

SUPER  [®]

X9SCFF-F

USER'S MANUAL

Revision 1.0a

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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 **SUPER** X9SCFF-F motherboard. This product is intended to be professionally installed and serviced by a technician.

About This Motherboard

The X9SCFF-F motherboard is a 8.5"x13" sized motherboard, designed for the Supermicro 1U chassis.

The X9SCFF-F supports one Intel® Xeon E3-1200 V2 series CPU on an H2 socket (LGA 1155), and the Intel C204 PCH chipset. It also supports up to 32GB of DDR3 ECC UDIMM, two SATA 3.0 ports (6 Gb/sec), four SATA 2.0 ports (3 Gb/sec), dual 1Gb LAN ports and one IPMI LAN port. These features enable the X9SCFF-F to deliver a viable single-processor Fat Twin architecture solution in a cost-effective package.

Manual Organization

Chapter 1 describes the features, specifications and performance of the motherboard 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.

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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 Mainboard
- One (1) Supermicro CD containing drivers and utilities
- One (1) User's/BIOS Manual



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

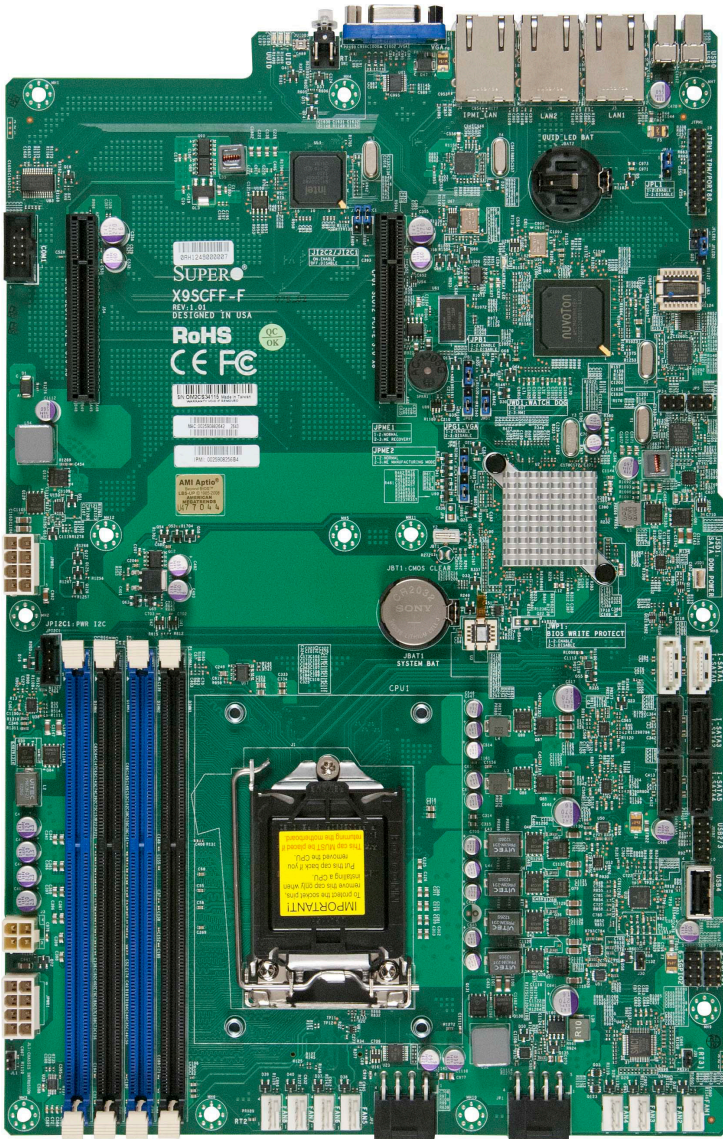
- Supermicro product manuals: <http://www.supermicro.com/support/manuals/>
- Product Drivers and utilities: <ftp://ftp.supermicro.com/>



Warning: For safety considerations, please refer to the complete list of safety warnings posted on the Supermicro website at http://www.supermicro.com/about/policies/safety_information.cfm.

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

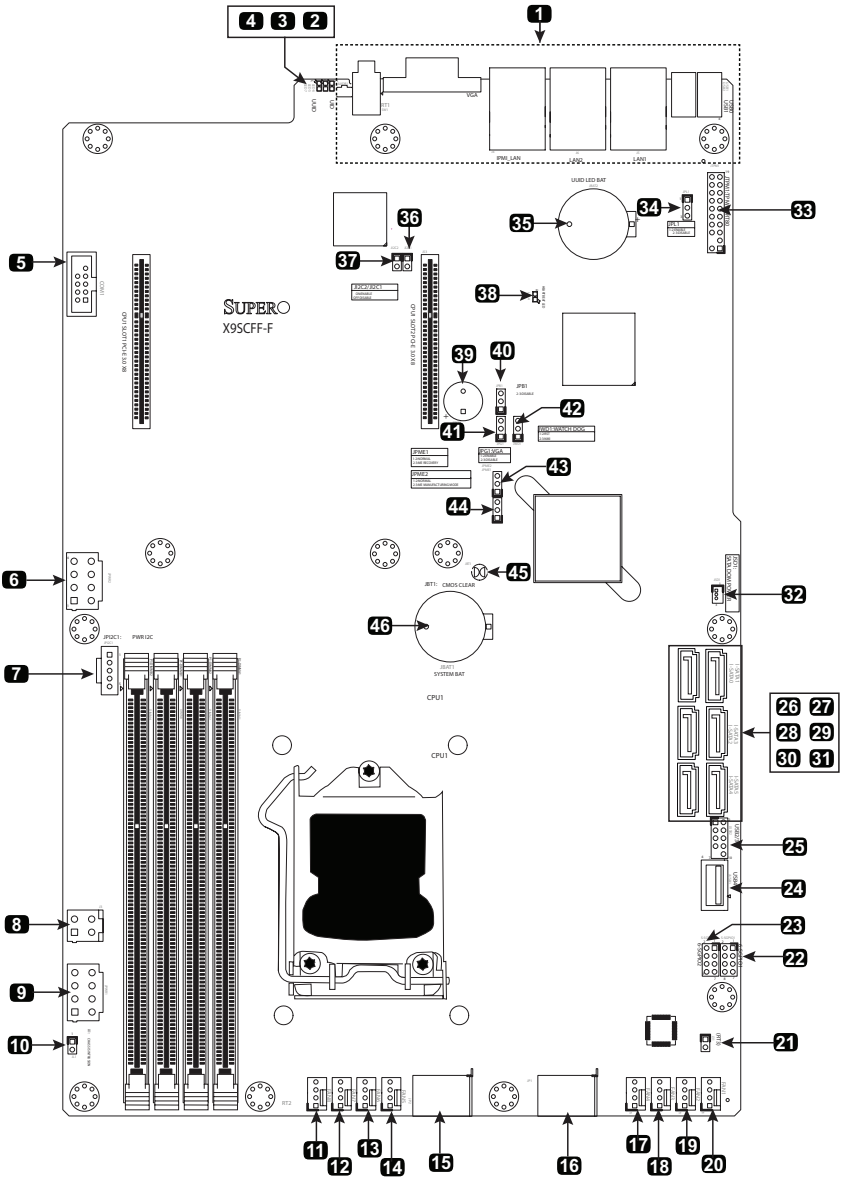
SUPER X9SCFF-F Image



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

X9SCFF-F Quick Reference

(not drawn to scale)



Ports and Connectors

#	Name	Description
1	Front panel I/O	Refer to the "Front Panel I/O Connectors" section, below
5	COM1	Internal COM Ports
6,9	JPWR2,JPWR1	8-Pin Power Connector
7	JPI2C1	PWR supply (I2C) System Management Bus
8	J3	4-Pin Power Connector
10	JL1	Chassis Intrusion Header
11~14,17~20	Fans 1~4,5~8	System Fan Headers
15,16	JP2,JP1	Hard Disk Drive Power Connectors
21	J31 (RT3)	Hard Disk Drive Temperature Header
22,23	6-SGIOP1,6-SGPIQ2	Serial Link Gen. Purpose I/O Headers for AOC (SAS/SATA)
24	JUSB1 (USB4)	Type "A" Internal USB Connector for USB4
25	JUSB2 (USB2/3)	Internal USB Header for USB 2/3
26~31	SATA 0,1,2,3,4,5	Internal SATA Ports
32	JSD1	Disk-On-Module (DOM) Power Connector
33	JTPM1	Trusted Platform Module (TPM) Header
35	OEM Reserved	Reserved OEM Feature
39	SPKR1	Internal Speaker/Buzzer
46	JBAT1	System Battery

Jumpers

#	Name	Description	Default
34	JPL1	LAN1 Enable/Disable	Pins 1-2 (Enabled) , 2-3 (Disabled)
36,37	JI2C1,JI2C2	PCI Slot SMB Enable	Short (Enabled), Open (Disabled)
40	JPB1	BMC Enable/Disable	Pins 1-2 (Enabled) , 2-3 (Disabled)
41	JPG1	VGA Enable/Disable	Pins 1-2 (Enabled) , 2-3 (Disabled)
42	JWD1	Watch Dog Timer Reset/NMI	Pins 1-2 (Reset) , 2-3 (NMI)
43	JPME2	ME Manufacturing Mode	Pins 1-2 (Normal) , 2-3 (Manuf. Mode)
44	JPME1	ME Recovery	Pins 1-2 (Normal) , 2-3 (Recovery Mode)
45	JBT1	Clear CMOS	Short contact pads to clear CMOS

LED Indicators

#	Name	Description	Color: State	Status
2	LED5	Overheat/Fan Fail/ Power Fail Warning	Red: On, Steady Red: On, Blinking	System Overheat Fan Fail/Power Fail
3	LED6	Front Panel UID	Blue: On, Steady	Unit ID switch is on
4	LED7	OEM Reserved	Reserved OEM Feature	--
38	LED4	IPMI Heartbeat	Green: Blinking	IPMI is running (Normal)

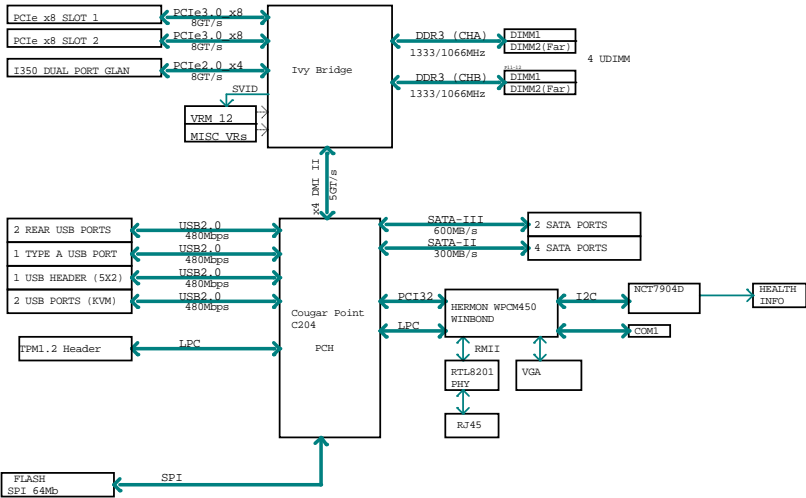
Motherboard Features

CPU	Single Intel® Xeon E3-1200 V2 series (Socket H2)	
Memory	Four (4) DIMM slots support up to 32 GB of DDR3, unbuffered, 1600/1333/1066 MHz, ECC memory	
	Supports dual-channel memory bus	
	DIMM sizes	
	DIMM	1 GB, 2 GB, 4 GB and 8GB
Chipset	Intel® C204 PCH	
Expansion Slots	Two (2) PCI-E 3.0 x 8 Slots	
Graphics	One (1) VGA port on the front panel	
Network Connections	Two (2) dedicated RJ-45 I/O Panel connector with Link and Activity LEDs	
	One (1) dedicated RJ-45 I/O Panel connector with Link and Activity LEDs for IPMI	
I/O Devices	SATA Connections	
	SATA 2.0 Ports (3 Gb/sec)	Four (4) (I-SATA 2~5)
	SATA 3.0 Ports (6 Gb/sec)	Two (2) (I-SATA 0/1)
	USB Devices	
	One (1) Internal USB header for two USB ports (USB 2/3), Two (2) External USB ports on the front panel (USB 0/1) and one (1) Internal Type A USB port (USB 4).	
	Serial Ports	
	One (1) internal COM header (COM1)	
BIOS	64 Mb SPI AMI BIOS® SM Flash BIOS	
	Plug and Play, ACPI 1.0/2.0, USB Keyboard, RTC wakeup and SMBIOS 2.3 support	
Power	Two (2) 8-pin 12V main power (Supermicro 1U Power)	
	One (1) 4-pin aux power input	
	Two (2) 8-pin 12V/5V power for system hard drives	
	ACPI/ACPM Power Management	
	Main Switch Override Mechanism	
	One (1) Disk-On-Module (DOM) Power Connector (SATA)	
	Power-on mode for AC power recovery	

PC Health Monitoring	CPU Monitoring
	Onboard voltage monitors for CPU core, +3.3V,+5V, +12V, +3.3V Stdbby, +5V Stdbby, VBAT, HT, Memory, Chipset
	Tachometer Monitoring
	CPU Thermal Trip support
	Thermal Monitor 2 (TM2) support
System Management	PECI (Platform Environment Configuration Interface) 2.0 support
	System resource alert via SuperDoctor® III
	SuperDoctor® III, Watch Dog
	Unit ID LED, System/CPU overheat LED
Utilities (Website Download)	BIOS flash upgrade utility
	Drivers and software for Intel® C204 PCH chipset utilities
	SuperDoctor® III
Other	ROHS 6/6 (Full Compliance, Lead Free)
	One (1) TPM Header
Dimensions	8.5" x 13.0"

BLOCK DIAGRAM

RoHS 6/6



X9SCFF-F Block Diagram



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 X9SCFF-F supports a single Intel® Xeon E3-1200 V2 series processor in an H2 Socket (LGA 1155). Built around the Intel C204 chipset, the X9SCFF-F motherboard provides substantial system performance and storage capability for the Supermicro Fat Twin server platform.

The high-speed Direct Media Interface (DMI) featured in the Intel® C204 chipset supports high-speed Direct Media Interface (DMI) for chip-to-chip true isochronous communication, providing up to 2 GB/s of software-transparent data transfer rate on each read/write direction. In addition, the X9SCFF-F also features a TCO (Time Controlled Operations) timer which allows the system to recover from a software/hardware lock and perform tasks, including ECC Error Reporting, Function Disable and Intruder Detect.

Intel C204 Express Chipset Features

- Direct Media Interface (up to 4 GB/s transfer, full duplex)
- Intel® Intel Rapid Storage Technology
- Intel® I/O Virtualization (VT-d) Support
- Intel® Trusted Execution Technology Support
- PCI Express 3.0 Interface (up to 8.0 GT/s)
- SATA Controller
 - 6 Gb/s on up to two ports
 - 3 Gb/s on all ports
- Advanced Host Controller Interface (AHCI)

1-3 PC Health Monitoring

This section describes the PC health monitoring features of the X9SCFF-F. The motherboard has an onboard System Hardware Monitor chip that supports PC health monitoring.

Recovery from AC Power Loss

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

Onboard Voltage Monitoring

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

Fan Status Monitor with Software

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

1-4 Power Configuration Settings

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

BIOS Support for USB Keyboard

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

1-5 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**® X9SCFF-F accommodates the Supermicro 1U chassis power supply.

1-6 Super I/O

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

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

Notes

Chapter 2

Installation

2-1 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 onboard CMOS battery. Do not install the onboard upside down battery to avoid possible explosion.

Unpacking

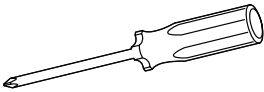
The motherboard is shipped in antistatic packaging to avoid static damage. When unpacking the board, make sure the person handling it is static protected.

2-2 Motherboard Installation

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

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

Tools Needed



Philips Screwdriver



Pan head screws (8 pieces)



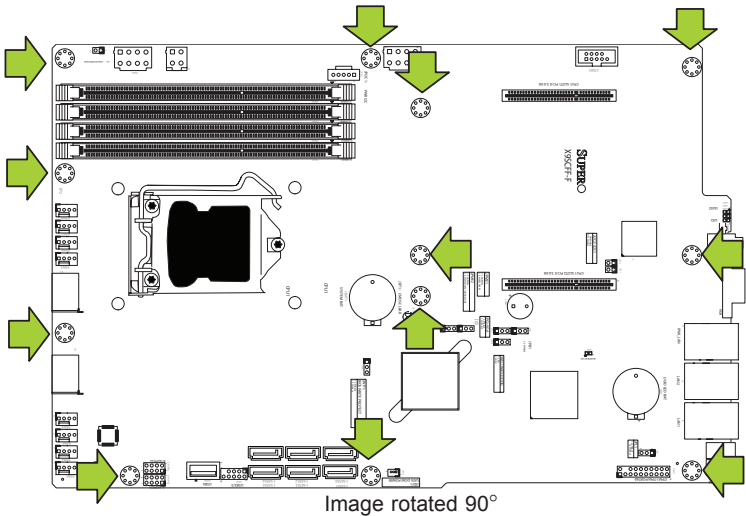
Stand Offs (8 pieces)
(Only if needed)



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

Location of Mounting Holes

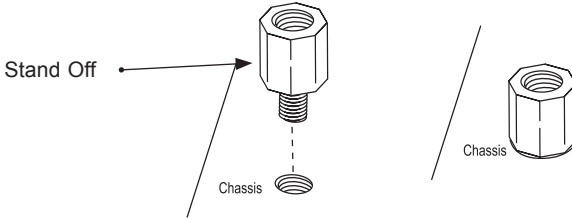
There are twelve (12) mounting holes on the X9SCFF-F motherboard. These holes correspond to screw holes in a matching motherboard tray that slides into a blade-type chassis. Please refer to the illustrations on the next page for a typical blade chassis installation.



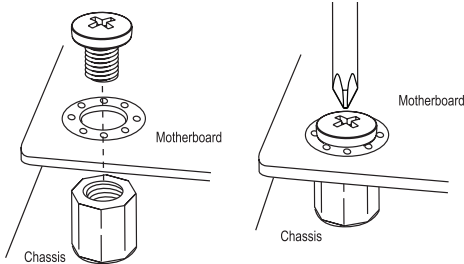
Caution: To avoid damaging the motherboard and its components, please do not use a force greater than 8 lb/inch on each mounting screw during motherboard installation.

Installation Instructions

- 1** Locate the mounting holes on the motherboard. Refer to the layout on the previous page for mounting hole locations.
- 2** Locate the matching mounting holes on the motherboard mounting tray. Install standoffs needed. Align the mounting holes on the motherboard against the mounting holes on the motherboard tray.



- 3** Install the motherboard carefully to avoid damaging motherboard components.
- 4** Insert a Pan head #6 screw into a mounting hole on the motherboard and its matching mounting hole on the chassis, using the Philips screwdriver.



- 5** Repeat Step 4 to insert #6 screws to all mounting holes. Make sure that the motherboard is securely placed on the motherboard tray. Insert the tray containing the motherboard in the chassis and follow you chassis manufacturer's installation instructions.

2-3 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 X9SCFF-F motherboard.

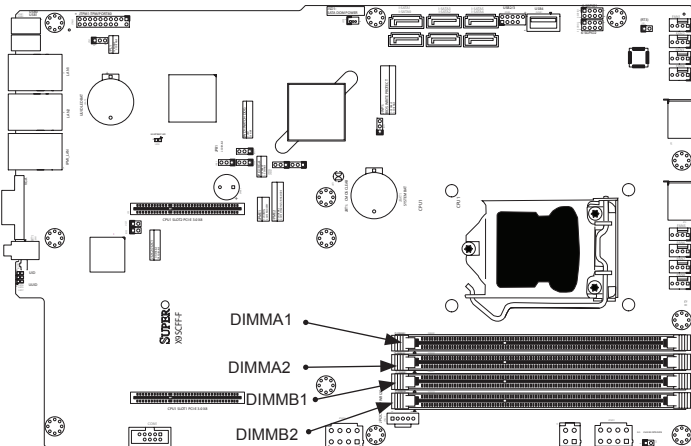
How to Install DDR3 DIMMs

1. Insert the desired number of DIMMs into the memory slots, starting with DIMMA2 (blue slot), then DIMMB2, DIMMA1, DIMMB1. Pay attention to the notch along the bottom of the module to prevent incorrect DIMM module installation.
2. Insert each DIMM module vertically and snap it into place. Repeat step 1 to install more memory, if needed. See instructions on the next page.

Memory Support

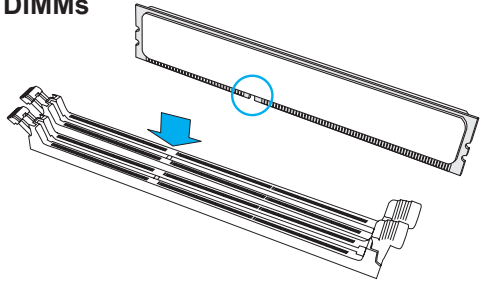
The X9SCFF-F supports up to 32GB of unbuffered ECC DDR3 DIMMs (1600/1333/1066 MHz in four DIMM slots).

Installing and Removing DIMMs

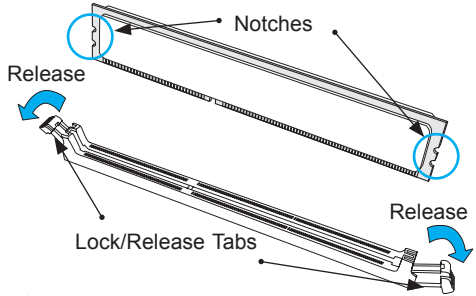


Installing and Removing DIMMs

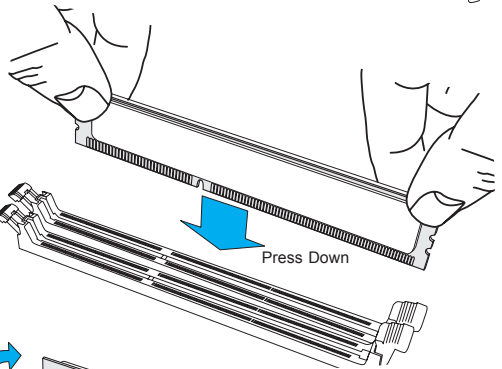
1 Position the DIMM module's bottom key so that it aligns with the receptive point on the slot.



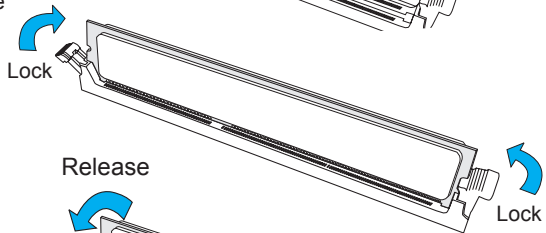
2 Push a Lock/Release tab to the Release position. Make sure that the side notches of the DIMM module aligns with the Lock/Release tab of the slot as it is pressed in.



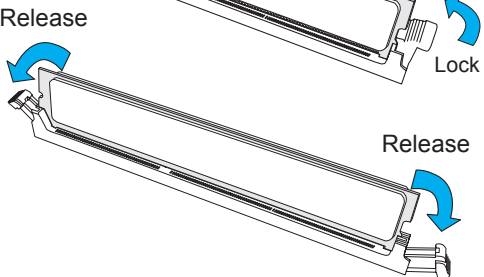
3 Insert the DIMM module vertically and press down until the module snaps into place.



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



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



Memory Population Guidelines

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

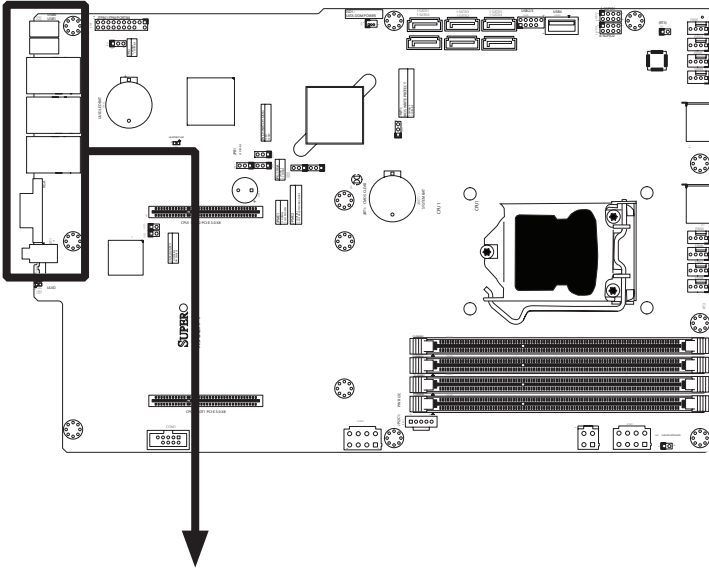
- Always use DDR3 DIMM modules of the same size, type and speed.
- Mixed DIMM speeds can be installed. However, all DIMMs will run at the speed of the slowest DIMM.
- The motherboard will support one DIMM module or three DIMM modules installed. For best memory performance, install DIMM modules in pairs.

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

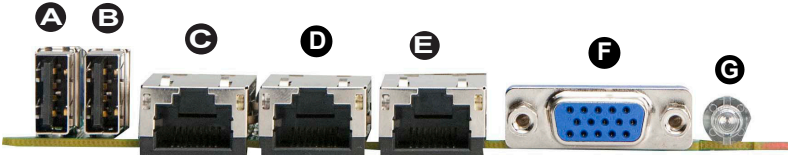
2-4 Connectors/I/O Ports

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.

Front Panel Connectors and I/O Ports



I/O Port Locations and Definitions

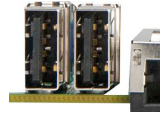


A. USB 0	D. LAN2	G. Power Switch/LED
B. USB 1	E. IPMI LAN	
C. LAN1	F. VGA Port	

Back Panel Connectors

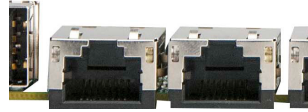
USB 0 & USB 1

There are two USB ports located on the front panel. These ports support up to 480Mb/s throughput (2.0).



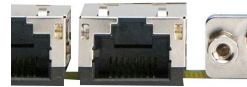
LAN1 & LAN2

Two 1Gb LAN ports are located next to the USB1 port (Intel i350). These support high-speed data transfers of up to 1Gb/sec.



IPMI LAN

A dedicated IPMI LAN port is located next to the VGA port to provide dedicated network connection for IPMI 2.0. This port accepts RJ45 type cables.



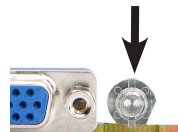
VGA Port

An VGA port is located on the front panel next to the Power Button. This may be disabled using the JPG1 jumper on the motherboard if an add-on VGA card is preferred.



Power Switch & LED

A Power Button and LED is located right next to the VGA port. Push this button to turn on the motherboard. When lit, it indicates that the motherboard is turned on.



2-5 Connecting Cables

This section provides brief descriptions for onboard connectors. Be sure to use the correct cable for each header or connector.

Power Headers (JPWR1,JPWR2,J3)

These headers are used to connect the motherboard to the power supply. These connectors are proprietary to the 1U chassis. Please see the table on the right for pin definitions.

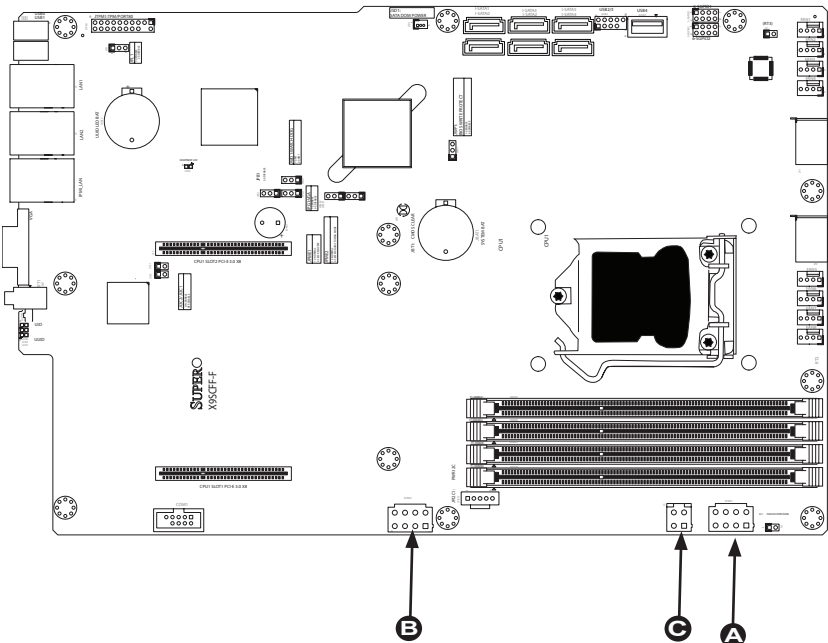
JPWR1 and JPWR2 must be attached to the power supply at same time along with J3 below.

The four pin power header at J3 is auxiliary power (PS_ON#) for the system.

JPWR1, JPWR2 Pin Definitions			
Pin #	Definition	Pin #	Definition
1	GND	5	+12V
2	GND	6	+12V
3	GND	7	+12V
4	GND	8	+12V

J3 Pin Definitions			
Pin #	Definition	Pin #	Definition
1	GND	3	P5V_STBY
2	GND	4	PS_ON#

- A. JPWR1
- B. JPWR2
- C. J3



Serial Link Headers (6-SGPIO)

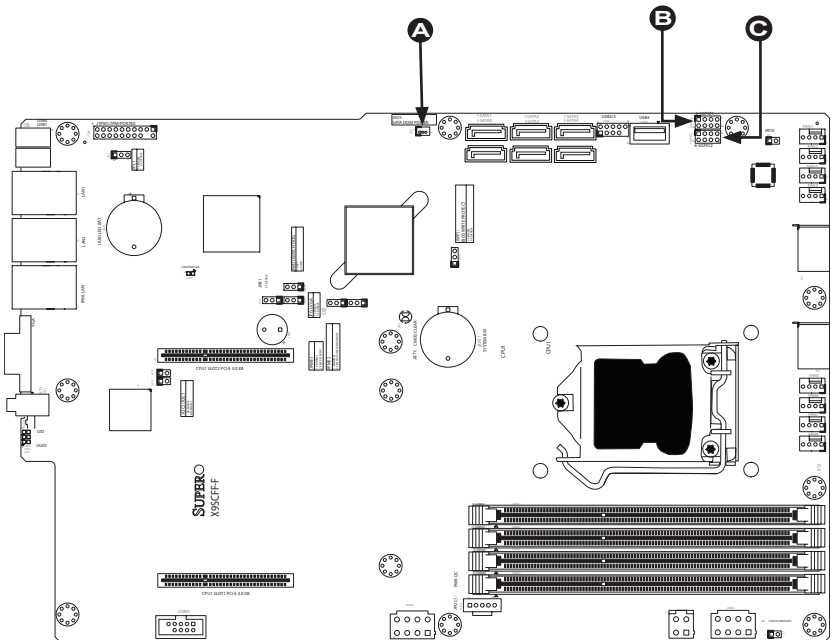
The 6-SGPIO1 and 6-SGPIO2 (Serial-Link General Purpose Input/Output) are located near the USB4 port on the motherboard. These headers are connected to the AOC SAS/SATA and are used to communicate with the enclosure management chip in the system. See the table on the right for pin definitions. Refer to the board layout below for the locations of the headers.

Serial_Link-SGPIO Pin Definitions			
Pin#	Definition	Pin	Definition
1	NC	2	DATA In
3	Ground	4	DATA Out
5	Load	6	Ground
7	Clock	8	NC

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.

- A. SATA DOM Power
- B. 6-SGPIO1
- C. 6-SGPIO2



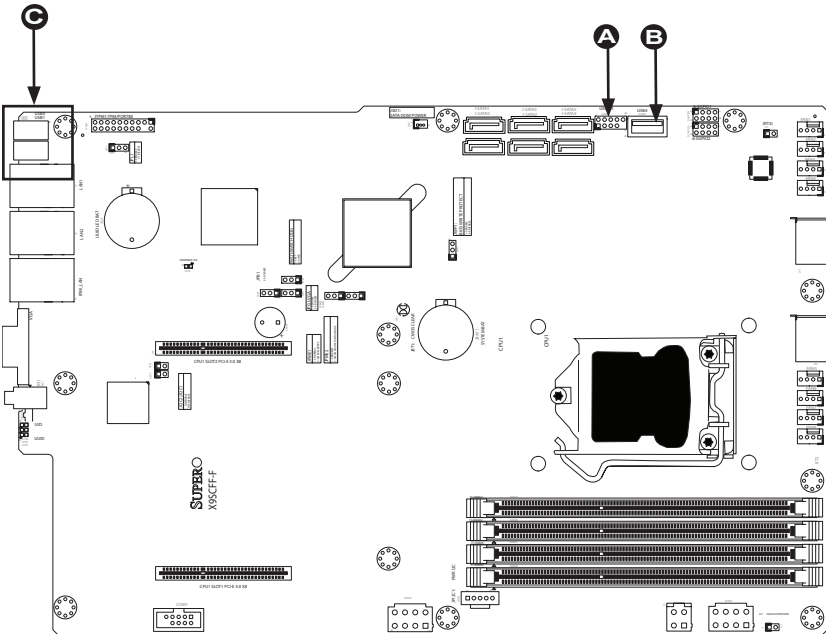
Universal Serial Bus (USB)

Five Universal Serial Bus ports are located on the on the motherboard. Two of these are available on a header (USB 2/3), and one on a Type A connector (USB 4). There are also two ports (USB 0/1) available on the front panel. See the tables on the right for pin definitions.

Type A USB Pin Definition	
Pin#	Definition
1	+5V
2	USB_PN
3	USB_PP
4	Ground

USB Header Pin Definitions			
Pin #	Definition	Pin #	Definition
1	5V	2	5V
3	USB_N1	4	USB_N2
5	USB_P1	6	USB_P2
7	Ground	8	GND
9	Key	10	OC#

- A. USB 2/3
- B. USB 4 (Type A)
- C. USB 0/1 (on back panel)



Fan Headers (FAN)

The X9SCFF-F has eight (8) fan headers on board. These are 4-pin headers and are controlled by IPMI. Refer to the table on the right for pin definitions.

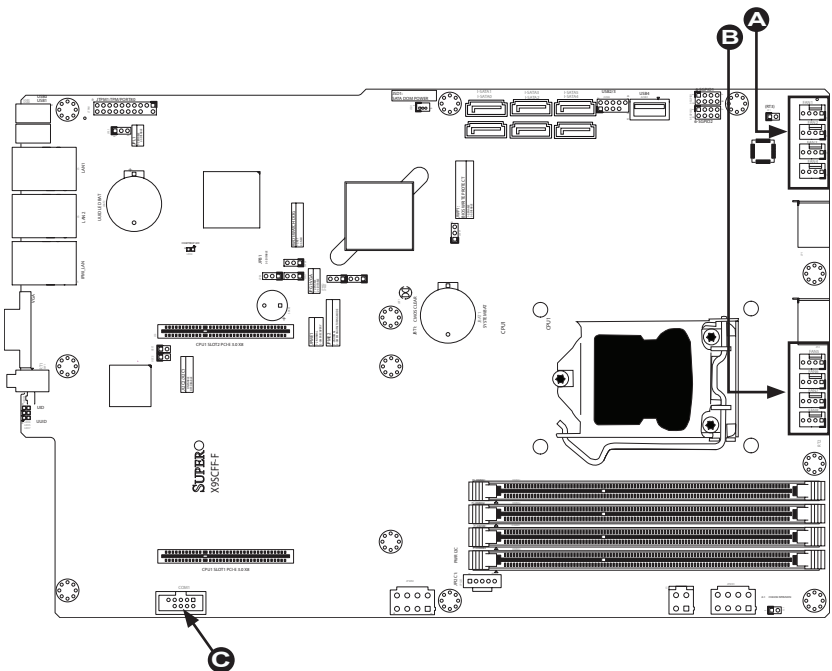
Fan Header Pin Definitions	
Pin#	Definition
1	Ground
2	+12V
3	Tachometer
4	PWM_Control

Serial Port (COM1)

There is one COM header (COM1) on the motherboard. COM1 is located next to Slot1. See the table on the right for pin definitions.

Serial Port-COM1 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

- A. FAN1~FAN4
- B. FAN5~FAN8
- C. Serial Port (COM1)

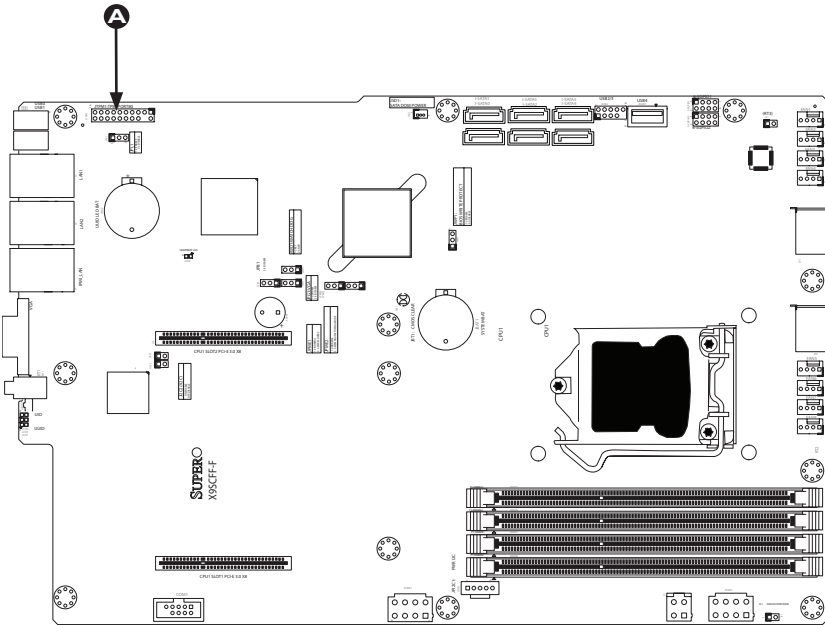


TPM Header (JTPM1)

This header is used to connect a Trusted Platform Module (TPM), that is 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. TPM



Power Supply I2C (JPI2C1)

The Power Supply I2C Connector, located at JPI2C1, monitors the status of the power supply, fan and system temperature. See the table on the right for pin definitions.

PWR Supply I2C Pin Definitions	
Pin#	Definition
1	Clock
2	Data
3	PWR Fail
4	Ground
5	NC

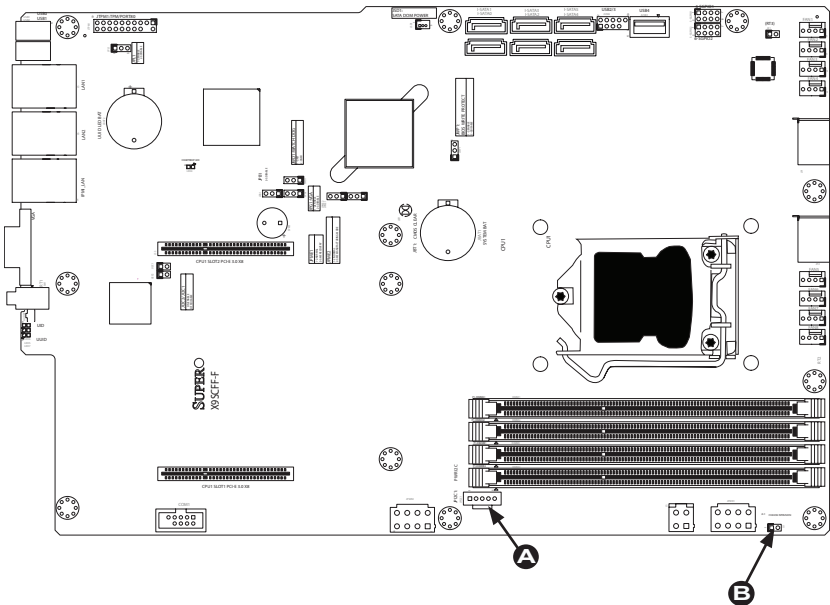
Chassis Intrusion (JL1)

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 is opened.

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

A. Power Supply I2C

B. Chassis Intrusion



HDD Power (JP1,JP2)

These power headers provide 12V power to standard internal drives with Molex 4-pin power connectors. Please see pin definitions on the right.

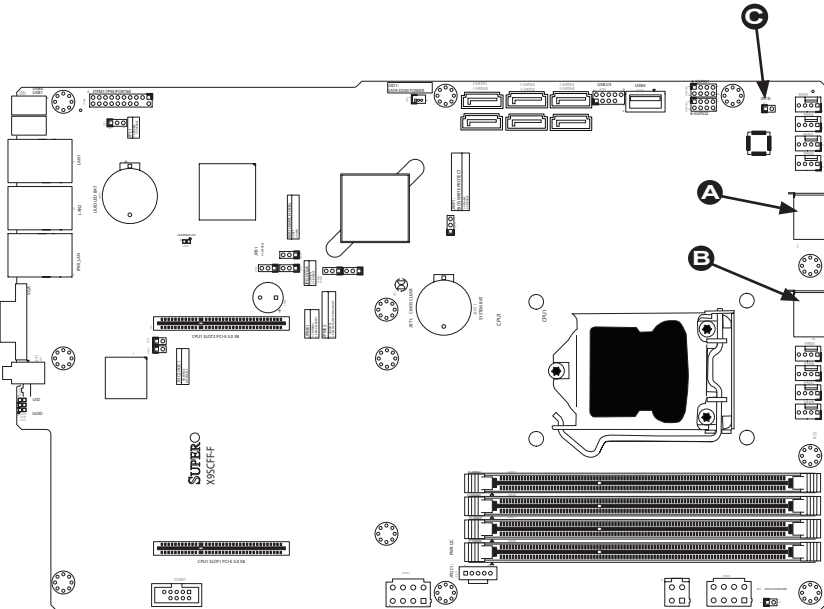
HDD Power (JP1,JP2) I Pin Definitions			
Pin#	Definition	Pin#	Definition
1	Ground	5	Vcc 12
2	Ground	6	Vcc 12
3	Ground	7	Vcc 5
4	Ground	8	Vcc 5

RT3 (J31)

RT3 on location J31 is used to monitor the hard disk drive temperature. Please attach the appropriate monitoring cable to this header.

RT3 Pin Definitions (J31)	
Pin#	Definition
1	TP
2	TN

- A. JP1
- B. JP2
- C. RT3



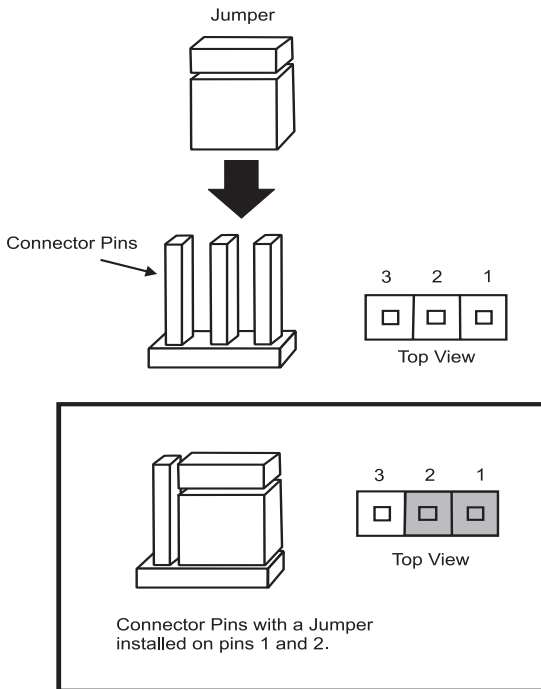
2-6 Jumper Settings

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.



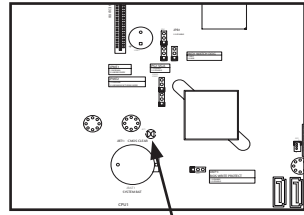
Note: On two-pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.



CMOS Clear (JBT1)

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

Important: You must completely shut down the system, remove the AC power cable, and then short JBT1 to clear CMOS.



Motherboard



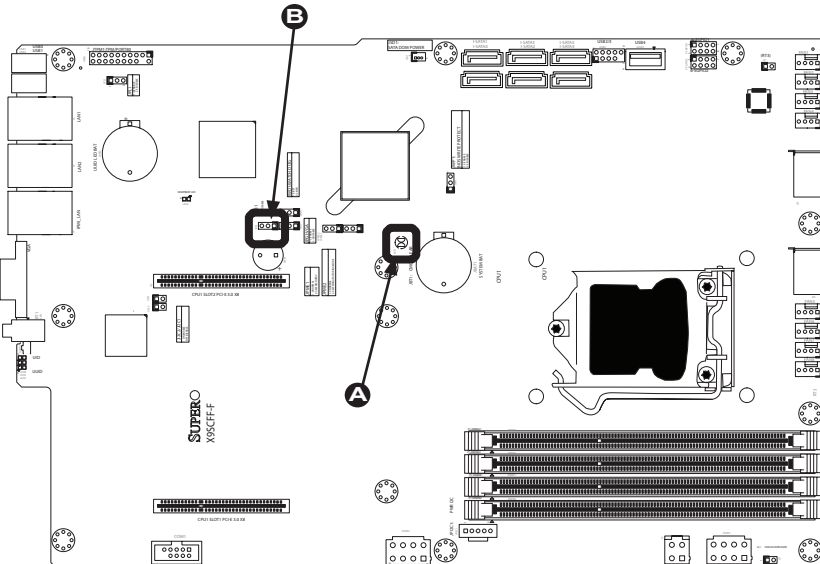
Metal contact pads

BMC Enable/Disable (JPB1)

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

BMC Enable Jumper Settings	
Pin#	Definition
1-2	Enabled (Default)
2-3	Disabled

- A. Clear CMOS
- B. BMC Enable/Disable



VGA Enable (JPG1)

JPG1 allows the user to enable the on-board VGA connector. Close Pins 1~2 to use this function. The default setting is Enabled.

VGA Enable/Disable Jumper Settings (JPG1)

Both Jumpers	Definition
Pins 1-2	Enabled (Default)
Pins 2-3	Disabled

Watch Dog Reset/NMI (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 Reset (JWD1) Jumper Settings

Jumper Setting	Definition
Pins 1-2	Reset (Default)
Pins 2-3	NMI
Open	Disabled

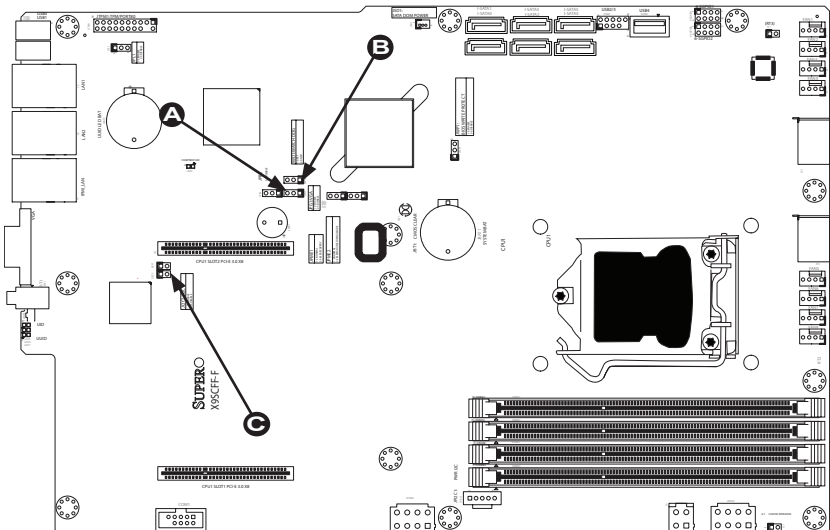
SMB Bus to PCI Slots (JI2C1/JI2C2)

Jumpers JI2C1 and JI2C2 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.

I2C to PCI-Slots (JI2C) Jumper Settings

Jumper	Definition
On	Enabled
Off	Disabled (Default)

- A. VGA Enable
- B. Watch Dog Reset
- C. JI2C1/JI2C2



ME Recovery (JPME1)

When enabled, Intel ME Recovery (JPME1) is used to update the ME (Management Engine) firmware. When disabled, the firmware is protected.

ME Recovery (JPME1)	
Pin#	Definition
1-2	Normal (Default)
2-3	ME Recovery

ME Manufacturing Mode (JPME2)

Set the jumper to ME Manufacturing Mode (Maintenance Mode) to enable this feature.

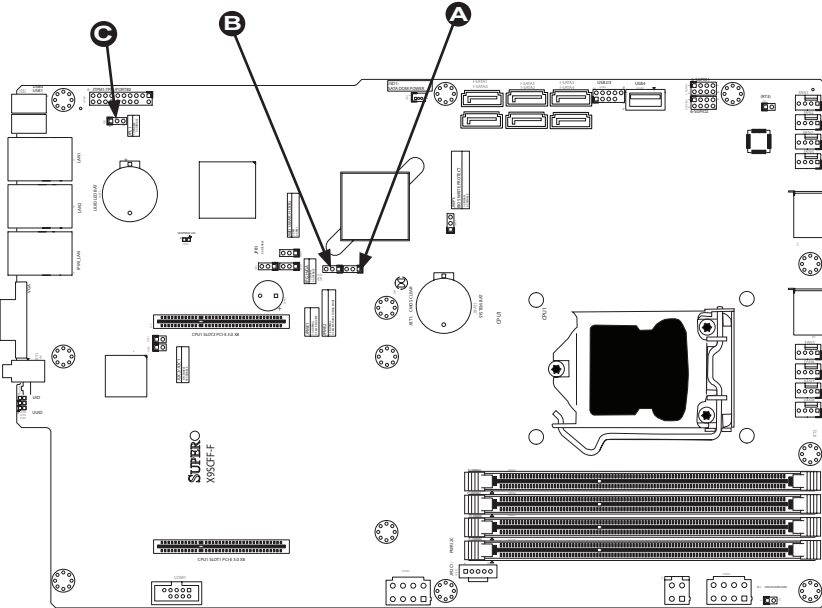
ME Manufacturing Mode (JPME2)	
Pin#	Definition
1-2	Normal (Default)
2-3	ME Manufacturing Mode

LAN Port Enable/Disable (JPL1)

Jumper JPL1 enables or disables LAN Port 1/LAN Port 2 on the motherboard. See the table on the right for jumper settings.

LAN Enable (JPL1) Jumper Settings	
Pin#	Definition
1-2	Enabled (Default)
2-3	Disabled

- A. JPME1
- B. JPME2
- C. JPL1



2-7 Onboard Indicators

IPMI Dedicated LAN Port

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

GLAN Link Indicator	
LED Color	Definition
Off	No Connection or 10 Mbps
Green	100 Mbps
Amber	1 Gbps

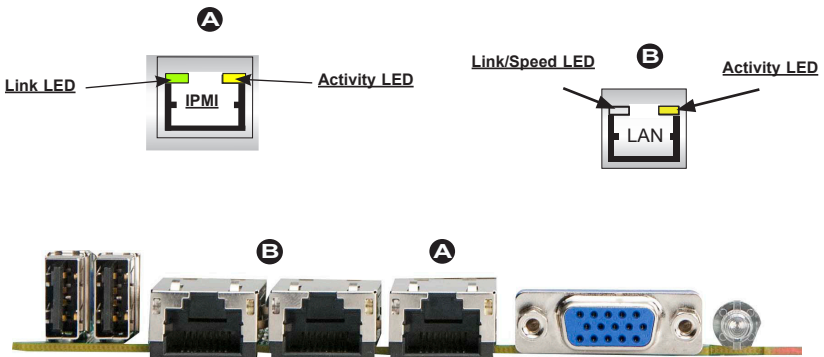
LAN LEDs

There are two Gigabit-LAN ports. These Gigabit Ethernet LAN ports have 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.

LAN Activity Indicator LED Settings		
Color	Status	Definition
Yellow	Flashing	Active

A. IPMI Port

B. LAN Port



Back Panel Connectors

IPMI Heartbeat (LED4)

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

IPMI Heartbeat LED Indicator (LED4) LED Settings	
Blinking	IPMI is ready for use
Off	IPMI is disabled

Overheat/Fan Fail/PWR Fail LED (LED5)

The Overheat Warning LED (LED5) indicates a system overheat is being detected. Please see the table on the right for message descriptions.

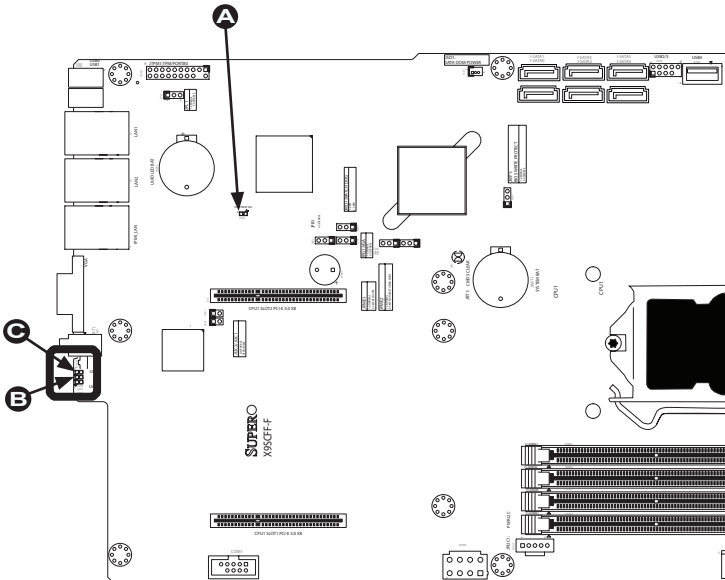
OH/Fan Fail/PWR Fail Warning LED LED Settings	
On (Steady)	System Overheat
Blinking	Fan Fail/Power Fail

Unit ID LED (LED6)

The Unit LED is controlled by the Unit ID Button. It enables the user to pinpoint this particular motherboard that may be in need of service. Turn on the UID button in the front of the chassis or on the motherboard's I/O panel to identify the unit in need of servicing.

Unit ID LED LED Settings	
On (Steady)	Unit ID switch is on
Off	Unit ID switch is off

- A. IPMI Heartbeat
- B. Overheat Warning
- C. Unit ID LED



2-8 Serial ATA 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.

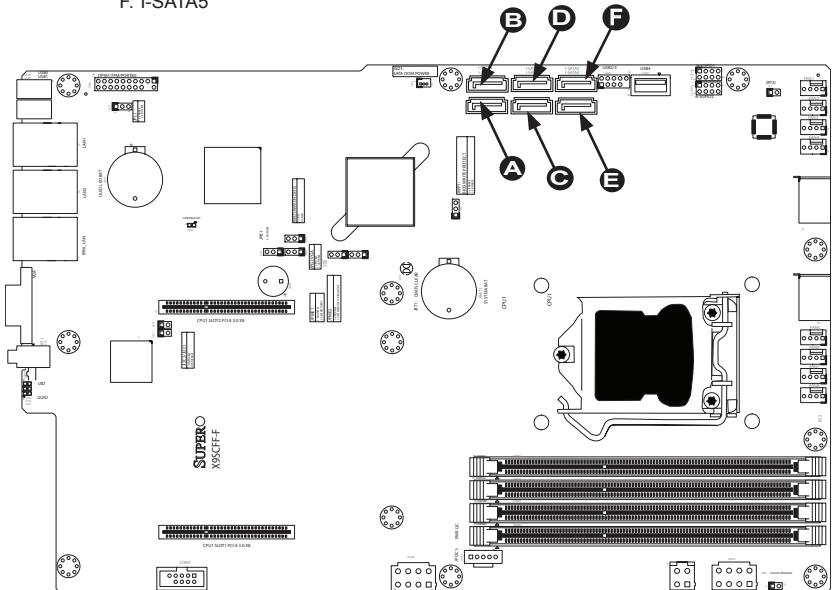
SATA Connections (SATA0~SATA5)

A total of six (6) Serial ATA (SATA) connectors are located on the motherboard. Of these, two ports support SATA 3.0 (I-SATA 0/1), while the remaining four are SATA 2.0. 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
I-SATA 2~5,	SATA 2.0 (3 Gb/s)
I-SATA 0/1	SATA 3.0 (6 Gb/s)

- A. I-SATA0 (3.0)
- B. I-SATA1 (3.0)
- C. I-SATA2
- D. I-SATA3
- E. I-SATA4
- F. I-SATA5

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



Notes

Chapter 3

Troubleshooting

3-1 Troubleshooting Procedures

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

Before Power On

1. Be sure to unplug the power cable before installing or removing the components.)
2. Make sure that there are no short circuits between the motherboard and chassis.
3. Disconnect all ribbon/wire cables from the motherboard, including those for the keyboard and mouse. Also, be sure to remove all add-on cards.
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 SO-DIMM 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 X9SCFF-F supports up to 32GB of **unbuffered** ECC DDR3 1600/1333/1066 MHz, two-way interleaved or non-interleaved DIMM memory. [See Section 2-4 for details on installing memory.](#)

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

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

Question: How do I update my BIOS?

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

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

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



Notes: Always use the file named "ami.bat" to update the BIOS and insert a space between "ami.bat" and the filename. The BIOS-ROM-filename will bear the motherboard name (i.e., X9SCFF) and build version as the extension. For example, "X9SCFF0.526".

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

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

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



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

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

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

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

3-4 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 X9SCFF-F motherboard. The AMI ROM BIOS is stored in a Flash EEPROM and can be easily updated. This chapter describes the basic navigation of the AMI BIOS Setup Utility setup screens.



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

Starting BIOS Setup Utility

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



Note: In most cases, the <Delete> key is used to invoke the AMI BIOS setup screen. There are a few cases when other keys are used, such as <F1>, <F2>, etc.

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

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



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

How To Change the Configuration Data

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

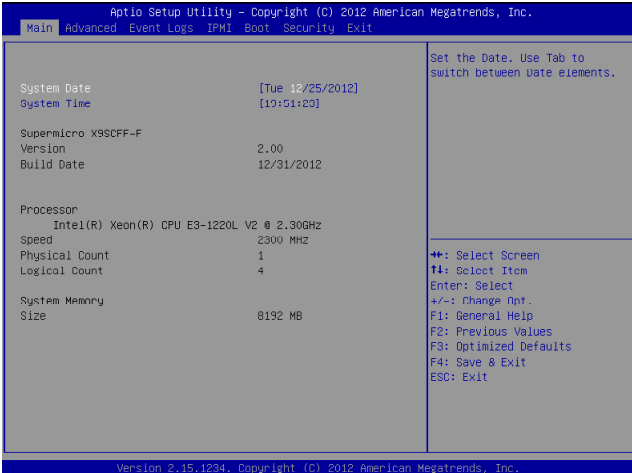
How to Start the Setup Utility

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.



System Overview: The following BIOS information will be displayed:

System Time/System Date

Use this option to change the system time and date. Highlight *System Time* or *System Date* using the arrow keys. Enter new values through the keyboard. Press the <Tab> key or the arrow keys to move between fields. The date must be entered in Day MM/DD/YY format. The time is entered in HH:MM:SS format. (**Note:** The time is in the 24-hour format. For example, 5:30 P.M. appears as 17:30:00.)

Supermicro X9SCFF-F

Version: This item displays the version of the BIOS used in the system.

Build Date: This item displays the day this version of BIOS was built.

Processor

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

Processor

Speed

Physical Count

Logical Count

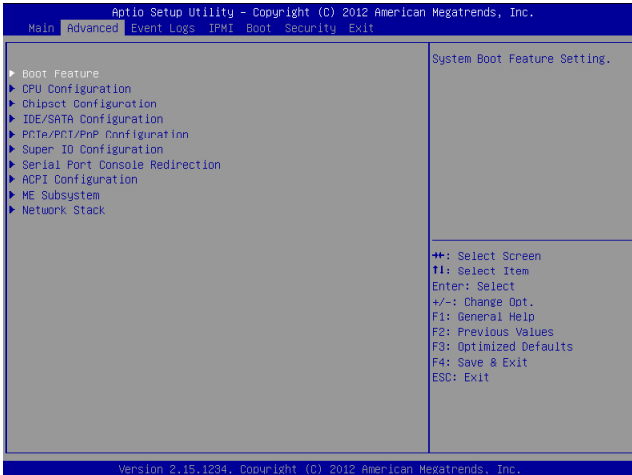
System Memory

This displays the size of memory available in the system:

Size

4-3 Advanced Setup Configurations

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



►BOOT Feature

Quiet Boot

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

AddOn ROM Display Mode

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

Bootup Num-Lock

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

Wait For 'F1' If Error

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

Interrupt 19 Trap Response

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

Watch Dog Function

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

Power Button Function

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

Restore on AC Power Loss

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

►CPU Configuration



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

Clock Spread Spectrum

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

Intel® Hyper Threading Technology

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

Active Processor Cores

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

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

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

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

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

Hardware Prefetcher (Available when supported by the CPU)

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

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

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

Power Technology

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

EIST (Available when Power Technology is set to Custom)

EIST (Enhanced Intel SpeedStep Technology) allows the system to automatically adjust processor voltage and core frequency in an effort to reduce power consumption and heat dissipation. **Please refer to Intel's web site for detailed information.** The options are **Disabled** and **Enabled**.

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

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

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

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

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

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

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

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

►Turbo Boost Technology (Available if Intel® EIST technology is Enabled)**Turbo Mode**

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

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

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

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

► Chipset Configuration

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

► CPU Bridge Configuration

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

Memory Frequency

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

► Integrated I/O Configuration

This item displays the current North Bridge Revision.

Intel VT-d

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

Active State Power Management

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

PCIe Maximum Read Request

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

PCI Express Port

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

PCI Express Port - Gen X

Use this feature to select the speed of PEG. The options are **Auto**, Gen1, Gen2, and Gen3.

De-emphasis Control

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

Detect Non-Compliance Device

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

►South Bridge Configuration

This item displays the current South Bridge Revision.

USB Functions

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

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

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

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

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

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

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

►IDE/SATA Configuration

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

SATA Mode Selection

Use this item to determine how the SATA controller(s) operate. The options are **IDE Mode**, **AHCI Mode** and **RAID Mode**.

IDE Mode

The following items are displayed when IDE Mode is selected:

IDE Legacy / Native Mode Selection

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

SATA Port0~Port5

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

AHCI Mode

The following items are displayed when AHCI Mode is selected:

Aggressive Link Power Management

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

Serial ATA Port0~Port5

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

Hot Plug

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

Staggered Spin Up

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

RAID Mode

The following items are displayed when RAID Mode is selected:

PCH RAID CodeBase

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

Serial ATA Port0~Port5

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

Hot Plug

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

►PCIe/PCI/PnP Configuration

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

PCI Latency Timer

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

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

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

PERR# Generation

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

SERR# Generation

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

Launch Storage OpROM Priority

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

Onboard LAN Option ROM Select

This feature selects whether to load the iSCSI or PXE onboard LAN option ROM. The options are iSCSI and **PXE**.

Load Onboard LAN1 Option ROM/Load Onboard LAN2 Option ROM

This feature is to enable or disable the onboard option ROMs. The default for LAN1 is **Enabled**. The default for LAN2 is **Disabled**.

Boots Graphics Adapter Priority

Use the feature to select the graphics controller to be used as the primary boot device. The options are **Offboard** and Onboard.

► Super IO Configuration

Serial Port 1

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

Serial Port 1 Settings

This option specifies the base I/O port address and the Interrupt Request address of Serial Port 1. Select Auto to allow the serial port to automatically assign system resources. The options for Serial Port 1 are **Auto**, (IO=3F8h; IRQ=4), (IO=3F8h; IRQ=3), (IO=2F8h; IRQ=3), (IO=3E8h; IRQ=5), (IO=2E8h; IRQ=7), (IO=3F8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12;), (IO=2F8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12;), (IO=3E8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12;), and (IO=2E8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12;)

► Serial Port Console Redirection

COM 1, SOL

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

COM1, SOL Console Redirection

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

► Console Redirection Settings

Terminal Type

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

Bits Per second

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

Data Bits

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

Parity

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

Stop Bits

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

Flow Control

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

VT-UTF8 Combo Key Support

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

Recorder Mode

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

Resolution 100x31

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

Legacy OS Redirection Resolution

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

Putty KeyPad

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

Redirection After BIOS Post

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

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

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

Console Redirection (for EMS)

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

► Console Redirection Settings (for EMS)

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

Out-of-Band Management Port

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

Terminal Type

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

Bits Per Second

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

Flow Control

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

Data Bits, Parity, Stop Bits

The setting for each of these items is displayed.

►ACPI Configuration

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

High Precision Event Timers

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

Suspend Mode

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

WHEA Support

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

►ME Subsystem

This feature displays the version number for the ME and the ME BIOS Interface.

►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**.

4-4 Event Logs



►Change Smbios Event Log Settings

The following options are available:

Smbios Event Log

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

Erase Event Log

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

When Log is Full

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

MECI

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

METW

The Multiple Event Time Window (METW) defines number of minutes must pass between duplicate log events before MECI is incremented. This is in minutes, from 0 to 99. The default setting is **60**.

View Smbios Event Log

Displays the Smbios Event Log stored in memory.

4-5 IPMI Configuration

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



► System Event Log

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

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

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

When SEL Full

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

►BMC Network Configuration

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

Update IPMI LAN Configuration

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

Configuration Source

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

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

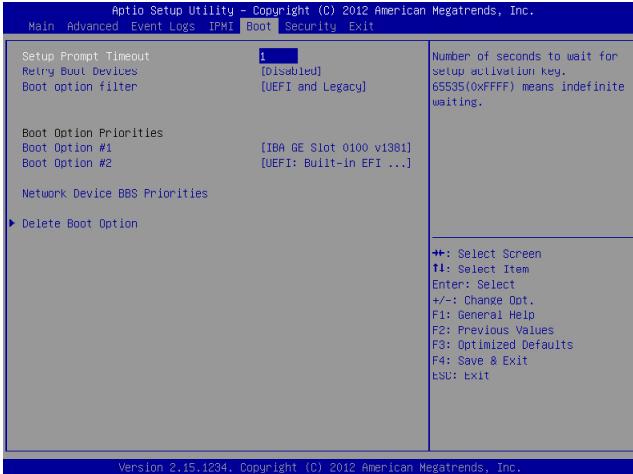
Current Subnet Mask - Subnet masks tell the network which subnet this machine belongs to. The value of each three-digit number separated by dots should not exceed 255.

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

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

4-6 Boot Settings

Use this feature to configure Boot Settings:



Setup Prompt Timeout

Number of seconds to wait for setup activation key. Enter 65535 (0xFFFF) to wait indefinitely. The default setting is 1.

Retry Boot Devices

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

Boot Option Filter

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

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

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

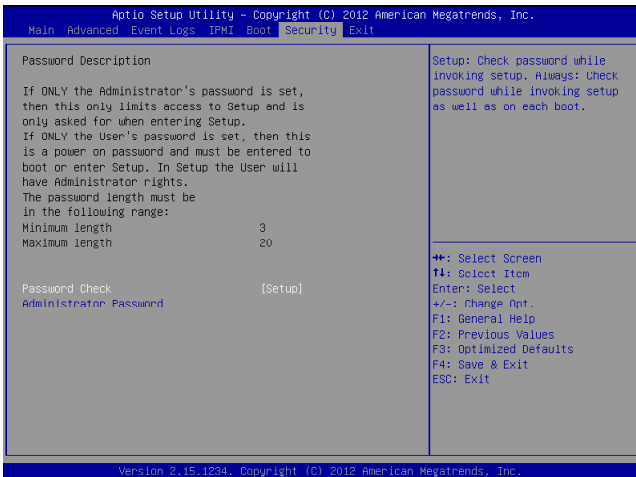
Network Device BBS Priorities

Use this feature to set the order of the legacy network devices detected by the motherboard.

▶ Delete Boot Option

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

4-7 Security Settings



Password Check

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

Administrator Password

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

4-8 Exit Options

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



Save Changes and Reset

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

Discard Changes and Exit

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

Discard Changes

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

Restore Defaults

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

Save As User Defaults

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

Restore User Defaults

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

Boot Override

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

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 long and two short beeps - video configuration error
- 1 repetitive long beep - no memory detected
- 1 continuous beep with the front panel Overheat LED on - system overheat
- 8 short beeps - display memory read/write error

Notes

Appendix B

Software Installation Instructions

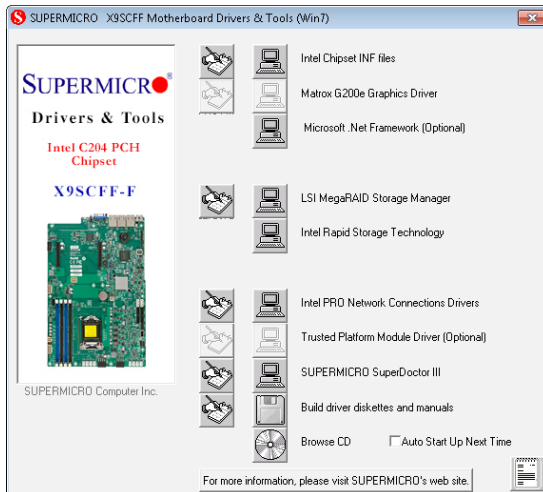
B-1 Installing Software Programs

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


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


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

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




Driver/Tool Installation Display Screen


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

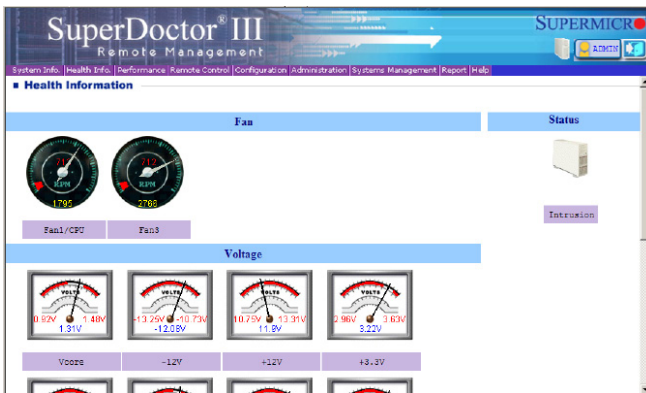
 **Note 2:** When making a storage driver diskette by booting into a Driver CD, please set the SATA Configuration to "Compatible Mode" and configure SATA as IDE in the BIOS Setup. After making the driver diskette, be sure to change the SATA settings back to your original settings.

B-2 Configuring SuperDoctor III

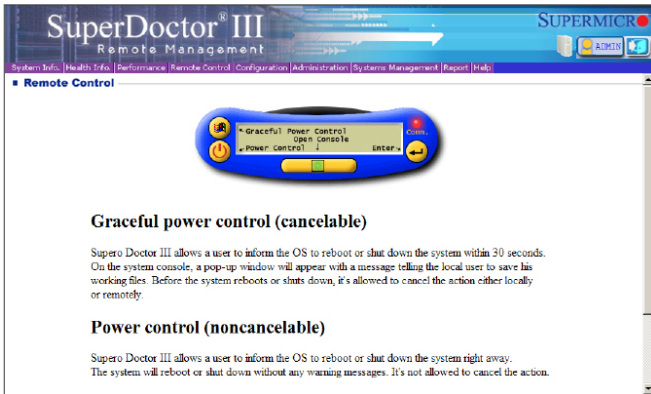
The SuperDoctor[®] III program is a web-based management tool that supports remote management capability. It includes Remote and Local Management tools. The local management is called SD III Client. The SuperDoctor III program allows you to monitor the environment and operations of your system. SuperDoctor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

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


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



SuperDoctor III Interface Display Screen (Health Information)



SuperDoctor III Interface Display Screen (Remote Control)

 **Note:** SD III Software Revision 1.0 can be downloaded from our Web Site at: ftp://ftp.supermicro.com/utility/Supero_Doctor_III/. You can also download the SDIII User's Guide at: <http://www.supermicro.com/PRODUCT/Manuals/SDIII/UserGuide.pdf>. For Linux, we will recommend using 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.

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.

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.

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

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

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

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

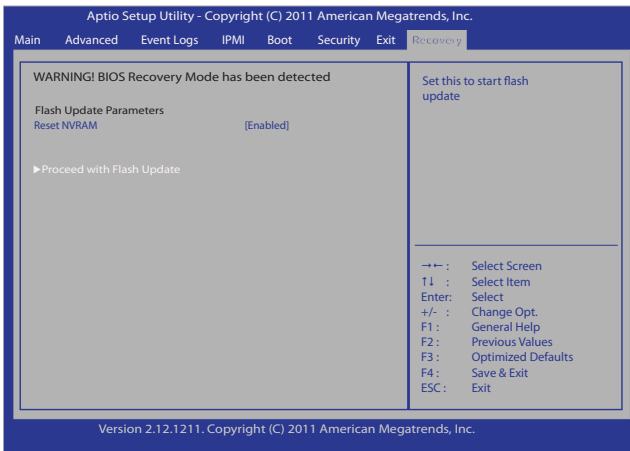


Note: If you cannot locate the "Super.ROM" file in your driver disk, visit our website at www.supermicro.com to download the BIOS image into a USB flash device and rename it to "Super ROM" for BIOS recovery use.

2. Insert the USB device that contains the new BIOS image ("Super.Rom") into your USB drive and power on the system
3. While powering on the system, keep pressing <Ctrl> and <Home> simultaneously on your PS2 or USB keyboard until you hear two short beeps. This may take from a few seconds to one minute.
4. After locating the new BIOS binary image, the system will enter the BIOS Recovery page as shown below.



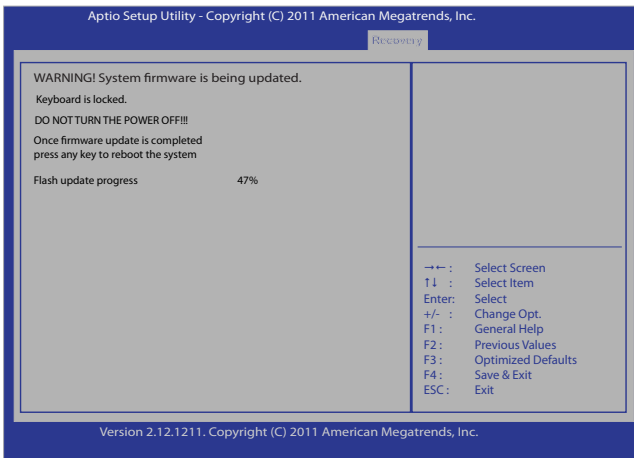
Note: At this point, you may decide if you want to start with BIOS Recovery. If you decide to proceed with BIOS Recovery, follow the procedures below.



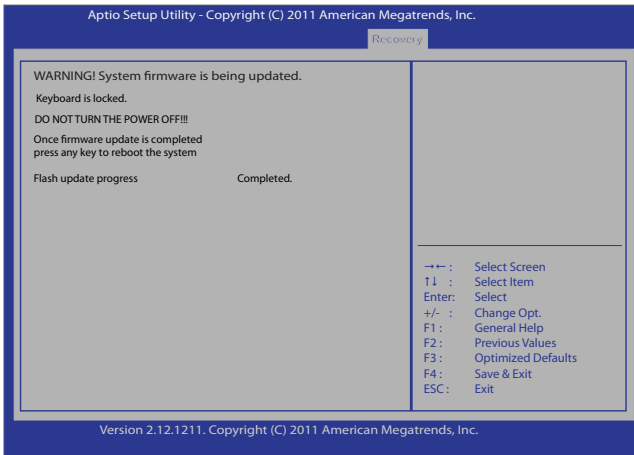
5. When the screen as shown above displays, using the arrow key, select the item- "Proceed with flash update" and press the <Enter> key. You will see the progress of BIOS Recovery as shown in the screen below.



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



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



- Using a different system, extract the BIOS package into a bootable USB flash drive.
- When a DOS prompt appears, type AMI.BAT BIOSname.### at the prompt.



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

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