X10SLV
X10SLV-Q

USER'S MANUAL

Revision 1.0b

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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 manufacturer's instruction manual, may cause interference with 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, you are 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 the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television 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 1.0b

Release Date: March 23, 2017

Preface

About This Manual

This manual is written for system integrators, PC technicians and knowledgeable PC users. It provides information for the installation and use of the SUPERO X10SLV/-Q motherboard. This product is intended to be professionally installed and serviced by a technician.

About This Motherboard

The X10SLV/-Q motherboard is a value-driven product aimed at users who demand a small form-factor, LGA-1150 based PC, for gateway server or embedded applications.

The X10SLV/-Q Motherboard features a 4th generation Intel® Core™ i7/i5/i3, Pentium® or Celeron® processor and offering many features such as support for up to 16GB of memory on two vertical SODIMM sockets, two SATA 3.0 ports, two SATA 2.0 ports, five high-speed serial ports, an on-board VESA® DisplayPort and a miniPCIe port. The X10SLV/-Q also supports up to two independent displays (three on the X10SLV/-Q). These enable the X10SLV/-Q Motherboard to deliver an intermediate performance platform, in a small form-factor.

Manual Organization

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

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

Appendix A provides BIOS Error Beep Codes.

Appendix B lists Driver Installation Instructions.

Appendix C provides the UEFI BIOS Recovery Instructions.

Conventions Used in the Manual:

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

Danger/Caution: Instructions to be strictly followed to prevent catastrophic system failure or to avoid bodily injury

Warning: Critical information to prevent damage to the components or data loss.

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

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

Contacting Supermicro

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Web Site:	www.supermicro.com.tw

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Chapter 1

Introduction

1-1 Overview

Checklist

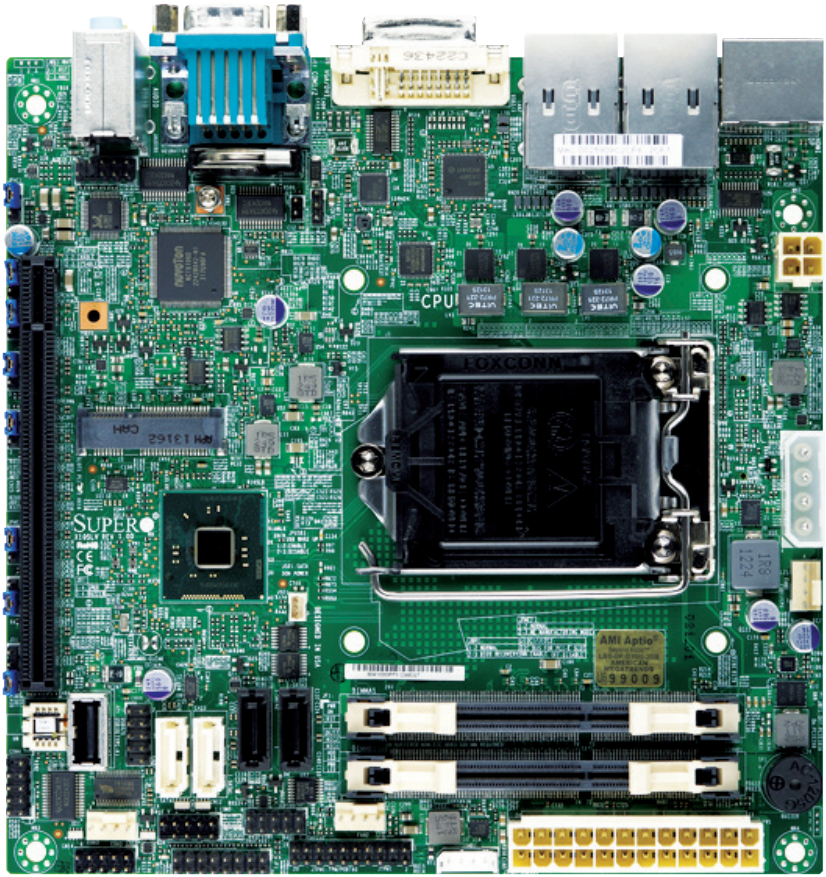
Congratulations on purchasing your computer motherboard from an acknowledged leader in the industry. Supermicro boards are designed with the utmost attention to detail and to provide you with the highest standards in quality and performance.

Please check that the following items have all been included with your motherboard. If anything listed here is damaged or missing, contact your retailer.

All the following items are included in the retail box only:

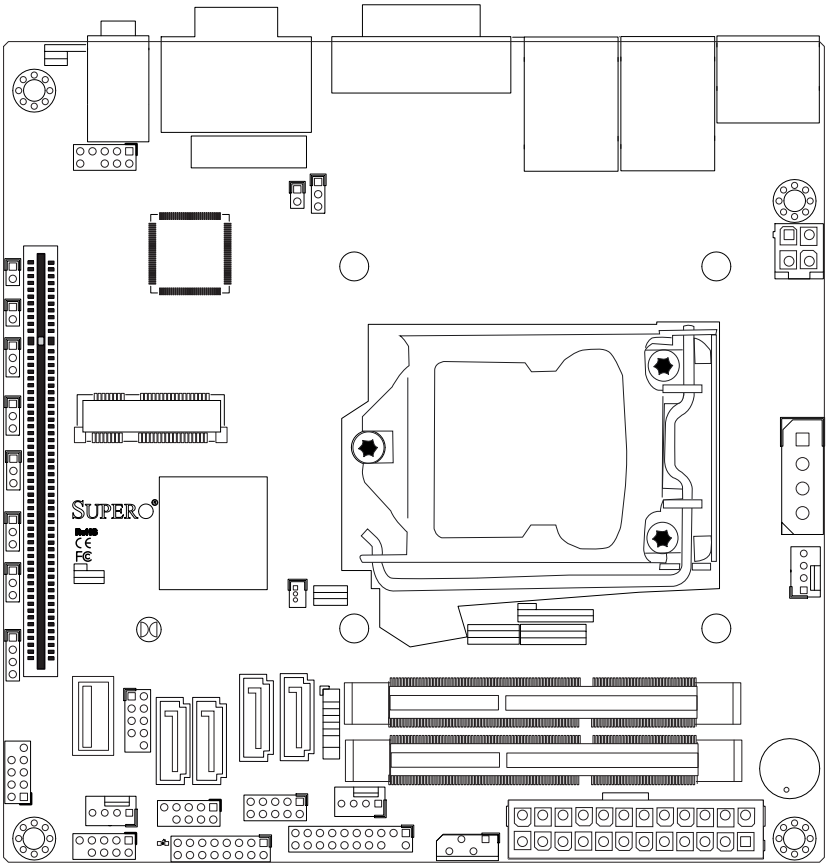
- One (1) Supermicro Motherboard
- One (1) Quick Reference Guide
- Four (4) SATA cables
- One (1) I/O shield

SUPERMICRO X10SLV/-Q Image



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

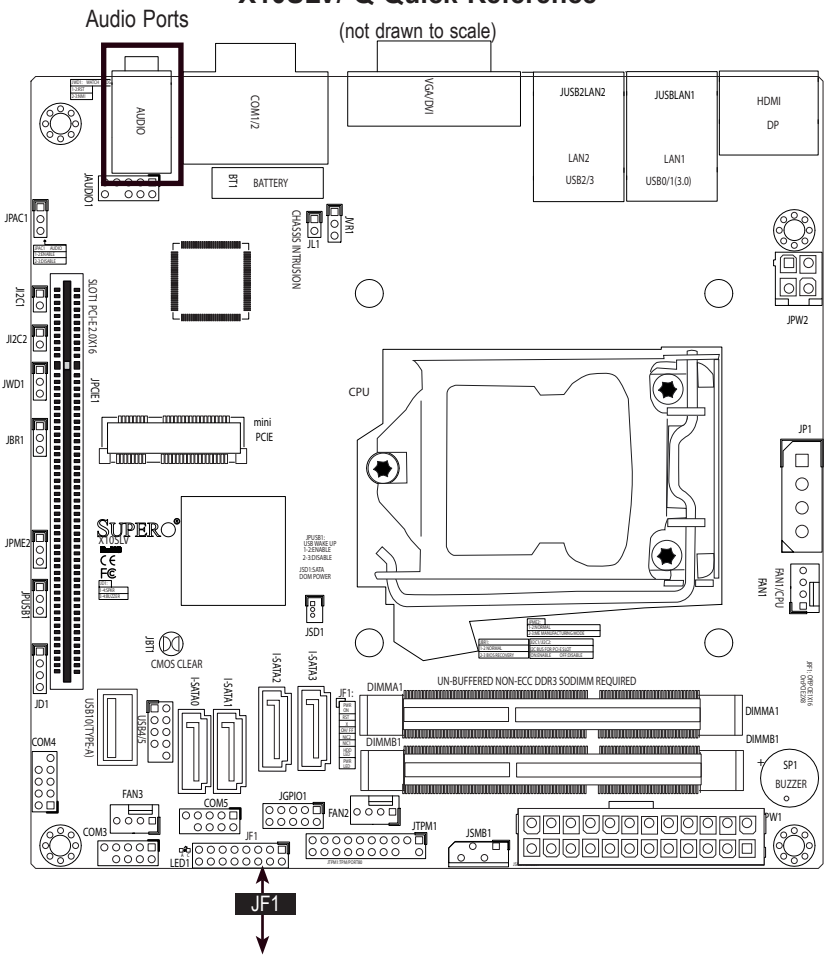
X10SLV/-Q Motherboard Layout

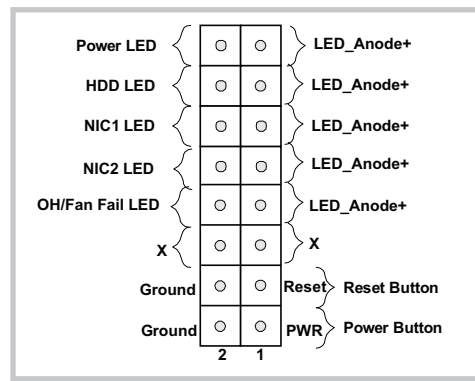


Important Notes to the User

- Jumpers not indicated are for testing only.
- See Chapter 2 for detailed information on jumpers, I/O ports and JF1 front panel connections.
- "□" indicates the location of "Pin 1".

X10SLV/-Q Quick Reference





Ports, LEDs, and Connectors

Audio FP	Front Panel Audio Header
AUDIO Ports	Audio Connectors on the I/O back panel. Not available on the X10SLV-Q.
Battery	Onboard Battery
COM1/COM2	COM1 and COM2 Ports (on the I/O back panel*)
COM3-COM5	COM3/COM4/COM5 Port Headers
Fan1-Fan3	System/CPU Fan Headers (Fan1: CPU Fan)
HDMI/DP	DisplayPort (on the I/O back panel)
JD1	Speaker/buzzer (Pins 3-4: Buzzer, Pins 1-4: External Speaker)
JF1	Front Control Panel Header
JL1	Chassis Intrusion Header
JPW1	24-pin ATX Power Connector
JPW2	12V 4-pin CPU power Connector (Required and alternative single power source.)
JSD1	SATA DOM (Device_On_Module) Power Connector
JTPM1	Trusted Platform Module (TPM) Header
LAN1/LAN2	Gigabit (RJ45) Ports LAN1 and LAN2 (on the I/O back panel)
SP1	Internal Speaker/Buzzer
I-SATA0-3	X10SLV: (Intel-)Serial ATA (SATA 3.0) Ports 0-1 (6Gb/sec), Ports 2-3 (3Gb/s) X10SLV:-Q (Intel-)Serial ATA (SATA 3.0) Ports 0-3 (6Gb/sec)
mini PCIE	Mini PCIE Slot with mSATA support
Slot 1	PCI-Express 2.0 x16 Slot (X10SLV), PCI-Express 3.0 x16 (X10SLV-Q)
JGPIO 1	General Purpose I/O Expander Header
USB 0/1, 2/3	Back panel USB 3.0 Ports 0/1 and USB 2.0 Ports 2/3
USB 4/5	Front Panel USB Header for USB 2.0 Ports 4/5
USB 10	Internal Type A USB 2.0 Port 10
DVI-I	DVI (Combined Digital and Analog Video Interface) Port
JSMB1	System Management Bus (SMB) Header
LED1	Onboard Standby Power LED (Solid Green: Power On)

Jumper Descriptions

JBR1	BIOS Recovery	Pins 1-2 (Normal)
JBT1	CMOS Clear	Short contact pads to reset CMOS
JI^{2}C1/JI^{2}C2	SMB to PCIe Slots	Off (Disabled)
JPAC1	Audio Enable	Pins 1-2 (Enabled)
JPME2	Intel ME Manufacturing Mode Select	Pins 1-2 (Normal)
JWD1	Watch Dog Enable	Pins 1-2 (Reset)
JPUSB1	USB Wake-Up Enable/Disable	Pins 2-3 (Disabled)

Motherboard Features

CPU	Supports a single, 4th generation Intel® Core™ i7/i5/i3 processor (LGA1150)	
Memory	Two (2) SO-DIMM slots support up to 16 GB of DDR3, 1600/1333/1066 MHz, unbuffered, non-ECC SO-DIMM memory	
	Supports One DIMM per Channel	
	DIMM sizes	
	SO-DIMM	2 GB, 4 GB and 8GB
Chipset	X10SLV: Intel® H81 Express	
	X10SLV-Q: Intel® Q87 Express	
Expansion Slots	One (1) PCI-E x 16, Gen2 (Gen3 for X10SLV-Q only)	
Graphics	Intel Integrated Graphics	
Independent Displays	X10SLV: Two	
	X10SLV-Q: Three	
Network Connections	Two (2) RJ-45 Rear I/O Panel Connectors (Intel I217V + I210AT)	
I/O Devices	**SATA Connections**	
	X10SLV Only	
	SATA 3.0 Ports	Two (2)
	SATA 2.0 Ports	Two (2)
	mSATA 3.0 Ports	One (1) - Share with SATA3*
	X10SLV-Q	
	SATA 3.0 Ports	Four (4), RAID 0,1,5,10
	mSATA 3.0 Ports	One (1) - Share with SATA3*
	*The mSATA port is shared with the SATA3 ports. Either the SATA3 ports are used or the mSATA port, but not at the same time.	
	USB Devices	
	Two (2) USB 3.0 ports on the rear I/O panel	
	Six (6) USB 2.0 ports (2 on rear I/O panel, 2 via on board headers, One (1) type A	
	Graphics	
	One (1) DisplayPort, One (1) DVI-I port, One (1) HDMI	
	Keyboard/Mouse	
	Keyboard/Mouse support via USB ports	
	Serial (COM) Ports	
	Five (5) COM ports (1 x RS232/422/485, 4 x RS232)	

	Super I/O
	Nuvoton Super I/O NCT6106D
BIOS	16 MB SPI AMI BIOS® SM Flash BIOS
	Plug and Play, ACPI 3.0 or later, USB Keyboard and SMBIOS 2.7
Power	ACPI/ACPM Power Management
	S3, S4, S5
	Wake-On-Ring (WOR), Wake-On-LAN (WOL)
	One (1) Disk-On-Module (DOM) Power Connector
	Power-on mode for AC power recovery
PC Health Monitoring	**CPU Monitoring**
	Onboard voltage monitors for CPU Vcore, VBAT, 3VCC, 3VSB, 12V, Chipset 1.05V , VDIMM, PCH Temp, System Temp
	CPU Thermal Trip support, Adaptive Thermal Monitor
	PECI (Platform Environment Configuration Interface) 3.0 support
	Fan Control
	3-pin Fan Headers
	Fan Speed Control
System Management	Watch Dog
	System resource alert via SuperDoctor® III
	SuperDoctor® III
	Chassis Intrusion header and detection
CD Utilities (Download from Website)	BIOS flash upgrade utility
	Drivers and software for Intel® H81 Express chipset utilities (available for download)
Other	ROHS 6/6 (Full Compliance)
Dimensions	Mini-ITX form factor (6.7" x 6.7")

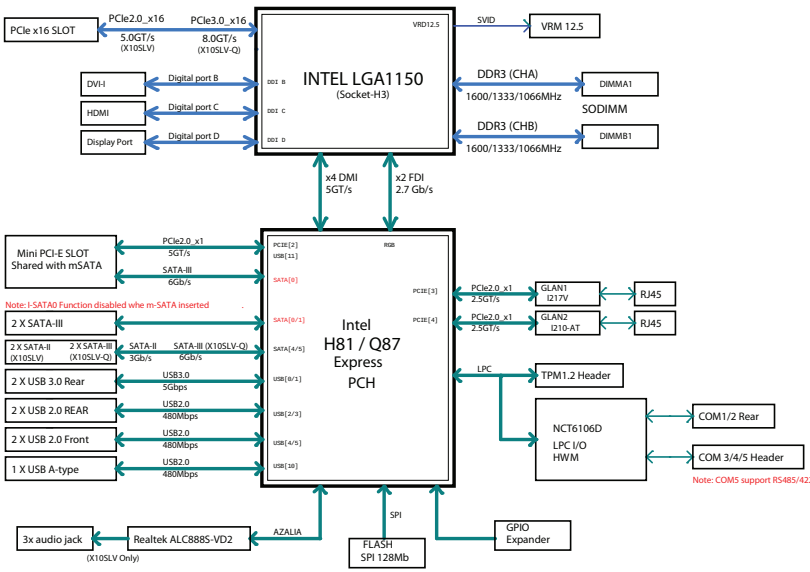
Model	Chipset	PCI Slot	Number of Independent Displays	Back panel Audio Ports
X10SLV	H81 Express	PCI-E 2.0 x16	Two	Yes
X10SLV-Q	Q87 Express	PCI-E 3.0 x16	Three	No

X10SLV/-Q Motherboard Block Diagram

X10SLV / X10SLV-Q

BLOCK DIAGRAM

RoHS 6/6



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

1-2 Chipset Overview

The X10SLV/-Q Motherboard supports a single 4th generation Intel® Core™ i7/ i5/i3 processor (LGA 1150).

Built around the functionality and the capability of the Intel® H81 Express chipset (Q87 Express on the X10SLV-Q), the motherboard provides substantial system performance and storage capability for performance platforms in a compact package.

The Intel H81/Q87 Express chipset is part of the desktop Intel Chipset family, with a single-chip architecture. Among its features are

- 4.1W Power Consumption
- Intel Anti-Theft Technology
- SATA Controller (up to 6G/s)
- USB 3.0 Support
- Smart Response Technology (SSD Cache), (Q87 Express only).
- Multiple Independent Display Support

For more information regarding the Intel H81/Q87 Express chipset, please visit Intel's website at: http://www.intel.com

1-3 PC Health Monitoring

This section describes the PC health monitoring features of the X10SLV/-Q Motherboard. These motherboards have an onboard System Hardware Monitor chip that supports PC health monitoring.

Recovery from AC Power Loss

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

Onboard Voltage Monitoring

The onboard voltage monitor will scan the following voltages continuously: CPU Vcore, VBAT, 3VCC, 3VSB, 12V, Chipset 1.05V, VDIMM, PCH Temp, and System Temp. Once a voltage becomes unstable, it will give a warning or send an error message to the screen. The User can adjust the voltage thresholds to define the sensitivity of the voltage monitor by using SD III.

Fan Status Monitor with Software

The PC health monitor can check the RPM status of the cooling fans via SuperDoctor® III.

1-4 Power Configuration Settings

This section describes features of your motherboard that deal with power and power settings.

Slow Blinking LED for Suspend-State Indicator

When the CPU goes into a suspend state, the chassis power LED will start blinking to indicate that the CPU is in suspend mode. When the user presses any key, the CPU will wake up and the LED will automatically stop blinking and remain on.

BIOS Support for USB Keyboard

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

Main Switch Override Mechanism

When an ATX power supply is used, the power button can function as a system suspend button. When the user presses the power button, the system will enter a Soft Off state. The monitor will be suspended and the hard drive will spin down. Pressing the power button again will cause the whole system to wake up. During the SoftOff state, the ATX power supply provides power to keep the required circuitry in the system "alive". In case the system malfunctions and you want to turn off the power, just press and hold the power button for 4 seconds. The power will turn off and no power will be provided to the motherboard.

1-5 Power Supply

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

The SUPER® X10SLV/-Q Motherboard accommodates 12V ATX power supplies. Although most power supplies generally meet the specifications required by the CPU, some are inadequate. A 2-Amp of current supply on a 5V Standby rail is strongly recommended.

Note: The X10SLV Motherboard series alternatively supports a 4-pin 12V DC input power supply for embedded applications.

1-6 Super I/O

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

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

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 동일하거나 제조사에서 권장하는 동등한 종류의 배터리로만 교체해야 합니다. 제조사의 안내에 따라 사용된 배터리를 처리하여 주십시오.

Waarschuwing

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

Product Disposal

Warning!

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

製品の廃棄

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

警告

本产品的废弃处理应根据所有国家的法律和规章进行。

警告

本產品的廢棄處理應根據所有國家的法律和規章進行。

Warnung

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

¡Advertencia!

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

Attention

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

סילוק המוצר

אזהרה !

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

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

경고!

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

Waarschuwing

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

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 excellent conductivity between the power supply, the case, the mounting fasteners and the motherboard.
- Use only the correct type of onboard CMOS battery. Do not install the onboard 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.

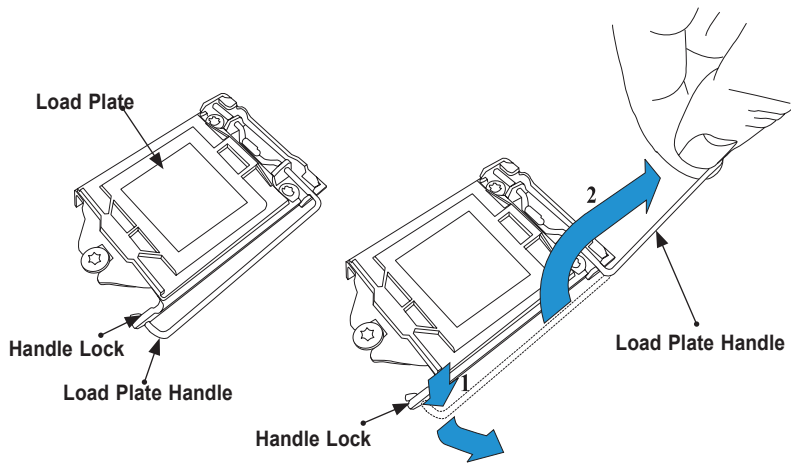
Important:

- Always connect the power cord last, and always remove it before adding, removing or changing any hardware components. Make sure that you install the processor into the CPU socket before you install the CPU heatsink.
- If you buy a CPU separately, make sure that you use an Intel-certified multi-directional heatsink only.
- Make sure to install the system board into the chassis before you install the CPU heatsink.
- When receiving a server board without a processor pre-installed, make sure that the plastic CPU socket cap is in place and none of the socket pins are bent; otherwise, contact your retailer immediately.
- Refer to the Supermicro website for updates on CPU support.

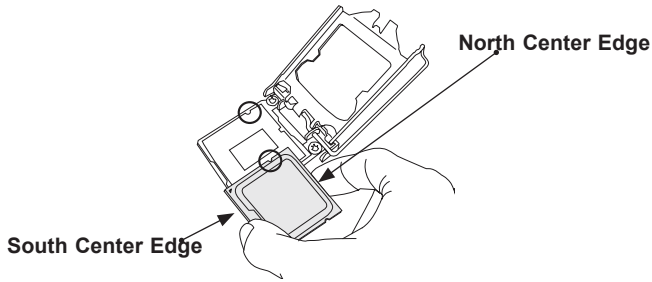
Installing the LGA1150 Processor

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

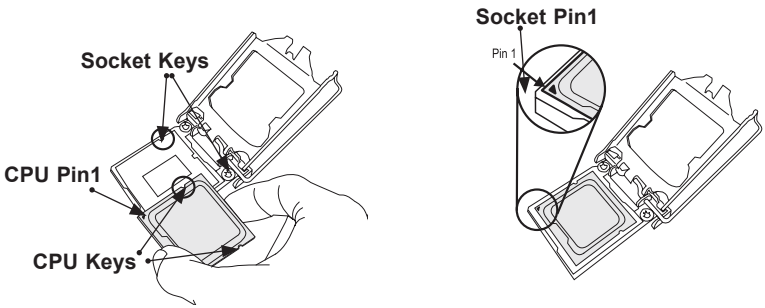
2. Once the load plate handle is unlocked, gently lift the handle to open the load plate.



1. When the load plate is open, use your thumb and your index finger to hold the CPU at the north center edge and the south center edge of the CPU.

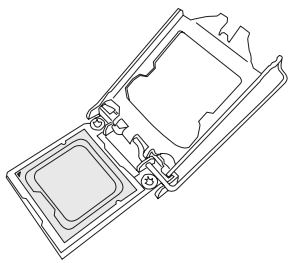


2. Align the CPU keys, which are the semicircular cutouts on the sides of the CPU (shown below), against the socket keys, the semicircular notches on the sides of the CPU socket. Align CPU Pin 1, the triangle at the bottom left of the CPU, against Pin 1 of the socket, the triangle marker at the bottom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

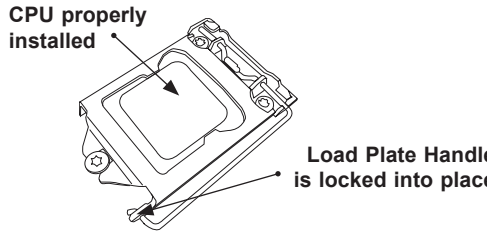


3. Once they are aligned, carefully lower the CPU straight down into the socket. (To avoid damaging the CPU or the socket, do not drop the CPU on the socket. Do not rub the CPU against the surface or against any pins of the socket.)

4. With the CPU seated inside the socket, inspect the four corners of the CPU to ensure that it is properly installed.

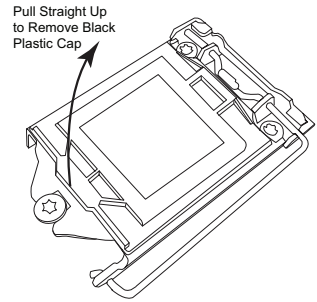


5. Once the CPU is properly installed, use your thumb to gently push the load plate handle down to the handle lock and lock it.



6. 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: You can only 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 it may damage your CPU. Instead, open the load plate again and double-check that the CPU is aligned properly.

Installing an Active CPU Heatsink with Fan

1. Locate the CPU Fan power connector on the motherboard. (Refer to the layout on the right for the CPU Fan location.)

2. Position the heatsink so that the heatsink fan wires are closest to the CPU fan power connector and are not interfered with other components.

3. Inspect the CPU Fan wires to make sure that the wires are routed through the bottom of the heatsink.

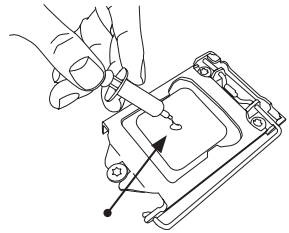
4. Remove the thin layer of the protective film from the heatsink.

Warning: CPU overheat may occur if the protective film is not removed from the heatsink.

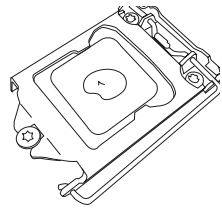
5. Apply the proper amount of thermal grease on the CPU.

   Note: If your heatsink came with a thermal pad, please ignore this step.

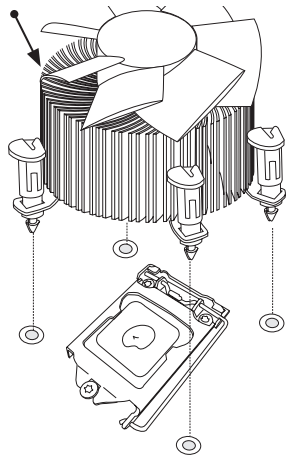
6. If necessary, rearrange the wires to make sure that the wires are not pinched between the heatsink and the CPU. Also make sure to keep clearance between the fan wires and the fins of the heatsink.



Thermal Grease



Heatsink Fins

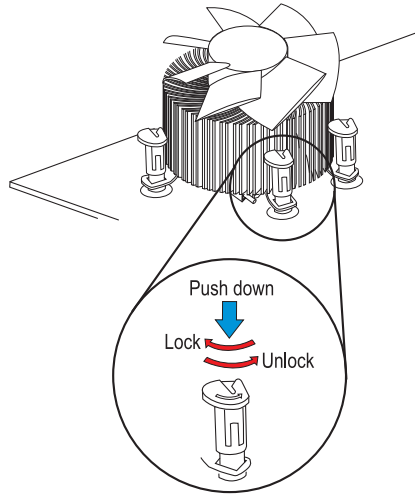


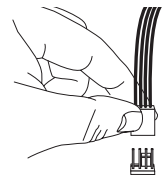
Recommended Supermicro heatsink:
SNK-P0046A4 active heatsink

7. Align the four heatsink fasteners with the mounting holes on the motherboard. Gently push the pairs of diagonal fasteners (#1 & #2, and #3 & #4) into the mounting holes until you hear a click. Also, make sure to orient each fastener so that the narrow end of the groove is pointing outward.

8. Repeat Step 7 to insert all four heatsink fasteners into the mounting holes.

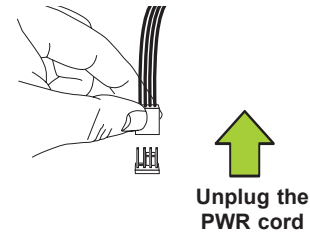
9. Once all four fasteners are securely inserted into the mounting holes, and the heatsink is properly installed on the motherboard, connect the heatsink fan wires to the CPU Fan connector.





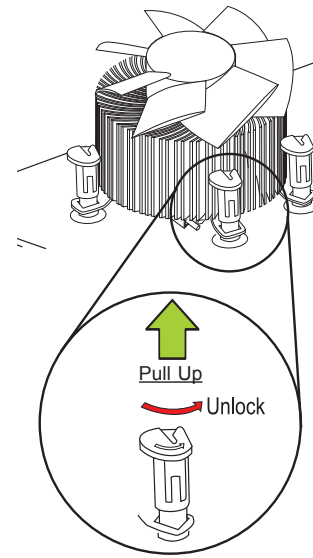
Removing the Heatsink

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



Active Heatsink Removal

1. Unplug the power cord from the power supply.
2. Disconnect the heatsink fan wires from the CPU fan header.
3. Use your finger tips to gently press on the fastener cap and turn it counterclockwise to make a 1/4 (90^0) turn, and pull the fastener upward to loosen it.
4. Repeat Step 3 to loosen all fasteners from the mounting holes.
5. With all fasteners loosened, remove the heatsink from the CPU.

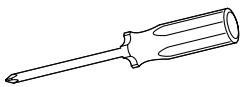


2-4 Motherboard Installation

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.

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

Tools Needed



Phillips Screwdriver

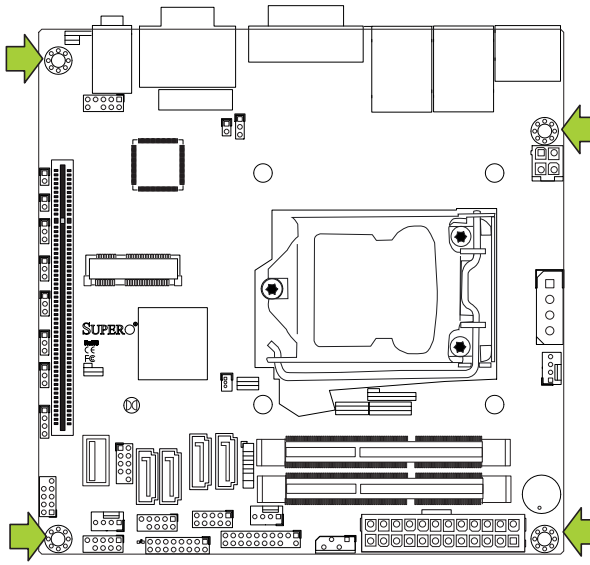
Pan head screws (4 pieces)

Stand Offs (4 pieces)
(Only if needed)

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

Location of Mounting Holes

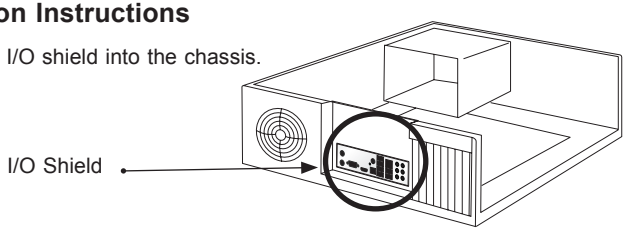
There are four (4) mounting holes on the X10SLV/-Q Motherboard.



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

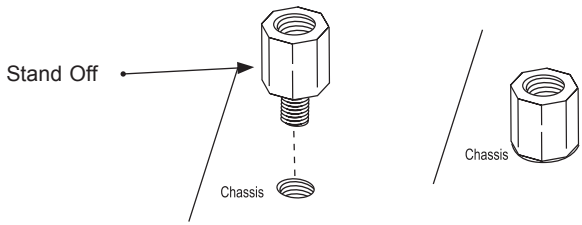
Installation Instructions

1 Install the I/O shield into the chassis.



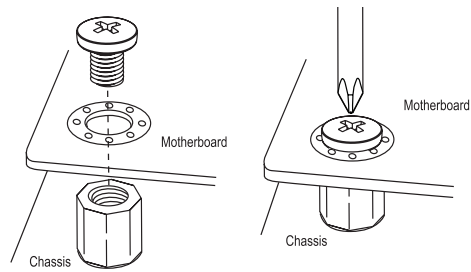
2 Locate the mounting holes on the motherboard. Refer to the layout on the previous page for mounting hole locations.

3 Locate the matching mounting holes on the chassis. Install standoffs in the chassis as needed. Align the mounting holes on the motherboard against the mounting holes on the chassis.



4 Install the motherboard into the chassis carefully to avoid damage to motherboard components.

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



6 Repeat Step 4 to insert #6 screws to all mounting holes.

7 Make sure that the motherboard is securely placed on the chassis.

2-5 System Memory

CAUTION

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

Note: Check the Supermicro website for a list of memory modules that have been validated with the X10SLV/-Q Motherboard.

How to Install SO DIMMs

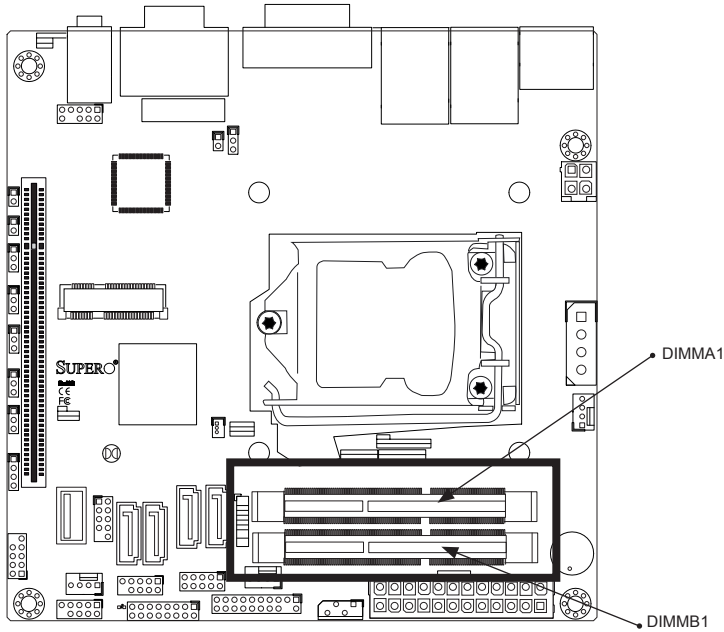
1. Insert the desired number of SO DIMMs into the memory slots, starting with DIMMA1, then DIMMB1. Pay attention to the notch along the bottom of the module to prevent incorrect DIMM module installation.

2. Insert each SO DIMM module vertically and snap it into place. Repeat step 1 to install DIMMB1 if needed. See instructions on the next page.

Memory Support

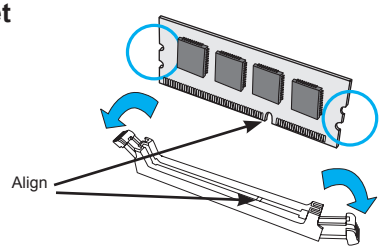
The X10SLV/-Q Motherboard supports up to 16GB of unbuffered DDR3 non-ECC SODIMMs (up to 1600 MHz in two SODIMM slots).

Installing and Removing DIMMs

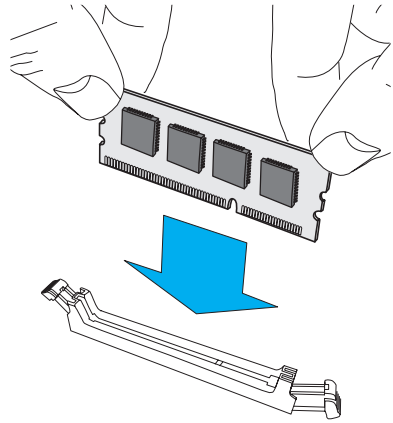


The SO DIMM Socket

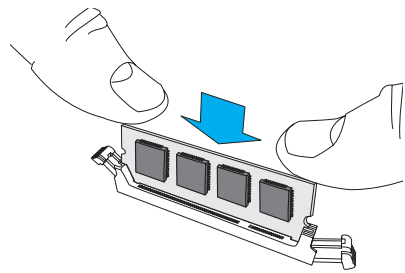
1 Position the SO DIMM module's bottom key so it aligns with the receptive point on the slot. Take note of the module's side notches and the locking clips on the socket.



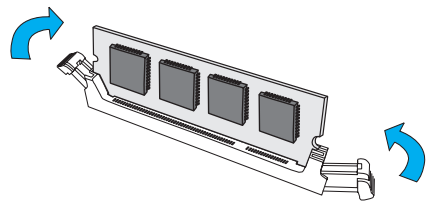
2 Insert the SO DIMM module straight down.



3 Press down until the module locks into place. The side clips will automatically secure the SO DIMM module, locking it into place.



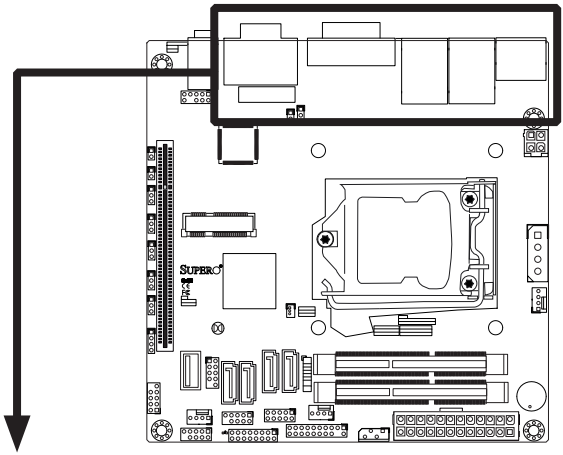
4 **To Remove:**
Use your thumbs to gently push the side clips near both ends away from the module. This should release it from the slot. Pull the SO DIMM module upwards.



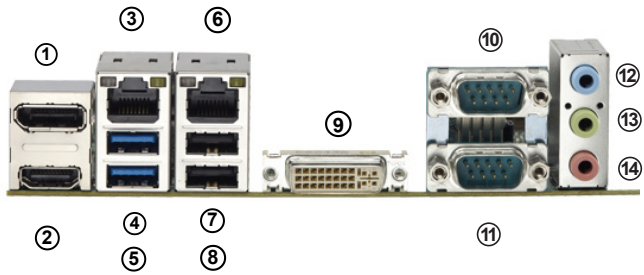
2-6 Connectors/I/O Ports

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

Back Panel Connectors and I/O Ports



I/O Port Locations and Definitions



Back Panel Connectors

1. DisplayPort	8. USB2 (2.0)
2. HDMI Port	9. DVI-I Port
3. Gb LAN1 Port	10. COM2
4. USB1 (3.0)	11. COM1
5. USB0 (3.0)	12. Audio Line In*
6. Gb LAN2 Port	13. Audio Line Out*
7. USB3 (2.0)	14. Audio Mic In*

*X10SLV only

Universal Serial Bus (USB)

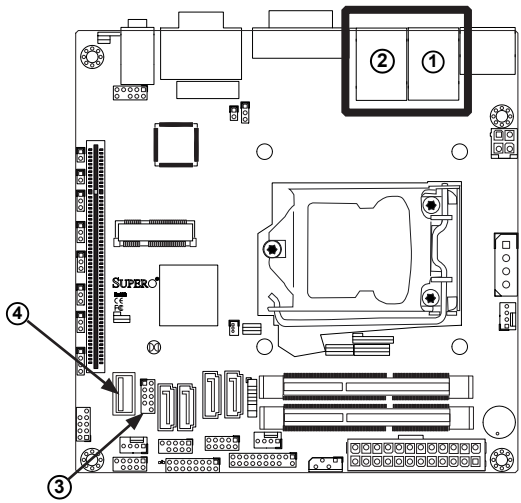
Four Universal Serial Bus ports are located on the I/O back panel. These are USB 0/1 (3.0) and USB 2/3 (2.0). Additionally, one header (USB 4/5, 2.0), and one Type A port (USB 10, 2.0) are also located on the motherboard to provide front chassis access. (Cables are not included). See the tables on the right for pin definitions.

Back Panel USB Type A USB 10 Pin Definitions

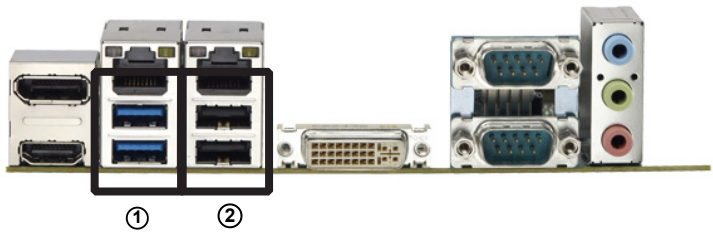
Pin#	Definition	Pin#	Definition
1	+5V	5	+5V
2	USB_PN	6	USB_PN
3	USB_PP	7	USB_PP
4	Ground	8	Ground

Front Panel USB 2.0 Pin Definitions

Pin #	Definition	Pin #	Definition
1	+5V	6	+5V
2	USB_PN	7	USB_PN
3	USB_PP	8	USB_PP
4	Ground	9	Ground
5	NA	10	Key



1. Back panel USB 0/1 (3.0)
2. Back panel USB 2/3 (2.0)
3. USB 4/5 header (2.0)
4. USB 10 Type A (2.0)



Back Panel Connectors

Serial Ports (COM1~COM5)

Two COM ports (COM1, COM2) are located on the motherboard's I/O back panel. COM3, COM4 and COM5 are headers and are located near the I-SATA ports to provide additional onboard serial ports. See the table on the right for pin definitions.

Serial Ports COM1~COM2 Pin Definitions

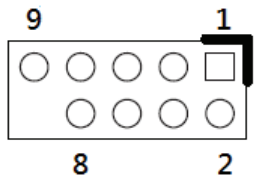
Pin #	Definition	Pin #	Definition
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	Ground	10	N/A

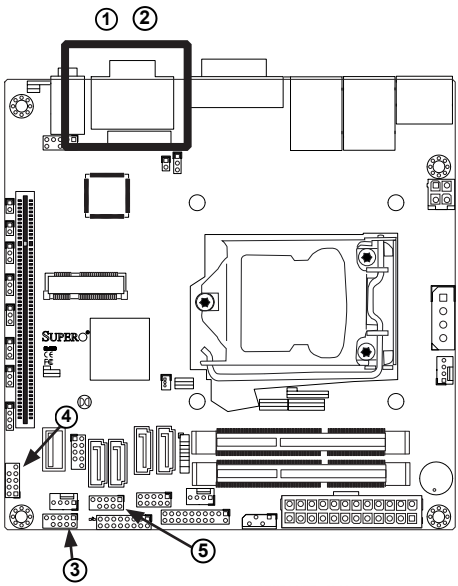
Serial Ports COM3~COM5 Pin Definitions

Pin	RS-232	RS-422	RS-485
1	DCD	Tx -	Data -
2	DSR	-	-
3	RXD	Tx +	Data +
4	RTS	-	-
5	TXD	Rx +	-
6	CTS	-	-
7	DTR	Rx -	-
8	RI	-	-
9	Ground	-	-
10	N/A	-	-

Note: Only COM5 supports RS-422/485.

COM3 ~ COM5 Pin Headers





① (Back panel) COM2
② (Back panel) COM1
③ COM3 Header
④ COM4 Header
⑤ COM5 Header

Back Panel Connectors

VESA® DisplayPort™ (DisplayPort)

DisplayPort, develped by the VESA consortium, delivers digital display, and fast refresh rate. It can connect to virtually any display device using a DisplayPort adapter for devices such as VGA, DVI or HDMI. The X10SLV/-Q supports the DisplayPort standard version 1.2a.

HDMI Port

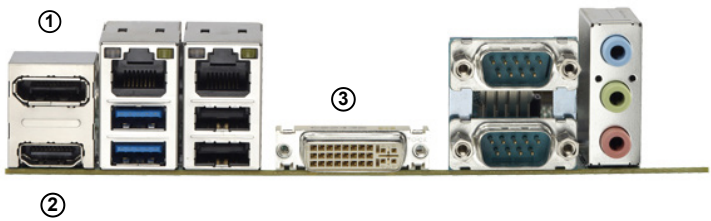
One HDMI (High-Definition Multimedia Interface) Port is located in the middle of the I/O back panel. Refer to the board layout below for the location. This connector is used to display both high definition video and digital sound through an HDMI-capable display, using the same (HDMI) cable. The X10SLV/-Q supports HDMI Specification version 1.4a.

DVI-I Port (DVI)

One DVI Port (Digital Visual Interface) is located next to the LAN ports on the I/O back panel. DVI-I (digital and analog) provides the option of compatibility with a VGA interface.

Note: The X10SLV supports any combination of up to two concurrent displays, while the X10SLV-Q supports up to three.

① VESA DisplayPort
② HDMI Port
③ DVI-I Port

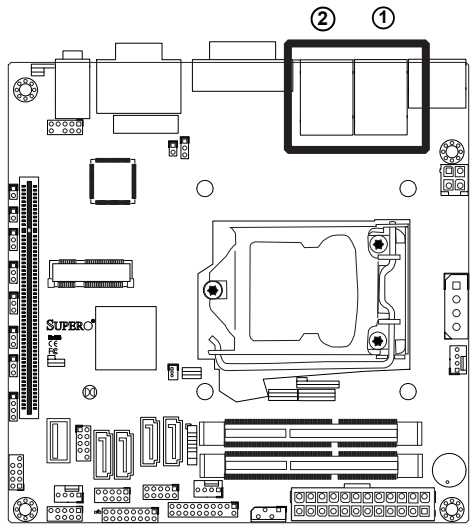


Back Panel Connectors

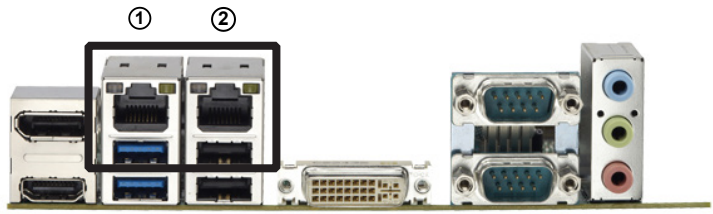
LAN Ports (LAN1/LAN2)

Two gigabit LAN ports are located on the I/O back panel. These ports accept RJ45 type cables and are used to connect the motherboard to a network.

RJ45/LAN Pin Definitions			
Pin #	Definition	Pin #	Definition
1	TX_D1+	5	BI_D3-
2	TX_D1-	6	RX_D2-
3	RX_D2+	7	BI_D4+
4	BI_D3+	8	BI_D4-



① LAN1
② LAN2

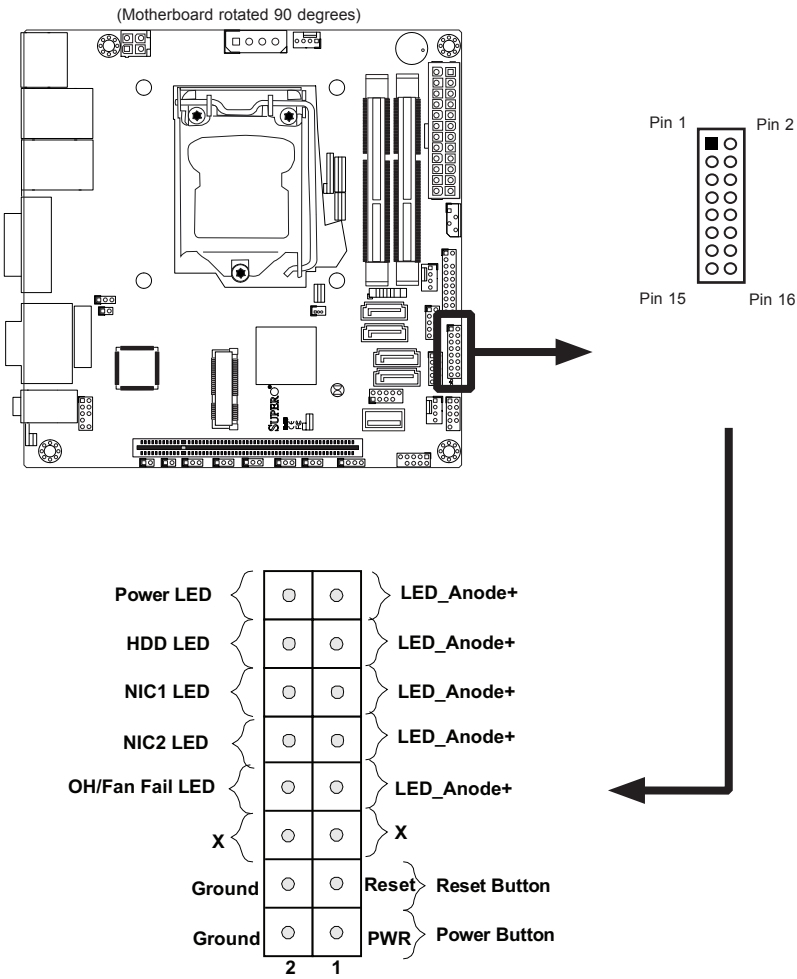


Back Panel Connectors

Front Control Panel

JF1 contains header pins for various buttons and indicators that are normally located on a control panel at the front of the chassis. These connectors are designed specifically for use with Supermicro server chassis. See the figure below for the descriptions of the various control panel buttons and LED indicators. Refer to the following section for descriptions and pin definitions.

JF1 Header Pins



Front Control Panel Pin Definitions

Power LED

The Power LED connection is located on pins 15 and 16 of JF1. Refer to the table on the right for pin definitions.

Power LED Pin Definitions (JF1)	
Pin#	Definition
15	+3.3V
16	Ground

HDD LED

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

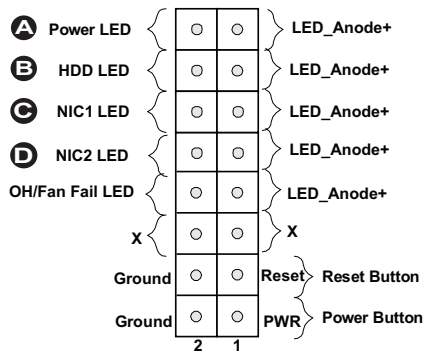
HDD LED Pin Definitions (JF1)	
Pin#	Definition
13	+3.3V
14	HD Active

NIC1/NIC2 LED Indicators

The NIC (Network Interface Controller or Ethernet Controller) LED connection for LAN port 1 is located on pins 11 and 12 of JF1, and the LED connection for LAN Port 2 is on pins 9 and 10. Attach the NIC LED cables to display network activity. Refer to the table on the right for pin definitions.

NIC 1/2 LED Pin Definitions (JF1)	
Pin#	Definition
11/9	Vcc
12/10	Ground

A POWER LED
B HDD LED
C NIC1
D NIC2



JF1 Header Pins

Overheat (OH)/Fan Fail LED

Connect an LED Cable to the OH/Fan Fail connection on pins 7 and 8 of JF1 to provide advanced warnings of chassis overheat or fan failure. Refer to the table on the right for pin definitions.

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

Reset Button

The Reset Button connection is located on pins 3 and 4 of JF1. Attach it to a hardware reset switch on the computer case. Refer to the table on the right for pin definitions.

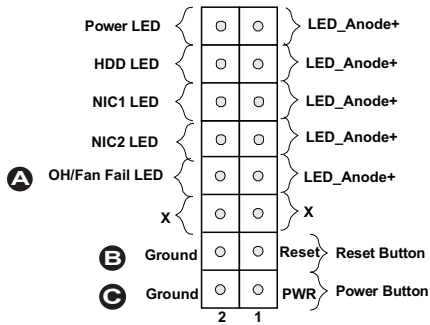
Reset Button Pin Definitions (JF1)	
Pin#	Definition
3	Reset
4	Ground

Power Button

The Power Button connection is located on pins 1 and 2 of JF1. Momentarily contacting both pins will power on/off the system. To turn off the power when set to suspend mode, press the button for at least 4 seconds. Refer to the table on the right for pin definitions.

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

A OH/Fan Fail LED
B Reset Button
C PWR Button



JF1 Header Pins

2-7 Connecting Cables

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

24-pin ATX Power Connector (JPW1)

The 24-pin power connector is used to provide power to the motherboard. This connector meets the SSI EPS 12V specification. See the tables on the right for pin definitions.

ATX Power 24-pin Connector Pin Definitions (JPW1)

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

(Required)

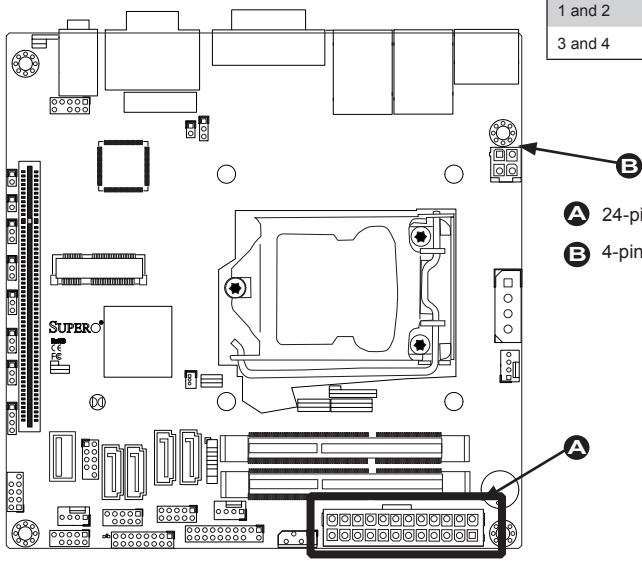
4-pin ATX Power Connector (JPW2)

The 4-pin ATX power connector is used to provide additional power to the CPU. See the table on the right for pin definitions.

Note: Either JPW1 or JPW2 may be used as the main power input.

ATX 4-pin CPU Power Connector Pin Definitions

Pins	Definition
1 and 2	Ground
3 and 4	+12V



A 24-pin PWR

B 4-pin Auxilliary Power

Fan Headers

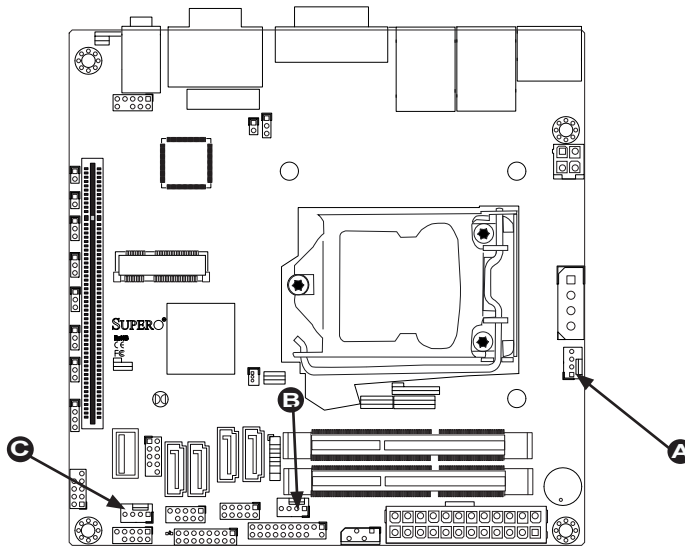
The X10SLV/-Q Motherboard has three fan headers (Fan1~Fan3). These fans are 4-pin fan headers. Although pins 1~3 of the fan headers are backward compatible with the traditional 3-pin fans, please use 4-pin fans on the motherboard to enable the motherboard to control fan speed through the BIOS. Refer to the table on the right for pin definitions.

Fan Header Pin Definitions

Pin#	Definition
1	Ground
2	+12V
3	Tachometer
4	PWM_Control

Note: The speeds of 4-pin (PWM) fans are controlled by Thermal Management via BIOS Hardware Monitoring in the Advanced Setting. (The default setting is **Disabled**.)

A Fan1
B Fan2
C Fan3



Chassis Intrusion (JL1)

A Chassis Intrusion header is located at JL1 on the motherboard. Attach the appropriate cable from the chassis to inform you of a chassis intrusion when the chassis has been opened.

Chassis Intrusion Pin Definitions (JL1)

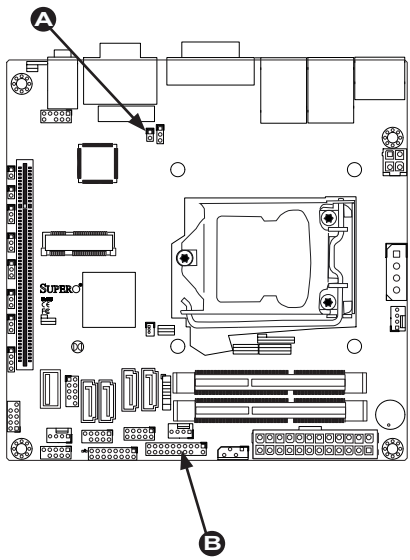
Pin#	Definition
1	Intrusion Input
2	Ground

TPM Header (JTPM1)

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

Trusted Platform Module Header Pin Definitions

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



A Chassis Intrusion
B TPM Header

SATA DOM Power (JSD1)

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

SATA DOM Power Pin Definitions

Pin#	Definition
1	+5V
2	Ground
3	Ground

System Management Bus (JSMB1)

A System Management Bus header is located at JSMB1. Connect the appropriate cable here to use the SMB features of the motherboard.

System Management Bus

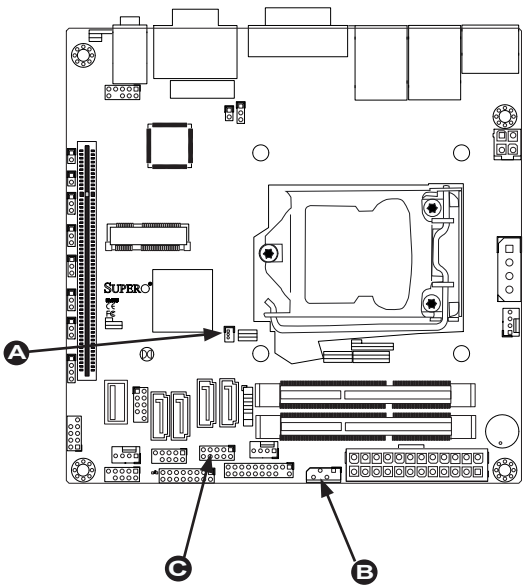
Pin#	Definition
1	Data
2	Ground
3	CLK
4	No Connection

GPIO Header (JGPIO 1)

The JGPIO1 header is located near the SATA connectors on the motherboard. The JGPIO header is a general-purpose I/O expander on a pin header via the SMBus. See the table on the right for pin definitions. Refer to the board layout below for the locations of the headers.

GPIO Expander Pin Definitions

Pin#	Definition	Pin	Definition
1	VCC5	2	GND
3	GP0	4	GP1
5	GP2	6	GP3
7	GP5	8	GP5
9	GP6	10	GP7



A SATA DOM Power
B SMB Connector
C JGPIO Header

Mini PCI-E Slot (Mini PCIE)

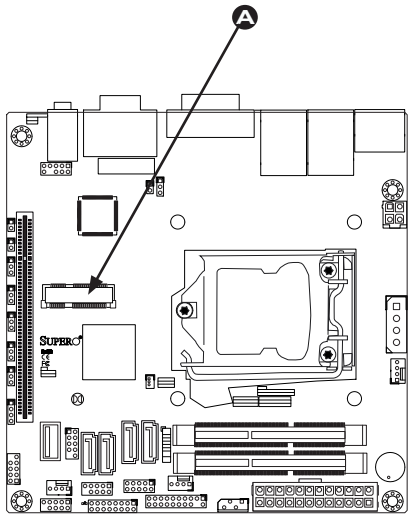
The Mini PCI-E slot is used to install a compatible Mini PCI-E device. Refer to the table on right for pin definitions.

The mSATA feature leverages the speed and reliability of the SATA interface to provide a high performance, cost-effective storage solution for smaller devices like notebooks and netbooks.

The specification maps SATA signals onto an existing small form factor connector, enabling more compact integration in a wide variety of applications for both hard disk (HDD) and solid state drives (SSDs). The mSATA connector allows companies to increase the storage offerings of their products without compromising valuable space.

Mini PCI-E Pin Definitions

Pin#	Definition	Pin#	Definition
51	NC	52	+3.3Vaux
49	NC	50	GND
47	NC	48	+1.5V
45	NC	46	NC
43	NC	44	NC
41	+3.3Vaux	42	NC
39	+3.3Vaux	40	GND
37	GND	38	USB_D+
35	GND	36	USB_D-
33	PETp0	34	GND
31	PETn0	32	SMB_DATA
29	GND	30	SMB_CLK
27	GND	28	+1.5V
25	PERp0	26	GND
23	PERn0	24	+3.3Vaux
21	DET_CARD_ PLUG	22	PERST#
19	NC	20	W_DISABLE#
17	NC	18	GND
15	GND	16	NC
13	REFCLK+	14	NC
11	REFCLK-	12	NC
9	GND	10	NC
7	CLKREQ#	8	NC
5	NC	6	1.5V
3	NC	4	GND
1	WAKE#	2	3.3Vaux



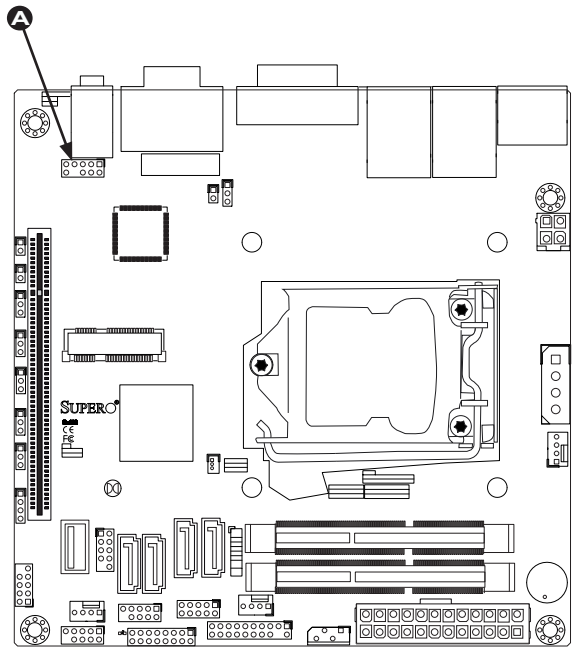
A Mini PCIe Slot

Front Panel Audio Control Header

When front panel headphones are plugged in, the back panel audio output is disabled. This is done through the FP Audio header (AUDIO FP). If the front panel interface card is not connected to the front panel audio header, jumpers should be installed on the header pin pairs: 1-2, 5-6, and 9-10. If these jumpers are not installed, the back panel line out connector will be disabled and microphone input pin 1 will be left floating, which can lead to excessive back panel microphone noise and cross talk. See the table below for pin definitions.

High Definition Front Panel Audio	
Pin#	Signal
1	MC_L
2	AUD_GND
3	MC_R
4	FP_Audio-Detect
5	Line_2_R
6	SENSE1_RETURN
7	AUD_GND
8	Key
9	Line_2_L
10	SENSE2_RETURN

A Front Panel Audio Header



Speaker (JD1)

On the JD1 header, pins 3-4 are used for the internal speaker. Close pins 3-4 with a cap to use the onboard speaker. If you wish to use an external speaker, attach the external speaker cable to pins 1-4. See the table on the right for pin definitions.

Speaker Connector Pin Definitions

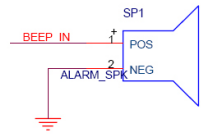
Pin Setting	Definition
Pins 3-4	Internal Speaker
Pins 1-4	External Speaker

Internal Speaker/Buzzer (SP1)

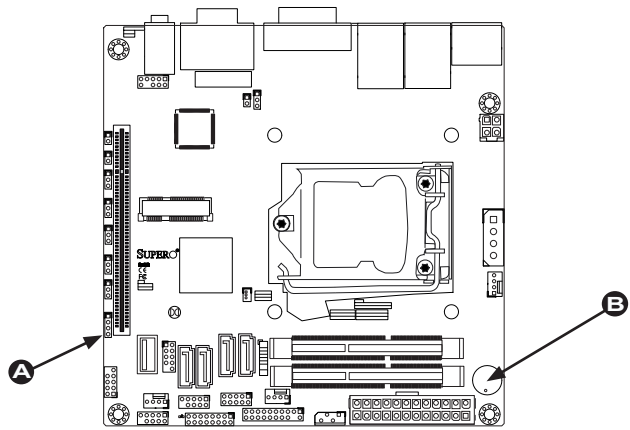
The Internal Speaker on SP1 can be used to provide audible indications for various beep codes. See the table on the right for pin definitions. Refer to the layout below for the location.

Internal Buzzer Pin Definition

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



A PWR LED/SPKR
B Internal Speaker/Buzzer

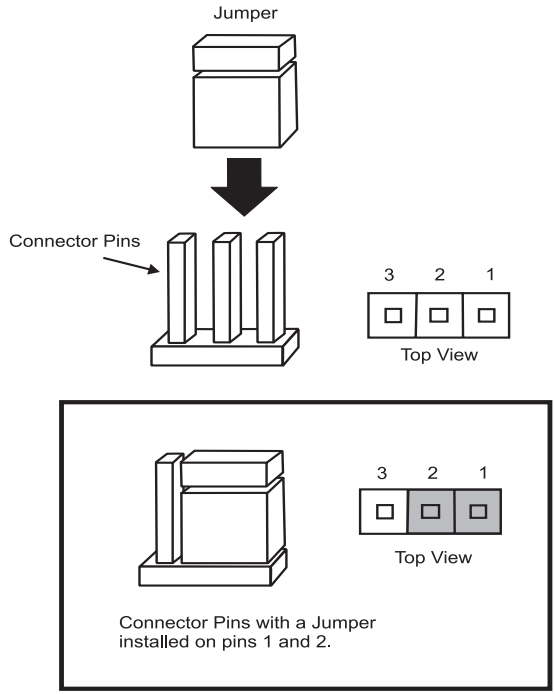


2-8 Jumper Settings

Explanation of Jumpers

To modify the operation of the motherboard, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board.

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



BIOS Recovery (JBR1)

Close pins 2-3 of Jumper JBR1 for BIOS recovery. The default setting is on pins 1-2 for normal operation. See the table on the right for jumper settings.

BIOS Recovery Jumper Settings	
Settings	Definition
Pins 1-2	Normal (Default)
Pins 2-3	Enabled

SMB (I^2C) Bus to PCIe Slots

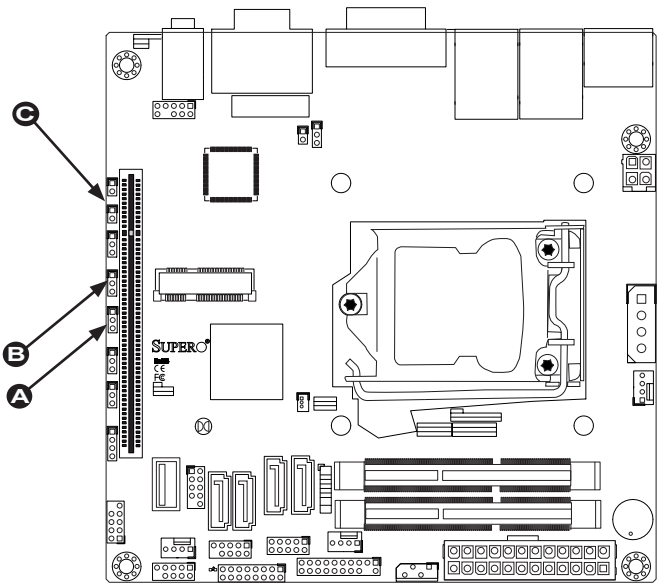
Jumpers JI^{2}C1 and JI^{2}C2 allow you to connect the System Management Bus (SMB) to PCI-E and PCI slots. The default setting is set to **Disabled**. See the table on the right for jumper settings.

I^2C to PCIe Slots Jumper Settings	
Jumper	Definition
On	Enabled
Off	Disabled (Default)

Front Panel Audio Enable (JPAC1)

JPAC1 allows you to enable or disable front panel audio support. The default position is on pins 1-2 to enable onboard audio connections. See the table on the right for jumper settings

Front Panel Audio Jumper Settings	
Settings	Definition
Pins 1-2	Enabled (Default)
Pins 2-3	Disabled



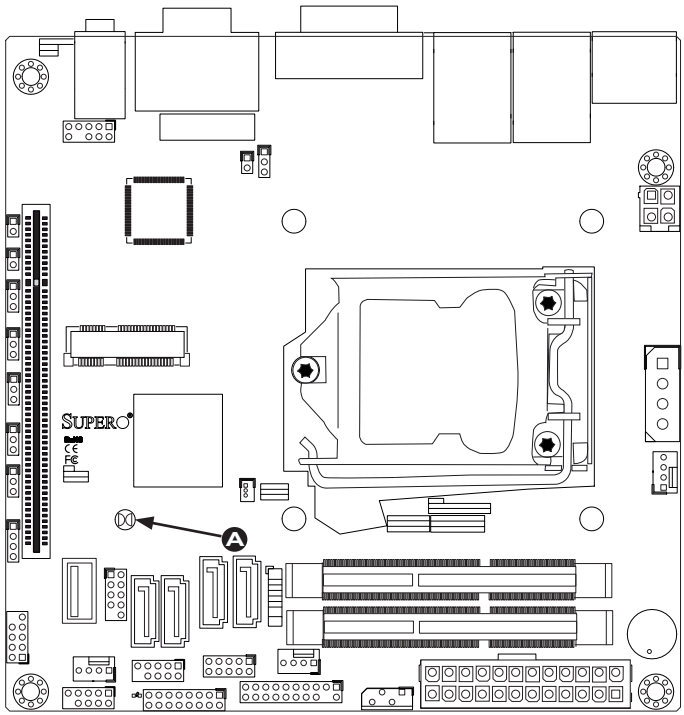
Clear CMOS (JBT1)

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

Metal contact pads

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

A Clear CMOS



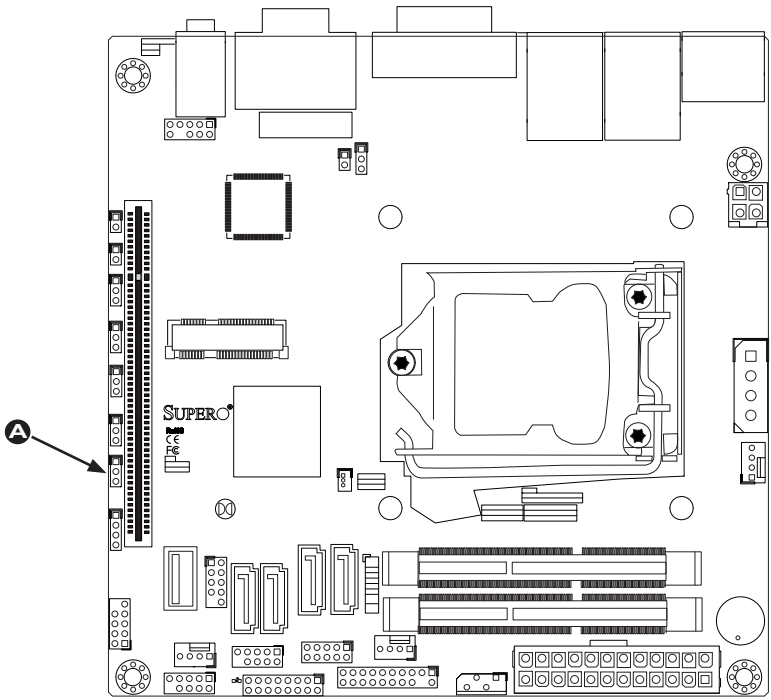
USB Wake-Up (JPUSB1)

Use the JPUSB1 jumper to enable system "wake-up" via a USB device. This jumper allows you to "wake-up" the system by pressing a key on the USB keyboard or by clicking the USB mouse of your system. The JPUSB1 jumper is used together with the USB Wake-Up function in the BIOS. Enable both the jumper and the BIOS setting to activate this function. See the table on the right for jumper settings and jumper connections.

Note: The default jumper setting is Disabled. When the "USB Wake-Up" function is enabled, it will be active on all USB ports.

USB Wake-Up Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Enabled
Pins 2-3	Disabled (Default)

Ⓐ USB Wake-up



Watch Dog Reset (JWD1)

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

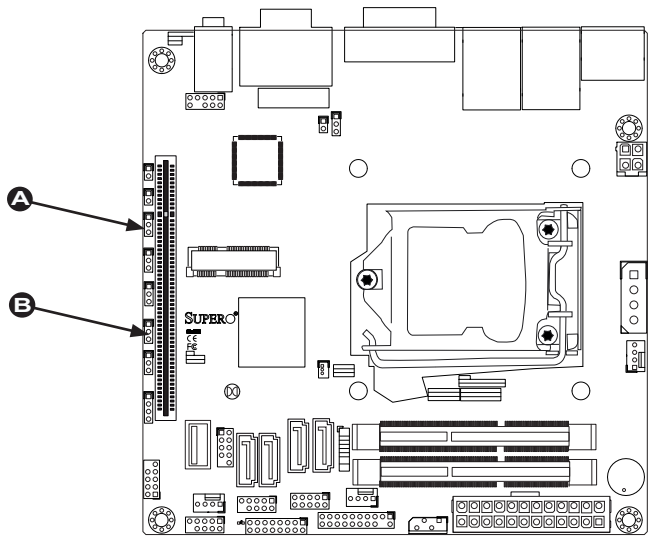
Watch Dog Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Reset (default)
Pins 2-3	NMI
Open	Disabled

ME Manufacturing Mode (JPME2)

Close pins 2-3 of Jumper JPME2 to bypass SPI flash security and force the system to operate in the Manufacturing mode, allowing the user to flash the system firmware from a host server for system setting modifications. See the table on the right for jumper settings

ME Manufacturing Mode Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Normal (Default)
Pins 2-3	Enabled

A Watch Dog Reset
B ME Manufacturing Mode



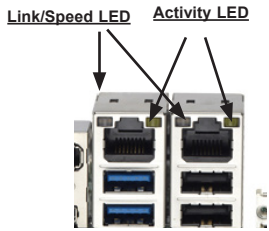
2-9 Onboard Indicators

LAN Port LEDs

Two LAN ports are located on the I/O back panel. Each Ethernet LAN port has two LEDs. The yellow Activity LED (right, see below) indicates activity, while the Link/ Speed LED (left) may be green, amber or off to indicate the speed of the connection. See the tables at right for more information.

GLAN Link/Speed LED Indicator	
LED Color	Definition
Off	No Connection or 10 Mbps
Green (On)	100 Mbps
Amber (On)	1 Gbps

GLAN Activity LED Indicator	
Color	Definition
Yellow (Flashing)	ConnectionActive

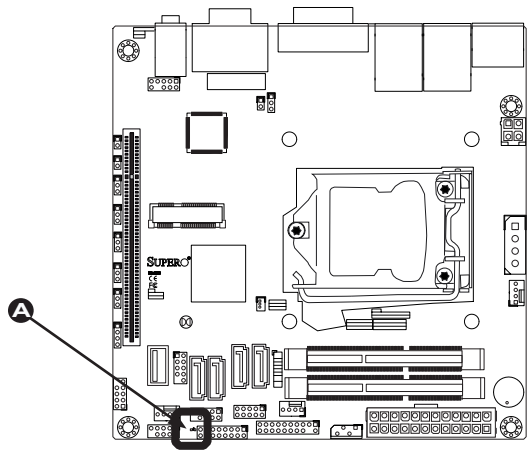


Standby Power LED (LED1)

An Onboard Power LED is located at LED1 on the motherboard. When LED1 is on, the AC power cable is connected and the power supply hard switch is on. The system may be on standby or running.

Onboard PWR LED (LED1) LED Status	
Status	Definition
Off	System Off (Soft Switch)
On	Power is Detected

A Standby Power LED



2-10 Serial ATA and HDD Connections

Note the following conditions when connecting the Serial ATA and hard disk drive cables:

- Be sure to use the correct cable for each connector. Refer to Page 1-1 for cables that came with your shipment.

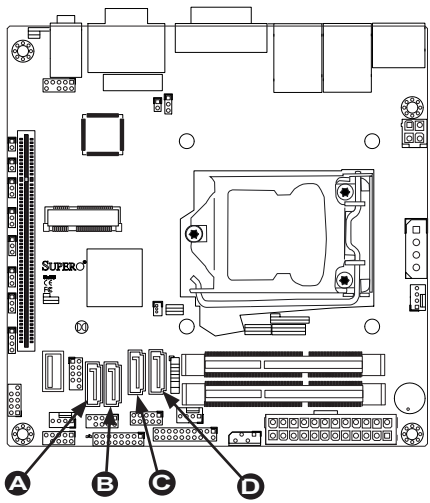
SATA Connections (I-SATA0~I-SATA3)

Four total Serial ATA (SATA) connectors are located on the motherboard. The X10SLV motherboard supports two SATA 3.0 (0/1) and two SATA 2.0 (2/3), while the X10SLV-Q supports four SATA 3.0 (0/1/2/3) connectors. These Serial Link connections provide faster data transmission than legacy Parallel ATA. See the table below for pin definitions.

SATA Connector Types		
Port#	Connection Type	Connector Color
I-SATA 0/1	SATA 3.0	White
I-SATA 2/3	SATA 2.0 / SATA 3.0*	Black

Note: The X10SLV-Q motherboard supports SATA 3.0 on all ports.

SATA 2.0/3.0 Connectors Pin Definitions	
Pin#	Signal
1	Ground
2	SATA_TXP
3	SATA_TXN
4	Ground
5	SATA_RXN
6	SATA_RXP
7	Ground



A I-SATA0 (3.0)
B I-SATA1 (3.0)
C I-SATA2 (2.0/3.0*)
D I-SATA3 (2.0/3.0*)

Chapter 3

Troubleshooting

3-1 Troubleshooting Procedures

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

Before Power On

1. Be sure to unplug the power cable before installing or removing the components.)
2. Make sure that there are no short circuits between the motherboard and chassis.
3. Disconnect all ribbon/wire cables from the motherboard, including those for the keyboard and mouse. Also, be sure to remove all add-on cards.
4. 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 if the 115V/230V switch on the power supply is properly set.
4. Turn the power switch on and off to test the system.
5. The battery on your motherboard may be old. Check to make sure that it still supplies ~3VDC. If it does not, replace it with a new one.

No Video

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

2. 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 specs of memory modules, reset the memory or try a different one.)

Memory Errors

1. Make sure that the non-ECC SODIMM modules are properly installed and fully seated in the slots.

2. Please check Section 2-3 and make sure that you are using the correct memory. Also, it is recommended that you use the memory modules of the same type and speed for all DIMMs in the system.

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

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

If You Lose the System's Setup Configuration

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

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

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

3-2 Technical Support Procedures

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

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

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

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

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

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

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

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

3-3 Frequently Asked Questions

Question: What type of memory does my motherboard support?

Answer:

The X10SLV/-Q Motherboard supports up to 16GB of unbuffered non-ECC DDR3 (up to 1600 MHz), two-way interleaved or non-interleaved SODIMM memory.

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

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

Question: How do I update my BIOS?

Answer: It is recommended that you **do not** upgrade your BIOS if you are not experiencing any problems with your system. Updated BIOS files are located on our web site at http://www.supermicro.com/support/bios/. Please check our

BIOS warning message and the information on how to update your BIOS on our web site. Select your motherboard model and download the BIOS (.rom) file to your computer. Also, check the current BIOS revision and make sure that it is newer than your BIOS before downloading. You may choose the zip file or the .exe file. If you choose the zipped BIOS file, please unzip the BIOS file onto a bootable device or a USB pen/thumb drive. To flash the BIOS, run the batch file named "ami.bat" with the new BIOS ROM file from your bootable device or USB pen/thumb drive. Use the following format:

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

Notes: Always use the file named “ami.bat” to update the BIOS and insert a space between "ami.bat" and the filename. The BIOS-ROM-filename will bear the motherboard name (i.e., X10SLV) and build date as the extension. For example, "X10SLV0.526".

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

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

When the BIOS flashing screen is completed, the system will reboot and will show “Press F1 or F2”. At this point, you will need to load the BIOS defaults. Press <F1> to go to the BIOS setup screen, and press <F3> to load the default settings. Next, press <F4> to save and exit. The system will then reboot.

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

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

3-4 Returning Merchandise for Service

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

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

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

Notes

Chapter 4

BIOS

4-1 Introduction

This chapter describes the AMI BIOS Setup Utility for the X10SLV/-Q. 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 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>, and arrow keys, etc.

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

How To Change the Configuration Data

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

How to Start the Setup Utility

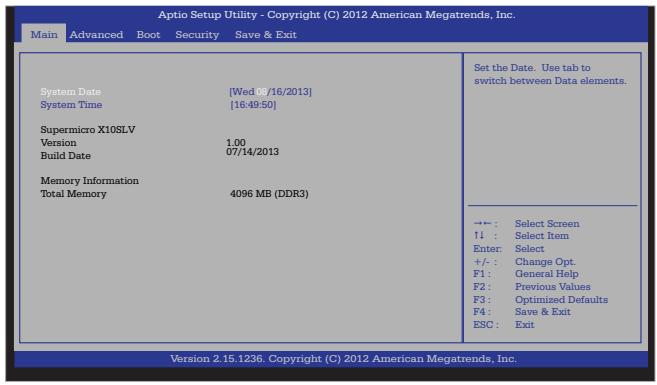
Normally, the only visible Power-On Self-Test (POST) routine is the memory test. As the memory is being tested, press the <Delete> key to enter the main menu of the AMI BIOS Setup Utility. From the main menu, you can access the other setup screens. An AMI BIOS identification string is displayed at the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

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

4-2 Main Setup

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

The following Main menu items will be displayed:



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 using the keyboard. Press the <Tab> key or the arrow keys to move between fields. The date must be entered in Day MM/DD/YYYY format. The time is entered in HH:MM:SS format.

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 X10SLV/-Q

Version

Build Date

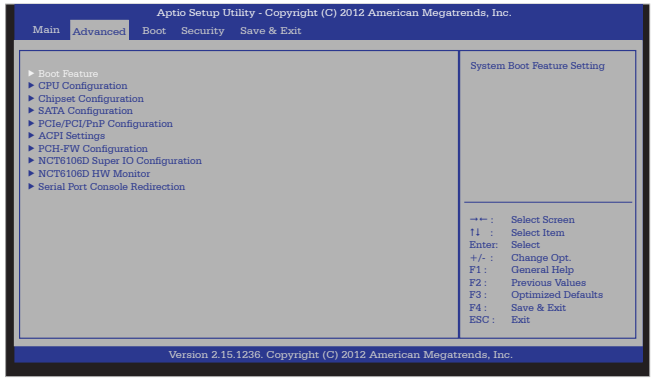
Memory Information

Total Memory

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

4-3 Advanced Setup Configurations

Use the arrow keys to select Advanced Setup and press <Enter> to access the submenu items:



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

Boot Feature

Quiet Boot

Use this feature to select the screen display between POST messages or the OEM logo at 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

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

Bootup Num-Lock

Use this feature to select 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

If this item is enabled, the BIOS will automatically reboot the system from a specified boot device after its initial boot failure. 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.**

Power Button Function

This feature controls how the system shuts down when the power button is pressed. Select 4 Seconds Override for the user to power off the system after pressing and holding the power button for 4 seconds or longer. Select Instant Off to instantly power off the system as soon as the user presses the power button. The options are **Instant Off** and 4 Seconds Override.

Restore on AC Power Loss

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

▶CPU Configuration

The following CPU information will be displayed:

- Type of CPU
- CPU Signature
- CPU Stepping
- Microcode Patch
- FSB Speed
- Max (Maximum) CPU Speed
- Min (Minimum) CPU Speed
- CPU Speed
- Processor Cores
- Intel HT(Hyper-Threading) Technology
- Intel VT-x (Virtualization) Technology
- Intel SMX (Trusted Execution) Technology
- 64-bit
- EIST Technology
- CPU C3 State
- CPU C6 State
- CPU C7 State
- L1 Data Cache
- L1 Code Cache
- L2 Cache
- L3 Cache

Clock Spread Spectrum

If this feature is set to Enabled, the BIOS will monitor the level of electromagnetic interference caused by the components and will attempt to reduce the interference whenever needed. The options are Enabled and **Disabled**.

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 a legacy OS 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)

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

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

Select Enabled to use the 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 reboot the system for the change to take effect. Please refer to Intel's web site for detailed information.

CPU AES

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

Boot Performance Mode

This feature selects the performance state the BIOS will set before the OS hand-off. 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**. The following options will appear if EIST is enabled:

Turbo Mode

This feature allows processor cores to run faster than the frequency recommended by the manufacturer. The options are Disabled and **Enabled.** If this feature is set to Enabled, the following items will display:

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

Use this feature to set the power limit for CPU2. Use the number keys on your keyboard to enter the value. Enter 0 to use the manufacturer's default setting.

Platform Power Limit Lock

Use this feature to lock the power limit of the motherboard. The options are **Enabled** and Disabled.

CPU Power Limit3

Use this feature to set the power limit for CPU3. Use the number keys on your keyboard to enter the value. Enter 0 to use the manufacturer's default setting.

CPU Power Limit3 Time

This item allows the user to determine how long CPU3 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 Limit3 Duty Cycle

This item allows the user to determine the percentage of time CPU3 should operate at the power set by the user for the item above (i.e., If Power Limit3 Time is set at 100 secs, a 60% duty cycle means CPU3 will run 60 seconds at the power limit set in Power Limit3 every 100 seconds.). Use the number keys on your keyboard to enter the value between 1~100. Enter 0 to use the manufacturer's default setting.

DDR Power Limit1

Use this feature to set the power limit for DDR Memory Module 1. Use the number keys on your keyboard to enter the value. Enter 0 to use the manufacture's default setting.

DDR Power Limit1 Time

This item allows the user to determine how long Memory Module 1 should operate at the power limit set by the item above. Use the number keys on your keyboard to enter the value. Enter 0 to use the manufacturer's default setting.

DDR Power Limit2

Use this feature to set the power limit for Memory Module 2. Use the number keys on your keyboard to enter the value. Enter 0 to use the manufacturer's default setting.

1-Core Ratio Limit

This increases (multiplies) 1 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 the value. Enter 0 to use the manufacturer's default setting.

2-Core Ratio Limit

This increases (multiplies) 2 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 the value. Enter 0 to use the manufacturer's default setting.

3 Core Ratio Limit

This increases (multiplies) 3 clock speeds in the CPU core in relation to the bus speed when three CPU cores are active. Use the number keys on your keyboard to enter the value. The default setting is **dependent on the CPU installed.**

4 Core Ratio Limit

This increases (multiplies) 4 clock speeds in the CPU core in relation to the bus speed when four CPU cores are active. Use the number keys on your keyboard to enter the value. The default setting is **dependent on the CPU installed.**

Energy Performance

Use this feature to select an appropriate fan setting to achieve the maximum system performance (with maximum cooling) or maximum energy efficiency (with maximum power saving). The fan speeds are controlled by the firmware management. 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 (VR). Press "+" or "-" on your keyboard to change this value. Enter 0 to use the manufacture default setting.

CPU C States

C-States architecture, 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 Sates 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 State based on un-cored auto-demote information. 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 State based on un-cored auto-demote information. The options are Disabled and **Enabled.**

C State Pre-Wake

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

Package C-State limit

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

ACPI T State

Select Enabled to support Advanced Configuration and Power Interface (ACPI) Throttling States (T State), which will lower the power consumption level for the system as to the power consumption level set for CPU Performance State 1 to achieve power efficiency. The options are **Enabled** and Disabled.

▶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

- 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 the Virtual Machine Manager (VMM) through the DMAR ACPI Tables. This feature offers fully-protected I/O resource-sharing across the Intel platforms, providing the user with greater reliability, security and availability in networking and data-sharing. The settings are **Enabled** and Disabled.

▶Graphics Configuration

This item displays the following graphics information:

Graphics Configuration

- IGFX VBIOS Version
- IGfx Frequency

Graphics Turbo IMON Current

Use this feature to set the limit on the current voltage regulator. Press "+" or "-" on your keyboard to change this value.

Primary Display

Use this feature to select the graphics device to be used as the primary display. You can select from a device installed on the CPU IGFX, CPU SLOT, or PCH SLOT. The options are **Auto**, CPU IGFX, CPU SLOT, and PCH SLOT.

CPU Slot (Available when Primary Display is set to Auto)

Use this item to select the graphics device installed in an expansion slot supported by the CPU to be used as the primary display. The options are **Auto,** SLOT1 PCI-E 2.0 X16 or SLOT1 PCI-E 3.0 X16 (X10SLV-Q only).

PCH Slot (Available when Primary Display is set to Auto)

Use this item to select the graphics device installed in an expansion slot supported by the PCH to be used as the primary display. The options are **Auto,** PCIE3 and PCIE4.

CPU IGFX

Select Auto to keep an internal graphics device installed on an expansion slot supported by the CPU to be automatically enabled. The options are **Auto**, Disabled, and Enabled.

GTT Size

Use this feature to set the memory size to be used by the graphics translation table (GTT). The options are 1MB and **2MB**.

Aperture Size

Use this feature to set the Aperture size, which is the size of system memory reserved by the BIOS for graphics device use. The options are 128MB, **256MB** and 512 MB.

DVMT Pre-Allocated

Dynamic Video Memory Technology (DVMT) allows dynamic allocation of system memory to be used for video devices to ensure best use of available system memory based on the DVMT 5.0 platform. The options are **32M**, 64M, 96M, 128M, 160M, 192M, 224M, 256M, 288M, 320M, 352M, 384M, 416M, 448M, 480M, 512M, and 1024M.

DVMT (Dynamic Video Memory Technology) Total Gfx Mem

Use this feature to set the total memory size to be used by internal graphics devices based on the DVMT 5.0 platform. The options are 128MB, **256MB** and MAX.

Gfx (Graphics) Low Power Mode

Select Enabled to use the low power mode for internal graphics devices installed in a small form factor (SFF) computer. The options are **Enabled** and Disabled.

PCI-E Configuration

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

SLOT1 PCI-E 2.0 X16 (X10SLV only)

SLOT1 PCI-E 3.0 X16 (X10SLV-Q only)

SLOT1 PCI-E 2.0 X16- Gen X, option support up to Gen2 (X10SLV only)

SLOT1 PCI-E 3.0 X16- Gen X, option support up to Gen3 (X10SLV-Q only)

This feature allows the user to select PCI-E support for the device installed on Slot1. The options are **Auto**, Gen1 (Generation 1), and Gen 2 (Gen3 is an added option for X10SLV-Q).

Detect Non-Compliant 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 OpROM. If this item is set to Disabled, the PCI-E ASPM will be programmed before OpROM. The options are **Enabled** and Disabled.

SLOT1 PCI-E 2.0 X16 ASPM (X10SLV only)

SLOT1 PCI-E 3.0 X16 ASPM (X10SLV-Q only)

Use this feature to set the ASPM (Active State Power Management) level for the graphics device installed on a PCI-E or PCI slot specified by the user. The options are Disabled, ASPM L0s, ASPM L1, ASPM L0sL1, and **Auto**.

DMI Link ASPM Control

Use this feature to set the ASPM (Active State Power Management) state on the SA (System Agent) side of the DMI Link. The options are Disabled, L0s, L1 and **L0sL1**.

PCH DMI Link ASPM Control

Use this feature to set the ASPM (Active State Power Management) state on the device installed on the DMI Link supported by the PCH chip. The options are Disabled and **Enabled**.

▶Memory Configuration

This item displays the following information on the memory modules installed on the motherboard.

- Memory RC Version
- Memory Frequency
- Total Memory
- Memory Voltage
- DIMM A1
- DIMM B1
- CAS Latency (tCL)
- Minimum Delay Time
  - CAS to RAS (tRCDmin)
  - Row Precharge (tRPmin)
  - Active to Precharege (tRASmin)

Memory Frequency Limiter

This feature limits the frequency on which the system memory operates. The settings are **Auto**, 1067, 1333, and 1600.

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, GTT Stolen Memory, and TSEG, respectively, 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.

Note: TSEG is a block of memory that is only accessible by the processor while operating in System Management Mode (SMM).

Memory Scrambler

This feature enables or disables memory scrambler support for memory error correction. The settings are **Enabled** and Disabled.

▶PCH-IO Configuration

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

- Intel PCH Rev ID
- USB Configuration
- USB Devices: 1 Keyboard, 1 Mouse, 2 Hubs

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 when legacy USB devices are not present. If Disable is selected, legacy USB devices will not be supported. The options are **Enabled,** Disabled and Auto.

Port 60/64 Emulation

This feature enables or disables I/O port 60h/64h emulation support. This should be enabled for complete USB keyboard legacy support for non-USB-aware operating systems. The options are 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.

Frontside Audio Mode

This feature selects the type of audio output for the front_side audio header or connection. Select **HD Audio** for High Definition; otherwise, select AC '97 for legacy audio. The options are **HD Audio** and AC' 97.

Deep Sx Power Policies

Select Enabled to enable Deep Sleep State support. The settings are **Disabled,** Enabled in S5 and Enabled in S4-S5**.**

▶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, and **AHCI**. (RAID is an added option for the X10SLV-Q only)

If the item above -SATA Mode Selection is set to AHCI, the following items are displayed:

Serial ATA Port 0~ Port 3

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 3 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 3 Spin Up Device

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

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

Serial ATA Port 0~ Port 3

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 above - SATA Mode Select is set to RAID, the following items are displayed (this is supported on the X10SLV-Q only)**:**

Serial ATA Port 0~ Port 3

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 3 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 3 Spin Up Device

On an edge detect from 0 to 1, set this item to allow the PCH to start a COMRESET 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 the PCI cards that do not contain their own VGA color palette to examine the video cards palette and mimic it for proper color display. The options are **Disabled** and Enabled.

SLOT1 PCI-E 2.0 X16 OPROM (X10SLV only)

SLOT1 PCI-E 3.0 X16 OPROM (X10SLV-Q only)

Select Disabled to deactivate the selected slot, Legacy to activate the slot in legacy mode and EFI to activate the slot in EFI mode. The options are Disabled, **Legacy** and EFI.

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 Option ROM for system boot if this device is not a network, mass storage, or video device. The options are UEFI Only and **Legacy Only**.

Onboard LAN1/Onboard LAN2

This setting enables or disables the designated onboard LAN port. The options are Disabled and **Enabled**.

Onboard LAN1 Option ROM/Onboard LAN2 Option ROM

Select PXE (Preboot Execution Environment) to boot the computer using a PXE device installed in a LAN port specified. Select Disabled to prevent system boot using a device installed in a LAN port. The options for Onboard LAN1 Option ROM are Disabled, and **PXE**.The options for Onboard LAN2 Option ROM are **Disabled** and PXE.

Network Stack

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

Ipv4 PXE Support (Available when Network Stack is set to Enabled)

Select Enabled to enable Ipv4 PXE (Preboot Execution Environment) for boot support. If this feature is set to Disabled, Ipv4 PXE boot option will not be supported. The options are **Enabled** and Disabled.

Ipv6 PXE Support (Available when Network Stack is set to Enabled)

Select Enabled to enable Ipv6 PXE (Preboot Execution Environment) for boot support. If this feature is set to Disabled, Ipv6 PXE boot option will not be supported. The options are Enabled and **Disabled.**

▶ACPI Settings

High Precision Timer

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

ACPI Sleep State

This feature selects the ACPI Sleep State that the system will enter into when the suspend button is activated. The options are Suspend Disabled, and **S3 only (Suspend to RAM)**

▶**Trusted Computing** (Available when a TPM Device is Detected)

Configuration

Security Device Support

Select Enable for the AMI BIOS to automatically download the drivers needed to provide Trusted Computing platform support for this machine to ensure date integrity and network security. The options are **Disable** and Enable.

TPM State

Select Enabled to use TPM (Trusted Platform Module) settings for system data security. The options are Disabled and **Enabled**.

Note: The system will reboot for the change on TPM State to take effect.

Pending Operation

Use this item to schedule a TPM-related operation to be performed by a security device for TPM support. The options are **None**, Enable Take Ownership, Disable Take Ownership, and TPM Clear.

Note: The computer will reboot to carry out a pending TPM operation and change TPM state for a TPM device.

Current Status Information

This feature indicates the status of the following TPM items:

TPM Enabled Status

TPM Active Status

TPM Owner Status

Intel TXT (LT) Support

Intel TXT (Trusted Execution Technology) helps protect against software-based attacks to ensure the security, confidentiality, and integrity of all data stored in the system. The options are Enabled and **Disabled**.

▶PCH-FW Configuration

The following information are displayed:

- ME FW Version
- ME Firmware Mode
- ME Firmware Type
- ME Firmware SKU
- PTT Capability/State

▶Firmware Update Configuration

ME FW Image Re-Flash

Select Enabled to re-flash the ME (Management Engine) Firmware. The options are **Disabled** and Enabled.

▶NCT6106D Super IO Configuration

NCT6106D Super IO Chip

▶Serial Port 1~5 Configuration

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

Device Settings

This feature displays the base I/O port address and the Interrupt Request address of Serial Port 1~5.

Change Port Settings

This option specifies the base I/O port address and the Interrupt Request address of the Serial Port. Select Auto to let the BIOS automatically assign the base I/O and IRQ address.

The options for Serial Port 1 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).

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

(IO=3E8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12) and (IO=2E8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12).

The options for Serial Port 3 are **Auto**, (IO=3E8h; IRQ=5), (IO=3E8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12), (IO=2E8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12), (IO=2E0h; IRQ=3, 4, 5, 6, 7, 10, 11, 12) and (IO=2F0h; IRQ=3, 4, 5, 6, 7, 10, 11, 12).

The options for Serial Port 4 are **Auto**, (IO=2E8h; IRQ=6), (IO=3E8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12), (IO=2E8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12), (IO=2E0h; IRQ=3, 4, 5, 6, 7, 10, 11, 12) and (IO=2F0h; IRQ=3, 4, 5, 6, 7, 10, 11, 12).

The options for Serial Port 5 are **Auto**, (IO=2F0h; IRQ=7), (IO=3E8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12), (IO=2E8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12), (IO=2E0h; IRQ=3, 4, 5, 6, 7, 10, 11, 12) and (IO=2F0h; IRQ=3, 4, 5, 6, 7, 10, 11, 12).

Transmit Mode (Serial Port 5)

This option changes the transmit mode of Serial Port 5. The options are **RS232 Mode**, RS485 Mode and RS422 Mode.

▶NCT6106D H/W (Hardware) Monitor

PC Health Status

Fan Speed Control Mode

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

The following items will be displayed:

- Peripheral Temperature
- System Temperature
- CPU Temperature (PECI)
- PCH Temperature

- Fan 1 Speed ~ Fan 3 Speed
- VCORE
- 12V
- V_DIMM
- 1.05V PCH
- 3.3AVCC
- 3.3VCC
- 3.3VSB
- VBAT

▶Serial Port Console Redirection

COM1~COM5

Use this feature to enable console redirection for COM1~COM5. The options are Enabled and **Disabled**.

▶Console Redirection Settings

Configure the following options for the Console Redirection Settings. The most common settings are set as default:

Terminal Type : Select ANSI, VT100, **VT100+**, or VT-UTF8

Bits per Second (BPS): 9600, 19200, 38400, 57600, or **115200**

Data Bits: **8** or 7

Parity: **None**, Even, Odd, Mark, or Space

Stop Bits: **1** or 2

Flow Control: **None** or Hardware RTS/CTS

VT-UTF8 Combo Key Support: **Enabled** or Disabled

Recorder Mode: **Disabled** or Enabled

Resolution 100x31: Disabled or **Enabled**

Legacy OS Redirection Resolution: **80x24** or 80x25

PuTTY Keypad: **VT100**, Linux, XTermR6, SCO, ESCN, VT400

Redirection After BIOS POST: **Always Enable**, Bootloader

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

Use this feature to enable console redirection.

EMS Console Redirection

Use this feature to enable console redirection for Serial Port Out-of-Band Management / Windows Emergency Management Services (EMS) ports. The options are Enabled and **Disabled**.

▶Console Redirection Settings

Configure the following options for the Console Redirection Settings. The most common settings are set as default:

Out-of-Band Management Port: **COM1**, COM2, COM3, COM4 and COM5.

Terminal Type: Select ANSI, VT100, VT100+, or **VT-UTF8**

Bits per Second (BPS): 9600, 19200, 57600, or **115200**

Flow Control: **None**, Hardware RTS/CTS, Software Xon/Xoff

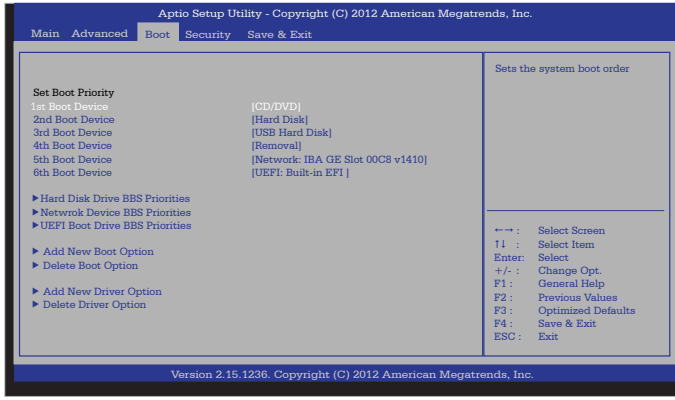
Data Bits: **8** or 7

Parity: **None**, Even, Odd, Mark, or Space

Stop Bits: **1** or 2

4-4 Boot Settings

Use this feature to configure 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

▶Hard Disk Drive BBS Priorities

- 1st Device
- 2nd 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]

▶Delete Driver Option

Use this feature to remove a pre-defined driver 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 systems boots during startup.

Add Driver Option

Enter the name of the new boot option here.

Path for Driver Option

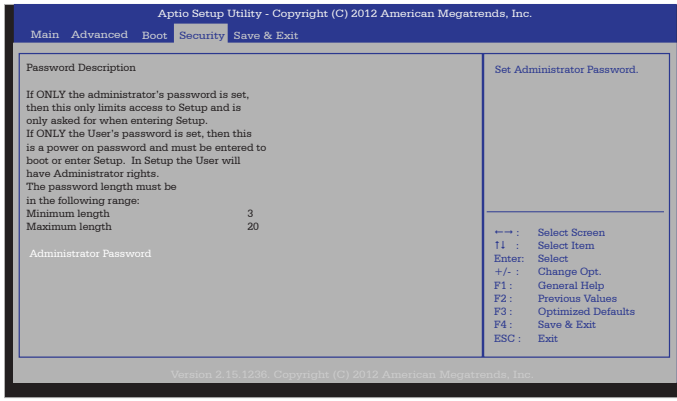
Enter the path of the new boot option here.

Create

Press Enter here to create the new boot option.

4-5 Security Settings

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



- If the Administrator password is defined ONLY - this controls access to the BIOS setup ONLY.
- If the User's password is defined ONLY - this password will need to be entered upon each system boot, and will also have Administrator rights in the setup.
- Passwords must be at least 3 and up to 20 characters long.

Administrator Password

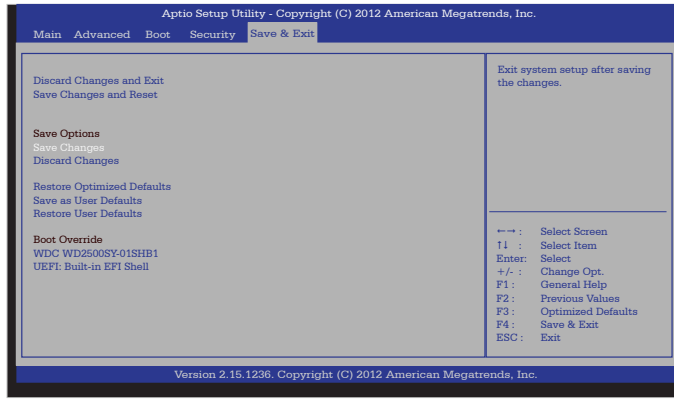
Use this feature to set the Administrator Password which is required to enter the BIOS setup utility. The length of the password should be from 3 characters to 20 characters long.

HDD Security Configuration

Use this feature to set the Hard Disk Drive Password which will be required to access the selected hard disk drive. The length of the password should be from 3 characters to 20 characters long. To begin, use the cursor to highlight a detected hard disk and press <Enter>. Press <Enter> again on "Set User Password" to define the hard disk drive password. Save when finished.

4-6 Save & Exit

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



Discard Changes and Exit

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

Save Changes and Reset

When you have completed the system configuration changes, select this option to leave the BIOS Setup Utility and reboot the computer for 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 all 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>. This enables the user to save any changes to the BIOS setup for future use.

Restore User Defaults

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

Boot Override

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

Appendix A

POST Error Beep Codes

This section lists POST (Power On Self Test) error beep codes for the AMI BIOS. POST error beep codes are divided into two categories: recoverable and terminal. This section lists Beep Codes for recoverable POST errors.

Recoverable POST Error Beep Codes

When a recoverable type of error occurs during POST, BIOS will display a POST code that describes the problem. BIOS may also issue one of the following beep codes:

1 beep - circuits have been reset (ready to power up).

5 short beeps + 1 long beep - No memory detected in the system

1 continuous beep with the front panel Overheat LED on - system overheat

5 short beeps - system display error

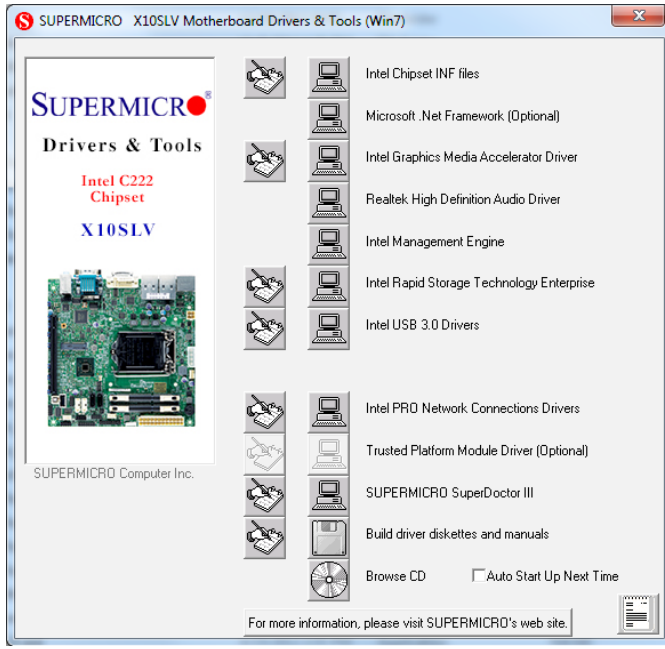
Notes

Appendix B

Software Installation Instructions

B-1 Installing Drivers

Additional drivers and tools for your motherboard are available for download at the Supermicro website. To install these software programs and drivers, run the application and a screen will appear as below. Click the icons to the right of these items.



Driver/Tool Installation Display Screen

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

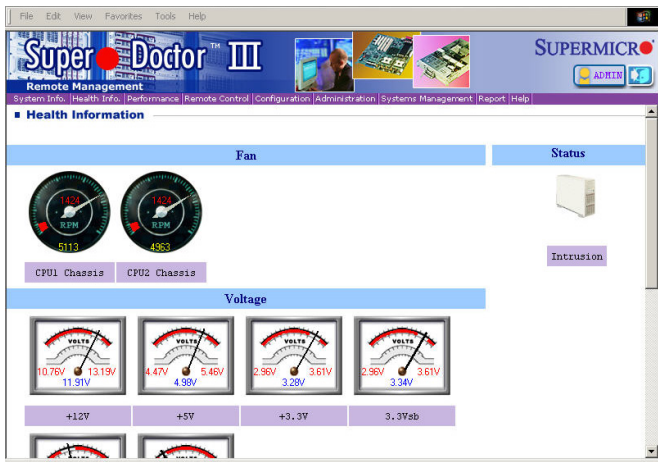
B-2 Configuring SuperDoctor III

The SuperDoctor III program is a Web-base management tool that supports remote management capability. It includes Remote and Local Management tools. The local management is called the SD III Client. The SuperDoctor III program included on the CDROM that came with your motherboard allows you to monitor the environment and operations of your system. SuperDoctor III displays crucial system information such as CPU temperature, system voltages and fan status. See the Figure below for a display of the SuperDoctor III interface.

Note 1: Both default user name and password are ADMIN.

Note 2: In the Windows OS environment, the SuperDoctor III settings take precedence over the BIOS settings. When first installed, Supero Doctor III adopts the temperature threshold settings previously set in the BIOS. Any subsequent changes to these thresholds must be made within SuperDoctor, since the SD III settings override the BIOS settings. For the Windows OS to adopt the BIOS temperature threshold settings, please change the SDIII settings to be the same as those set in the BIOS.

Supero Doctor III Interface Display Screen-I (Health Information)



SuperDoctor III Interface Display Screen-II (Remote Control)

Note: SD III Software Revision 1.0 can be downloaded from our web site at: ftp://ftp.supermicro.com/utility/Super_Doctor_III/. You can also download SDIII User's Guide at: http://www.supermicro.com/PRODUCT/Manuals/SDIII/UserGuide.pdf. For Linux, we will still recommend that you use SuperDoctor II.

Notes

Appendix C

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.

C-1 An Overview to the UEFI BIOS

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

C-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.

C-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.

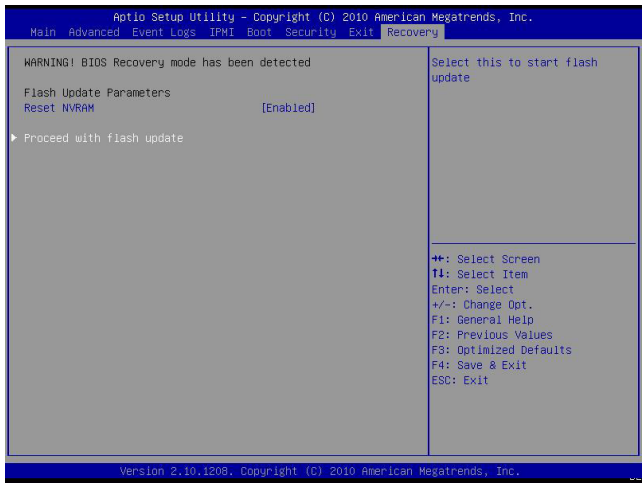
1. Using a different machine, copy the "Super.ROM" binary image file into the disc Root "\" Directory of a USB device or a writeable CD/DVD.

   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.

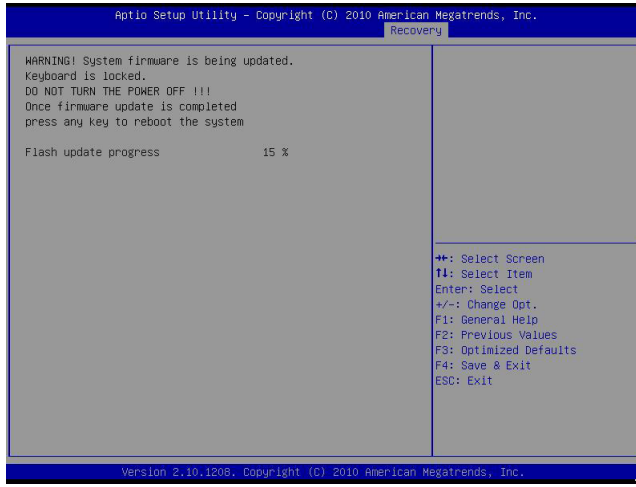
2. Insert the USB device that contains the new BIOS image ("Super.ROM") into your USB drive and power on the system

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.

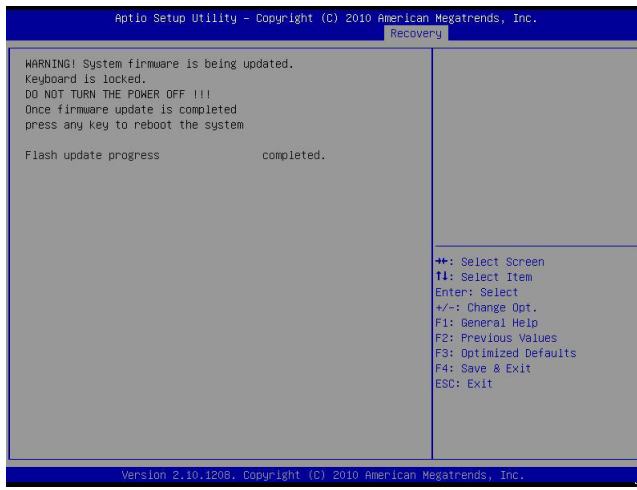
4. After locating the new BIOS binary image, the system will enter the BIOS Recovery menu as shown below.



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



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



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

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

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

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

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

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

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

11. Press <F3> to load default settings.

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

(Disclaimer Continued)

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