SUPER⦿®

H9SKV-420 MOTHERBOARD

USER'S MANUAL
Revision 1.0

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

Manual Revision 1.0

Release Date: October 02, 2014

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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 motherboard.

Please refer to the motherboard specifications pages on our web site for updates on supported processors (http://www.supermicro.com/aplus/). This product is intended to be professionally installed.

Standardized Warning Statements

About Standardized Warning Statements

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

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

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

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.

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Notes

Chapter 1

Introduction

1-1   Overview

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

The H9SKV-420 motherboard is based on the AMD G-series SOC chipsets and supports one AMD GX-420CA type processor with up to 16GB of unbuffered non-ECC DDR3-1600/1333 MHz SDRAM in two SO-DIMM slots.

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

The following items are included in the retail box only.

- One (1) Supermicro Motherboard
- Two (2) SATA cables
- One (1) I/O shield

Note: For your system to work properly, follow the links below to download all necessary drivers and utilities, and the user's manual for your server.

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

If you have any questions, please contact our support team at:
support@supermicro.com
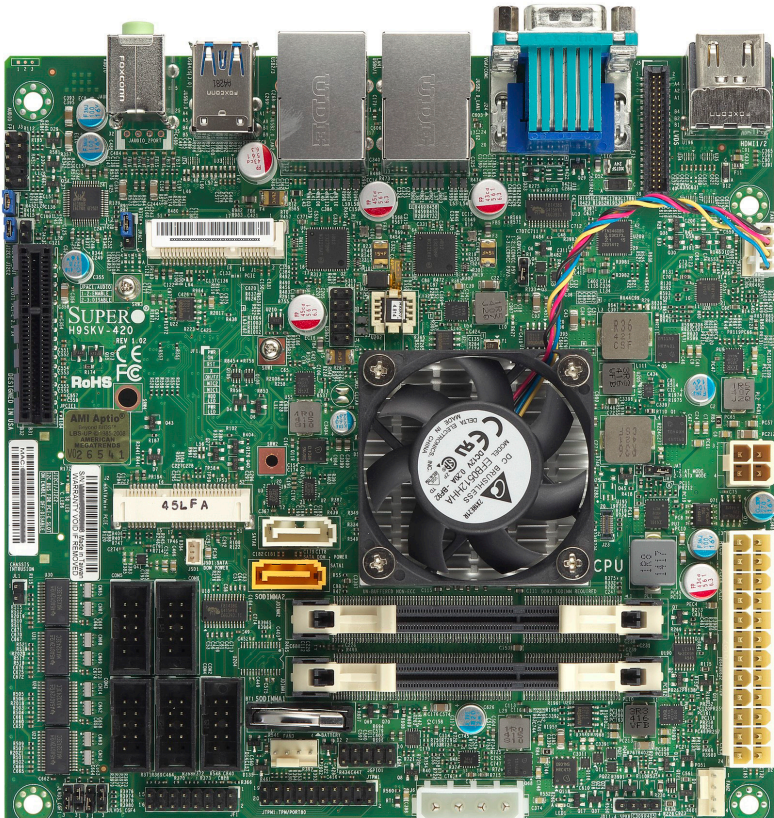
Figure 1-1. Picture of H9SKV-420
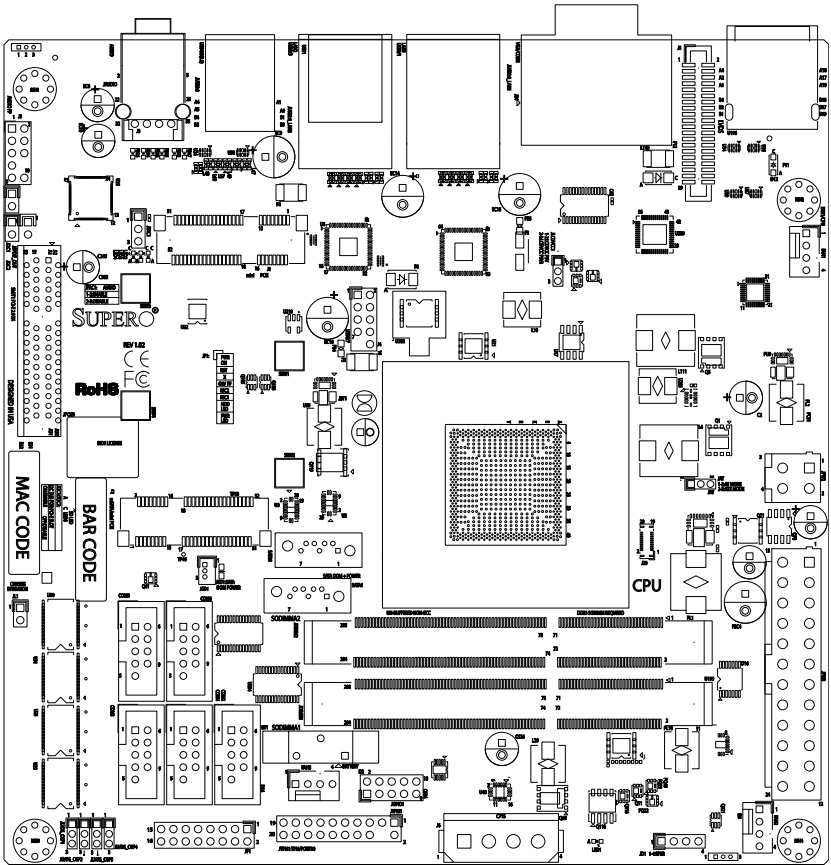
Figure 1-2. H9SKV-420 Motherboard Layout

Notes:

- This is a general diagram and may not exactly represent the features on your motherboard. See the previous pages for the actual specifications of your motherboard.
- Jumpers not indicated are for test purposes only.

1-2   Quick Reference

Connectors	
Connector	**Description**
J3	Audio connector for the chassis front port
JD1(1-4)	Speaker
JF1	Front panel connector
JGPIO1	General purpose I/O
JI2C1/JI2C2	I²C SMBus for PCI-E slot
JL1	Chassis intrusion
JPCIE1	PCI-E x4 slot
JPW2	Four pin power connector
JPW3	Power Connector
JSD1	SATA DOM (Device_On_Module) Power Connector
JSPDIF_OUT	S/PDIF audio output header
JTPM1	Trusted Platform Module Header
COM2 through 6	Additional serial port headers
FAN1, 2, 3	Four pin fan header; FAN1 for CPU fan
SATA1, SATA2	SATA Ports
USB6, 7	Additional USB 2.0 headers

Jumpers		
Jumper	**Description**	**Default Setting**
JAT	Power mode selector, AT or ATX	Pins 2-3 (ATX mode)
JBT1	CMOS Clear	(See Section 2-8)
JPAC1	Audio enable	Pins 1-2 (Enabled)

LED Indicators		
LED	**Description**	**State**
LED1	Power LED	Solid Green (Standby Power On)
LED6	SD Card LED	Blinking Red (Normal)

1-3   Motherboard Features

CPU

One AMD GX-420CA processor, 2.0GHz, L1: 64KB (per Core) L2: 2MB (Shared), 25W, 4-core

Memory

The H9SKV-420 motherboard contains two SO-DIMM slots supporting up to 16GB of unbuffered non-ECC DDR3-1600/1333 MHz SDRAM memory.

Chipset

AMD G-series SOC

Expansion Slots

- One PCI-Express x4 slot
- One Mini-PCIe slot
- One mSATA slot (SATA 3.0), or one mini-PCIe expansion card

BIOS

4MB SPI Flash EEPROM with AMI UEFI BIOS

Onboard I/O

- SATA 3.0 from AMD G-Series SOC
- Two Intel i210-AT single-port Gigabit Ethernet controllers, 10/100/1000BASE-T
- Realtek HD Audio
- AMD HD 8400E Graphics with two HDMI ports and VGA.
- Six COM ports

Other

- SD card reader v3.0 (see Figure 1-4.)
- Three 4-pin fan connectors
- SATA DOM power connector
- 4-pin 12V DC Input power connector

Dimensions

Mini ITX format: 6.7" x 6.7" (17cm x 17cm)

SUPERMICRO● H9SKV-420

SYSTEM BLOCK DIAGRAM
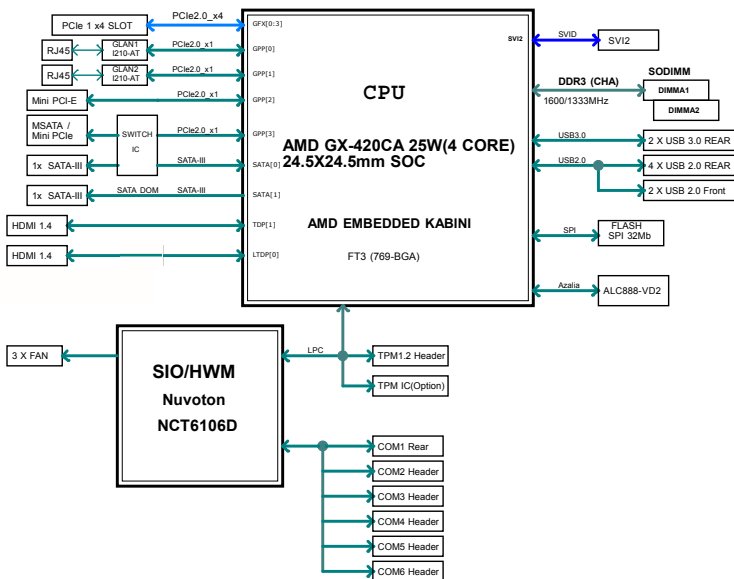
Figure 1-3. Block Diagram (not to scale)
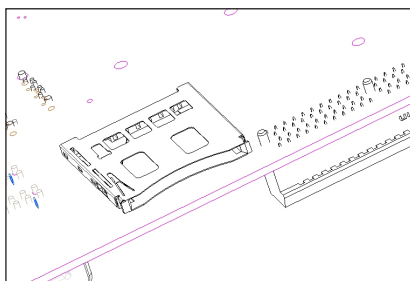
Figure 1-4. SD Card Slot Location
on the Underside of the Board

1-4   Chipset Overview

The H9SKV-420 motherboard is based on an AMD G-series SOC chipset. This chipset functions as a Media and Communications Processor (MCP). Controllers for the system memory are integrated directly into AMD processors.

1-5   PC Health Monitoring

This section describes the PC health monitoring features of the H9SKV-420 motherboard. The motherboard has an onboard System Hardware Monitor chip that supports PC health monitoring.

Onboard Voltage Monitors

The onboard voltage monitor will continuously scan crucial voltage levels. Once a voltage becomes unstable, it will give a warning or send an error message to the screen. Users can adjust the voltage thresholds to define the sensitivity of the voltage monitor. Real time readings of these voltage levels are all displayed in BIOS.

Fan Status Monitor with Firmware/Software Speed Control

The PC health monitor can check the RPM status of the cooling fans. The onboard fans are controlled by thermal management via BIOS.

1-6   Power Configuration Settings

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

Microsoft OnNow

The OnNow design initiative is a comprehensive, system-wide approach to system and device power control. OnNow is a term for a PC that is always on but appears to be off and responds immediately to user or other requests.

BIOS Support for USB Keyboard

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

Main Switch Override Mechanism

The power button can function as a system suspend button. When the user depresses the power button, the system will enter a SoftOff state. The monitor will be suspended and the hard drive will spin down. Depressing the power button again will cause the whole system to wake-up. During the SoftOff state, the 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 depress and hold the power button for 4 seconds. The power will turn off and no power will be provided to the motherboard.

1-7   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 1GHz and faster.

The H9SKV-420 motherboard accommodates 12V ATX power supplies. Although most power suppplies generally meet the specifications required by the CPU, some are inadequate. A 2-Amp current supply on a 5V standby rail is strongly recommended.

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

1-8   Super I/O

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.

The IRQs, DMAs and I/O space resources of the Super I/O can be flexibly adjusted to meet ISA PnP requirements, which support ACPI and APM (Advanced Power Management).

Chapter 2

Installation

2-1   Static-Sensitive Devices

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

Precautions

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

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

- Handle the board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.

- When handling chips or modules, avoid touching their pins.

- Put the motherboard and peripherals back into their antistatic bags when not in use.

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

- Use only the correct type of CMOS onboard battery as specified by the manufacturer. Do not install the CMOS onboard battery upside down, which may result in a possible explosion.

Unpacking

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

2-2   Installing Memory

Memory Support

The H9SKV-420 motherboard supports unbuffered non-ECC DDR3-1600/1333 Mhz SDRAM. SO-DIMM memory modules of size 2 GB, 4 GB, or 8 GB size are supported. Refer to the Supermicro web site for memory that has been validated.

Maximum Memory

Maximum memory is 2x8GB of unbuffered non-ECC DDR3 SDRAM in two slots.

Memory Population Guidelines

Please follow the table below when populating the SO-DIMM slots.

Maximum Frequency						
Number of DIMM Slots	DIMMs Populated	DRAM		Frequency (MT/s)		
		SR	DR	1.5V	1.35V	1.25V
2	1	1	-	1600	1600	1333
		-	1	1600	1600	1333
	2	2	-	1600	1600	1333
		-	2	1600	1333	1333

Memory Population		
Number of DIMM Slots	SODIMMA1	SODIMMA2
2	SR/DR	NP
	SR/DR	SR/DR

Caution: Exercise extreme caution when installing or removing memory modules to prevent damage. It is highly recommended that you remove the power cord from the system before installing or changing memory modules.

Installing the Memory DIMMs

Insert one or two SO-DIMMs into the memory slots, starting with SODIMMA1, then SODIMMA2. See instructions on the next page.
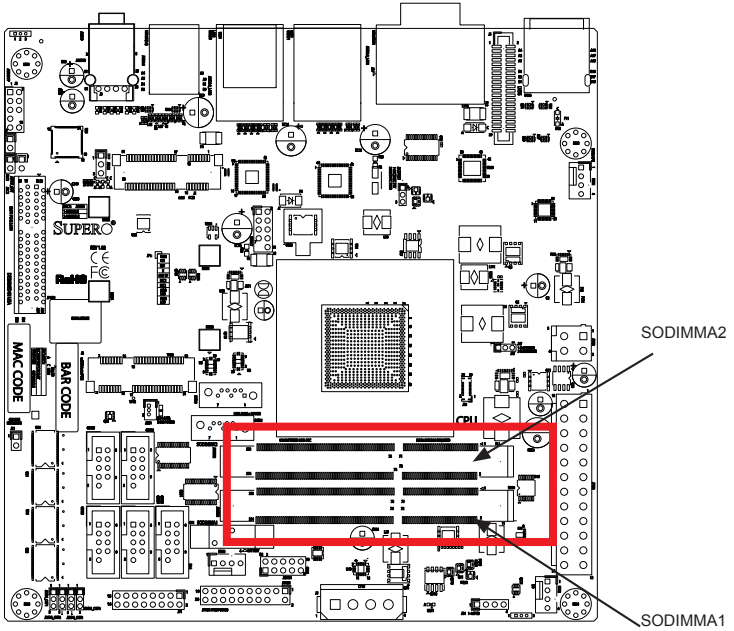
Figure 2-1. Memory Slots on the Motherboard

Installing SO-DIMM Modules

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.

Align
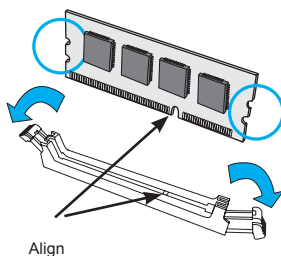
2. Insert the SO-DIMM module straight down.
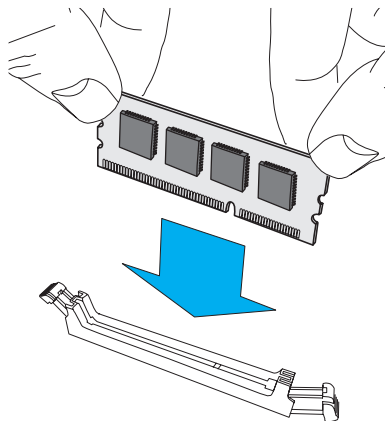
3. Press down until the module locks into place. The side clips will automatically secure the SO-DIMM module, locking it into place.
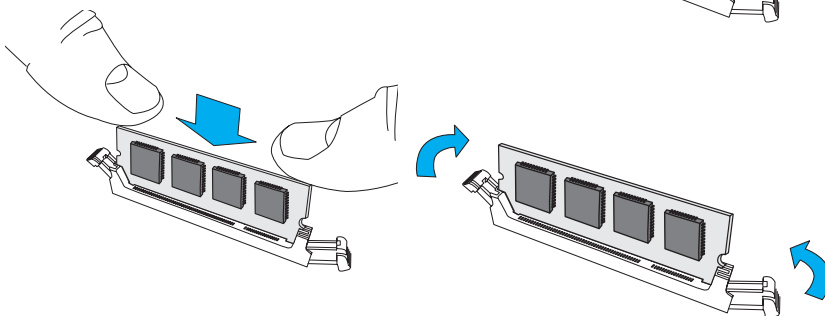
To Remove:

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.

2-3   Mounting the Motherboard into a Chassis

The H9SKV-420 motherboard requires a chassis that can support a board of 6.7" x 6.7" (17cm x 17cm) in size. Make sure that the I/O ports on the motherboard align with their respective holes in the I/O shield at the rear of the chassis.

All motherboards have standard mounting holes to fit different types of chassis. Make sure that the locations of all the mounting holes for both the motherboard and the 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.

Tools Needed

The following tools are needed to install the H9SKV-420 motherboard:

- Phillps screwdriver
- Pan head screws
- Standoffs (if needed)

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

Mounting the Motherboard

1. Locate the mounting holes on the motherboard.

2. Locate the matching mounting holes on the chassis floor. Install standoffs needed. Make sure that the metal standoffs click in or are screwed in tightly.
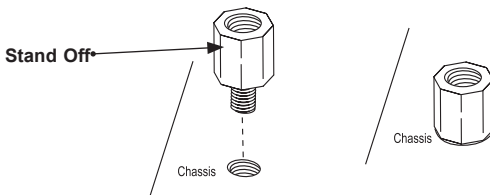
3. Align the mounting holes on the motherboard against the mounting holes on the motherboard tray.

Caution: Some components are very close to the mounting holes. Be careful not to damage to these components when installing the motherboard to the chassis.

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

Caution: To avoid damaging the motherboard and its components, do not use a force greater than 8 inch-lbs on each mounting screw.
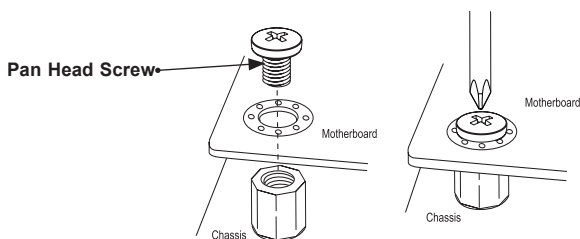
5. Insert screws to all mounting holes.

2-4   PCI Expansion Cards

The chipset supports one PCIe 2.0 x4 expansion cards and two mini-PCIe expansion cards, one of which is for mSATA.

Installing a PCIe Expansion Card

1. Power-down the system with the power button and remove the power cord.

2. Fully seat the card into the slot, pushing down with your thumbs evenly on both sides of the card.

2-5   Onboard Processor

The motherboard features an embedded AMD GX-420CA processor.

2-6   I/O Ports and Connections

SATA: two SATA3 (6Gbps) ports, SATA1 is for SATA DOM support

LAN: two Gigabit Ethernet LAN ports (Intel i210AT)

USB:

- Two USB 3.0 ports at the rear
- Four USB 2.0 ports at the rear
- Two USB 2.0 internal for front

Video Output:

- One VGA port
- Two HDMI ports
- Two independent displays

Audio: 2-port HD audio port

COM: six COM ports (one rear port and five headers)
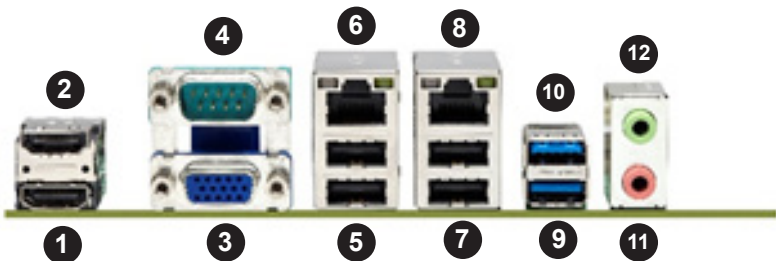
Figure 2-2. Rear I/O Ports

1. HDMI 1
2. HDMI 2
3. VGA (Blue)
4. COM Port 1 (Turquoise)
5. Two USB 2.0 (0/1) Ports
6. LAN1 GbE
7. Two USB 2.0 (2/3) Ports
8. LAN2 GbE
9. USB 3.0 (4) port
10. USB 3.0 (5) port
11. Microphone input
12. Audio output

2-7   Connector Definitions

Power Connectors

The H9SKV-420 serverboard has a 24-pin main power supply connector (JPW3) and a 4-pin 12V power connector (JPW2) to suppliy power to the serverboard. Be sure to connect both to your power supply to ensure adequate power. See the table below for the pin definitions for the 4-pin power connectors.

Control Panel

The chassis front control panel is connect to the motherboard at JF1.

	16	15	
Power On LED	●	●	3.3V Stby
HDD LED	●	●	3.3V
NIC1 LED (Link)	●	●	NIC1 LED (Activity)
NIC2 LED (Link)	●	●	NIC2 LED (Activity)
OH/Fan Fail	●	●	3.3V
X.	●	●	3.3V
Ground	●	●	Reset (Button)
Ground	●	●	Power (Button)
	2	1	
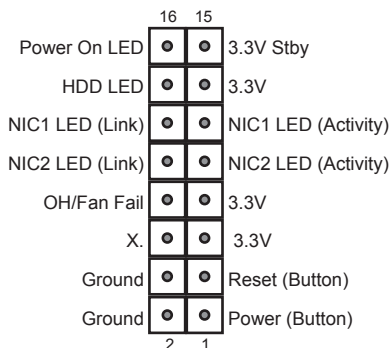
Figure 2-3. JF1 Control Panel Header Pins

Power Button Connector

The power button connector is located on pins 1 and 2 of JF1 and attaches to the power switch on the computer chassis. See the table on the right for pin definitions.

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

Reset Connector

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

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

Overheat/Fan Fail

Connect an LED cable to pins 7 and 8 of JF1 for the Overheat/Fan Fail connections. The Red LED on pin 8 provides warnings of overheating or fan failure. Refer to the tables on the right for more information.

OH/Fan Fail Pin Definitions (JF1)	
Pin#	Definition
7	3.3V
8	OH/Fan Fail

OH/Fan Fail LED Status (Red LED)	
State	Definition
Off	Normal
On	Overheat
Flashing	Fan Fail

NIC2 (LAN2) LED

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

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

NIC1 (LAN1) LED

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

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

HDD LED

The HDD LED connection is pin 14 of JF1. It lights the LED upon HDD activity.

HDD Pin Definitions (JF1)	
Pin#	Definition
13	3.3V
14	HDD Activity

Power On LED

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

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

Other Connectors

Audio Port on Chassis Front

The **J3** header allows you to use the onboard sound for audio playback. Connect an audio cable to the header to use this feature. See the table on the right for pin definitions.

J3 Connector Pin Definitions	
Pins	Definition
1	Microphone_Left
2	Audio_Ground
3	Microphone_Right
4	Audio_Detect
5	Line_2_Right
6	Ground
7	Jack_Detect
8	Key
9	Line_2_Left
10	Ground

Speaker (JD1)

To use an external speaker, attach the speaker cable to pins 1-4 of the JD1 header.

Speaker Connector Pin Definitions (JD1)	
Pins	**Definition**
Pins 1-4	External Speaker

GPIO Header (JGPIO 1)

The GPIO header is a general-purpose I/O expander on a pin header via the SMBus. See the table on the right for pin definitions.

GPIO Expander Pin Definitions (JGPIO1)			
Pin#	Definition	Pin	Definition
1	3.3V Stby	2	GND
3	GP0	4	GP1
5	GP2	6	GP3
7	GP5	8	GP5
9	GP6	10	GP7

SMB (I²C) Bus to PCIe Slots

Jumpers **JI2C1** and **JI2C2** allow you to connect the System Management Bus (SMB) to the PCI-E slots. The default setting is set to **Enabled**. See the table on the right for jumper settings.

I²C to PCIe Slots Jumper Settings (JI2C1/2)	
Jumper	**Definition**
On	Enabled (Default)
Off	Disabled

Chassis Intrusion

The Chassis Intrusion header is designated JL1. Attach an appropriate cable from the chassis to inform you of a chassis intrusion when the chassis is opened.

Chassis Intrusion Pin Definitions (JL1)	
Pin#	Definition
1	Intrusion Input
2	Ground

SATA DOM Power Connector

A power connector for SATA DOM (Disk_On_ Module) devices is located at JSD1. Connect an appropriate cable here to provide power support for your DOM device.

SATA DOM Power Connector Pin Definitions (JSD1)	
Pin#	Definition
1	+5V
2	Ground
3	Ground

S/PDIF Audio Output (JSPDF_OUT)

This connection provides audio output for an S/PDIF cable. See the table on the right for pin definitions.

SPDIF Header Pin Definitions (JSPDF_OUT)	
Pin#	Definition
1	Signal
2	Ground

Trusted Platform Module Header

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

Trusted Platform Module Header Pin Definitions (JTPM1)			
Pin#	Definition	Pin#	Definition
1	LCLK	2	GND
3	LFRAME	4	No Pin
5	LRESET	6	VCC5
7	LAD3	8	LAD2
9	VCC3	10	LAD1
11	LAD0	12	GND
13	RSV0	14	RSV1
15	SB3V	16	SERIRQ
17	GND	18	CLKRUN
19	LPCPD	20	RSV2

Serial Ports

Connectors for six serial ports are included on the serverboard. COM1 is a backpanel port. COM2 through COM6 are headers located near the JF1 header. See the table on the right for pin definitions.

Serial Port (COM 2-6) 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	NC

Fan Headers

There are three 4-pin fan headers. Pins 1-3 are backward compatible with the traditional 3-pin fans. Fan speed control is supported with 4-pin fans only. See the table on the right for pin definitions. The onboard fan speeds are controlled by the setting in the BIOS > Advanced tab > Hardware Health Configuration > Fan Speed Control Mode.

The FAN1 connector is for the CPU fan.

Fan Header Pin Definitions	
Pin#	Definition
1	Ground (Black)
2	+12V (Red)
3	Tachometer
4	PWR_Control

Universal Serial Bus (USB)

There are six Universal Serial Bus ports on the rear I/O panel, four USB 2.0 and two USB 3.0. In addition, there is a header on the serverboard for USB (2.0) 6 and 7. The header can provide front side USB access (cables not included). See the table on the right for pin definitions.

USB 2.0 (6,7) Pin Definitions			
Pin#	Definition	Pin#	Definition
1	+5V	2	+5V
3	USB_PN2	4	USB_PN3
5	USB_PP2	6	USB_PP3
7	Ground	8	Ground
9	Key	10	Ground

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. See the diagram at right for an example of jumping pins 1 and 2. Refer to the motherboard layout page for jumper locations.
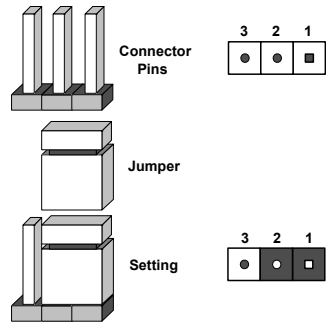
Note: On two-pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.

CMOS Clear (JBT1)

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

To Clear CMOS

1. First power down the system and unplug the power cord(s). It is also recommended that you remove the onboard battery from the motherboard.

2. With the power disconnected, short the CMOS pads with a metal object such as a small straight-slot screwdriver.

3. Remove the screwdriver (or shorting device).

4. Reconnect the power cord and replace the onboard battery, then power on the system.

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

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

Note 3. Clearing CMOS will also clear all passwords.

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

Front Panel Audio Enable (JPAC1)

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

Audio Jumper Settings (JPAC1)	
Jumper Setting	Definition
Pins 1-2	Enable
Pins 2-3	Disable

Power Mode

JAT selects between power supplied according to ATX specifications or AT specifications. See the table on the right for jumper settings.

ATX Mode Selection Jumper Settings (JAT)	
Jumper Setting	Definition
Pins 1-2	AT Mode
Pins 2-3	ATX Mode (default)

2-9   Onboard Indicators

Onboard Power LED (LED1)

An Onboard Power LED is located at LED1. This LED Indicator is lit when the system is on. Be sure to unplug the power cable before removing or adding any components. See the table on the right for more details.

Onboard PWR LED Indicator	
Color	Definition
Off	System Off (PWR cable not connected)
Green	System On
Green: Flashing Quickly	ACPI S1 State

SD LED

The SD V3.0 card reader status indicator is LED6. See the table at right for more information.

SD LED States		
Color	Status	Definition
Red	Flashing	Read/write card
Off		Non Active or No SD Card

2-10 SATA Drive Connections

SATA Ports

The SATA ports are designated SATA1 and SATA2. SATA1 supports SATA DOM with power. See the table on the right for pin definitions.

SATA Ports Pin Definitions (SATA1, SATA2)	
Pin #	Definition
1	Ground
2	TXP
3	TXN
4	Ground
5	RXN
6	RXP
7	Ground

2-11 Installing Software

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

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

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

After creating a CD/DVD with the ISO files, insert the disk into the CD/DVD drive on your system and the display shown in Figure 2-5 should appear.
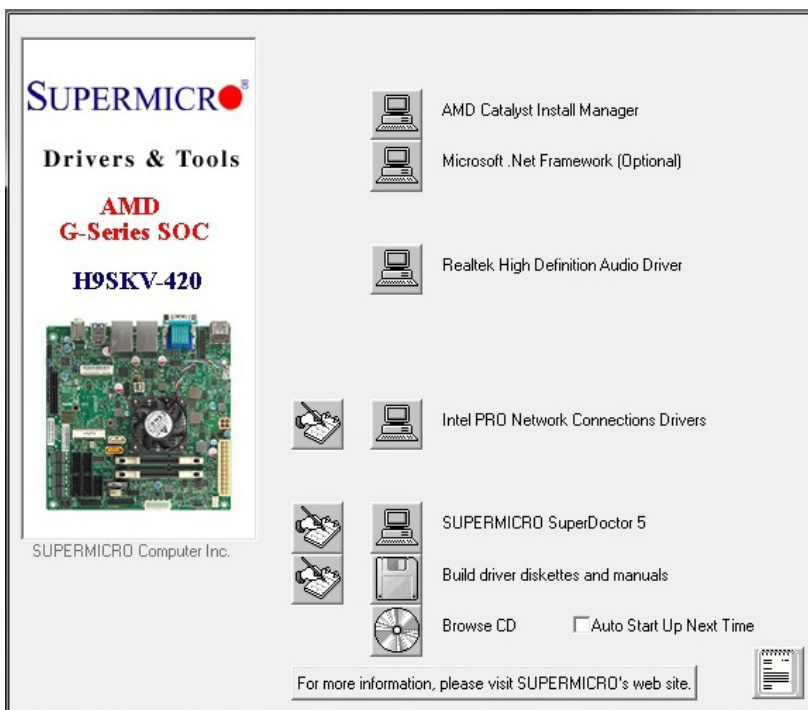
Figure 2-5. Driver Installation Display Screen

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

SuperDoctor® 5

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

SuperDoctor 5 comes in local and remote management versions and can be used with Nagios to maximize your system monitoring needs. With SuperDoctor 5 Management Server (SSM Server), you can remotely control power on/off and reset chassis intrusion for multiple systems with SuperDoctor 5 or IPMI. SD5 Management Server monitors HTTP, FTP, and SMTP services to optimize the efficiency of your operation.

Note: The default User Name and Password for SuperDoctor 5 is ADMIN/ADMIN.
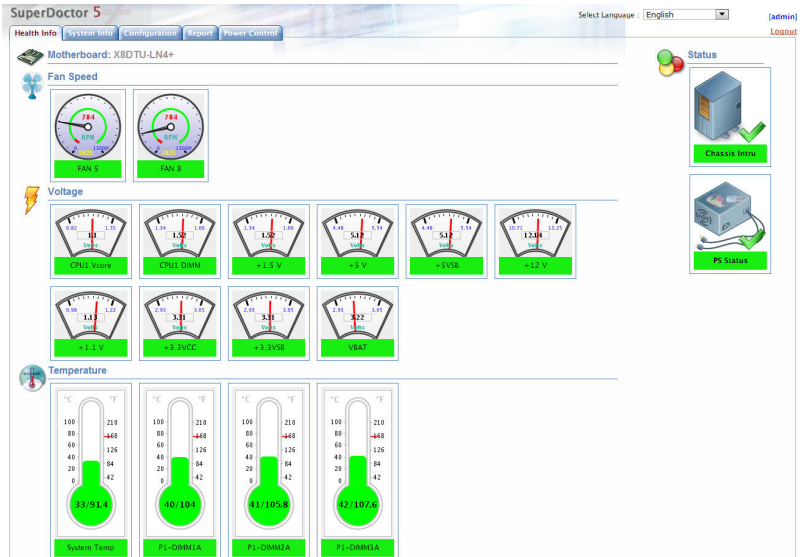
Figure 5-6. SuperDoctor 5 Interface Display Screen (Health Information)

Note: The SuperDoctor 5 program and User"s Manual can be downloaded from the Supermicro web site at http://www.supermicro.com/products/nfo/sms_sd5.cfm.

2-12 Motherboard Battery

Caution: There is a danger of explosion if the onboard battery is installed upside down, which will reverse its polarites (see Figure 2-7). This battery must be replaced only with the same or an equivalent type recommended by the manufacturer (CR2032). Dispose of used batteries according to the manufacturer's instructions.

Figure 2-7. Installing the Onboard Battery

LITHIUM BATTERY

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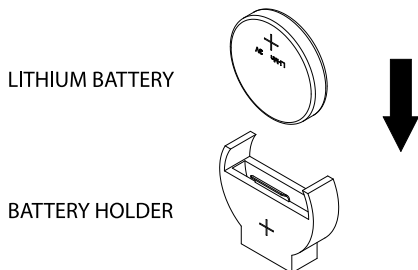
Please handle used batteries carefully. Do not damage the battery in any way; a damaged battery may release hazardous materials into the environment. Do not discard a used battery in the garbage or a public landfill. Please comply with the regulations set up by your local hazardous waste management agency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

Chapter 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. Check that the onboard power LED is lit.

2. Make sure that the power connector is connected to your power supply.

3. Make sure that no short circuits exist between the motherboard and chassis.

4. Disconnect all cables from the motherboard, including those for the keyboard and mouse.

5. Remove all add-on cards.

6. Install a CPU and heatsink (making sure it is fully seated) and connect the internal (chassis) speaker and the power LED to the motherboard. Check all jumper settings as well.

7. Use the correct type of onboard CMOS battery (CR2032) as recommended by the manufacturer. To avoid possible explosion, do not install the CMOS battery upside down.

No Power

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

2. Verify that all jumpers are set to their default positions.

3. Check that 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 verify that it still supplies ~3VDC. If it does not, replace it with a new one.

No Video

If the power is on but you have no video, remove all the add-on cards and cables.

Note: If you are a system integrator, VAR or OEM, a POST diagnostics card is recommended. For I/O port 80h codes, refer to Appendix B.

Memory Errors

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

2. You should be using unbuffered non-ECC DDR-3 memory (see next page). Also, it is recommended that you use the same memory type and speed for all DIMMs in the system. See Section 2-4 for memory details.

3. Check for bad DIMM modules or slots by swapping modules between slots and noting the results.

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

Losing the System's Setup Configuration

1. Make sure that you are using a high quality power supply. A poor quality power supply may cause the system to lose the CMOS setup information. Refer to Section 1-6 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 take the following steps. Also, note that as a motherboard manufacturer, we do not sell directly to end-users, so it is best to first check with your distributor or reseller for troubleshooting services. They should know of any possible problems with the specific system configuration that was sold to you.

1. Please review the "Troubleshooting Procedures" and "Frequently Asked Questions" (FAQs) sections in this chapter or see the FAQs on our web site before contacting Technical Support.

2. BIOS upgrades can be downloaded from our web site.

   Note: Not all BIOS can be flashed depending on the modifications to the boot block code.

3. If you still cannot resolve the problem, include the following information when contacting us for technical support:

    - Motherboard model and PCB revision number
    - BIOS release date/version (this can be seen on the initial display when your system first boots up)
    - System configuration

An example of a Technical Support form is posted on our web site.

Distributors: For immediate assistance, please have your account number ready when contacting our technical support department by e-mail.

3-3   Frequently Asked Questions

Question: What type of memory does my motherboard support?

Answer: The H9SKV-420 motherboard supports up to 16GB of unbuffered non-ECC DDR3-1600/1333 Mhz speed, very low profile (VLP) 2, 4, or 8GB SDRAM. Single channel configurations are supported. See Section 2-4 for details on installing memory.

Question: How do I update my BIOS?

Answer: It is recommended that you **not** upgrade your BIOS unless you experience problems with your system. Updated BIOS files are located on our web site. Please check our BIOS warning message and the information on how to update your BIOS on our web site. Also, check the current BIOS revision and make sure it is newer than your current BIOS before downloading.

Select your motherboard model on the web page and download the corresponding BIOS file to your computer. Unzip the BIOS update file, in which you will find the readme.txt (flash instructions), the afudos.exe (BIOS flash utility) and the BIOS image (xxx.rom) files. Copy these files to a bootable floppy disk, insert the disk into drive A and reboot the system. At the DOS prompt after rebooting, enter the command "flash" (without quotation marks) then type in the BIOS file that you want to update with (xxxx.rom).

Question: What's on the Suipermicro FTP site to assist with my motherboard?

Answer: The FTP site has quite a few drivers and programs that will greatly enhance your system. Applications on the CD include chipset drivers for Windows and security and audio drivers. You should download, and possibly store on a CD, those that pertain to your system.

Question: Why can't I turn off the power using the momentary power on/off switch?

Answer: The instant power off function is controlled in BIOS by the Power Button Mode setting. When the On/Off feature is enabled, the motherboard will have instant off capabilities as long as the BIOS has control of the system. When the Standby or Suspend feature is enabled or when the BIOS is not in control such as during memory count (the first screen that appears when the system is turned on), the momentary on/off switch must be held for more than four seconds to shut down the system. This feature is required to implement the ACPI features on the motherboard.

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.

For faster service, RMA authorizations may be requested online (http://www.super-micro.com/support/rma/).

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

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

Chapter 4

BIOS

4-1   Introduction

This chapter describes the AMI BIOS Setup utility for the H9SKV-420 serverboard. The 4MB SPI Flash EEPROM with AMI UEFI BIOS is stored in a flash chip and can be upgraded.

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

Starting the Setup Utility

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

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

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

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

4-2   Main Menu

```
             Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
  Main  Advanced  Boot  Security  Save & Exit

                                                             Set the Date. Use Tab to
                                                             switch between Date
 System Date                      [Wed 01/01/2014]           elements.
 System Time                      [00:06:34]

 Supermicro H9SKV-420
 Version                          1.0.T201408021400
 Build Date                       08/02/2014

 Memory Information
 Total Memory                     16368 MB (DDR3)


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



             Version 2.16.1240. Copyright (C) 2013 American Megatrends, Inc.
```

Figure 4-1. Main BIOS Screen

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

The Main Menu screen provides you with a system overview, which includes the hardware version and build date and the amount of memory installed in the system.

System Time/System Date

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

4-3   Advanced Settings Menu

```
                 Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
      Main  Advanced  Boot  Security  Save & Exit

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

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

                 Version 2.16.1240. Copyright (C) 2013 American Megatrends, Inc.
```

▶ **Boot Feature**

Quiet Boot

If **Enabled**, this displays both Early Video Logo and Graphical Logo. POST message is always displayed regardless of this setting.

Add On ROM Display Mode

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

Bootup Num Lock

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

Wait for F1 if Error

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

Interrupt 19 Capture

This item determines when ROMs trap Interrupt 19. The options are **Immediate** and Postponed.

Re-try Boot

The options are **Disabled**, Legacy Boot, and EFI Boot.

Power Configuration

Watch Dog Function

Allows system to restart when system is inactive more than 5-minutes. The options are Enabled and **Disabled**.

Power Button Function

This sets the function of the power button when you turn off the system. Options include 4-second Overide and **Instant Off**.

Restore on AC Power Loss

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

▶ CPU Configuration

This screen disiplays information on the system's processors.

Power Now

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

PSTATE Adjustment

Options are PState 0 though PState 5. This item is hidden if PowerNow is disabled.

NX Mode

Settings are **Enabled** and Disabled.

SVM Mode

Settings are **Enabled** and Disabled.

C6 State Mode

Settings are **Enabled** and Disabled.

Core Leveling Mode

This option sets down core support for the CPU. Options include **Automatic Mode**, Three, Two, or One core(s) per processor.

Clock Speed Spectrum

This option Enables or **Disables** spread spectrum modulation.

▶ Chipset Configuration

Information on chipset models and versions is displayed.

Caution: Setting wrong values may cause the system to malfunction.

▶ GFX Configuration

The IGD VBios Version is displayed.

Remote Display Feature

Settings are **Enabled** and Disabled.

Integrated Graphics

Settings are **Enabled** and Disabled.

PSPP Policy

Settings are Disabled, Performance, Balanced-High, **Balanced-Low**, and Power Saving.

▶ Memory Configuration

This screen displays statistics about the system memory.

Memory Clock

This item allows you to set the memory clock speed. Default is **Auto**.

Bank Interleaving

This item allows you to enable a bank-interleaving memory scheme when this function is supported by the processor. The options are Enabled and **Disabled**.

Memory Performance Mode

Set for DDR3 Low Voltage DIMM to get better performance.

▶ SouthBridge Configuration

▶ SB USB Configuration

XHCI Controller

Settings are **Enabled** and Disabled.

OHCI/EHCI HC Device Functions

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

Legacy USB Support

This item allows you to choose whether to support legacy USB. The options are **Enabled**, Disabled and Auto.

USB3.0 Support

This item allows you to choose whether to support legacy USB. The options are **Enabled**, Disabled and Auto.

XHCI Handoff

Settings are **Enabled** and Disabled.

EHCI Handoff

Settings are **Enabled** and Disabled.

▶ SB SD Configuration

SD Mode

Settings are Disabled, ADMA, **DMA**, and PIO.

SD Speed

Settings are Low and **High**.

SD BitWidth

Settings are 32 bit and **64 bit**.

SD Host Controller Version

Settings are **SD 2.0** and SD 3.0.

▶ SB HD Azalia Configuration

HD Audio Azalia Device

Settings are Auto, Disabled and **Enabled**.

▶ SATA Configuration

This screen displays SATA port information.

OnChip SATA Channel

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

OnChip SATA Type

Use this setting to set the type. Options include Native IDE, **AHCI**, Legacy IDE, and AMD Specific AHCI.

▶ PCIe/PCI/PnP Configuration

Above 4G Decoding

Settings are **Disabled** and Enabled**.**

Maximum Payload

You can set it at **Auto**, or choose the maximum number of bytes.

Maximum Read Request

You can set it at **Auto**, or choose the maximum number of bytes.

ASPM Support

Settings are **Disabled**, L0s Entry, L1 Entry, or L0s And L1 Entry.

Onboard LAN 1

Settings are Disabled and **Enabled.**

Onboard LAN 2

Settings are Disabled and **Enabled.**

SLOT 1 PCIE 2.0 X4 OPROM

Settings are Disabled, **Legacy**, and EFI.

Note: The number of PCI/PCIx/PCIE slots varies per MB design. The exact slot names vary per MB silkscreens. If Riser ID Detection is supported, the slot names dynamically matches to CPU root port number if installed (Required by Out-Of-Band Remote BIOS Setting Update).

miniPCIE OPROM

Settings are Disabled, **Legacy**, and EFI.

mSATA/mini PCIE OPROM

Settings are Disabled, **Legacy**, and EFI.

Onboard LAN 1 Option ROM

Settings are Disabled, **PXE**, and iSCSI.

Onboard LAN 2 Option ROM

Settings are **Disabled** and PXE.

VGA Priority

Settings are **Onboard** or Offboard.

Network Stack

Settings are Enabled and **Disabled**.

IPv4 PXE Support

This item is available if the Network stack item is enabled. Settings are **Enabled** and Disabled.

▶ SuperIO Device Configuration

▶ Serial Port (1-6) Configuration

Serial Port

Allows you to **Enable** or Disable serial ports by number. Once enabled, the device settings are displayed and can be modifed.

Change Settings for Serial Port 1

Settings 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;
IO=2E8h; IRQ=3,4,5,6,7,10,11,12;

Transmit Mode

Settings are **RS232 Mode**, RS485 Mode, or RS422 Mode.

Change Settings for Serial Port 2

Settings 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;
IO=2E8h; IRQ=3,4,5,6,7,10,11,12;

Change Settings for Serial Port 3

Settings 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;
IO=2F0h; IRQ=3,4,5,6,7,10,11,12;

Change Settings for Serial Port 4

Settings 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;
IO=2F0h; IRQ=3,4,5,6,7,10,11,12;

Change Settings for Serial Port 5

Settings are:

Auto
IO=2E0h; 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;
IO=2F0h; IRQ=3,4,5,6,7,10,11,12;

Change Settings for Serial Port 6

Settings are:

Auto
IO=2F0h; 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;
IO=2F0h; IRQ=3,4,5,6,7,10,11,12;

▶ Serial Port Console Redirection

Console Redirection (for COM Port 1-6)

Settings are **Disabled** and Enabled.

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

Settings are **Disabled** and Enabled.

▶ Console Redirection Settings

When the above COM ports are enabled, the following settings are available. This page is not available for DT.

Out-of-Band Mgmt Port

Select the COM port for Out-of-Band management, 1-6.

Terminal Type

VT100, VT100+, VT-UTF8, ANSI. The default for Out-of-Band Mgmt Port is **VT-UTF8**; the default for others is **VT100+**.

Bits per second

9600, 19200, 38400*, 57600, **115200**

Data Bits*

7, **8**.

Parity*

None, Even, Odd, Mark, Space

Stop Bits*

1, 2,

Flow Control

None, Hardware RTS/CTS, Software Xon/Xoff (Available for Out-of-Band Management setting)

VT-UTF8 Combo Key Support*

Disabled, **Enabled**

Recorder Mode*

Disabled, Enabled

Resolution 100x31*

Disabled, **Enabled**

Legacy OS Redirection Resolution*

80x24, 80x25

Putty KeyPad*

VT100, LINUX, TERMR6, SCO, ESCN, VT400

Redirection After BIOS POST*

Always Enable, BootLoader

*Not available for Out-of-Band Management setting.

▶ Hardware Health Configuration

Fan Speed Control Mode

Settings are Fullspeed and **Energy Saving/ES**.

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

Peripheral Temperature, System Temperature, CPU Temperature, Fan 1, 2, and 3, VDIMM, VBAT, and various voltages.

CPU Temperature Display (CTD)

CPU Temperature descriptions are defined as:

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

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

High → [Tctl Value = 61 and Above]

Note: Only CPU temperature (Low, Medium, High) and system temperature (RT1) are required to be displayed in BIOS and in-system monitoring software. Other

motherboard components such as memory, chipset, SAS and 10Gb controllers, and others are not requried to display temperatures. For debugging and testing purposes, BIOS and system monitoring software can show motherboard components' temperatures (such as memory, chipset, SAS and 10Gb controllers). However for SMCI standard release version BIOS and system monitoring software, motherboard components' temperatures are not required to be displayed.

▶ Trusted Computing

The Trusted Computing is disiplayed if the BIOS detects a TPM module.

Note 2: Exposed when Security Device Support item sets to Enabled and Save & Exit.

Security Device Support

Settings are **Disable** and Enable. The settings below becomes available if this item is set to Enable, and you Save & Exit the BIOS.

TPM State

Settings are Disabled and **Enabled**.

Pending operation

Settings are **None** and TPM Clear.

▶ ACPI Configuration

Enable Hibernation

Settings are Disabled and **Enabled**.

ACPI Sleep State
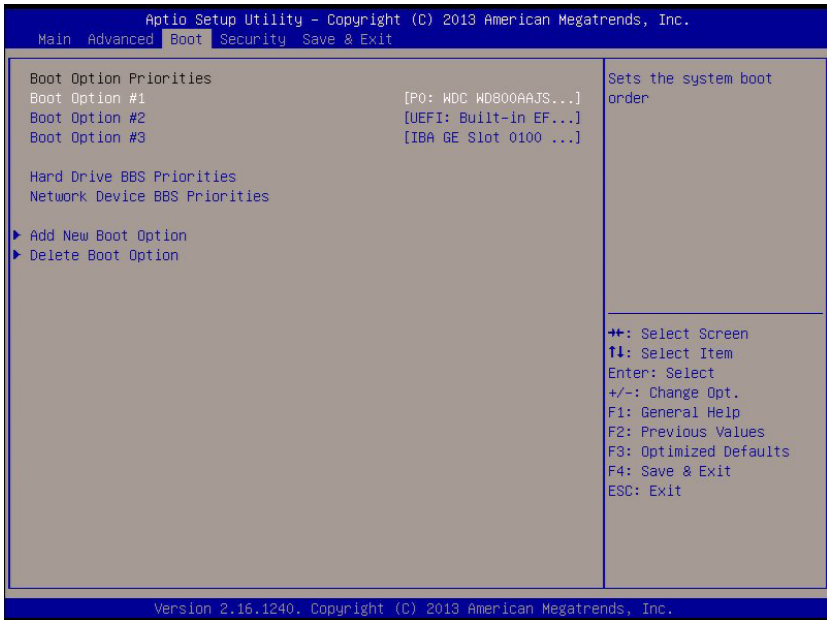
Settings are Suspend Disabled and S3 only (Suspend to RAM).

▶ iSCSI Configuration

This screen is available if the BIOS integrates Intel iSCSI driver that manages what to display in Setup. It displays the name of the iSCSI Initiator.

▶ Main Configuration Page

The screen is available if the BIOS integrates an Intel network driver that manages what to display in Setup. It displays the Port Configuration Menu and the NIC Configuration Menu.

4-4 Boot Menu

```
Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
  Main  Advanced  Boot  Security  Save & Exit

  Boot Option Priorities                                Sets the system boot
  Boot Option #1              [P0: WDC WD800AAJS...]    order
  Boot Option #2              [UEFI: Built-in EF...]
  Boot Option #3              [IBA GE Slot 0100 ...]

  Hard Drive BBS Priorities
  Network Device BBS Priorities

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

       Version 2.16.1240. Copyright (C) 2013 American Megatrends, Inc.
```

Boot Option Priority

This screen displays the current priority of media from which to boot.

▶ Hard Drive BBS Priorities

Boot Option #1

Options are **Sony Storage Media 0100**, P1: WDC WD5000AAKS-00UU3A0, and Disabled.

Boot Option #2

Optiona are **P1: WDC WD5000AAKS-00UU3A0**, Sony Storage Media 0100, and Disabled.

▶ **Network Device BBS Priorities**

Boot Option #1

Options are **IBA GE Slot 0300 V1395** or Disabled.

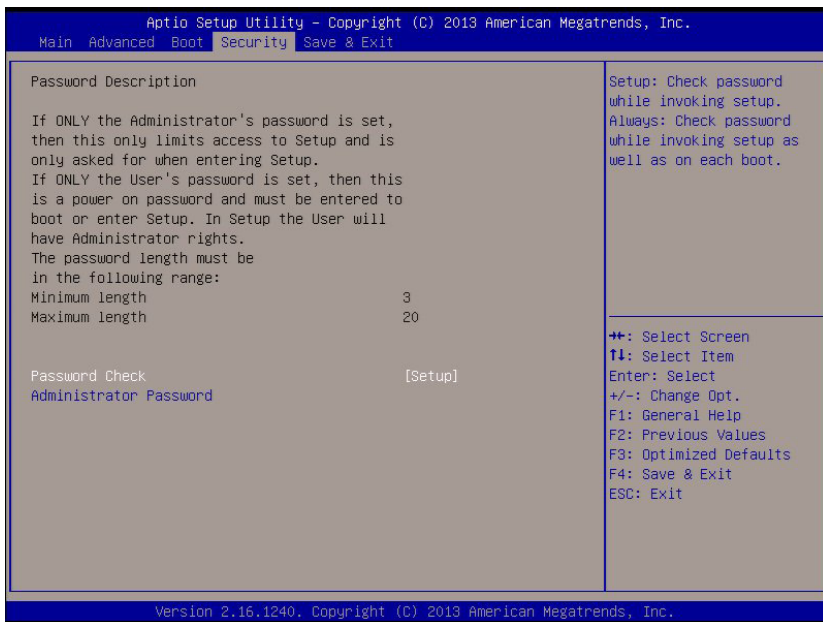▶ **Add New Boot Option**

Complete the fields:

Add boot option, Path for boot option, Boot option File Path

Then **Create**.

▶ **Delete Boot Option**

Select an existing boot option to delete and press <Enter>.

4-5 Security Menu

```
        Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
   Main  Advanced  Boot  Security  Save & Exit

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



        Version 2.16.1240. Copyright (C) 2013 American Megatrends, Inc.
```

This screen displays a password descripton.

Password Check

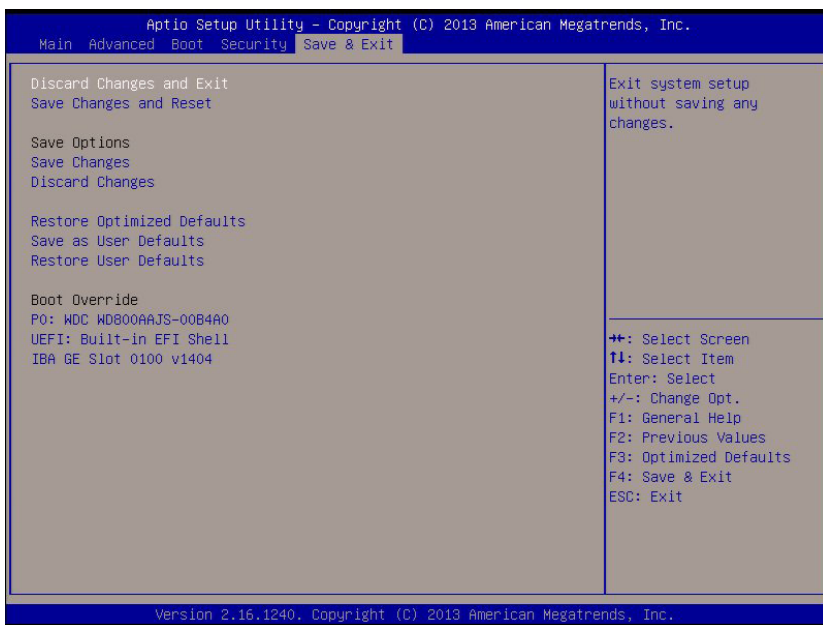Choose to check the password upon **Setup** or Always upon booting.

Administrator Password

Select this option and press <Enter> to access the entry srceen, and then enter the password.

User Password

Available after the Administrator Password is set. Select this option and press <Enter> to access the entry srceen, and then enter the password.

4-6   Save & Exit Menu

This screen provides options to save or discard changes and to exit the BIOS.

Discard Changes and Exit

Select this option to quit BIOS Setup without saving your changes to the system configuration and reboot the computer. Press <Enter>.

Save Changes and Reset

Select this option to save your configuration changes and reboot the computer. New system configuration parameters will take effect. Press <Enter>.

Save Options

Use these options to manage changes without exiting the BIOS.

Save Changes

Discard Changes

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

Restore Optimized Defaults

Optimized settings are designed for maximum system performance, although other setting may work better for your applications. Select and press <Enter>.

Save As User Defaults

Save your current changes as defaults for one user. Select and press <Enter>.

Restore Optimized Defaults

Disregard your current changes for one user. Select and press <Enter>.

Boot Override

This item allows you to manually choose the next boot source.

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 - possible system overheat

5 short beeps - system display error

Notes

Appendix B

UEFI BIOS Recovery Instructions

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

B-1   An Overview to the UEFI BIOS

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

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

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

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

B-3   To Recover the 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.
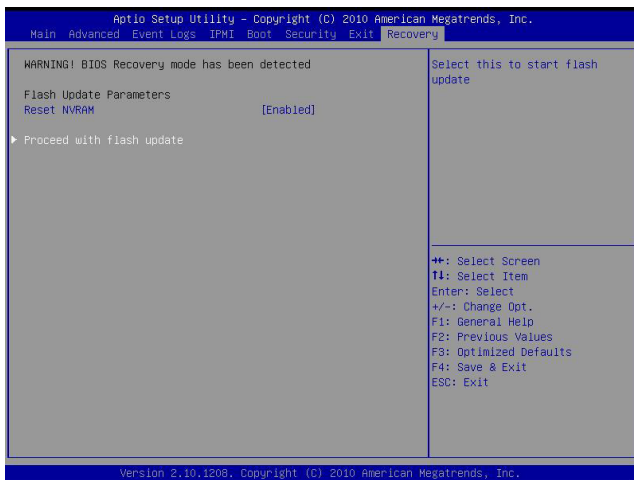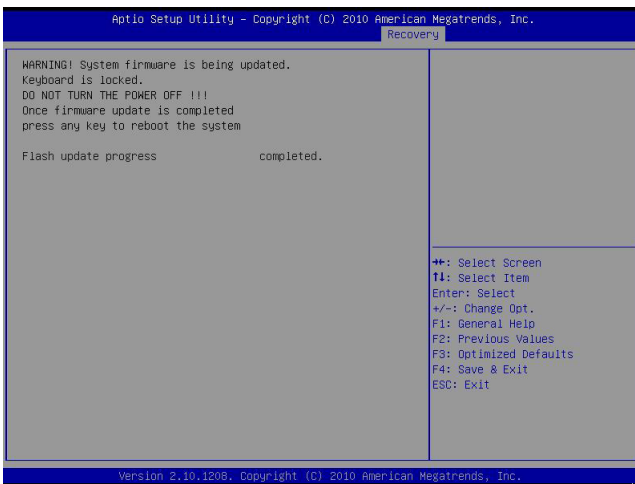

5. When the screen as shown above displays, using the arrow key, select the item- "Proceed with flash update" and press the <Enter> key. You will see the progress of BIOS Recovery as shown in the screen below.

    Note: *Do not interrupt* the process of BIOS flashing until it is completed.
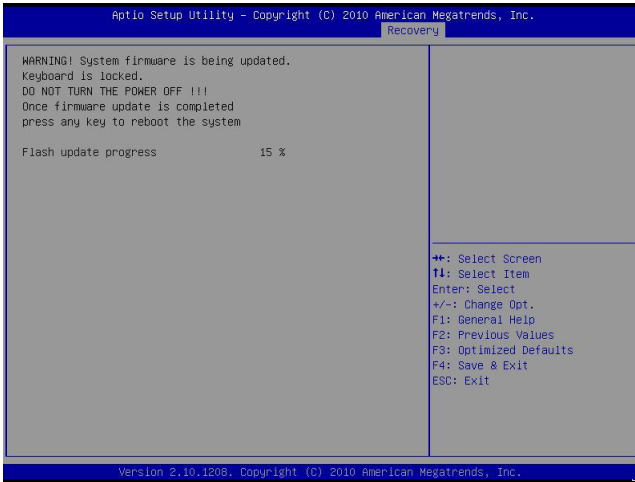
6. After the process of BIOS Recovery is complete, press any key to reboot the system.

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.