SUPER®

X10SLE-DF

USER'S MANUAL

Revision 1.0

The information in this user's manual has been carefully reviewed and is believed to be accurate. The vendor assumes no responsibility for any inaccuracies that may be contained in this document, makes no commitment to update or to keep current the information in this manual, or to notify any person or organization of the updates. **Please Note: For the most up-to-date version of this manual, please see our web site at www.supermicro.com.**

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FCC Statement: This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the authorized dealer or an experienced radio/TV technician for help.

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

WARNING: Handling of lead solder materials used in this product may expose you to lead, a chemical known to the State of California to cause birth defects and other reproductive harm.

Manual Revision 1.0
Release Date: Dec. 2, 2013

Preface

This manual is written for system integrators, PC technicians, and knowledgeable PC users. It provides information for the installation and use of the SUPER● X10SLE-DF motherboard.

About This Motherboard

The SUPER● X10SLE-DF supports the Intel® Xeon E3-1200 v3, 4th-Generation Core i3, Pentium, or Celeron processor in the LGA1150 H3 socket. With the Intel® C224 Express chipset built in, the X10SLE-DF motherboard offers a 24-node Micro-Cloud platform with 1/2-HDD per node and two nodes per board. The X10SLE-DF is optimized for high-end, high-performance, Micro-Cloud server platforms. Please refer to our website (http://www.supermicro.com/products/) for processor and memory support updates. This product is intended to be installed and serviced by professional technicians.

Manual Organization

Chapter 1 describes the features, specifications, and performance of the motherboard, and provides detailed information on the Intel C224 Express 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 trouble-shooting 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 provides BIOS error beep codes.

Appendix B details software program installation instructions**.**

Appendix C contains 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 to provide information for correct system setup.

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Table of Contents

Appendix A Software Installation Instructions

Appendix B UEFI BIOS Recovery Instructions

Chapter 1

Introduction

1-1   Overview

Checklist

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

This motherboard was especially designed to be used in an SMC-proprietary chassis only as part of an integrated server solution. A quick reference guide is included in the shipping package.

- One (1) Quick Reference Guide

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● **X10SLE-DF Motherboard Image**
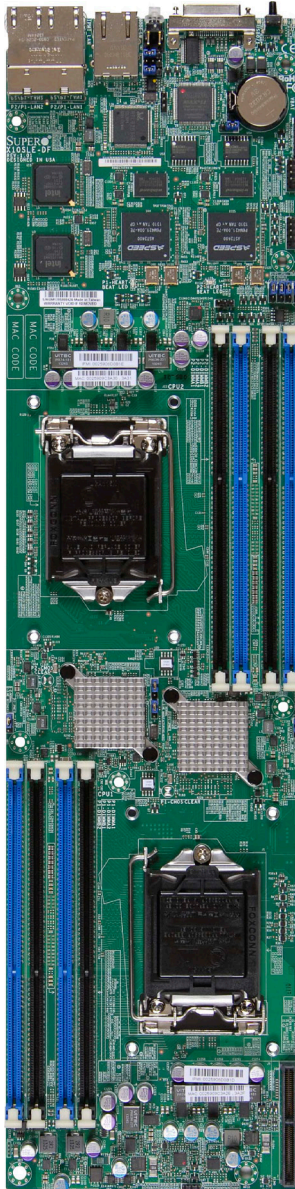
Note: All graphics shown in this manual were based upon the latest PCB Revision available at the time of publishing of the manual. The motherboard you received may or may not look exactly the same as the graphics shown in this manual.

X10SLE-DF Motherboard Layout
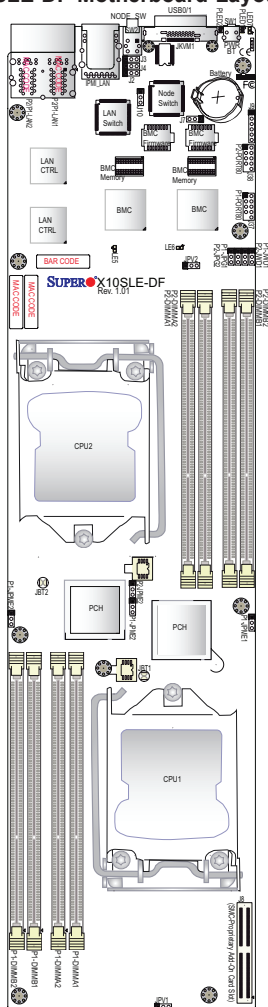
Important Notes to the User

- See Chapter 2 for detailed information on jumpers, I/O ports, and JF1 front panel connections.

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

- Jumpers/connectors not indicated are for internal testing only.

- When a power LED indicator located at PLED1 or PLED2 is on, the system power is on. Unplug the power cable before installing or removing any components.

X10SLE-DF Quick Reference

NODE_SW
USB0/1
LED
PLED LED
SW1
JKVM1
IPMI_LAN
Battery
J2BU10
Node
Switch
LAN
Switch
BMC
BMC
P2/P-LAN2
P3/P-LAN1
LAN
CTRL
BMC
Memory
BMC
Memory
J1-PORT80
J8-PORT80
J7-PORT80
LAN
CTRL
BMC
BMC
LED
LED
BAR CODE
IPV2
P1-VID1
P2-VID1
P2-JP12
P2-JP5
MAC CODE
SUPER● X10SLE-DF
Rev. 1.01
P2-DIMMB2
P2-DIMMB1
P2-DIMMA2
P2-DIMMA1
CPU2
P1-JPME2
JBT2
PCH
P1-JPME2
P3/P-JPME2
PCH
P1-JPME1
JBT1
CPU1
P1-DIMMB2
P1-DIMMB1
P1-DIMMA2
P1-DIMMA1
J6
(BMC-Proprietary Add-On Card Slot)
IPV1

X10SLE-DF Jumpers		
Jumper	Description	Default
J7	Thermal Throttling Triggered by Power Fail Enable	Pins 1-2 (Enabled: Thermal Throttling Triggered by PWR-Failure)
JBT1/JBT2	CMOS Clear for Node 1 (JBT1)/Node 2 (JBT2)	(Off: Normal)
P1-JPG1/P2-JPG1	VGA Enable for Node 1 (P1-JPG1)/Node 2 (P2-JPG1)	Pins 1-2 (Enabled)
P1-JPME1/P2-JPME1	ME Recovery for Node 1 (P2-JPME1)/Node 2 (P2-JPME1)	Pins 1-2 (Normal)
P1-JPME2/P2-JPME2	Manufacture Mode Select for Node 1 (P1-JPME2)/Node 2 (P2-JPME2)	Pins 1-2 (Normal)
P1-JWD1/P2-JWD1	Watch Dog Timer Enable for Node 1 (P1-JWD1)/Node 2 (P2-JWD1)	Pins 1-2 (Reset) (Recommended for best performance)

X10SLE-DF Headers/Connectors	
Connector	Description
J8	SMC-proprietary Add-On Card Slot for Power/SIG SATA Interface
J37/J38	Port 80 Connector for Node 1 (J37: P1-PORT80)/Node 2 (J38: P2-PORT80)
Battery (VBAT)	Onboard Battery
IPMI-LAN	IPMI-Dedicated LAN (shared between Node 1 and Node 2 supported by the onboard LAN Switch chip)
JKVM1	USB 2.0(x2)/VGA (Monitor)/COM (UART) Connector for front IO support for remote console redirection or network interface
P2/P1-LAN1	Gigabit Ethernet LAN Port 1 for Node 1 (P1-LAN1)/Node 2 (P2-LAN1)
P2/P1-LAN2	Gigabit Ethernet LAN Port 2 for Node 1 (P1-LAN2)/Node 2 (P2-LAN2)
SATA 3.0	4 SATA (3.0/6 Gb/s) Connections on the HDD backplane
SW1	Power-On/Power-Off Button for Node 1 and Node 2 (PWR BT)
SW2	Node_ID/KVM/LED Switch to provide ethernet access to multiple devices simultaneously (NODE_SW) (Green: Node 1, Orange: Node 2)
USB 2.0	Front Panel USB 2.0 (See JKVM1)

X10SLE-DF LED Indicators			
LED	Description	Color/State	Status
LE5	IPMI Heartbeat LED for Node 1	Green: Blinking	Node 1 IPMI: Normal
LE6	IPMI Heartbeat LED for Node 2	Green: Blinking	Node 2 IPMI: Normal
LED7	UID (Unit Identifier) LED	Blue: On	Unit Identified
PLED1	Power LED for Node 1	Green: On, Orange: Standby	Node 1 PWR On/Standby
PLED2	Power LED for Node 2	Green: On, Orange: Standby	Node 2 PWR On/Standby

Motherboard Features

CPU	• Single Intel® Xeon E3-1200 v3, 4th-Generation Core i3, Pentium, or a Celeron processor in an LGA1150 H3 socket for each node; • Two (2) processors onboard (CPU1/CPU2)
Memory	• Four (4) DIMM slots support up to 32 GB of DDR3 VLP (Very-Low-Profile) Unbuffered ECC 1600/1333/1066 MHz memory for each node; • Eight (8) memory modules support up to 64 GB of DDR3 memory onboard for both nodes combined
	Dual-channel memory
	DIMM sizes
	UDIMM 1 GB, 2 GB, 4GB, and 8GB
Chipset	• Single Intel® C224 Express PCH for each node; • Two (2) PCH chips onboard (PCH1/PCH2)
Expansion Slots	One (1) SMC-proprietary Micro Add-On card slot for Power/SIG SATA interface
I/O Devices	**SATA Connections**
	SATA 3.0 (6 Gb/s) Four (4) I-SATA 3.0 connections on the HDD backplane supported by Intel C224 PCH
	RAID 0, 1
	USB 2.0/KVM (UART) Connector on the IO Backplane
	Two (2) USB 2.0 shared with KVM (VGA/COM) for front access support (JKVM1); KVM: VGA (Monitor)/COM (UART) connector for remote console redirection or remote network interface
	LAN Controllers
	• Single Intel i350 dual-channel Gigabit-LAN controller with support of two LAN-ports (LAN Ports 1/2) for each node; • Two (2) Intel i350 LAN controllers onboard
	BMC Controllers
	• Single Aspeed AST2400 BMC controller for IPMI and graphics support for each node; • Two (2) AST2400 BMC controllers onboard (BMC1/2)

	Ethernet LAN Ports/IPMI-LAN on the IO Backplane
	• Two (2) Ethernet LAN ports (LAN1/LAN2) for each node, (P1-LAN1/LAN2 for Node 1; P2-LAN1/LAN2 for Node 2); • Four (4) GLAN ports onboard
	One (1) shared IPMI-dedicated LAN port supported by BMC controller chips for remote console interface. The IPMI-LAN is shared between Node 1 and Node 2
	One (1) Onboard LAN Ethernet switch that allows multiple devices to access the Ethernet simultaneously
BIOS	• One (1) 128 Mb AMI BIOS® SPI Flash BIOS chip for each node; • Two (2) AMI BIOS® SPI Flash BIOS chips onboard
	Play-and-Plug (PnP), PCI 2.3, ACPI 1.0/2.0/3.0, USB/KVM, SMBIOS 2.3, RTC (Real-Time Clock), and Node Management
Power Configuration	ACPI/ACPM Power Management
	Main Switch Override Mechanism
	Power-On Mode for AC Power Recovery
PC Health Monitoring	**CPU Monitoring**
	Onboard voltage monitors for +3.3V, +5V, +12V, 3.3V Standby, VBAT, Memory, Chipset, CPU Core
	CPU 3-phase switching voltage regulator
	CPU/System overheat LED and control
	CPU Thermal Trip support
	Thermal Monitor 2 (TM2) support
System Management	PECI (Platform Environment Configuration Interface) 2.0
	System resource alert via SuperDoctor® III
	SuperDoctor® III, Watch Dog, NMI
CD Utilities	BIOS flash upgrade utility
Other	ROHS (Full-Compliance, Lead-Free)
Dimensions	SMC-proprietary form factor (18.5" x 4.6") (469.90 mm x 116.84 mm)

X10SLE-DF Block Diagram
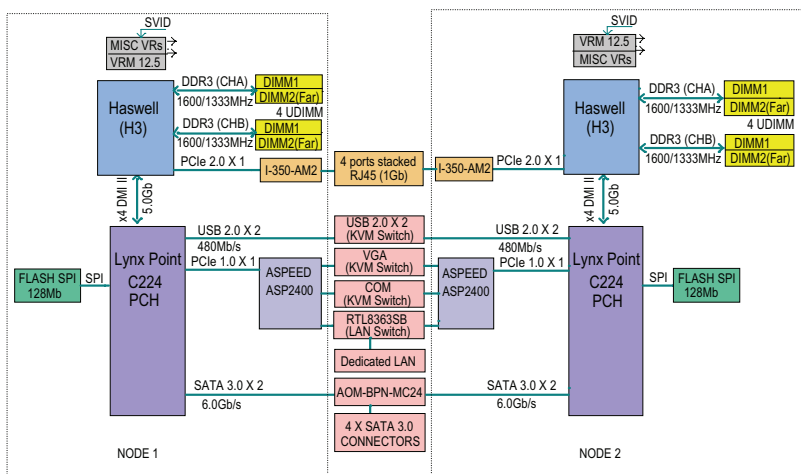
System Block Diagram

Note: This is a general block diagram and may not exactly represent the features on your motherboard. See the "Motherboard Features" pages for the actual specifications of each motherboard.

1-2　Chipset Overview

The X10SLE-DF supports the Intel® Xeon E3-1200 v3, 4th-Generation Core i3, Pentium, or a Celeron processor in an LGA1150 H3 socket. Built upon the functionality and capability of the C224 Express chipset, the X10SLE-DF is optimized for high-end, high-performance, Micro-Cloud server platforms.

The high-speed Direct Media Interface (DMI) featured in the Intel C224 Express chipset supports high-speed Direct Media Interface (DMI) for chip-to-chip true isochronous communication, providing up to 4 Gb/s of software-transparent data transfer rate on each read/write direction. In addition, the X10SLE-DF also features a TCO timer, which allows the system to recover from a software/hardware lock and perform tasks, including Function Disable and Intruder Detect.

Intel C224 Express Chipset Features

- Direct Media Interface (up 10 Gb/s transfer, full duplex)

- Intel® Matrix Storage Technology and Intel Rapid Storage Technology

- Dual NAND Interface

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

- Intel Trusted Execution Technology Support

- PCI Express 3.0 Interface (up to 8.0 GT/s)

- SATA Controller (up to 6Gb/sec)

- Advanced Host Controller Interface (AHCI)

- Intel Active Management Technology (iAMT) 9.0 and vPRO 9.0 support

1-3   Special Features

Recovery from AC Power Loss

Basic I/O System (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 press the power switch to turn it back on), or for it to automatically return to a power-on state. See the Advanced BIOS Setup section to change this setting. The default setting is **Last State**.

1-4   PC Health Monitoring

This section describes the PC health monitoring features of the board. All boards have an onboard System Hardware Monitoring chip that supports PC health monitoring. An onboard voltage monitor will scan the following onboard voltages continuously: CPU Vcore, 12V, 5V, 3.3V, 3.3VSB, memory, chipset, and battery voltages. Once a voltage becomes unstable, a warning is given, or an error message is sent to the screen. The user can adjust the voltage thresholds to define the sensitivity of the voltage monitor.

Fan Status Monitor with Firmware Control

PC health monitoring in the BIOS can check the RPM status of the cooling fans. The onboard CPU and chassis fans are controlled by Thermal Management via IPMI Firmware.

Environmental Temperature Control

The thermal control sensor monitors the CPU temperature in real time and will turn on the thermal control fan whenever the CPU temperature exceeds a user-defined threshold. The overheat circuitry runs independently from the CPU. Once the thermal sensor detects that the CPU temperature is too high, it will automatically turn on the thermal fans to prevent the CPU from overheating. The onboard chassis thermal circuitry can monitor the overall system temperature and alert the user when the chassis temperature is too high.

> **Note**: To avoid possible system overheating, please be sure to provide adequate airflow to your system.

System Resource Alert

This feature is available when the system is used with SuperDoctor® III in the

Windows OS environment or used with SuperDoctor® II in Linux. SuperDoctor is used to notify the user of certain system events. For example, you can also configure SuperDoctor to provide you with warnings when the system temperature, CPU temperatures, voltages and fan speeds go beyond predefined thresholds.

1-5 ACPI Features

ACPI stands for Advanced Configuration and Power Interface. The ACPI specification defines a flexible and abstract hardware interface that provides a standard way to integrate power management features throughout a PC system, including its hardware, operating system, and application software. This enables the system to automatically turn on and off peripherals such as CD-ROMs, network cards, hard-disk drives, and printers.

In addition to enabling operating-system-directed power management, ACPI also provides a generic system event mechanism for Plug-and-Play, and an operating system-independent interface for configuration control. ACPI leverages the Plug-and-Play BIOS data structures, while providing a processor-architecture-independent implementation that is compatible with Windows 7, Windows 8, and Windows 2008 operating systems.

1-6 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.

This motherboard accommodates SMC-proprietary power supplies. To provide adequate power to your system, be sure to use power supplies recommended by Supermicro for your system.

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

סילוק הסוללות המשומשות יש לבצע לפי הוראות היצרן.

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

경고!

배터리가 올바르게 교체되지 않으면 폭발의 위험이 있습니다. 기존 배터리와 동일 하거나 제조사에서 권장하는 동등한 종류의 배터리로만 교체해야 합니다. 제조사 의 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.

סילוק המוצר

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

<div dir="rtl">عند التخلص النهائي من هذا المنتج ينبغي التعامل معه وفقا لجميع القوانين واللوائح الوطنية</div>

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 avoid damaging 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 your computer chassis provides adequate 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 battery upside down to avoid possible explosion.

Unpacking

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

2-3   Processor and Heatsink Installation

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

Important:

* Always connect the power cord last, and always remove it before adding, removing, or changing any hardware components. Please install the processor into the CPU socket before you install the CPU heatsink.

* If you are buying a CPU separately, make sure that you use an Intel-certified multidirectional heatsink only.

* Please install the system board into the chassis before installing the CPU heatsink.

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

* Refer to the Supermicro website for CPU updates and support.

Installing the LGA1150 Processor

1. Gently press down the load plate handle and push it outward (to the right) to unlock it.

2. Once the load plate handle is unlocked, gently lift the handle to open the load plate.
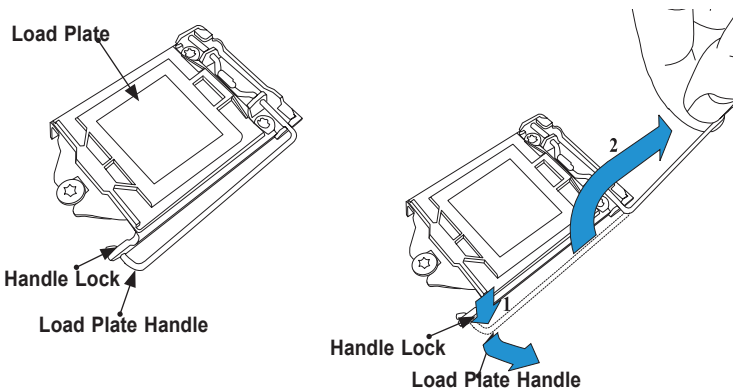
3. Once the load plate is open, use your thumb and index finger to hold the CPU at the north center edge and the south center edge of the CPU.

North Center Edge

South Center Edge
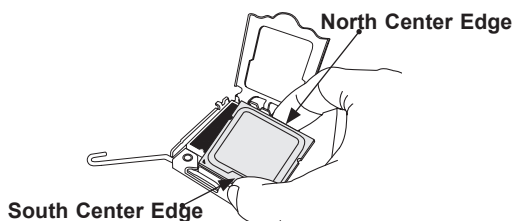
4. Align the CPU keys, which are the semicircular cutouts on the sides of the CPU (shown below), against the socket keys, the semicircular notches on the sides of the CPU socket. Align CPU Pin 1, the triangle at the bottom left of the CPU, against Pin 1 of the socket, the triangle marker at the bottom left of the CPU socket.

Socket Pin1

Socket Keys

CPU Pin1

CPU Keys
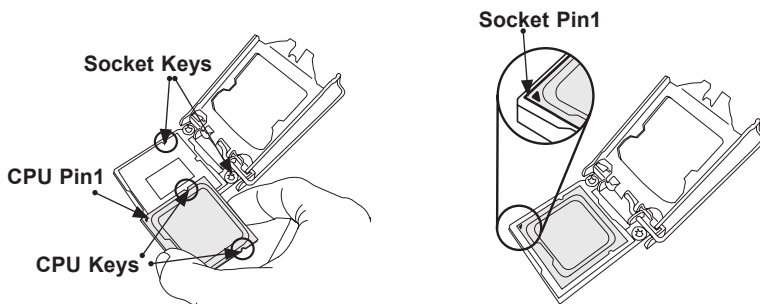
5. Once they are aligned, carefully lower the CPU straight down into the socket. (To avoid damaging the CPU or the socket, do not drop the CPU on the socket. Do not rub the CPU against the surface or against any pins of the socket.)

6. With the CPU seated inside the socket, inspect the four corners of the CPU to ensure that it is properly installed.
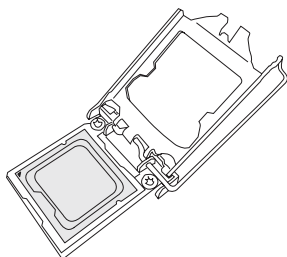
7. Once the CPU is properly installed, use your thumb to gently push the load plate handle down to the handle lock and lock it.

CPU properly installed

Load Plate Handle is locked into place
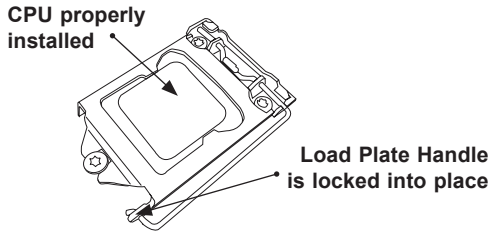
8. When the CPU is securely locked into the CPU socket, the plastic cap will be automatically loosened from the load plate. Use your thumb and index finger to remove the plastic cap from the socket.

The plastic cap will pop open when the CPU is properly installed in the socket. Remove the cap from the socket.
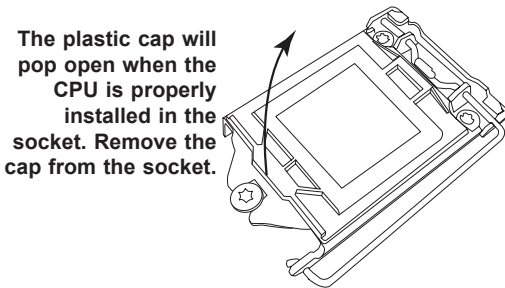
Warning: Install the CPU inside the socket only in one direction. Make sure that it is properly inserted into the CPU socket before closing the load plate. If it doesn't close properly, do not force it, as that may damage your CPU. Instead, open the load plate again and check whether the CPU is properly aligned and securely seated inside the socket.

Installing a Passive CPU Heatsink

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

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

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

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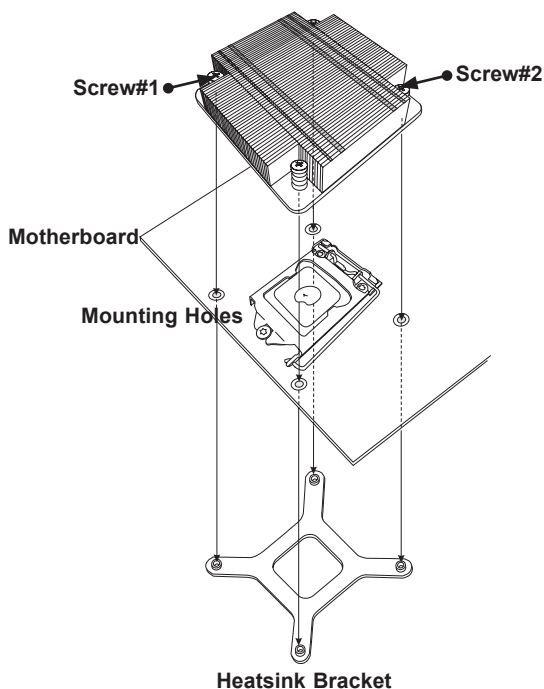
Removing the Heatsink

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

1. Unscrew the heatsink screws from the motherboard in the sequence as shown in the figure below.

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

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

4. Clean the surface of the CPU and the heatsink, removing any thermal grease. Reapply the proper amount of fresh thermal grease on the surface before reinstalling the CPU and the heatsink.
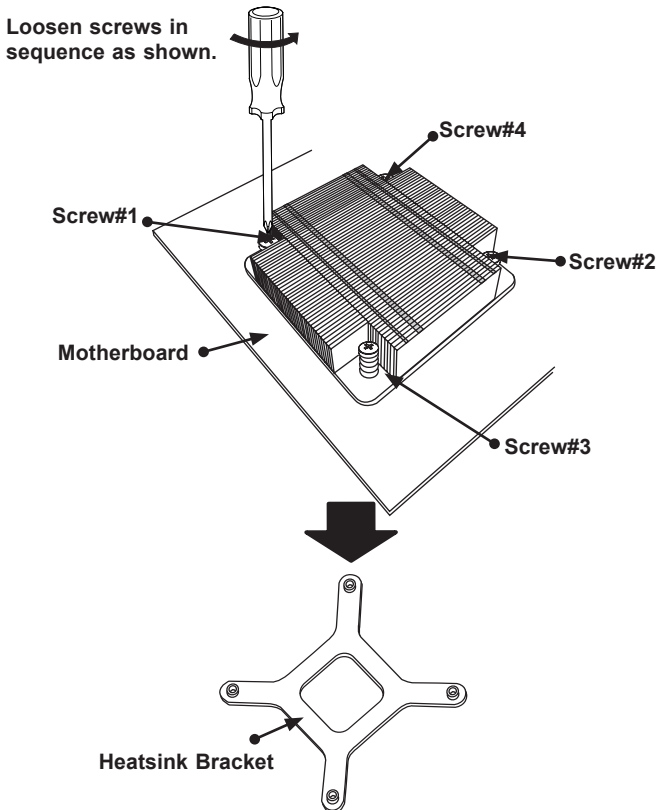
2-4   Installing DDR3 Memory

Note: Check the Supermicro website for recommended memory modules.

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

DIMM Installation

1. Insert the desired number of DIMMs into the memory slots, starting with P1-DIMMA1 (for Node 1) and P2-DIMMA (for Node 2). For the system to work properly, please use memory modules of the same type and speed in the same motherboard.

2. Push the release tabs outward on both ends of the DIMM slot to unlock it.

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

4. Align the notches on both ends of the module against the receptive points on the ends of the slot.

5. Use two thumbs together to press the notches on both ends of the module straight down into the slot until the module snaps into place.

6. Press the release tabs to the lock positions to secure the DIMM module into the slot.

P2-DIMMA1 (for Node 2)

P1-DIMMA1 (for Node 1)

Notches

Release Tabs

Press both notches straight down into the memory slot.
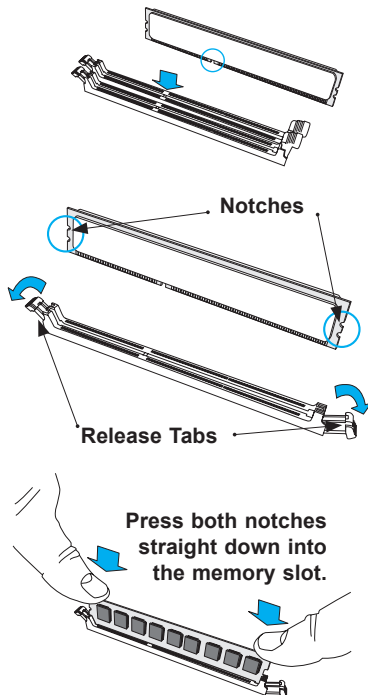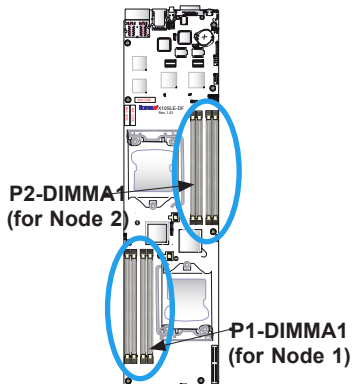
Removing Memory Modules

Reverse the steps above to remove the DIMM modules from the motherboard.

Memory Support

Towards the CPU

Channel A, Slot 1

Channel A, Slot 2
(Blue Slot)

Channel B, Slot 1

Channel B, Slot 2
(Blue Slot)

Towards the edge of the motherboard
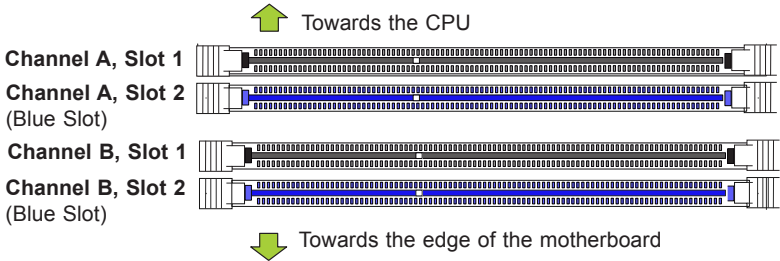
The X10SLE-DF supports two nodes; each node supports up to 32GB of Unbuffered (UDIMM) DDR3 ECC 1600/1333/1066 MHz VLP (Very-Low-Profile) memory in 4 slots. Populating these DIMM modules with a pair of memory modules of the same type and size will result in interleaved memory, which will improve memory performance. Please refer to the table below.

Memory Population Guidelines

Please follow the table below when populating the memory module on each node.

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

Notes:

- Be sure to use memory modules of the same type, speed, and frequency on the same motherboard. Mixing of memory modules of different types and speeds may damage the motherboard.

- Due to memory allocation to system devices, the amount of memory that remains available for operational use will be reduced when 4 GB of RAM is used. The reduction in memory availability is disproportional. See the following table for details.

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

2-5   Motherboard Installation

All motherboards have standard mounting holes to fit different types of 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.

Tools Needed
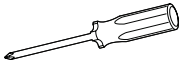
Philips Screwdriver (1)

Philips Screws (9)

**Standoffs (9)
Only if Needed**

Location of Mounting Holes
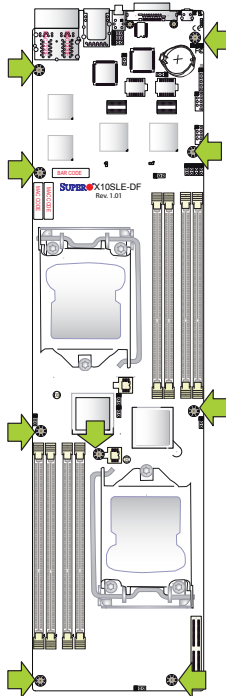
Caution: 1) To avoid damaging the motherboard and its components, please do not use a force greater than 8 lb/inch on each mounting screw during motherboard installation. 2) Some components are very close to the mounting holes. Please take precautionary measures to avoid damaging these components when installing the motherboard to the chassis.

Installing the Motherboard

1. Install the I/O shield into the back of the chassis.
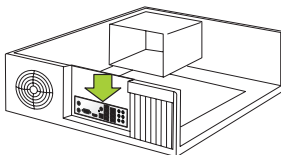
2. Locate the mounting holes on the motherboard. (See the previous page.)

3. Locate the matching mounting holes on the chassis. Align the mounting holes on the motherboard against the mounting holes on the chassis.

4. Install standoffs in the chassis as needed.
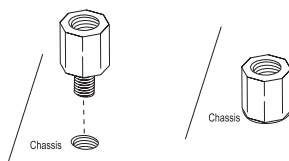
5. Install the motherboard into the chassis carefully to avoid damaging other motherboard components.

6. Using a Phillips screwdriver, insert a Phillips Pan-head #6 screw into a mounting hole on the motherboard and its matching mounting hole on the chassis.
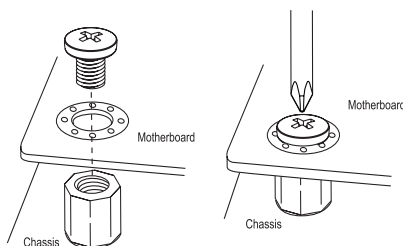
7. Repeat Step 5 to insert #6 screws into all mounting holes.

8. Make sure that the motherboard is securely placed in the chassis.

> **Note:** Images displayed are for illustration only. Your chassis or components might look different from those shown in this manual.

2-6   Connectors/IO 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.

Front I/O Panel
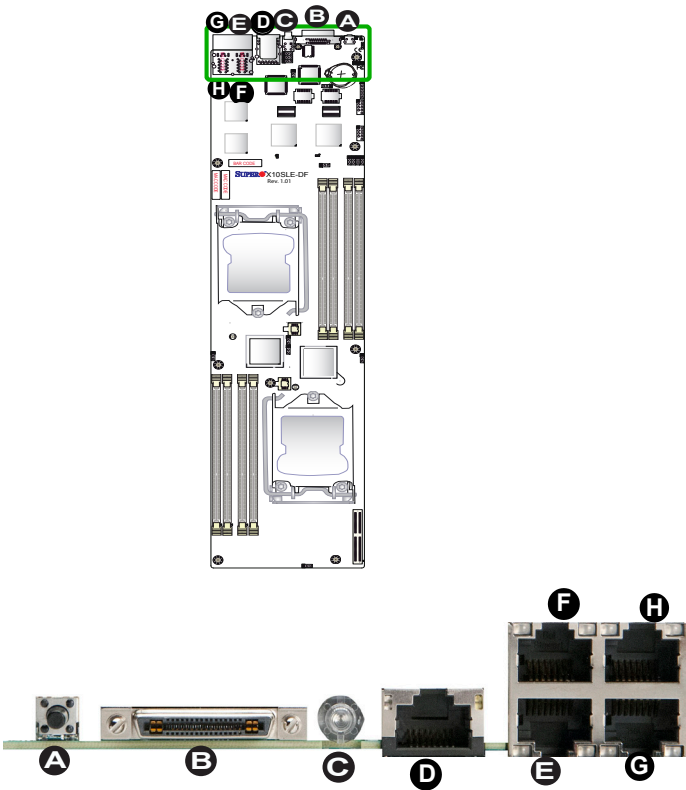
Front I/O Panel
A. Power Button (PWR Button to power-on or power off Node 1 and Node 2)
B. Front IO JKVM1 (USB 2.0 x2/VGA/COM)
C. LAN Connection Switch (to provide ethernet access to multiple devices simultaneously)
D. IPMI-LAN
E. P1-LAN1 (for Node 1)
F. P2-LAN1 (for Node 2)
G. P1-LAN2 (for Node 1)
H. P2-LAN 2 (for Node 2)

Power Switch//LED Indicator

A power switch/LED (SW1) is located next to the USB/KVM connector on the front IO panel. Use this switch to turn on and off the power supply for both Node 1 and Node 2. Press the switch (SW1) briefly to turn on the power if it is off. Press and hold SW1 to shut down both Node 1 and Node 2.

Node_ID Switch/KVM/LED Indicator

A Node_ID Switch/KVM/LED indicator (SW2) is located next to the IPMI LAN port on the front IO panel. This switch allows multiple devices to access the ethernet at the same time.
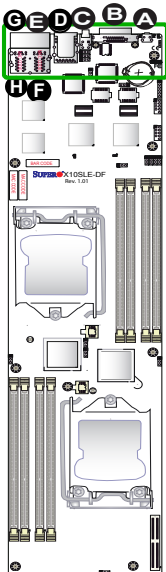
A. PWR SW/LED

B. Node Switch/KVM/LED
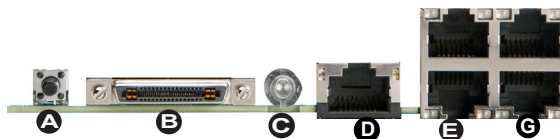
Ethernet Ports

Two Gigabit Ethernet ports (LAN1/2) fore each node are located on the front I/O panel to provide internet connections. LAN Ports 1/2 for Node 1 are located at P1-LAN1 and P1-LAN2; LAN Ports 1/2 for Node 2 are located at P2-LAN1/P2-LAN2. In addition, an IPMI-LAN port, which provides a network connection via the IPMI 2.0 interface, is located next to the P2/P1-LAN1 ports on the IO panel. The IPMI-LAN port is shared between Node 1 and Node 2. This feature is supported by the onboard LAN Switch chip. All LAN ports accept the RJ45 cable.

Note: Please refer to the LED Indicator Section for LAN LED information.
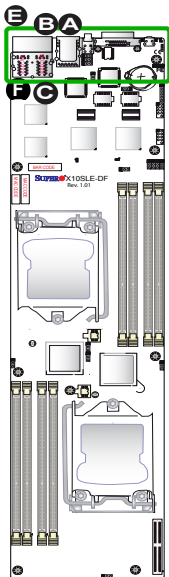
A. IPM-LAN (shared between Node 1/ Node 2)
B. P1-LAN1 (LAN 1 for Node 1)
C. P2-LAN1 (LAN 1 for Node 2)
D. P1-LAN2 (LAN 2 for Node 1)
E. P2-LAN2 (LAN 2 for Node 2)
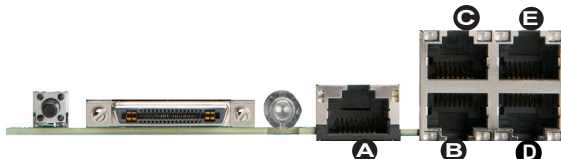
USB 2.0 (x2)/VGA/COM Connector

JKVM1 supports USB 2.0 (x2)/VGA/COM (UART) connections on the front IO panel to provide console redirection support or remote networking interface. See the layout below for the location.
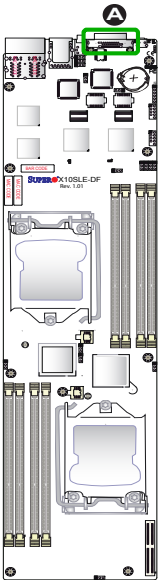
A. USB 2.0 (x2)/VGA/COM
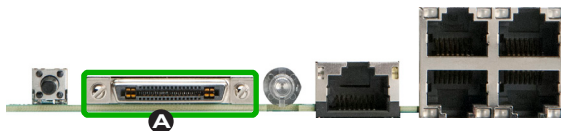
2-7   Connecting Cables

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

SMC-Proprietary Add-On Card Slot

An SMC-proprietary add-on card slot is located at J8 on the motherboard. Install an appropriate add-on card into this slot to provide power supply and SIG SATA interface support to Node 1 or Node 2. Press the power button located at SW1 to power on or power off Node 1 and Node 2. See the layout below for the locations.

Port 80 Support

A Port 80 header is located on each node to support Port 80 connection for POST code debugging. Port 80 support for Node 1 is located at J37 (P1-PORT 80), and for Node 2 is located at J38 (P1-PORT 80). See the layout below for the locations.
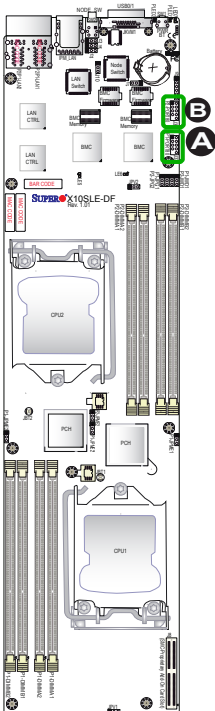
A. J37 (P1-PORT 80)
B. J38 (P2-PORT 80)

2-8   Jumper Settings

Explanation of Jumpers

To modify the operation of the mother-board, 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.
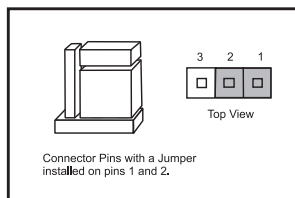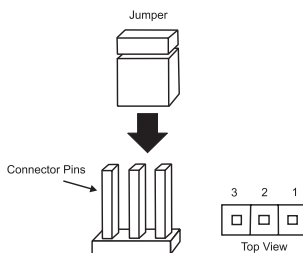
Clear CMOS (JBT1)

JBT1 is used to clear the saved system setup configuration stored in the CMOS chip for Node 1, while JBT2 is used for Node 2. To clear the contents of the CMOS, completely shut down the system, remove the AC power cord connection, and then short JBT1 or JBT2 with a jumper. Remove the jumper before powering on the system again. This will erase all user settings and revert everything to their factory-set defaults.
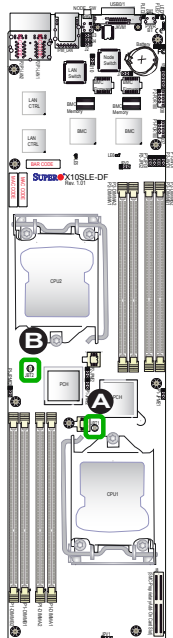
A. Clear CMOS for Node 1 (JBT1)
B. Clear CMOS for Node 2 (JBT2)

VGA Enable

Jumpers P1-JPG1/P2-JPG1 allow the user to enable the onboard VGA support for Node 1 (P1-JPG1) or Node 2 (P2-JPG1). The default setting is 1-2 to enable VGA support. See the table on the right for jumper settings.

VGA Enable Jumper Settings	
Jumper Setting	Definition
1-2	Enabled (Default)
2-3	Disabled

Watch Dog Enable/Disable

A Watch Dog (WD) Timer is a system monitor that can reboot the system when a software application hangs. Close Pins 1-2 on P1-JWD1 or P2-JWD1 to reset the system if an application hangs. Close Pins 2-3 of the WD Enable Jumper P1-JWD1 (for Node 1) or P2-JWD1 (for Node 2) 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 Enable Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Reset (default)
Pins 2-3	NMI
Open	Disabled
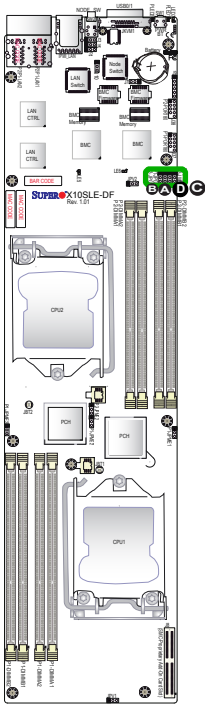
A. VGA Enable for Node 1 (P1-JPG1)
B. VGA Enable for Node 2 (P2-JPG1)
C. WD Enable for Node 1 (P1-JWD1)
D. WD Enable for Node 2 (P2-JWD1)

ME Recovery

Set Jumpers P1-JPME1/P2-JPME1 to select ME Firmware Recovery mode for Node 1 (P1-JPME1)/Node 2 (P2-JPME1). ME Recovery limits system resource for essential function use only without putting restrictions on power use. In the single-operation mode, online up-grade will be available via Recovery mode. See the table on the right for pin definitions.

ME Recovery Jumper Settings	
Jumper Setting	Definition
1-2	Normal (Default)
2-3	ME Recovery

Manufacturer Mode Select

Close the Manufacture Mode (ME) Select Jumper P1-JPME2 (for Node 1) or P2-JPME2 (for Node 2) to bypass SPI flash security and force the system to use the Manufacturer mode. ME mode allows the user to flash the system firmware from a host server to modify system settings of a machine at a remote location. See the table on the right for jumper settings.

ME Mode Select Jumper Settings	
Jumper Setting	Definition
1-2	Normal (Default)
2-3	Manufacture Mode
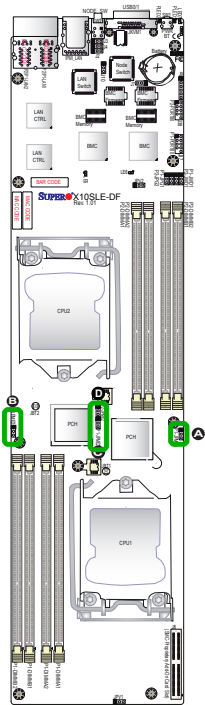
A. ME Recovery for Node 1 (P1-JPME1)
B. ME Recovery for Node 2 (P2-JPME1)
C. ME Select for Node 1 (P1-JPME2)
D. ME Select for Node 2 (P2-JPME2)

Thermal Throttling Triggered by Power-Failure Enable (J7)

Close pins 1-2 of Jumper J7 to trigger Thermal Throttling when the power supply fails. See the table on the right for jumper settings.

Thermal Throttling by Power-Failure Enable Jumper Settings	
Jumper Setting	Definition
1-2	Thermal Throttling Triggered (Default)
2-3	Disabled

A. J7

2-23
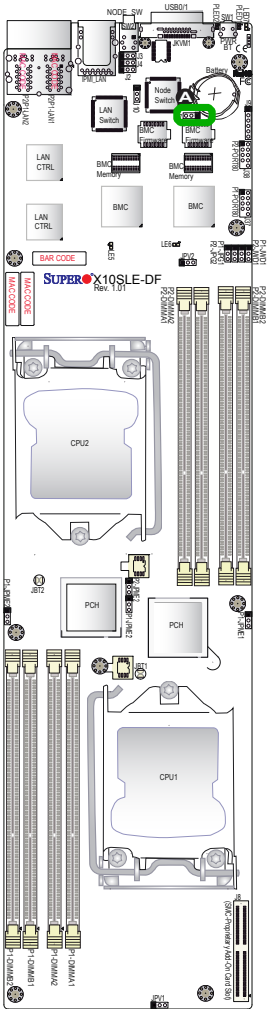
2-9   Onboard Indicators

GLAN 1/2 LEDs

The LAN 1/2 ports for Node 1 and Node 2 are located on the front IO panel. Each Ethernet LAN port has two LEDs. The yellow LED on the right indicates Link. The Activity LED on the left may be green, amber, or off to indicate the speed. See the tables at right for more information.

Activity LED — — Link LED

Activity LED — — Link LED

Rear View (LAN Ports 1/2)
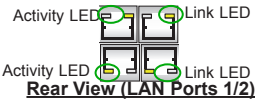
GLAN/TLAN Activity Indicator LED Settings		
Color	Status	Definition
Yellow	Flashing	Active

GLAN/TLAN Link Indicator LED Settings	
LED Color	Definition
Off	No Connection/10 Mbps
Amber	1 Gbps
Green	100 Mbps.

IPMI-LAN LEDs

An IPMI-LAN shared between Node 1 and Node 2 is also located on the front IO 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 LED — — Activity LED
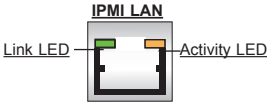
IPMI LAN

IPMI LAN Link LED (Left) & Activity LED (Right)		
	Color/State	Definition
Link (Left)	Green: Solid	100 Mbps
	Amber: Solid	1000 Mbps
Activity (Right)	Yellow Blinking	Active
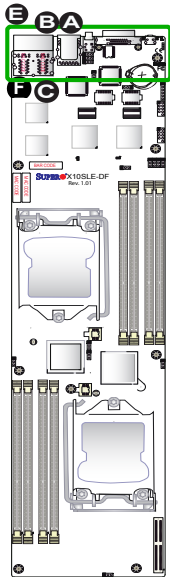
A. P1-LAN1 LEDs (LAN 1 for Node 1)
B. P2-LAN1 LEDs (LAN 1 for Node 2)
C. P1-LAN2 LEDs (LAN 2 for Node 1)
D. P2-LAN2 LEDs (LAN 2 for Node 2)
E. IPM_LAN LEDs (shared between Node 1 and Node 2)
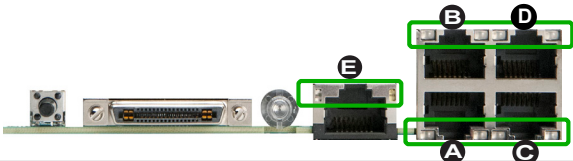
PWR LED Indicators (PLED1/PLED2)

Two Power LED Indicators are located on the motherboard. When PLED1 is on, power supply is connected to Node 1. When PLED2 is on, the power supply to Node 2 is connected. Press the power button at SW1 to power on or power off Node 1 and Node 2. See the table at right for more information.

PWR LEDs (PLED1/PLED2) Status	
Color/State Definition	
Green : On, Standby: Orange	PLED1: PWR to Node 1: On/Standby
Green : On Standby: Orange	PLED2: PWR to Node 2: On/Standby

IPMI Heartbeat LED (LE5/LE6)

Two IPMI Heartbeat LED Indicators (LE5/LE6) are located on the motherboard. When LE5 is blinking, Node 1 IPMI functions normally. When LE6 is blinking, Node 2 IPMI is normal. See the table at right for more information.

Heartbeat LEDs (LE5/LE6) Status	
Color/State Definition	
LE5: Green (Blinking)	Node 1 IPMI: Normal
LE6: Green (Blinking)	Node 2 IPMI: Normal
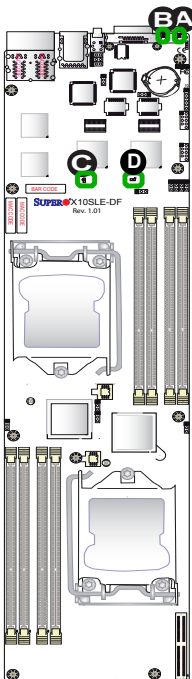
A. PLED1 (PWR LED for Node 1)
B. PLED2 (PWR LED for Node 2)
C. LE5 (IPMI Heatbeat LED for Node 1)
D. LE6 (IPMI Heatbeat LED for Node 2)

UID LED Indicator

An LED Indicator is located at LED7 on the motherboard. Press the UID button again to turn off the LED Indicator. The UID Indicator provides easy identification of a system unit that may be in need of service.

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

UID LED Status	
Color/State	Status
Blue: On	Unit Identified

A. UID LED
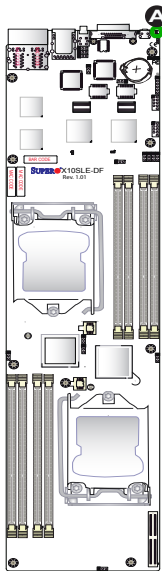
2-10 SATA Connections

SATA 3.0 Connections

Four Serial_ATA (SATA) 3.0 connectors are on the HDD backplane to provide SATA 3.0/6 Gb/s support. These SATA connections are supported by Intel C224 PCH chips. These Serial Link connections provide faster data transmission than Legacy Parallel ATA. Refer to the HDD backplane that came with your system for the locations of the SATA 3.0 connectors. 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

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. Make sure that the Standby PWR LED is not on. (**Note:** If it is on, the onboard power is on. 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.

4. Install a CPU and heatsink (be sure that it is fully seated) and then connect the chassis speaker and the power LED to the motherboard. Check all jumper settings as well.

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 whether 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, you will need to remove all the add-on cards and cables first.

2. Use the speaker to determine if any beep codes exist. (Refer to Appendix A for details on beep codes.)

3. Remove all memory modules and turn on the system. (If the alarm is on, check the specifications of the memory modules and reset the memory or try a different one.)

Memory Errors

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

2. You should be using unbuffered ECC DDR3 (1.5V) 1600/1333/1066 MHz VLP (Very-Low-Profile) memory as recommended by the manufacturer. Also, it is recommended that you use memory modules of the same type and speed for all DIMMs in the system. Do not use memory modules of different sizes, different speeds, or different types on the same motherboard.

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

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

Losing 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 its 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 problems with the specific system configuration that was sold to you.

1. Please go through the "Troubleshooting Procedures" and 'Frequently Asked Questions (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 boot block code of the BIOS.

3. If you have 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

*   An example of a technical support form is on our website at http://www.supermicro.com/support/rma/rma.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 X10SLE-DF supports two nodes; each node supports up to 32GB of unbuffered ECC DDR3 1.5V/1.35V, 1600/1333/1066 MHz VLP (Very-Low-Profile) memory in four slots. See Section 2-4 for details on installing memory.

Question: How do I update my BIOS?

Answer: We do NOT recommend that you upgrade your BIOS if you are not experiencing any problems with your system. Updated BIOS files are located on our website at http://www.supermicro.com/support/bios/. Please check our BIOS warning message and the information on how to update your BIOS on our web site. Select your motherboard model and download the BIOS ROM file to your computer. Also, check the current BIOS revision to 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 flash drive. To flash the BIOS, run the batch file named "ami.bat" with the new BIOS ROM file from your bootable device or USB flash drive. Use the following format:

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

> **Note:** 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., X10SLE-DF) and build version as the extension- for example, "X10SLE-DF.115". When completed, your system will automatically reboot. 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.

> 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.

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

> **Important:** 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.

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 out-wards to unlock it. Once unlocked, the battery will pop out from the holder.

4. Remove the battery.

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 into 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 and 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.

LITHIUM BATTERY

BATTERY HOLDER

OR

LITHIUM BATTERY

BATTERY HOLDER
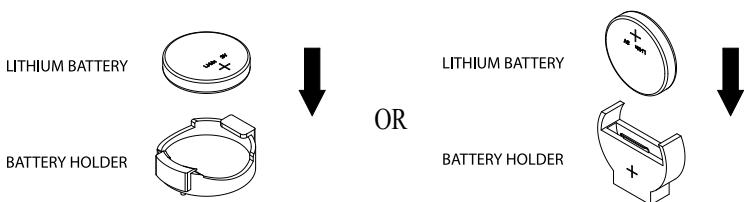
3-5   Returning Merchandise for Service

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. For faster service, you may also obtain RMA authorizations online (http://www.supermicro.com/RmaForm/). When you return the motherboard to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and the package should be 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 X10SLE-DF. The ROM BIOS is stored in a Flash EEPROM and can be easily updated. This chapter describes the basic navigation of the AMI BIOS setup utility setup screens.

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

Starting the 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>, <F4>, <Enter>, <Esc>, arrow keys, etc.

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

How To Change the Configuration Data

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

How to Start the Setup Utility

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

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

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.

The following Main menu items will display:

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

                                                        Set the Date. Use Tab to
                                                        switch between Date
     System Date                     [Fri 11/22/2013]   elements.
     System Time                     [10:34:11]

     Supermicro X10SLE-DF(P1)
     Version                         1.0
     Build Date                      11/13/2013


     Memory Information
     Total Memory                    4096 MB (DDR3)
                                                        →←: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F2: Previous Values
                                                        F3: Optimized Defaults
                                                        F4: Save & Exit
                                                        ESC: Exit
```

System Date/System Time

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

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

The following BIOS items will also be displayed:

Supermicro X10SLE-DF(P1)

Version

Build Date

Memory Information

Total Memory

This displays the total size of memory available in the system.

4-3   Advanced Setup Configurations

Use the arrow keys to select Boot Setup and press <Enter> to access the submenu items.
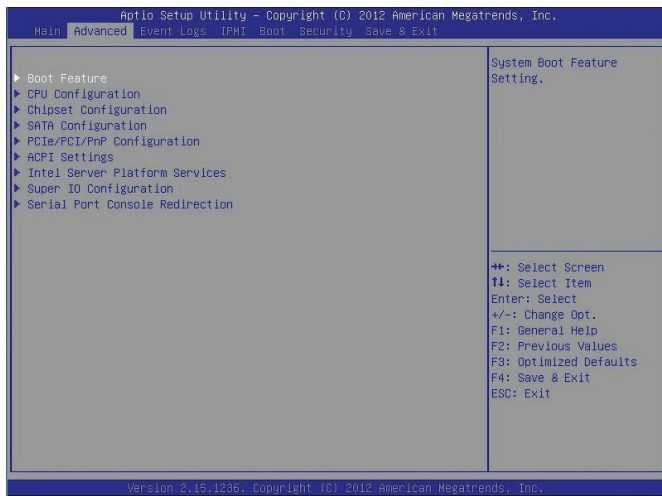
Warning: Take caution when changing the Advanced settings. An incorrect value, an excessively high DRAM frequency, or an improper DRAM timing setting may make the system unstable. When this occurs, revert the setting to the manufacturer's default setting to ensure proper system operation.

▶Boot Feature

Quiet Boot

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

AddOn ROM Display Mode

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

Bootup Num-Lock

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

Wait For 'F1' If Error

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

Interrupt 19 Capture

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

Re-try Boot

Select Enabled to allow the BIOS to automatically reboot the system from a specified boot device after the initial system boot fails. The options are **Disabled**, Legacy Boot, and EFI Boot.

▶Power Configuration

Watch Dog Function

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

Restore on AC Power Loss

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

▶CPU Configuration

The following CPU information will be displayed:

- Type of CPU

- CPU Signature

- CPU Stepping

- Processor Family

- Microcode Patch

- FSB Speed

- Maximum CPU Speed

- Minimum CPU Speed

- CPU Speed

- Processor Cores

- Intel HT(Hyper-Threading) Technology

- Intel VT-x (Virtualization) Technology

- Intel SMX (Safer Mode Extensions) Technology

- 64-bit

- EIST (Enhanced Intel SpeedstepTechnology) Technology

- CPU C3 State

- CPU C6 State

- CPU C7 State

- L1 Data Cache

- L1 Code Cache

- L2 Cache

- L3 Cache

Clock Spread Spectrum

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

Hyper-threading

Select Enabled to support Intel Hyper-threading Technology to enhance CPU performance. The options are **Enabled** and Disabled.

Active Processor Cores

This feature determines how many CPU cores will be activated for each CPU. When all is selected, all cores in the CPU will be activated. (Please refer to Intel's web site for more information.) The options are **All,** 1, 2, and 3.

Limit CPUID Maximum

Select Enabled to set the maximum CPU ID value and to boot the legacy operating systems that cannot support processors with extended CPUID functions. The options are Enabled and **Disabled** (for the Windows OS).

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

Select 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 that overwhelm the processor or damage the system during an attack. The default is **Enabled**. (Refer to Intel and Microsoft websites for more information.)

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

Select Enabled to use the Intel 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.

Hardware Prefetcher (Available when supported by the CPU)

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

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

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

> **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.

CPU AES

Select Enabled to enable Intel CPU Advanced Encryption Standard (AES) Instructions to enhance data integrity. The options are **Enabled** and Disabled.

Boot Performance Mode

Use this item to set the performance mode for the CPU upon bootup. Select Max Non-Turbo to achieve the maximal performance without invoking out-of-band or

turbo mode for the CPU. The options are **Max Non-Turbo Performance** and Turbo Performance.

EIST

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**.

Turbo Mode (Available if Intel® EIST technology is Enabled)

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

CPU Power Limit1

Use this feature to set the power limit for CPU1. Use the number keys on your keyboard to enter the value. Enter 0 to use the manufacturer's default setting.

CPU Power Limit1 Time

This item allows the user to determine how long CPU1 should operate at the power limit set by the user for the item above. Use the number keys on your keyboard to enter the value. Enter 0 to use the manufacturer's default setting.

CPU Power Limit2

This item allows the user to determine how long CPU2 should operate at the power limit set by the user for the item above. Use the number keys on your keyboard to enter the value. Enter 0 to use the manufacturer's default setting.

Platform Power Limit Lock

Select Enabled to lock the value of Platform Power Limit in the MSR (Model-Specific Register). Once it is locked, you will need to reboot the system to unlock the MSR. The options are Disabled and **Enabled**.

CPU Power Limit3

Use this feature to set the value of CPU Power Limit3 for your system. Use the number keys on your keyboard to enter the value. Enter 0 to use the manufacturer's default setting.

CPU Power Limit3 Time

Use this feature to set the length of time value for CPU Power Limit3 for your system. Use the number keys on your keyboard to enter the value. Enter 0 to use the manufacturer's default setting.

CPU Power Limit3 Duty Cycle

Use this feature to set the value of CPU Power Limit3 Duty Cycle for your system. Use the number keys on your keyboard to enter the value. Enter 0 to use the manufacturer's default setting.

DDR Power Limit1

Use this feature to set the power limit for DDR1. Press "+" or "-" on your keyboard to change this value. Enter 0 to use the manufacturer's default setting.

DDR Power Limit1 Time

This item allows the user to determine how long DDR1 should operate at the power limit set by the item above. Press "+" or "-" on your keyboard to change this value. Enter 0 to use the manufacturer's default setting.

DDR Power Limit2

Use this feature to set the power limit for DDR2. Press "+" or "-" on your keyboard to change this value. Enter 0 to use the manufacturer's default setting.

1-Core Ratio Limit

This feature increases (multiplies) one clock speed in the CPU core in relation to the bus speed when one CPU core is active. Press "+" or "-" on your keyboard to change this value. Enter 0 to use the manufacturer's default setting.

2-Core Ratio Limit

This feature increases (multiplies) two clock speeds in the CPU core in relation to the bus speed when two CPU cores are active. Press "+" or "-" on your keyboard to change this value. Enter 0 to use the manufacturer's default setting.

3-Core Ratio Limit (Available when supported by the CPU)

This feature increases (multiplies) three clock speeds in the CPU core in relation to the bus speed when one CPU core is active. Press "+" or "-" on your keyboard to change this value. Enter 0 to use the manufacturer's default setting.

4-Core Ratio Limit (Available when supported by the CPU)

This feature increases (multiplies) four clock speeds in the CPU core in relation to the bus speed when two CPU cores are active. Press "+" or "-" on your keyboard to change this value. Enter 0 to use the manufacturer's default setting.

Energy Performance

Use this feature to select an appropriate fan setting to achieve the maximum system performance (with maximum cooling) or to achieve maximum energy efficiency (with maximum power saving). The fan speeds are controlled by the firmware manage-

ment via IPMI 2.0. The options are **Performance**, Balanced Performance, Balanced Energy, and Energy Efficient.

VR Current Value

Use this feature to set the limit on the current voltage regulator. Press "+" or "-" on your keyboard to change this value. Enter 0 to use the manufacturer's default setting.

CPU C-States

C-States, a processor power management platform developed by Intel, can further reduce power consumption from the basic C1 (Halt State) state that blocks clock cycles to the CPU. Select Enabled for CPU C-States support. The options are **Enabled** and Disabled. If this feature is set to Enabled, the following items will display:

Enhanced C1 State (Available when "CPU C-States" is set to Enabled)

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

CPU C3 Report (Available when "CPU C-States" is set to Enabled)

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 "CPU C-States" is set to Enabled)

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 caches is turned off. The options are **Enabled** and Disabled.

C6 Latency (Available when "CPU C-States" is set to Enabled)

Select Short to set a short delay time(period) during which the BIOS reports CPU C6 State (ACPI C3) to the operating system. Select Long to set a long delay time(period) during which the BIOS reports CPU C6 State (ACPI C3) to the operating system. The options are **Short** and Long.

CPU C7 Report (Available when "CPU C-States" is set to Enabled)

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 Disabled, CPU C7, and **CPU C7s**.

C7 Latency (Available when "CPU C-States" is set to Enabled)

Select Short to set a short delay time (period) during which the BIOS reports CPU C7 State (ACPI C3) to the operating system. Select Long to set a long delay time (period) during which the BIOS reports CPU C7 State (ACPI C3) to the operating system. The options are Short and **Long**.

C1 State Auto Demotion

When this item is enabled, the CPU will conditionally demote C3, C6, or C7 requests to C1 based on the un-cored auto-demote state. The options are Disabled and **Enabled.**

C3 State Auto Demotion

When this item is enabled, the CPU will conditionally demote C6 or C7 requests to C3 based on the un-cored auto-demote state. The options are Disabled and **Enabled.**

C-State Pre-Wake

Select Enabled to enable C State Pre-Wake State support. The options are **Enabled** and Disabled.

Package C-State limit

Select Auto for the AMI BIOS to automatically set the limit on the register of the C-State package. The options are C0/C1, C2, C3, C6, C7, C7s, and **Auto**.

LakeTiny Feature

Select Enabled to enable LakeTiny support. The options are **Disabled** and Enabled.

ACPI T State

Select Enabled for ACPI T state (processor throttling) feature support. The options are Disabled and **Enabled**.

▶Chipset Configuration

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

▶System Agent (SA) Configuration

The following System Agent (SA) information will be displayed:

- System Agent Bridge Name

- VT-d Capability

VT-d

Select Enabled to enable Intel 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 Intel platforms, providing the user with greater reliability, security, and availability in networking and data-sharing. The settings are **Enabled** and Disabled.

▶PCIe Configuration

This item displays the information of the (graphics) device installed in a PCI-E slot.

Run-time C7 Allowed

Select Enabled for Run-time C7 support, which will allow the CPU to enter the deep-sleep state while the system is in operation to reduce power consumption. (**Note**: Please be sure to restore the default settings and save appropriate end-point settings for all components associated to this feature *before* you enable this feature.) The options are **Enabled** and Disabled.

Detect Non-Compliance Device

Select Enabled for the AMI BIOS to automatically detect a PCI-E device that is not compliant with the PCI-E standards. The options are Enabled and **Disabled**.

Program PCI-E ASPM After OpROM

PCI-E ASPM, the Active-State Power Management for PCI-Express slots, is a power-management protocol used to manage power consumption of serial-link devices installed on PCI-Exp slots during a prolonged off-peak time. If this item is set to Enabled, PCI-E ASMP will be programmed after the OpROM. If this item is set to Disabled, the PCI-E ASPM will be programmed before the OpROM. The options are **Enabled** and Disabled.

DMI Link ASPM Control

Use this item to configure the ASPM (Active State Power Management) settings for the devices/components connected to the DMI Link on the System Agent side. The options are Disabled, L0s, L1, and **L0sL1**.

PCH DMI Link ASPM Control

Select Enabled to support ASPM (Active-State Power Management) for the DMI Links in the PCH chip. The options are Disabled and **Enabled**.

▶Memory Configuration

This submenu displays the information on the memory modules installed on the motherboard.

- Memory RC Version

- Memory Frequency

- Total Memory

- Memory Voltage

- P1-DIMMA1

- P1-DIMMA2

- P1-DIMMB1

- P1-DIMMB2

- CAS Latency (tCL)

- Minimum Delay Time

    - CAS to RAS (tRODmin)

    - Row Precharge (tRPmin)

    - Active to Precharege (tRASmin)

Memory Frequency Limiter

Use this feature to set the limit of memory frequency for DIMM modules installed on the motherboard. The options are **Auto,** 1067 (MHz), 1333 (MHz), and 1600 (MHz).

Max TOLUD (Top of Low Usable DRAM)

This feature sets the maximum TOLUD value, which specifies the "Top of Low Usable DRAM" memory space to be used by internal graphics devices or graphics controllers if these devices are enabled. The options are **Dynamic**, 1 GB, 1.25 GB, 1.5 GB, 1.75 GB, 2 GB, 2.25 GB, 2.5 GB, 2.75 GB, 3 GB, and 3.25 GB.

Memory Scrambler

Select Enabled to enable memory scrambler support for memory error correction. The settings are **Enabled** and Disabled.

Thermal Throttling

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

Memory Refresh Rate

This feature allows the user to set the memory refresh rate for the system to enhance memory and system performance. The options are **Auto** and Always 1X.

▶**PCH-IO Configuration**

This item displays the information for the PCH-IO Chip.

• Intel PCH Rev ID

• USB Configuration

• USB Devices

EHCI1

Select Enabled to enable EHCI (Enhanced Host Controller Interface) Controller 1 for USB 2.0 support. One EHCI controller must always be enabled. The settings are **Enabled** and Disabled.

EHCI2

Select Enabled to enable EHCI (Enhanced Host Controller Interface) Controller 2 for USB 2.0 support. One EHCI controller must always be enabled. The settings are **Enabled** and Disabled.

Legacy USB Support

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

Port 60/64 Emulation

Select Enabled to support I/O Port 60h/64h Emulation, which will allow a legacy USB keyboard to be fully supported by an operating system that does not recognize a USB device. The options are Disabled and **Enabled**.

XHCI Hand-Off

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

EHCI Hand-Off

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

XHCI Mode

This feature handles the operation mode for the XHCI (Extensible Host Controller Interface) controller. The settings are Smart Auto, **Auto**, Enabled, Disabled, and Manual.

▶**SATA Configuration**

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

SATA Controllers

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

SATA Mode Selection

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

SATA Frozen

Select Enabled to lock security settings for SATA devices. The options are **Enabled** and Disabled.

SATA RAID Option ROM/UEFI Driver (Available if the item above, SATA Mode Select, is set to AHCI or RAID)

Select Enabled to use the SATA RAID Option ROM/UEFI driver for system boot. The options are **Enabled** and Disabled.

If the item SATA Mode Select is set to AHCI, the following items are displayed:

Serial ATA Port 0~Port 1

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

* Model number of drive and capacity

* Software Preserve Support

Port 0 ~ Port 1 Hot Plug

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

Port 0 ~ Port 1 SATA Device Type

This feature configures the selected SATA port to support either a solid-state drive or hard-disk drive. The options are **Hard Disk Drive** and Solid Sate Drive.

Port 0 ~ Port 1 Spin Up Device

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

If the item - SATA Mode Select is set to IDE, the following items are displayed:

Serial ATA Port 0~ Port 1

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

- Model number of drive and capacity

- Software Preserve Support

If the item - SATA Mode Select is set to RAID, the following items are displayed:

Serial ATA Port 0~ Port 1

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

- Model number of drive and capacity

- Software Preserve Support

Port 0 ~ Port 1 Hot Plug

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

Port 0 ~ Port 1 SATA Device Type

This feature configures the selected SATA port to support either a solid state drive or hard disk drive. Set this item to Enabled to enable hot-plugging. The options are **Hard Disk Drive** and Solid Sate Drive.

Port 0 ~ Port 1 Spin Up Device

On an edge detect from 0 to 1, set this item to allow the PCH to start a COMRE-SET initialization sequence to the device. 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:

Above 4G Decoding

Select Enabled for 64-bit devices to be decoded above the 4GB address space if 64bit PCI decoding is supported by the system. The options are **Disabled** and Enabled.

VGA Palette Snoop

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

Launch Storage OPROM Policy

This feature controls how the system executes UEFI (Unified Extensible Firmware Interface), and legacy storage OPROM. Select Legacy Only to boot the system using a legacy device installed in a PCI slot. The options are UEFI Only and **Legacy Only**.

Other PCI Device ROM Priority

This feature selects a PCI device OPROM to launch for system boot if this device is not a network, mass storage, or video device. The options are UEFI Only and **Legacy Only**.

Onboard P1-LAN1 Option ROM

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

Onboard P1-LAN2 Option ROM

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

Network Stack

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

IPv4 PXE Support (Available when Network Stack is set to Enabled)

Set this item to Enabled to activate IPv4 PXE Support. The options are **Enabled** and Disabled.

IPv6 PXE Support (Available when Network Stack is set to Enabled)

Set this item to Enabled to activate IPv6 PXE Support. The options are Enabled and **Disabled**.

▶ACPI Settings

High Precision Timer

Select Enabled to activate the High Precision Timer 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 dependence 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 Program-mable Interval Timer. The options are **Enabled** and Disabled.

WHEA Support

Select Enabled to enable the Windows Hardware Error Architecture (WHEA) sup-port for the Windows 2008 or a new OS. The options are **Enabled** and Disabled.

▶Intel Server Platform Services

The following Intel Server Platform Services configuration settings will be displayed:

● ME (Management Engine) BIOS Interface Version

● SPS Version

● ME FW (Firmware) Status Value

● ME FW State

● ME FW Operation State

● ME FW Error Code

● ME NM FW Status Value

● BIOS Booting Mode

● Cores Disabled

● ME FW SKU Information

● End-of-POST Status

▶Super IO Configuration

Super IO Chip AST2400

▶Serial Port 1 Configuration

Serial Port

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

Change Settings

Use this feature to specify the base I/O port address and the Interrupt Request address of Serial Port 1. Select Auto to let the BIOS automatically assign the base I/O and IRQ address. The options for Serial Port are **Auto**, (IO=3F8h; IRQ=4), (IO=3F8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12), (IO=2F8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12), (IO=3E8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12), and (IO=2E8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12).

▶Serial Port Console Redirection

COM1/SOL

Use this feature to enable console redirection support for COM1 and SOL ports. The options are Enabled and Disabled. The default setting for COM1 is **Disabled**. The default setting for SOL is **Enabled**.

▶Console Redirection Settings

This feature allows the user to specify how the host computer will interface with the client computer on a remote site.

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

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

VT-UTF8 Combo Key Support

Select Enabled to enable VT-UTF8 Combination Key support for the 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, SC0, ESCN, and VT400.

Redirection After BIOS Post

Use this feature to enable or disable Legacy Console Redirection after BIOS POST (Power-On Self Test). When this item is set to Bootloader, Legacy Console Redirection is disabled before OS initialization. When this item is set to Always Enable, Legacy Console Redirection remains enabled during OS initialization. The options are **Always Enable** and Bootloader.

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

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

EMS Console Redirection

Select Enabled to use a COM Port selected by the user for Console Redirection. The options are **Disabled** and Enabled. When this item is set to Enabled, the following submenu will display:

▶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 in 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 features is displayed.

4-4　Event Logs
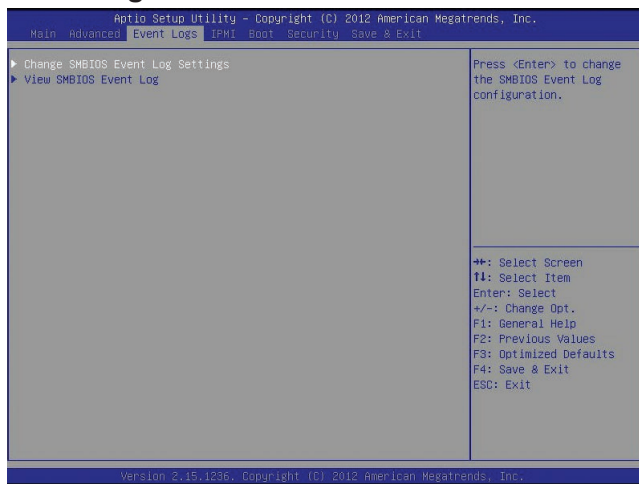
▶**Change SMBIOS Event Log Settings**

Enabling/Disabling Options

SMBIOS Event Log

Select Enabled to support SMBIOS Event Logging during system boot. The options are **Enabled** and Disabled.

PCI Error Logging Support

Select Enabled to support PCI Error Logging during system boot. The options are Enabled and **Disabled**.

Erasing Settings

Erase Event Log

If No is selected, data stored in the event log will not be erased. If Yes, Next Reset is selected, data stored in the event log will be erased upon the next system reboot. If Yes, Every Reset is selected, data stored in the event log will be erased upon every system reboot. The options are **No**; Yes, Next reset; and Yes, Every reset.

When Log is Full

Select Erase Immediately for all messages to be automatically erased from the event log when the event log memory is full. The options are **Do Nothing** and Erase Immediately.

SMBIOS Event Long Standard Settings

Log System Boot Event

This feature toggles the System Boot Event logging to enabled or disabled. The options are **Disabled** and Enabled.

MECI

The Multiple-Event-Count Increment (MECI) counter counts the number of oc-curences. A duplicate event must happen before the MECI counter is incremented. This is a numeric value. The default value is **1**.

METW

Use the Multiple-Event-Time Window (METW) to define the length of time (in minutes) that it must pass before a duplicate log-event entry is generated. Enter a number from 0 to 99. The default value is **60 (minutes)**.

▶View SMBIOS Event Log

This section displays the contents of the SMBIOS Event Log.

4-5 IPMI
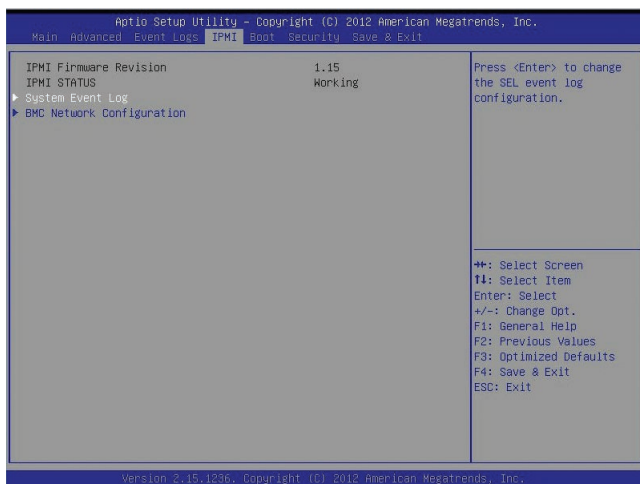
IPMI Firmware Revision

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

IPMI Status

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

▶System Event Log

Enabling/Disabling Options

SEL Components

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

Erasing Settings

Erase SEL

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

When SEL is Full

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

▶BMC Network Configuration

LAN Channel 1: This feature allows the user to configure the settings for the LAN1 Port.

Update IPMI LAN Configuration

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

IPMI LAN Selection

This feature allows the user to configure the IPMI LAN setting. The default setting is **Failover**.

IPMI Network Link Status

This feature displays the status of the IPMI Network Link connections.

Update IPMI LAN Configuration

Select Yes for IPMI LAN configuration updates. The options are Yes and **No**.

Configuration Address Source

This feature allows the user to select the source of the IP address for this computer. If Static is selected, you will need to know the IP address of this computer and enter

it to the system manually in the field. If DHCP is selected, the BIOS will search for a DHCP (Dynamic Host Configuration Protocol) server in the network that it is attached to and request the next available IP address for this computer. The options are **DHCP** and Static. The following items are assigned IP addresses automatically if DHCP is selected, or can be configured manually if Static is selected.

Station MAC Address

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

Station IP Address

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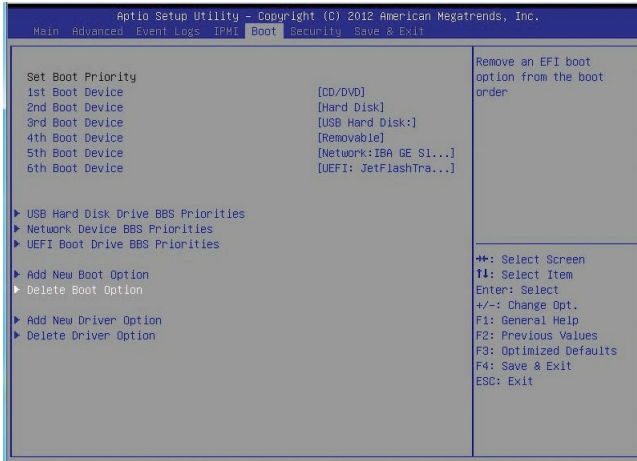
Subnet Mask

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

Gateway IP Address

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

4-6   Boot Settings

Use this feature to configure THE boot settings:

Set Boot Priority

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

- 1st Boot Device

- 2nd Boot Device

- 3rd Boot Device

- 4th Boot Device

- 5th Boot Device

- 6th Boot Device

▶**CD/DVD BBS Priorities**

- 1st Device

- 2nd Device

▶**Hard Disk Drive BBS Priorities**

• 1st Device

• 2nd Device

▶**Network Device BBS Priorities**

• 1st Device

▶**UEFI Boot Drive BBS Priorities**

• 1st Boot Device

▶**Add New Boot Option**

This feature allows the user to add a boot device from which the systems will boot after power-on.

Add Boot Option

Enter the name of the new boot option here.

Path for Boot Option

Enter the path of the new boot option here.

Create

Press <Enter> here to create the new boot option.

▶**Delete Boot Option**

Use this feature to remove a pre-defined boot device from which the system will boot during startup.

The settings are [any pre-defined boot device].

▶**Add New Driver Option**

This feature allows the user to add a boot device from which the system boots during startup.

Add Driver Option

Enter the name of the new boot option here.

Path for Driver Option

Enter the path of the new boot option here.

Create

Press Enter here to create the new boot option.

▶**Delete Driver Option**

This feature allows the user to delete a previously defined boot device from which the systems boots during startup.

The settings are [any pre defined boot device].

4-7 Security Settings

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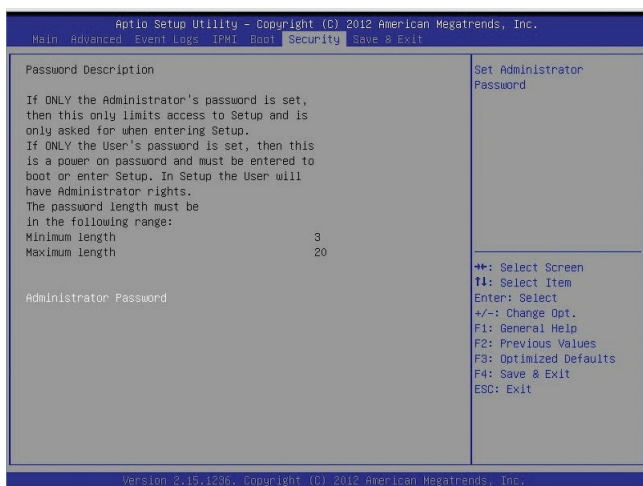
Administrator Password

Use this feature to set the Administrator password, which is required to enter the BIOS setup utility. The length of the password should be from 3 to 8 characters long.

4-8   Save & Exit

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

Discard Changes and Exit

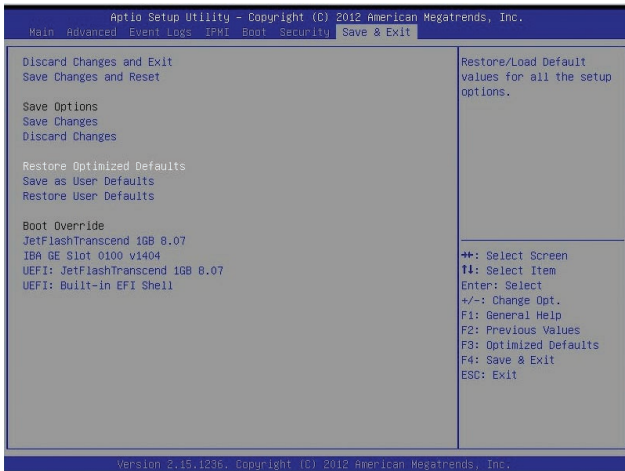Select this option to exit the BIOS Setup without making any permanent changes to the system configuration, and reboot the computer. Select Discard Changes and Exit from the Exit menu and press <Enter>.

Save Changes and Reset

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

Save Options

Save Changes

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

Discard Changes

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

Restore Optimized Defaults

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

Save As User Defaults

To set this feature, select Save as User Defaults from the Exit menu and press <Enter>. Use this feature to save the default settings set by the user in the BIOS setup utility 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 restore the user-defined default settings that were saved previously.

Boot Override

Listed on this section are other boot options for the system (e.g. Built-in EFI shell). Select an option and press <Enter>. Your system will boot to the selected boot option.

Appendix A

Software Installation Instructions

A-1   Installing Software Programs

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

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

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

After creating a CD/DVD with the ISO files, insert the disk into the CD/DVD drive on your system, and the display shown below should appear.
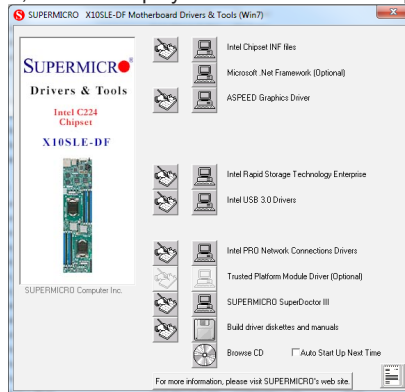
Driver/Tool Installation Display Screen

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

Note 2: When making a storage driver diskette by booting into a driver CD, please set the SATA Configuration to "Compatible Mode" and configure the SATA drive as an 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 SD III Client. The SuperDoctor III program allows you to monitor the environment and operations of your system. SuperDoctor III displays crucial system information such as CPU temperature, system voltages and fan status. See the figures below for examples of the SuperDoctor III interface.

Note 1: The default username and password for SuperDoctor III is ADMIN/ ADMIN.

Note 2: When SuperDoctor III is first installed, it adopts the tempera-ture threshold settings that have been set in the BIOS. Any subsequent changes to these thresholds must be made within SuperDoctor III, as the SuperDoctor III settings override the BIOS settings. To set the BIOS temperature threshold settings again, you would first need to uninstall SuperDoctor III.
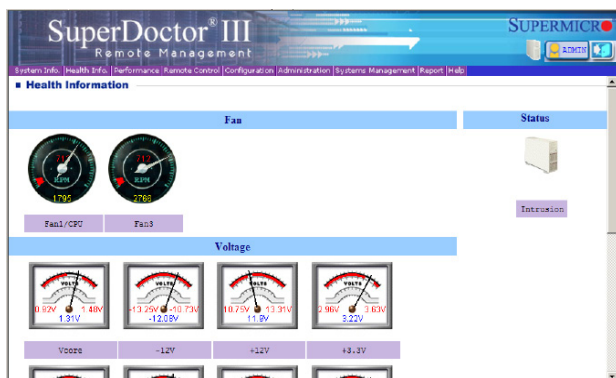
SuperDoctor® III Interface Display Screen (Health Information)
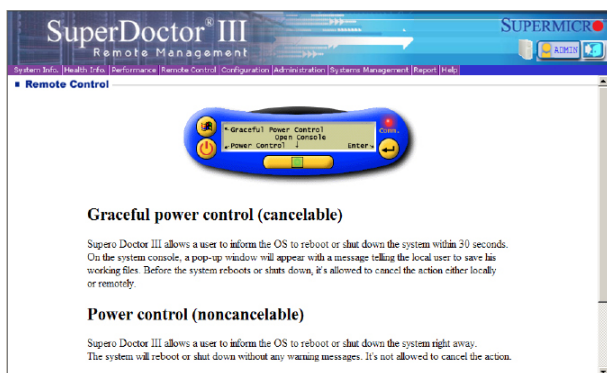
SuperDoctor® III Interface Display Screen (Remote Control)

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

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, hands-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 Boot Sector 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 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 menu as shown below.

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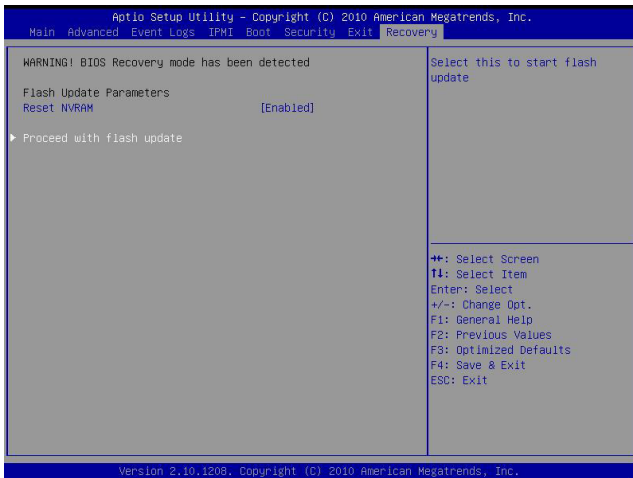
5. When the screen as shown above displays, using the arrow keys, select the item- "Proceed with flash update" and press the <Enter> key. You will see the progress of BIOS recovery as shown in the screen below.

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

```
              Aptio Setup Utility - Copyright (C) 2010 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            15 %

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

              Version 2.10.1208. Copyright (C) 2010 American Megatrends, Inc.
```

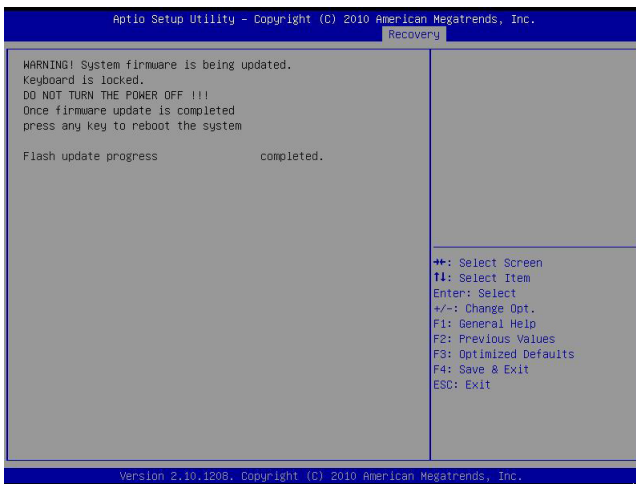6. After the process of BIOS Recovery is complete, press any key to reboot the system.

```
              Aptio Setup Utility - Copyright (C) 2010 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

              Version 2.10.1208. Copyright (C) 2010 American Megatrends, Inc.
```

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

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

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

9. After seeing the message that the BIOS update is completed, unplug the AC power cable from the power supply to clear the CMOS, and then plug the AC power cable into the power supply again and 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.

(Disclaimer Continued)

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