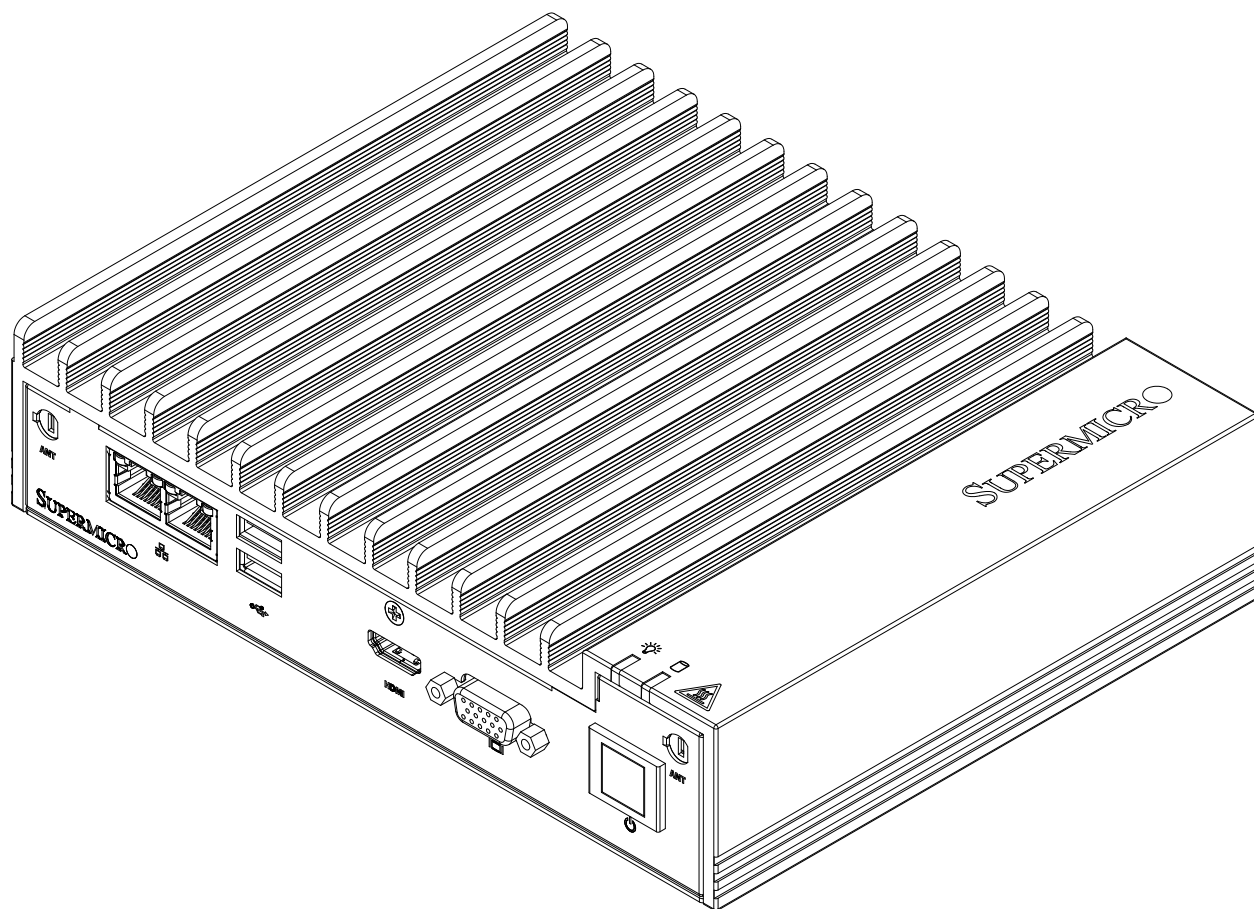




SUPERSERVER[®] E100-9AP



USER'S MANUAL

Revision 1.0a

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Preface

About this Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of the SuperServer E100-9AP. Installation and maintenance should be performed by experienced technicians only.

Please refer to the E100-9AP server specifications page on our website for updates on supported memory, processors and operating systems (<http://www.supermicro.com>).

Notes

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: <ftp://ftp.supermicro.com>
- 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.

Warnings

Special attention should be given to the following symbols used in this manual.



Warning! Indicates important information given to prevent equipment/property damage or personal injury.



Warning! Indicates high voltage may be encountered when performing a procedure.

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Chapter 1

Introduction

1.1 Overview

The SuperServer E100-9AP is a compact, embedded system comprised of the CSE-E101 chassis and the A2SAN-E single processor motherboard. Refer to our website for information on operating systems that have been certified for use with the system (www.supermicro.com).

This chapter provides a brief outline of the functions and features. In addition to the motherboard and chassis, several important parts that are included with the system are listed below.

Main Parts List		
Description	Part Number	Quantity
40W 12V 3.33A, AC to DC lockable power adapter	MCP-250-10124-0N	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: <ftp://ftp.supermicro.com>
- 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.

1.2 System Features

The following table provides an overview of the main features of the E100-9AP. Please refer to Appendix C for additional specifications.

System Features
Motherboard
A2SAN-E
Chassis
Compact Embedded Box for 3.5" SBC, CSE-E101
CPU
Intel® Atom x5-E3940 (System on a Chip) Socket BGA; CPU TDP support 9.5W, 2M cache, 4 cores, up to 1.8GHz
Cooling
No Fans for this chassis model enclosure
Memory
One DDR3L SODIMM socket; supports up to 8GB DDR3L Non-ECC SODIMM; Memory Type 1866 MHz speed
Expansion Slots
One Mini-PCI-E One PCI-E M.2--Interface: B-Key 2280, supporting SATA/PCI-E or WWAN/GNSS devices
Power
One external 40 Watts DC power adapter
Input/Output Ports
LAN: Two Gigabit ports USB: Four USB 2.0, two USB 3.0 Display: One HDMI, one VGA DIO: One DB-9 COM: Four COM ports (2 x RS-232, 2 x RS-232/422/485)
Front Panel
Power button; two LED status indicators
Dimensions
Proprietary 7.68" x 5.94" x 1.73" (195 x 151 x 44mm)

1.3 Chassis Features

The CSE-E101 is a compact embedded 3.5" SBC chassis.

Front Features

The front of the chassis includes the control panel.

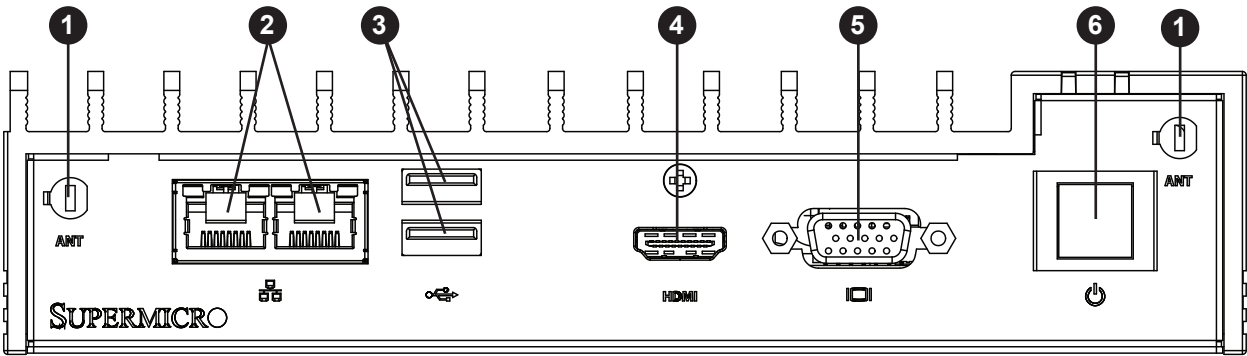


Figure 1-1. Chassis Front and Control Panel

Control Panel Features		
Item	Features	Description
1	Antenna Port	Two antenna ports are provided on the front for use.
2	LAN Ports	Two Gigabit LAN ports are provided on the chassis front of the system.
3	USB Ports	Two front USB 3.0 ports are provided here.
4	HDMI Port	A front HDMI port is provided here.
5	VGA Port	A front VGA port is provided here.
6	Power button	The main power switch applies or removes primary power from the power supply to the server but maintains standby power. To perform most maintenance tasks, unplug the system to remove all power.

Rear Features

The chassis rear holds input/output ports, described in chapter 3.

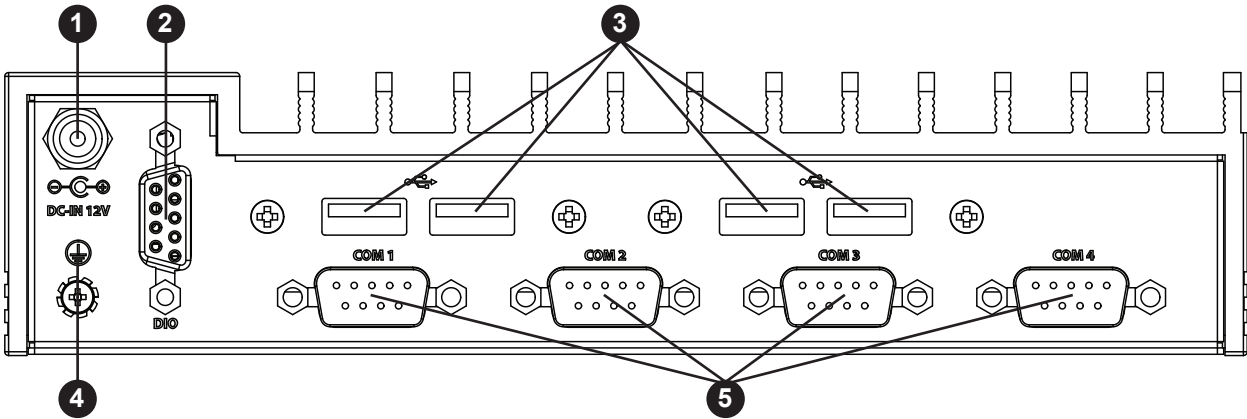


Figure 1-2. Rear Chassis View

Rear Chassis Features		
Item	Features	Description
1	Power Input Port	Use this port for the 40W DC power input.
2	DIO Port	A rear mounted DIO port is provided.
3	USB Ports	Four rear USB ports are provided.
4	Grounding Screw	
5	COM Ports	Four COM ports are provided here for use.

1.4 Motherboard Layout

Below is a layout of the A2SAN-E with jumper, connector and LED locations shown. See the table on the following page for descriptions. For detailed descriptions, pinout information and jumper settings, refer to Chapter 4.

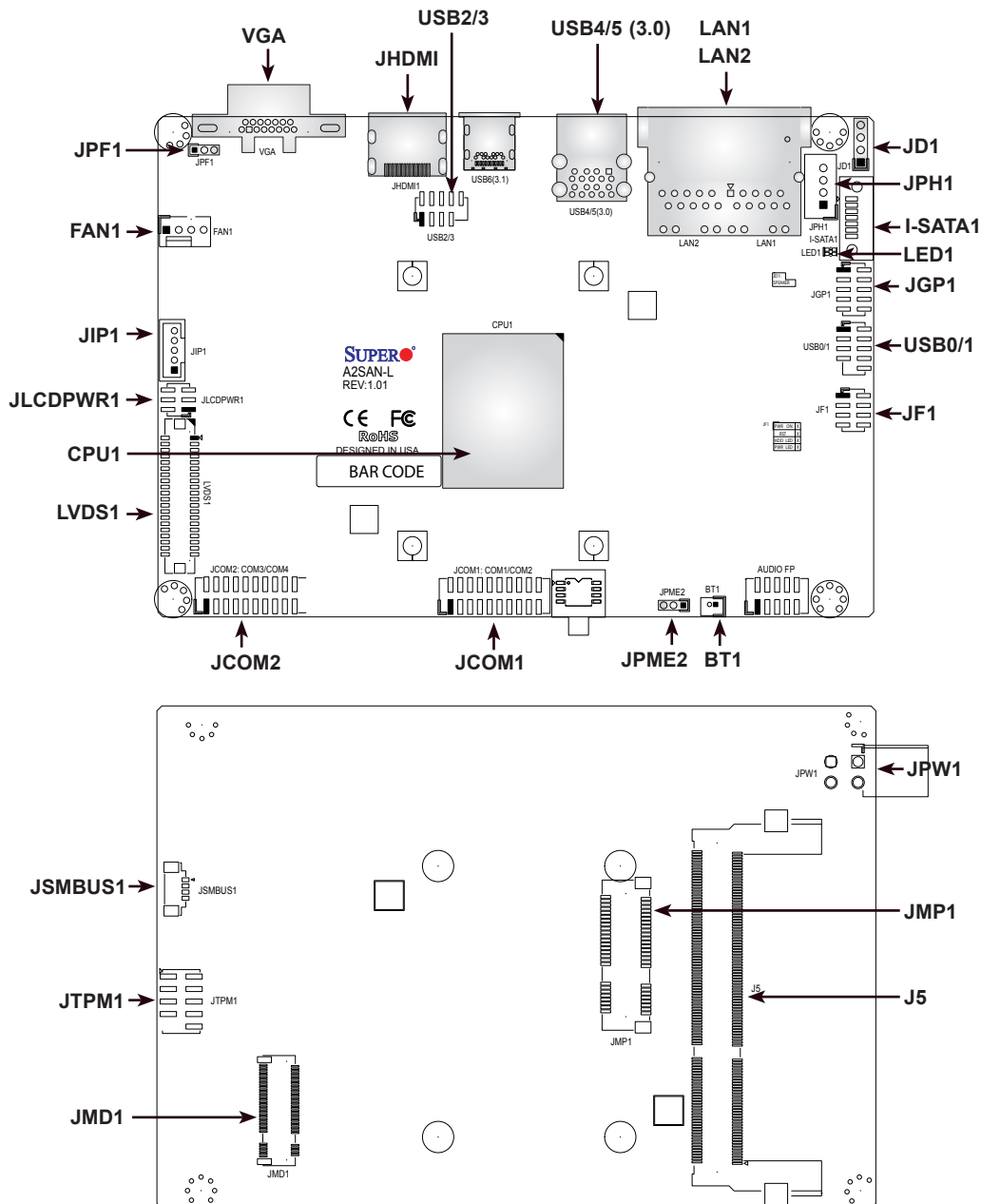


Figure 1-3. Motherboard Layout

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.

- Some connectors, jumpers and headers shown above may not be accessible or used by the system and therefore should be considered unsupported/unused.

Quick Reference Table

Jumper	Description	Default Setting
JLCDPWR1	LVDS Panel VCC Power 3.3V / 5V / 12V	Pins 1-2 (3.3V), Pins 3-5 (5V), Pins 3-4 (12V)
JPF1	Power Force On	Pins 1-2 (Power Force On)
JPME2	Manufacturing Mode	Pins 1-2 (Normal)

LED	Description	Status
LED1	Power LED (for debugging only)	Solid Green: S0 mode Solid Red: S3/S4/S5 modes

Connector	Description
BT1	Battery Connector (To Clear CMOS, remove the battery, short pins 1-2 and install the battery.)
FAN1*	System Fan Header
I-SATA1*	Intel® PCH SATA 3.0 Port
JCOM1: COM1/COM2 JCOM2: COM3/COM4	Serial COM Ports (JCOM1 supports RS232/RS422/RS485, JCOM2 supports RS232)
JD1	Speaker Header
JF1	Front Control Panel Header
JGP1	DIO Connector
JHDMI	Back Panel HDMI Port
JIP1*	Inverter Power Header
JMD1	M.2 Slot (B-KEY) (supports PCIe Gen2 X1/SATA / USB 2.0)
JMP1	Mini PCI-E Slot (supports PCIe Gen2 X1/USB 2.0)
JPH1*	SATA Power Connector (for one HDD system)
JPW1	4-pin 12V-Standby R/A Type Power Connector
JSMBUS1	System Management Bus Header
JTPM1	Trusted Platform Module/Port 80 Connector (for debugging only)
LAN1 ~ LAN2	LAN (RJ45) Ports
LVDS1*	Dual Channel 48-bit LVDS Connector*
USB4/5	Back Panel Universal Serial Bus (USB) 3.0 Ports
USB0/1, USB2/3	USB 2.0 Headers
VGA	Back Panel VGA Port

Note: Connectors marked with an asterisk "*" are unused or inaccessible by the system and cannot be used.

System Block Diagram

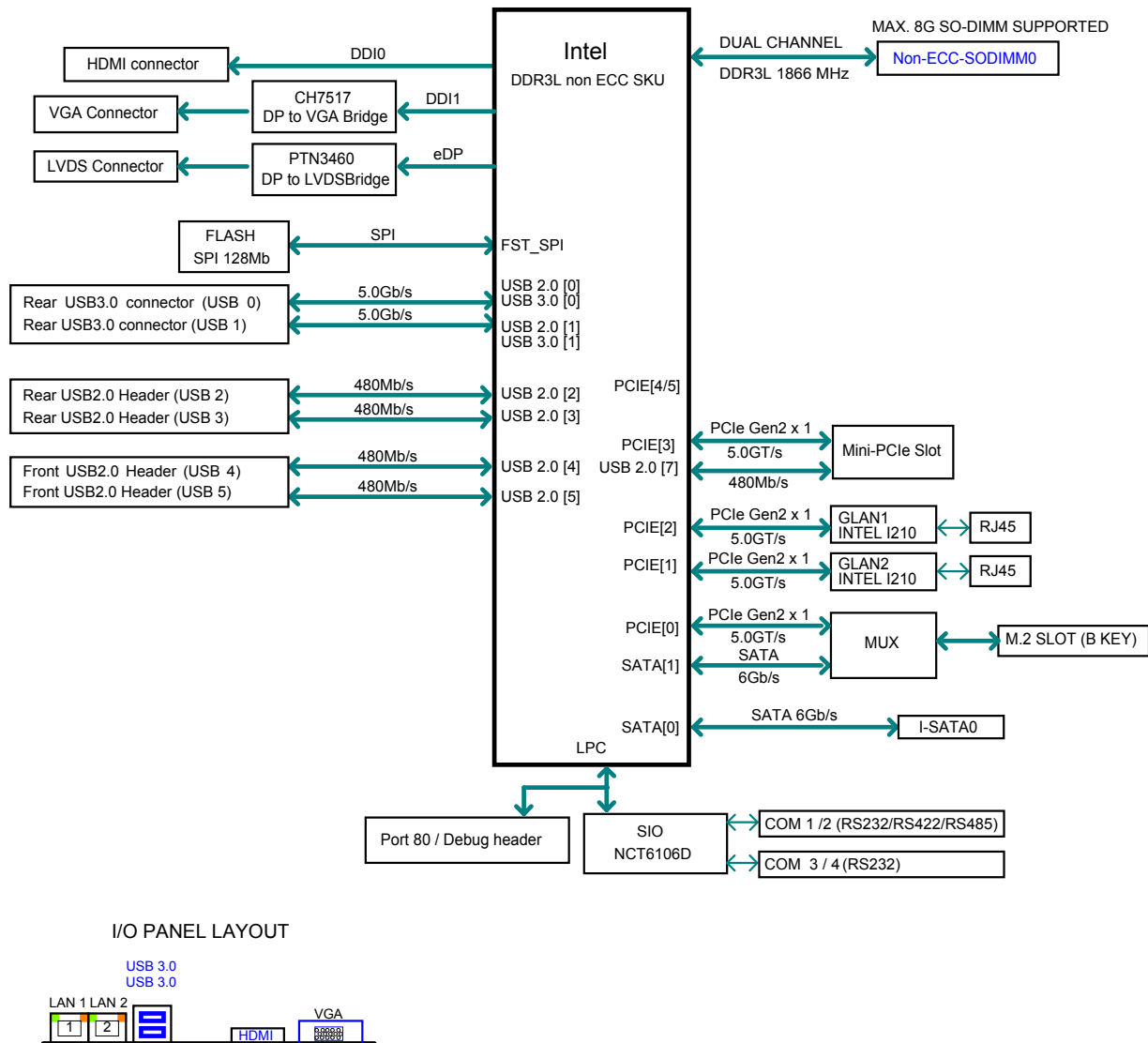


Figure 1-4. System Block Diagram

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

1.5 Server Installation and Setup

The server is shipped with the onboard processor and the motherboard installed in the chassis. Several steps are necessary to begin using your server. You must add memory, mount the hard disk drive, and mount the system in place.

Unpacking the System

Inspect the box in which the system was shipped and note if it was damaged. If the server itself shows damage, file a damage claim with the carrier.

Warnings and Precautions

- Review the electrical and general safety precautions in Appendix B.

Adding Components to your System

- **Memory:** If your system is not already fully integrated with system memory, refer to Chapter 2 for details on compatible types of memory and the installation procedure.
- **Drives and Storage:** To add storage capabilities to your server, see Chapter 2.
- **Input/Output:** See Chapter 3 for I/O ports and connect them as needed.
- **Software:** See Chapter 4 for description and procedures for installing software, including drivers and monitoring programs.

Installing Mounting Brackets

The chassis includes mounting brackets that allow it to be mounted in any convenient space in the work environment.

1. Install the brackets, using two screws through the holes in each bracket to secure the bracket to the chassis.
2. Secure the brackets to the surface where you want the server to be mounted.

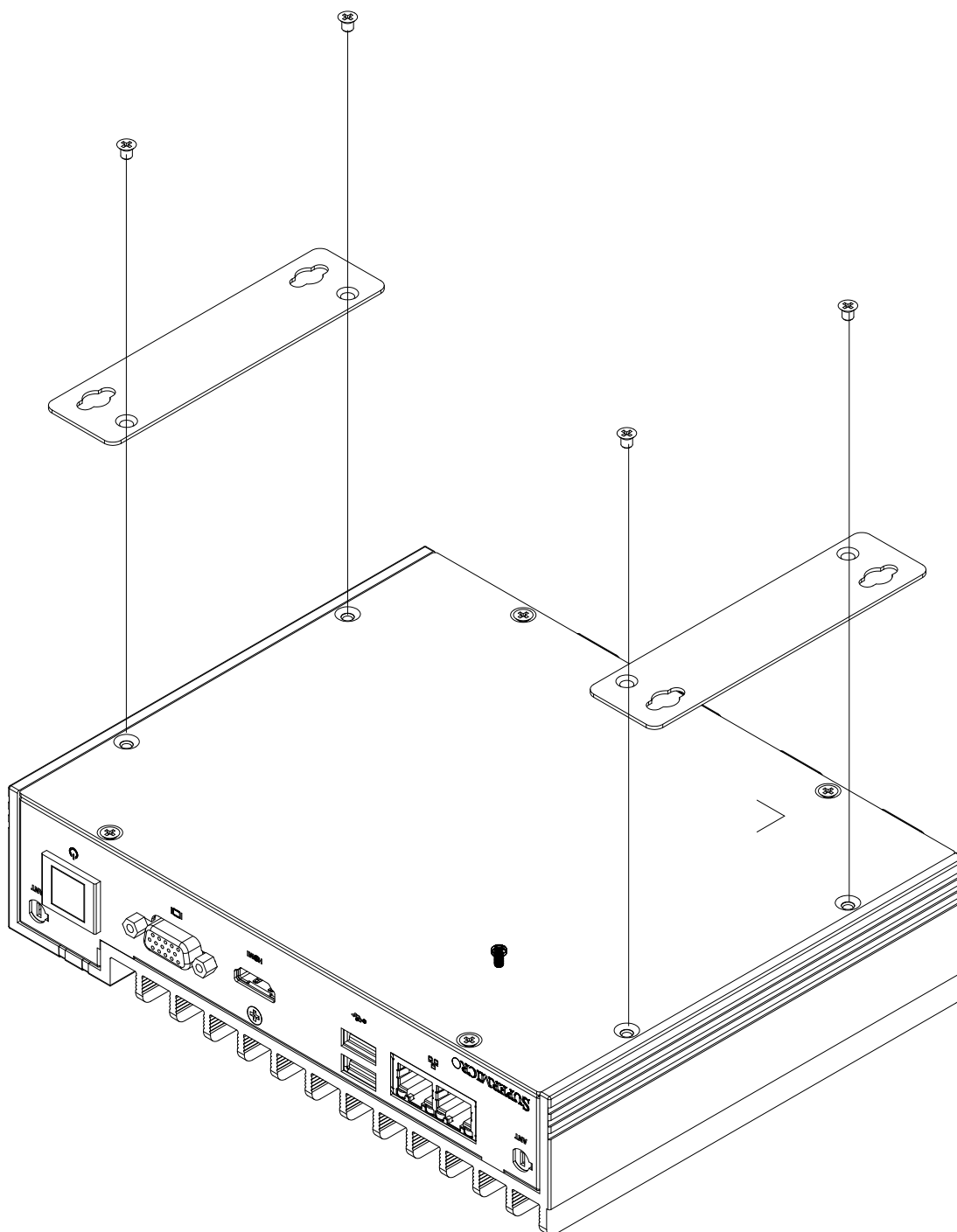


Figure 1-5. Installing Mounting Brackets
(Brackets extending out from the chassis)

Chapter 2

Maintenance and Component Installation

This chapter provides instructions on installing and replacing main system components. To prevent compatibility issues, only use components that match the specifications and/or part numbers given.

Installation or replacement of most components require that power first be removed from the system. Please follow the procedures given in each section.

2.1 Removing Power

Use the following procedure to ensure that power has been removed from the system. This step is necessary when removing or installing non-hot-swap components or when replacing a non-redundant power supply.

1. Use the operating system to power down the system.
2. After the system has completely shut down, disconnect the AC adapter power cord from the power source.
3. Disconnect the power cord from the chassis.

2.2 Accessing the System

The E101 features a removable bottom cover to access to the inside of the chassis.

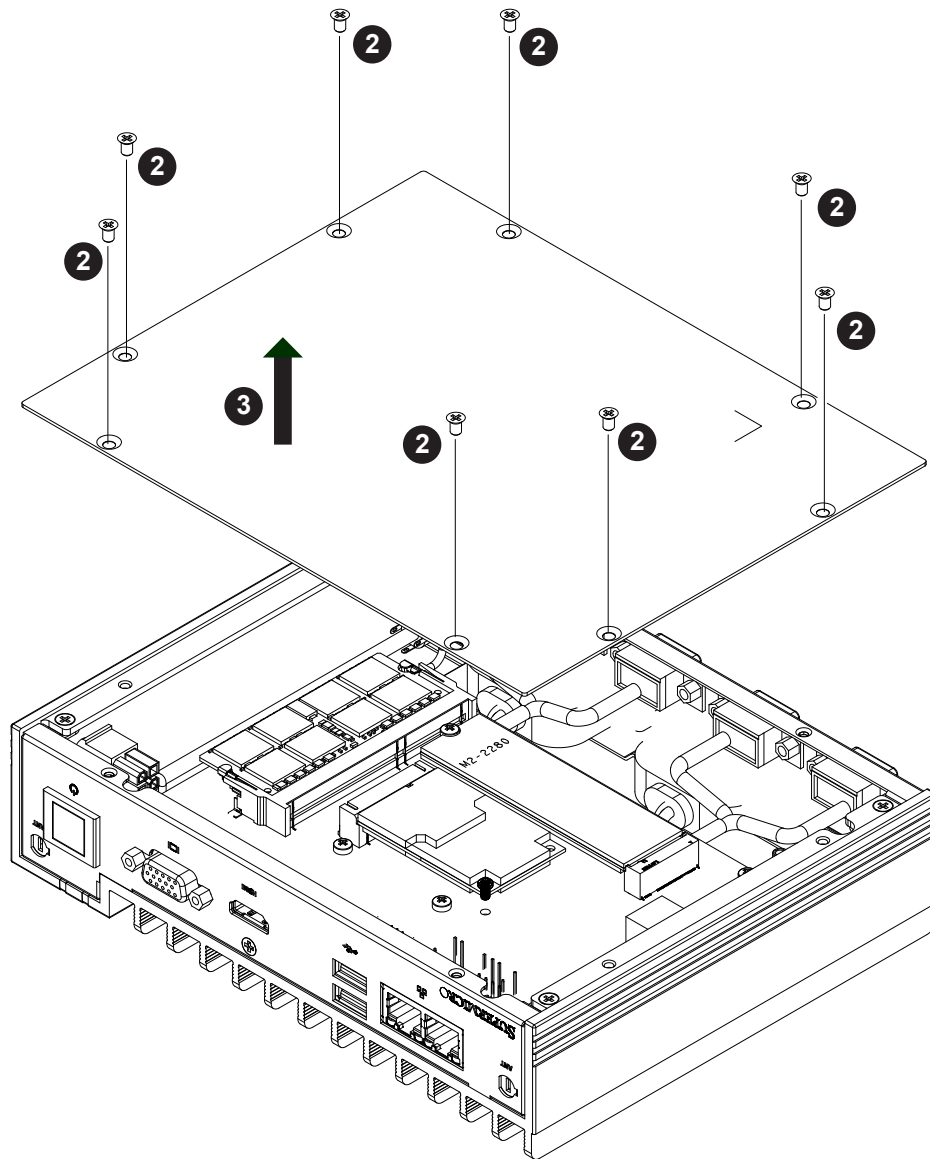


Figure 2-1. Removing the Chassis Cover

Removing the Bottom Cover

1. Power down the system as described in section 2.1.
2. Remove the eight screws that hold the cover in place.
3. Lift the cover up and off the chassis.

Caution: Except for short periods of time, do *not* operate the server without the cover in place. The chassis cover must be in place to prevent misuse.

2.3 Motherboard Components

Processor

The E100-9AP features an embedded Intel® Atom x5-E3940 processor.

Memory Support

The A2SAN-E series motherboard supports up to 8 GB of DDR3L Non-ECC SODIMM memory with speeds up to 1866 MHz in one memory slot.

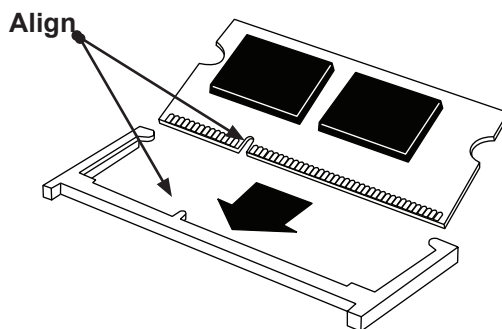
Note: Check the Supermicro website for recommended memory modules.

Installing Memory

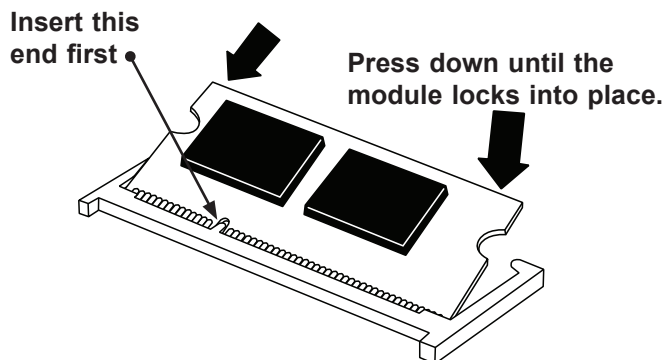
Caution: Exercise extreme care when installing or removing DIMM modules to prevent damage.

SO-DIMM Installation

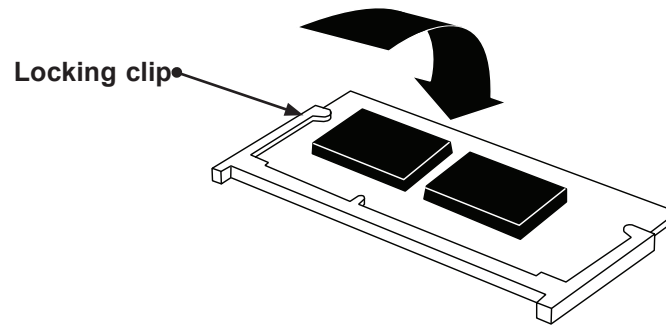
1. Position the SODIMM module's bottom key so it aligns with the receptive point on the slot.



2. Insert the SODIMM module vertically at about a 45 degree angle. Press down until the module locks into place.



3. The side clips will automatically secure the SODIMM module, locking it into place.



SODIMM Removal

1. Push the side clips at the end of slot to release the SO-DIMM module.
2. Pull the SO-DIMM module up to remove it from the slot.

Solid State Storage

This motherboard supports an internally mounted solid state storage card by means of an M.2 slot supporting SATA/PCI-E or WWAN/GNSS.

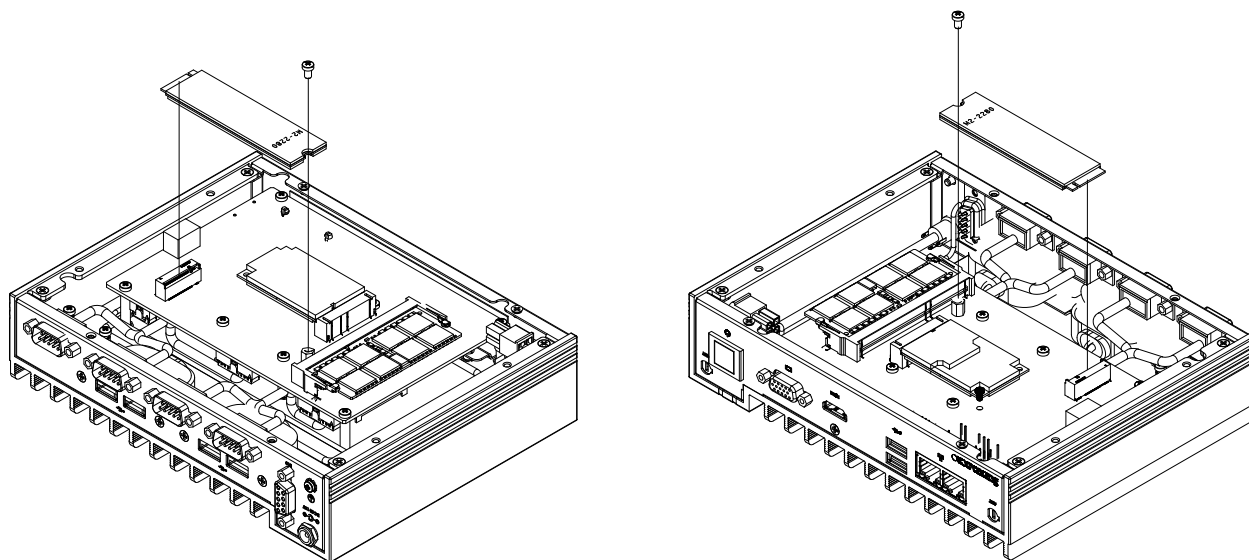


Figure 2-2. Installing an M.2 Expansion Card

Installing the M.2 Card

1. Gently insert the M.2 card into the connector.
2. Use a screw to secure the M.2 card to the M2_SRW1 or M2_SRW2 standoff.

Motherboard Battery

The motherboard uses non-volatile memory to retain system information when system power is removed. This memory is powered by a lithium battery residing on the motherboard.

Chapter 3

E100-9AP I/O Introduction

This section describes the E100-9AP I/O connectors and pin definition. Please review the Safety Precautions in Appendix A before installing or removing components. Illustrations showing front and rear I/O layouts and a motherboard layout indicating component locations and I/O port locations may be found in Chapter 1.

Please review the Safety Precautions in Appendix A before installing or removing components.

3.1 Front I/O

LAN Ports

Two LAN ports (LAN1 ~ LAN2) are located on the I/O back panel. These ports accept RJ45 type cables. Please refer to the LED Indicator section for LAN LED information. See the table below for pin definitions.

LAN Port0 Pin Definitions			
Pin#	Definition	Pin#	Definition
A1	TD1+	A11	YEL-
A2	TD1-	A12	YEL+
A3	TD2+	A13	GRN-/ORG+
A4	TD2-	A14	GRN+/ORG-
A5	CT_VCC	A15	
A6	CT_VCC	A16	
A7	TD3+	A17	
A8	TD3-	A18	
A9	TD4+	A19	
A10	TD4-	A20	

Universal Serial Bus (USB) Ports

There are two USB 3.0 ports (USB4/5) on the front I/O panel. They give complete Plug & Play and hot swapping capability. The USB interface is compliant with USB UHCI, Rev. 3.0. The USB interface supports Plug and Play, which enables you to connect or disconnect a device without turning off the system.

Back Panel USB 3.0 Pin Definitions			
Pin#	Definition	Pin#	Definition
1	VBUS	10	VBUS
2	D1-N	11	D2-N
3	D1-P	12	D2-P
4	GND	13	GND
5	Stda_SSRX1-N	14	Stda_SSRX2-N
6	Stda_SSRX1-P	15	Stda_SSRX2-P
7	GND_DRAIN	16	GND_DRAIN
8	Stda_SSTX1-N	17	Stda_SSTX2-N
9	Stda_SSTX1-P	18	Stda_SSTX2-P

HDMI Port

The HDMI (High-Definition Multimedia Interface) port is used to display both high definition video and digital sound through an HDMI-capable display, using the same (HDMI) cable.

VGA Port

The onboard VGA port is located next to HDMI port on the front I/O panel. Use this connection for VGA display.

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 in the suspend mode, press the button for at least 4 seconds. See the table below for pin definitions.

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

3.2 Rear I/O

DC Input Power Connector

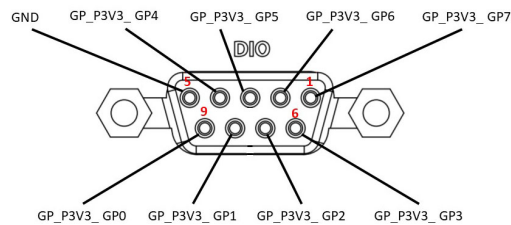
The system supports a 12VDC DC power in through a connector on the rear I/O panel.

DIO D-SUB Connector

The DIO D-SUB connector is an 8-bit general purpose I/O expander via the SMBus. See the table below for pin definitions.

DIO D-SUB Connector Pin Definitions			
Pin#	Definition	Pin#	Definition
1	GP_P3V3_GP7	2	GP_P3V3_GP6
3	GP_P3V3_GP5	4	GP_P3V3_GP4
5	GND	6	GP_P3V3_GP3
7	GP_P3V3_GP2	8	GP_P3V3_GP1
9	GP_P3V3_GP0		

DIO D-SUB Pin Definition



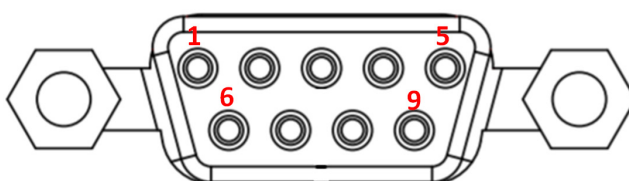
COM Ports

Four Serial COM ports are located on the rear I/O plate. COM1/COM2 supports RS-232/RS-422/RS-485 ports, and COM3/COM4 supports only a RS-232 port. See the figure below for pin definitions and tables below.

RS-232 D-SUB Connector Pin Definitions			
Pin#	Definition	Pin#	Definition
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI		

RS-422 D-SUB Connector Pin Definitions			
Pin#	Definition	Pin#	Definition
1	TX-	2	TX+
3	RX+	4	RX-
5	GND	6	N/A
7	N/A	8	N/A
9	N/A		

RS-485 D-SUB Connector Pin Definitions			
Pin#	Definition	Pin#	Definition
1	DATA-	2	DATA+
3	N/A	4	N/A
5	GND	6	N/A
7	N/A	8	N/A
9	N/A		



USB 2.0 Ports

Four rear panel I/O USB ports are located above the COM ports. See the table below for pin definitions.

Rear Panel USB 2.0 Ports Pin Definitions	
Pin#	Definition
1	VCC
3	USB Data-
3	USB Data+
4	Ground

3.3 Internal Expansion Slots

M.2 Slot

M.2 is formerly known as Next Generation Form Factor (NGFF) and is located at JMD1 on the bottom side of the motherboard. The M.2 slot is designed for internal mounting devices.

The A2SAN-H/-L/-E/X11SAN motherboard deploys a B-KEY for SATA/PCIe SSD devices or USB/PCIe WWAN or GNSS card. The A2SAN-H/-L/-E/X11SAN deploys a 2280 screw hole location for a 2280 M.2 module. 2242 and 3042 M.2 modules are supported by an extender bracket to fit on the 2280 screw hole location.

Mini PCI-E Slot

The Mini PCI-E slot, located at JMP1 on the bottom side of the motherboard, is used to install a compatible Mini PCI-E device. The Mini PCI-E slot supports modules which are USB or PCI-E x1 devices, such as wireless, GNSS, and bluetooth modules. See the table below for pin definitions.

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

3.4 LED Indicators

LAN Port LEDs

Two LAN ports (LAN 1 and LAN 2) are located on the I/O back panel of the motherboard. Each Ethernet LAN port has two LEDs. The green LED indicates activity, while the other Link LED may be green, amber, or off to indicate the speed of the connection.

LAN1/2 LED (Connection Speed Indicator)	
LED Color	Definition
Off	10 Mb/s
Green	100 Mb/s
Amber	1 Gb/s

Power LED

LED1 is the Power LED. In S0 mode, this LED will be solid green. In S3/S4/S5 modes, this LED will be solid red.

Onboard Power LED Indicator	
LED Color	Definition
Off	System Off (power cable not connected)
Solid Green	S0 mode
Solid Red	S3/S4/S5 modes

Chapter 4

Software

This section describes the installation of drivers and management programs for the system.

4.1 Driver Installation

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

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

After creating a DVD with the ISO files, insert the disk into the DVD drive on your system and the display shown in Figure 4-1 should appear.

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 to your hard drive or a USB flash drive and install from there.

Note: To install the Windows OS, please refer to the instructions posted on our website at <http://www.supermicro.com/support/manuals/>.

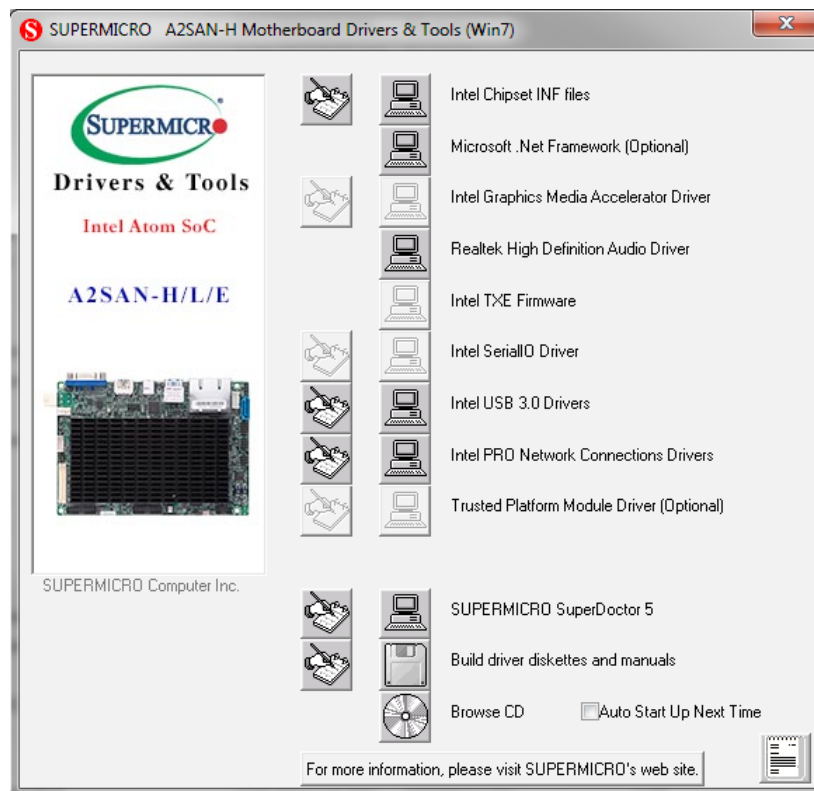


Figure 4-1. Driver & Tool Installation Screen

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

4.2 SuperDoctor® 5

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

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

Note: The default User Name and Password for SuperDoctor 5 is ADMIN / ADMIN.

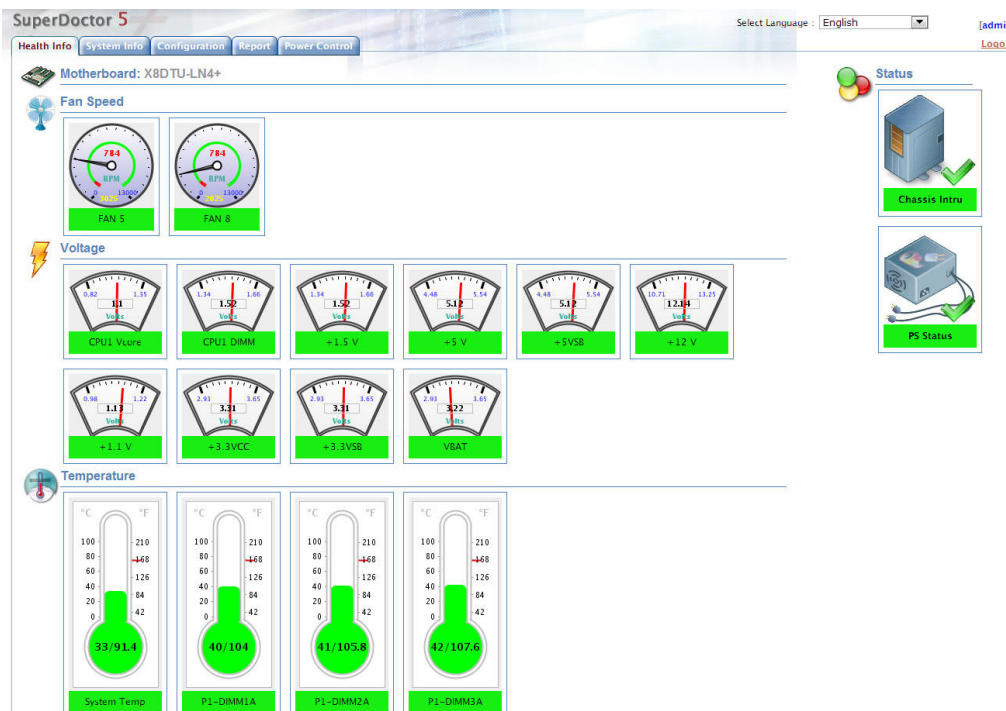


Figure 4-2. SuperDoctor 5 Interface Display Screen (Health Information)

Chapter 5

BIOS

5.1 Introduction

This chapter describes the AMI BIOS setup utility for the A2SAN-E motherboard. It also provides the instructions on how to navigate the AMI BIOS setup utility screens. The AMI ROM BIOS is stored in a Flash EEPROM and can be easily updated.

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.

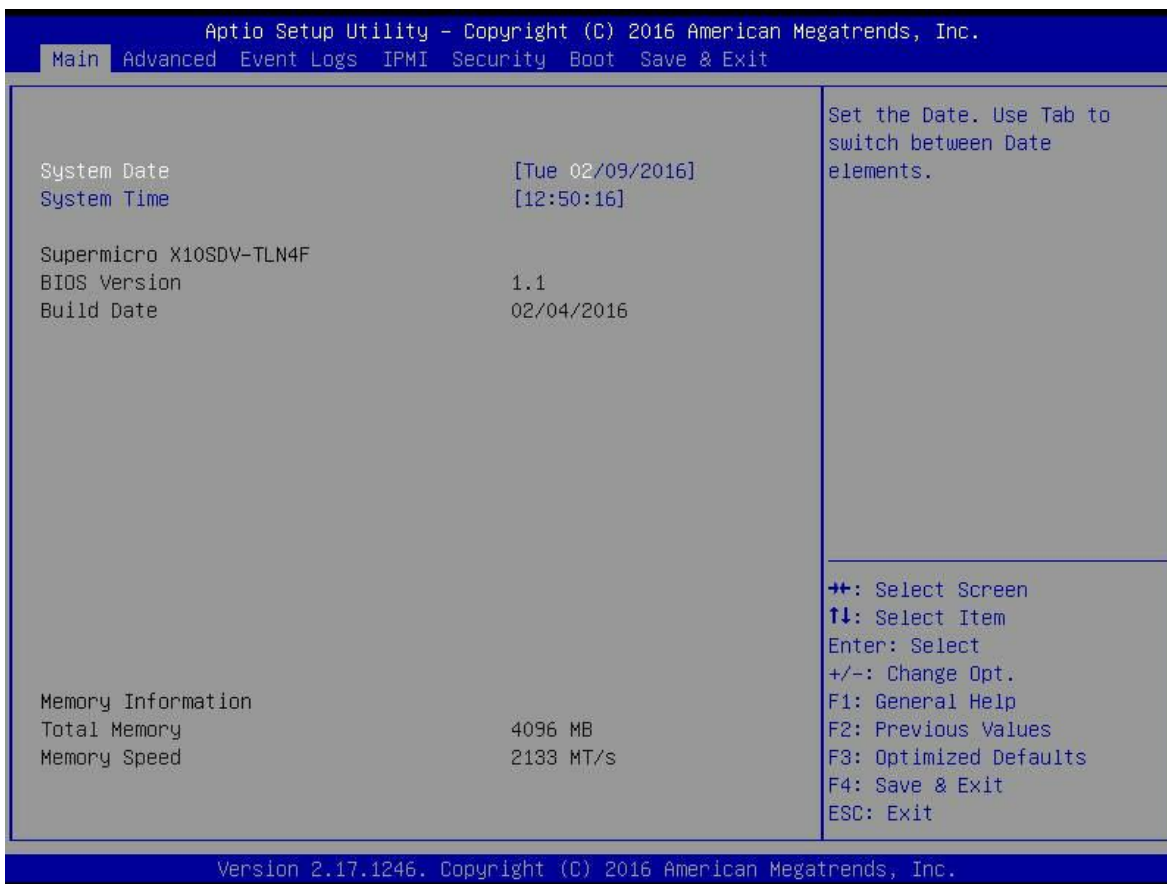
The Main BIOS screen has two main frames. The left frame displays all the options that can be configured. "Grayed-out" options cannot be configured. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is 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 hotkeys. Most of these hotkeys (<F1>, <F10>, <Enter>, <ESC>, <Arrow> keys, etc.) can be used at any time during the setup navigation process.

5.2 Main Page

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



The following Main menu items will be displayed:

System Date/System Time

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

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

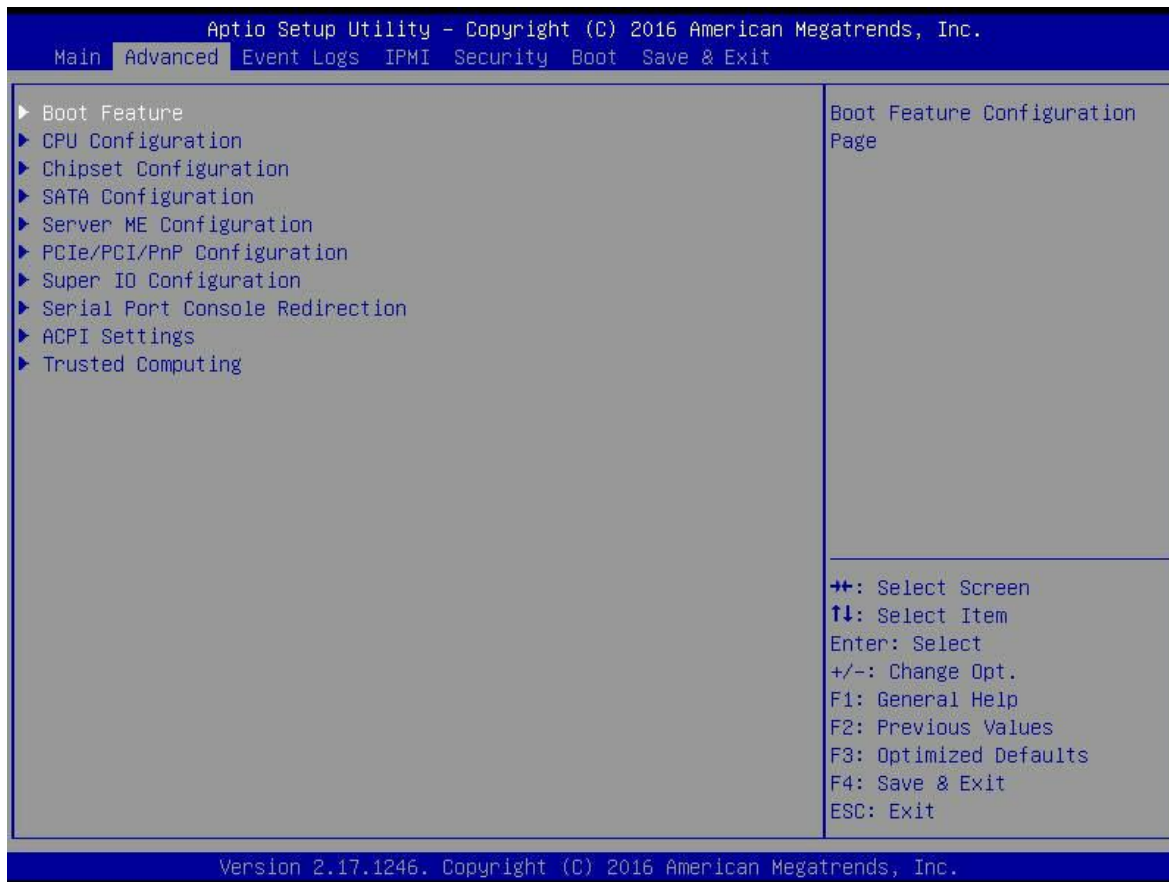
Supermicro X10SDV-TLN4F

BIOS Version; Build Date

Memory Information: Total Memory; Memory Speed

5.3 Advanced Page

Use this tab page to set some boot, power, CPU, SATA, server ME, and input/output settings.



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

► Boot Feature

Quiet Boot

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

AddOn ROM Display Mode

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

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

INT19 (Interrupt 19) Trap Response

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

Re-try Boot

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

► Power Configuration**Watch Dog Function**

If enabled, the Watch Dog Timer will allow the system to reset or generate NMI based on jumper settings when it is expired for more than 5 minutes. The options are **Disabled** and Enabled.

Power Button Function

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

Restore on AC Power Loss

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

►CPU Configuration

The following CPU information will be displayed:

- Processor ID
- Processor Frequency
- Processor Max Ratio
- Processor Min Ratio
- Microcode Revision
- L1 Cache RAM
- L2 Cache RAM
- L3 Cache Ram
- CPU Version

Clock Spread Spectrum

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

Hyper-Threading (ALL)

Select Enable to use Intel Hyper-Threading Technology to enhance CPU performance. The options are Disable and **Enable**.

Cores Enabled

Set a numeric value to enable the number of cores. (Please refer to Intel's website for more information.) Enter **0** to enable all cores.

Monitor/Mwait

Select Enabled to enable the Monitor/MWait instructions. The Monitor instruction monitors a region of memory for writes, and MWait instructions instruct the CPU to stop until the monitored region begins to write. The options are Disable and **Enable**.

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

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

PPIN Control

Select Unlock/Enable to use the Protected-Processor Inventory Number (PPIN) in the system. The options are **Unlock/Enable** and Unlock/Disable.

Hardware Prefetcher (Available when supported by the CPU)

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

Adjacent Cache Prefetch (Available when supported by the CPU)

The CPU prefetches the cache line for 64 bytes if this feature is set to Disabled. The CPU prefetches both cache lines for 128 bytes as comprised if this feature is set to **Enable**.

DCU Streamer Prefetcher (Available when supported by the CPU)

Select Enabled to enable the DCU (Data Cache Unit) Streamer Prefetcher which will stream and prefetch data and send it to the Level 1 data cache to improve data processing and system performance. The options are **Enable** and Disable.

DCU IP Prefetcher (Available when supported by the CPU)

Select Enabled for DCU (Data Cache Unit) IP Prefetcher support, which will prefetch IP addresses to improve network connectivity and system performance. The options are **Enable** and Disable.

Direct Cache Access (DCA)

Select Enabled to use Intel's DCA (Direct Cache Access) Technology to improve data transfer efficiency. The options are Disable, Enable, and **Auto**.

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

Select Enabled to support Intel® Virtualization Technology, which will allow one platform to run multiple operating systems and applications in independent partitions, creating multiple "virtual" systems in one physical computer. The options are **Enable** and Disable.

Note: If a change is made to this setting, you will need to reboot the system for the change to take effect. Refer to Intel's website for detailed information.

► Advanced Power Management Configuration

This section is used to configure the following CPU Power Management settings.

EIST (P-States)

EIST (Enhanced Intel SpeedStep Technology) allows the system to automatically adjust processor voltage and core frequency to reduce power consumption and heat dissipation. The options are Disable and **Enable**.

*If the above is set to **Enable**, CPU P State will display:*

► CPU P State Control

P State Domain

This feature allows the user to indicate the P-State domain for each logical process in the system. All processes indicate the same domain in the same package. The options are **ALL** and **ONE**.

P-State Coordination

This feature allows the user to change the P-State (Power-Performance State) coordination type. P-State is also known as "SpeedStep" for Intel processors. Select **HW_ALL** to change the P-State coordination type for hardware components only. Select **SW_ALL** to change the P-State coordination type for all software installed in the system. Select **SW_ANY** to change the P-State coordination type for a software program in the system. The options are **HW_All**, **SW_ALL**, and **SW_ANY**.

Energy Efficient P-State

Select **Enable** to support power-saving mode for P-State. The options are **Disable** and **Enable**.

Boot Performance Mode

This feature allows the user to select the performance state that the BIOS will set before the operating system handoff. The options are **Max Performance** and **Max Efficient**.

Turbo Mode

Select **Enable** for processor cores to run faster than the frequency specified by the manufacturer. The options are **Disable** and **Enable**.

► CPU HWPM State Control

Enable CPU HWPM

Select **Enable** for better CPU energy performance. The options are **Disable**, **HWPM NATIVE MODE**, and **HWPM OOB MODE**.

Enable CPU Autonomous Cstate

Use this feature to enable CPU Autonomous C State, which converts HALT instructions to Mwait. The options are **Disable** and **Enable**.

► CPU C State Control

CPU C State

Use this feature to enable the enhanced C State of the CPU. The options are **Disable** and **Enable**.

Package C State Limit

This feature allows the user to set the limit on the C State package register. The options are C0/C1 State, C2 State, C6 (Non Retention) State, **C6 (Retention) State**, and No Limit.

CPU C3 Report

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

CPU C6 Report

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

Enhanced Halt State (C1E)

Select Enabled to use Enhanced Halt-State technology, which will significantly reduce the CPU's power consumption by reducing the CPU's clock cycle and voltage during a Halt-state. The options are Disable and **Enable**.

► CPU T State Control

ACPI (Advanced Configuration Power Interface) T-States

Select Enable to support CPU throttling by the operating system to reduce power consumption. The options are Enable and **Disable**.

► CPU Advanced PM Tuning

► Energy Perf BIAS

Energy Performance Tuning

When enabled, this item selects whether the BIOS or Operating System can turn on the energy performance bias tuning. The options are **Enable** and Disable.

If the above is set to Disable, Energy Performance BIAS Setting will display:

Energy Performance BIAS Setting

This feature allows balancing Power Efficiency versus Performance. This will override whatever setting is in the Operating System. The options are Performance, **Balanced Performance**, Balanced Power, and Power.

Power/Performance Switch

This feature allows dynamic switching between Power and Performance power efficiency. The options are **Enable** and Disable.

Workload Configuration

This feature allows for optimization of workload. Balanced is recommended. The options are **Balanced** and I/O Sensitive.

► Program PowerCTL_MSR

PKG C-state Lat. Neg.

Use this feature to indicate whether latency should be negotiated with PCH for packaging C-States. The options are **Enable** and Disable.

SAPM Control

This feature indicates whether the PCU should control the System Agent PM using its power-performance tuning algorithm. The options are **Enable** and Disable.

Energy Efficient Turbo

Use this feature to enable energy efficient turbo mode. The options are **Enable** and Disable.

► DRAM RAPL Configuration

Override BW_LIMIT_TF

Use this feature to set the value for the custom tuning of BW_LIMIT_TF. The default value is **1**.

DRAM RAPL Extended Range

Use this feature to set the DRAM Running Average Power Limit (RAPL) Extended Range. The options are Disable and **Enable**.

► Chipset Configuration

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

► North Bridge

This feature allows the user to configure the following North Bridge settings.

► IIO Configuration

EV DFX (Device Function On-Hide) Features

When this feature is set to Enable, the EV_DFX Lock Bits that are located on a processor will always remain clear during electric tuning. The options are **Disable** and Enable.

► IIO1 Configuration

M.2 PCI-E 3.0 X4

This item configures the link speed of the PCI-E port specified by the user. The options are Gen 1 (Generation 1) (2.5 GT/s), Gen 2 (Generation 2) (5 GT/s) and **Gen 3 (Generation 3) (8 GT/s)**.

SLOT 7 PCI-E 3.0 X16

This item configures the link speed of the PCI-E port specified by the user. The options are Gen 1 (Generation 1) (2.5 GT/s), Gen 2 (Generation 2) (5 GT/s) and **Gen 3 (Generation 3) (8 GT/s)**.

► IOAT (Intel IO Acceleration) Configuration

Enable IOAT

Select Enable to enable Intel I/OAT (I/O Acceleration Technology) support, which significantly reduces CPU overhead by leveraging CPU architectural improvements and freeing the system resource for other tasks. The options are Disable and **Enable**.

No Snoop

Select Enable to support no-snoop mode for each CB device. The options are **Disable** and Enable.

► Intel VT for Directed I/O (VT-d)

Intel VT for Directed I/O (VT-d)

Select Enable to use Intel® Virtualization Technology support for Direct I/O VT-d support by reporting the I/O device assignments to the VMM (Virtual Machine Monitor) through the DMAR ACPI Tables. This feature offers fully-protected I/O resource sharing across Intel platforms, providing greater reliability, security and availability in networking and data-sharing. The options are **Enable** and Disable.

ACS Control

Use this feature to program Access Control Services (ACS) to the PCI-E Root Port Bridges. The options are **Enable** and Disable.

Interrupt Remapping

Select Enable for Interrupt Remapping support to enhance system performance. The options are **Enable** and Disable.

►Memory Configuration

Enforce POR

Select Enable to enforce POR restrictions on DDR4 frequency and voltage programming. The options are Enabled and Disabled.

Memory Frequency

Use this feature to set the maximum memory frequency for onboard memory modules. The options are Auto, 1333, 1400, 1600, 1800, 1867, 2000, 2133, 2200, 2400, 2600, 2667, and Reserved (Do not select Reserved).

Data Scrambling

Select Enabled to enable data scrambling to enhance system performance and data integrity. The options are Auto, Disabled and Enabled.

DRAM RAPL Baseline

Use this feature to set the run-time power-limit baseline for DRAM modules. The options are Disable, DRAM RAPL Mode 0, and DRAM RAPL Mode 1.

Set Throttling Mode

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

A7 Mode

Select Enabled to support the A7 (Addressing) mode to improve memory performance. The options are Enable and Disable.

►DIMM Information

This item displays the status of a DIMM module specified by the user.

- DIMMA1
- DIMMB1
- DIMMA2
- DIMMB2

►Memory RAS (Reliability_Availability_Serviceability) Configuration

Use this submenu to configure the following Memory RAS settings.

Patrol Scrub

Patrol Scrubbing is a process that allows the CPU to correct correctable memory errors detected on a memory module and send the correction to the requestor (the original source). When this item is set to Enabled, the IO hub will read and write back one cache line every 16K cycles, if there is no delay caused by internal processing. By using this method, roughly 64 GB of memory behind the IO hub will be scrubbed every day. The options are **Enable** and Disable.

Patrol Scrub Interval

This feature allows you to decide how many hours the system should wait before the next complete patrol scrub is performed. Use the keyboard to enter a value from 0-24. The Default setting is **24**.

Demand Scrub

Demand Scrubbing is a process that allows the CPU to correct correctable memory errors found on a memory module. When the CPU or I/O issues a demand-read command, and the read data from memory turns out to be a correctable error, the error is corrected and sent to the requestor (the original source). Memory is updated as well. Select Enable to use Demand Scrubbing for ECC memory correction. The options are **Enable** and Disable.

Device Tagging

Select Enable to support device tagging. The options are **Disable** and Enable.

►South Bridge

The following South Bridge information will display:

- USB Configuration
- USB Module Version
- USB Devices

Legacy USB Support

This feature enables support for legacy USB devices. Select Auto to disable legacy support if USB devices are not present. Select Disable to have USB devices available only for EFI applications. 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 settings are **Enabled** and Disabled.

EHCI Hand-Off

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

Port 60/64 Emulation

This feature enables or disables I/O port 60h/64h emulation support. This should be enabled for complete USB keyboard legacy support for non-USB-aware Operating Systems. The options are Disabled and **Enabled**.

USB 3.0 Support

Select Enabled for USB 3.0 support. The options are Smart Auto, **Auto**, Disabled, and Enabled.

EHCI1

Select Enabled to enable EHCI (Enhanced Host Controller Interface) support on USB 2.0 connector #1 (at least one USB 2.0 connector should be enabled for EHCI support). The options are Disabled and **Enabled**.

EHCI2

Select Enabled to enable EHCI (Enhanced Host Controller Interface) support on USB 2.0 connector #2 (at least one USB 2.0 connector should be enabled for EHCI support). The options are Disabled and **Enabled**.

XHCI Pre-Boot Driver

Select Enabled to enable XHCI (Extensible Host Controller Interface) support on a pre-boot drive specified by the user. The options are Enabled and **Disabled**.

► 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 items:

SATA Controller

This item enables or disables the onboard SATA controller supported by the Intel PCH chip. The options are **Enabled** and Disabled.

Configure SATA as

Select IDE to configure a SATA drive specified by the user as an IDE drive. Select AHCI to configure a SATA drive specified by the user as an AHCI drive. Select RAID to configure a SATA drive specified by the user as a RAID drive. The options are IDE, **AHCI**, and RAID.

****If the item above "Configure SATA as" is set to AHCI, the following items will display:***

SATA Frozen

Use this item to enable the HDD Security Frozen Mode. The options are Enabled and **Disabled**.

SATA AHCI LPM

Use this feature to enable the Link Power Management for SATA AHCI. The options are Disabled and **Enabled**.

Support Aggressive Link Power Management

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

SATA Port 0 - Port 5

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

- Model number of drive and capacity
- Software Preserve Support

Port 0 - Port 5 Hot Plug

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

Port 0 - Port 5 Spin Up Device

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

Port 0 - Port 5 SATA Device Type

Use this item to specify if the connected SATA device is a Solid State drive or a Hard Disk Drive. The options are **Hard Disk Drive** and Solid State Drive.

****If the item above "Configure SATA as" is set to IDE, the following items will display:***

Port 0 - Port 5 SATA Device Type (Available when a SATA port is detected)

Use this item to specify if the connected SATA device is a Solid State drive or a Hard Disk Drive. The options are **Hard Disk Drive** and Solid State Drive.

► Server ME (Management Engine) Configuration

This feature displays the following system ME configuration settings.

- General ME Configuration
- Operational Firmware Version
- ME Firmware Type
- Recovery Firmware Version
- ME Firmware Features
- ME Firmware Status #1
- ME Firmware Status #2
 - Current State
 - Error Code

► PCIe/PCI/PnP Configuration

The following information will display:

- PCI Bus Driver Version
- PCI Devices Common Settings:

PCI PERR/SERR Support

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

Above 4 G 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 4 G Address. The options are Enabled and **Disabled**.

SR-IOV (Available if the system supports Single-Root Virtualization)

Select Enabled for Single-Root IO Virtualization support. The options are Enabled and **Disabled**.

*Onboard 10GbE LAN SR-IOV not supported on D-1540/D-1520.

Maximum Payload

Use this feature to select the setting for the PCI Express maximum payload size. The options are **Auto**, 128 Bytes, 256 Bytes, 512 Bytes, 1024 Bytes, 2048 Bytes, and 4096 Bytes.

Relaxed Ordering

Select Enable to enable Relaxed Ordering support which will allow certain transactions to violate the strict-ordering rules of PCI bus for a transaction to be completed prior to other transactions that have already been enqueued. The options are Enabled and **Disabled**.

Extended Tag

Use this item to allow a device to use the 8-bit tag field as a requester. The options are **Disabled** and Enabled.

ARI Forwarding

When this feature is enabled, the Downstream Port disables its traditional device number to 0 when turning Type1 Configuration Request into a Type0 Configuration Request. The default value is **Disabled**.

M.2 PCI-E 3.0 X4 OPROM

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

SLOT 7 PCI-E 3.0 X16 Bifurcation

Use this feature to set the PCI-E slot to operate as a single x16 slot or to bifurcate into two x8 slots. A proper riser card must be used to take advantage of bifurcation. The options are x8x8 and **x16**.

SLOT 7 PCI-E 3.0 X16 OPROM

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

Onboard LAN Option ROM Type

Use this option to enable Option ROM support to boot the computer using a network device specified by the user. The options are **Legacy** and EFI.

Onboard LAN1 Option ROM

Use this option to select the type of device installed in LAN Port 1 used for system boot. The options are Disabled, **PXE**, and iSCSI.

Onboard LAN2 Option ROM

Use this option to select the type of device installed in LAN Port 2 used for system boot. The options are **Disabled** and PXE.

Onboard LAN3 Option ROM

Use this option to select the type of device installed in LAN Port 3 used for system boot. The options are **Disabled** and PXE.

Onboard LAN4 Option ROM

Use this option to select the type of device installed in LAN Port 4 used for system boot. The options are **Disabled** and PXE.

Onboard Video Option ROM

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

VGA Priority

This feature allows the user to select the graphics adapter to be used as the primary boot device. The options are **Onboard** and Offboard.

Network Stack

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

****If the item above set to Enabled, the four items below will appear:***

IPv4 PXE Support

Use this feature to enable IPv4 PXE boot support. The options are **Enabled** and Disabled.

IPv6 PXE Support

Use this feature to enable IPv6 PXE boot support. The options are **Enabled** and Disabled.

PXE boot wait time

Use this option to specify the number of times media will be checked. Press "+" or "-" on your keyboard to change the value. The default setting is **0**.

Media detect count

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

► Super IO Configuration

Super IO Chip AST2400

► Serial Port 1 Configuration

This submenu allows the user the configure settings of Serial Port 1.

Serial Port

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

Device Settings

This item displays the status of a serial port specified by the user.

Change Port 1 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 for Serial Port 1 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).

►Serial Port Console Redirection

COM1 Console Redirection

Console Redirection

Select Enabled to enable console redirection support for a serial port specified by the user. The options are Enabled and **Disabled**.

►COM1 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.

Terminal Type

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

Bits Per second

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

Data Bits

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

Parity

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

Stop Bits

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

Flow Control

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

VT-UTF8 Combo Key Support

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

Recorder Mode

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

Resolution 100x31

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

Legacy OS Redirection Resolution

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

Putty KeyPad

This feature selects the settings for Function Keys and KeyPad used for Putty, which is a terminal emulator designed for the Windows OS. The options are **VT100**, LINUX, XTERMR6, SC0, ESCN, and VT400.

Redirection After BIOS POST

Use this feature to enable or disable legacy console redirection after BIOS POST. 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.

SOL Console Redirection

Select Enabled to use the SOL port for Console Redirection. The options are **Enabled** and Disabled.

****If the item above set to Enabled, the following items will become available for user's configuration:***

► SOL Console Redirection Settings

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

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

Bits Per second

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

Data Bits

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

Parity

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

Stop Bits

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

Flow Control

Use this feature to set the flow control for Console Redirection to prevent data loss caused by buffer overflow. Send a "Stop" signal to stop sending data when the receiving buffer is full.

Send a "Start" signal to start sending data when the receiving buffer is empty. The options are **None** and Hardware RTS/CTS.

VT-UTF8 Combo Key Support

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

Recorder Mode

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

Resolution 100x31

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

Legacy OS Redirection Resolution

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

Putty KeyPad

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

Redirection After BIOS POST

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

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

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

EMS (Emergency Management Services) Console Redirection

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

****If the item above set to Enabled, the following items will become available for user's configuration:***

►EMS 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

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

Bits Per Second

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

Flow Control

Use this item 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

►ACPI Settings

WHEA Support

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

High Precision Event Timer

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

PCI AER Support

Use this feature to enable the ACPI OS to manage PCI Advanced Error Reporting. The options are Enabled and **Disabled**.

► Trusted Computing (Available when a TPM Device is Detected and TPM Jumper is Enabled)

Configuration

Security Device Support

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

TPM State

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

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

Pending Operation

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

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

Current Status Information

This feature indicates the status of the following TPM items:

TPM Enabled Status

TPM Active Status

TPM Owner Status

Intel TXT (LT-SX) Configuration

TXT Support

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

5.4 Event Logs

Use this tab page to manage settings for system event logs.



► Change SMBIOS Event Log Settings

Enabling/Disabling Options

SMBIOS Event Log

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

Runtime Error Logging Support

Use this feature to enable Runtime Error Logging support. The options are **Enable** and Disable. If this item is set to Enable, the following item will be available for configuration:

Memory Corrected Error Enabling (Available when the item above - Runtime Error Logging Support is set to Enable)

Select Enable for the BIOS to correct a memory error if it is correctable. The options are Disable and **Enable**.

Memory Corr. Error Threshold

Use this item to enter the threshold value for correctable memory errors. The default setting is **10**.

PCI-Ex Error Enable

Select Yes for the BIOS to correct errors occurred in the PCI-E slots. The options are Yes and **No**.

Erasing Settings**Erase Event Log**

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

When Log is Full

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

SMBIOS Event Long Standard Settings**Log System Boot Event**

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

MECI

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

METW

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

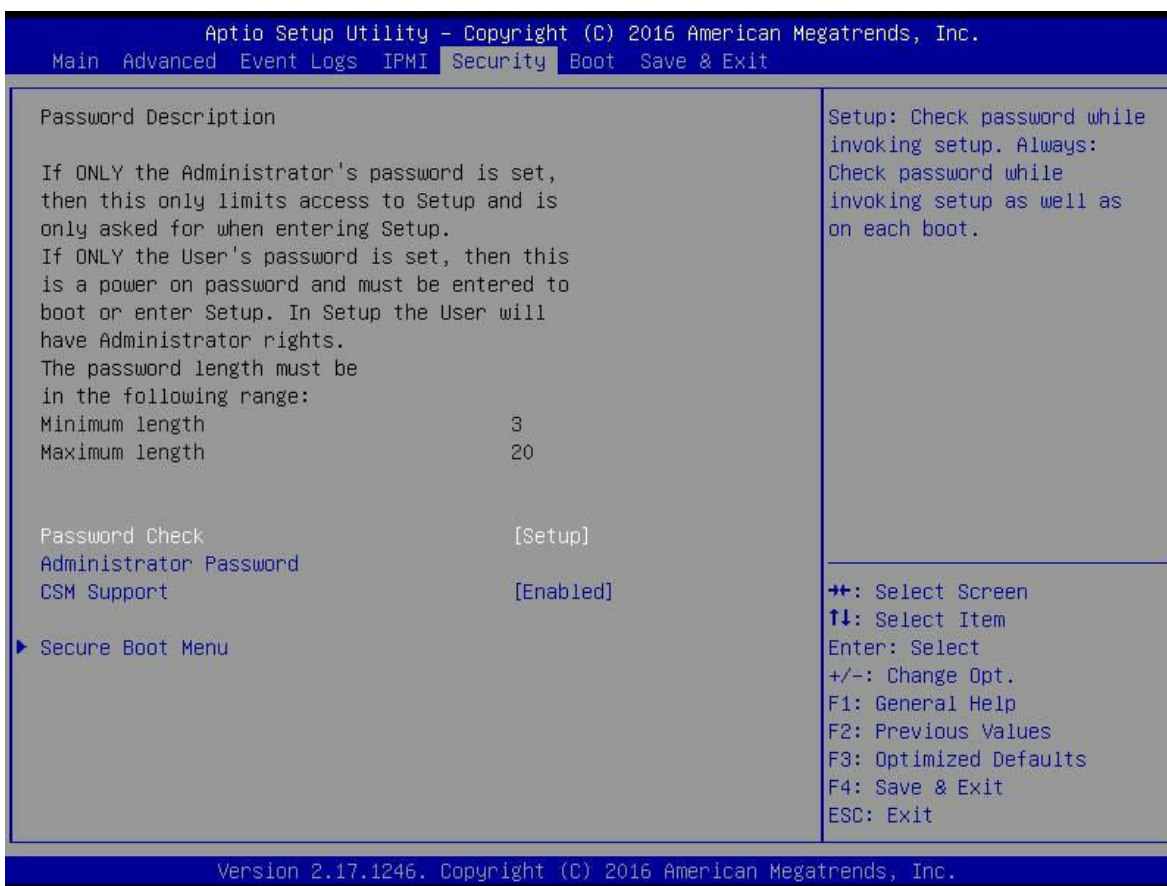
Note: After making changes on a setting, be sure to reboot the system for the changes to take effect.

►View SMBIOS Event Log

This section displays the contents of the SMBIOS Event Log.

5.5 Security

Use this tab page to manage security settings.



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.

Administrator Password

Press Enter to create a new, or change an existing Administrator password.

CSM Support

Select Enabled to support the EFI Compatibility Support Module (CSM), which provides compatibility support for traditional legacy BIOS for system boot. The options are **Enabled** and Disabled. The options are **Enabled** and Disabled.

►Secure Boot Menu

This section displays the contents of the following secure boot features:

- System Mode

- Secure Boot
- Vendor Keys

Secure Boot

Use this item to enable secure boot. The options are **Disabled** and Enabled.

Secure Boot Mode

Use this item to select the secure boot mode. The options are Standard and **Custom**.

►Key Management

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

Factory Default Key Provision

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

►Enroll All Factory Default Keys

Select Yes to install all default secure keys set by the manufacturer. The options are **Yes** and No.

Save All Secure Boot Variables

This feature allows the user to decide if all secure boot variables should be saved.

►Platform Key (PK)

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

Set New Key

Select Yes to load the new platform keys (PK) from the manufacturer's defaults. Select No to load the platform keys from a file. The options are **Yes** and No.

►Key Exchange Key (KEK)

Set New Key

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

Append Key

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

Set New Key

Select Yes to load the database from the manufacturer's defaults. Select No to load the DB from a file. The options are Yes and No.

Append Key

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

►Forbidden Signatures

Set New Key

Select Yes to load the DBX from the manufacturer's defaults. Select No to load the DBX from a file. The options are Yes and No.

Append New Key

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

►Authorized TimeStamps

Set New Key

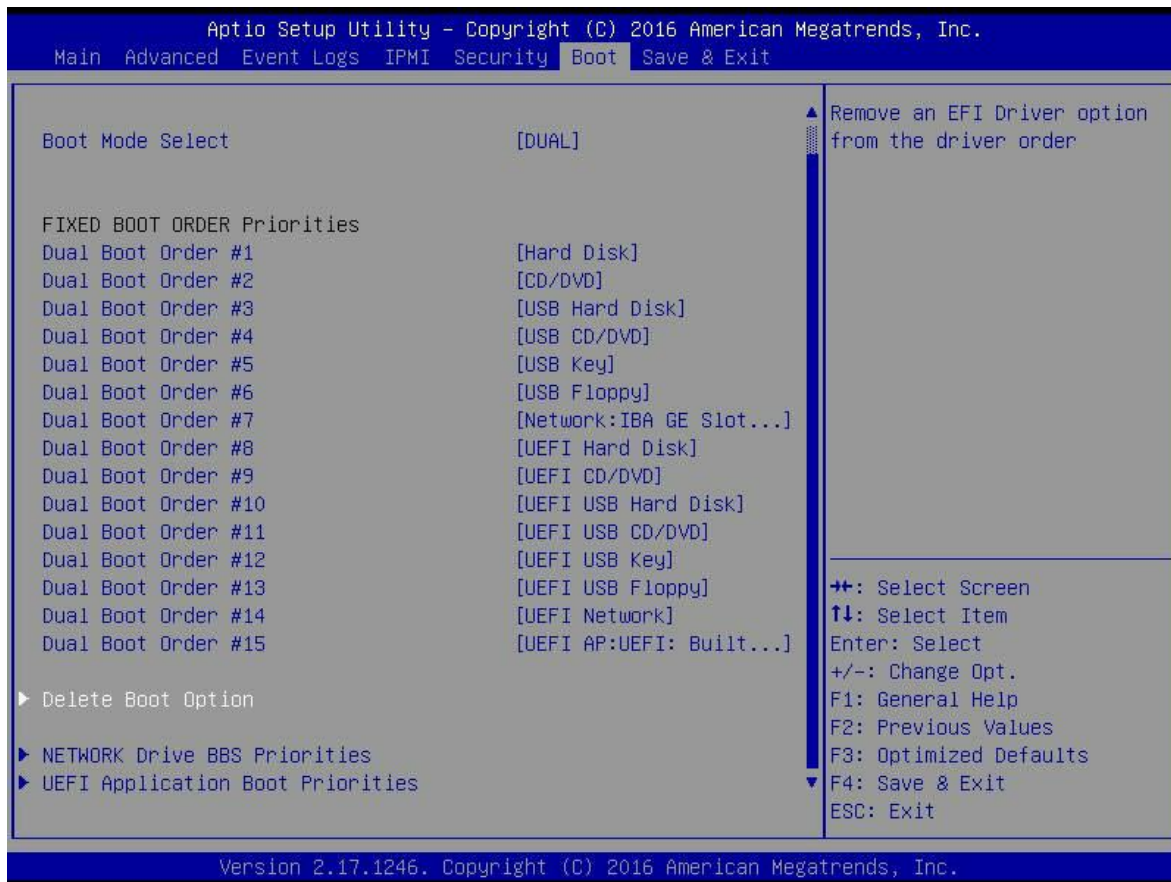
Select Yes to load the DBT from the manufacturer's defaults. Select No to load the DBT from a file. The options are Yes and No.

Append Key

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.

5.6 Boot Settings

Use this tab page to manage boot settings.



Setup Prompt Timeout

Use this item to indicate the length of time (the number of seconds) for the BIOS to wait before rebooting the system when the setup activation key is pressed. Enter the value of 65535 (0xFFFF) for the BIOS to wait indefinitely. The default setting is **1**.

Boot Mode Select

Use this item to select the type of device that the system is going to boot from. The options are Legacy, UEFI, and **Dual**. The default setting is Dual.

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.

- Dual Boot Order #1
- Dual Boot Order #2
- Dual Boot Order #3

- Dual Boot Order #4
- Dual Boot Order #5
- Dual Boot Order #6
- Dual Boot Order #7
- Dual Boot Order #8
- Dual Boot Order #9
- Dual Boot Order #10
- Dual Boot Order #11
- Dual Boot Order #12
- Dual Boot Order #13
- Dual Boot Order #14
- Dual Boot Order #15

►Delete Boot Option

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

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

►Network Drive BBS Priorities

This feature allows the user to specify which Network devices are boot devices.

- Legacy Boot Order #1

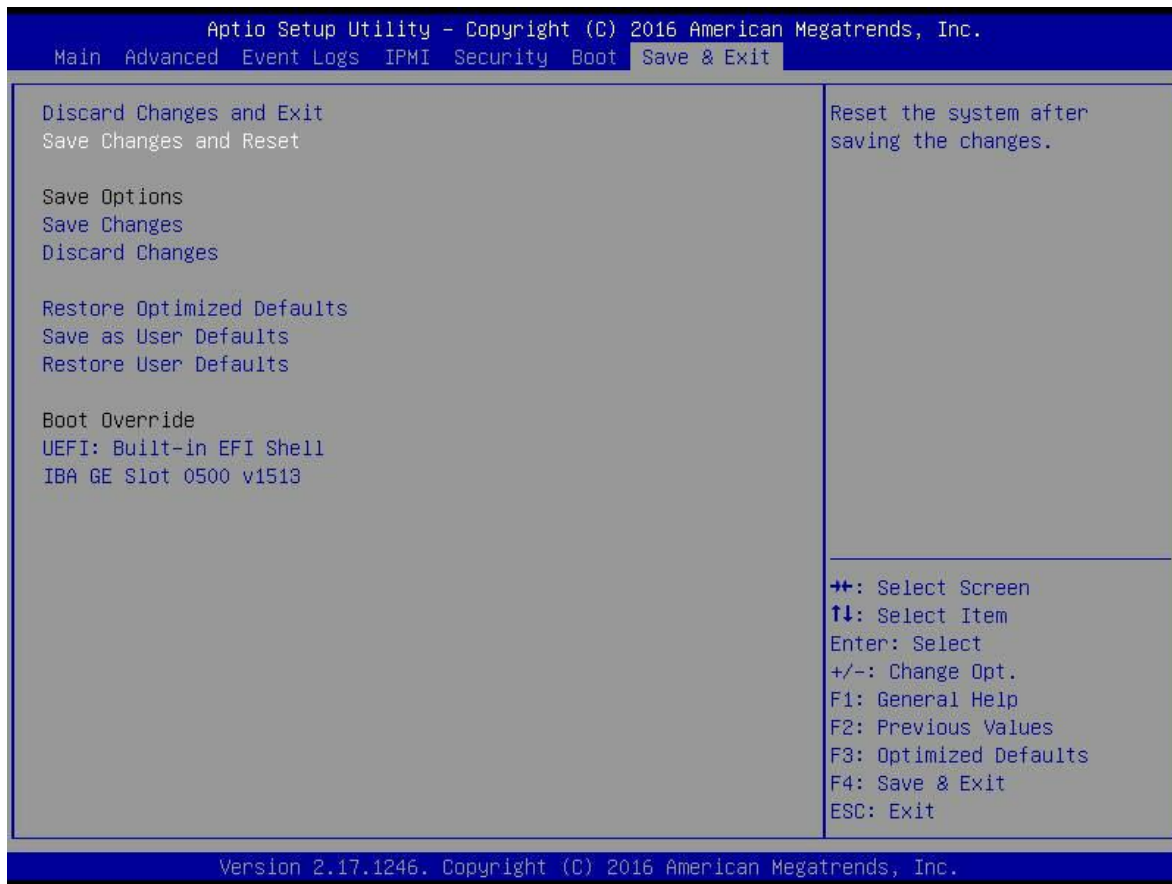
►UEFI Application Boot Priorities

This feature allows the user to specify which UEFI devices are boot devices.

- UEFI Boot Order #1

5.7 Save & Exit

Use this tab page to manage your exit from the Setup Utility.



Discard Changes and Exit

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

Save Changes and Reset

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

Save Options

Save Changes

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

Discard Changes

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

Restore Defaults

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

Save As User Defaults

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

Restore User Defaults

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

Appendix A

BIOS Error Codes

A.1 BIOS Error Beep (POST) Codes

During the POST (Power-On Self-Test) routines, which are performed each time the system is powered on, errors may occur.

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

Fatal errors are those which will not allow the system to continue the boot-up procedure. 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 numbers on the fatal error list (on the following page) correspond to the number of beeps for the corresponding error. All errors listed, with the exception of Beep Code 8, are fatal errors.

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 AOC-LPC80-20).

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

Appendix B

Standardized Warning Statements for AC Systems

B.1 About Standardized Warning Statements

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

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

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

Warning Definition



Warning! This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents.

警告の定義

この警告サインは危険を意味します。

人身事故につながる可能性がありますので、いずれの機器でも動作させる前に、電気回路に含まれる危険性に注意して、標準的な事故防止策に精通して下さい。

此警告符号代表危險。

您正处于可能受到严重伤害的工作环境中。在您使用设备开始工作之前，必须充分意识到触电的危险，并熟练掌握防止事故发生的标准工作程序。请根据每项警告结尾的声明号码找到此设备的安全性警告说明的翻译文本。

此警告符號代表危險。

您目前所處的工作環境可能讓您受傷。在您使用任何設備之前，請注意觸電的危險，並且要熟悉預防事故發生的標準工作程序。請依照每一注意事項後的號碼找到相關的翻譯說明內容。

Warnung

WICHTIGE SICHERHEITSHINWEISE

Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu Verletzungen führen kann. Machen Sie sich vor der Arbeit mit Geräten mit den Gefahren elektrischer Schaltungen und den üblichen Verfahren zur Vorbeugung vor Unfällen vertraut. Suchen Sie mit der am Ende jeder Warnung angegebenen Anweisungsnummer nach der jeweiligen Übersetzung in den übersetzten Sicherheitshinweisen, die zusammen mit diesem Gerät ausgeliefert wurden.

BEWAHREN SIE DIESE HINWEISE GUT AUF.

INSTRUCCIONES IMPORTANTES DE SEGURIDAD

Este símbolo de aviso indica peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considere los riesgos de la corriente eléctrica y familiarícese con los procedimientos estándar de prevención de accidentes. Al final de cada advertencia encontrará el número que le ayudará a encontrar el texto traducido en el apartado de traducciones que acompaña a este dispositivo.

GUARDE ESTAS INSTRUCCIONES.

IMPORTANTES INFORMATIONS DE SÉCURITÉ

Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant entraîner des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers liés aux circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents. Pour prendre connaissance des traductions des avertissements figurant dans les consignes de sécurité traduites qui accompagnent cet appareil, référez-vous au numéro de l'instruction situé à la fin de chaque avertissement.

CONSERVEZ CES INFORMATIONS.

תקנון הזהרות אזהרה

הזהרות הבאות הן אזהרות על פי תקני התעשייה, על מנת להזהיר את המשתמש מפני חבלה פיזית אפשרית. במידה ויש שאלות או היתקלות בבעיה כלשהי, יש ליצור קשר עם מחלקת תמיכה טכנית של סופרמיקרו. טכנאים מוסמכים בלבד רשאים להתקין או להגדיר את הרכיבים. יש לקרוא את הנספח במלואו לפני התקנת או הגדרת הרכיבים במארזי סופרמיקרו.

اَكْ فِ حَالَةٍ وُكِي اَيُّ تَتَسَبَّبُ فِ اَصَابَةِ جَسَدٍ هَذَا الزَّهْرُ عَ خَطَرٍ! تَحْذَرُ .
 قَبْلَ اَيُّ تَعْوَلُ عَلَى اَيُّ هَعْدَاتٍ، كِي عَلَى عِلْنِ بِالْوَخَاطِزِ اَلْ اُجُوَّةِ عِي الذَّوَائِرِ
 الْكَهْزِبَائِيَّةِ
 وَكِي عَلَى دَرَاةٍ بِالْوَوَارِسَاتِ الْبَقَائِيَّةِ لَوْ عَ وَقَعَ اَيُّ حَادَثٍ
 اسْتَخْذَمَ رَقْنِ الْبِ اَيُّ الْوَصُصِ فِ هَآءِ كُلِّ تَحْذَرُ لِّلْعَشْرِ تَزْجُوتَهَا

안전을 위한 주의사항

경고!

이 경고 기호는 위험이 있음을 알려 줍니다. 작업자의 신체에 부상을 야기 할 수 있는 상태에 있게 됩니다. 모든 장비에 대한 작업을 수행하기 전에 전기회로와 관련된 위험요소들을 확인하시고 사전에 사고를 방지할 수 있도록 표준 작업절차를 준수해 주시기 바랍니다.

해당 번역문을 찾기 위해 각 경고의 마지막 부분에 제공된 경고문 번호를 참조하십시오

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

Dit waarschuwings symbool betekent gevaar. U verkeert in een situatie die lichamelijk letsel kan veroorzaken. Voordat u aan enige apparatuur gaat werken, dient u zich bewust te zijn van de bij een elektrische installatie betrokken risico's en dient u op de hoogte te zijn van de standaard procedures om ongelukken te voorkomen. Gebruik de nummers aan het eind van elke waarschuwing om deze te herleiden naar de desbetreffende locatie.

BEWAAR DEZE INSTRUCTIES

Installation Instructions



Warning! Read the installation instructions before connecting the system to the power source.

設置手順書

システムを電源に接続する前に、設置手順書をお読み下さい。

警告

将此系统连接电源前,请先阅读安装说明。

警告

將系統與電源連接前，請先閱讀安裝說明。

Warnung

Vor dem Anschließen des Systems an die Stromquelle die Installationsanweisungen lesen.

¡Advertencia!

Lea las instrucciones de instalación antes de conectar el sistema a la red de alimentación.

Attention

Avant de brancher le système sur la source d'alimentation, consulter les directives d'installation.

יש לקרוא את הוראות התקנה לפני חיבור המערכת למקור מתח.

اقرأ إرشادات التركيب قبل توصيل النظام إلى مصدر للطاقة

시스템을 전원에 연결하기 전에 설치 안내를 읽어주십시오.

Waarschuwing

Raadpleeg de installatie-instructies voordat u het systeem op de voedingsbron aansluit.

Circuit Breaker

Warning! This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: 12 V, 3.3 A.

サーキット・ブレーカー

この製品は、短絡(過電流)保護装置がある建物での設置を前提としています。

保護装置の定格が12V、3.3Aを超えないことを確認下さい。

警告

此产品的短路(过载电流)保护由建筑物的供电系统提供,确保短路保护设备的额定电流不大于12V, 3.3A。

警告

此產品的短路(過載電流)保護由建築物的供電系統提供,確保短路保護設備的額定電流不大於12V, 3.3A。

Warnung

Dieses Produkt ist darauf angewiesen, dass im Gebäude ein Kurzschluss- bzw. Überstromschutz installiert ist. Stellen Sie sicher, dass der Nennwert der Schutzvorrichtung nicht mehr als: 12V, 3.3A beträgt.

¡Advertencia!

Este equipo utiliza el sistema de protección contra cortocircuitos (o sobrecorrientes) del edificio. Asegúrese de que el dispositivo de protección no sea superior a: 12V, 3.3A.

Attention

Pour ce qui est de la protection contre les courts-circuits (surtension), ce produit dépend de l'installation électrique du local. Vérifiez que le courant nominal du dispositif de protection n'est pas supérieur à :12V, 3.3A.

מוצר זה מסתמך על הגנה המותקנת במבנים למניעת קצר חשמלי. יש לוודא כי המכשיר המגן מפני הקצר החשמלי הוא לא יותר מ-12VDC, 3.3A.

هذا المنتج يعتمد على معدات الحماية مه الدوائر القصيرة التي تم تثبيتها في المبنى
تأكد من أن تقييم الجهاز الوقائي ليس أكثر من : 3.3A, 12V

경고!

이 제품은 전원의 단락(과전류)방지에 대해서 전적으로 건물의 관련 설비에 의존합니다. 보호장치의 정격이 반드시 12V(볼트), 3.3A(암페어)를 초과하지 않도록 해야 합니다.

Waarschuwing

Dit product is afhankelijk van de kortsluitbeveiliging (overspanning) van uw elektrische installatie. Controleer of het beveiligde apparaat niet groter gedimensioneerd is dan 12V, 3.3A.

Power Disconnection Warning



Warning! The system must be disconnected from all sources of power and the power cord removed from the power supply module(s) before accessing the chassis interior to install or remove system components.

電源切斷の警告

システムコンポーネントの取り付けまたは取り外しのために、シャーシ内部にアクセスするには、システムの電源はすべてのソースから切斷され、電源コードは電源モジュールから取り外す必要があります。

警告

在你打开机箱并安装或移除内部器件前,必须将系统完全断电,并移除电源线。

警告

在您打開機殼安裝或移除內部元件前，必須將系統完全斷電，並移除電源線。

Warnung

Das System muss von allen Quellen der Energie und vom Netzanschlusskabel getrennt sein, das von den Spg.Versorgungsteilmodulen entfernt wird, bevor es auf den Chassisinnenraum zurückgreift, um Systemsbestandteile anzubringen oder zu entfernen.

¡Advertencia!

El sistema debe ser disconnected de todas las fuentes de energía y del cable eléctrico quitado de los módulos de fuente de alimentación antes de tener acceso el interior del chasis para instalar o para quitar componentes de sistema.

Attention

Le système doit être débranché de toutes les sources de puissance ainsi que de son cordon d'alimentation secteur avant d'accéder à l'intérieur du chassis pour installer ou enlever des composants de système.

אזהרה מפני ניתוק חשמלי

אזהרה!

יש לנתק את המערכת מכל מקורות החשמל ויש להסיר את כבל החשמלי מהספק לפני גישה לחלק הפנימי של המארז לצורך התקנת או הסרת רכיבים.

يجب فصل انظاؤ من جميع مصادر انطاقت وإزانت سهك انكهرباء من وحدة امداد
انطاقت قېم
انصل إلى امناطق انداخھيت نهھيكم نتشيج أو إزانت مكنناث الجهاز

경고!

시스템에 부품들을 장착하거나 제거하기 위해서는 새시 내부에 접근하기 전에 반드시 전원 공급장치로부터 연결되어있는 모든 전원과 전기코드를 분리해주어야 합니다.

Waarschuwing

Voordat u toegang neemt tot het binnenwerk van de behuizing voor het installeren of verwijderen van systeem onderdelen, dient u alle spanningsbronnen en alle stroomkabels aangesloten op de voeding(en) van de behuizing te verwijderen

Equipment Installation



Warning! Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

機器の設置

トレーニングを受け認定された人だけがこの装置の設置、交換、またはサービスを許可されています。

警告

只有经过培训且具有资格的人员才能进行此设备的安装、更换和维修。

警告

只有經過受訓且具資格人員才可安裝、更換與維修此設備。

Warnung

Das Installieren, Ersetzen oder Bedienen dieser Ausrüstung sollte nur geschultem, qualifiziertem Personal gestattet werden.

¡Advertencia!

Solamente el personal calificado debe instalar, reemplazar o utilizar este equipo.

Attention

Il est vivement recommandé de confier l'installation, le remplacement et la maintenance de ces équipements à des personnels qualifiés et expérimentés.

אזהרה!

צוות מוסמך בלבד רשאי להתקין, להחליף את הציוד או לתת שירות עבור הציוד.

والمدربيه لتزكيب واستبدال أو خدمة هذا الجهاز يجب أن يسمح فقط للموظفيه المؤهليه

경고!

훈련을 받고 공인된 기술자만이 이 장비의 설치, 교체 또는 서비스를 수행할 수 있습니다.

Waarschuwing

Deze apparatuur mag alleen worden geïnstalleerd, vervangen of hersteld door geschoold en gekwalificeerd personeel.

Restricted Area

Warning! This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security. (This warning does not apply to workstations).

アクセス制限区域

このユニットは、アクセス制限区域に設置されることを想定しています。

アクセス制限区域は、特別なツール、鍵と錠前、その他のセキュリティの手段を用いてのみ出入りが可能です。

警告

此部件应安装在限制进出的场所，限制进出的场所指只能通过使用特殊工具、锁和钥匙或其它安全手段进出的场所。

警告

此裝置僅限安裝於進出管制區域，進出管制區域係指僅能以特殊工具、鎖頭及鑰匙或其他安全方式才能進入的區域。

Warnung

Diese Einheit ist zur Installation in Bereichen mit beschränktem Zutritt vorgesehen. Der Zutritt zu derartigen Bereichen ist nur mit einem Spezialwerkzeug, Schloss und Schlüssel oder einer sonstigen Sicherheitsvorkehrung möglich.

¡Advertencia!

Esta unidad ha sido diseñada para instalación en áreas de acceso restringido. Sólo puede obtenerse acceso a una de estas áreas mediante la utilización de una herramienta especial, cerradura con llave u otro medio de seguridad.

Attention

Cet appareil doit être installé dans des zones d'accès réservés. L'accès à une zone d'accès réservé n'est possible qu'en utilisant un outil spécial, un mécanisme de verrouillage et une clé, ou tout autre moyen de sécurité.

אזור עם גישה מוגבלת

אזהרה!

יש להתקין את היחידה באזורים שיש בהם הגבלת גישה. הגישה ניתנת בעזרת 'כלי אבטחה בלבד' (מפתח, מנעול וכד.).

تخصيص هذه انحدزة نترك بُها ف مناطق محظورة تم .
ممكن اننصل إن منطقت محظورة فقط من خلال استخذاو أداة خاصت
أو أ وس هُت أخري نلاأمما ققم ومفتاح

경고!

이 장치는 접근이 제한된 구역에 설치하도록 되어있습니다. 특수도구, 잠금 장치 및 키, 또는 기타 보안 수단을 통해서만 접근 제한 구역에 들어갈 수 있습니다.

Waarschuwing

Dit apparaat is bedoeld voor installatie in gebieden met een beperkte toegang. Toegang tot dergelijke gebieden kunnen alleen verkregen worden door gebruik te maken van speciaal gereedschap, slot en sleutel of andere veiligheidsmaatregelen.

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

電池更換不當會有爆炸危險。請只使用同類電池或制造商推荐的功能相当的電池更換原有電池。請按制造商的說明處理廢舊電池。

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 فعلى
اسحبذال البطارية
فقط بنفس النوع أو ما يعادلها مما أوصت به الشركة المصنعة
جخلص من البطاريات المسحمة وفقاً لعمليات الشركة الصانعة

경고!

배터리가 올바르게 교체되지 않으면 폭발의 위험이 있습니다. 기존 배터리와 동일하거나 제조사에서 권장하는 동등한 종류의 배터리로만 교체해야 합니다. 제조사의 안내에 따라 사용된 배터리를 처리하여 주십시오.

Waarschuwing

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

Comply with Local and National Electrical Codes



Warning! Installation of the equipment must comply with local and national electrical codes.

地方および国の電気規格に準拠

機器の取り付けはその地方および国の電気規格に準拠する必要があります。

警告

设备安装必须符合本地与本国电气法规。

警告

設備安裝必須符合本地與本國電氣法規。

Warnung

Die Installation der Geräte muss den Sicherheitsstandards entsprechen.

¡Advertencia!

La instalacion del equipo debe cumplir con las normas de electricidad locales y nacionales.

Attention

L'équipement doit être installé conformément aux normes électriques nationales et locales.

תיאום חוקי החשמל הארצי

אזהרה!

התקנת הציוד חייבת להיות תואמת לחוקי החשמל המקומיים והארציים.

تركيب المعدات الكهربائية يجب أن يمثل للقوايه المحلية والبطية المتعلقة
بالكهرباء

경고!

현 지역 및 국가의 전기 규정에 따라 장비를 설치해야 합니다.

Waarschuwing

Bij installatie van de apparatuur moet worden voldaan aan de lokale en nationale elektriciteitsvoorschriften.

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.

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

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.

Power Cable and AC Adapter



Warning! When installing the product, use the provided or designated connection or procure cables, power cables and AC adaptors complying with local codes and safety requirements including proper cord size and plug. Using any other cables and adaptors could cause a malfunction or a fire. Electrical Appliance and Material Safety Law prohibits the use of UL or CSA -certified cables (that have UL/CSA shown on the code) for any other electrical devices than products designated by Supermicro only.

電源コードとACアダプター

製品を設置する場合、提供または指定および購入された接続ケーブル、電源コードとACアダプターを、該当する地域の条例や安全基準に適合するコードサイズやプラグと共に使用下さい。他のケーブルやアダプタを使用すると故障や火災の原因になることがあります。

電気用品安全法は、ULまたはCSA認定のケーブル(UL/CSEマークがコードに表記)を Supermicro が指定する製品以外に使用することを禁止しています。

警告

安装此产品时,请使用本身提供的或指定的或采购的连接线,电源线和电源适配器。包含遵照当地法规和安全要求的合规的电源线尺寸和插头.使用其它线材或适配器可能会引起故障或火灾。除了Supermicro所指定的产品,电气用品和材料安全法律规定禁止使用未经UL或CSA认证的线材。(线材上会显示UL/CSA符号)。

警告

安裝此產品時,請使用本身提供的或指定的或採購的連接線,電源線和電源適配器。包含遵照當地法規和安全要求的合規的電源線尺寸和插頭.使用其它線材或適配器可能會引起故障或火災。除了Supermicro所指定的產品,電氣用品和材料安全法律規定禁止使用未經UL或CSA認證的線材。(線材上會顯示UL/CSA符號)。

Warnung

Nutzen Sie beim Installieren des Produkts ausschließlich die von uns zur Verfügung gestellten Verbindungskabeln, Stromkabeln und/oder Adapter, die Ihre örtlichen Sicherheitsstandards einhalten. Der Gebrauch von anderen Kabeln und Adapter können Fehlfunktionen oder Feuer verursachen. Die Richtlinien untersagen das Nutzen von UL oder CAS zertifizierten Kabeln (mit UL/CSA gekennzeichnet), an Geräten oder Produkten die nicht mit Supermicro gekennzeichnet sind.

¡Advertencia!

Cuando instale el producto, utilice la conexión provista o designada o procure cables, Cables de alimentación y adaptadores de CA que cumplan con los códigos locales y los requisitos de seguridad, incluyendo el tamaño adecuado del cable y el enchufe. El uso de otros cables y adaptadores podría causar un mal funcionamiento o un incendio. La Ley de Seguridad de Aparatos Eléctricos y de Materiales prohíbe El uso de cables certificados por UL o CSA (que tienen el certificado UL / CSA en el código) para cualquier otros dispositivos eléctricos que los productos designados únicamente por Supermicro.

Attention

Lors de l'installation du produit, utilisez les cables de connection fournis ou désigné ou achetez des cables, cables de puissance et adaptateurs respectant les normes locales et les conditions de securite y compris les tailles de cables et les prises electriques appropriées. L'utilisation d'autres cables et adaptateurs peut provoquer un dysfonctionnement ou un incendie. Appareils électroménagers et la Loi sur la Sécurité Matériel interdit l'utilisation de câbles certifiés- UL ou CSA (qui ont UL ou CSA indiqué sur le code) pour tous les autres appareils électriques sauf les produits désignés par Supermicro seulement.

AC ימאתמו מילמשח מילבכ

!הרהזא

ךרוצל ומאתוה וא ושכרנ רשא AC מימאתמו מיקפס, מילבכב שמתשהל שי, רצומה תא מיניקתמ רשאכ לכב שומיש. עקתהו לבכה לש הנוכח הדימ ללוכ, תוימוקמה תוחיטבה תושירדל ומאתוה רשאו, הנקתהה למשחה ירישכמב שומישה יקוחל מאתהב. ילמשח רצק וא הלוקתל מורגל לולע, רחא גוסמ מאתמ וא לבכ לש דוק מהילע עיפומ רשאכ) UL-ב או CSA-ב -ב מיכמסומה מילבכב שמתשהל רוסיא מייק, תוחיטבה יקוחו דבלב Supermicro י"ע מאתוה רשא רצומב קר אלא, רחא ילמשח רצומ לכ רובע (UL/CSA)

תאלבאלא אארשב מק וא ענדחמל וא ערפוטמל תאליסוטל מודחטסאב מק, גתנמל בייקרת דנע כלז יפ אמב עילחמל עמאלסל תאבלטתמו נינאווב מאזתל עמ דדרתמל ראיטל תאלוחמו עיזאברמל קל. קיירח וא לטע יפ בבסטטי דק ירשא תאלוחמו תאלבאק יא מודחטסא. מילסל סבאלאו לסומל מרח. CSA וא UL לבק נמ ענדחמל תאלבאלא מודחטסא תאדעמל עיזאברמל קל עזגאל עמאלסל נונאק רזחי. Supermicro לבק נמ ענדחמל עינעמל תאגתנמל ריג ירשא תאדעמ יא עמ (UL/CSA) עמאלע למחת יטל או.

전원 케이블 및 AC 어댑터

경고! 제품을 설치할 때 현지 코드 및 적절한 굵기의 코드와 플러그를 포함한 안전 요구 사항을 준수하여 제공되거나 지정된 연결 혹은 구매 케이블, 전원 케이블 및 AC 어댑터를 사용하십시오.

다른 케이블이나 어댑터를 사용하면 오작동이나 화재가 발생할 수 있습니다. 전기 용품 안전법은 UL 또는 CSA 인증 케이블 (코드에 UL / CSA가 표시된 케이블)을 Supermicro가 지정한 제품 이외의 전기 장치에 사용하는 것을 금지합니다.

Stroomkabel en AC-Adapter

Waarschuwing! Bij het aansluiten van het Product uitsluitend gebruik maken van de geleverde Kabels of een andere geschikte aan te schaffen Aansluitmethode, deze moet altijd voldoen aan de lokale voorschriften en veiligheidsnormen, inclusief de juiste kabeldikte en stekker. Het gebruik van niet geschikte Kabels en/of Adapters kan een storing of brand veroorzaken. Wetgeving voor Elektrische apparatuur en Materiaalveiligheid verbied het gebruik van UL of CSA -gecertificeerde Kabels (met UL/CSA in de code) voor elke andere toepassing dan de door Supermicro hiervoor beoogde Producten.

Appendix C

System Specifications

Processors

Single Intel® Atom x5-E3940

Note: Please refer to the motherboard specifications pages on our website for updates to supported processors.

BIOS

128Mb SPI Flash EEPROM with AMI UEFI BIOS

Memory

One SODIMM socket; supports up to 8 GB SODIMM; Memory Type DDR3L 1866 MHz;

Expansion Slots

M.2--Interface: PCI-E 3.0 x4, Form Factor: M Key 2280, supporting SATA/PCI-E or WWAN/GNSS devices

Motherboard

A2SAN-E; proprietary 7.68" x 6.25" x 1.73"

Chassis

CSE-E101; 3.5" SBC, Width 7.6" (193mm), Height 1.7" (43mm), Depth 8.9" (226mm)

Power Supply

40 Watts DC Power Adapter

Weight

Gross Weight: 6.5 lbs (2.95 kg)

Net Weight: 3.0 lbs (1.36 kg)

Operating Environment

Operating Temperature: -20°C to 60°C (-4°F to 140°F)

Non-operating Temperature: -40°C to 70°C (-40°F to 158°F)

Operating Relative Humidity: 8% to 90% (non-condensing)

Non-operating Relative Humidity: 5% to 95% (non-condensing)

Regulatory Compliance

Electromagnetic Emissions: FCC Class B, EN 55032/55022 Class B, EN 61000-3-2/3-3, CISPR 32/22 Class B

Electromagnetic Immunity: EN 55024/CISPR 24, (EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11)

Safety: CSA/EN/IEC/UL 60950-1 Compliant, UL or CSA Listed (USA and Canada), CE Marking (Europe),
The Bureau of Standards, Metrology and Inspection (BSMI)

Perchlorate Warning

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

Traditional Chinese Version

Safety Warnings

Additional Traditional Chinese Version warning statements are included here in this appendix.

安全警告 (注意這些警告標誌)

以下的警告標誌對於安全使用本設備非常重要，可以避免操作人員遭遇危險，以及財產受到任何損失。

錯誤使用本機器或忽視這本手冊，所引起的傷害或損失等級分類如下：



Warning! (警告) 此注意標誌提醒未能依照正確指示使用機器，可能導致生命危險 或造成嚴重傷害。



Caution (注意) 此注意標誌提醒未能依照正確指示使用機器，可能導致受傷或財產損失。



此標誌提示絕對不可做的動作。



此標誌提示一般性務必要採取的行為。



Warnings: (警告)



本機器必須用接地線與地面確實連接。否則受到電擊或閃電時，將對您造成危險。如果電源插座沒有接地端子，或是有無法接地情況，請務必洽詢 專業技術人員，妥善安裝這些設施。



1. 電源必須在 12V 10%之間
2. 使用額定合格開關來提供電源迴路。
3. 機器安裝愈接近電源插座愈好。
4. 移動機器必須由維護工程師來處理。



1. 勿使用多孔插座或延長線，否則可能造成溫度過高而引起火災。
2. 勿在電源線放置重物，否則可能引起火災或受到電擊。
3. 勿踏在電源線上，及勿損傷或任意處理電源線，否則可能引起火災或受到電擊。
4. 勿綁住或紮緊電源線，否則可能引起火災或受到電擊。
5. 勿將花瓶、花盆或盛水容器放在機器上，如果水滴濺出，可能引起火災或受到電擊。



1. 機器如果產生怪味或不正常聲響，必需立即關閉機器電源開關，然後從插座取下插頭。
2. 絕對不可以沾濕的手插拔插頭，否則可能受到電擊。
3. 插頭必須確實插妥在插座上，如果未能妥善插好，可能會引起火災。
4. 僅可使用機器所附電源插頭。



拔取電源線時，確實抓住插頭部位，否則導致插頭破裂可能引起火災或受到電擊。



不可企圖拆解或擅自修改機器，否則可能引起火災或受到電擊。



不可將機器安裝在下列場所：

1. 濕氣高及多灰塵的地方。
2. 地板不穩的地方。如果機器傾倒，可能造成傷害。



關閉上機蓋時，千萬不可將手放在上機蓋與主機體之間。



1. 移動機器前，必須記住拔下插頭，否則插頭可能受損而引起火災或受到電擊。
2. 為安全起見，夜晚無人使用伺服器時，必須確實將它的電源關閉。
3. 連續假日長期無人使用伺服器時，必須確實將它的電源關閉。
4. 插座周圍必須淨空，以便隨時可以很輕易的拔下插頭。



警告使用者：這是乙類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策

Table 2-1. Declaration of the Presence Condition of the Restricted Substances Marking (限用物質含有情況標示聲明書)

限用物質含有情況標示聲明書

Declaration of the Presence Condition of the Restricted Substances Marking

設備名稱：伺服器， Equipment name: Server		型號（型式）：適用於 E100-9AP及其所有系列機種 (Type): E100-9AP and all its series models					Type designation
單元 Unit	限用物質及其化學符號 Restricted Substances and its Chemical Symbols						
	鉛 Lead (Pb)	汞 Mercury (Hg)	鎘 Cadmium (Cd)	六價鉻 Hexavalent Chromium (Cr+6)	多溴聯苯 Polybrominated Biphenyls (PBB)	多溴二苯醚 Polybrominated Diphenyl Ethers (PBDE)	
機殼 Chassis	○	○	○	○	○	○	
機殼風扇 Chassis Fan	—	○	○	○	○	○	
線材 Cable	○	○	○	○	○	○	
主機板 Motherboard	—	○	○	○	○	○	
電源供應器 Power Supply	—	○	○	○	○	○	
電源背板 PDB	—	○	○	○	○	○	
附加卡 Add-on Card	—	○	○	○	○	○	
備考1. “超出0.1 wt %” 及 “超出0.01 wt %” 係指限用物質之百分比含量超出百分比含量基準值。 Note 1: “Exceeding 0.1 wt %” and “exceeding 0.01 wt %” indicate that the percentage content of the restricted substance exceeds the reference percentage value of presence condition. 備考2. “○” 係指該項限用物質之百分比含量未超出百分比含量基準值。 Note 2: “○” indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence. 備考3. “—” 係指該項限用物質為排除項目。 Note 3: The “—” indicates that the restricted substance corresponds to the exemption.							

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 an add-on card to boot the system. The UEFI offers clean, hands-off management to a computer during system 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 boot block contains critical BIOS codes, including memory detection and recovery codes for the user to flash a new BIOS image if the original main BIOS image is corrupted. When the system power is first turned on, the boot block codes execute first. Once this process is completed, the main BIOS code will continue with system initialization and the remaining POST (Power-On Self-Test) routines.

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) which is 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 stored in the device.

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 writable CD/DVD.

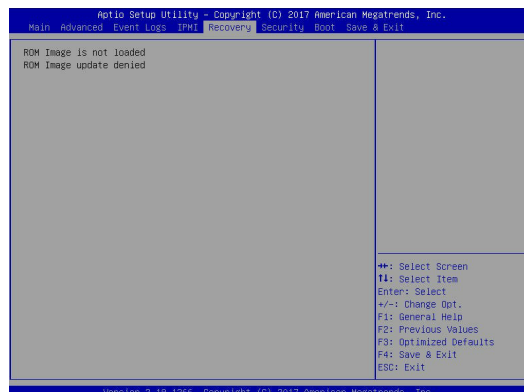
Note: If you cannot locate the "Super.ROM" file in your driver disk, visit our website at www.supermicro.com to download the BIOS image into a USB flash device and rename it "Super.ROM" for BIOS recovery use.

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

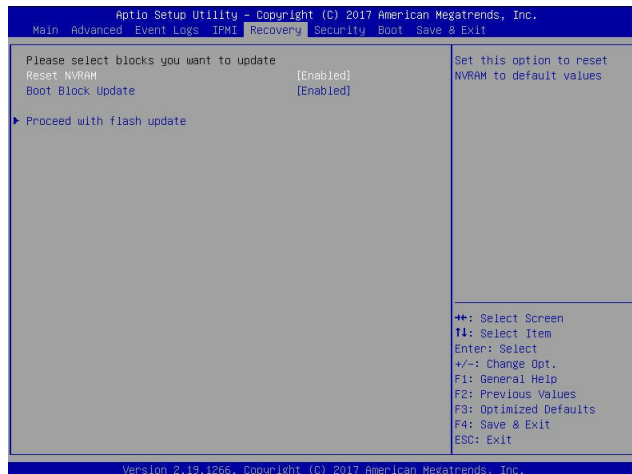
Warning: Please **stop** pressing the <Ctrl> and <Home> keys immediately when you see the screen (or a similar screen) below; otherwise, it will trigger a system reboot.



Note: On the other hand, if the following screen displays, please load the "Super.ROM" file to the root folder and connect this folder to the system. (You can do so by inserting a USB device that contains the new "Super.ROM" image to your machine for BIOS recovery.)



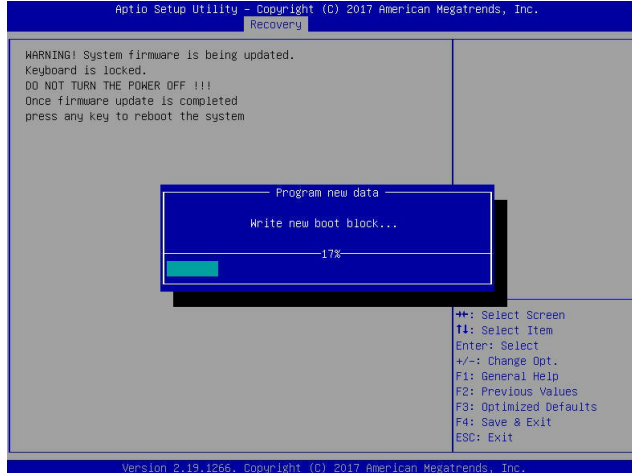
3. While powering on the system, please keep pressing <Ctrl> and <Home> simultaneously on your keyboard until the following screen (or a screen similar to the one below)



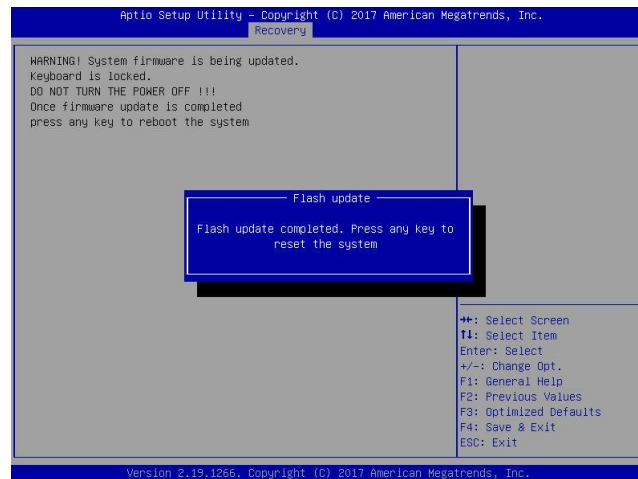
displays.

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

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

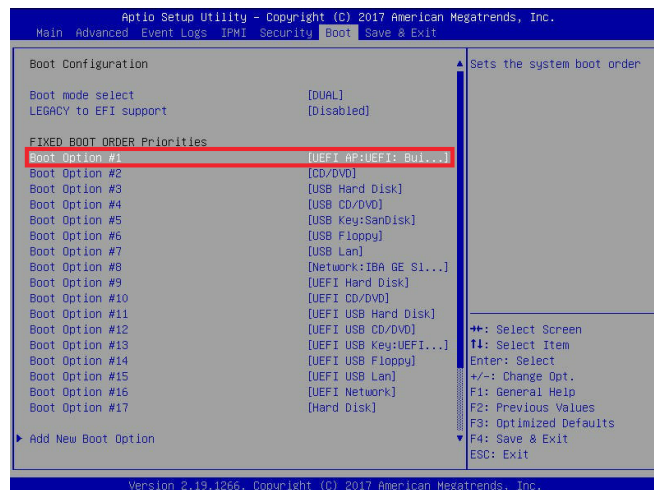


5. When the screen as shown above displays, use the arrow keys to select the item



"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.

```

UEFI Interactive Shell v2.1
EDK II
UEFI v2.50 (American Megatrends, 0x00005000)
Mapping table
FS0: Alias(s) HD0:0b:BLK1:
      PciRoot(0x0)/Pci(0x14,0x0)/USB(0x11,0x0)/HD(1,MBR,0x37901072,0x800,0x1
CR392C)
BLK0: Alias(s):
      PciRoot(0x0)/Pci(0x14,0x0)/USB(0x11,0x0)
Press F80 in 1 seconds to skip startup.nsh or any other key to continue.
Shell> fs0:
FS0:\> cd \FUD05
FS0:\FUD05> cd SKJPM2_03162017
FS0:\FUD05\SKJPM2_03162017> flash.nsh X10PU7.314

```

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

```

Done.
[ Access Cmos Port Ex ]
Cmos
Index 0x51: 0x18

Done.
*****
* Program BIOS and ME (including FDT) regions...
*****
| AMI Firmware Update Utility v5.09.01.1317 |
| Copyright (C)2017 American Megatrends Inc. All Rights Reserved. |
+-----+
CPUID = 50652

Reading flash ..... done
- ME Data Size checking . ok
- FFS checksums ..... OK
- Check RomLayout ..... OK
Erasing Boot Block ..... done
Updating Boot Block ..... done
Verifying Boot Block ..... done
Erasing Main Block ..... 0x0132000 (0%)

```

9. When the UEFI Shell prompt appears, type fs# to change the device directory path. Go to the directory that contains the BIOS package you extracted earlier from Step 7. Enter flash.nsh BIOSname.### at the prompt to start the BIOS update process.

```

Verifying NCB Block ..... done
- Update success for FDR
- Update success for IE
- Successful Update Recovery Loader to ORRx!!
- Successful Update MFS!!
- Successful Update FTFR!!
- Successful Update MFS, IVB1 and IVB2!!
- Successful Update PLUG and UTOX!!
- ME Entire Image update success !!
WARNING : System must power-off to have the changes take effect!
Moving FS0:\FUD05\SKJPM2_03162017\Fdtx64.efi -> FS0:\FUD05\SKJPM2_03162017\F
dt.smc
- [ok]
Moving FS0:\FUD05\SKJPM2_03162017\uefi\uefi64.efi -> FS0:\FUD05\SKJPM2_0316201
7\uefi\uefi.smc
- [ok]
*****
* Please ignore this 'Shell: Cannot read from file - Device Error'
* warning message due to it does not impact flashing process.
*****
Deleting "fs0:\startup.nsh"
Delete successful.
FS0:\>

```

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 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.