writing on the paper to view the readme files for each item. Click a computer icon to the right of an item to install an item (from top to the bottom) one at a time. After installing each item, you must reboot the system before proceeding with the next item on the list. The bottom icon with a CD on it allows you to view the entire contents of the CD.

Note 2. When making a storage driver diskette by booting into a Driver CD, please set the SATA Configuration to "Compatible Mode" and configure SATA as IDE in the BIOS Setup. After making the driver diskette, be sure to change the SATA settings back to your original settings.

A-2   Configuring 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 the SD III Client. The SuperDoctor III program included on the CDROM that came with your motherboard 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 Figure below for a display of the SuperDoctor III interface.

> **Note**: 1 The default user name and password are ADMIN.
>
> **Note 2:** In the Windows OS environment, the SuperDoctor III settings take precedence over the BIOS settings. When first installed, SuperDoctor III adopts the temperature threshold settings previously set in BIOS. Any subsequent changes to these thresholds must be made within SuperDoctor, since the SD III settings override the BIOS settings. For the Windows OS to adopt the BIOS temperature threshold settings, please change the SDIII settings to be the same as those set in BIOS.

SuperDoctor III Interface Display Screen-I (Health Information)

SuperDoctor III Interface Display Screen-II (Remote Control)

Graceful power control

Supero Doctor III allows a user to inform the OS to reboot or shut down within a specified time (the default is 30 seconds). Before the system reboots or shuts down, it's allowed to cancel the action.

Requirements

Keep Supero SD3Service Daemon running at all times on this system.
Provide TCP/IP connectivity.

Power control

Note: The SD III utility and user guide can be downloaded from our website at: http://www.supermicro.com/products/accessories/software/ SuperDoctorIII.cfm. For Linux, we will still recommend that you use Supero Doctor II.

Notes

Appendix B

UEFI BIOS Recovery Instructions

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

B-1   An Overview to the UEFI BIOS

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

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

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

> **Note:** Follow the BIOS Recovery instructions below for BIOS recovery when the main BIOS block crashes. However, when the BIOS Boot sector crashes, you will need to send the motherboard back to Supermicro for RMA repair.

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

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

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

1. Using a different machine, copy the "Super.ROM" binary image file into the disc Root "\" Directory of a USB device or a writeable CD/DVD.

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

2. Insert the USB device that contains the new BIOS image ("Super.Rom") into your USB drive and power on the system

3. While powering on the system, keep pressing <Ctrl> and <Home> simultaneously on your PS2 or USB keyboard until your hear two short beeps. This may take from a few seconds to one minute.

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

   Note: At this point, you may decide if you want to start with BIOS Recovery. If you decide to proceed with BIOS Recovery, follow the procedures below.
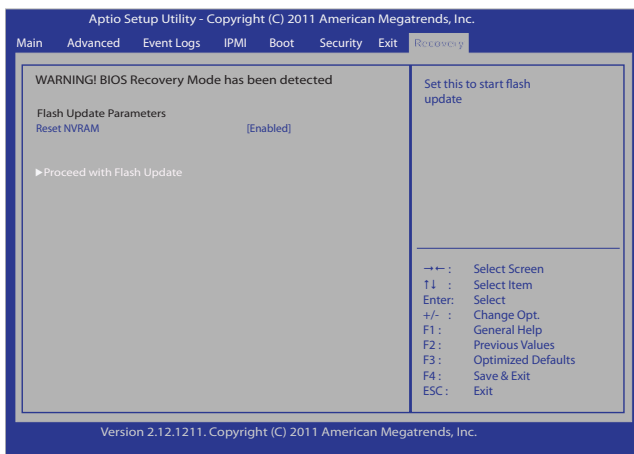
5. When the screen as shown above displays, using the arrow key, select the item- "Proceed with flash update" and press the <Enter> key. You will see the progress of BIOS Recovery as shown in the screen below.

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

```
                Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
                                                    Recovery

        WARNING! System firmware is being updated.
         Keyboard is locked.
         DO NOT TURN THE POWER OFF!!!
         Once firmware update is completed
         press any key to reboot the system

         Flash update progress              47%



                                                          → ← :    Select Screen
                                                          ↑ ↓  :    Select Item
                                                          Enter:    Select
                                                          +/- :     Change Opt.
                                                          F1 :      General Help
                                                          F2 :      Previous Values
                                                          F3 :      Optimized Defaults
                                                          F4 :      Save & Exit
                                                          ESC :     Exit

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```
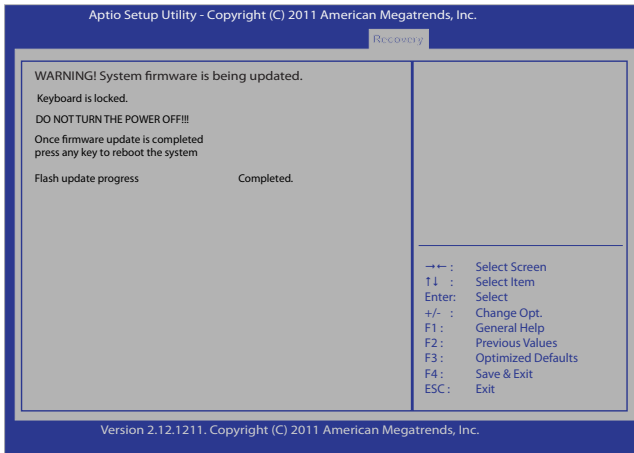
6. After the process of BIOS Recovery is complete, press any key to reboot the system

```
                Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
                                                    Recovery

        WARNING! System firmware is being updated.
         Keyboard is locked.
         DO NOT TURN THE POWER OFF!!!
         Once firmware update is completed
         press any key to reboot the system

         Flash update progress              Completed.



                                                          → ← :    Select Screen
                                                          ↑ ↓  :    Select Item
                                                          Enter:    Select
                                                          +/- :     Change Opt.
                                                          F1 :      General Help
                                                          F2 :      Previous Values
                                                          F3 :      Optimized Defaults
                                                          F4 :      Save & Exit
                                                          ESC :     Exit

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```

7. Using a different system, extract the BIOS package into a bootable USB flash drive.

8. When a DOS prompt appears, type AMI.BAT BIOSname.### at the prompt.

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

9. After seeing the message that BIOS update is completed, unplug the AC power cable to clear CMOS, and then plug in the AC power cable to power on the system.

10. Press <Del> continuously to enter the BIOS Setup utility.

11. Press <F3> to load default settings.

12. After loading default settings, press <F4> to save the settings and exit the BIOS Setup utility.

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