

M11SDV-4C-LN4F
M11SDV-4CT-LN4F
M11SDV-8C-LN4F
M11SDV-8CT-LN4F
M11SDV-8C+-LN4F

USER MANUAL

Revision 1.0c

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Manual Revision 1.0c

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Preface

About This Manual

This manual is written for system integrators, IT technicians and knowledgeable end users. It provides information for the installation and use of the M11SDV-4C/4CT/8C/8CT/8C+-LN4F motherboard.

About This Motherboard

The Supermicro M11SDV-4C/4CT/8C/8CT/8C+-LN4F motherboard supports an AMD EPYC™ 3000 SoC series processor with up to 8 cores and 16 threads per socket. The AMD EPYC™ 3000 upholds optimized performance with NVMe storage, offering up to 512GB of memory, with speeds of up to 2666MHz. It offers an Intelligent Platform Management Interface (IPMI) feature, IPMI out-of-band, and a power usage effectiveness mode that provides management and monitoring capabilities, as well as a M.2 solid-state drive. This is a high performance, low powered mini-ITX motherboard that is ideal for super compact servers requiring high compute power. Please note that this motherboard is intended to be installed and serviced by professional technicians only. For processor/memory updates, please refer to our website at http://www.supermicro.com/products/.

Manual Organization

Chapter 1 describes the features, specifications and performance of the motherboard, and provides detailed information on the AMD® EPYC 3000 SoC.

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 BIOS Setup utility.

Appendix A provides BIOS Error Beep Codes.

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

Appendix C lists standardized warning statements in various languages**.**

Appendix D provides UEFI BIOS Recovery instructions**.**

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Chapter 1

Introduction

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.

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:

1.1 Checklist

Main Parts List (included in the retail box)		
Description	**Part Number**	**Quantity**
Supermicro Motherboard	M11SDV-4C/4CT/8C/8CT/8C+-LN4F	1
Quick Reference Guide	MNL-2172-QRG	1
SATA Data Cables	CBL-0044L	4
SATA Power Cable	CBL-PWEX-0982	1
24-pin ATX to 4-pin Power Cable	CBL-PWEX-1063	1
I/O Shield	MCP-260-00084-0N	1

Main Parts List (included in the Bulk box)		
Description	**Part Number**	**Quantity**
Supermicro Motherboard	M11SDV-4C/4CT/8C/8CT/8C+-LN4F	1
SATA Data Cables	CBL-0044L	2
SATA Power Cable	CBL-PWEX-0982	1
24-pin ATX to 4-pin Power Cable	CBL-PWEX-1063	1
I/O Shield	MCP-260-00084-0N	1

Important Links

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

- Supermicro product manuals: http://www.supermicro.com/support/manuals/
- Product drivers and utilities: https://www.supermicro.com/wftp/driver/
- Product safety info: http://www.supermicro.com/about/policies/safety_information.cfm
- If you have any questions, please contact our support team at: support@supermicro.com

This manual may be periodically updated without notice. Please check the Supermicro website for possible updates to the manual revision level.

Figure 1-1. M11SDV-4C/4CT/8C/8CT-LN4F Motherboard Image

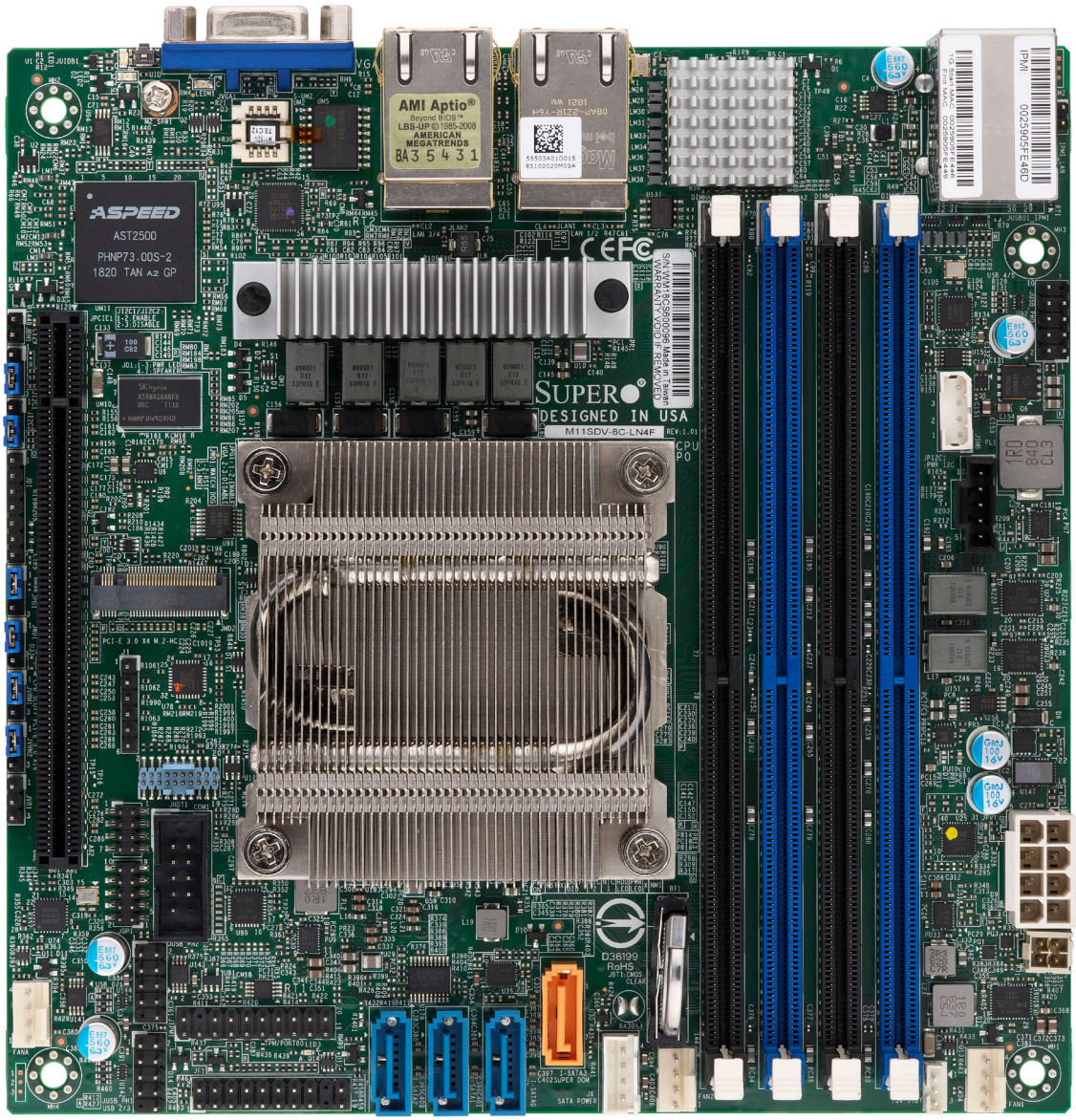
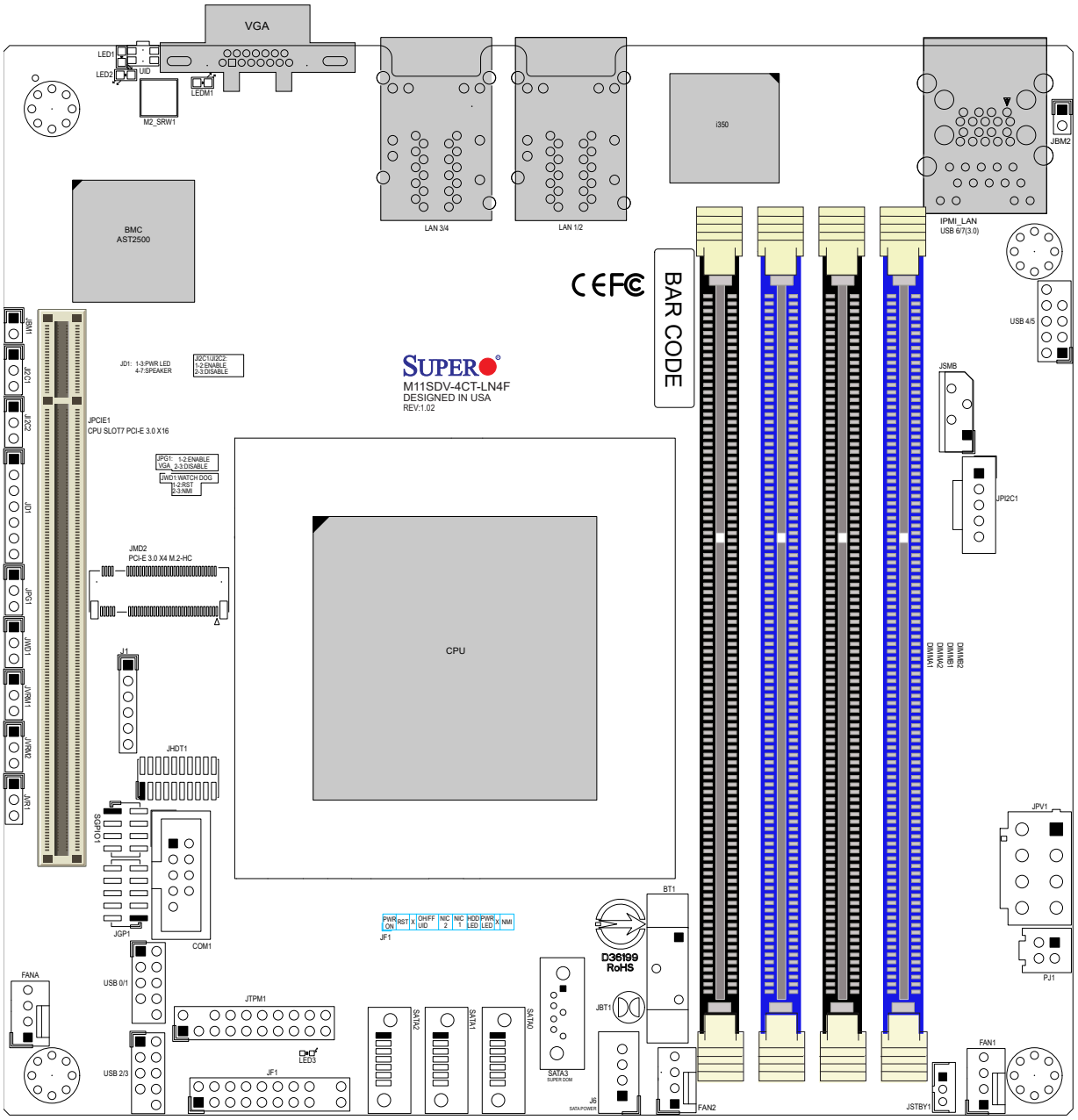


Figure 1-2. M11SDV-8C+-LN4F Motherboard Image

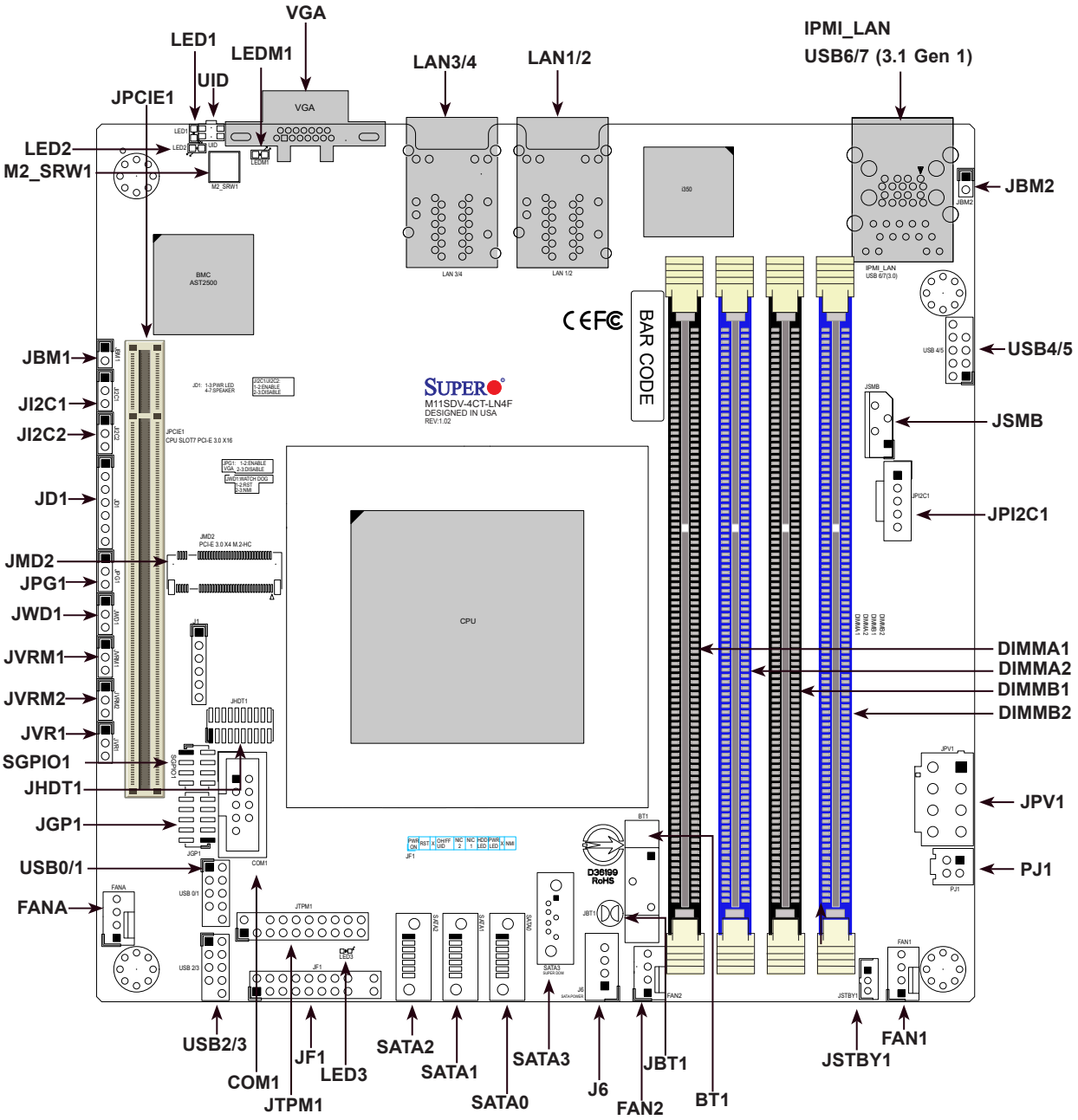


Figure 1-3. M11SDV-4C/4CT/8C/8CT/8C+-LN4F Motherboard Layout
(not drawn to scale)



Note: Components not documented are for internal testing only.

Quick Reference



Notes:

- See Chapter 2 for detailed information on jumpers, I/O ports, and JF1 front panel connections. Jumpers/LED indicators not indicated are used for testing only.
- "■" indicates the location of Pin 1.
- When LED3 (Onboard Power LED indicator) is on, system power is on. Unplug the power cable before installing or removing any components.

Figure 1-4. X11SDV-TP8F Series Motherboard Model Variation Table

Model	CPU	Core	Threads	TDP(W)	Base Freq (GHz)	Boost Freq (GHz)	L3 (MB)	DDR Freq	Heatsink
M11SDV-8C+-LN4F	3251	8	16	55	2.5	3.1	16	2666	active
M11SDV-8C-LN4F	3251	8	16	55	2.5	3.1	16	2666	passive
M11SDV-8CT-LN4F	3201	8	8	30	1.5	3.1	16	2133	passive
M11SDV-4C-LN4F	3151	4	8	45	2.7	2.9	16	2666	passive
M11SDV-4CT-LN4F	3101	4	4	35	2.1	2.0	8	2666	passive

Quick Reference Table

Jumper	Description	Default Setting
JBM1	Disable Share LAN	Pin 1-2 Open (Enable)
JBM2	Disable IPMI/Share LAN	Pin 1-2 Open (Enable)
JBT1	CMOS Clear	Open: Normal, Closed: Clear CMOS
JI²C1, JI²C2	SMB to PCI-E Slots Enable/Disable	Pins 2-3 (Disabled)
JPG1	Onboard VGA Enable/Disable	Pins 1-2 (Enabled)
JVRM1	VRM SMB Clock (to BMC or PCH)	Pins 1-2 (Normal)
JVRM2	VRM SMB Data (to BMC or PCH)	Pins 1-2 (Normal)
JWD1	Watch Dog Timer	Pins 1-2 (Reset)

LED	Description	Status
LED1	UID LED	Solid Blue: Unit Identified
LED2	Overheat (OH)/PWR Fail/Fan Fail LED	Solid Red: Overheat Blinking Red: PWR Fail or Fan Fail
LED3	Power LED	Solid Green: Power On
LEDM1	BMC Heartbeat	Blinking Green: BMC Normal

Connector	Description
BT1	Onboard Battery
COM1	RS232 COM Port Header
FAN1 - FAN2, FANA	CPU/System Fan Headers
IPMI_LAN	Dedicated IPMI LAN Port
JD1	Pins 1-2: PWR LED, Pin 4-7: Speaker
JF1	Front Control Panel Header
JGP1	8-bit General Purpose I/O Header
JMD2	M.2 Slot 2280 M-key (PCIe x 4/SATA 3.0)
JPCIE1	PCI-E 3.0 x 16 Slot
JPI²C1	Power I²C System Management Bus (Power SMB) Header
JPV1	8-pin 12V DC Power Input (Required for 12V only or 24-pin ATX power)
JSMB	System Management Bus Header
JSTBY1	Standby Power Connector
JTPM1	Trusted Platform Module (TPM)/Port 80 Connector
LAN1 - LAN4	1 GbE LAN (RJ45) Ports
PJ1	Header for ATX Power Signal 5VSTBY/Power ON/Power Good/Ground; 24pin ATX to 4pin power cable for PJ1 (Supermicro P/N: CBL-PWEX-1063)
SATA0 - SATA3	SATA 3.0 Ports
UID	Unit Identifier Switch
USB0-5	USB 2.0 Header
USB6/7	Back Panel USB 3.0 Ports
VGA	VGA Port (back panel)

Motherboard Features

Motherboard Features	
CPU	
• Supports an AMD EPYC™ 3000 SoC processor	
Memory	
• Supports DDR4 ECC/Non-ECC RDIMM, UDIMM, and LRDIMM memory in 4 DIMM slots, up to 512GB, with speed of up to 2666MHz. **Note:** When the motherboard is populated with 4 modules of 2S4R/4DR DDR4 LRDIMM, the memory will operate at speed of 2133MHz. When the motherboard is fully populated with 4 modules of single rank DDR4 RDIMM, the memory will operate at speed of 2133MHz. When the motherboard is fully populated with 4 modules of 2R/2DR/2S2R/2S4R DDR4 RDIMM, the memory will operate at speed of 1866MHz. When the motherboard is fully populated with 4 modules of single rank DDR4 UDIMM, the memory will operate at speed of 2133MHz. When the motherboard is fully populated with 4 modules of 2R/2DR DDR4 UDIMM, the memory will operate at speed of 1866MHz.	
DIMM Size	
• 4GB, 8GB, 16GB, 32GB, 64GB, and 128GB	
Expansion Slots	
• One (1) PCI-E 3.0 x 16 slot	
Network Controller	
• ASpeed AST2500 and Intel i350	
Baseboard Management Controller (BMC)	
• ASpeed AST2500	
Graphics	
• Graphics controller via ASpeed AST2500	
I/O Devices	
• Com Header	• One (1) RS232 COM Port Header
• SATA 3.0	• Four (4) SATA 3.0 ports
Peripheral Devices	
• Six (6) USB 2.0 ports in three (3) internal headers (USB0/1, USB2/3, USB4/5) • Two (2) USB 3.0 ports on the I/O back panel (USB6/7)	

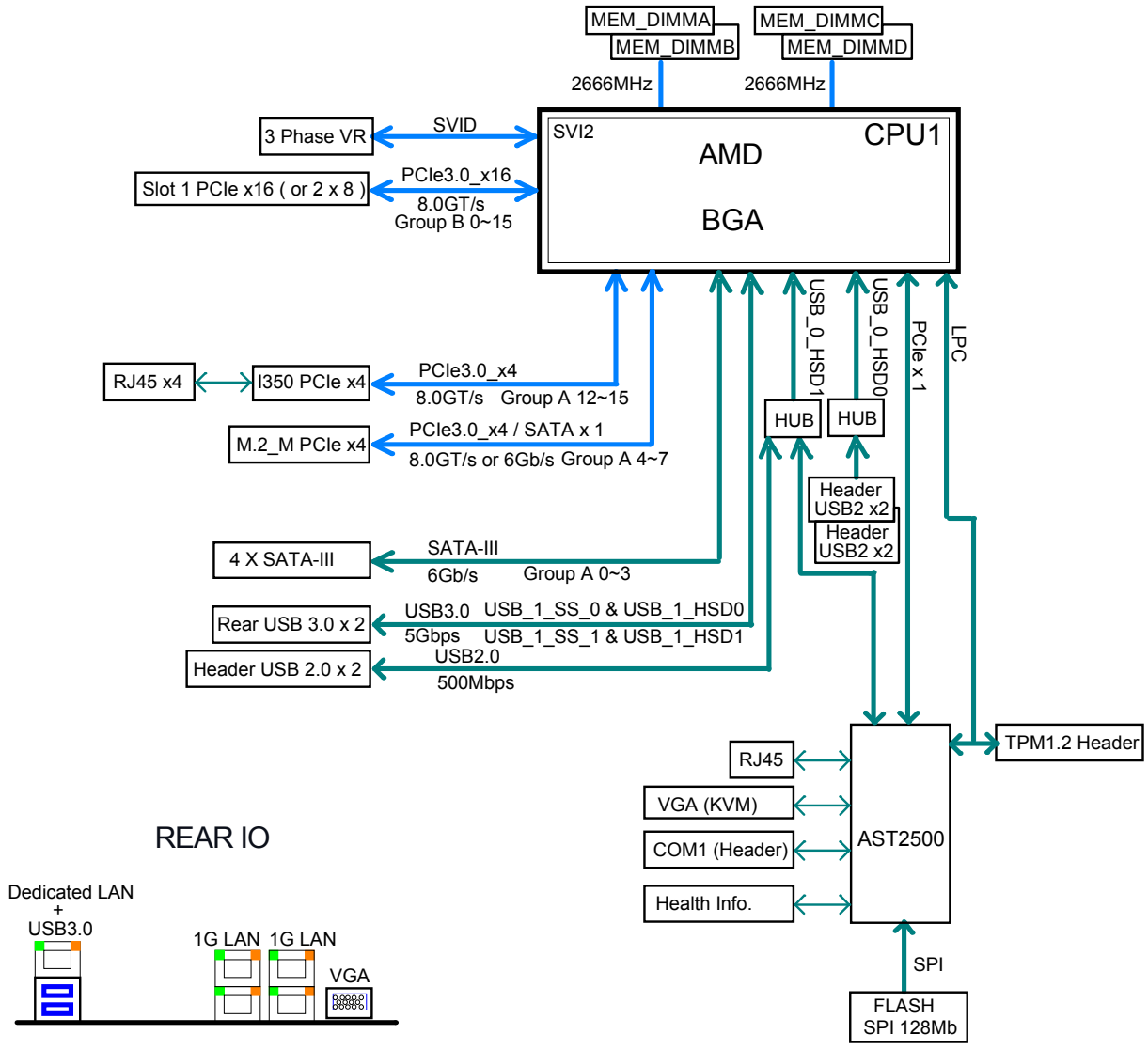
Note: The table above is continued on the next page.

Motherboard Features
BIOS
• 128Mb AMI BIOS® SPI Flash BIOS • UEFI 2.6, ACPI 6.1, PCI FAV 3.0, SMBIOS 3.1, SPI dual/quad speed support, Real Time Clock (RTC) wakeup
Power Management
• ACPI power management • Wake-On-LAN (JWOL) • S5 • Power button override mechanism • Power-on mode for AC power recovery
System Health Monitoring
• Onboard voltage monitors for Vcore, Vmem, Vsocrun, Vsocdual, +3.3V, +5V, +12V, +3.3V Stby, +5V Stby, VBAT, CPU Temperature, System Temperature, Memory Temperature, Peripheral Temperature, and VRM Temperature • CPU/System overheat control • CPU Thermal Trip support
Fan Control
• Fan status monitoring with firmware • Three (3) 4-pin fan headers with speed control
System Management
• IPMIVIEW, SMCIPMITOOL, IPMICFG • System management via SuperDoctor® 5, Watch Dog • Power supply monitoring • SUM-INBand, SUM-OOB
LED Indicators
• CPU/system overheat LED • Fan failed LED • LAN activity LED • UID LED • Power LED
Other
• RoHS
Dimensions
• Mini-ITX form factor (6.75" x 6.75") (170 mm x 170 mm)

Note 1: For IPMI configuration instructions, please refer to the Embedded IPMI Configuration User's Guide available at http://www.supermicro.com/support/manuals/.

Note 2: If you purchase a Supermicro Out of Band (OOB) software license key (Supermicro P/N: SFT-OOB--LIC), please DO NOT change the IPMI MAC address.

Figure 1-5.
Chipset Block Diagram



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

1.2 Processor Overview

The Supermicro M11SDV-4C/4CT/8C/8CT/8C+-LN4F motherboard supports an AMD EPYC™ 3000 SoC series processor with up to 8 cores and 16 threads per socket. The AMD EPYC™ 3000 upholds optimized performance with NVMe storage, offering up to 512GB of memory, with speed of up to 2666MHz and 50W of power, while offering performance, reliability, and high intelligence. It offers an Intelligent Platform Management Interface (IPMI) feature, IPMI out-of-band, and a power usage effectiveness mode that provides management and monitoring capabilities, as well as a M.2 solid-state drive. As a low-power system-on-a-chip (SoC) motherboard, the M11SDV-4C/4CT/8C/8CT/8C+-LN4F is optimized for a variety of workloads that requires high compute power in a compact form-factor.

The AMD EPYC™ 3000 supports the following features:

- Zen Microarchitecture, 14nm, System on Chip, RAS, Secure Memory Encryption (SME), and Secure Encrypted Virtualization (SEV) for securely isolating hypervisors and virtual machines VMS
- 16MB L3 Cache, up to 8 Core and 16 Thread
- ACPI Power Management Rev. 6.1
- Adaptive Thermal Management/Monitoring
- PCI-E 3.0, SATA 3.0, NVMe

1.3 Special Features

This section describes the health monitoring features of the M11SDV-4C/4CT/8C/8CT/8C+-LN4F motherboard. The motherboard has an onboard System Hardware Monitor chip AST2500 that supports system health monitoring.

Recovery from AC Power Loss

The Basic Input/Ouput System (BIOS) provides a setting that determines how the system will respond when AC power is lost and then restored to the system. You can choose for the system to remain powered off (in which case you must press the power switch to turn it back on), or for it to automatically return to the power-on state. See the Advanced BIOS Setup section for this setting. The default setting is **Last State**.

1.4 System Health Monitoring

This section describes the health monitoring features of the M11SDV-4C/4CT/8C/8CT/8C+-LN4F motherboard. The motherboard has an onboard Baseboard Management Controller (BMC) chip that supports system 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 Control

The system health monitor chip can check the RPM status of a cooling fan. The CPU and chassis fans are controlled by BIOS Thermal Management through the back panel. Refer to the below table for available fan modes to choose the most appropriate one for nominal operation.

Fan Mode	Description
Full Speed	Use this mode to set fan speed at full speed for maximum system cooling
Standard	Use this mode to set fan speed for normal system cooling
Heavy I/O	Use this mode to set fan speed for higher PCI-E add-on card area cooling
Optimal	Use this mode to set fan speed for normal PCI-E add-on card area cooling
PUE2	Use this mode to set fan speed for best power efficiency and maximum noise reduction

Environmental Temperature Control

System health sensors monitor temperatures and voltage settings of onboard processors and the system in real time via the IPMI interface. Whenever the temperature of the CPU or the system exceeds a user-defined threshold, system/CPU cooling fans will be turned on to prevent the CPU or the system from overheating.

Note: To avoid possible system overheating, please provide adequate airflow to your system.

System Resource Alert

This feature is available when used with SuperDoctor 5® in the Windows OS or in the Linux environment. SuperDoctor is used to notify the user of certain system events. For example, you can configure SuperDoctor to provide you with warnings when the system temperature, CPU temperatures, voltages and fan speeds go beyond a predefined range.

1.5 ACPI Features

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

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

1.6 Power Supply

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

It is strongly recommended that you use a high quality power supply that meets ATX power supply Specification 2.02 or above. It must also be SSI compliant. (For more information, please refer to the website at http://www.ssiforum.org/). Additionally, in areas where noisy power transmission is present, you may choose to install a line filter to shield the computer from noise. It is recommended that you also install a power surge protector to help avoid problems caused by power surges.



Note: The M11SDV-4C/4CT/8C/8CT/8C+-LN4F motherboard supports either 12V DC in power input or ATX power input. The 12V DC IN power input requires an 8-pin 12V DC IN connection to the JPV1 header. ATX power input requires an 8-pin 12V connections to JPV1 header and PJ1 a 4-pin power connector of an ATX power supply by power cable (24-pin ATX to 4-pin power cable for PJ1, Supermicro P/N: CBL-PWEX-1063). PJ1 allows motherboard control of the 5VStby, power on, power good, and ground signals from the ATX power supply.

Chapter 2

Installation

2.1 Static-Sensitive Devices

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

Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing the board from the antistatic bag.
- Handle the board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the motherboard and peripherals back into their antistatic bags when not in use.
- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the motherboard.
- Use only the correct type of onboard CMOS battery. Do not install the onboard battery upside down to avoid possible explosion.

Unpacking

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

2.2 Motherboard Installation

All motherboards have standard mounting holes to fit different types of chassis. Make sure that the locations of all the mounting holes for both 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. Make sure that the metal standoffs click in or are screwed in tightly.



Phillips Screwdriver (1)

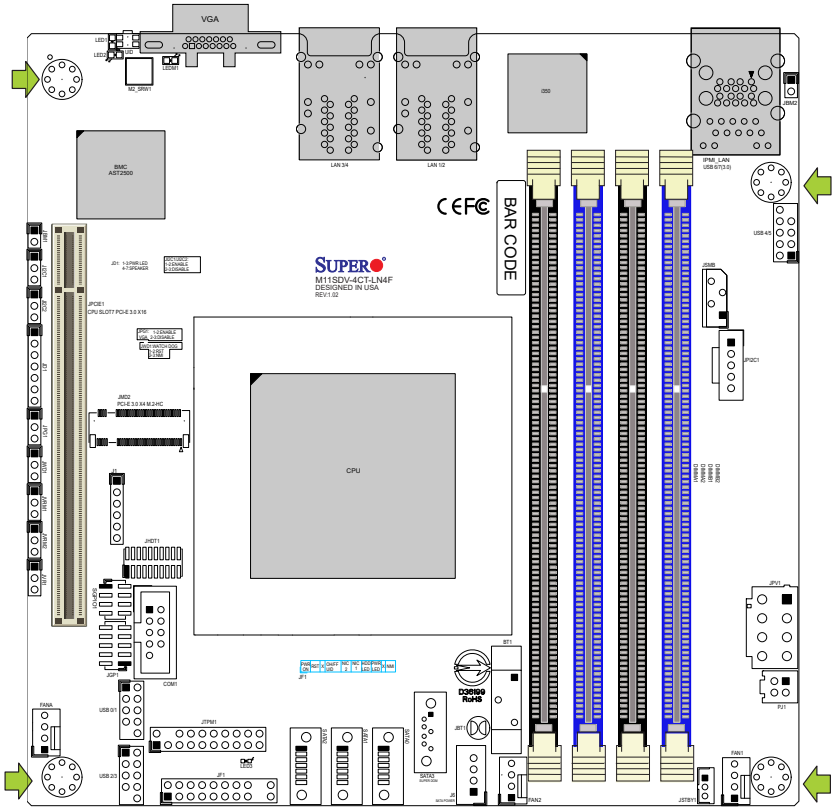


Phillips Screws (4)



Standoffs (4)
Only if Needed

Tools Needed

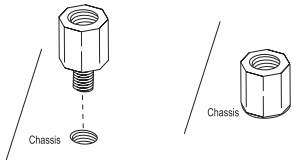


Location of Mounting Holes

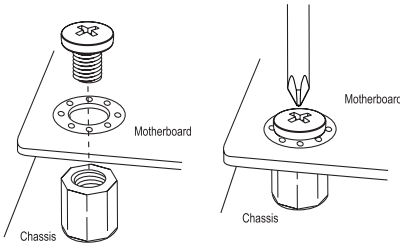
Note: 1) To avoid damaging the motherboard and its components, please do not use a force greater than 8 lb/inch on each mounting screw during motherboard installation. 2) Some components are very close to the mounting holes. Please take precautionary measures to avoid damaging these components when installing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

Installing the Motherboard

1. Locate the mounting holes on the motherboard. See the previous page for the location.



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



3. Install standoffs in the chassis as needed.
4. Install the motherboard into the chassis carefully to avoid damaging other motherboard components.
5. Using the Phillips screwdriver, insert a Phillips head #6 screw into a mounting hole on the motherboard and its matching mounting hole on the chassis.
6. Repeat Step 5 to insert #6 screws into all mounting holes.
7. Make sure that the motherboard is securely placed in the chassis.

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

2.3 Memory Support and Population



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



Note: When the motherboard is populated with 4 modules of 2S4R/4DR DDR4 LRDIMM, the memory speed will operate at 2133MHz.

When the motherboard is fully populated with 4 modules of single rank DDR4 RDIMM, the memory speed will operate at 2133MHz.

When the motherboard is fully populated with 4 modules of 2R/2DR/2S2R/2S4R DDR4 RDIMM, the memory speed will operate at 1866MHz.

When the motherboard is fully populated with 4 modules of single rank DDR4 UDIMM, the memory speed will operate at 2133MHz.

When the motherboard is fully populated with 4 modules of 2R/2DR DDR4 UDIMM, the memory speed will operate at 1866MHz.

Memory Support

The M11SDV-4C/4CT/8C/8CT/8C+-LN4F motherboard supports up to 512GB of ECC/Non ECC RDIMM, UDIMM, and LRDIMM DDR4 memory in four memory slots. Populating these DIMM slots with memory modules of the same type and size will result in interleaved memory, which will improve memory performance.

DIMM Module Population Configuration

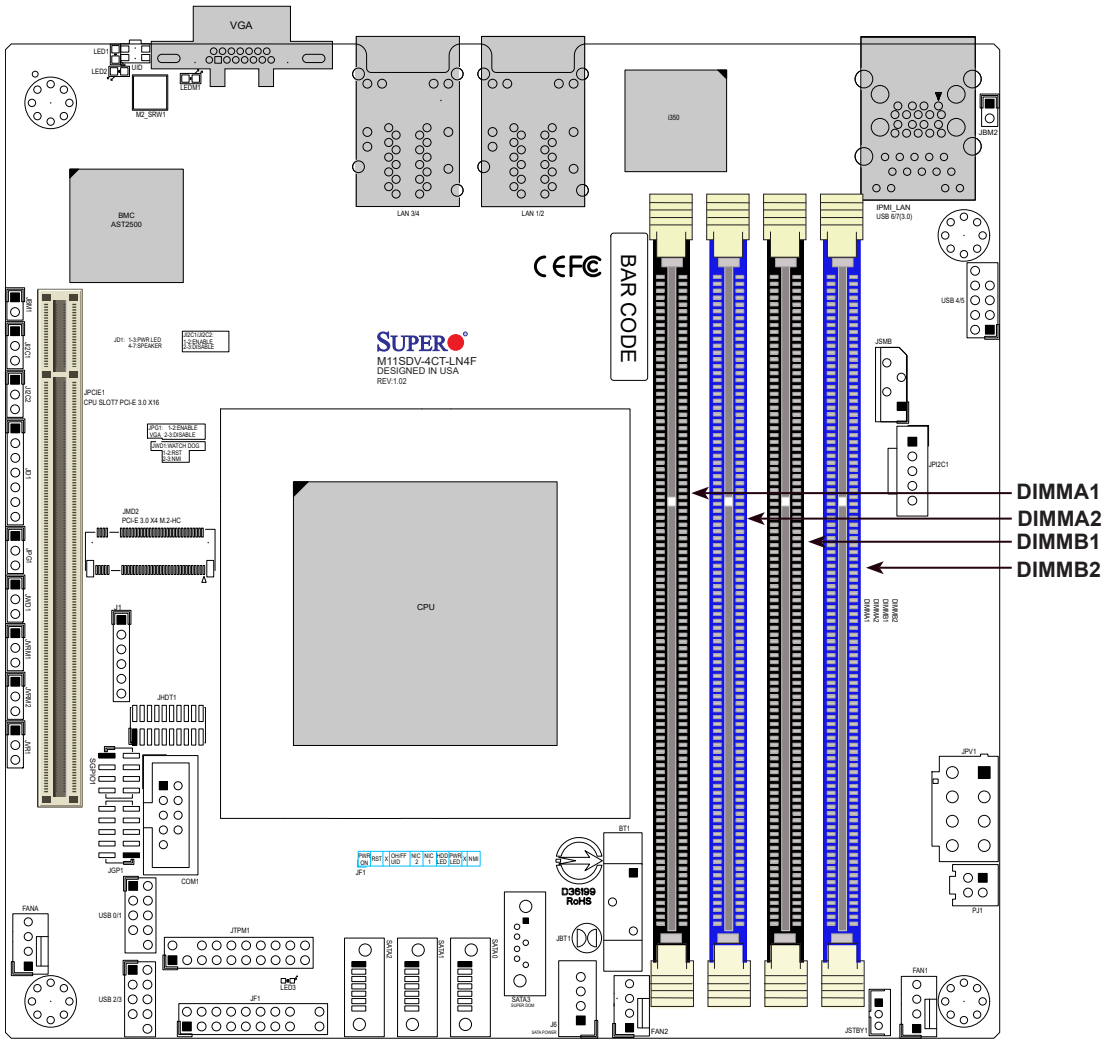
For optimal memory performance, follow the table below when populating memory.

Memory Population (Balanced)				
DIMMA1	**DIMMB1**	**DIMMA2**	**DIMMB2**	**Total System Memory**
		4GB	4GB	8GB
		8GB		8GB
		8GB	8GB	16GB
4GB	4GB	4GB	4GB	16GB
8GB		8GB	8GB	24GB
8GB	8GB	8GB	8GB	32GB
		16GB	16GB	32GB
16GB		16GB	16GB	48GB
16GB	16GB	16GB	16GB	64GB
		32GB	32GB	64GB
32GB		32GB	32GB	96GB
32GB	32GB	32GB	32GB	128GB
		64GB	64GB	128GB
64GB		64GB	64GB	192GB
64GB	64GB	64GB	64GB	256GB
		126GB	126GB	256GB
128GB	128GB	128GB	128GB	512GB

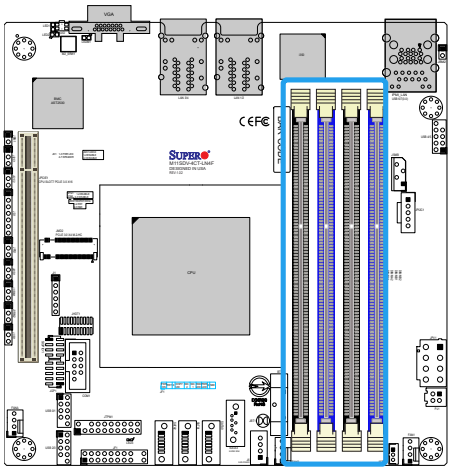
DIMM Module Population Sequence

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

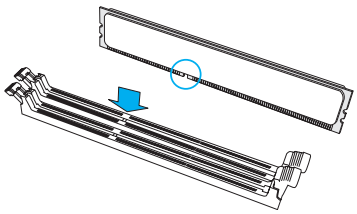
- Always use DDR4 DIMM modules of the same type and speed.
- Mixed DIMM speeds can be installed. However, all DIMMs will run at the speed of the slowest DIMM.
- The motherboard will support odd-numbered modules (one or three modules installed). However, for best memory performance, install DIMM modules in pairs to activate memory interleaving.

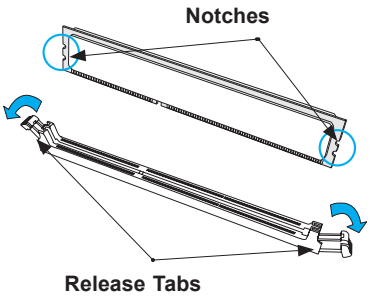


DIMM Installation



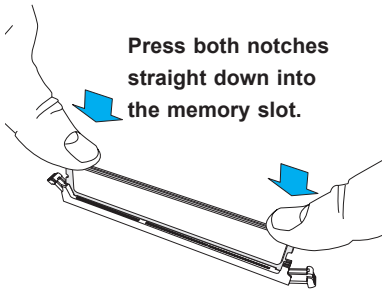
1. Insert the desired number of DIMMs into the memory slots, starting with DIMMA2, DIMMB2, DIMMA1, DIMMB1. For best performance, please use the memory modules of the same type and speed.
2. Push the release tabs outwards on both ends of the DIMM slot to unlock it.
3. Align the key of the DIMM module with the receptive point on the memory slot.
4. Align the notches on both ends of the module against the receptive points on the ends of the slot.
5. Press both ends of the module straight down into the slot until the module snaps into place.
6. Press the release tabs to the lock positions to secure the DIMM module into the slot.





DIMM Removal

Press both release tabs on the ends of the DIMM module to unlock it. Once the DIMM module is loosened, remove it from the memory slot.



2.4 Rear I/O Ports

See Figure 2-1 below for the locations and descriptions of the various I/O ports on the rear of the motherboard.

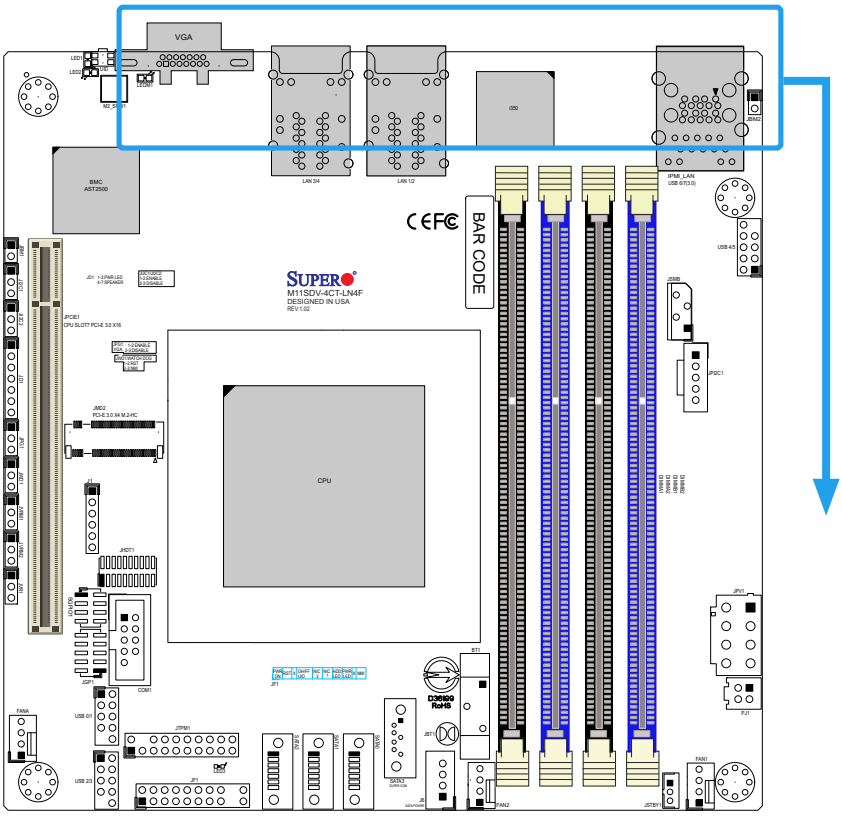
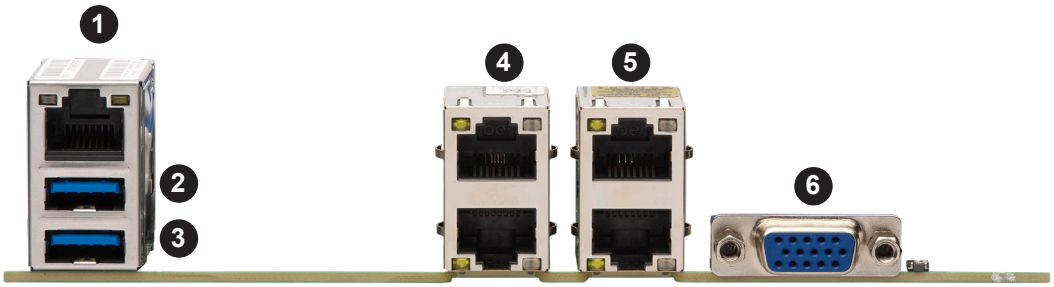


Figure 2-1. I/O Port Locations and Definitions



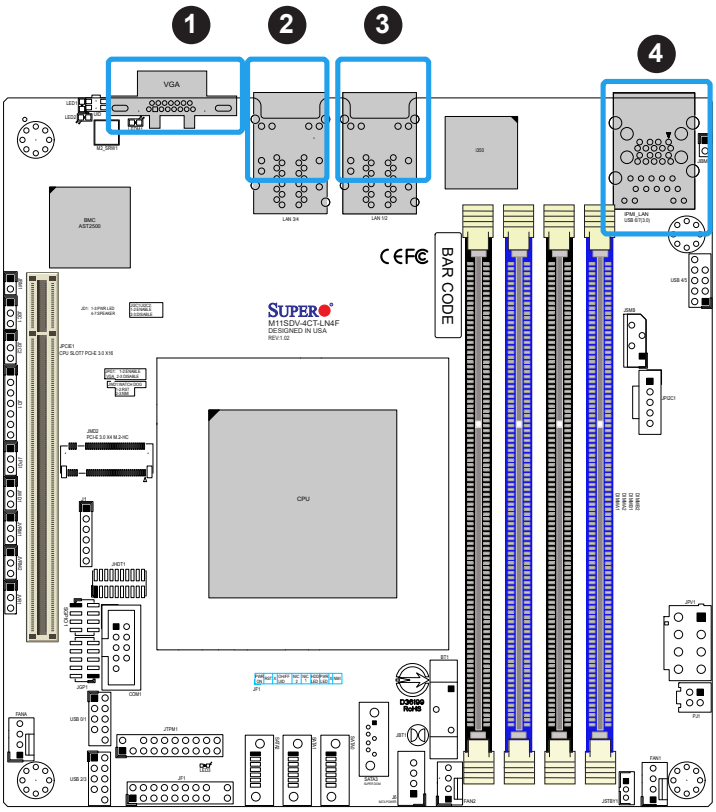
#	Decription	#	Description
1	IPMI_LAN	4	LAN1/2
2	USB7	5	LAN3/4
3	USB6	6	VGA

Video Graphics Array (VGA) Port

A (VGA) video port is located on the I/O back panel. Use this connection for a VGA display.

Local Area Network (LAN) Ports

There are four LAN ports located on the I/O back panel of the motherboard. LAN1 - LAN4 are 1 GbE RJ45 Ethernet ports. The motherboard also offers one IPMI LAN port.



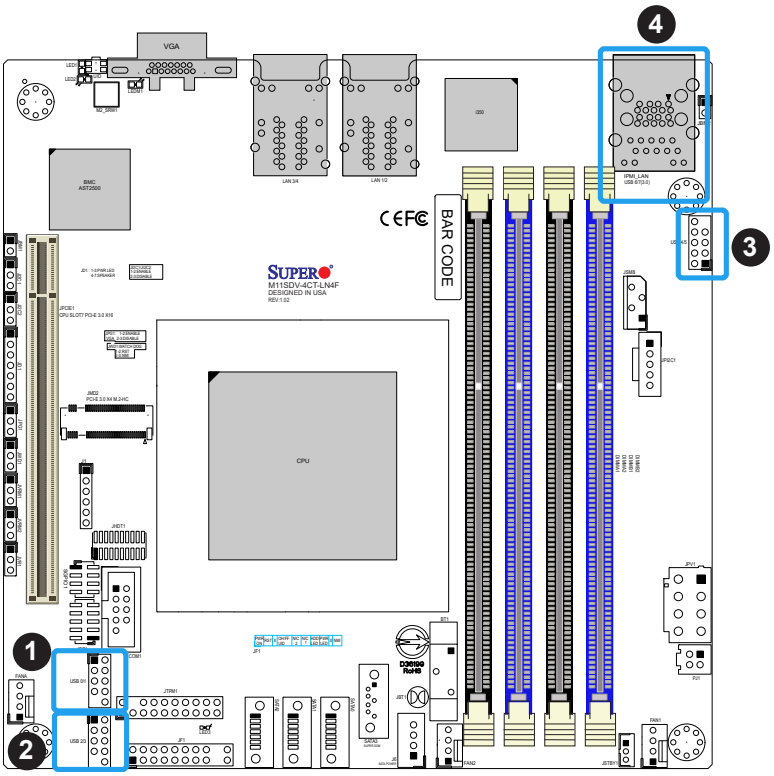
1. VGA Port
2. LAN3/4
3. LAN1/2
4. IPMI LAN

Universal Serial Bus (USB) Ports

There are two (2) USB 3.0 ports (USB6/7) on the I/O back panel. The motherboard also has six (6) USB 2.0 headers that provide six (6) USB 2.0 ports (USB0/1, USB2/3, USB4/5). The onboard header can be used to provide front side USB access with a cable (not included).

Front Panel USB 0/1, USB 2/3, USB 4/5 (2.0) Pin Definitions

Pin#	Definition	Pin#	Definition
1	+5V	2	+5V
3	USB_N	4	USB_N
5	USB_P	6	USB_P
7	Ground	8	Ground
9	Key	10	Ground



1. USB0/1
2. USB2/3
3. USB4/5
4. USB6/7

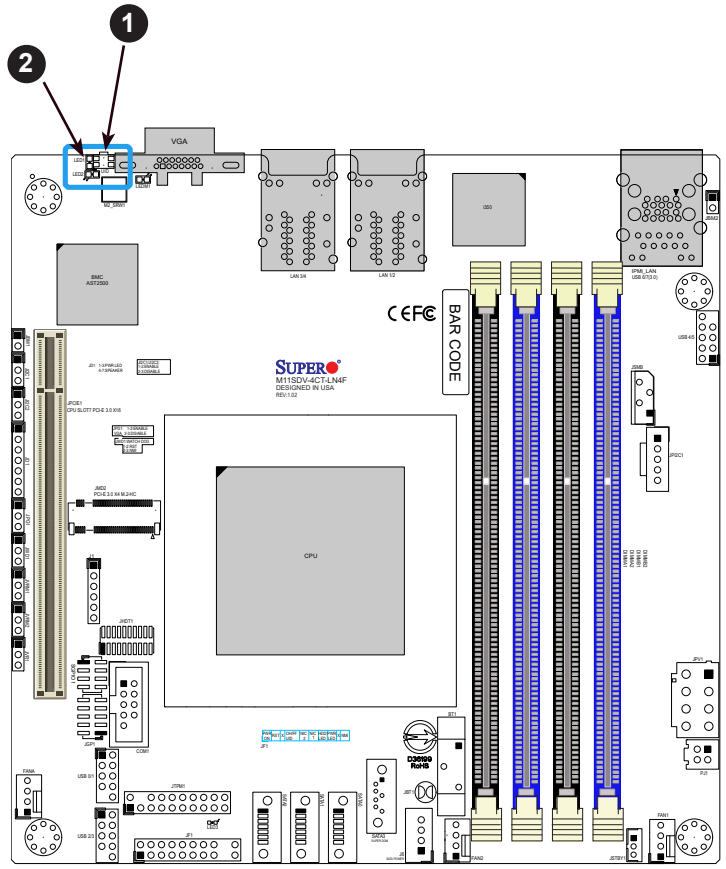
Unit Identifier Switch/UID LED Indicator

A Unit Identifier (UID) switch and an LED indicator are located on the motherboard. The UID switch is located next to the VGA port on the back panel. The UID LED is located at LED1, next to the UID switch. When you press the UID switch, the UID LED will be turned on. Press the UID switch again to turn off the LED indicator. The LED indicator provides easy identification of a system unit that may be in need of service.

Note: UID can also be triggered via IPMI on the motherboard. For more information on IPMI, please refer to the IPMI User's Guide posted on our website at https://www.supermicro.com/support/manuals/.

UID Switch Pin Definitions	
Pin#	**Definition**
1	Ground
2	Ground
3	Button In
4	Button In

UID LED Pin Definitions	
Color	**Status**
Blue: On	Unit Identified



1. UID Switch
2. UID LED (LED1)

2.5 Front Control Panel

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

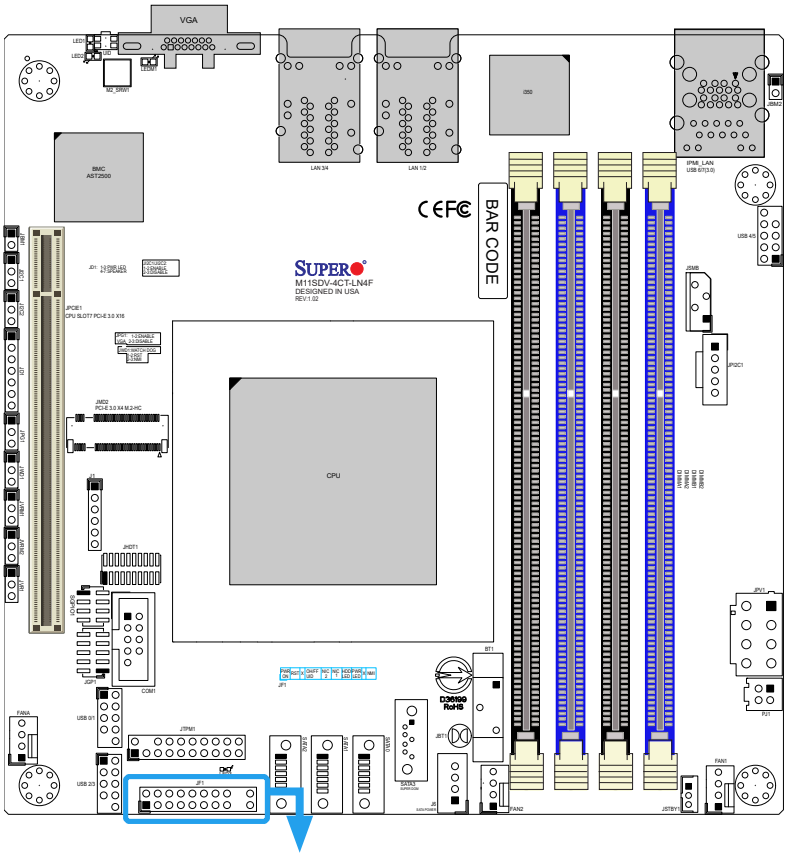
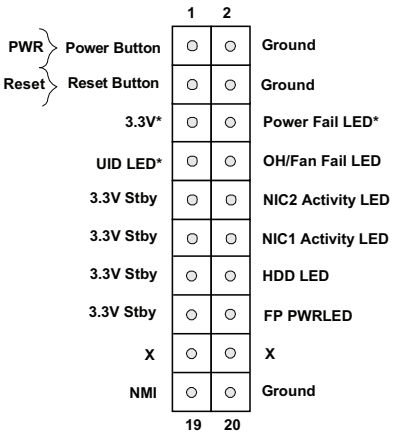


Figure 2-2. JF1 Header Pins



Power Button

The Power Button connection is located on pins 1 and 2 of JF1. Momentarily contacting both pins will power on/off the system. This button can also be configured to function as a suspend button (with a setting in the BIOS - see Chapter 4). To turn off the power when the system is in suspend mode, press the button for 4 seconds or longer. Refer to the table below for pin definitions.

Power Button Pin Definitions (JF1)

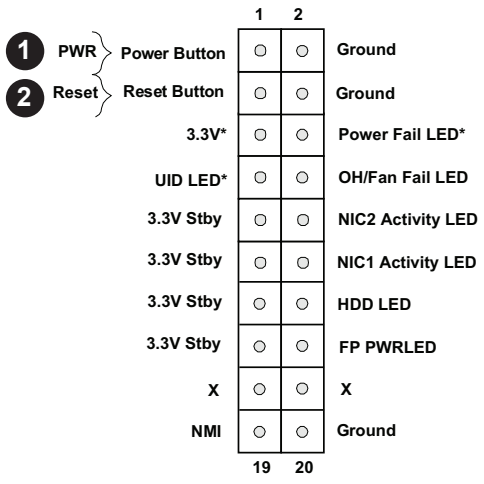
Pin#	Definition
1	Power On
2	Ground

Reset Button

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

Reset Button Pin Definitions (JF1)

Pin#	Definition
3	Reset
4	Ground



1. PWR Button
2. Reset Button

Overheat (OH)/Fan Fail/PWR Fail LED

Connect an LED cable to pins 7 and 8 to use the Overheat (OH)/Fan Fail/PWR Fail LED connections. The LED on pin 8 provides warnings of overheat, fan failure, or power failure. Refer to the tables below for pin definitions.

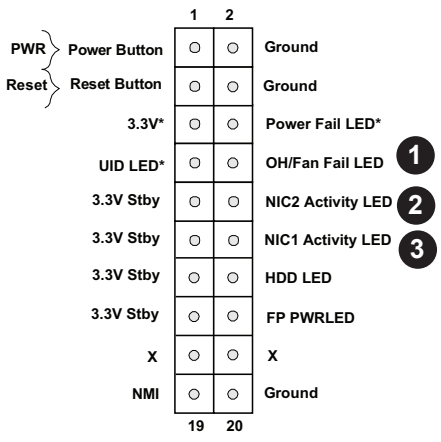
OH/Fan Fail Indicator Status	
State	**Definition**
Off	Normal
On	Overheat
Flashing	Fan Fail/PWR Fail

OH/Fan Fail LED Pin Definitions (JF1)	
Pin#	**Definition**
7	Blue UID LED
8	OH/Fan Fail/PWR Fail LED

LAN1/LAN2 Activity LED

The LAN LED connection for LAN port 1 is located on pins 11 and 12 of JF1, and the LED connection for LAN port 2 is on pins 9 and 10. Attach the NIC LED cables here to display network activity. Refer to the table below for pin definitions.

LAN1/LAN2 LED Pin Definitions (JF1)	
Pin#	**Definition**
9	+3.3 Stby
10	LAN2 Activity LED
11	+3.3 Stby
12	LAN1 Activity LED



1. OH/Fan Fail/PWR Fail LED
2. NIC2 Activity LED
3. NIC1 Activity LED

HDD LED

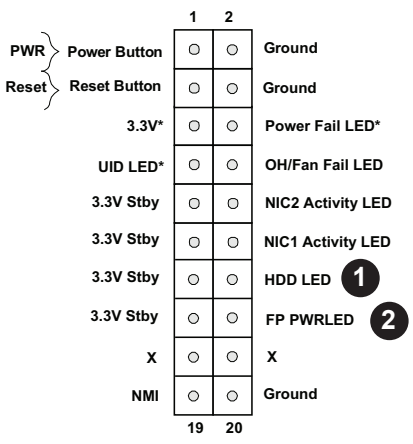
The HDD LED connection is located on pins 13 and 14 of JF1. Attach a cable to show the hard drive activity status. Refer to the table below for pin definitions.

HDD LED Pin Definitions (JF1)	
Pin#	**Definition**
13	3.3V Stdby
14	HDD LED

Power LED

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

Power LED Pin Definitions (JF1)	
Pin#	**Definition**
15	3.3V
16	PWR LED

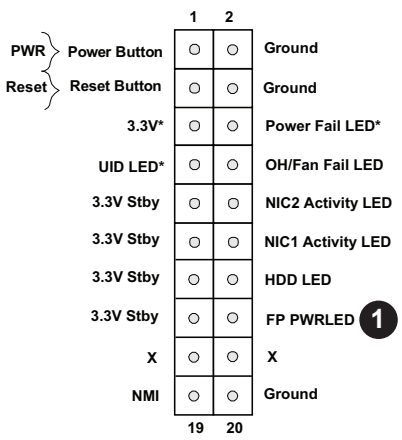


1. HDD LED
2. PWR LED

Power Fail LED

Connect an LED cable to Power Fail connections on pins 5 and 6 of JF1 to provide warnings for a power failure. Refer to the table below for pin definitions.

OH/Fan Fail Indicator Status	
Pin #	Definition
5	3.3V
6	PWR Fail LED



1. Power Fail LED

2.6 Connectors and Headers

Power Connections

Main ATX Power Supply Connector

JPV1 is the 12V DC power connector, a required input for either ATX or 12V DC power source. In addition, when using ATX power, PJ1 is a necessary connection to the 24-pin ATX power header from the PSU via PN: CBL-PWEX-1063. Refer to instructions in section 1.6.

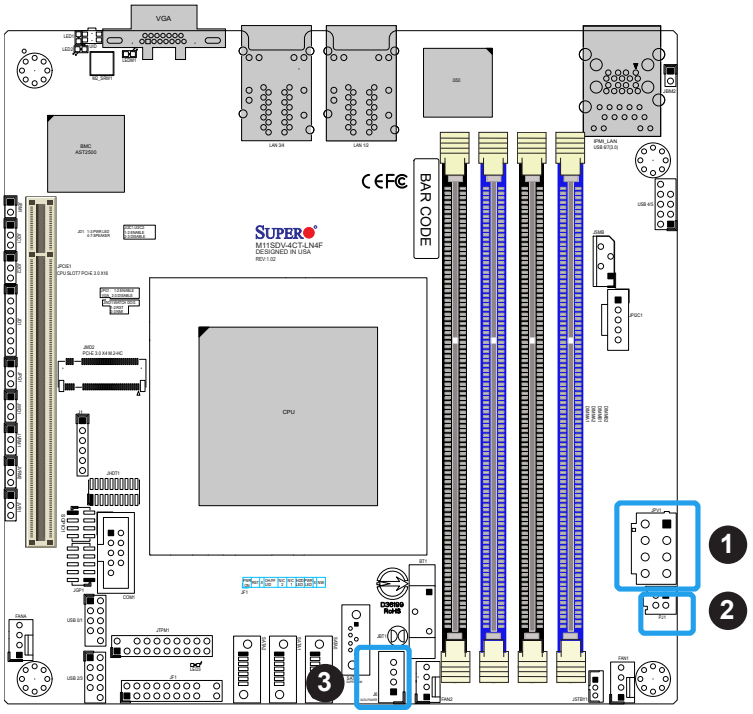
8-pin 12V Power (JPV1) Pin Definitions	
Pins	**Definition**
1 - 4	Ground
5 - 8	+12V

4-pin to ATX Power Signal (PJ1) Pin Definitions	
Pin#	**Definition**
1	PWR_OK
2	GND
3	5VSB
4	PS_ON

HDD Power Connector

J6 is a 4-pin power connector for HDD use. It provides power from the motherboard to the onboard HDD.

4-pin HDD Power Pin Definitions	
Pin#	**Definition**
1	12V
2-3	GND
4	5V



1. 8-Pin 12V ATX Power
2. 4-pin to ATX Power Connector
3. 4-pin HDD Power Connector

Headers

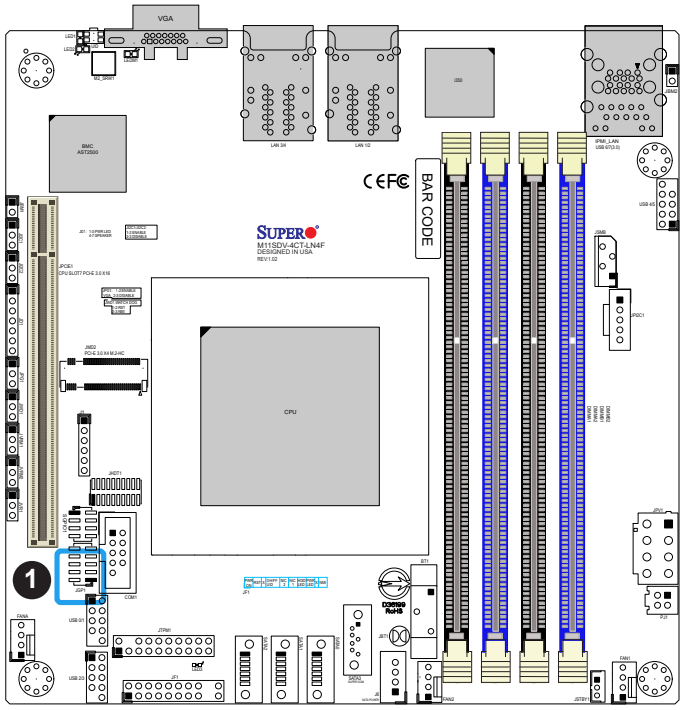
General Purpose I/O Header

The JGP1 (General Purpose Input/Output) header is a general purpose I/O expander on a pin header via the SMBus. Refer to the table below for pin definitions.

JGP1 Header Pin Definitions

Pin#	Definition
1	3.3V Stdby
2	Ground
3	GP0
4	GP1
5	GP2
6	GP3
7	GP4
8	GP5
9	GP6
10	GP7

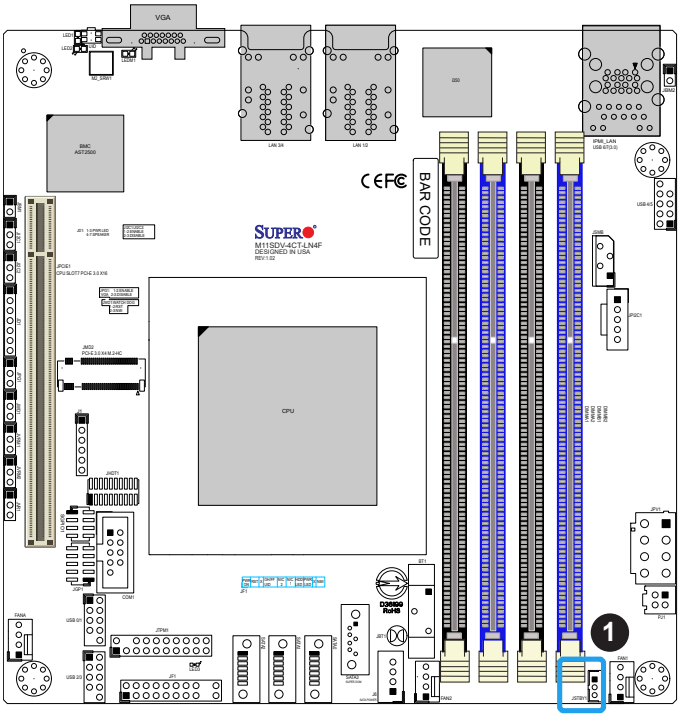
1. General Purpose I/O Header



Standby Power

The Standby Power header is located at JSTBY1 on the motherboard. Refer to the table below for pin definitions.

Standby Power Pin Definitions	
Pin#	**Definition**
1	+5V Standby
2	Ground
3	No Connection



1. Standby Power

Fan Headers

The M11SDV-4C/4CT/8C/8CT/8C+-LN4F has three 4-pin fan headers (FAN1, FAN2, FANA). These headers are backwards-compatible with the traditional 3-pin fans. This motherboard supports dual cooling zone. (Zone1:FAN1/2, Zone2:FANA). Fan speed control is available for 4-pin fans only by Thermal Management via the IPMI 2.0 interface. Refer to the table below for pin definitions.

Fan Header Pin Definitions

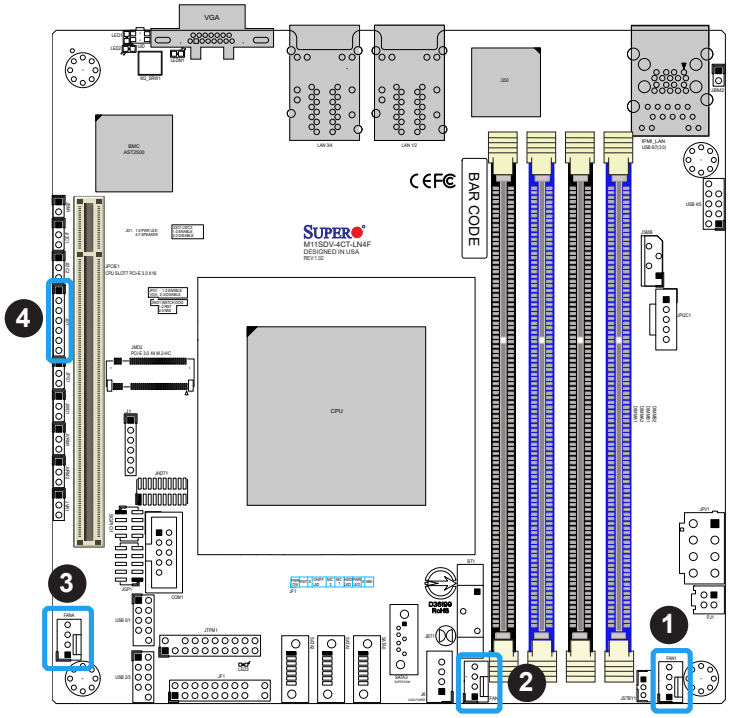
Pin#	Definition
1	Ground (Black)
2	2.5A/+12V (Red)
3	Tachometer
4	PWM_Control

Speaker Header

On the JD1 header, pins 4-7 are for the external speaker.

Speaker Connector Pin Definitions

Pin#	Definition
1	3.3V
2	PWR_LED_IN
3	PWR_LED_IN
4	+5V
5	NC
6	NC
7	SPK_IN



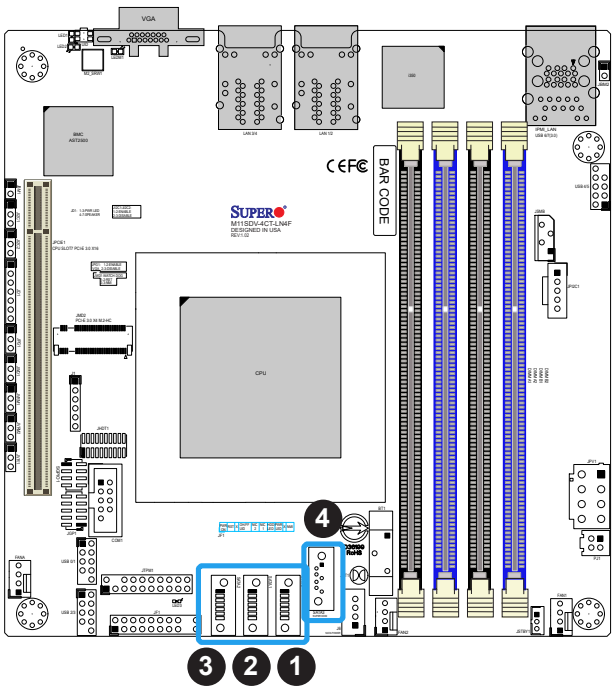
1. FAN1
2. FAN2
3. FANA
4. Speaker Header

SATA Ports

Four SATA 3.0 connectors (SATA0-4), supported by the AMD EPYC™ 3000 chipset, are located on the M11SDV-4C/4CT/8C/8CT/8C+-LN4F motherboard. Refer to the tables below for pin definitions.

SATA 3.0 Port Pin Definitions

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



1. SATA0
2. SATA1
3. SATA2
4. SATA3

System Management Bus Header

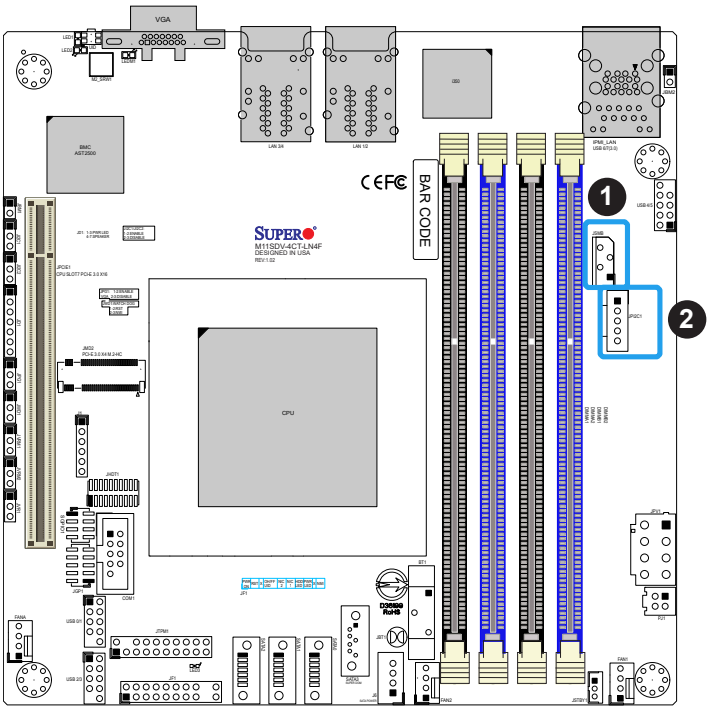
A System Management Bus header for additional slave devices or sensors is located at JSMB. See the table below for pin definitions.

SMBus Header Pin Definitions	
Pin#	**Definition**
1	Data
2	Ground
3	Clock
4	NC

Power SMB (I²C) Header

The Power System Management Bus (I²C) connector (JPI²C1) monitors the power supply, fan, and system temperatures. Refer to the table below for pin definitions.

Power SMB Header Pin Definitions	
Pin#	**Definition**
1	Clock
2	Data
3	PWRFAIL_N
4	Ground
5	NC



1. SMBus Header
2. Power SMB I²C

M.2 Slot

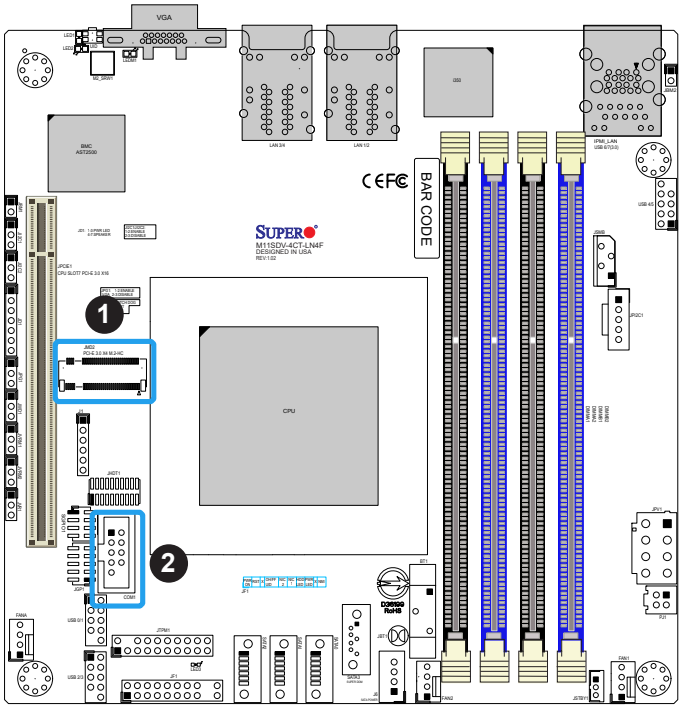
M.2 is formerly known as Next Generation Form Factor (NGFF) and is designed for internal mounting devices. The M11SDV-4C/4CT/8C/8CT/8C+-LN4F board has one M.2 connector at JMD2. Interfaces are PCIEx4 and SATA 3.0.

COM Header

The motherboard has one COM port header (COM1) to provide a serial connection.

COM Port Pin Definitions

Pin#	Definition	Pin#	Definition
1	SP_DCDA	6	SP_DSRA
2	SP_RXDA	7	SP_RTSA
3	SP_TXDA	8	SP_CTSA
4	SP_DTRA	9	SP_RIA
5	GND	10	NC



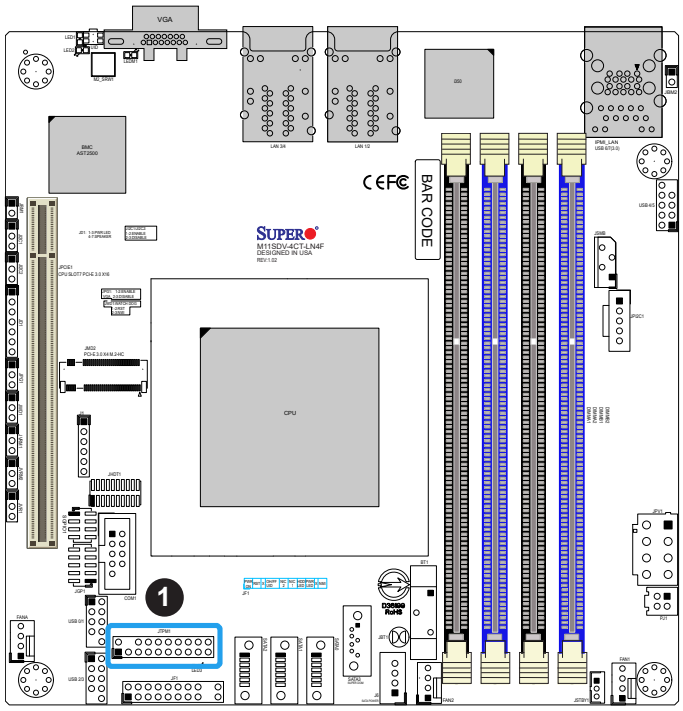
1. M.2 Connector JMD2
2. COM1

TPM/Port 80 Header

The JTPM1 header is used to connect a Trusted Platform Module (TPM). A TPM is a security device that supports encryption and authentication in hard drives. It enables the motherboard to deny access if the TPM associated with the hard drive is not installed in the system. Refer to the table below for pin definitions.

Trusted Platform Module Header Pin Definitions

Pin#	Definition	Pin#	Definition
1	LCLK	2	GND1
3	LFRAME#	4	No Pin
5	LRESET#	6	+5V/NC
7	LAD3	8	LAD2
9	+3.3V	10	LAD1
11	LAD0	12	GND2
13	SMB_CLK	14	SMB_DAT
15	+3.3V_DUAL	16	SERIRQ
17	GND3	18	CLKRUN#/NC
19	LPCPD#	20	LDRQ# (X)



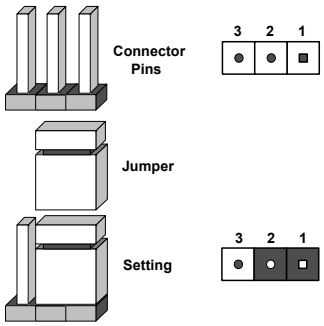
1. TPM Header

2.7 Jumper Settings

How Jumpers Work

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 below 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 the pins and Open means the jumper is off.



CMOS Clear

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

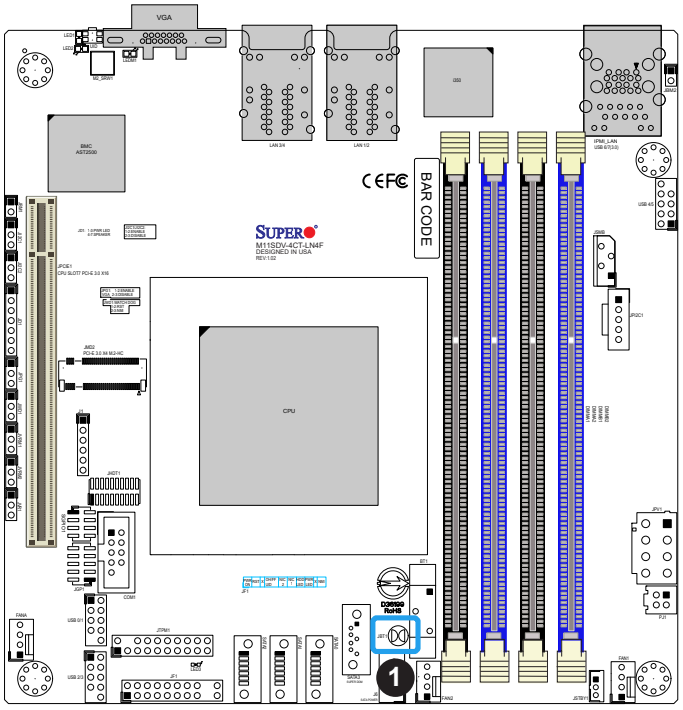
To Clear CMOS:

1. First power down the system and unplug the power cord(s).
2. Remove the cover of the chassis to access the motherboard.
3. Remove the onboard battery and the external CMOS battery installed on J18.
4. Short the CMOS pads with a metal object such as a small screwdriver for at least four seconds.
5. Remove the screwdriver (or shorting device).
6. Install the batteries, the cover, reconnect the power cord(s), and power on the system.

Note: Clearing CMOS will also clear all passwords.



JBT1 contact pads

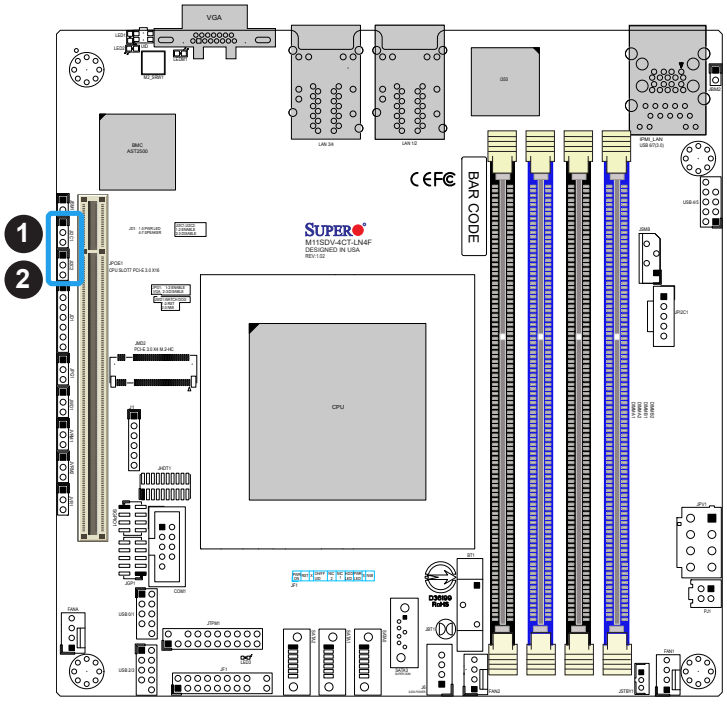


1. CMOS Clear

SMBus to PCI-E Slots

Jumpers JI2C1 and JI2C2 allow you to connect the System Management Bus (I2C) to the PCI-E slots. Both jumpers must be set to the same setting (JI2C1 controls the clock and JI2C2 controls the data). The default setting is Disabled. Refer to the table below for more information.

SMBus to PCI-E Slots Jumper Settings	
Jumper Setting	**Definition**
Pins 1-2	Enabled
Pins 2-3	Disabled (Default)

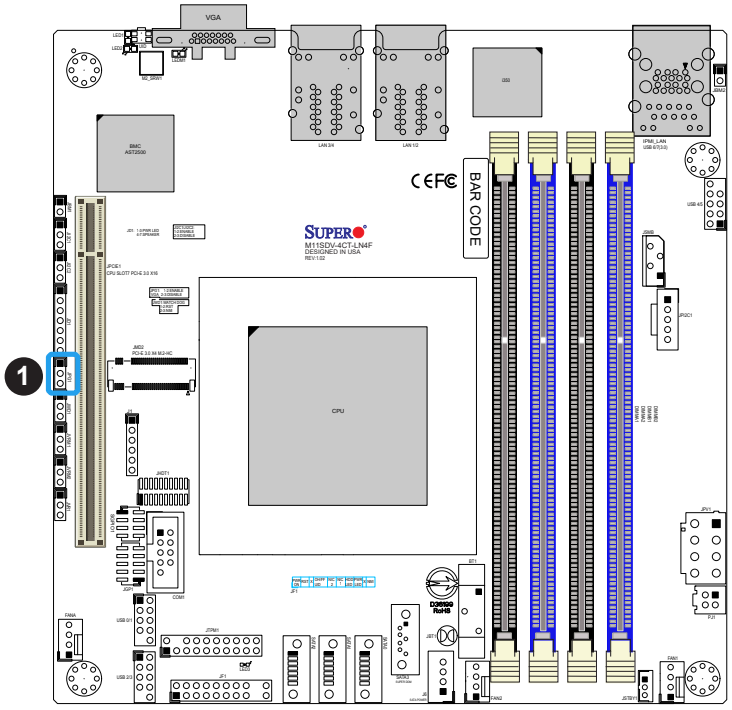


1. JI²C1
2. JI²C2

VGA Enable/Disable

JPG1 allows the user to enable the VGA connector. The default setting is Enabled. Refer to the table below for more information.

VGA Enable/Disable Jumper Settings	
Jumper Setting	**Definition**
Pins 1-2	Enabled (Default)
Pins 2-3	Disabled



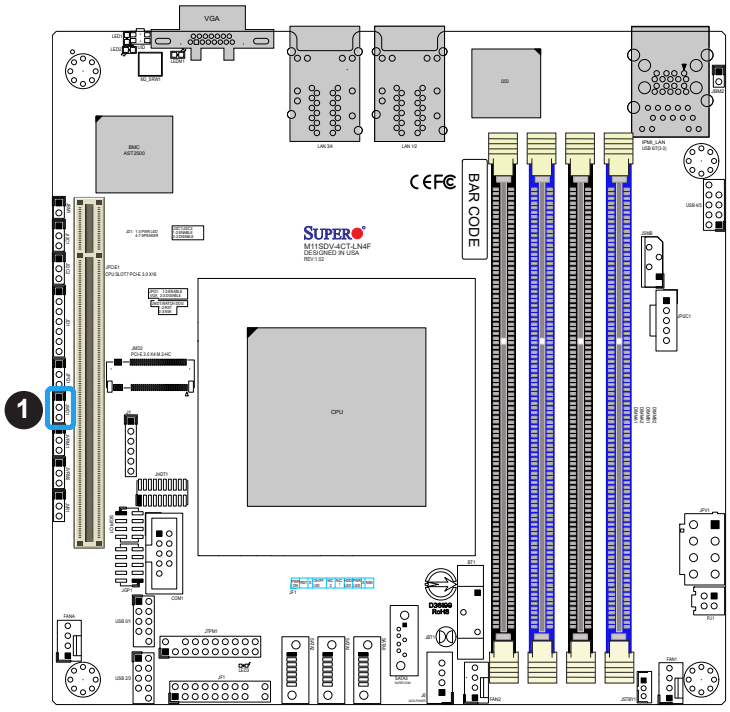
1. VGA Enable

Watch Dog

JWD1 controls the Watch Dog function. Watch Dog is a monitor that can reboot the system when a software application hangs. Jumping pins 1-2 will cause Watch Dog to reset the system if an application hangs. Jumping pins 2-3 will generate a non-maskable interrupt signal for the application that hangs. Watch Dog must also be enabled in BIOS. The default setting is Reset.

Note: When Watch Dog is enabled, users need to write their own application software to disable it.

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



1. Watch Dog Timer

I²C Bus for VRM

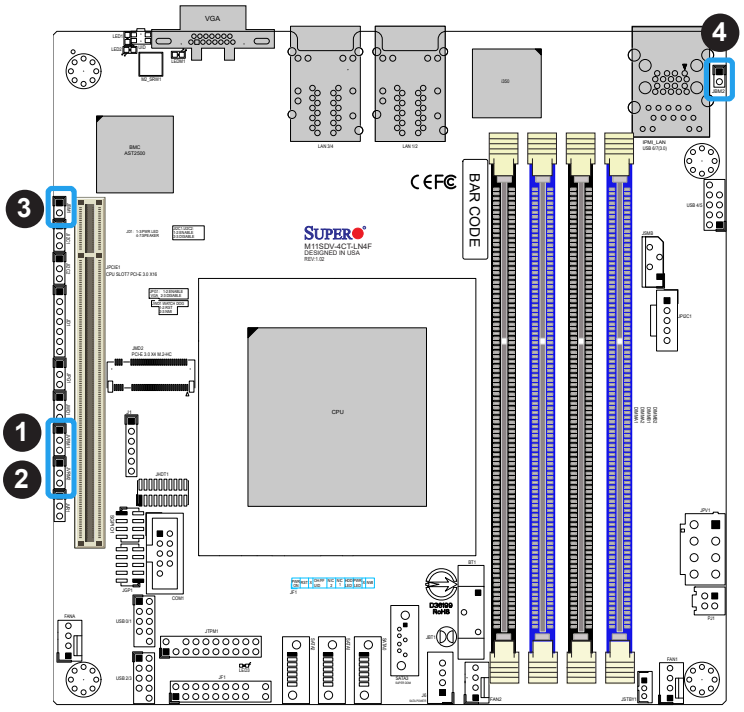
Jumpers JVRM1 and JVRM2 allow the BMC or the PCH to access CPU and memory VRM controllers. Refer to the table below for jumper settings.

VRM Jumper Settings	
Jumper Setting	**Definition**
Pins 1-2	BMC (Normal)
Pins 2-3	PCH

Disable IPMI/Share LAN

Jumpers JBM1 and JBM2 allow Share LAN or IPMI/Share LAN ports to be disabled. Refer to the table below for jumper settings.

LAN Port Enable/Disable Jumper Settings	
Jumper Setting	**Definition**
Pins 1-2	Enabled
Pins 2-3	Disabled



1. VRM SMB Clock
2. VRM SMB Data
3. Disable Share LAN
4. Disable IPMI/Share LAN

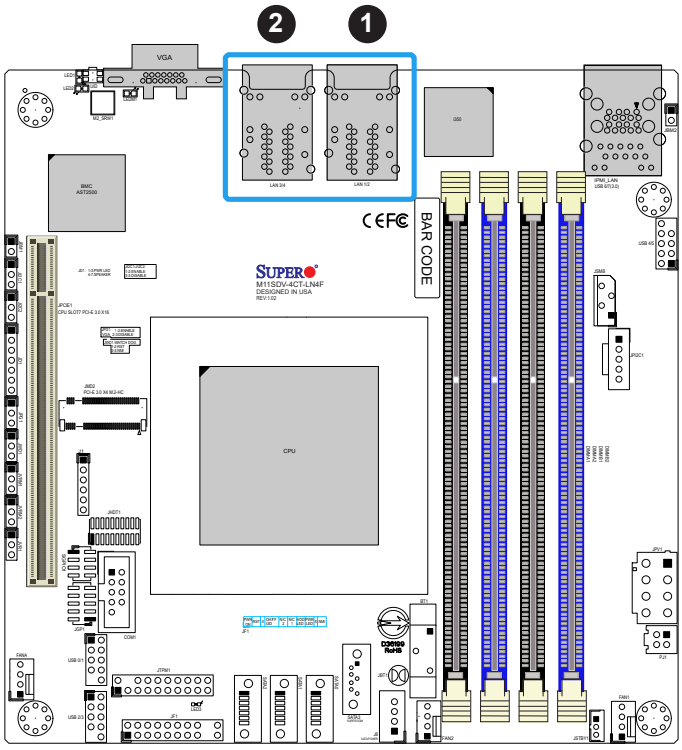
2.8 LED Indicators

LAN LEDs

Four LAN ports (LAN1 - LAN4) are located on the I/O back panel. Each Ethernet LAN port has two LEDs. One LED indicates activity when flashing, while the other Link LED may be green, amber, or off to indicate the speed of the connection. Refer to the tables below for more information.

LAN Activity LEDs (Left) LED State		
Color	**Status**	**Definition**
Yellow	Flashing	Active

LAN Link LEDs (Right) LED State	
LED Color	**Definition**
Off	No Connection
Amber	1 Gbps
Green	100 Mbps



1. LAN1/2 LEDs
2. LAN3/4 LEDs

Power LED

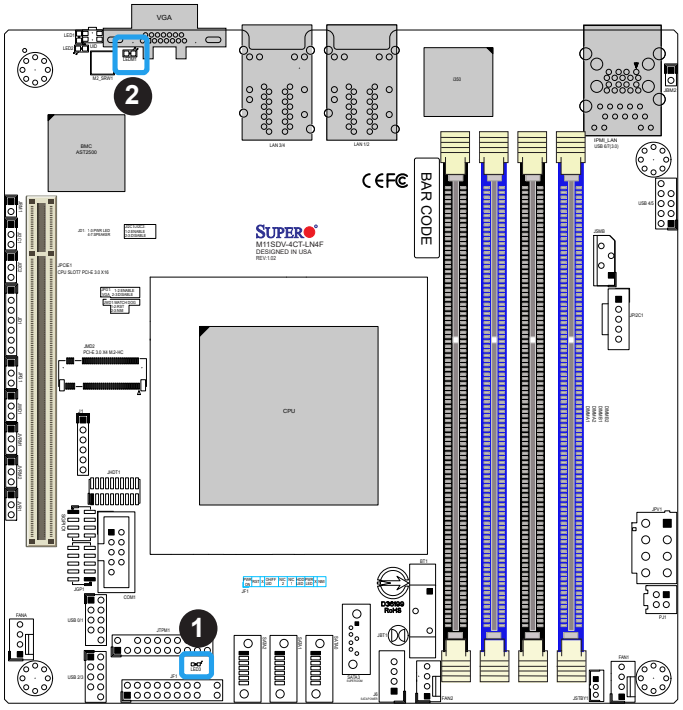
LED3 is an Onboard Power LED. When this LED is lit, it means power is present on the motherboard. In suspend mode, this LED will blink on and off. Be sure to turn off the system and unplug the power cord(s) before removing or installing components. Refer to the table below for the LED status

Onboard Power LED Indicator	
LED Color	**Definition**
Off	System Off (power cable not connected)
Green	System On

BMC Heartbeat LED

LEDM1 is the BMC heartbeat LED. When the LED is blinking green, BMC is working. Refer to the table below for the LED status.

Onboard Power LED Indicator	
LED Color	**Definition**
Blinking Green	BMC Normal

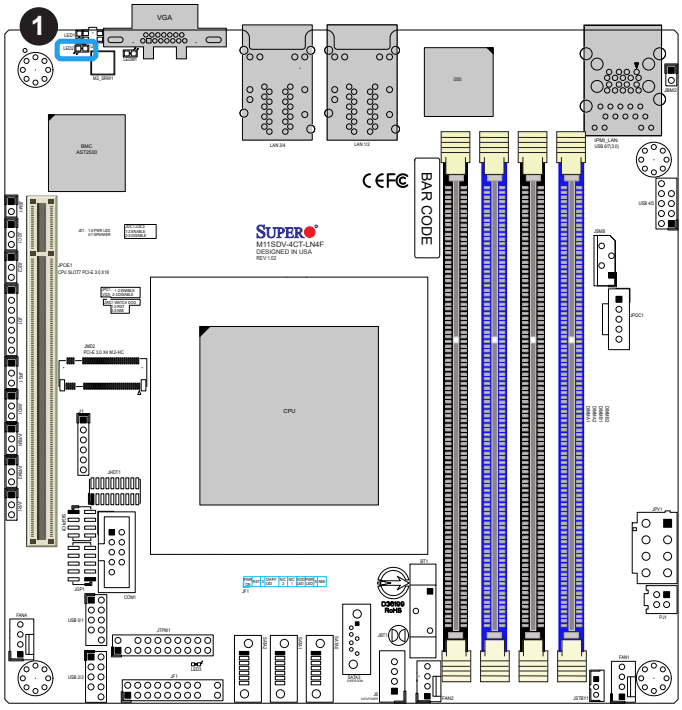


1. Onboard PWR LED
2. BMC Heartbeat LED

Overheat/Power Fail/Fan Fail LED

An Overheat/PWR/Fail/Fan Fail LED is located at LED2. Refer to the table below for the LED status

Overheat/Power Fail/Fan Fail LED Indicator	
LED Color	**Definition**
Solid Red	Overheat
Blinking	PWR Fail or Fan Fail



1. Fan Fail/OH LED (LED2)

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 non hot-swap hardware components.

Before Power On

1. Make sure that there are no short circuits between the motherboard and chassis.
2. Disconnect all ribbon/wire cables from the motherboard, including those for the keyboard and mouse.
3. Remove all add-on cards.
4. Connect the front panel connectors to the motherboard.

No Power

1. Make sure that there are no short circuits between the motherboard and the chassis.
2. Make sure that the 12V DC and/or ATX power connectors are properly connected.
3. Check that the 115V/230V switch, if available, on the power supply is properly set.
4. Turn the power switch on and off to test the system, if applicable.
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

1. If the power is on but you have no video, remove all add-on cards and cables.
2. Use the speaker to determine if any beep codes are present. Refer to Appendix A for details on beep codes.

System Boot Failure

If the system does not display POST or does not respond after the power is turned on, check the following:

1. Check for any error beep from the motherboard speaker.

- If there is no error beep, try to turn on the system without DIMM modules installed. If there is still no error beep, replace the motherboard.
- If there are error beeps, clear the CMOS settings by unplugging the power cord and contacting both pads on the CMOS clear jumper (JBT1). (Refer to Section 2-8 in Chapter 2.)

2. Remove all components from the motherboard, especially the DIMM modules. Make sure that system power is on and that memory error beeps are activated.
3. Turn on the system with only one DIMM module installed. If the system boots, check for bad DIMM modules or slots by following the Memory Errors Troubleshooting procedure in this chapter.

Memory Errors

When a no-memory beep code is issued by the system, check the following:

1. Make sure that the memory modules are compatible with the system and that the DIMMs are properly and fully installed. Click on the Tested Memory List link on the motherboard product page to see a list of supported memory.
2. Check if different speeds of DIMMs have been installed. It is strongly recommended that you use the same RAM type and speed for all DIMMs in the system.
3. Make sure that you are using the correct type of ECC DDR4 RDIMM, UDIMM, and LRDIMM modules recommended by the manufacturer.
4. Check for bad DIMM modules or slots by swapping a single module among all memory slots and check the results.
5. Make sure that all memory modules are fully seated in their slots. Follow the instructions given in Section 2-4 in Chapter 2.
6. Please follow the instructions given in the DIMM population tables listed in Section 2-3 to install your memory modules.

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 2-6 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. If the above steps do not fix the setup configuration problem, contact your vendor for repairs.

When the System Becomes Unstable

A. If the system becomes unstable during or after OS installation, check the following:

1. CPU/BIOS support: Make sure that your CPU is supported and that you have the latest BIOS installed in your system.

2. Memory support: Make sure that the memory modules are supported by testing the modules using memtest86 or a similar utility.

   Note: Click on the Tested Memory List link on the motherboard product page to see a list of supported memory.

3. HDD support: Make sure that all hard disk drives (HDDs) work properly. Replace the bad HDDs with good ones.

4. System cooling: Check the system cooling to make sure that all heatsink fans and CPU/system fans, etc., work properly. Check the hardware monitoring settings in the IPMI to make sure that the CPU and system temperatures are within the normal range. Also check the front panel Overheat LED and make sure that it is not on.

5. Adequate power supply: Make sure that the power supply provides adequate power to the system. Make sure that all power connectors are connected. Please refer to our website for more information on the minimum power requirements.

6. Proper software support: Make sure that the correct drivers are used.

B. If the system becomes unstable before or during OS installation, check the following:

1. Source of installation: Make sure that the devices used for installation are working properly, including boot devices such as CD/DVD.

2. Cable connection: Check to make sure that all cables are connected and working properly.

3. Using the minimum configuration for troubleshooting: Remove all unnecessary components (starting with add-on cards first), and use the minimum configuration (but with the CPU and a memory module installed) to identify the trouble areas. Refer to the steps listed in Section A above for proper troubleshooting procedures.

4. Identifying bad components by isolating them: If necessary, remove a component in question from the chassis, and test it in isolation to make sure that it works properly. Replace a bad component with a good one.

5. Check and change one component at a time instead of changing several items at the same time. This will help isolate and identify the problem.

6. To find out if a component is good, swap this component with a new one to see if the system will work properly. If so, then the old component is bad. You can also install the component in question in another system. If the new system works, the component is good and the old system has problems.

3.2 Technical Support Procedures

Before contacting Technical Support, please take the following steps. Also, please note that as a motherboard manufacturer, Supermicro also sells motherboards through its channels, so it is best to first check with your distributor or reseller for troubleshooting services. They should know of any possible problems with the specific system configuration that was sold to you.

1. Please go through the Troubleshooting Procedures and Frequently Asked Questions (FAQ) sections in this chapter or see the FAQs on our website (http://www.supermicro.com/FAQ/index.php) before contacting Technical Support.
2. BIOS upgrades can be downloaded from our website (http://www.supermicro.com/ResourceApps/BIOS_IPMI_Intel.html).
3. If you still cannot resolve the problem, include the following information when contacting Supermicro 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

4. An example of a Technical Support form is on our website at http://www.supermicro.com/RmaForm/.

- Distributors: For immediate assistance, please have your account number ready when placing a call to our Technical Support department. We can be reached by email at support@supermicro.com.

3.3 Frequently Asked Questions

Question: What type of memory does my motherboard support?

Answer: The motherboard supports up to 512GB of RDIMM, UDIMM, and LRDIMM Non-ECC/ECC DDR4 memory with speeds of up to 2666MHz. To enhance memory performance, do not mix memory modules of different speeds and sizes. Please follow all memory installation instructions given on Section 2-3 in Chapter 2.

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 website at http://www.supermicro.com/ResourceApps/BIOS_IPMI_Intel.html. 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 file to your computer. Also, check the current BIOS revision to make sure that it is newer than your BIOS before downloading. You can choose from the zip file and the .exe file. If you choose the zip BIOS file, unzip the BIOS file onto a bootable USB device. Run the batch file using the format FLASH.BAT filename.rom from your bootable USB device to flash the BIOS. Then your system will automatically reboot.

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

Note: The SPI BIOS chip used on this motherboard cannot be removed. Send your motherboard back to our RMA Department at Supermicro for repair. For BIOS Recovery instructions, please refer to the AMI BIOS Recovery Instructions posted at http://www.supermicro.com/support/manuals/.

3.4 Battery Removal and Installation

Battery Removal

To remove the onboard battery, follow the steps below:

1. Power off your system and unplug your power cable.
2. Locate the onboard battery as shown below.
3. Using a tool such as a pen or a small screwdriver, push the battery lock outwards to unlock it. Once unlocked, the battery will pop out from the holder.
4. Remove the battery.

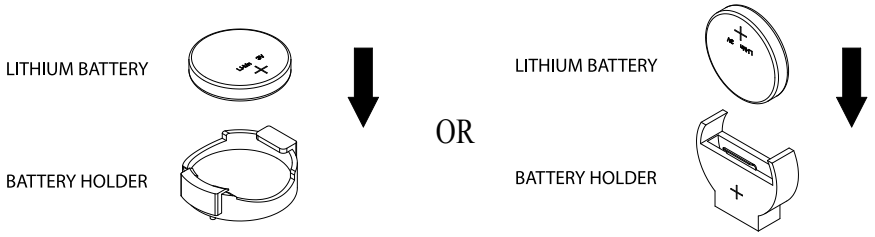
Proper Battery Disposal

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

Battery Installation

1. To install an onboard battery, follow steps 1 and 2 above and continue below:
2. Identify the battery's polarity. The positive (+) side should be facing up.
3. Insert the battery into the battery holder and push it down until you hear a click to ensure that the battery is securely locked.

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



3.5 Returning Merchandise for Service

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

For faster service, RMA authorizations may be requested online (http://www.supermicro.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

UEFI BIOS

4.1 Introduction

This chapter describes the AMIBIOS™ Setup utility for the M11SDV-8C-LN4F motherboard. The BIOS is stored on a chip and can be easily upgraded using a flash program.

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 website for any changes to 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.

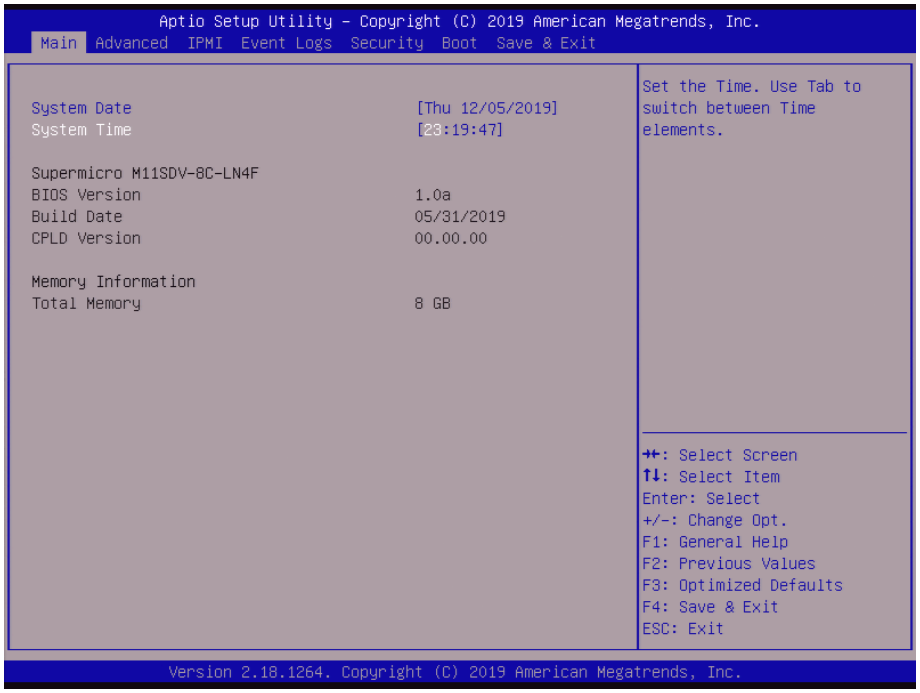
The Main BIOS screen has two main frames. The left frame displays all the options that can be configured. “Grayed-out” options cannot be configured. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is 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 " ▶" 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>, <Enter>, <ESC>, <Arrow> keys, etc.) can be used at any time during the setup navigation process.

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 and the following features will be displayed:



System Date/System Time

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

Note: The time is in the 24-hour format. For example, 5:30 P.M. appears as 17:30:00. The date's default value is the BIOS build date after RTC reset.

Supermicro M11SDV-8C-LN4F

BIOS Version

This feature displays the version of the BIOS ROM used in the system.

Build Date

This feature displays the date when the version of the BIOS ROM used in the system was built.

CPLD Version

This feature displays the CPLD version.

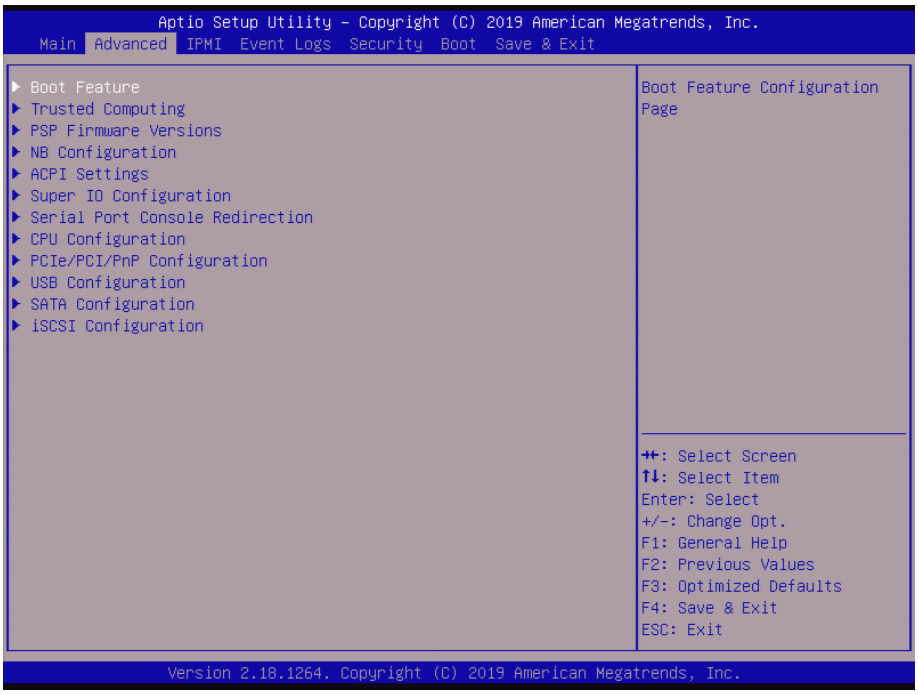
Memory Information

Total Memory

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

4.3 Advanced

Use this menu to configure advanced settings.



Warning: Take caution when changing the Advanced settings. An incorrect value, a very high DRAM frequency or an incorrect BIOS timing setting may cause the system to malfunction. When this occurs, restore to default manufacturer settings.

▶Boot Feature

Quiet Boot

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

Option ROM Messages

Use this feature to set the display mode for the Option ROM. The options are **Force BIOS** and Keep Current.

Bootup NumLock State

Use this feature to set the Power-on state for the Numlock key. The options are Off and **On**.

Wait For "F1" If Error

This feature forces the system to wait until the F1 key is pressed if an error occurs. The options are Disabled and **Enabled**.

INT19 Trap Response

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

Re-try Boot

If this feature is enabled, the BIOS will automatically reboot the system from a specified boot device after its initial boot failure. The options are **Disabled,** Legacy Boot, and EFI Boot.

Power Configuration

Watch Dog Function

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

Restore on AC Power Loss

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

Power Button Function

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

RTC Wake system from S5

Use this feature to set a specified system wake time for an alarm event in HH:MM:SS format. If Enabled, Wake up hour/minute/second will appear. The system will wake on the specified time. The options are **Disabled** and Enabled.

▶Trusted Computing

This motherboard supports TPM 1.2 and 2.0. The following TPM information will display if a TPM 2.0 module is detected:

- Firmware Version
- Vendor Name

Security Device Support

If this feature and the TPM jumper on the motherboard are both set to Enable, onboard security devices will be enabled for TPM (Trusted Platform Module) support to enhance data integrity and network security. Please reboot the system for a change on this setting to take effect. The options are Disable and **Enable**.

- Active PCR Bank
- Available PCR Bank

If a TPM is installed and the feature above is set to Enable, "SHA-1 PCR Bank", "SHA256 PCR Bank", and additional settings will become available for configuration:

SHA-1 PCR Bank

Use this feature to disable or enable the SHA-1 Platform Configuration Register (PCR) bank for the installed TPM device. The options are Disabled and **Enabled**.

SHA256 PCR Bank

Use this feature to disable or enable the SHA256 Platform Configuration Register (PCR) bank for the installed TPM device. The options are Disabled and **Enabled**.

Pending operation

Use this feature to schedule a TPM-related operation to be performed by a security device for system data integrity. Your system will reboot to carry out a pending TPM operation. The options are **None** and TPM Clear.

Platform Hierarchy

Use this feature to disable or enable platform hierarchy for platform protection. The options are Disabled and **Enabled**.

Storage Hierarchy

Use this feature to disable or enable storage hieararchy for cryptographic protection. The options are Disabled and **Enabled**.

Endorsement Hierarchy

Use this feature to disable or enable endorsement hierarchy for privacy control. The options are Disabled and **Enabled**.

Device Select

Use this feature to select the TPM version. TPM 1.2 will restrict support to TPM 1.2 devices. TPM 2.0 will restrict support for TPM 2.0 devices. Select Auto to enable support for both versions with the default setting set to TPM 2.0 devices, if not found TPM 1.2 devices will be enumerated. The options are TPM 1.2, TPM 2.0, and **Auto**.

▶PSP Firmware Versions

The following PSP Firmware Versions will display:

- PSP Directory Level 1 (Fixed)
- PSP Recovery BL Ver: FF.7.0.67
- SMU FW Version: 4.25.113.0
- ABL Version: 18041810
- APCB Version: 0029
- APOB Version: 0011
- APPB Version: 0001
- PSP Direcotry Level 2 (Updateable)
- PSP Bootlander Version: 0.7.0.69
- SMU FW Version: 4.25.113.0
- ABL Version: 18041810
- APCB Verison: 0029
- APOB Verison: 0011
- APPB Version: 0001

▶North Bridge Configuration

Determinism Slider

Use this feature to select the performance determinism settings. The options are **Auto**, Power, and Performance.

cTDP Control

Use this feature to set the TDP consumption. The options are **Auto** and Manual.

IOMMU

This feature allows the user to configure the I/O Memory Management Unit to enhance memory mapping capabilities. The options are **Disabled**, Enabled, and Auto.

ACS Enable

This setting controls the ACS Enable feature. The options are Enable, Disabled, and **Auto**.

▶Memory Configuration

Memory Clock

Use this feature to select a different Memory Clock. The options are **Auto**, 1333MHz, 1600MHz, 1866MHz, 2133MHz, 2400MHz, and 2666MHz.

Memory Interleaving

Use this feature to control fabric level memory interleaving. If set to Channel, Die, or Socket, there will be requirements on memory populations and will be ignored if the memory does not support the selected option. The options are None, Channel, Die, Socket, and **Auto.**

Memory Interleaving Size

This feature controls the memory interleaving size. Select the appropriate value to determine the starting address of the interleave. The options are 256 Bytes, 512 Bytes, 1 KB, 2 KB, and **Auto**.

Chipselect Interleaving

Use this feature to interleave memory blocks across the DRAM chip selects for node 0. The options are Disabled and **Auto**.

BankGroupSwap

The BankGroupSwap feature helps to determine how applications are attributed physical locations. The options are Enabled, Disabled, and **Auto**.

▶CPU1 Memory Information

The following CPU1 Memory Information will display:

- DIMMA1: Size 0 MB, Speed 0 MT/s
- DIMMA2: Size 0 MB, Speed 0 MT/s
- DIMMB1: Size 0 MB, Speed 0 MT/s
- DIMMB2: Size 8192 MB, Speed 2133 MT/s

▶ACPI Settings

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

High Precision Event Timer

Select Enabled to activate the High Precision 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 Disabled and **Enabled**.

▶Super IO Configuration

Super IO Chip AST2500

▶Serial Port 1 Configuration

Serial Port

Select Enabled to enable the onboard serial port specified by the user. The options are **Enabled** and Disabled. Enable this feature for the Device Settings and Change Settings options to display.

Device Settings

This feature displays the base I/O port address and the Interrupt Request address of a serial port specified by the user.

Change Settings

This feature specifies the base I/O port address and the Interrupt Request address of Serial Port 1. Select **Auto** for the BIOS to automatically assign the base I/O and IRQ address to a serial port specified. The options are **Auto**, (IO=3F8h; IRQ=4), (IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12), (IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12); (IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12), and (IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12).

▶SOL Configuration

SOL (Serial Over LAN)

This feature will enable Serial Port 1 (COM1). The options are Disabled and **Enabled**.

Device Settings IO=2F8h; IRQ=3

Change SOL Settings

This feature specifies the base I/O port address and the Interrupt Request address of a serial port specified by the user. Select Auto to allow the BIOS to automatically assign the base I/O and IRQ address. The options are **Auto**, (IO=2F8h; IRQ=3;), (IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12), (IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12); (IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12), and (IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12).

▶Serial Port Console Redirection

COM1

Console Redirection

Select Enabled to enable COM Port 1 for Console Redirection, which will allow a client machine to be connected to a host machine at a remote site for networking. The options are **Disabled** and Enabled.

If the feature above is set to Enabled, the following features will become available for configuration:

▶Console Redirection Settings

Use this feature to specify how the host computer and remote computer exchange data. Both computers should contain the same or compatible settings to function.

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 VT100, **VT100+**, VT-UTF8, and ANSI.

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 and **8**.

Parity

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

Stop Bits

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

Flow Control

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

VT-UTF8 Combo Key Support

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

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**.

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.

SOL

Console Redirection

Use this feature to enable or disable Console Redirection. This will allow a client machine to be connected to a host machine at a remote site for networking. The options are Disabled and **Enabled**.

▶Console Redirection Settings

Use this feature to specify how the host computer and remote computer exchange data. Both computers should contain the same or compatible settings to function.

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 VT100, **VT100+**, VT-UTF8, and ANSI.

SOL 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).

SOL Data Bits

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

SOL 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.

SOL 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.

SOL Flow Control

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

SOL VT-UTF8 Combo Key Support

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

SOL 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.

SOL Resolution 100x31

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

SOL 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.

Legacy Console Redirection

▶Legacy Console Redirection Settings

Legacy Serial Redirection Port

Use this feature to select a COM port to display redirection of Legacy OS and Legacy OPROM Messages. The options are **COM1** and SOL.

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.

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.

EMS (Emergency Management Services) Console Redirection

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

If the feature above is set to Enabled, the following features are available for configuration:

▶Console Redirection Settings

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 Mgmt Port

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

Terminal Type

Use this feature 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 VT100, VT100+, **VT-UTF8,** and ANSI.

Bits per second

This feature 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

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

Data Bits

Parity

Stop Bits

▶CPU Configuration

SMT Mode

Select Auto to support simultaeous multithreading. The options are Off and **Auto**.

Cores Performance Boost

Use this feature to disable Core Performance Boost. The options are Disabled and **Auto**.

Global C-state Control

Enabling this setting allows the hardware to control the IO based C-state genertion and DF c-states. The options are Disabled, Enabled, and **Auto**.

Downcore Control

Use this feature to enable or disable cores. Downcore control sets the number of cores to be used. Note that once this feature has been used to remove any number of cores, a POWER CYCLE is neccessary for future selections to be valid. The options are TWO (1+1), TWO (2+0), THREE (3+0), FOUR (2+2), FOUR (4+0), SIX (3+3), and **AUTO**.

L1 Stream HW Prefetcher

This feature enables or disables the L1 Stream HW Prefetcher. The options are Disable, Enable, and **Auto**.

L2 Stream HW Prefetcher

Use this feature to enable or disable L2 Stream HW Prefetcher. The options are Disable, Enable, and **Auto**.

SVM Mode

This feature supports CPU virtualization through the AMD EPYC Secure Virtual Machine (SVM). The options are Disabled and **Enabled**.

▶CPU Information

The following CPU Information will display:

- AMD EPYC 3251 8-Core Processor
- 8 Cores 16 Threads
- Running @ 2500 MHz, 1500 mV
- Processor Family: 17h
- Processor Model: 00h-0Fh
- Microcode Patch Level: 8001227

The following information will display below Cache per Core:

- L1 Instruction Cache: 64 KB/4-way
- L1 Data Cache: 32 KB/8-way
- L2 Cache: 512 KB/8-way
- L3 Cache per Socket: 16 MB/16-way

▶PCIe/PCI/PnP Configuration

The following information will display:

- PCI Bus Driver Version
- PCI Devices Common Settings:

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 Disabled and **Enabled**.

SR-IOV Support

Use this feature to enable or disable Single Root IO Virtualization Support. The options are **Disabled** and Enabled.

PCIe Spread Spectrum

Use this feature to vary the frequency of EMI. The options are Enable and **Disable**.

Target Link Speed

This feature allows the user, if set to (Force to X.X GT/s) for Downstream Ports, to establish an upper limit on Link operational speeds. This occurs by restricting the amount of values advertised by the Upstream component in training sequences. The options are **Auto**, (Force to 2.5 GT/s), (Force to 5.0 GT/s), (Force to 8.0 GT/s).

VGA Priority

Use this feature to select VGA priority when multiple VGA devices are detected. Select Onboard to give priority to your onboard video device. Select Offboard to give priority to your graphics card. The options are **Onboard** and Offboard.

Note: The default setting for VGA Priority is onboard display. If you want to select Offboard to give priority to your graphics card, please follow the steps below:

BIOS > Advanced > PCIe/PCI/PnP Configuration > VGA Priority > Offboard > CPU SLOT6 PCI-E 3.0 X16 or CPU SLOT6 PCI-E 3.0 X8.

NVMe Firmware Source

Use this feature to select the NVMe firmware to support booting. The options are **Vendor Defined Firmware** and AMI Native Support. The default option, Vendor Firmware, is pre-installed on the drive and may resolve errata or enable innovative functions for the drive. The other option, AMI Native Support, is offered by the BIOS with a generic method.

Note: If you are using a PCIe NVMe SSD as a boot device, configure the following BIOS steps below:

1. Enable AMI Native Support in the Advanced > NVME Firmware Source menu.

2. After the installation is complete, enable Boot Option 1 for the NVMe device. Go to Boot > UEFI Hard Disk Drive BBS Priorities > Boot Option # 1 > NVMe device.

3. Boot > Boot Option #1 > NVMe device.

M.2 (AHCI) Firmware Source

Use this feature to configure the M.2 (AHCI) Firmware Source. The options are **Vendor Defined Firmware** and AMI Native Support.

CPU SLOT7 PCI-E 3.0 X16 OPROM

Use this feature to select which option for the add-on card in this slot. The options are Disabled, **Legacy**, and EFI.

M.2 PCI-E 3.0 X4 OPROM

Use this feature to select which option for the add-on card in this slot. The options are Disabled, **Legacy**, and EFI.

Onboard LAN Option ROM Type

Use this feature to select which option for onboard LAN devices. The options are **Legacy** and EFI. Select Legacy to display and configure the Onboard LAN1 ~ LAN8 Option ROM features.

Onboard LAN1 Option ROM

Use this feature to select which option for LAN Port 1 used for system boot. The options are Disabled, **PXE**, and iSCSI.

Onboard LAN2 ~ LAN4 Option ROM

Use this feature to select which option for the specified LAN ports used for system boot. The options are **Disabled** and PXE.

Onboard Video Option ROM

Use this feature to select the Onboard Video Option ROM type. The options are Disabled, **Legacy,** and EFI.

CPU SLOT7 PCI-E 3.0 X16 Bifurcation

This feature is used to configure the PCIe slot bifucation.The options are **Auto**, x8x8, and x4x4x4x4.

▶Network Stack Configuration

Network Stack

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

If the feature above is set to Enabled, the next six features will be available for configuration:

IPv4 PXE Support

Select Enabled to enable IPv4 PXE boot support. The options are Disabled and **Enabled**.

IPv4 HTTP Support

Select Enabled to enable IPv4 HTTP boot support. The options are **Disabled** and Enabled.

IPv6 PXE Support

Select Enabled to enable IPv6 PXE boot support. The options are **Disabled** and Enabled.

IPv6 HTTP Support

Select Enabled to enable IPv6 HTTP boot support. The options are **Disabled** and Enabled.

PXE Boot Wait Time

Use this feature to specify the wait time to press the ESC key to abort the PXE boot. Press "+" or "-" on your keyboard to change the value. The default setting is **0**.

Media Detect Count

Use this feature to specify the number of times media will be checked. Press "+" or "-" on your keyboard to change the value. The default setting is **1**.

Consistent Device Name Support

Use this feature to enable device name support for onboard devices and slots. The options are **Disabled** and Enabled.

▶USB Configuration

USB Configuration

USB Module Version: 20

USB Controllers: 1 XHCI

USB Devices: 2 Keyboards, 1 Mouse, 3 Hubs

Legacy USB Support

Select Enabled to support onboard legacy USB devices. Select Auto to disable legacy support if there are no legacy USB devices present. Select Disable to have all USB devices available for EFI applications only. The options are **Enabled,** Disabled, and Auto.

XHCI Hand-off

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

USB Mass Storage Driver Support

Select Enabled for USB mass storage device support. The options are Disabled and **Enabled**.

Port 60/64 Emulation

Select Enabled for I/O port 60h/64h emulation support, which in turn, will provide complete legacy USB keyboard support for the operating systems that do not support legacy USB devices. The options are Disabled and **Enabled**.

▶SATA Configuration

When this submenu is selected, the AMI BIOS automatically detects the presence of the SATA devices that are supported by the Intel PCH chip and displays the following features:

SATA Controller

This feature enables or disables the onboard SATA controller supported by the Intel PCH chip. The options are Disable, Enable, and **Auto**.

SATA Hotplug

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

▶SATA Information

Sata Controller (S:00 B:05 D:00 F:02)

The following information will display:

- SATA0: Not Present
- SATA1: Not Present
- SATA2: Not Present
- SATA3: Not Present
- SATA4: Not Present

▶iSCSI Configuration

iSCSI Initiator Name

This feature allows the user to enter the unique name of the iSCSI Initiator in IQN format. Once the name of the iSCSI Initiator is entered into the system, configure the proper settings for the following features.

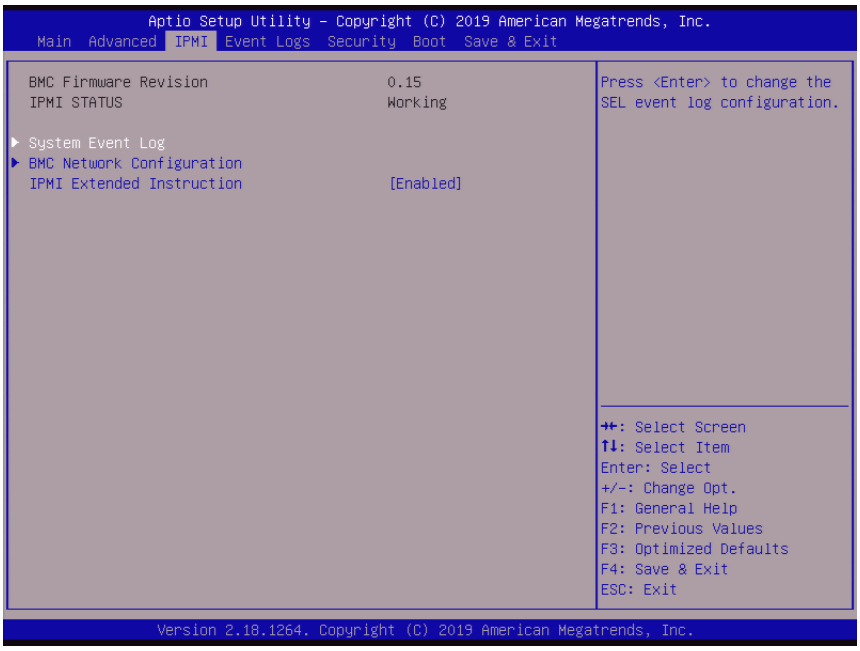
▶Add an Attempt

▶Delete Attempts

▶Change Attempt Order

4.4 IPMI

Use this menu to configure Intelligent Platform Management Interface (IPMI) settings.



BMC Firmware Revision

This feature displays the IPMI firmware revision used in your system.

IPMI STATUS

This feature displays the status of the IPMI firmware installed in your system.

▶System Event Log

Enabling/Disabling Options

SEL Components

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

Erasing Settings

Erase SEL

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

When SEL is Full

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

Note: Reboot the system for the changes to take effect.

▶BMC Network Configuration

BMC network configuration

Update IPMI LAN Configuration

Select Yes for the BIOS to implement all IP/MAC address changes at the next system boot. The options are **No** and Yes.

Configure IPV4 support

IPMI LAN Selection

This feature displays the IPMI LAN setting. The default setting is **Failover**.

IPMI Network Link Status

This feature displays the IPMI Network Link status. The default setting is **No Connect**.

If the setting Update IPMI LAN Configuration above is set to Yes, the Configuration Address Source and VLAN features are available for configuration:

Configuration Address Source

Use this feature to select the source of the IP address for this computer. If Static is selected, you will need to know the IP address of this computer and enter it to the system manually in the field. If DHCP is selected, the BIOS will search for a DHCP (Dynamic Host Configuration Protocol) server in the network that is attached to and request the next available IP address for this computer. The options are **DHCP** and Static.

If the feature above is set to Static, the Station IP Address/Subnet Mask/Gateway IP Address features are available for configuration:

Station IP Address

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

Subnet Mask

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

Gateway IP Address

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

VLAN

This feature is configurable if the Update IPMI LAN Configuration feature is set to Yes. Use this feature to enable or disable the IPMI VLAN function. The options are **Disable** and Enable.

If the feature above is set to Enabled, the VLAN ID feature below is available for configuration:

VLAN ID

Use this feature to select a value for VLAN ID. The default setting is **1**.

Configure IPV6 Support

IPV6 Address Status

IPV6 Support

Use this feature to enable IPV6 support. The options are **Enabled** and Disabled.

Configuration Address Source

Use this feature to select the source of the IP address for this computer. If Static is selected, you will need to know the IP address of this computer and enter it to the system manually in the field. If DHCP is selected, the BIOS will search for a DHCP (Dynamic Host Configuration Protocol) server in the network that is attached to and request the next available IP address for this computer. The options are Static and **DHCP**.

If the feature above is set to Static, the Station IP Address/Prefix Length/IPV6 Router1 IP Address features are available for configuration:

Station IPV6 Address

Use this feature to enter the IPV6 address.

Prefix Length

Use this feature to change the prefix length.

IPV6 Router1 IP Address

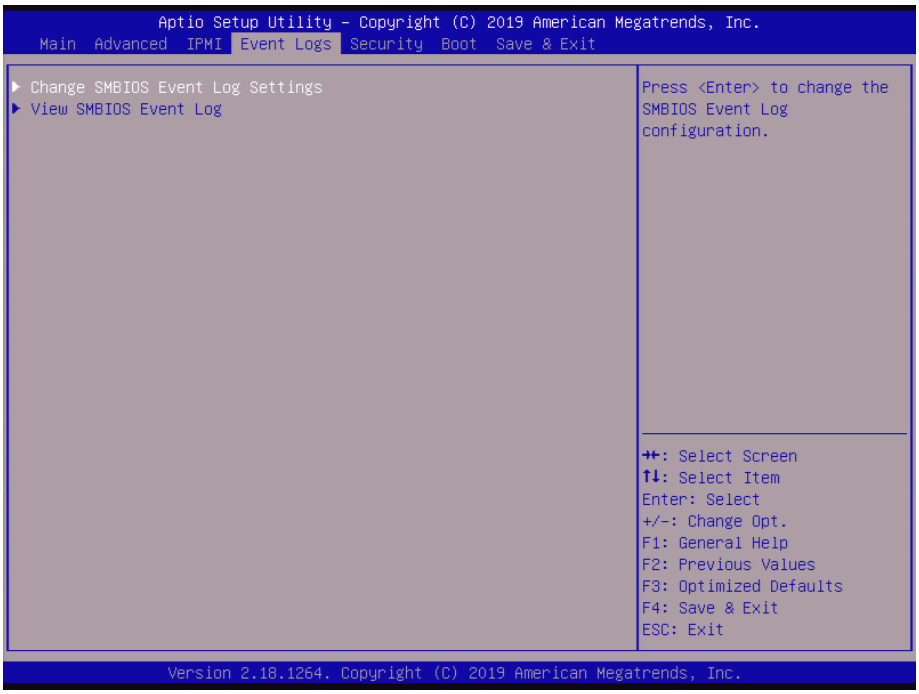
Use this feature to change the IPV6 Router1 IP address.

IPMI Extended Instruction

The options of this feature are **Enabled** and Disabled. When this feature is Disabled, the system powers on quickly by removing BIOS support for IPMI extended instruction features. The boot up time is faster when the option is Disabled. When this feature is disabled, the user cannot use Supermicro Update Manager (SUM) OOB (out of band) to update the BIOS, nor utilize the extended IPMI features such as AOC and PCIe sensor readings, and the BMC network configuration in the BIOS setup is also disabled. The general BMC functions like fan control and motherboard health monitor that offer the basic sensor reading of the CPU, system memory, and some onboard devices still function. The user can use Supermicro IPMI utilities such as IPMICFG and IPMIVIEW for sensor readings and to know what the normal sensor output information is. The user needs to wait for one minute after the system powers on completely to obtain readings from those two sensors.

4.5 Event Logs

Use this menu to configure event log settings.



▶Change SMBIOS Event Log Settings

Enabling/Disabling Options

SMBIOS Event Log

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

Erasing Settings

Erase Event Log

Select Enabled to erase all error events in the SMBIOS (System Management BIOS) log before an event logging is initialized at bootup. The options are **No,** "Yes, Next reset," and "Yes, Every reset."

When Log is Full

Select Erase Immediately to immediately erase all errors in the SMBIOS event log when the event log is full. Select Do Nothing for the system to do nothing when the SMBIOS event log is full. The options are **Do Nothing** and Erase Immediately.

SMBIOS Event Log Standard Settings

Log System Boot Event

Select Enabled to log system boot events. The options are Enabled and **Disabled**.

MECI (Multiple Event Count Increment)

Enter the increment value for the multiple event counter. Enter a number between 1 to 255. The default setting is **1**.

METW (Multiple Event Count Time Window)

This feature is used to determine how long (in minutes) the multiple event counter should wait before generating a new event log. Enter a number between 0 to 99. The default setting is **60**.



Note: Reboot the system for the changes to take effect.

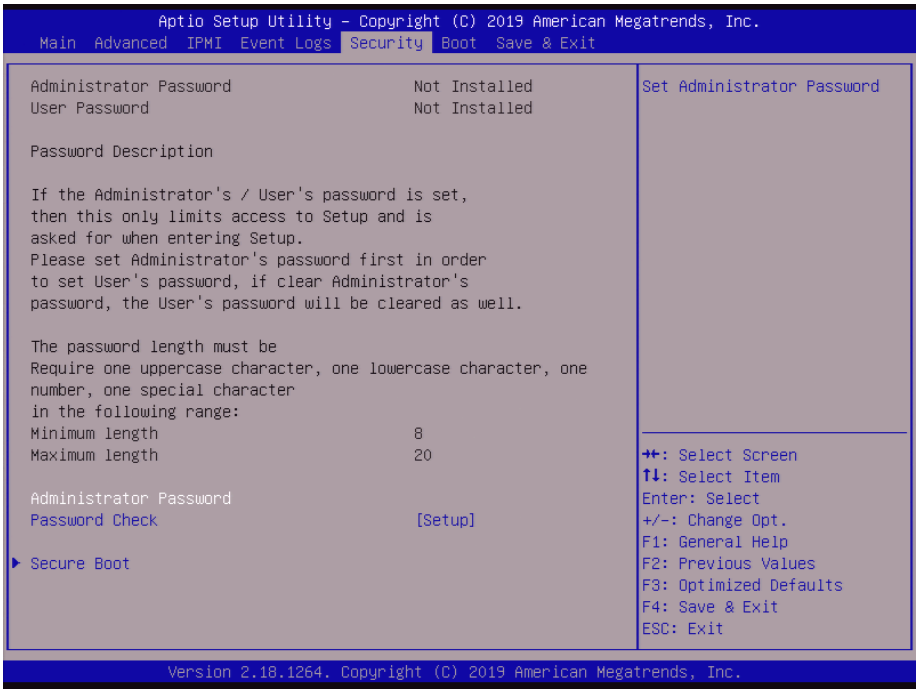
►View SMBIOS Event Log

This feature allows the user to view the event in the SMBIOS event log. The following categories are displayed:

DATE/TIME/ERROR CODE/SEVERITY

4.6 Security

Use this menu to configure the security settings.



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 8 to 20 characters long.

Password Check

Select Setup for the system to check for a password at Setup. Select Always for the system to check for a password at bootup or upon entering the BIOS Setup utility. The options are **Setup** and Always.

▶Secure Boot

System Mode

Secure Boot

Vendor Keys

Attempt Secure Boot

Select Enable for secure boot support to ensure system security at bootup. The options are **Disabled** and Enabled.

Secure Boot Mode

This feature allows the user to select the desired secure boot mode for the system. The options are Standard and **Custom**.

If Secure Boot Mode is set to Custom, Key Management features are available for configuration:

CSM Support

This feature is for manufacturing debugging purposes.

▶Key Management

This submenu allows the user to configure the following Key Management settings.

Provision Factory Defaults

Select Enabled to install the default Secure Boot keys set by the manufacturer. The options are Disabled and **Enabled**.

If the feature above is set to Enabled, the next three features are available for configuration:

▶Install Factory Default Keys

Select Yes to install all factory keys to the default settings. The options are Yes and No.

▶Enroll Efi Image

This feature allows the image to run in Secure Boot mode.

▶Save all Secure Boot variables

Use this feature to copy the NVRAM contents of the secure boot variables to a file.

Secure Boot variable

▶Platform Key (PK)

Details

This feature allows the user to configure the settings of the platform keys.

Set New

Select Set New to load a factory default PK or No to load from a file on an external media.

▶Key Exchange Keys (KEK)

Details

Select this feature to view the details of the KEK.

Set New

Select Yes to load a factory default KEK or No to load from a file on an external media.

Append

Select Yes to add the KEK from the manufacturer's defaults list to the existing KEK. Select No to load the KEK from a file. The options are Yes and No.

▶Authorized Signatures

Details

Select this feature to view the details of the db.

Set New

Select Yes to load a factory default db or No to load from a file on an external media.

Append

Select Yes to add the db from the manufacturer's defaults list to the existing db. Select No to load the db from a file. The options are Yes and No.

▶Forbidden Signatures (dbx)

Details

Select this feature to view the details of the dbx.

Set New

Select Yes to load a factory default dbx or No to load from a file on an external media.

Append

Select Yes to add the dbx from the manufacturer's defaults list to the existing dbx. Select No to load the dbx from a file. The options are Yes and No.

▶Authorized TimeStamps

Details

Select this feature to view the details of the dbt.

Set New

Select Yes to load a factory default dbt or No to load from a file on an external media.

Append

Select Yes to add the dbt from the manufacturer's defaults list to the existing dbt. Select No to load the dbt from a file. The options are Yes and No.

▶OsRecovery Signatures (dbt)

Details

Select this feature to view the details of the dbr.

Set New

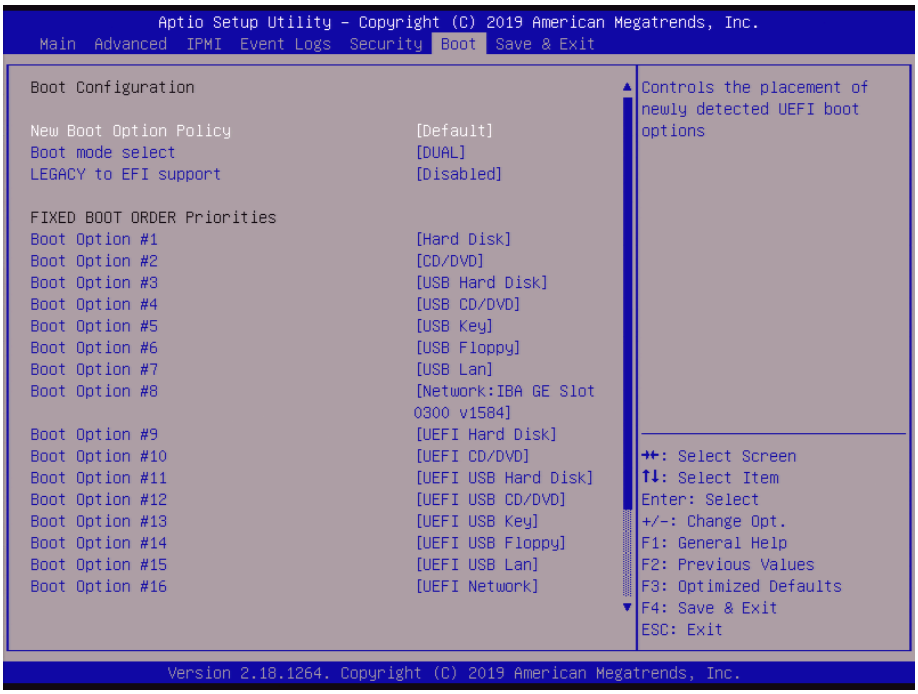
Select Yes to load a factory default dbr or No to load from a file on an external media.

Append

Select Yes to add the dbr from the manufacturer's defaults list to the existing dbr. Select No to load the dbr from a file. The options are Yes and No.

4.7 Boot

Use this menu to configure boot settings:



New Boot Option Policy

Use this feature to control the placement of newly detected UEFI boot options. The options are **Default**, Place First, and Place Last.

Boot mode select

Use this feature to select the boot mode. The options are LEGACY, UEFI, and **DUAL**.

LEGACY to EFI Support

Select Enabled to boot EFI OS support after Legacy boot order has failed. The options are **Disabled** and Enabled.

Fixed BOOT ORDER Priorities

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

- Boot Option #1
- Boot Option #2
- Boot Option #3

- Boot Option #4
- Boot Option #5
- Boot Option #6
- Boot Option #7
- Boot Option #8
- Boot Option #9
- Boot Option #10
- Boot Option #11
- Boot Option #12
- Boot Option #13
- Boot Option #14
- Boot Option #15
- Boot Option #16
- Boot Option #17

▶Delete Boot Option

Delete Boot Option

Use this feature to remove an EFI boot option from the boot order. The options are **Select one to Delete** and UEFI: Built-in EFI Shell.

▶UEFI Application Boot Priorities

Boot Option #1

This feature sets the system boot order of detected devices. The options are **UEFI: Built-in EFI Shell** and Disabled.

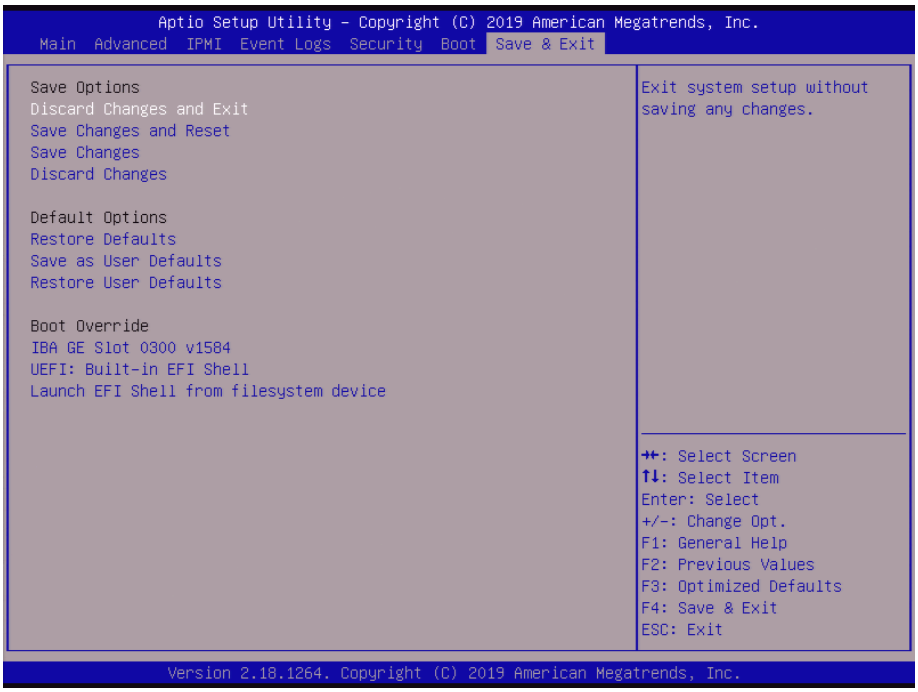
▶NETWORK Drive BBS Priorities

Boot Option #1

This feature sets the system boot order of detected devices. The options are **IBA GE Slot 0300 v1584** and Disabled.

4.8 Save & Exit

Use this menu to configure save and exit settings.



Save Options

Discard Changes and Exit

Select this feature to quit the BIOS Setup without making any permanent changes to the system configuration and reboot the computer. Select Yes or No from the Exit menu and press <Enter>.

Save Changes and Reset

When you have completed the system configuration changes, select this option to save all changes made and reset the system.

Save Changes

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

Discard Changes

Select this feature and select Yes or No to discard all the changes and return to the AMI BIOS Utility Program.

Default Options

Restore Defaults

To set this feature, select Restore Optimized Defaults and select Yes or No. These are factory settings designed for maximum system performance but not for maximum stability.

Save as User Defaults

To set this feature, select Save as User Defaults from the Exit menu. 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. Use this feature to retrieve user-defined settings that were saved previously.

Boot Override

Other boot options are listed in this section. The system will boot to the selected boot option.

IBA GE Slot 0300 v1584

UEFI: Built-in EFI Shell

Launch EFI Shell from filesystem device

Appendix A

BIOS Codes

A.1 BIOS Error POST (Beep) Codes

During the POST (Power-On Self-Test) routines, which are performed upon each system boot, errors may occur.

Non-fatal errors are those which, in most cases, allow the system to continue to boot. These error messages normally appear on the screen.

Fatal errors will not allow the system to continue with bootup. If a fatal error occurs, you should consult with your system manufacturer for possible repairs.

These fatal errors are usually communicated through a series of audible beeps. The table below lists some common errors and their corresponding beep codes encountered by users.

BIOS Beep (POST) Codes		
Beep Code	**Error Message**	**Description**
1 beep	Refresh	Circuits have been reset (Ready to power up)
5 short, 1 long	Memory error	No memory detected in system
5 long, 2 short	Display memory read/write error	Video adapter missing or with faulty memory
1 long continuous	System OH	System overheat condition

A.2 Additional BIOS POST Codes

The AMI BIOS supplies additional checkpoint codes, which are documented online at http://www.supermicro.com/support/manuals/ ("AMI BIOS POST Codes User's Guide").

When BIOS performs the Power On Self Test, it writes checkpoint codes to I/O port 0080h. If the computer cannot complete the boot process, a diagnostic card can be attached to the computer to read I/O port 0080h (Supermicro p/n AOM-SPI80-V).

For information on AMI updates, please refer to http://www.ami.com/products/.

Appendix B

Software Installation

B.1 Installing Software Programs

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

After accessing the website, go into the CDR_Images (in the parent directory of the above link) and locate the ISO file for your motherboard. Download this file to create a 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 following screen should appear.

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 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.

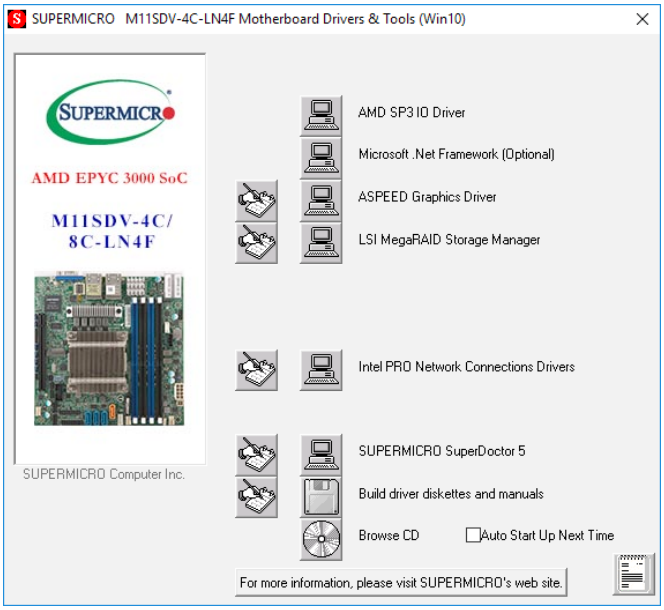


Figure B-1. Driver/Tool Installation Display Screen

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

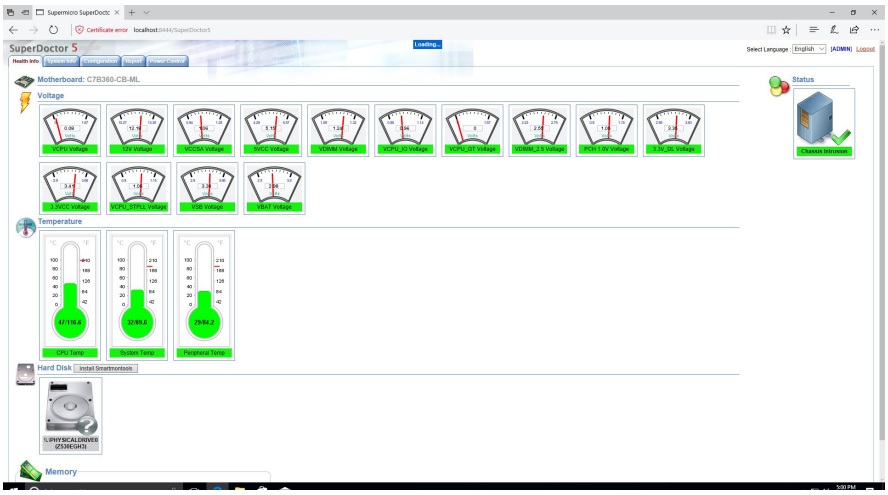
B.2 SuperDoctor® 5

The Supermicro SuperDoctor 5 is a hardware monitoring 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, and fan speed, and provides alerts via email or the 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 the SuperDoctor 5 Management Server (SSM Server), you can remotely control the power status 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 username and password for SuperDoctor 5 is ADMIN/ADMIN.

Figure B-2. SuperDoctor 5 Interface Display Screen (Health Information)



Note: The SuperDoctor 5 program and user's manual can be downloaded from the Supermicro website at http://www.supermicro.com/products/nfo/sms_sd5.cfm.

Appendix C

Standardized Warning Statements

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

Read this section in its entirety before installing or configuring components.

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

Battery Handling



Warning! There is the 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 اسحبذال البطارية بطريقة غير صحيحة فعليل
اسحبذال البطارية
فقط بنفس النع أو ما يعادلها مما أوصث به الشرمة المصنعة
جخلص من البطاريات المسحعملة وفقا لحعليمات الشرمة 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 القانين واللائح البطنية

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.

Appendix D

UEFI BIOS Recovery

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.

D.1 Overview

The Unified Extensible Firmware Interface (UEFI) 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 that will allow the UEFI OS loader, stored in the add-on card, to boot the system. The UEFI offers a clean, hands-off management to a computer system at boot.

D.2 Recovering the UEFI BIOS Image

A UEFI BIOS flash chip consists of a recovery BIOS block and a main BIOS block (a main BIOS image). The recovery block contains critical BIOS codes, including memory detection and recovery codes for the user to flash a healthy BIOS image if the original main BIOS image is corrupted. When the system power is turned on, the recovery block codes execute first. Once this process is complete, the main BIOS code will continue with system initialization and bootup.

Note 1: Follow the BIOS recovery instructions below for BIOS recovery when the main BIOS boot crashes.

Note 2: When the BIOS boot block crashes, you will need to follow the procedures to make a Returned Merchandise Authorization (RMA) request. (For a RMA request, please see section 3.5 for more information). Also, you may use the Supermicro Update Manager (SUM) Out-of-Band (OOB) (https://www.supermicro.com.tw/products/nfo/SMS_SUM.cfm) to reflash the BIOS.

D.3 Recovering the BIOS Block with a USB 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.

The file system supported by UEFI is FAT (including FAT12, FAT16, and FAT32) installed on a bootable or non-bootable USB-attached device. However, the BIOS might need several minutes to locate the SUPER.ROM file if the media size becomes too large due to the huge volumes of folders and files.

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: 1. If you cannot locate the "Super.ROM" file in your driver disk, visit our website at www.supermicro.com to download the BIOS package. Extract the BIOS binary image into a USB flash device and rename it "Super.ROM" for BIOS recovery use. 2. Before recovering the main BIOS image confirm that the "Super.ROM" binary image file you download is the same version or a close version meant for your motherboard.



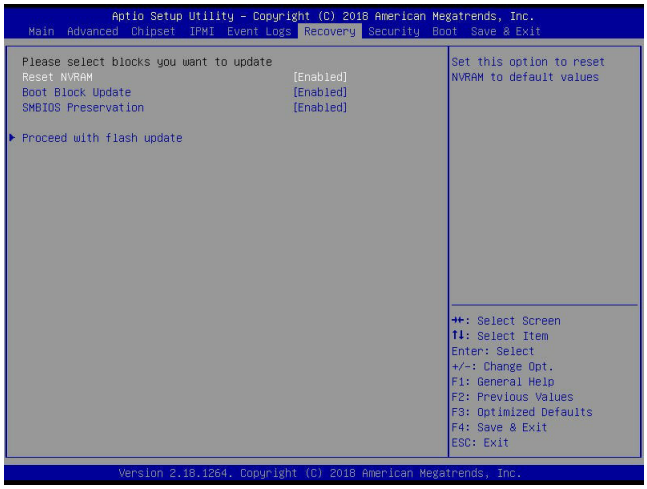
2. Insert the USB device that contains the new BIOS image ("Super.ROM") into your USB drive and reset the system when the following screen appears.



3. When found, BIOS image and system enter in Recovery mode as below picture, please do not shutdown or rest your system. It will automatically reboot to enter Recovery mode.



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

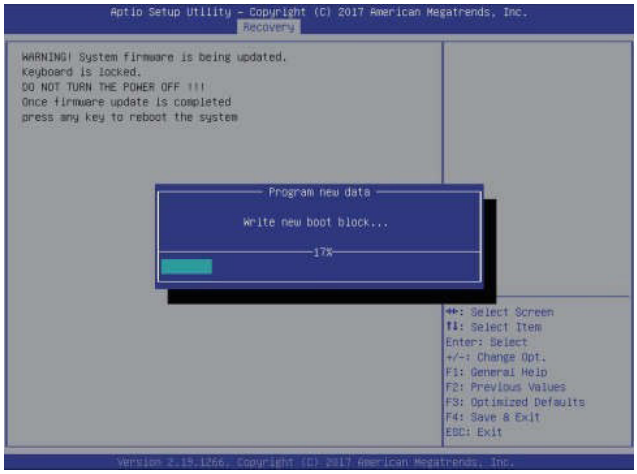


Note: SMBIOS Preservation option is used to preserve the SMBIOS data.

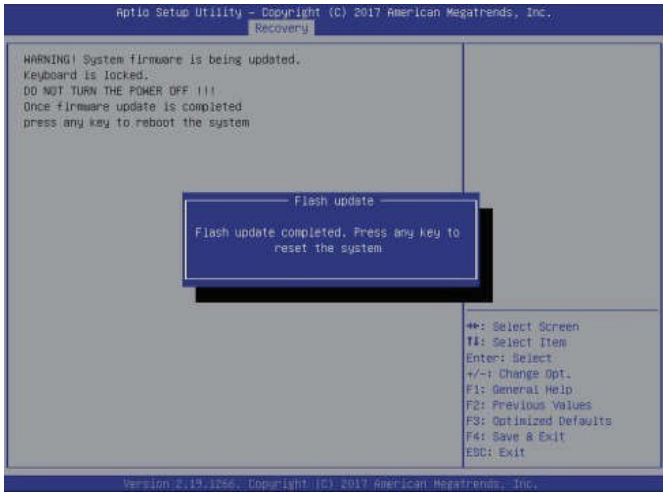
Note: At this point, you may decide if you want to start the BIOS recovery. If you decide to proceed with BIOS recovery, follow the procedures below.

5. When the screen as shown above displays, use the arrow keys to select the item "Proceed with flash update" and press the <Enter> key. You will see the BIOS recovery progress as shown in the screen below.

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

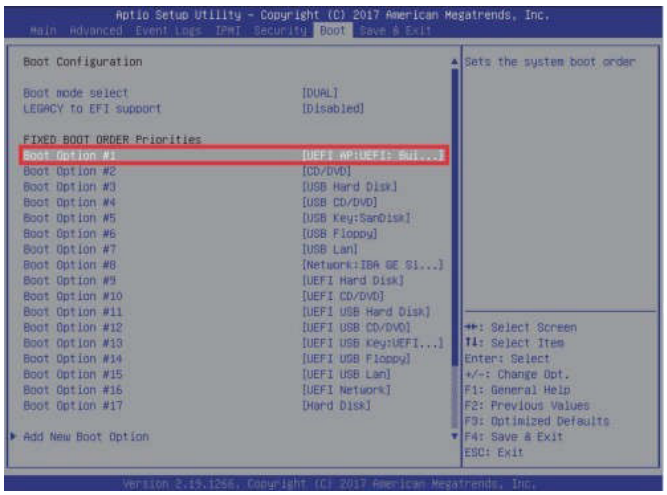


6. After the BIOS recovery process is completed, press any key to reboot the system.

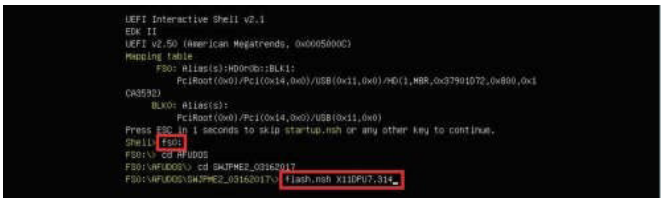


7. Using a different system, extract the BIOS package into a USB flash drive.

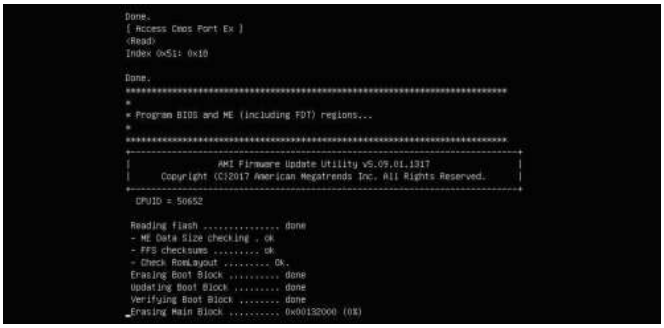
8. Press <Del> continuously during system boot to enter the BIOS setup utility. From the top of the tool bar, select Boot to enter the submenu. From the submenu list, select Boot Option #1 as shown below. Then, set Boot Option #1 to [UEFI AP:UEFI: Built-in EFI Shell]. Press <F4> to save the settings and exit the BIOS setup utility.



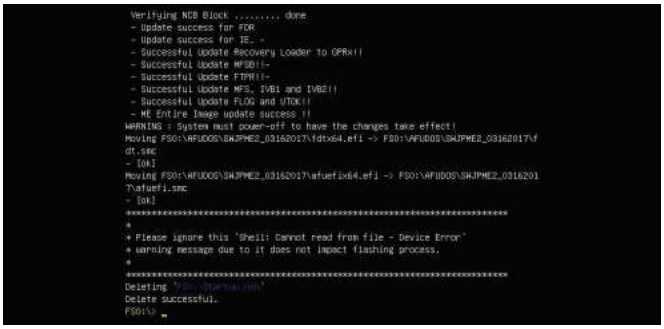
9. When the UEFI Shell prompt appears, type fs# to change the device directory path. Go to the directory which contains the BIOS package extracted earlier from Step 6. Enter flash.nsh BIOSname.### at the prompt to start the BIOS update process.



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



10. The screen above indicates that the BIOS update process is completed. When you see the screen above, unplug the AC power cable from the power supply, clear CMOS, and plug the AC power cable in the power supply again to power on the system.



11. Press <Del> continuously to enter the BIOS setup utility.

12. Press <F3> to load the default settings.

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