INA7600

2U Network Appliance
3rd Gen Intel® Xeon® CPU
& up to 66 GbE Ports

User's Manual

Version 1.0
(November 2023)

iBASE

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Compliance

CE

This product has passed CE tests for environmental specifications and limits. This product is in accordance with the directives of the Union European (EU). If users modify and/or install other devices in this equipment, the CE conformity declaration may no longer apply.

FC

This product has been tested and found to comply with the limits for a Class A device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with manufacturer's instructions, may cause harmful interference to radio communications.

WEEE

This product must not be disposed of as normal household waste, in accordance with the EU directive of for waste electrical and electronic equipment (WEEE - 2012/19/EU). Instead, it should be disposed of by returning it to a municipal recycling collection point. Check local regulations for disposal of electronic products.

Green IBASE

This product complies with the current RoHS directives restricting the use of the following substances in concentrations not to exceed 0.1% by weight (1000 ppm) except for cadmium, limited to 0.01% by weight (100 ppm).

- Lead (Pb)
- Mercury (Hg)
- Cadmium (Cd)
- Hexavalent chromium (Cr6+)
- Polybrominated biphenyls (PBB)
- Polybrominated diphenyl ether (PBDE)

Important Safety Information

Carefully read the following safety information before using the device.

Setting up your system:

- Put the device horizontally on a stable and solid surface.
- Slots and openings on the chassis are for ventilation. Do not block or cover these openings. Make sure you leave plenty of space around the device for ventilation. NEVER INSERT OBJECTS OF ANY KIND INTO THE VENTILATION OPENINGS.
- Use this product in environments with ambient temperatures between 0˚C and 40˚C.
- DO NOT LEAVE THIS DEVICE IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -20˚C OR ABOVE 70˚C. This could damage the device. The device must be used in a controlled environment.

Care during use:

- Do not place heavy objects on the top of the device.
- Make sure to connect the correct voltage to the device. Failure to supply the correct voltage could damage the unit.
- Do not walk on the power cord or allow anything to rest on it.
- If you use an extension cord, make sure the total ampere rating of all devices plugged into the extension cord does not cord's ampere rating.
- Do not spill water or any other liquids on your device.
- Always unplug the power cord from the wall outlet before cleaning the device.
- Only use neutral cleaning agents to clean the device.
- Vacuum dust and particles from the vents by using a computer vacuum cleaner.

CAUTION

There is a danger of explosion if the lithium-ion battery is replaced with an incorrect battery. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions. Under no circumstances should the Lithium battery cell be shorted; otherwise the battery cell may heat up or cause potential burn hazards.

Warranty Policy

- **IBASE standard products:**

  24-month (2-year) warranty from the date of shipment. If the date of shipment cannot be ascertained, the product serial numbers can be used to determine the approximate shipping date.

- **3rd-party parts:**

  12-month (1-year) warranty from delivery for the 3rd-party parts that are not manufactured by IBASE, such as CPU, memory, HDD, power adapter, panel and touchscreen.

* PRODUCTS, HOWEVER, THAT FAIL DUE TO MISUSE, ACCIDENT, IMPROPER INSTALLATION, OR UNAUTHORIZED REPAIR SHALL BE TREATED AS OUT OF WARRANTY, AND CUSTOMERS SHALL BE BILLED FOR REPAIR AND SHIPPING CHARGES.

Technical Support & Services

1. Visit the IBASE website at www.ibase.com.tw to find the latest information about the product.
2. If you encounter any technical problems and require assistance from your distributor or sales representative, please prepare and send the following information:

   - Product model name
   - Product serial number
   - Detailed description of the problem
   - The error messages in text or in screenshots if there is any
   - The arrangement of the peripherals
   - Software in use (such as OS and application software, including the version numbers)

3. If repair service is required, you can download the RMA form at the IBASE's website. Fill out the form and contact your distributor or sales representative.

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Table of Contents

Chapter 1
General Information

The information provided in this chapter includes:

- Features
- Packing List
- Optional Accessories
- Specifications
- Overview
- Dimensions

1.1 Introduction

The INA7600 2U network appliance is a high-performance and versatile networking solution designed to meet the demands of modern data centers and enterprise-level applications. This appliance boasts a robust feature set that includes dual Intel® Xeon Ice Lake SP processors, providing exceptional processing power for data-intensive tasks. With support for up to 16 DDR4 RDIMM or LRDIMM modules, it offers a maximum memory capacity of 512GB, ensuring smooth multitasking and efficient data handling.

One of the standout features of the INA7600 is its flexible networking capabilities. It supports 8x or 4x NIC modules, allowing for a maximum of 64 Gigabit Ethernet (GbE) ports, which can be crucial for network-intensive applications and virtualization environments. Additionally, it offers a PCI-E x16 expansion slot, offering versatility in terms of connectivity options.

Security is paramount in network appliances, and the INA7600 addresses this with optional SSL support by PCH C627, enhancing data protection and encryption capabilities. Furthermore, its 1200W redundant power supply ensures reliability and uptime by providing a backup power source in case of hardware failures.

Applications for the INA7600 include but are not limited to:

- Data Center Infrastructure
- Firewalls and Security Appliances
- Load Balancers
- Virtualization
- Content Delivery Networks (CDNs)
- Enterprise Networking

Photo of INA7600

1.2 Features

- Dual 3rd Gen Intel® Xeon® Scalable Processors (ICL-SP)
- 16x DDR4 RDIMM, Max. 512GB
- 8x or 4x NIC modules, Max. 64 GbE ports
- 1x PCI-E x16 expansion slot
- Optional IPMI 2.0 module
- 1200-watt redundant power supply

1.3 Packing List

Your product package should include the items listed below. If any of the items below is missing, contact the distributor or the dealer from whom you purchased the product.

- INA7600 x 1
- 1200W 1+1 Redundant Power Supply x 1
- Power Cord (180 cm) x 1
- Heatsink x 2
- Rack Ear x 2

1.4 Optional Accessories

IBASE provide optional accessories as follows. Please contact us or your dealer if you need any.

- Console Cable (160 cm, PK1-51)
- VGA cable (40cm, VGA21A)

Photo of INA7600

1.5 Specifications

Model	
INA7600-NIC	INA7600-NIC 2U Rackmount Appliance, MBN901 Dual 3rd Gen Intel® Xeon® ICL-SP, C621A PCH,16x DDR4 DIMMs, Max. 66 GbE Ports, 1200W RPSU, CPU cooler, 1x PCI-E x16 slot, 2x U.2 slots.1x ilO2 LCM. Barebone without CPU/RAM/HDD/IBN Card* (Must order 8x IBN-cards)
INA7600-SHQ	INA7600-SHQ 2U Rackmount Appliance, MBN901 Dual 3rd Gen Intel® Xeon® ICL-SP, C621A PCH, 16x DDR4 DIMMs, Max. 34 GbE Ports, 1200W RPSU, CPU cooler, 1x PCI-E x16 slot, 2x U.2 slots. 4x 3.5” HDD Tray. Barebone without CPU/RAM/HDD/IBN Card* (Must order 4x IBN-cards)
System	
Motherboard	MBN901
CPU	3rd Gen Intel® Xeon® Scalable Processors (Xeon® Ice Lake) LGA4189 Socket
Chipset	Intel® C621A PCH Chipset
Memory	• 16x DDR4 RDIMMs • Up to 3200MHz • Max. 512GB
Display	N/A
Ethernet	• 2x Intel® I210-AT GbE on IDN901 daughter board • 8x or 4x NIC module, Max. 64 GbE ports
Bypass	Via IBN module SKU
Expansion	• 1x PCI-E x16 slot (8-lane) • 1x M.2 (M-key), supports SATA 3.0 or PCI-E
IPMI	N/A
Storage	• 2x 2.5” or 4x 3.5” Swappable SATA drive bay (by SKU) • 2x U.2 (PCI-E x4, SATA signal)
TPM	2.0
I/O	• 1x LCM (by SKU) 3x LED (Power/ HDD/ Status) • 1x Factory default button (GPIO) • 1x RJ45 console • 2x USB 2.0 • 2x MGMT Ports (LAN2 share with IPMI NC-SI port)
Power Supply	Full range 1200W 1+1 redundant power supply

Dimensions	438 (W) x 660 (D) x 88 (H) mm 17.24” (W) x 25.98” (D) x 3.46” (H)
Weight	21.0 kg (46.3 lbs)
Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)
Storage Temperature	-20° ~ 70°C (-4°F ~ 158°F)
Operating Humidity	5% ~ 90%
Certification	CE/FCC

All specifications are subject to change without prior notice.

INA7600-SHQ and INA7600-NIC Differences		
Ethernet	4x Ethernet Modules	8x Ethernet Modules
Storage	1x SATA/NVMe M.2 4x swappable 3.5” SATA HDD/SSD	1x SATA/NVMe M.2 2x U.2 SATA/NVMe 2.5” internal drives
Front I/O LCM	N/A	1x LCM @ 2 x 16 characters
NIC Slots	4x NIC slots	8x NIC slots

1.6 Product View

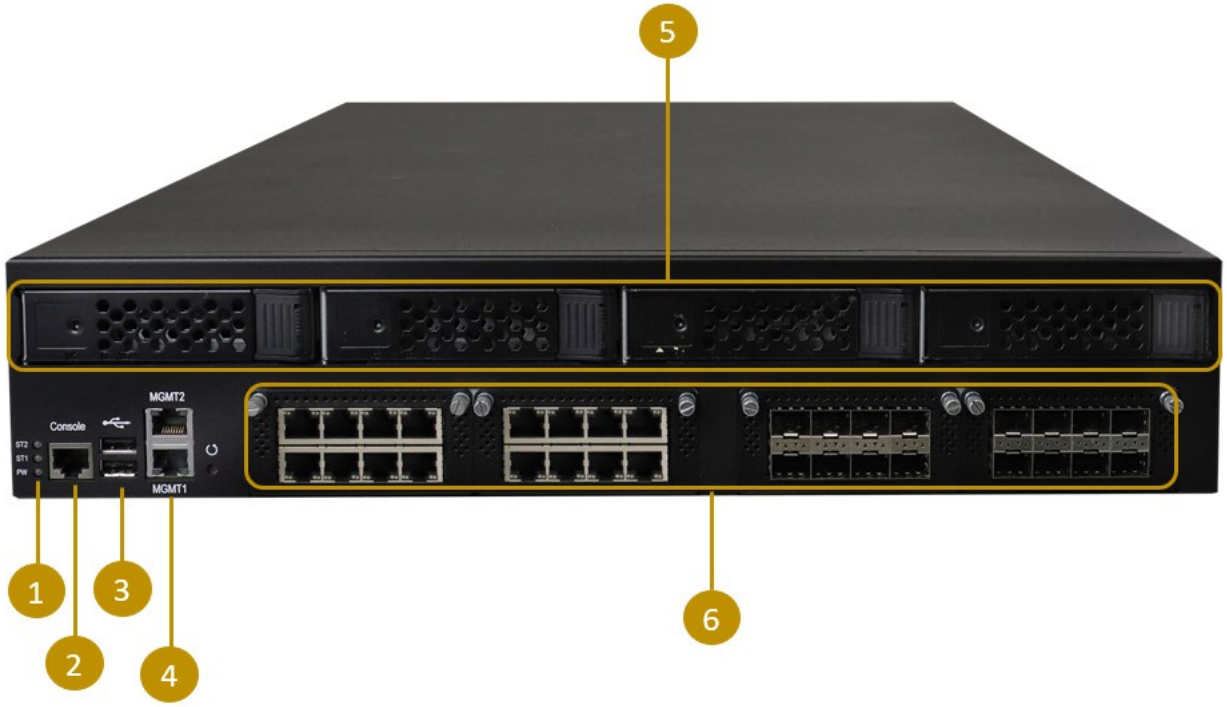
Front View

INA7600-NIC

No.	Name
1	**LED Indicators** From top to bottom: Status-HDD-Power • **Status** Amber: operating normally Off: device is off • **HDD** Flashing green: HDD in use Off: HDD not in use • **POWER** Green: power on Off: power not detected
2	**Console Port**
3	**2x USB 2.0 Ports**
4	**MGMT Port**
5	**LCM Display with 4 buttons**
6	**NIC Modules** Up to 8 NIC modules, 64GbE ports Max.

Front View

INA7600-SHQ



No.	Description
1	LED Indicators From top to bottom: Status-HDD-Power • **Status** Amber: operating normally Off: device is off • **HDD** Flashing green: HDD in use Off: HDD not in use • **Power** Green: power on Off: power not detected
2	**Console Port**
3	**2x USB 2.0 Ports**
4	**MGMT Port**
5	**Hot swappable HDD** RAID 0/1/5/101 supported through software RAID
6	**NIC modules**

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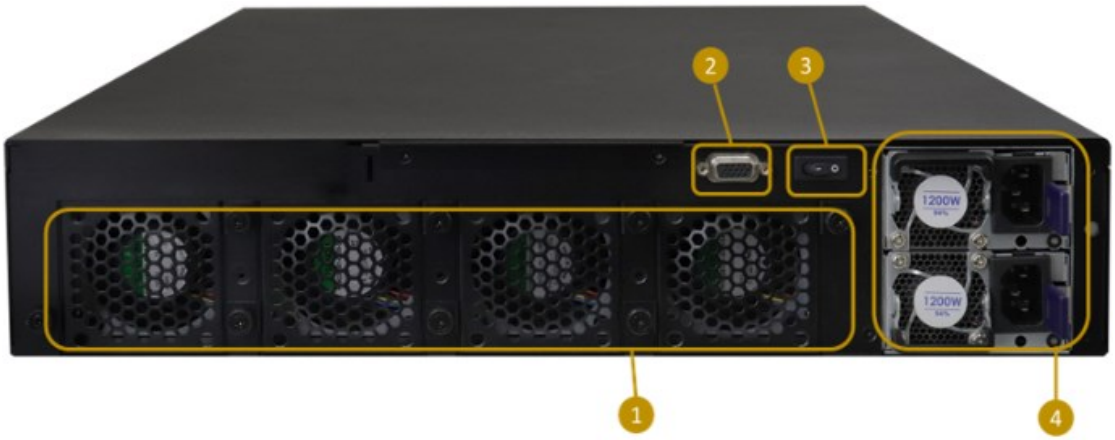
Oblique View

INA7600-NIC

INA7600-SHQ

Rear View

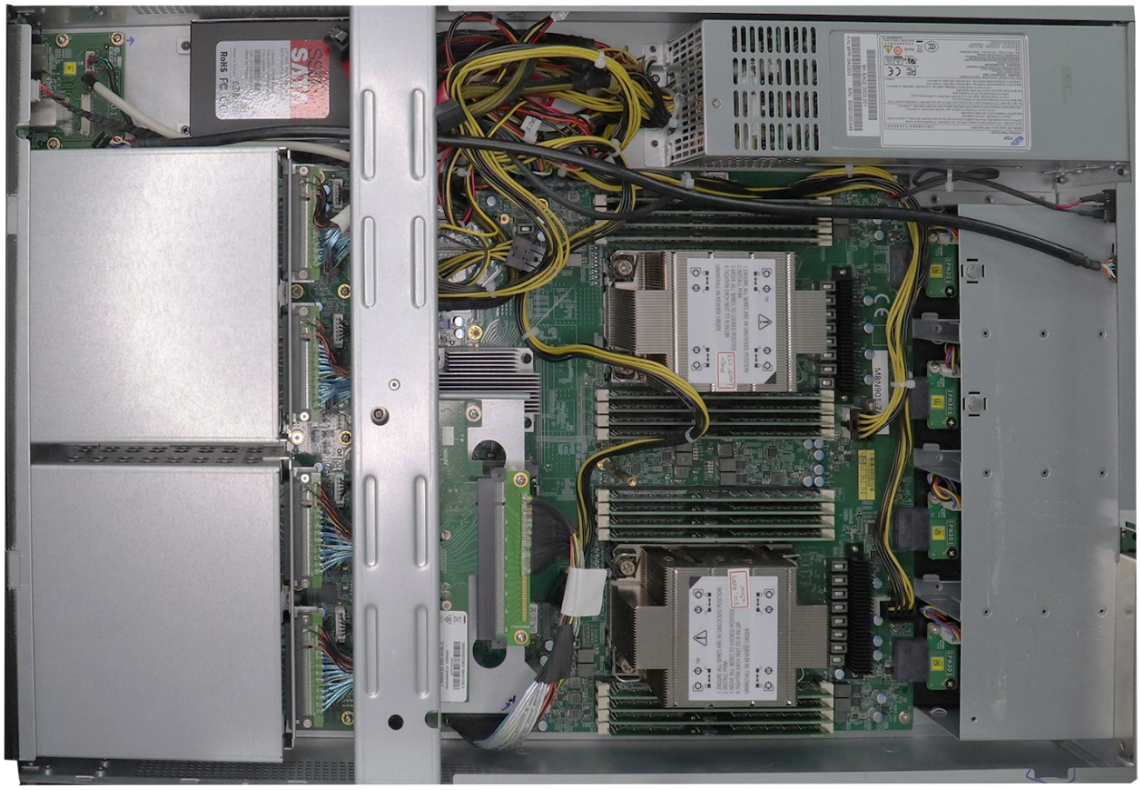
INA7600-NIC



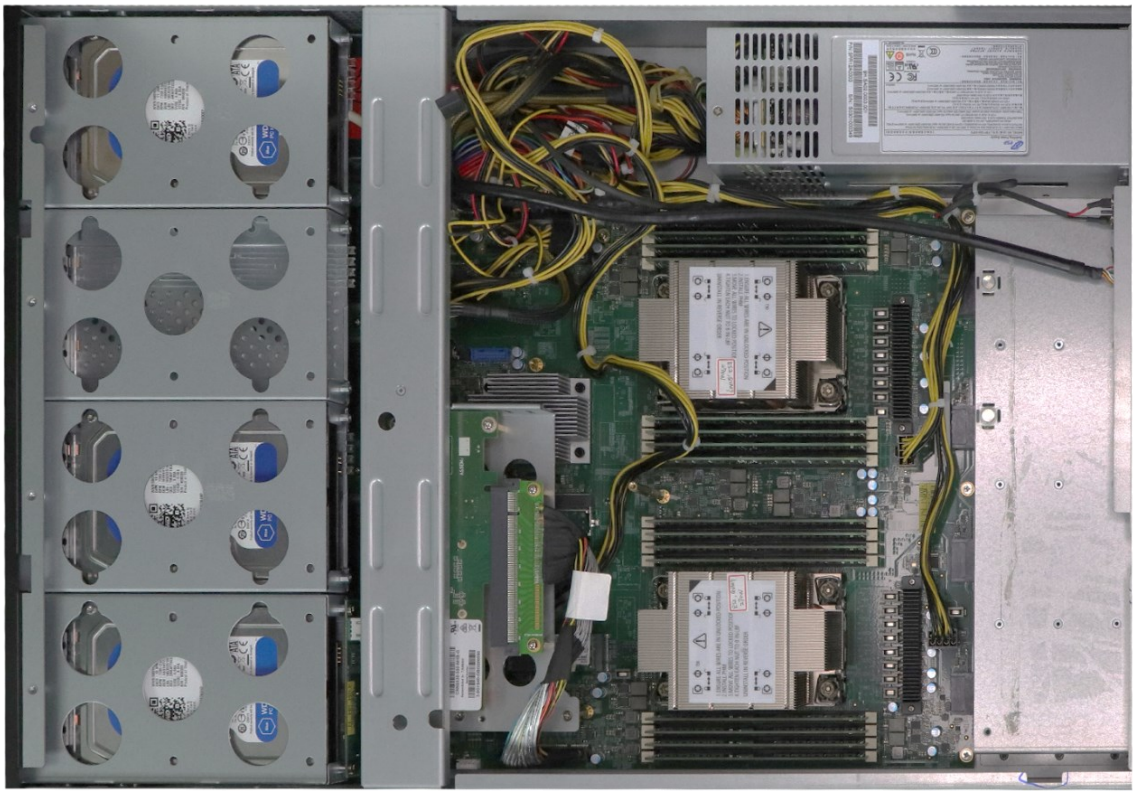
No.	Description
1	System Fans
2	VGA Port
3	Power Button (ATX mode)
4	Power Supply Units (Single / Redundant) 2 AC 100~240V Full range 1200W 1+1

Configuration inside

INA7600-NIC

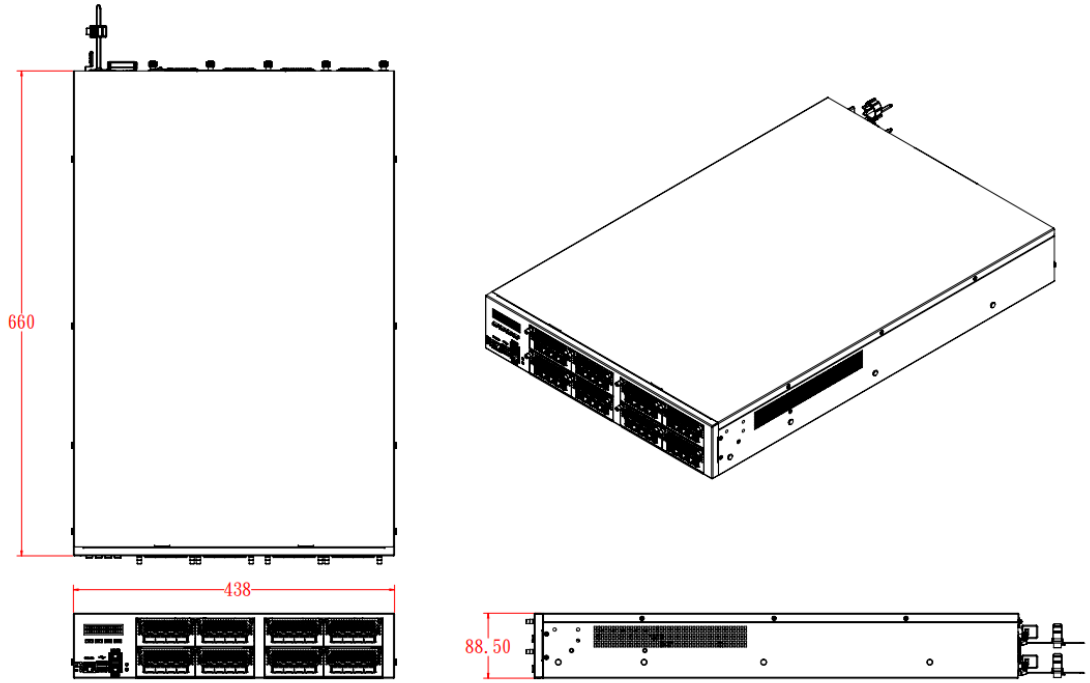


INA7600-SHQ

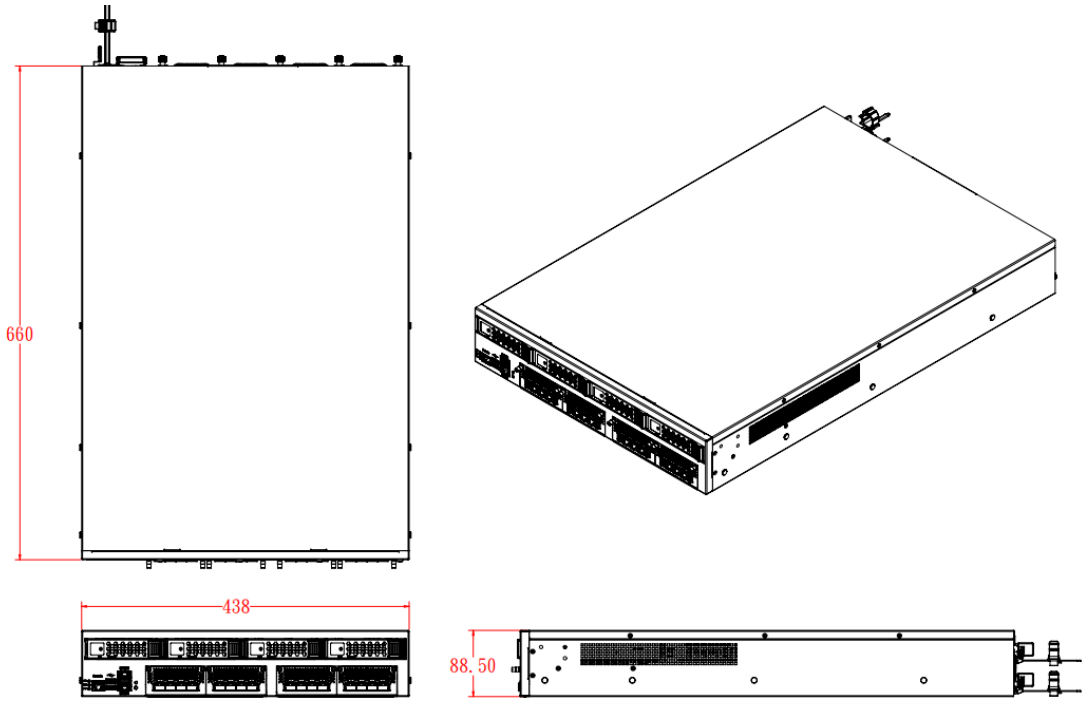


1.7 Dimensions

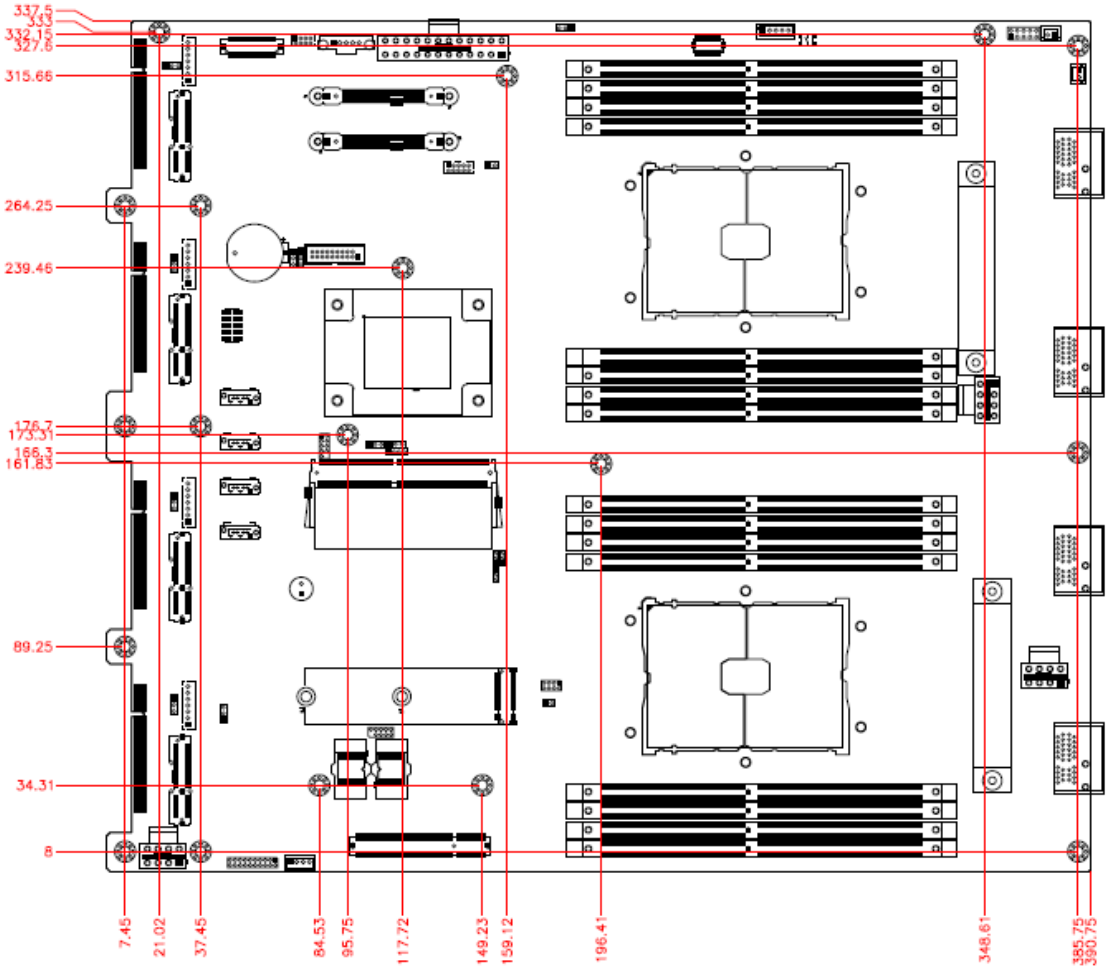
INA7600- SHQ



INA7600- SHQ



MBN901 Motherboard



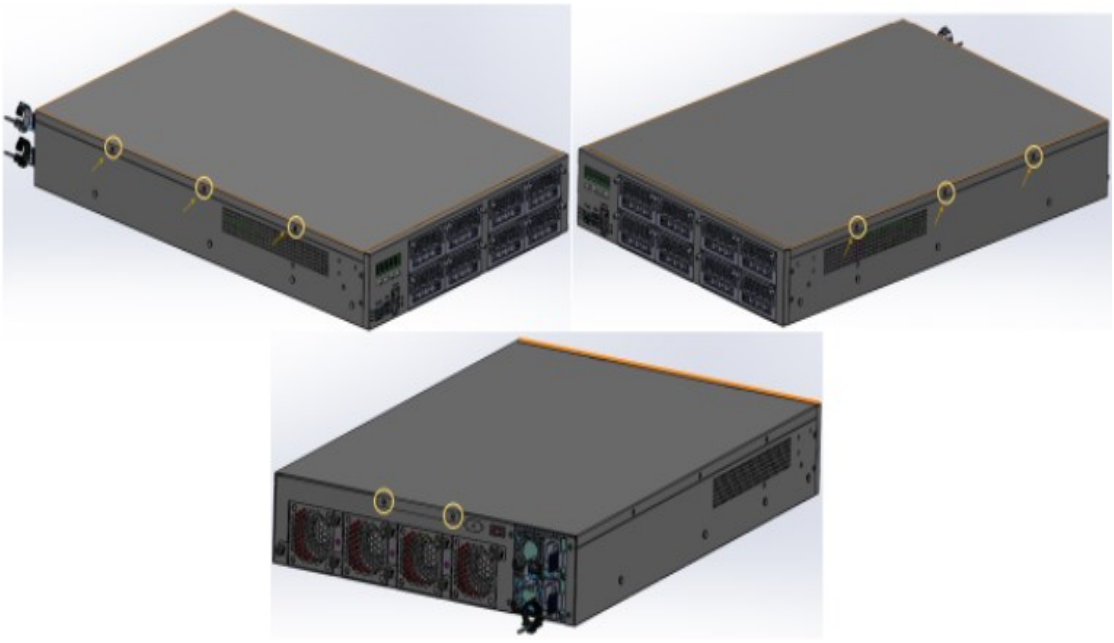
Chapter 2
Hardware Configuration

The information provided in this chapter includes:

- Memory Installation
- HDD Installation
- M.2 Card Installation
- Fan Module Installation
- SSL Card Installation
- Rackmount Installation Precautions
- Network Module Installation
- Redundant Power Supply Installation

2.1 Installations

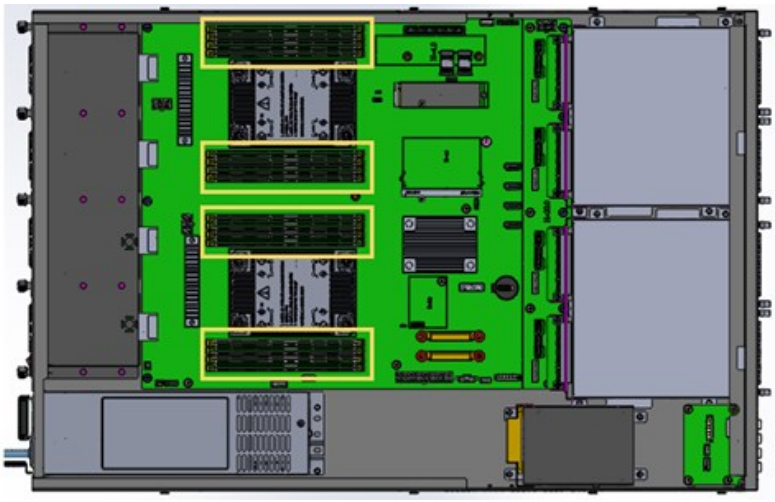
For installation or replacement of the memory modules, HDD/SSD, or other internal components, you need to disassemble the device cover first by loosening 9 screws as indicated below.



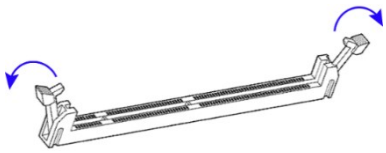
2.1.1 Memory Installation / Replacement

If you need to install or replace a memory module, follow the instructions below after you have removed the device cover.

1. Locate the memory slots in the device.

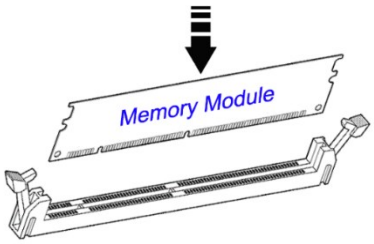


2. Press the ejector tab of the memory slot down and outwards with your fingertips.



3. Hold the memory module and align the key of the module with that on the memory slot.

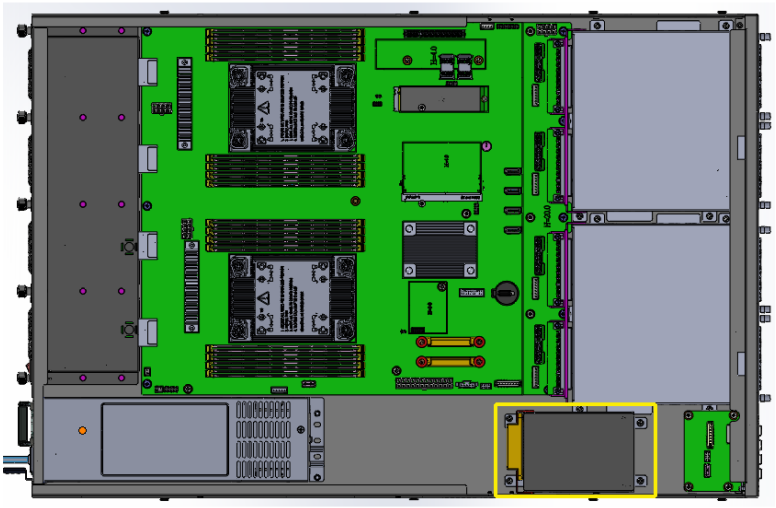
4. Gently push the module in an upright position until the ejector tabs of the memory slot close to hold the module in place when the module touches the bottom of the slot.



To remove the module, press the ejector tabs outwards with your fingertips to eject the module.

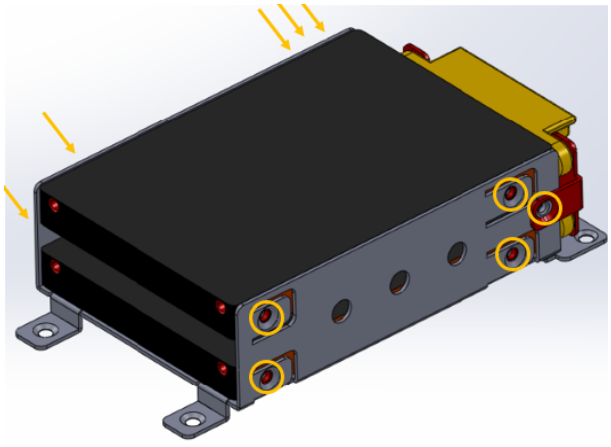
2.1.2 HDD Installation / Replacement

After removing the device cover, locate the HDD as shown below with an enclosed yellow box.



Remove the four (4) screws indicated below to uninstall the HDD from the bottom chassis.

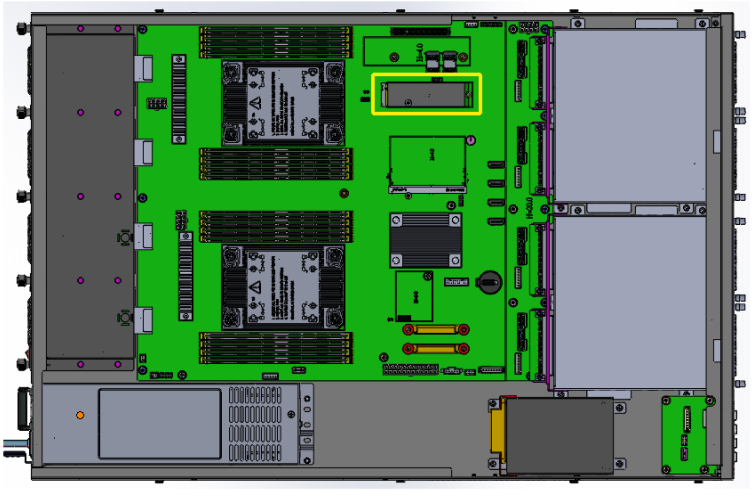
Once the HDD tray has been removed, unfasten the screws (as shown by the circles and arrows) to uninstall the HDD from the tray.



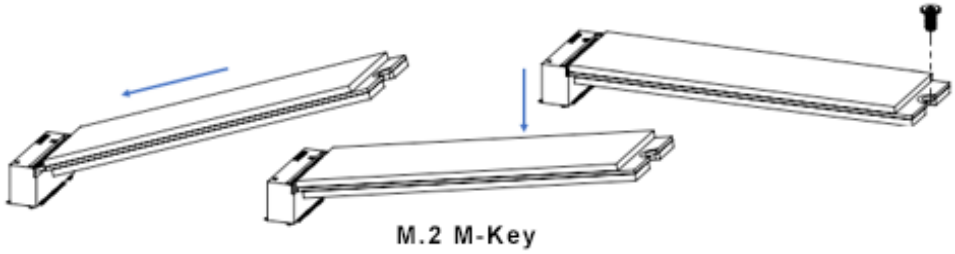
Replace the HDD tray back to its original location after installation/replacement/removal of the HDD.

2.1.3 M.2 Card Installation / Replacement

To remove and install the M.2 card, remove the device cover as mentioned in the previous section and locate that card socket.

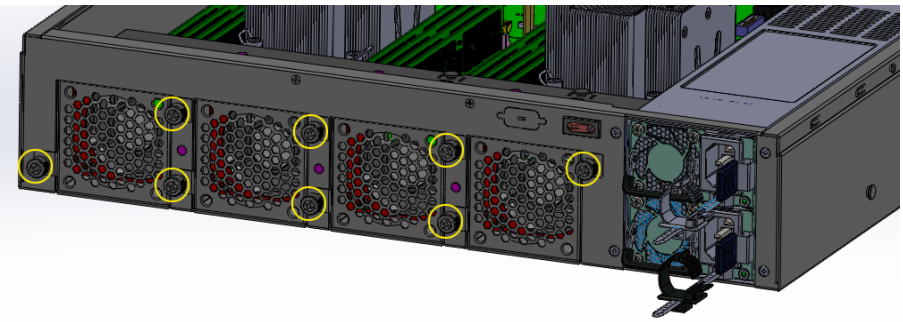


1. Locate the M.2 slot inside the device.
2. Align the key of the M.2 card to the interface, and insert the card slantwise.
3. Push the M.2 card down and fix it with the an M3 screw.



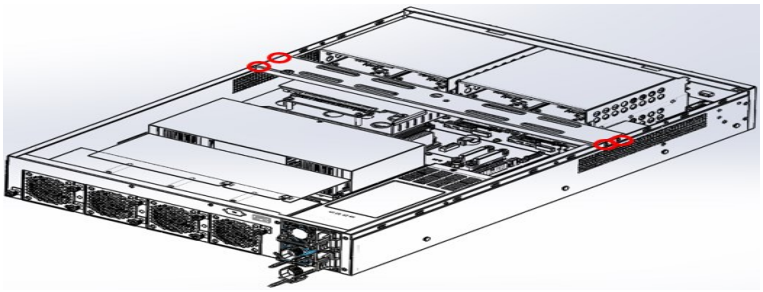
2.1.4 Fan Module Installation / Replacement

If you need to replace a fan module, remove the device cover and the corresponding screws of the fan module on the rear side as shown. Take out the fan, install a new one, and fasten the screws.

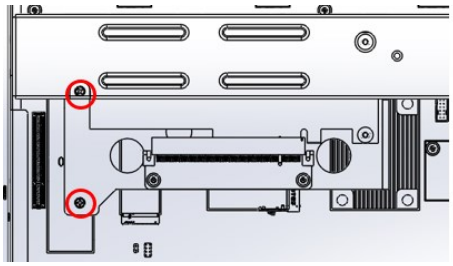


2.1.5 SSL Card Installation / Replacement

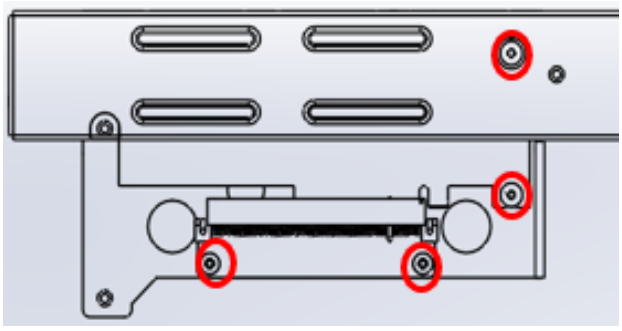
1. Remove the device cover as described in the previous section. Unfasten the four (4) screws at the two edges as indicated in the picture below.



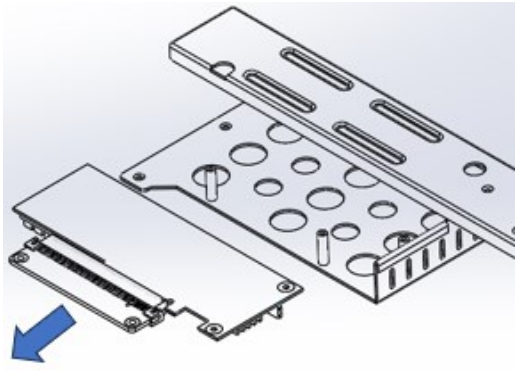
2. Remove two (2) screws as shown in the picture below.



3. Remove the four (4) screws that fasten the SSL card to the standoffs.



4. The picture below shows the detached SSL card. Reverse the steps to install or reintall the SSL card in the system.



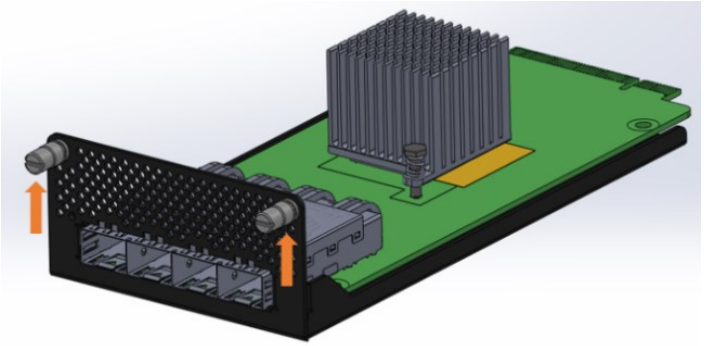
2.1.6 Rackmount Installation Precautions

Pay attention to the following during rackmount installation:

- The rack must be stabilized before sliding the unit out for servicing.
- Failure to stabilize may cause the rack to tip over.
- Electrostatic discharge (ESD) can damage your equipment.
- To avoid personal injury or damage to the unit, it is recommended that two or more people install the unit into the rack.
- Do not place heavy objects on the unit.
- Ensure the leveling jacks on the bottom of the rack are fully extended to the floor with the full weight of the rack resting on the jacks.
- For single rack installation, stabilizers should be attached to the rack.
- For multiple rack installations, the racks should be coupled together.
- Ensure the rack is stable before extending a component from the rack.
- Only extend one component at a time; extending two or more simultaneously may cause the rack to become unstable.

2.1.7 Network Module Installation

Release the two screws of the network module and pull it out carefully as shown below for replacement and installation.



2.1.8 Redundant Power Supply Installation

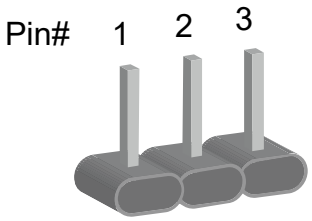
To install or replace a redundant power supply, push the latch inwards first. Grasp the handle, pull the PSU out carefully and replace it with a new one.

2.2 Setting the Jumpers

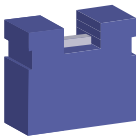
Set up and configure your device by using jumpers for various settings and features according to your needs and applications. Contact your supplier if you have doubts about the best configuration for your use.

2.3.1 How to Set Jumpers

Jumpers are short-length conductors consisting of several metal pins with a non-conductive base mounted on the circuit board. Jumper caps are used to have the functions and features enabled or disabled. If a jumper has 3 pins, you can connect either PIN1 to PIN2 or PIN2 to PIN3 by shorting.

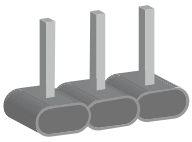
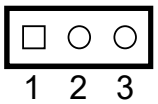
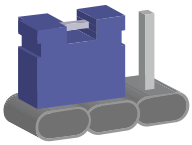
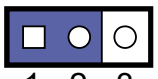
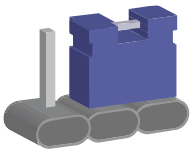
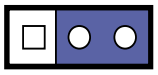


A 3-pin jumper



A jumper cap

Refer to the illustration below to set jumpers.

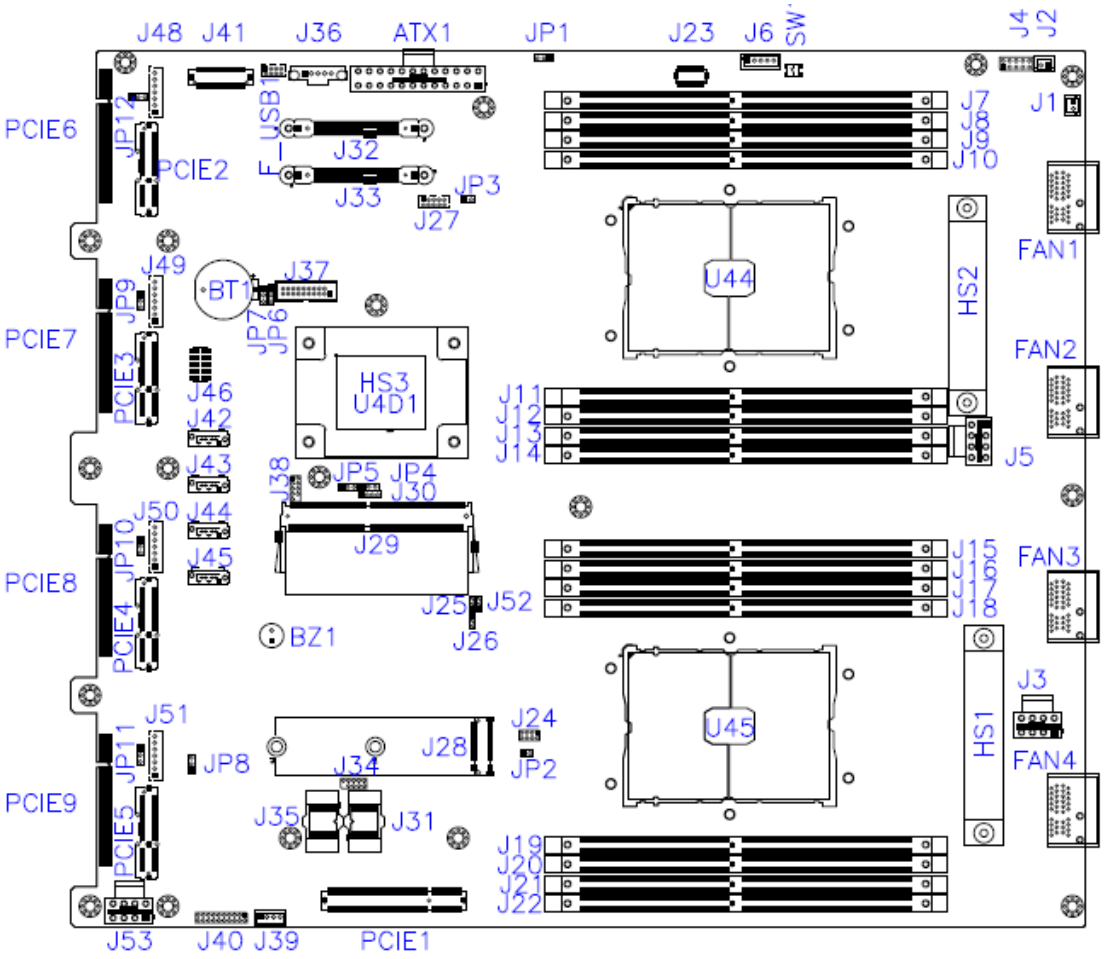
Pin closed	Oblique view	Jumper Settings
Open		
1-2		
2-3		

When two pins of a jumper are encased in a jumper cap, this jumper is **closed**, i.e. turned **On**.

When a jumper cap is removed from two jumper pins, this jumper is **open**, i.e. turned **Off**.

2.3 Jumper & Connector Locations on Motherboard

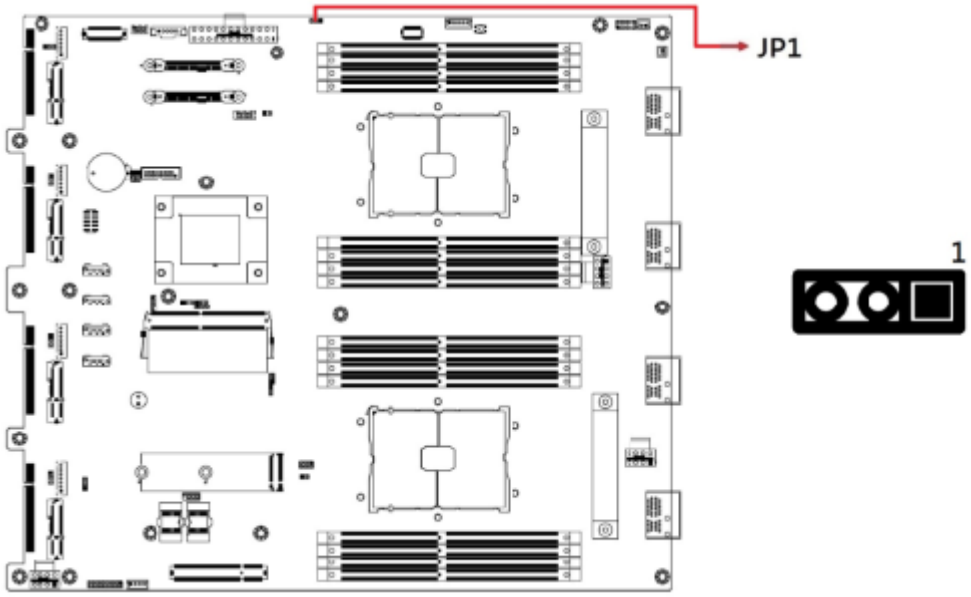
Motherboard: MBN901

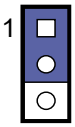
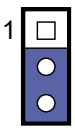


2.4 Jumpers Quick Reference

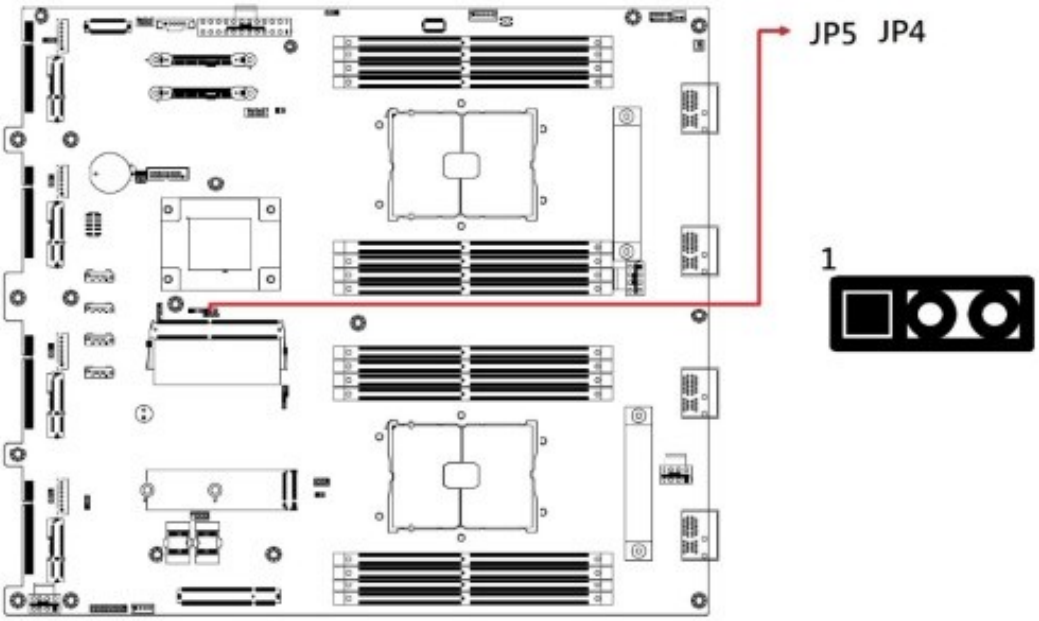
Function	Jumper
AT & ATX Mode Selection	JP1
BMC Setting	JP4, JP5
Clear CMOS	JP6

2.4.1 AT & ATX Mode Selection (JP1)



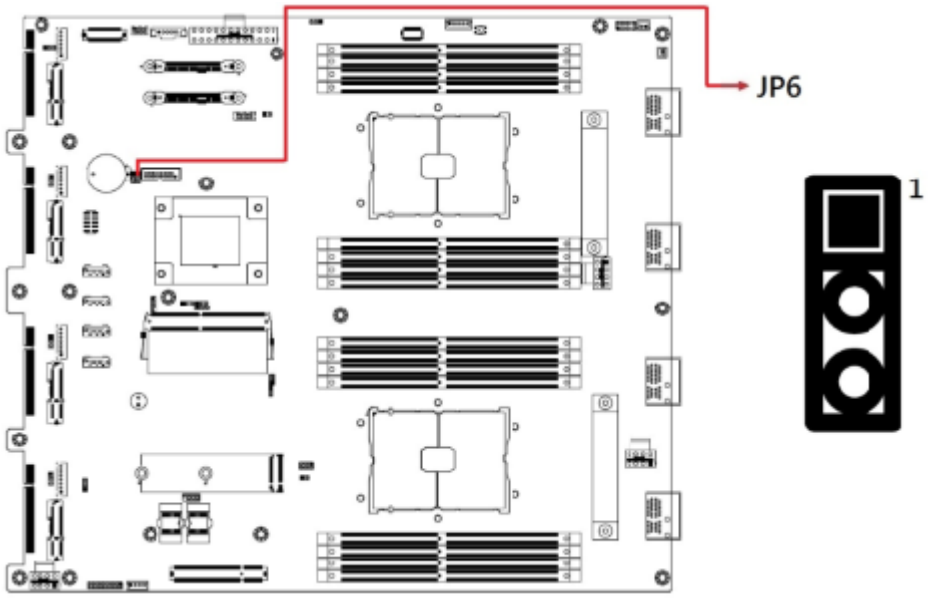
Function	Pin closed	Setting
AT	1-2	
ATX (default)	2-3	

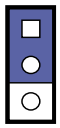
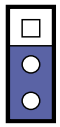
2.4.2 BMC Setting (JP4, JP5)



JP4/JP5 Settings		Function
JP4(2-3)	JP5(2-3)	Dual CPU, CPU Temp from PECI, Redundant PSU (default)[For MBN901]
JP4(2-3)	JP5(1-2)	Single CPU, CPU Temp from PECI; Redundant PSU
JP4(1-2)	JP5(2-3)	Single CPU, CPU Temp from PECI; Non PNBus
JP4(1-2)	JP5(1-2)	Single CPU, CPU Temp from NCT7904D Pin 8, NO PMBus

2.4.3 Clear CMOS (JP6)

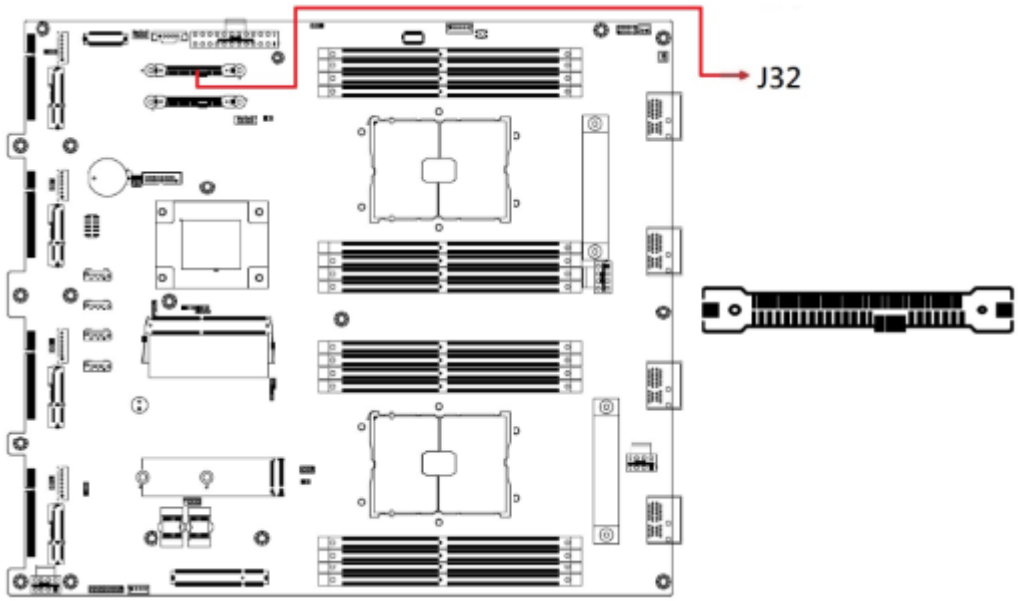


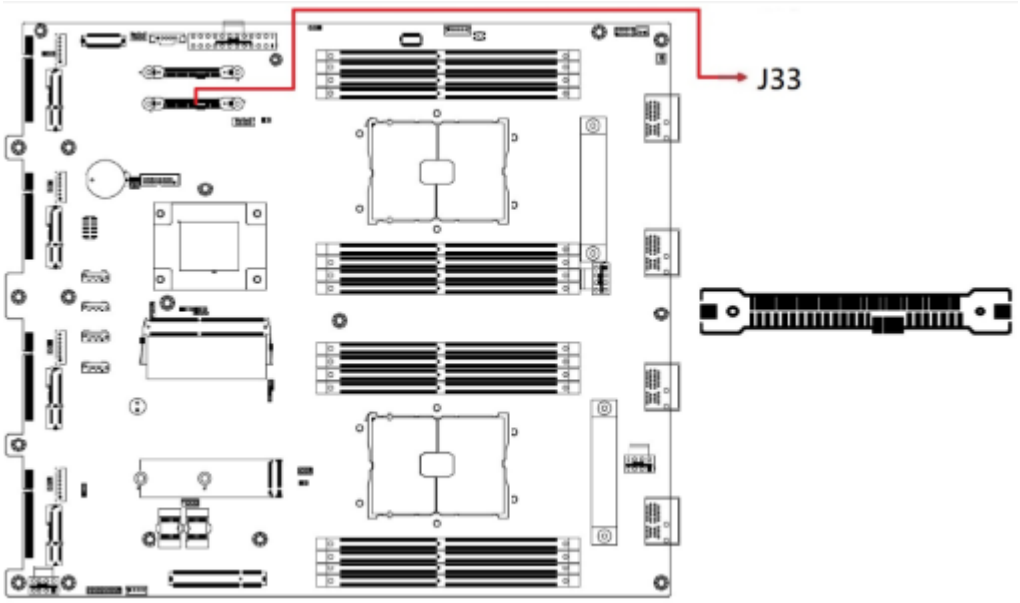
Function	Pin closed	Setting
Normal RTC Reset (default)	1-2	
Clear RTC Registers	2-3	

2.5 Connectors Quick Reference

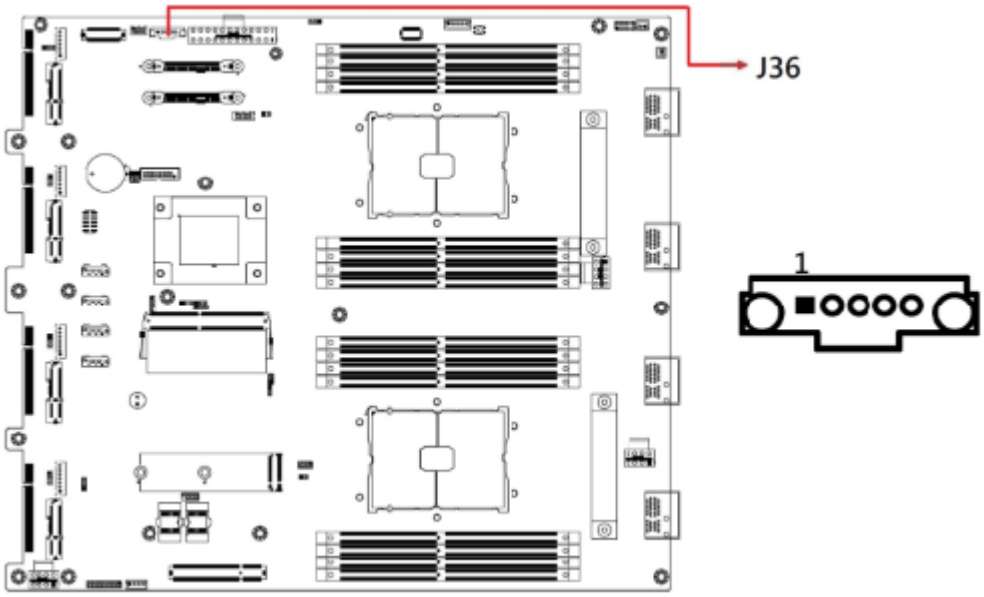
Connector Name	Function
J2	ATX Power Button
J3	CPU1 12V Power Connector
J4	Front Panel Function
J5	CPU2 12V Power Connector
J6	LCM Connector
J24	Digital I/O
J27	SGOPIO (cable to IP345 backplane)
J28	M.2 (2242 or 2280, SATA 3.0 / PCIe x4)
J29	BMC (IPMI) (connect to IDN100)
J32, J33	U.2 Connector (SATA 3.0 / PCIe x4)
J36	PMBus Connector
J37	USB 3.0 Box Header
J41	LAN Port Connector (cable to IDN901's J2)
J42~J45	SATA Connector
J48~J51	Gen-Z Cable Power Connector
J53	System 12V Power Connector

2.6.1 U. 2 Connector for SATA 3.0 / PCIe x4 (J32, J33)

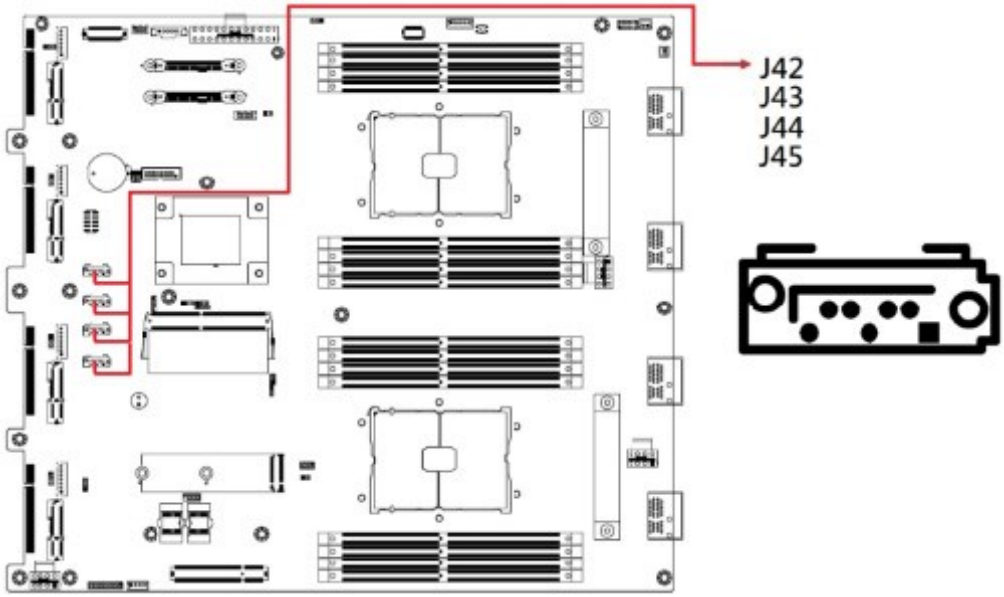




2.6.2 PMBus Connector (J36)



2.6.3 SATA Connector (J42, J43, J44, J45)

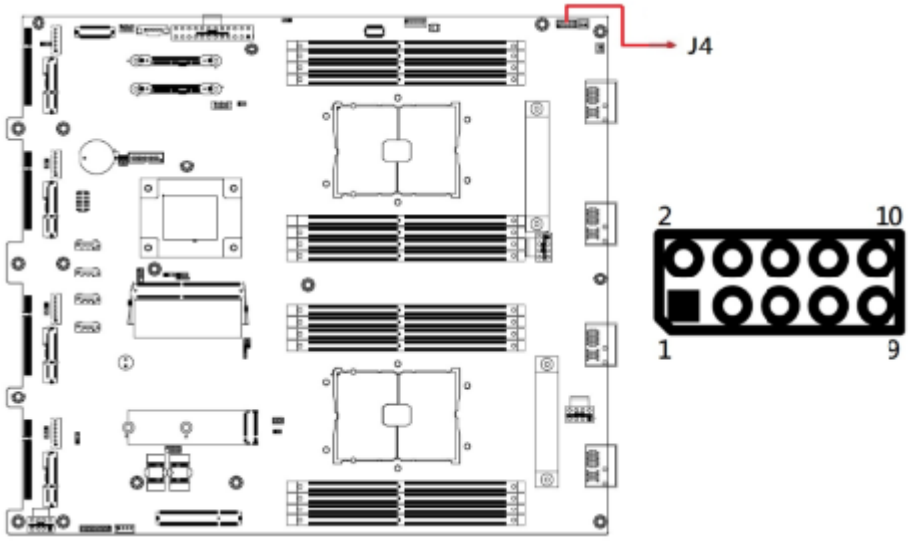


2.6.4 System Fan (FAN1, FAN2, FAN3, FAN4)

2.6.5 ATX Power Button (J2)

2.6.6 CPU1 12V Power Connector (J3)

2.6.7 Front Panel Function (J4)



Pin	Signal Name	Pin	Signal Name
1	ATX PW SW	2	ATX PW SW
3	Reset SW (+)	4	Reset SW (-)
5	PW LED(+)	6	PW LED(-)
7	HDD LED(+)	8	HDD LED(-)
9	NA	10	NA

2.6.8 CPU2 12V Power Connector (J5)

2.6.9 LCM Connector (J6)

2.6.10 20-pin COM Port Connector (J23)

Remarks: Use cable to connect to IDN901's J1

2.6.11 DIO Pin Header (J24)

2.6.12 SGPIO Pin Header (J27)

Remarks: Use cable to connect to IP345 Backplane

2.6.13 M.2 Connector [2242 or 2280] SATA3.0 & PCIe x4 (J28)

2.6.14 BMC Connector (IPMI) (J29)

Remarks: Connect to IDN100

2.6.15 U.2 Connector SATA3.0 & PCIe x4 (J32, J33)

2.6.16 PMBus Connector (J36)

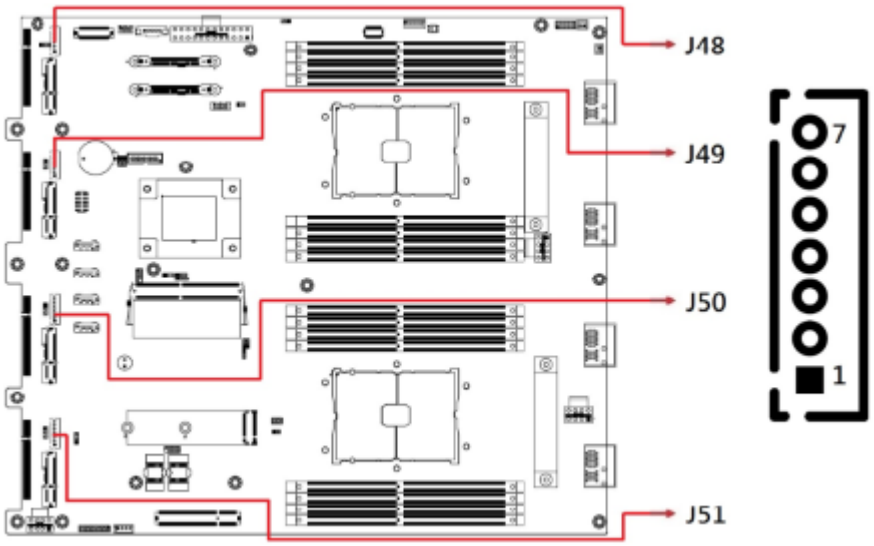
2.6.17 USB3.0 Box Header (J37)

2.6.18 J30-pin LAN Port Connector (41)

Remarks: Use cable to connect to IDN901's J2

2.6.19 SATA Connector (J42, J43, J44, J45)

2.6.20 Gen-Z Cable Power Connector (J48, J49, J50, J51)



Pin	Signal Name
1	P12V
2	P3V3
3	P3V3
4	Ground
5	Ground
6	P5V
7	5V Dual

2.6.21 System 12V Power Connector (J53)

Chapter 3
BIOS Setup

This chapter describes the different settings available in the AMI BIOS that comes with the board. The topics covered in this chapter are as follows:

- Main Settings
- Advanced Settings
- Chipset Settings
- Security Settings
- Book Settings
- Save & Exit

3.1 Introduction

The BIOS (Basic Input/Output System) installed in the ROM of your computer system supports Intel® processors. The BIOS provides critical low-level support for standard devices such as disk drives, serial ports and parallel ports. It also provides password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

3.2 BIOS Setup

The BIOS provides a Setup utility program for specifying the system configurations and settings. The BIOS ROM of the system stores the Setup utility. When you turn on the computer, the BIOS is immediately activated. Press the <Del> key immediately allows you to enter the Setup utility. If you are a little bit late pressing the <Del> key, POST (Power On Self Test) will continue with its test routines, thus preventing you from invoking the Setup.

If you still need to enter Setup, restart the system by pressing the ”Reset” button or simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys. You can also restart by turning the system Off and back On again.

The following message will appear on the screen:

```
Press <DEL> to Enter Setup
```

In general, press the arrow keys to highlight items, <Enter> to select, the <PgUp> and <PgDn> keys to change entries, <F1> for help, and <Esc> to quit.

When you enter the BIOS Setup utility, the *Main Menu* screen will appear on the screen. The Main Menu allows you to select from various setup functions and exit choices.

Warning: It is strongly recommended that you avoid making any changes to the chipset defaults.

These defaults have been carefully chosen by both AMI and your system manufacturer to provide the absolute maximum performance and reliability. Changing the defaults could make the system unstable and crash in some cases.

3.3 Main Settings

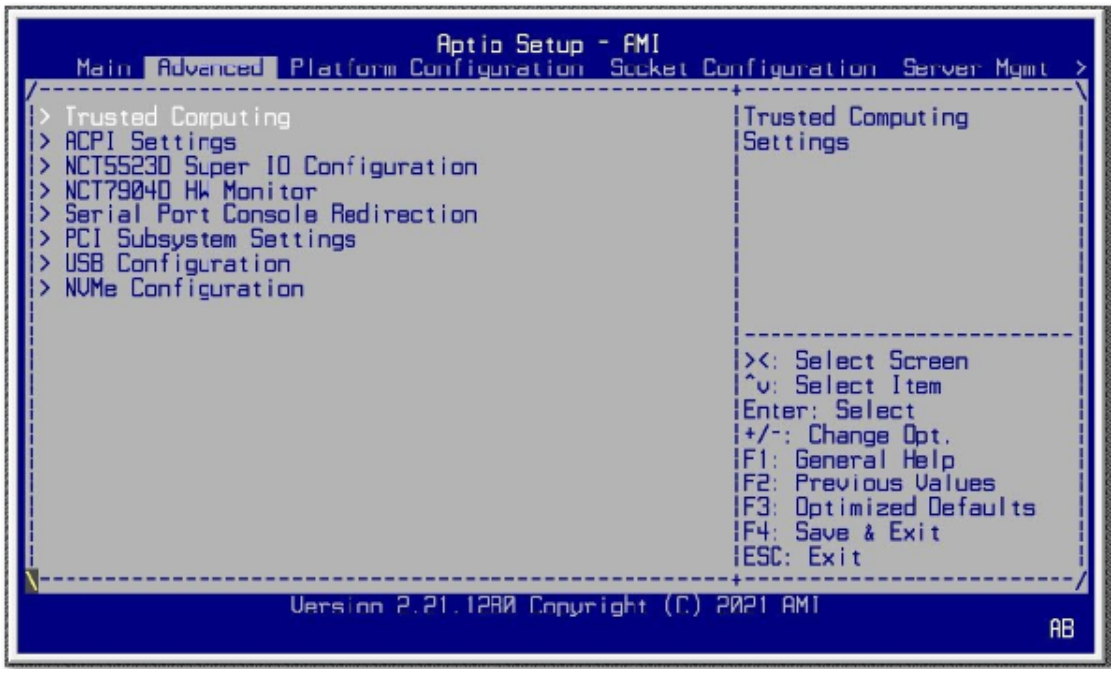
In the main settings section, the BIOS version and system memory information are shown. It also allows you to configure the date and time settings.

BIOS Setting	Description
System Date	Sets the date. Use the <Tab> key to switch between the date elements.
System Time	Set the time. Use the <Tab> key to switch between the time elements.

3.4 Advanced Settings

This section allows you to configure, improve your system and allows you to set up some system features according to your preference. Settings in this section covers:

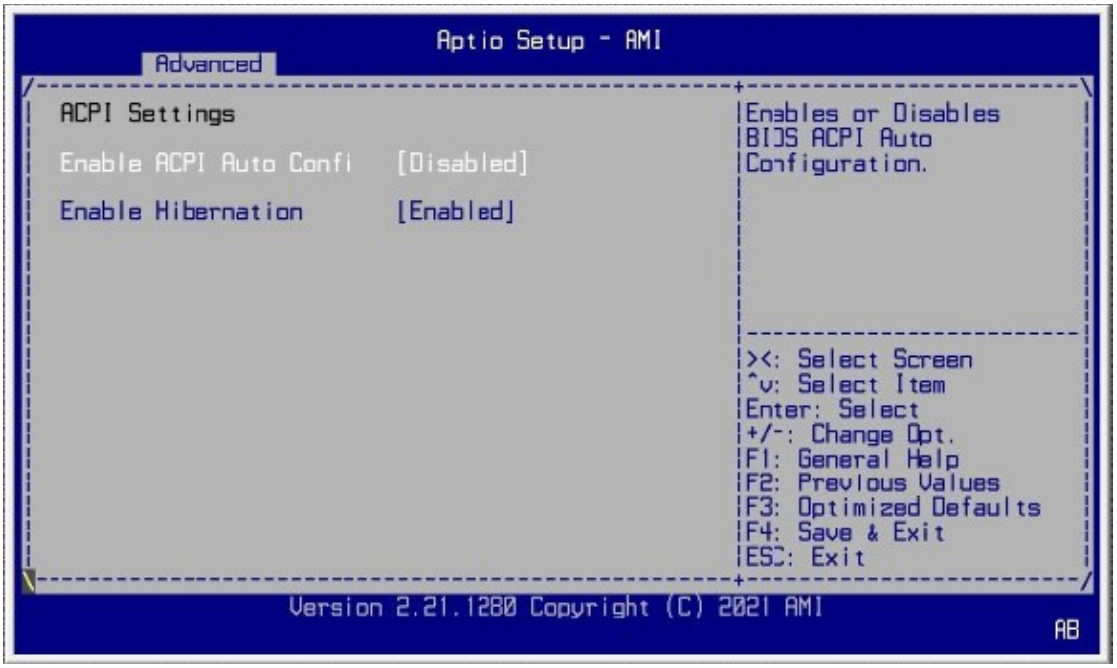
- Trusted Computing
- ACPI Settings
- NCT55230 Super IO Configuration
- NCT78940 HW Monitor
- Serial Port Console Redirection
- PCI Subsystem Settings
- USB Configuration
- NVME Configuration



3.4.1 Trusted Computing

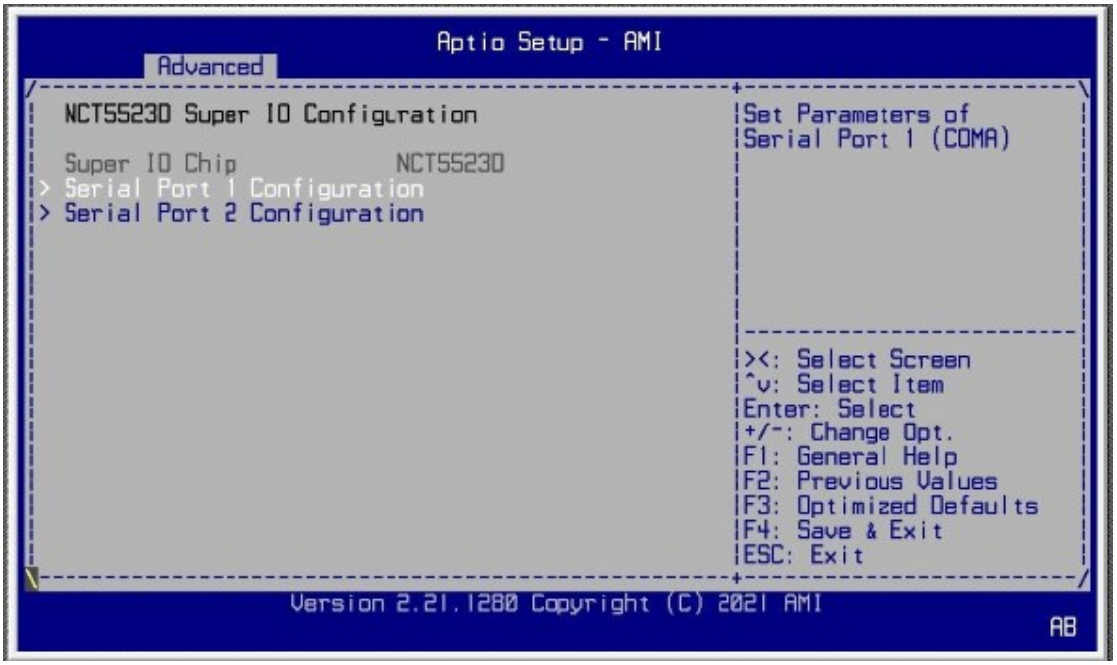
BIOS Setting	Description
Security Device Support	Enables / Disables BIOS support for security device. O.S. will not show security device. TCG EFI protocol and INT1A interface will not be available.
Pending operation	Schedule an operation for the security device. **Note:** Your computer will reboot during restart in order to change the state of security device.

3.4.2 ACPI Settings

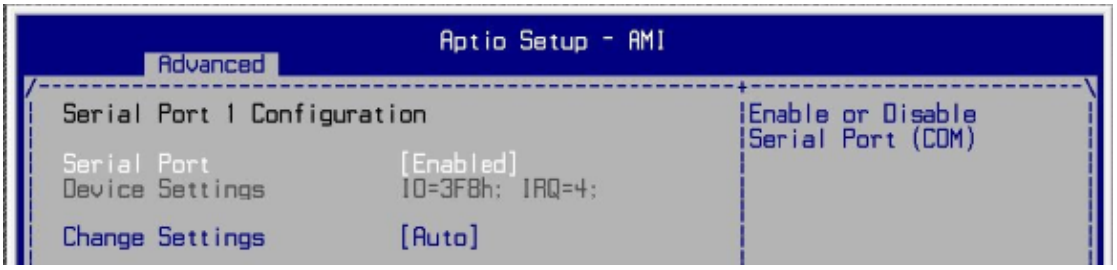


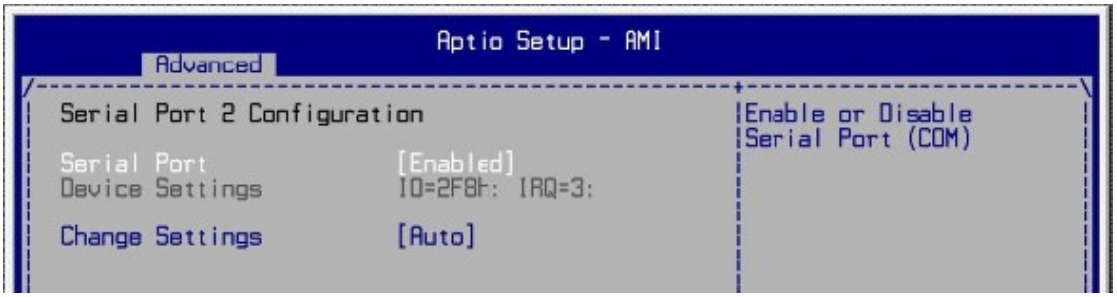
BIOS Setting	Description
Enable ACPI Auto Configuration	Enables / Disables BIOS ACPI Auto Configuration.
Enable Hibernation	Enables / Disables system ability to hibernate (OS/S4 Sleep State). This option may not be effective with some operating systems.

3.4.3 NCT552130 Settings

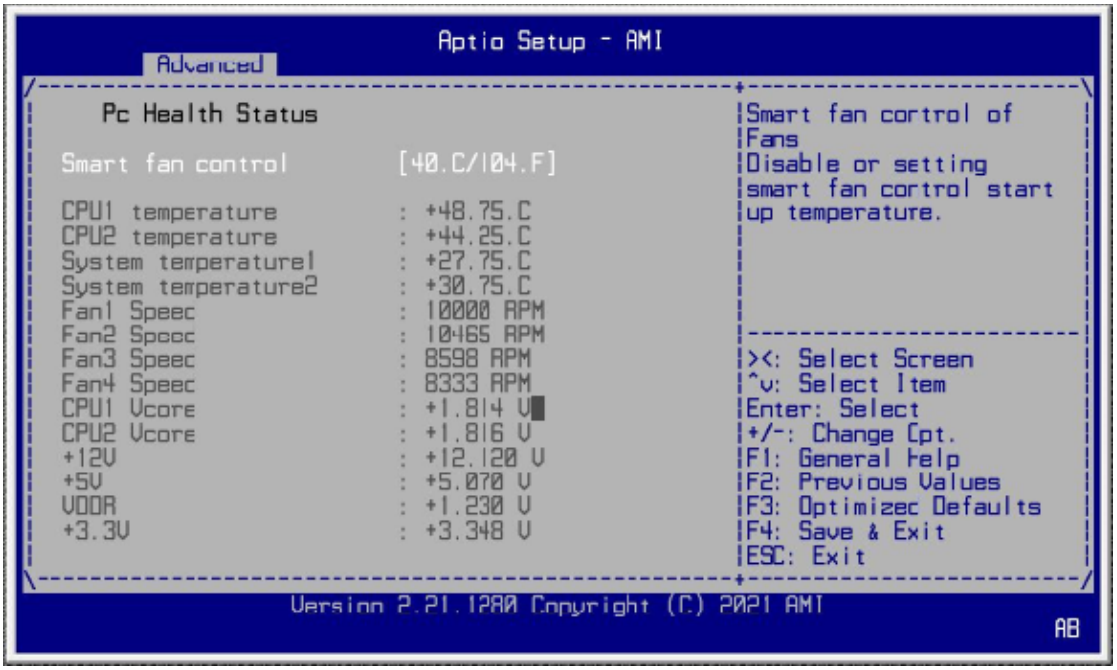


BIOS Setting	Description
Serial Port Configuration	Sets parameters of Serial Ports. Enables / Disables the serial port and select an optimal setting for the Super IO device.



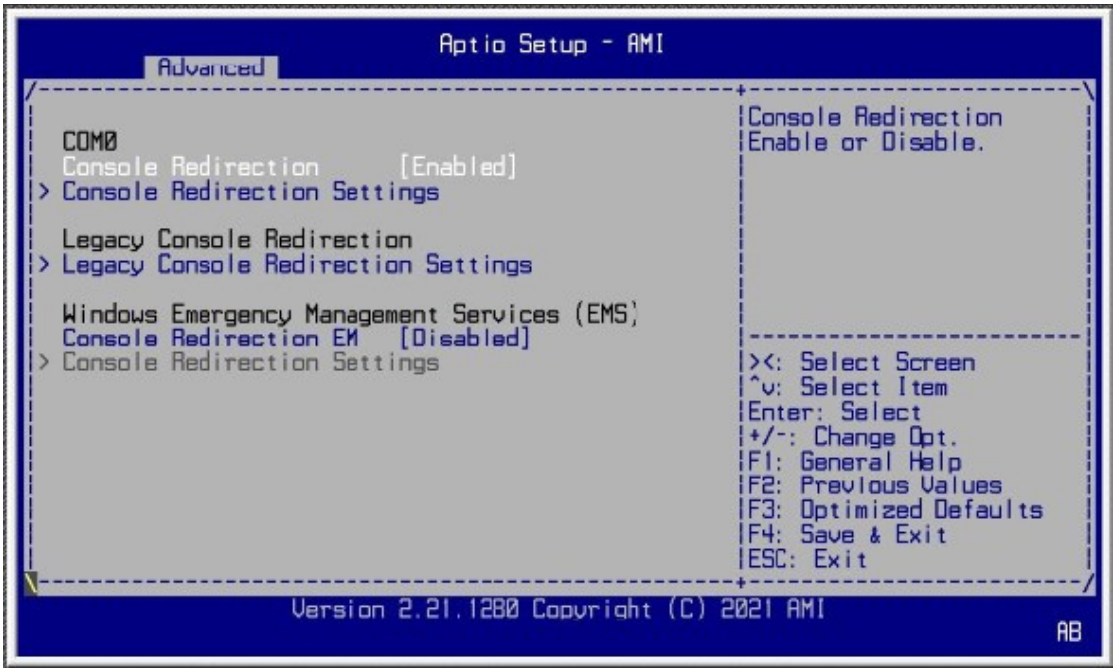


3.4.4 NCT78940 HW Monitor

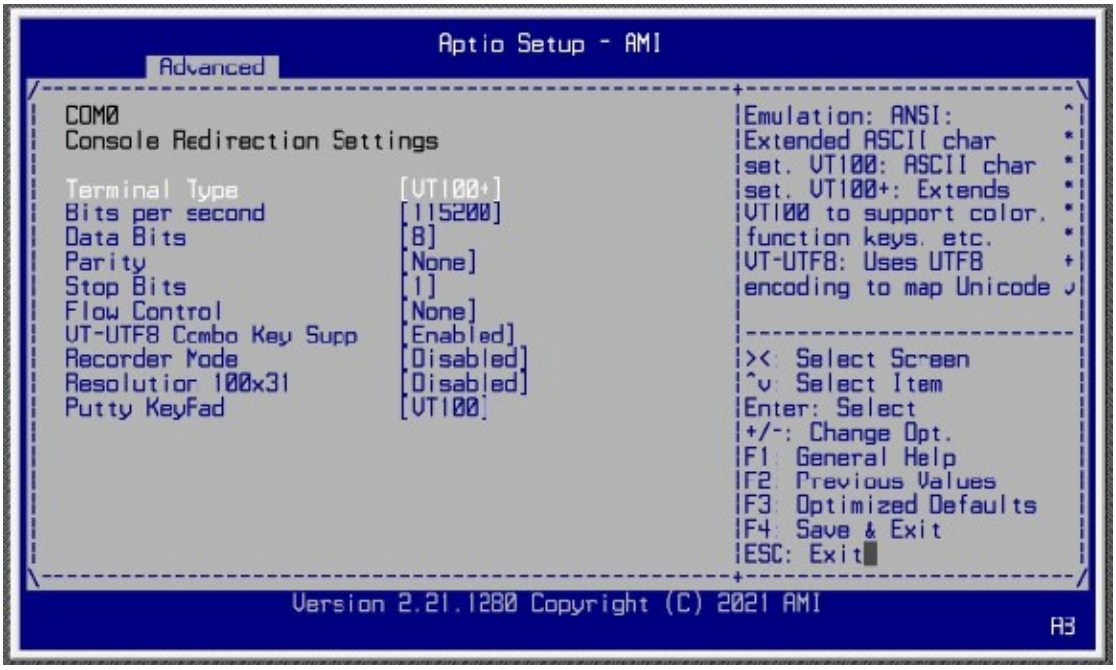


BIOS Setting	Description
Smart Fan Control	Disable or setting smart fan control start up temperature.
Temperatures / Voltages	These fields are the parameters of the hardware monitoring function feature of the motherboard. The values are read-only values as monitored by the system and show the PC health status.

3.4.5 Serial Port Console Redirection

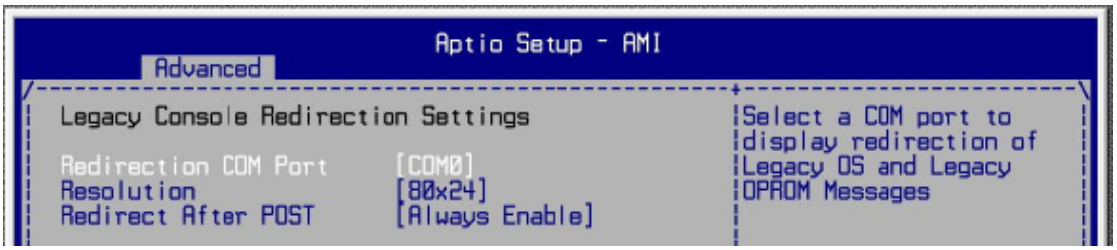


BIOS Setting	Description
Console Redirection	Allows you to enable or disable the console redirection feature.
Console Redirection Settings	These items become configurable only when you enable the Console Redirection item. The settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.



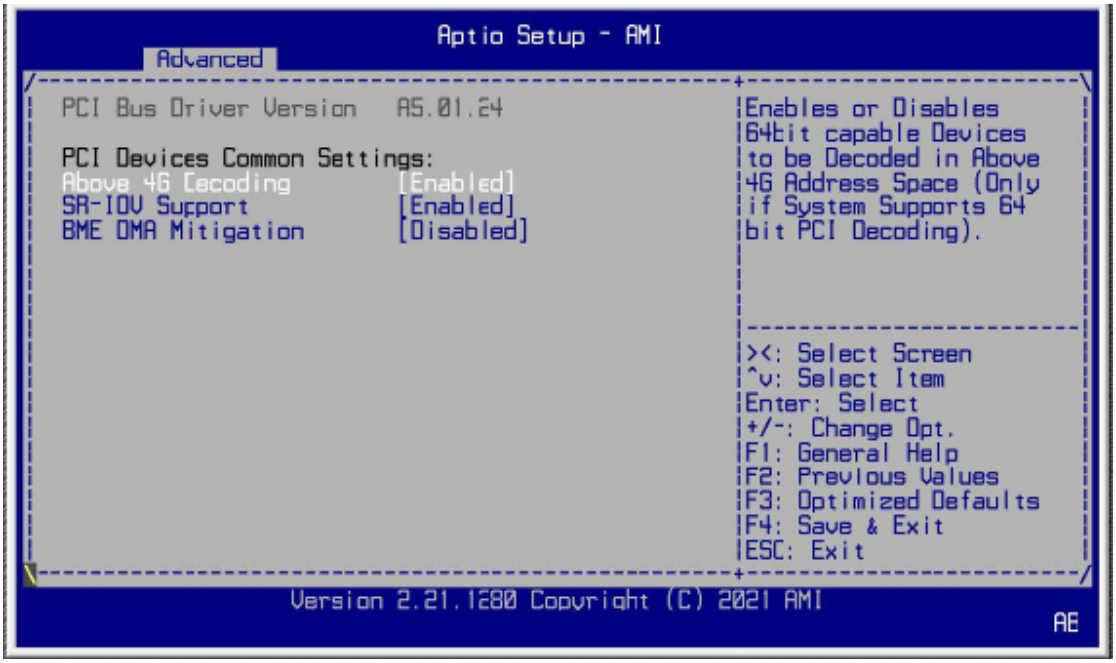
BIOS Setting	Description
Terminal Type	Emulation: **ANSI:** Extended ASCII charset. **VT100:** ASCII charset. **VT100+:** Extends VT100 to support color, function keys, etc. **VT-UTF8:** Uses UTF8 encoding to map Unicode.
Bits per second	Selects serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds. Options: 9600, 19200, 38400, 57600, 115200
Data Bits	Options: 7, 8
Parity	A parity bit can be sent with the data bits to detect some transmission errors. Even: parity bit is 0 if the num of 1's in the data bits is even. Options: None, Even, Odd, Mark, Space
Stop Bits	Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Options: 1, 2

BIOS Setting	Description
Flow Control	Flow control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a “stop” signal can be sent to stop the data flow. Options: None, Hardware RTS/CTS
VT-VTF8 Combo Key Support	Enables / Disables VT-UTFB combination key support for ANSI/VT100 terminals.
Recorder Mode	With this mode enabled, only text will be sent. This is to capture terminal data.
Resolution 100x31	Enables / Disables extended terminal resolution.
Putty Key pad	Select FunctionKey and keyPad on Putty. Options: VT100, LINUX, XTERMR6, SC0, ESCN, VT400



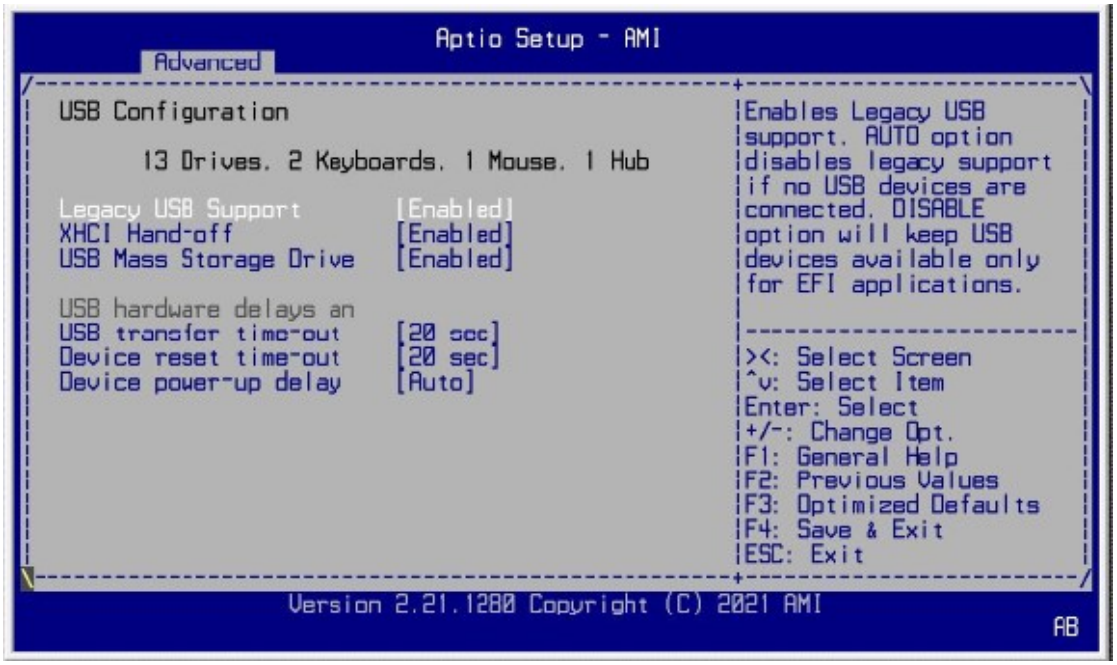
BIOS Setting	Description
Legacy Console Redirection Port	Allows you to select a COM port to display redirection of Legacy OS and Legacy OPROM Messages. Options: [COM1] [COM2
Redirection COM Port	Select a COM port to display redirection of Legacy OS and Legacy OPROM Messages.
Redirection After POST	This setting allows you to specify if Bootloader is selected than Legacy console redirection Default setting: Always Enable

3.4.6 PCI Subsystem Settings



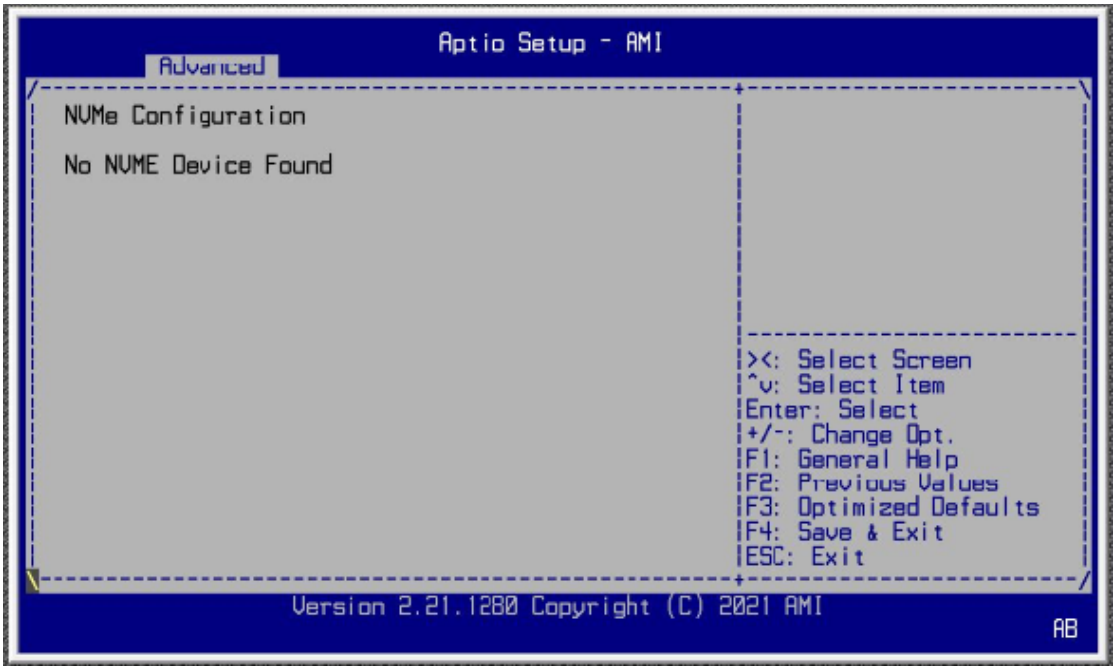
BIOS Setting	Description
Above 4G Decoding	This item enables or disables 64bit capable Devices to be Decoded in Above 4G Address Space (Only if System Supports 64bit PCI Decoding).
SR-IOV Support	This item if system has SR-IOV capable PCIe Devices, this option enables or disables Single Root IO Virtualization Support.
BME DMA Mitigation	This item Re-enable Bus Master Attribute disabled during Pci enumeration for PCI Bridges after SMM Locked.

3.4.7 USB Configuration



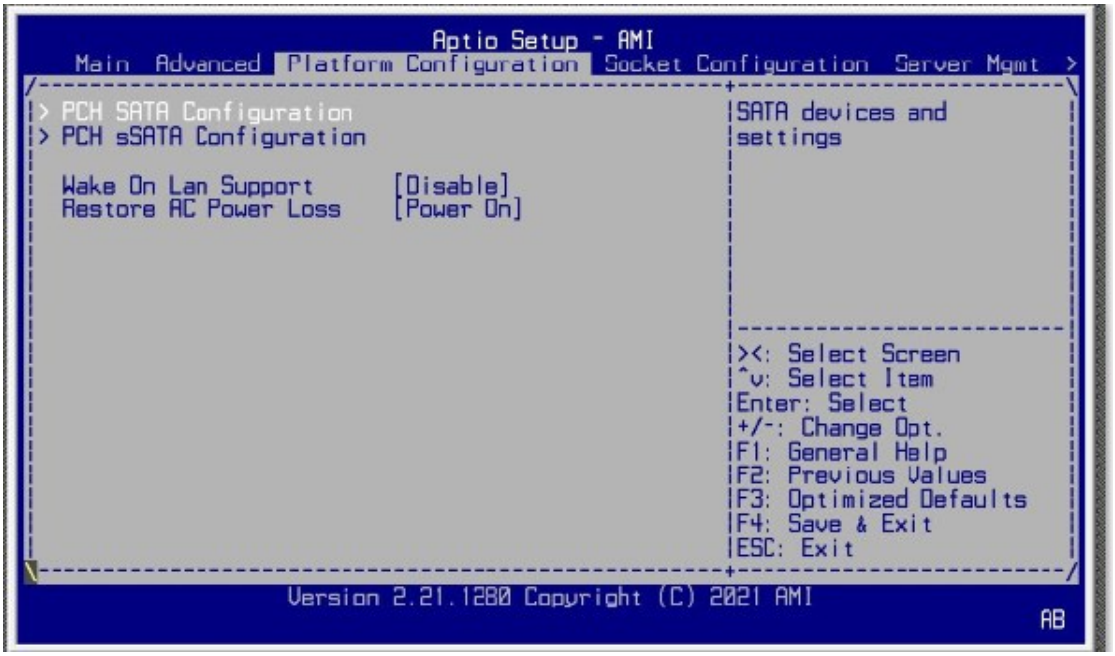
BIOS Setting	Description
Legacy USB Support	• **Enable:** Enables Ledacy USB Support. • **Auto:** Disables legacy support if no USB devices are connected. • **Disable:** Keeps USB devices available only for EFI applications.
XHCI Hand-off	This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
USB Mass Storage Driver Support	Enables / Disables the support for USB mass storage driver.
USB Transfer time-out	The time-out value for Control, Bulk, and Interrupt transfers.
Device reset time-out	Seconds of delaying execution of start unit command to USB mass storage device.
Device power-up delay	The maximum time the device will take before it properly reports itself to the Host Controller. “Auto” uses default value for a Root port it is 100ms. But for a Hub port, the delay is taken from Hub descriptor.

3.4.8 NVMe Configuration

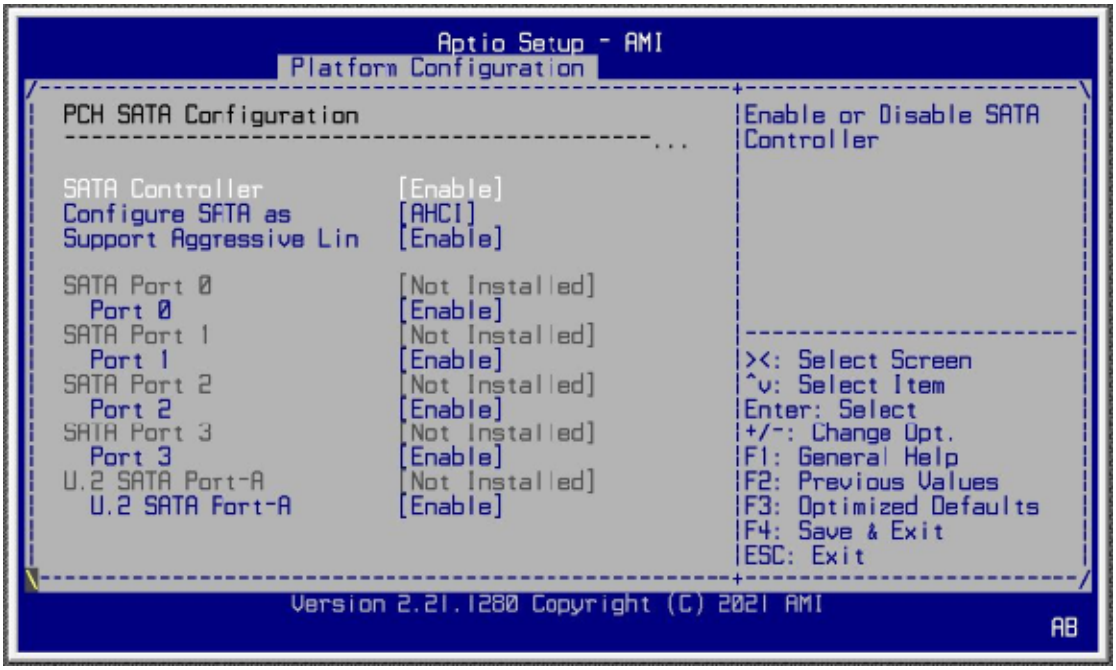


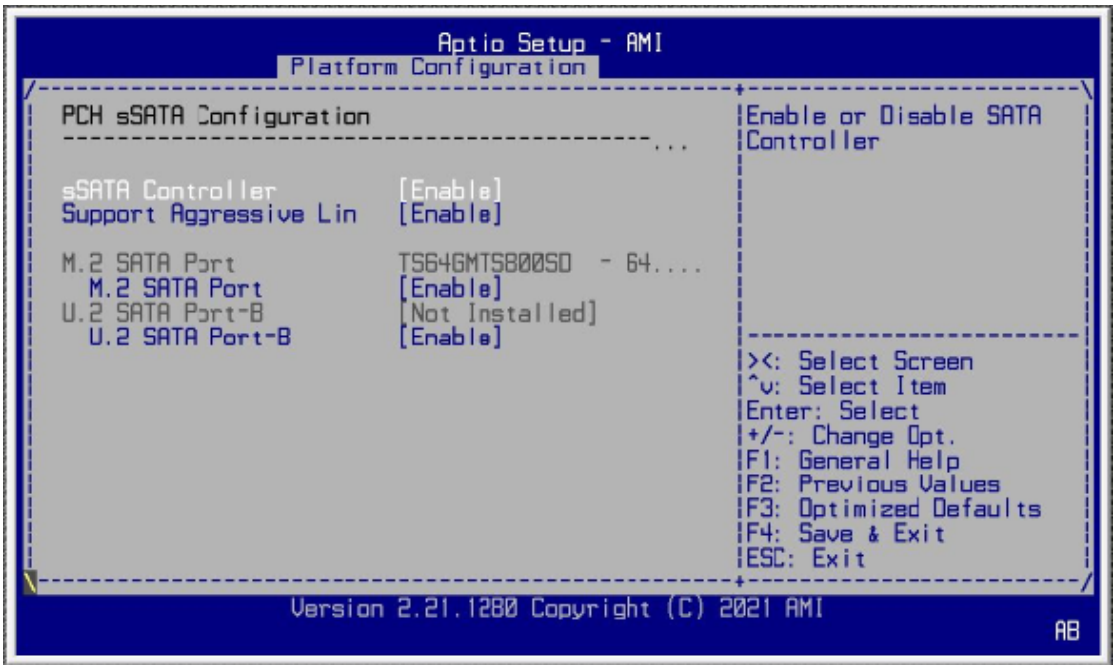
3.5 Platform Configuration

This section allows you to configure PCH SATA and eSATA settings.



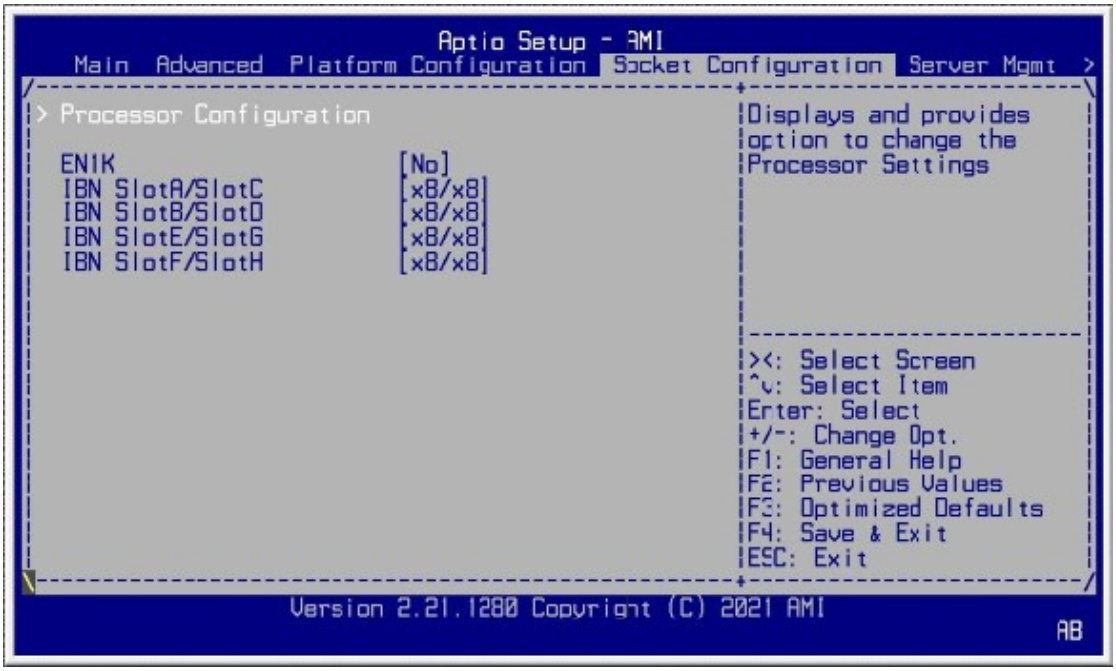
BIOS Setting	Description
PCH SATA and eSATA Configuration	SATA device options and settings
Wake on LAN Enable	Enables / Disables integrated LAN to wake the system.
Restore AC Power Loss	Select AC power state when power is re-applied after a power failure. Options: Power Off, Power On, Last State.


Aptio Setup - AMI
Platform Configuration
PCH SATA Configuration
SATA Controller [Enable]
Configure SATA as [AHCI]
Support Aggressive Lin [Enable]
SATA Port 0 [Not Installed]
Port 0 [Enable]
SATA Port 1 [Not Installed]
Port 1 [Enable]
SATA Port 2 [Not Installed]
Port 2 [Enable]
SATA Port 3 [Not Installed]
Port 3 [Enable]
U.2 SATA Port-A [Not Installed]
U.2 SATA Port-A [Enable]
Enable or Disable SATA Controller
><: Select Screen
^v: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.21.1280 Copyright (C) 2021 AMI
AB

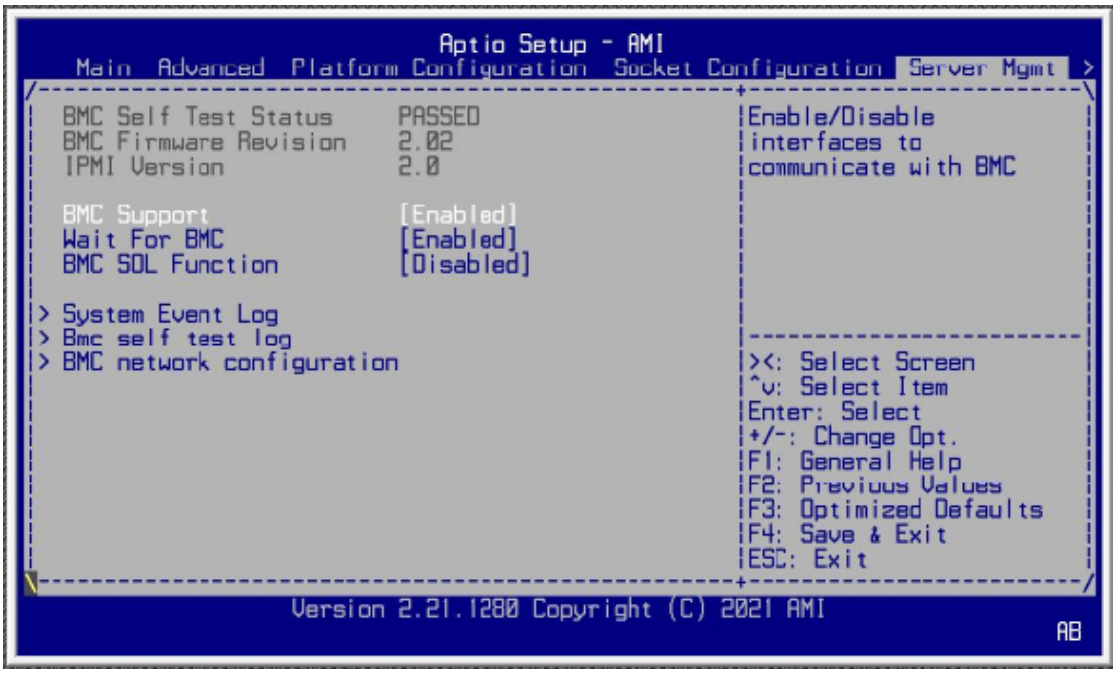

Aptio Setup - AMI
Platform Configuration
PCH sSATA Configuration
sSATA Controller [Enable]
Support Aggressive Lin [Enable]
M.2 SATA Port TS64GMTS800SD - 64....
M.2 SATA Port [Enable]
U.2 SATA Port-B [Not Installed]
U.2 SATA Port-B [Enable]
Enable or Disable SATA Controller
><: Select Screen
^v: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.21.1280 Copyright (C) 2021 AMI
AB

3.6 Socket Configuration

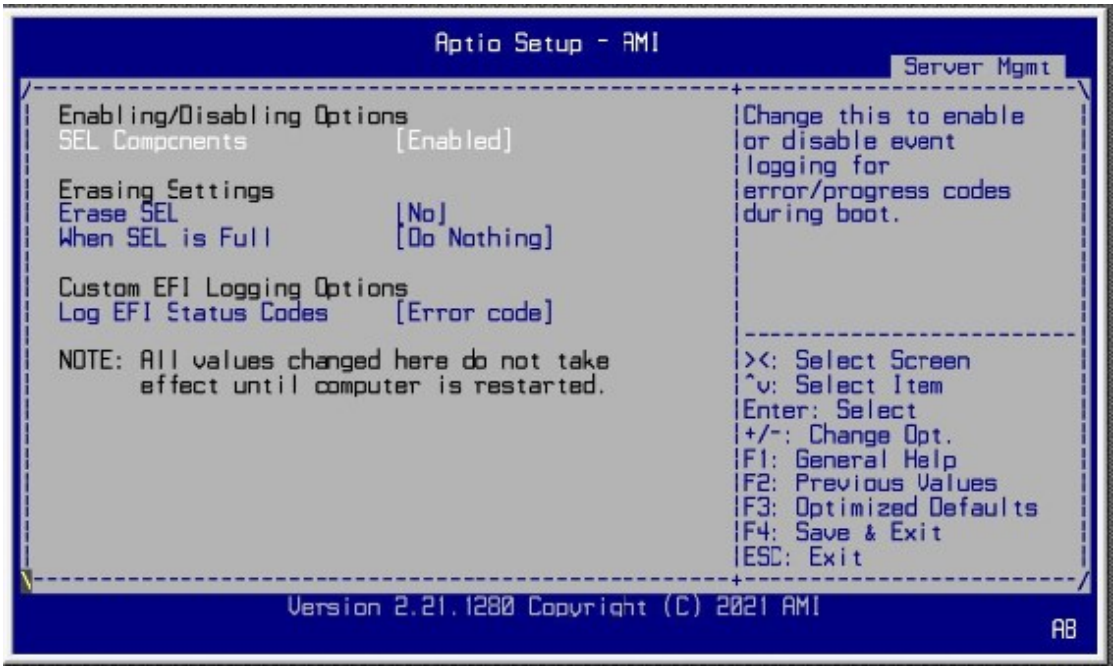
This section is for processor configuration. It displays and provides options to change the processor settings.

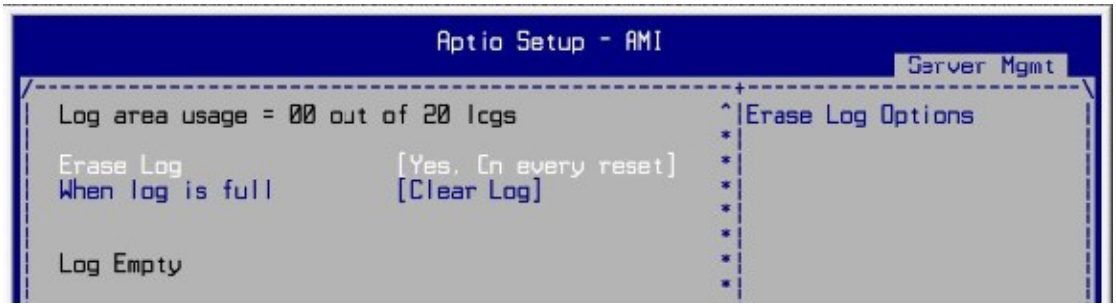


3.7 Server Management



BIOS Setting	Description
BMC Support	Enables / Disables interfaces to communicate with BMC.
Wait For BMC	Wait For BMC reponse for specified time out.
BMC SOL Function	Enables / Disables BMC SOL function. **Enable:** will inactive and clear IRQ and IObase of UART1. **Disable:** keep original IRQ, IObase and active UART1
System Event Log	Allows you to configure the settings for system event log.
BMC self test log	Allows you to configure when to erase the log.
BMC Network Configuration	Configures BMC network parameters.



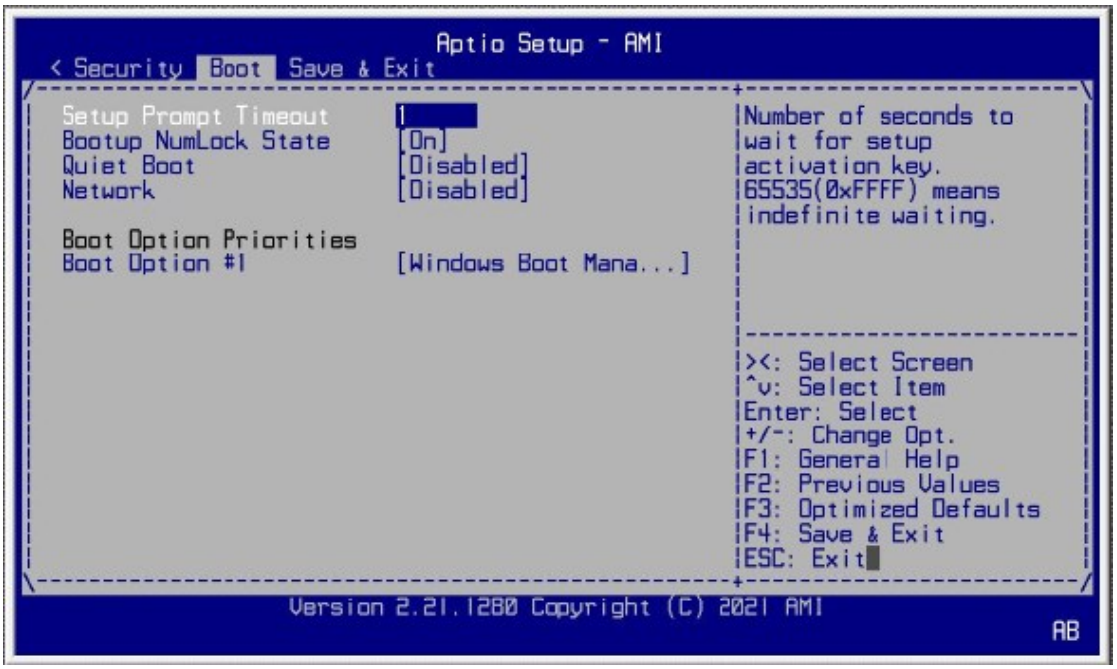


BIOS Setting	Description
SEL Components	Enables / Disables all features of system event logging during boot.
Erase SEL	Allows you to choose options for erasing SEL. Options: No, Yes on next reset, Yes on every reset
When SEL is Full	Allows you to choose options for reactions to a full SEL. Options: Do nothing, Erase immediately
Log EFI Status Codes	Disables the logging of EFI status codes or log only error code or only progress code or both. Options: Disabled, Both, Error code, Progress code

3.8 Security Settings

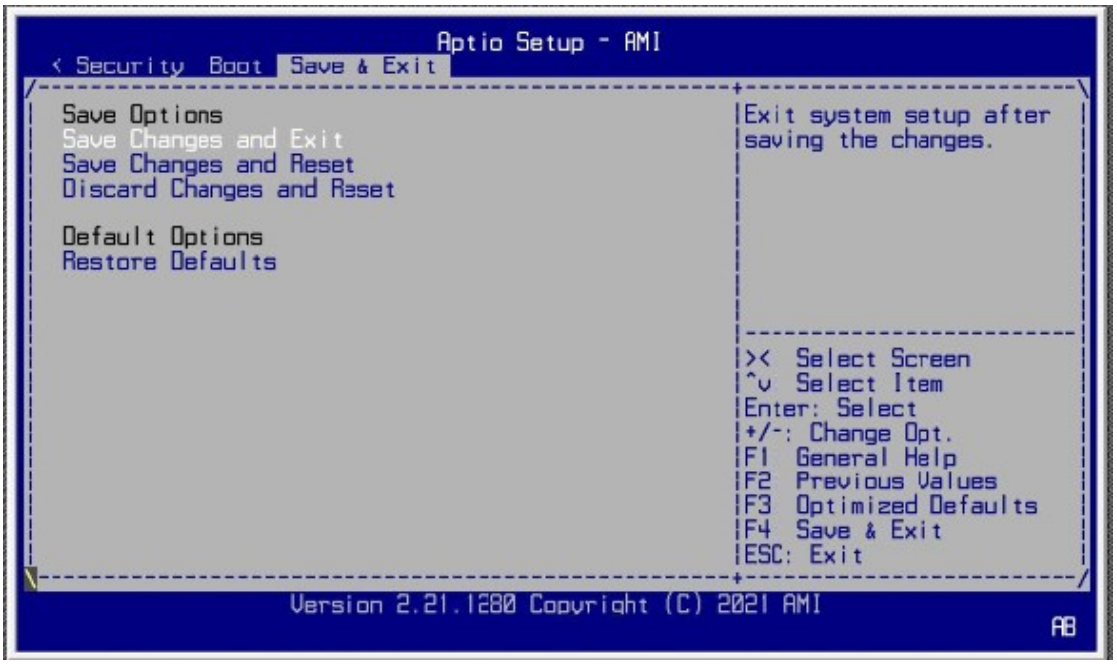
BIOS Setting	Description
Administrator Password	Sets an administrator password for the setup utility.
User Password	Sets a user password.

3.9 Boot Settings



BIOS Setting	Description
Setup Prompt Timeout	Number of seconds to wait for setup activation key. 65535 (0xFFFF) means indefinite waiting.
Bootup NumLock State	Turns on/off the keyboard NumLock state.
Quiet Boot	Enables / Disables Quiet Boot option.
Network	Enables / Disables Netowork
Boot Option Priorities	Sets the system boot order.

3.10 Save & Exit Settings



BIOS Setting	Description
Save Changes and Exit	Exits system setup after saving the changes.
Save Changes and Reset	Resets the system after saving the changes.
Discard Changes and Reset	Resets system setup without saving any changes.
Restore Defaults	Restores / Loads defaults values for all the setup options.

3.11 Server Management Settings

BIOS Setting	Description
BMC network configuration: LAN Channel 1	
Configuration Address source	Select to configure LAN channel parameters statically or dynamically (DHCP). Do nothing option will not modify any BMC network parameters during BIOS phase. Options available: Unspecified / Static / DynamicBmcDhcp. Default setting is DynamicBmcDhcp
Station IP address	Displays IP Address information
Subnet mask	Displays Subnet Mask information Please note that the IP address must be in three digitals for example 192.168.000.001.
Router IP address	Displays the Router IP Address information