

HPM-SIEUA

AMD single 4th Generation EPYC 8004 Processor ATX
Server Board with IPMI2.0. Processor supports up to 225W
TDP

User's Manual

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Revision	Date	By	Comment
1 st	July 2024	Avalue	Initial Release
2 nd	August 2024	Avalue	Add 2.4 Processor Installation SOP

Declaration of Conformity



This device complies with part 15 fcc rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference.

(2) This device must accept any interference received including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a class "a" digital device, pursuant to part 15 of the fcc rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CE statement

The product(s) described in this manual complies with all application European Union (CE) directives if it has a CE marking. For computer systems to remain CE compliant, only CE-compliant parts may be used. Maintaining CE compliance also requires proper cable and cabling techniques.

Notice

This guide is designed for experienced users to setup the system within the shortest time. For detailed information, please always refer to the electronic user's manual.

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Disclaimer

This manual is intended to be used as a practical and informative guide only and is subject

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to change without notice. It does not represent a commitment on the part of Avalue. This product might include unintentional technical or typographical errors. Changes are periodically made to the information herein to correct such errors, and these changes are incorporated into new editions of the publication.

A Message to the Customer

Avalue Customer Services

Each and every Avalue's product is built to the most exacting specifications to ensure reliable performance in the harsh and demanding conditions typical of industrial environments. Whether your new Avalue device is destined for the laboratory or the factory floor, you can be assured that your product will provide the reliability and ease of operation for which the name Avalue has come to be known.

Your satisfaction is our primary concern. Here is a guide to Avalue's customer services. To ensure you get the full benefit of our services, please follow the instructions below carefully.

Technical Support and Assistance

1. Visit the Avalue website at <https://www.avalue.com/> where you can find the latest information about the product.
2. Contact your distributor or our technical support team or sales representative for technical support if you need additional assistance. Please have following information ready before you call:
 - Product name and serial number
 - Description of your peripheral attachments
 - Description of your software (operating system, version, application software, etc.)
 - A complete description of the problem
 - The exact wording of any error messages

To receive the latest version of the user's manual; please visit our Web site at:

www.avalue.com

Product Warranty (Returns & Warranties policy)

1. Purpose

Avalue establishes the following maintenance specifications and operation procedures for providing the best quality of service and shortened repair time to our customers.

2. Warranty

2.1 Warranty Period

Avalue endeavors to offer customers the most comprehensive post-sales services and protection; besides offering a 2-year warranty for standard Avalue products, an extended warranty service can also be provided based on additional request from the customer. Within the warranty period, customers are entitled to receive comprehensive and prompt repair and warranty.

Standard products manufactured by Avalue are offered a 2-year warranty, from the date of delivery from Avalue. For ODM/OEM products manufactured by Avalue or PCBA with conformal coating, will follow up the define warranty of the agreement, otherwise will be offered 1-year warranty for ODM/OEM products but non-warranty for PCBA with conformal coating. For outsourcing parts kit by Avalue (ex: Motherboard, LCD touch panel, CPU, RAM, HDD) are offered a 6-month warranty, and Mobile/Tablet PC battery are offered a warranty of the half year, from the date of delivery by Avalue. Products before the mass production stage, i.e. engineering samples are not applied in this warranty or service policy. For extended warranty and cross-territory services, product defects resulting from design, production process or material are covered by the pre-set warranty period after the date of delivery from Avalue. For non-Avalue products, the product warranty and repair time shall be based on the service standards provided by the original manufacturer; in principle Avalue will provide these products a warranty service for no more than one year.

2.2 Maintenance services within the warranty period

In the case of Avalue product DOA (Defect-on-Arrival) when the customer finds any defect within 1 month after the delivery, Avalue will replace it with a new product in a soonest way. Except for custom products, once the customer is approved of a Cross-Shipment Agreement, which allows for delivery a new product to the customer before receiving the defective one, Avalue will immediately proceed with new product replacement for the said DOA case. On validation of the confirmed defect, Avalue is entitled to reserve the right whether to provide a new product for replacement. For the returned defective new product, it is necessary to verify that there shall be no bruise, alteration, scratch or marking to the appearance, and that none of the delivered accessories missing; otherwise, the customer will be requested to pay a processing fee. On the other hand, if the new product defect is resulting from incorrect configuration or erroneous use by the user instead of any problem of the hardware itself, the customer will also be requested to pay for relevant handling fees.

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As for other conditions, Avalue will handle defects by way of repair. The customer will be requested to send the defective product to an Avalue authorized service center, and Avalue will return the repaired product back to the customer as soon as possible.

2.3 Ruling of an out-of-warranty defect

The following situations are not included in the warranty:

- The warranty period has expired.
- Product has been altered or its label of the serial number has been torn off.
- Product functionality issues resulting from improper use by the user, unauthorized dismantle or alteration, unfit operation environment, improper maintenance, accident or other causes. Avalue reserves the right for the ruling of the aforementioned situations.
- Product damage resulting from lightning, flood, earthquake or other calamities.
- The warranty rules of non-Avalue products and accessories shall be in accordance with standards set up by the original manufacturer. These products and accessories include RAM, HDD, FDD, CD-ROM, CPU, FAN, etc.
- Product upgrade request or test request submitted by the customer after expiration of the warranty.
- PCBA with conformal coating.
- Avalue semi-product and outsourced products without Avalue serial number.
- Products before the mass production stage, i.e. engineering samples.

3. Procedure for sending for repair

3.1 Attain a RMA number

A customer's rejected product returned for repair shall have a RMA (Return Merchandise Authorization) number. Without a RMA number, Avalue will not provide any repair service for the rejected product, and the product will be returned to the customer at customer's cost. Avalue will not issue any notice for the return of the product.

Each returned product for repair shall have a RMA number, which is simply the authorization of the return for repair; it is not a guarantee that the returned goods can be repaired or replaced. For applying for a RMA number, the customer may enter the eRMA webpage of Avalue <https://www.avalue.com/en/member> and log-in with an account number and a password authorized by Avalue. The system will then automatically issue a RMA number.

When applying for the RMA number, it is essential to fill in basic information of the customer and the product, together with detailed description of the problem encountered. If possible, avoid using ambiguous words such as "does not work" or "problematic". Without a substantial description of the problem, it is hard to start the repair and will cause prolonged repair time. Lacking detailed statement of fault steps also makes the problem hard to be identified, sometimes resulting in second-time repairs.

In case the customer can't define the cause of problem, please contact Avalue application engineers. Sometimes when the problem can be resolved even before the customer sends back the product.

On the other hand, if the customer only returns the key parts to Avalue for repair, it is necessary that the serial number of the entire unit is given in the "Problem Description" field, so that warranty period can be ruled accordingly; or Avalue will handle the case as an Out-of- warranty case.

3.2 Return of faulty product for repair

It is recommended that the customer not to return the accessories (manual, connection cables, etc.) with the products for repair, devices such as CPU, DRAM, CF memory card, etc., shall also be removed from the faulty goods before return for repair. If these devices are relevant to described repair problems and necessary to be returned with the goods; please clearly indicate the items included in the eRMA application form. Avalue shall not be responsible for any item that is not itemized. Moreover, make sure the problem(s) are detailed in the "Problem Description" field.

In the list of delivery, the customer may fill-in a value which is lower than the actual value, to prevent customs levying a higher tax over the excessive value of the return goods. The customer shall be held responsible for extra fees caused by this. We strongly recommend that "Invoice for customs purpose only with no commercial value" be indicated on the delivery note. Also for the purpose of expedited handling, please printout the RMA number and put it in the carton, also indicate the number outside of the carton, with the recipient addressing to Avalue RMA Department.

When returning the defective product, please use an anti-static bag or ESD material to pack it properly. In case of improper packing resulting in damages in the transportation process, Avalue reserves the right to reject the un-repaired faulty good at the customer's costs. Furthermore, it is suggested that the faulty goods shall be sent via a door-to-door courier service. The customer shall be held responsible for any customs clearance fee or extra expenses if Air-Cargo is used for the delivery.

In case of a DOA situation of a new product, Avalue will be responsible for the product and the freight. If the faulty goods are within the warranty period, the sender will take responsibility for the freight. For an out-of-warranty case, the customer shall be responsible for the freight of both trips.

3.3 Maintenance Charge

Avalue will charge a moderate repair fee for the following conditions:

- The warranty period has expired.
- Product has been altered or its label of the serial number has been torn off.
- Product functionality issues resulting from improper use by the user, unauthorized dismantle or alteration, unfit operation environment, improper maintenance, accident

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or other causes. Avalue reserves the right for the ruling of the aforementioned situations.

- Product damage resulting from lightning, flood, earthquake or other calamities.
- The warranty rules for non-Avalue products and accessories shall be in accordance with standards set up by the original supplier. These products and accessories include RAM, HDD, FDD, CD-ROM, CPU, FAN, etc.
- Product upgrade request or test request submitted by the customer after expiry of the warranty.
- PCBA with conformal coating.
- Avalue semi-product and outsourced products without Avalue serial number
- Products before the mass production stage, i.e. engineering samples.
- In case the products received are examined as NPF (No Problem Found) within the warranty period, the customer shall be responsible for the freight of both trips.
- Please contact your local distributor to examine in advance to prevent unnecessary freight cost.

For system failure of out-of-warranty products, Avalue will provide a quotation prior to repair service. When the customer applies for the cost, please refer to the Quotation number. In case the customer does not return the DOA product that has already been replaced by a new one, or the customer does not sign back the quotation of the out-of-warranty maintenance, Avalue reserves the right of whether or not to provide the repair service. In case the customer does not reply in 3 months, Avalue shall directly scrap or return the product back to customer at customer's cost without further notice to the customer.

3.4 Maintenance service of phased-out products

For servicing phased-out products, Avalue provides an extended period, starting the date of phase-out, as a guaranteed maintenance period of such products, for continuance of the maintenance service to meet customer's requirements. In case of unexpected factors causing Avalue to be unable to repair/replace a warranted but phased-out product, Avalue will, depending on the availability, upgrade the product (free of charge with continued warranty period as of the original product), or, give partial refund (based on the length of the remaining warranty period) to solve this kind of problem.

3.5 Maintenance Report

On completion of repair of a defective product, a Maintenance Report indicating the maintenance result and part(s) replaced (if any) will be sent to the customer together with the product. If the customer demands an additional maintenance analysis report, a service fee of various level will be charged depending on the warranty status. In case the analysis result shows that the defect attributes to Avalue's faulty design or process, the analysis fee will be exempted.

4. Service Products

Avalue provides service products to manage with different customer needs. Should you have any need, please consult to Avalue Sales Department.












Defect Analysis Report (DAR)






Avalue provides DAR (Defect Analysis Report) services aiming to elevating customer satisfaction. A DAR includes defect cause identification/verification/suggestion and improvement precautions, with instructions on correct usage for the avoidance of any reoccurrence.

Upgrade Service

Avalue is capable to provide system upgrade service for customization requirements. This upgrade service is applicable for main parts, such as CPU, memory, HDD, SSD, storage devices; also replacements motherboards of systems. Please contact Avalue sales for details to evaluate the possibility of system upgrade service and obtain information of lead time and price.

Explanation of Graphical Symbols

	Warning	A WARNING statement provides important information about a potentially hazardous situation which, if not avoided, could result in death or serious injury.
	Caution	A CAUTION statement provides important information about a potentially hazardous situation which, if not avoided, may result in minor or moderate injury to the user or patient or in damage to the equipment or other property.
	Note	A NOTE provides additional information intended to avoid inconveniences during operation.
		Direct current.
		Alternating current
		Stand-by, Power on
		FCC Certification
		CE Certification
		Follow the national requirements for disposal of equipment.
		Stacking layer limit
		This side up

		<p>Fragile Packaging</p>
		<p>Beware of water damage, moisture-proof</p>
		<p>Carton recyclable</p>
		<p>Handle with care</p>
		<p>Follow operating instructions of consult instructions for use.</p>

Disposing of your old product

WARNING:

There is danger of explosion if the battery is mishandled or incorrectly replaced. Replace only with the same type of battery. Do not disassemble it or attempt to recharge it outside the system. Do not crush, puncture, dispose of in fire, short the external contacts, or expose to water or other liquids. Dispose of the battery in accordance with local regulations and instructions from your service provider.

CAUTION:

- Lithium Battery Caution: Danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent type. Dispose batteries according to manufacturer's instructions.
- Disposal of a BATTERY into fire or a hot oven, or mechanically crushing or cutting of a BATTERY, that can result in an EXPLOSION
- Leaving a BATTERY in an extremely high temperature surrounding environment that can result in an EXPLOSION or the leakage of flammable liquid or gas.
- A BATTERY subjected to extremely low air pressure that may result in an EXPLOSION or the leakage of flammable liquid or gas.

Mise en garde!

AVERTISSEMENT : Il existe un risque d'explosion si la batterie est mal manipulée ou remplacée de manière incorrecte. Remplacez uniquement par le même type de batterie. Ne le démontez pas et ne tentez pas de le recharger en dehors du système. Ne pas écraser, percer, jeter au feu, court-circuiter les contacts externes ou exposer à l'eau ou à d'autres liquides. Jetez la batterie conformément aux réglementations locales et aux instructions de votre fournisseur de services.

MISE EN GARDE:

- Pile au lithium Attention : Danger d'explosion si la pile n'est pas remplacée correctement. Remplacer uniquement par un type identique ou équivalent. Jetez les piles conformément aux instructions du fabricant.
- L'élimination d'une BATTERIE dans le feu ou dans un four chaud, ou l'écrasement ou le découpage mécanique d'une BATTERIE, pouvant entraîner une EXPLOSION
- Laisser une BATTERIE dans un environnement à température extrêmement élevée pouvant entraîner une EXPLOSION ou une fuite de liquide ou de gaz inflammable.
- UNE BATTERIE soumise à une pression d'air extrêmement basse pouvant entraîner une EXPLOSION ou une fuite de liquide ou de gaz inflammable.

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1. Getting Started

1.1 Safety Precautions

Warning!



Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

Caution!



Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

Risk of Explosion if Battery is replaced by an Incorrect Type. Dispose of Used Batteries According to the Instructions.

Français:

Attention!



Débranchez le câble d'alimentation de votre châssis chaque fois que vous travaillez avec le matériel. Ne faites pas de connexion lorsque le système est allumé. Les composants électroniques sensibles peuvent être endommagés par les surtensions soudaines. Seule les personnels expérimentés de l'électronique peuvent ouvrir le châssis du PC.

Précaution!



Il faut toujours mettre à la masse pour éliminer l'électricité statique avant de toucher la carte CPU. Les appareils électroniques modernes sont très sensibles aux électricité statique. Pour des raisons de sécurité, utilisez un bracelet électrostatique. Placez tous les composants électroniques sur une surface antistatique ou dans un sac antistatique quand ils ne sont pas dans le châssis.

Risque d'explosion si la batterie est remplacée par un type incorrect. Jetez les piles usagées selon les instructions

Warning!



Class I Equipment. This equipment must be earthed. The power plug must be connected to a properly wired earth ground socket outlet. An improperly wired socket outlet could place hazardous voltages on accessible metal parts.

Warning!



IT Room

Suitable for installation in Information Technology Rooms in accordance with Article 645 of the National Electrical Code and NFPA 75.

Warning!



RAL

The device can only be used in a fixed location such as a lab or a machine room. When you install the device, ensure that the protective earthing connection of the socket-outlet is verified by a skilled person.

Warning!



For RTC battery, current statement in the manual is acceptable.

There is danger of explosion if the battery is mishandled or incorrectly replaced. Replace only with the same type of battery. Do not disassemble it or attempt to recharge it outside the system. Do not crush, puncture, dispose of in fire, short the external contacts, or expose to water or other liquids. Dispose of the battery in accordance with local regulations and instructions from your service provider.

1.2 Packing List

Before installation, please ensure all the items listed in the following table are included in the package.

Item	Description	Q'ty
1	HPM-SIEUA motherboard	1
2	I/O Shield	1



If any of the above items is damaged or missing, contact your retailer.

1.3 Manual Objectives

This manual describes in details Avalue Technology HPM-SIEUA Single Board.

We have tried to include as much information as possible but we have not duplicated information that is provided in the standard IBM Technical References, unless it proved to be necessary to aid in the understanding of this board.

We strongly recommend that you study this manual carefully before attempting to set up HPM-SIEUA or change the standard configurations. Whilst all the necessary information is available in this manual we would recommend that unless you are confident, you contact your supplier for guidance.

Please be aware that it is possible to create configurations within the CMOS RAM that make booting impossible. If this should happen, clear the CMOS settings, (see the description of the Jumper Settings for details).

If you have any suggestions or find any errors regarding this manual and want to inform us of these, please contact our Customer Service department with the relevant details.

1.4 System Specifications

System	
CPU	Single AMD SP6 Socket supports 4th Gen. AMD EPYC Processor (Max. TDP at 225W)
BIOS	AMI UEFI BIOS
System Memory	6 x DDR5 4800/ 4400 MHz RDIMM Up to 1.5 TB
Watchdog Timer	System reset event 0~6553 second.
H/W Status Monitor	Temperature. Fan. Voltage. Case open. (1 x 2.5mm pitch Box Wafer, Pinrex 753-71-02TW07 or equivalent)
TPM	TPM 2.0 NuvoTon NPCT760AABYX or equivalent TCM Nationz Z32H330TC or equivalent (Optional)
Other	IPMI 2.0 with AST 2600 BMC controller onboard.
Expansion Slot	
PCIe	3 x PCIe Gen5 x16 slots and 4 x PCIe Gen5 x8 Slot 1, PCIe Gen5 x8 Slot 2, PCIe Gen5 x16 Slot 3, PCIe Gen5 x8 Slot 4, PCIe Gen5 x16 Slot 5, PCIe Gen5 x8 Slot 6, PCIe Gen5 x16 Slot 7, PCIe Gen5 x8 (This slot is closest to CPU socket)
Storage	
M.2	2 x M.2 M-Key Slots to support 2 x SATA or 2 x PCIe 5.0 x4 NVMe SSD/SATA/2260/2280/22110 form factor
SATA	1 x Mini-SAS HD 4i (For 4 xSATA or 1 x4 NVMe interface)
Edge I/O	
COM	1 x DB-9 male connector (Connector : DB-9(male) and DB-15(female) dual port right angle)
LAN	5 x RJ45 (Including MGMT, LAN1, 2, 3, and 4) MGMT port : Dedicated IPMI function access LAN 1 : 1GbE Ethernet port, LAN1 shared with IPMI function access (Connector : 1 x 1G Base-T RJ45 module jack over 2 x USB 3.1 Gen1 stacked receptacle) LAN 2 : 2.5GbE Ethernet port (Connector : 1 x 2.5G Base-T RJ45 module jack over 2 x USB 3.1 Gen1 stacked

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	receptacle) LAN 3 and 4 : 2 x 10GbE Ethernet ports (Connector : 1 x 2X1 10G Base-T RJ45 module jack)																								
USB	4 x USB 3.2 Gen1 type A ports +5VSB/0.9A (Connector : 1 x 1G Base-T RJ45 module jack over 2 x USB 3.2 Gen1 stacked receptacle) (Connector : 1 x 2.5G Base-T RJ45 module jack over 2 x USB 3.2 Gen1 stacked receptacle)																								
VGA	1 x DB-15 female connector (Connector : DB-9(male) and DB-15(female) dual port right angle)																								
Onboard I/O																									
COM	1 x RS232 ports (1 x 2.0mm pitch Box Header) Pin definition: Follow Avalue standard.																								
USB	2 x USB 3.2 Gen1 ports (1 x USB 3.2 Gen1 2.0mm pitch Box Header (Pinrex 52X-8020GB52 or equivalent) +5VSB/0.9A)																								
CPU/System FAN	1 x 4 Pin CPU Fan Header (4 Pin PWM) 6 x 4 Pin Chassis Fan Header (4 Pin PWM, 2 for front fans and 4 for rear fans)																								
Front Panel	1 x front panel connector (2.54 mm Pitch) <table border="1" data-bbox="478 1025 1270 1317"> <thead> <tr> <th>Pin</th> <th>Function</th> <th>Pin</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>1-3</td> <td>HDD LED</td> <td>2-4</td> <td>POWER LED</td> </tr> <tr> <td>5-7</td> <td>RESET BUTTON</td> <td>6-8</td> <td>POWER BUTTON</td> </tr> <tr> <td>9-11</td> <td>STATUS LED</td> <td>10-12</td> <td>LAN1 ACT LED</td> </tr> <tr> <td>13-15</td> <td>UID LED</td> <td>14-16</td> <td>STBY POWER LED</td> </tr> <tr> <td>17-19</td> <td>UID BUTTON</td> <td>18-20</td> <td>LAN2-X ACT LED</td> </tr> </tbody> </table> <p>Notes: LAN2-X ACT LED, "X" means the max number of Ethernet ports. 1 x 24-pin SSI front panel connector</p>	Pin	Function	Pin	Function	1-3	HDD LED	2-4	POWER LED	5-7	RESET BUTTON	6-8	POWER BUTTON	9-11	STATUS LED	10-12	LAN1 ACT LED	13-15	UID LED	14-16	STBY POWER LED	17-19	UID BUTTON	18-20	LAN2-X ACT LED
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RTC Battery	1 x Horizontal Socket Type CMOS Battery Holder with CR2450																								
Clear CMOS	1 x Clear CMOS header (1 x 2.0 mm pitch Header)																								
Other	1 x Inlet sensor onboard TI TMP75AIDGKT VSSOP-8 1 x Outlet sensor onboard TI TMP75AIDGKT VSSOP-8 1 x Inlet sensor header 1 x Outlet sensor header (The onboard and external sensors will co-exist)																								
Display																									
Graphic Chipset	1 x VGA port (DB15 on edge I/O) AST2600 BMC controller																								
Spec. & Resolution	1920x1200@60Hz 32bpp																								
Ethernet																									
LAN Chipset	1 x Intel I210AT																								

	1 x Intel I226-LM 1 x Intel X550-AT2																																																																																																																																																
LAN Spec.	1 x 1G Base-T Ethernet Controller 1 x 2.5G Base-T Ethernet controller 1 x Dual 10G Base-T Ethernet controller																																																																																																																																																
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Power Requirement	1 x Std. 24 pin ATX Connector 3 x 8 Pin SSI 12V Connectors Connector current rating information.																																																																																																																																																

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	MAXIMUM CURRENT RATING(Amperes) Wire-to-Wire and Wire-to- Board									
	Brass					Phosphor Bronze				
	Ckt.Size Wire	2 & 3	4 - 6	7 - 10	12 - 24	Ckt.Size Wire	2 & 3	4 - 6	7 - 10	12 - 24
	AWG #16	9	8	7	6	AWG #16	8	7	6	5
	AWG #18	9	8	7	6	AWG #18	8	7	6	5
	AWG #20	7	6	5	5	AWG #20	6	5	4	4
	AWG #22	5	4	4	4	AWG #22	4	3	3	3
	AWG #24	4	3	3	3	AWG #24	3	2	2	2
	AWG #26	3	2	2	2	AWG #26	2	1	1	1
	AWG #28	2	1	1	1	AWG #28	1	1	1	1
Power Mode	H/W: ATX power well design only BMC: AT (Default)									
Operating Temp.	0 ~ 45°C (32 ~ 113°F)to support up to 225W TDP CPU									
Storage Temp.	-40 °C to 85 °C									
Operating Humidity	40°C 95% non-condensing									
Size (L x W) (Please consult product engineers for the production feasibility if the size is larger than 410x360mm or smaller than 80x70mm)	ATX form factor 12" x 9.6" (304.8mm x 243.84mm) PCB thickness is 2.00mm									
Weight	1Kg									
Vibration Test	<p>Follow Avalue standard test.</p> <p>Random Vibration Operation</p> <p>1 Test PSD : 0.00454G²/Hz , 1.5 Grms</p> <p>2 System condition : operation mode</p> <p>3 Test frequency : 5~500 Hz</p> <p>4 Test axis : X,Y and Z axis</p> <p>5 Test time : 30 minutes per each axis</p> <p>6 IEC60068-2-64 Test Fh</p> <p>6 Storage : mSATA</p> <p>Random vibration test (Non-operation)</p> <p>1 PSD: 0.00808G²/Hz , 2.0 Grms</p> <p>2 Non-Operation mode</p> <p>3 Test Frequency : 5-500Hz</p> <p>4 Test Axis : X,Y and Z axis</p> <p>5 30 min. per each axis</p> <p>6 IEC 60068-2-64 Test:Fh</p> <p>Package Vibration Test:</p> <p>1 Test PSD : 0.026G²/Hz , 2.16 Grms</p>									

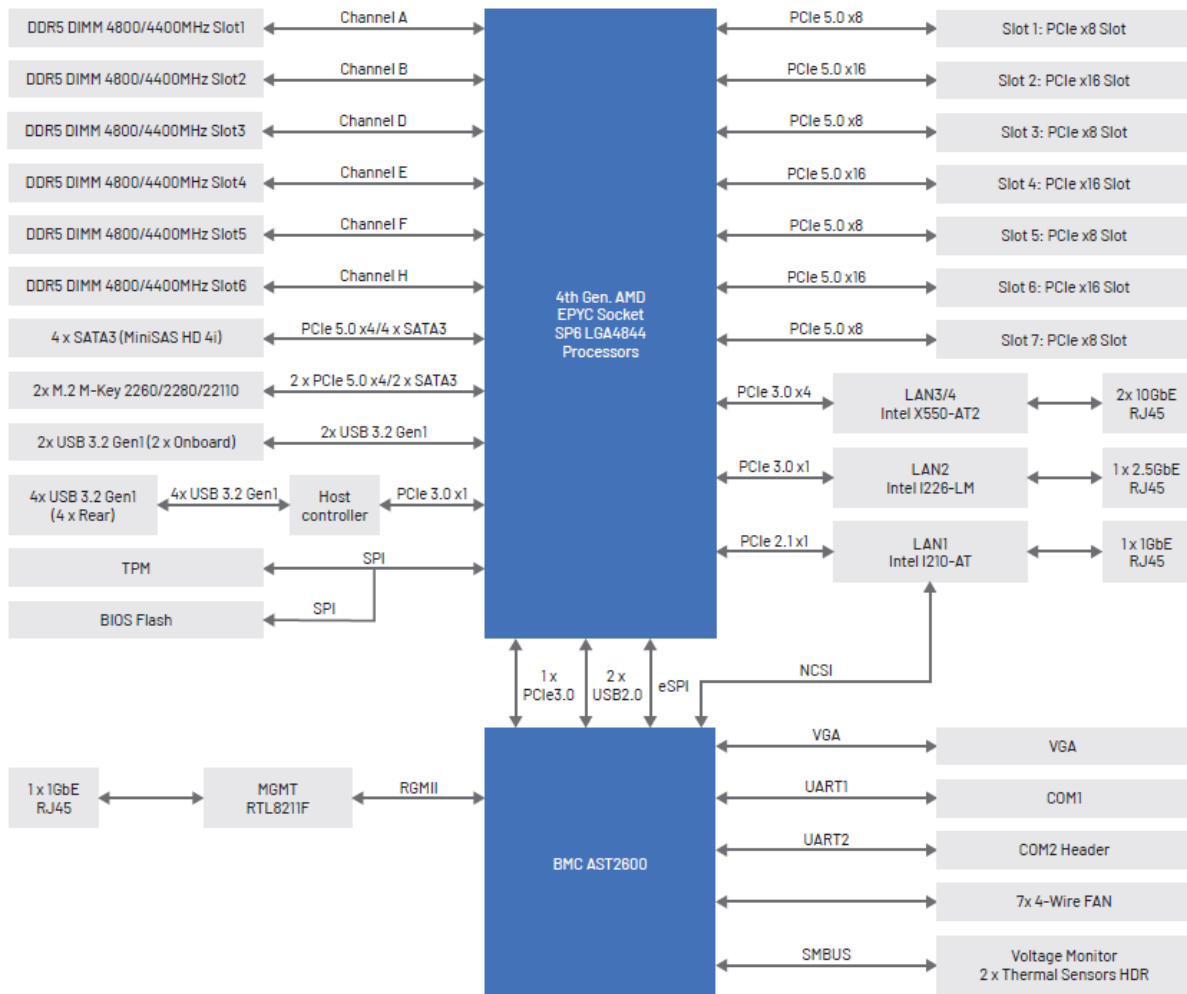
	<p>2 Test frequency : 5~500 Hz</p> <p>3 Test axis : X,Y and Z axis</p> <p>4 Test time : 30 minutes per each axis</p> <p>5 IEC 60068-2-64 Test Fh</p>
<p>Drop Test</p>	<p>Follow Avalue standard test.</p> <p>Reference ISTA 2A, Method : IEC-60068-2-32 Test:Ed</p> <p>Test Ea : Drop Test</p> <p>1 Test phase : One corner, three edges, six faces</p> <p>2 Test high : 96.5cm</p> <p>3 Package weight : 5Kg</p> <p>4 Test drawing</p>
<p>OS Information</p>	<p>Windows Server 2019 bare-metal support (KB5017379) & Hyper-V support (KB5018419)</p> <p>Windows Server IoT 2022.</p> <p>Ubuntu 20.04 LTS</p> <p>Ubuntu 22.04 LTS or later</p> <p>Red Hat Enterprise Linux (RHEL) 9.0 or later</p>



Note: Specifications are subject to change without notice.

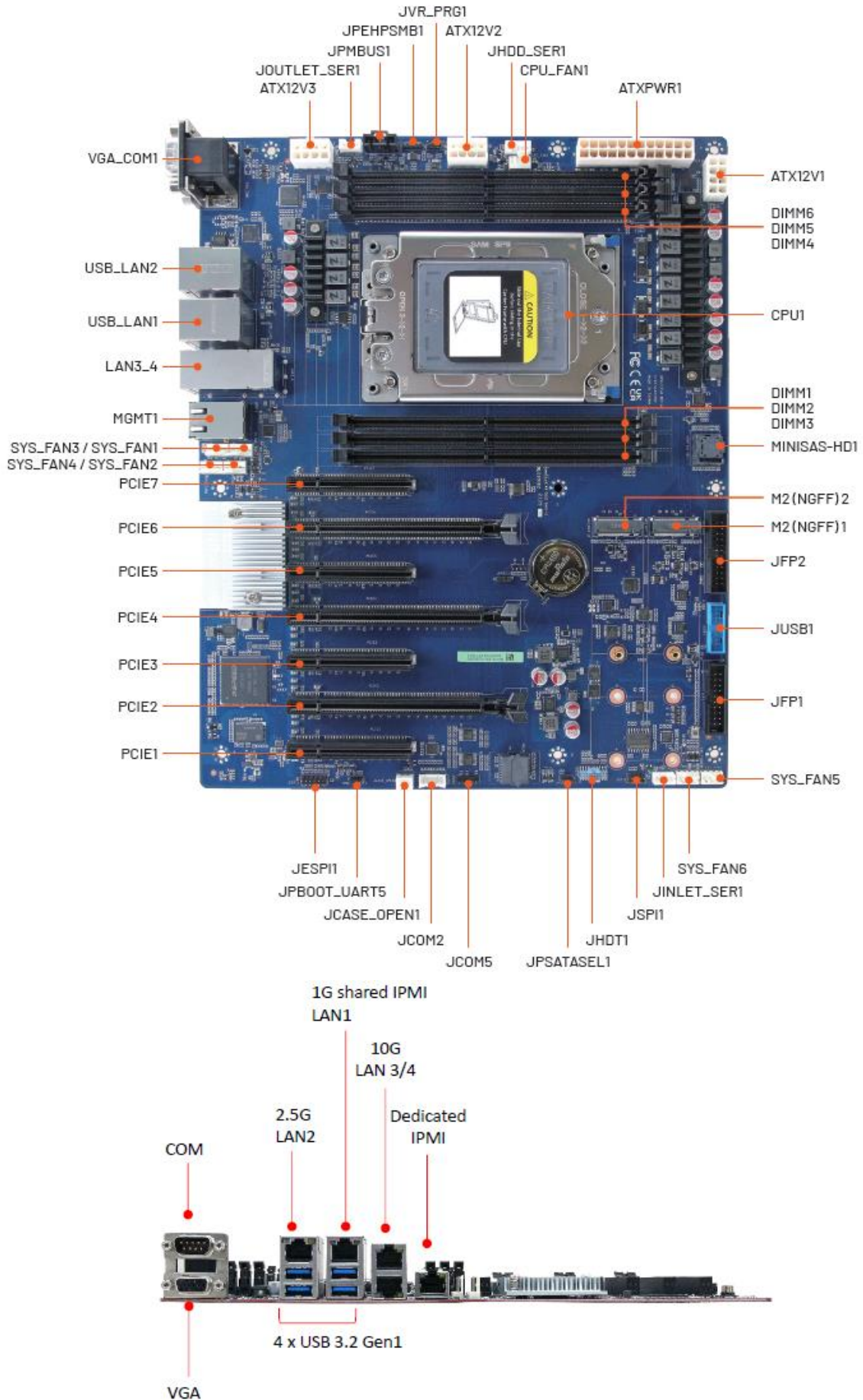
1.5 Architecture Overview—Block Diagram

The following block diagram shows the architecture and main components of HPM-SIEUA.



2. Hardware Configuration

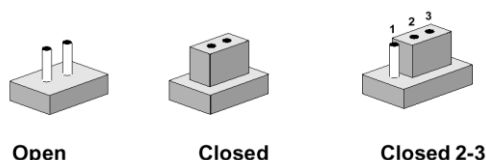
2.1 Product Overview



2.2 Jumper and Connector List

You can configure your board to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch.

It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper you connect the pins with the clip. To “open” a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either two pins.



The jumper settings are schematically depicted in this manual as follows:



A pair of needle-nose pliers may be helpful when working with jumpers.

Connectors on the board are linked to external devices such as hard disk drives, a keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

The following tables list the function of each of the board's jumpers and connectors.

Jumpers

Label	Function	Note
JPBOOT_UART5	Boot UART5 setting	3 x 1 header, pitch 2.00mm
JPSATASEL1	SATA or PCIE select	3 x 1 header, pitch 2.00mm

Connectors

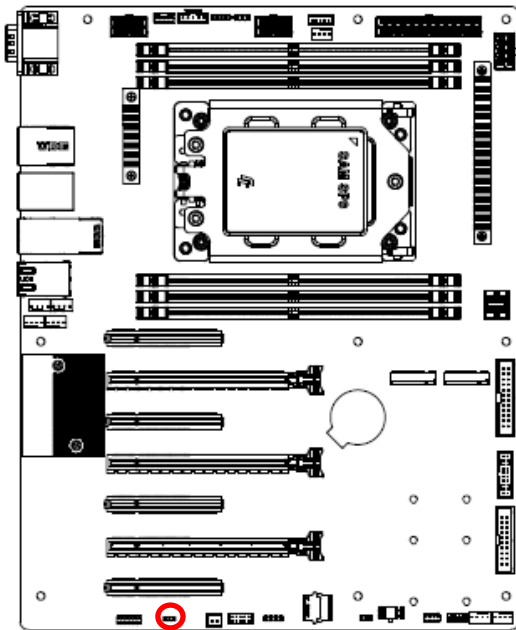
Label	Function	Note
SYS_FAN1-6	System fan connector 1-6	4 x 1 wafer, pitch 2.54mm
CPU_FAN1	CPU fan connector 1-2	4 x 1 wafer, pitch 2.54mm
VGA_COM1	Serial port 1 connector VGA connector	
JCOM2	Serial port 2 connector	5 x 2 wafer, pitch 2.00mm
JCOM5	BMC_UART5 debug connector	4 x 1 header, pitch 2.54mm

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MGMT1	MGMT port	
PCIE1	PCIe Gen5 x8	
PCIE2	PCIe Gen5 x16	
PCIE3	PCIe Gen5 x8	
PCIE4	PCIe Gen5 x16	
PCIE5	PCIe Gen5 x8	
PCIE6	PCIe Gen5 x16	
PCIE7	PCIe Gen5 x8 (The slot closest to CPU)	
JFP1	Front Panel connector 1	10 x 2 wafer, pitch 2.54mm
JFP2	Front Panel connector 2	12 x 2 wafer, pitch 2.54mm
USB_LAN1	2 x USB3.2 Gen1 connector 1 x RJ-45 Ethernet (LAN1 Share IPMI Port)	
USB_LAN2	2 x USB3.2 Gen1 connector 1 x RJ-45 Ethernet	
LAN3_4	2 x RJ-45 Ethernet	
JUSB1	USB3.2 Gen1 connector	10 x 2 wafer, pitch 2.00mm
JSPI1	SPI connector	4 x 2 header, pitch 2.00mm
JESPI1	ESPI connector	6 x 2 header, pitch 2.00mm
MINISAS-HD1	Mini-SAS HD 4i (from CPU for 4 xSATA or 1 x4 NVMe interface)	
DIMM1-6	6 x DDR5 RDIMM socket	
JVR_PRG1	SMBUS VR connector	3 x 1 header, pitch 2.54mm
JCASE_OPEN1	CASE OPEN connector	2 x 1 wafer, pitch 2.50mm
ATX12V1	ATX 12V power connector 1	4 x 2 wafer, pitch 4.20mm
ATX12V2	ATX 12V power connector 2	4 x 2 wafer, pitch 4.20mm
ATX12V3	ATX 12V power connector 3	4 x 2 wafer, pitch 4.20mm
ATXPWR1	ATX power connector	12 x 2 wafer, pitch 4.20mm
JPMBUS1	Power supply PMBus connector	5 x 1 wafer, pitch 2.54mm
JINLET_SER1	Inlet Thermal Sensor	4 x 1 wafer, pitch 2.00mm
JOUTLET_SER1	Outlet Thermal Sensor	4 x 1 wafer, pitch 2.00mm
JHDD_SER1	HDD Backplane thermal Sensor	5 x 1 wafer, pitch 2.00mm
JPEHPSMB1	CPU PCIE HP SMB connector	5 x 1 header, pitch 2.00mm
M2(NGFF)1/2	2 x M.2 M-Key PCIe 5.0 x4 NVMe SSD	
CPU1	CPU socket	

2.3 Setting Jumpers & Connectors

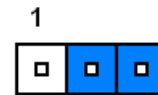
2.3.1 Boot UART5 setting (JPBOOT_UART5)



Disable*

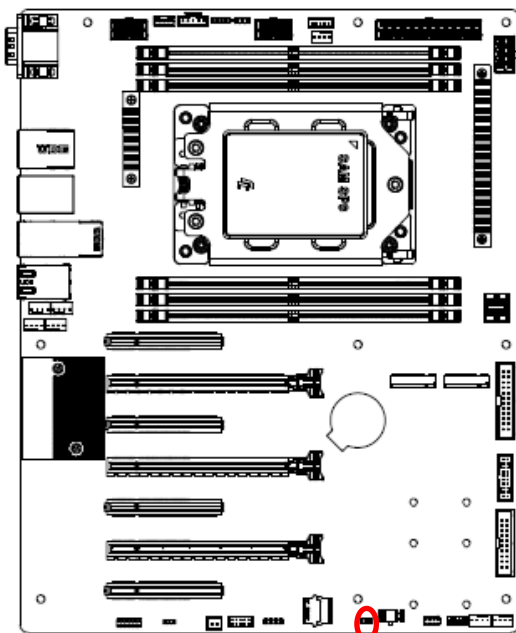


Enable BOOT FROM UART5

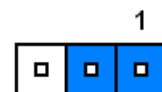


* Default

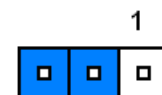
2.3.2 SATA or PCIE select (JPSATASEL)



PCIE*

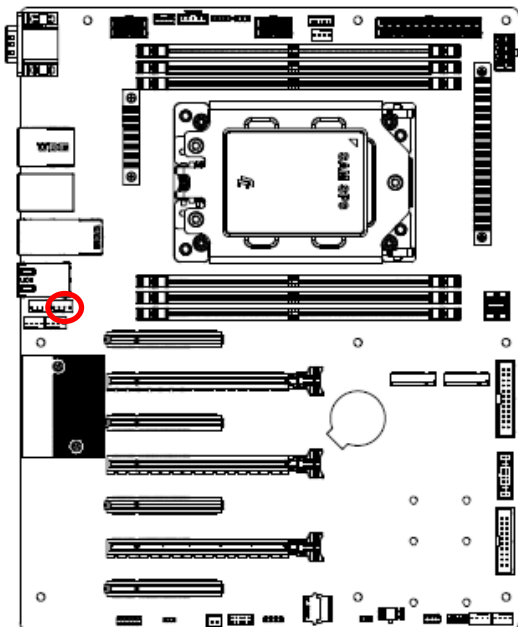


SATA



* Default

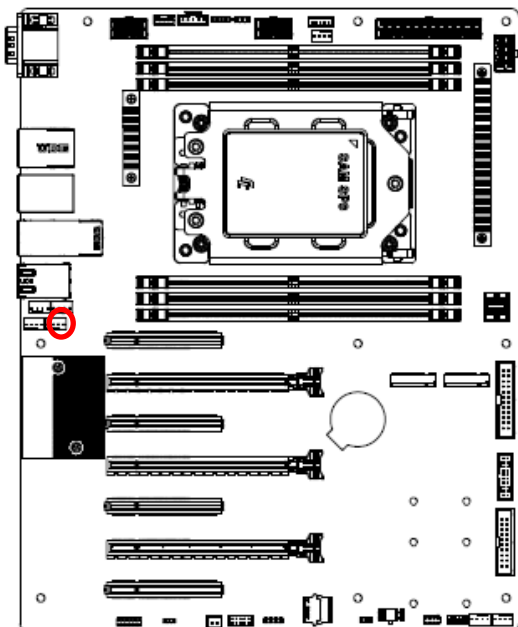
2.3.3 System fan connector 1 (SYS_FAN1)



1

Signal	PIN
GND	1
+12V	2
FAN_TACH1	3
SYS_PWM1	4

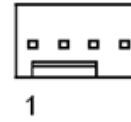
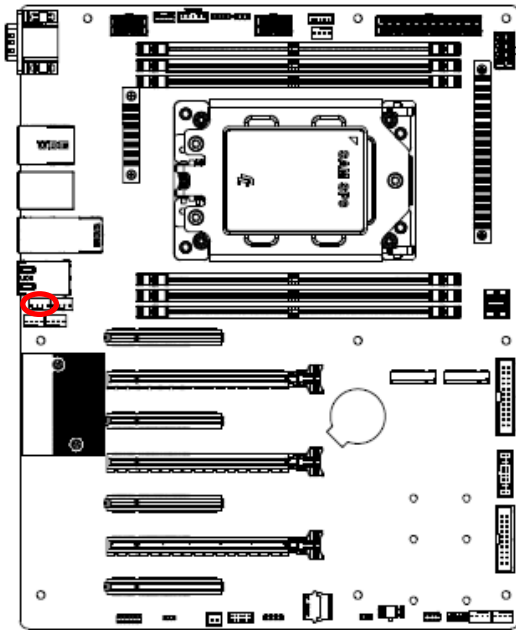
2.3.4 System fan connector 2 (SYS_FAN2)



1

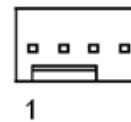
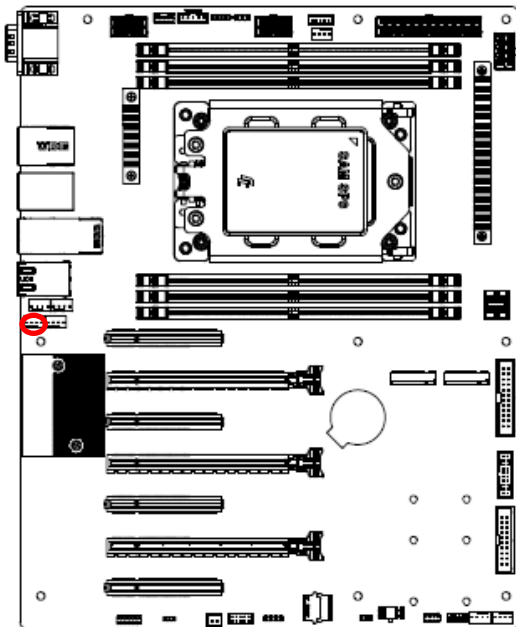
Signal	PIN
GND	1
+12V	2
FAN_TACH2	3
SYS_PWM2	4

2.3.5 System fan connector 3 (SYS_FAN3)



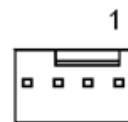
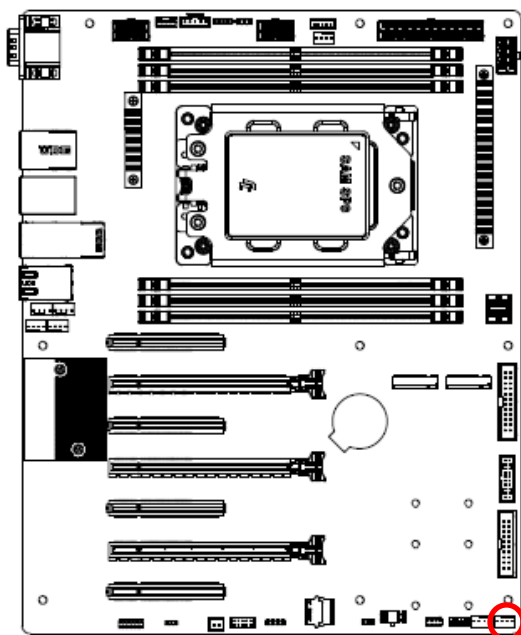
Signal	PIN
GND	1
+12V	2
FAN_TACH3	3
SYS_PWM3	4

2.3.6 System fan connector 4 (SYS_FAN4)



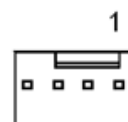
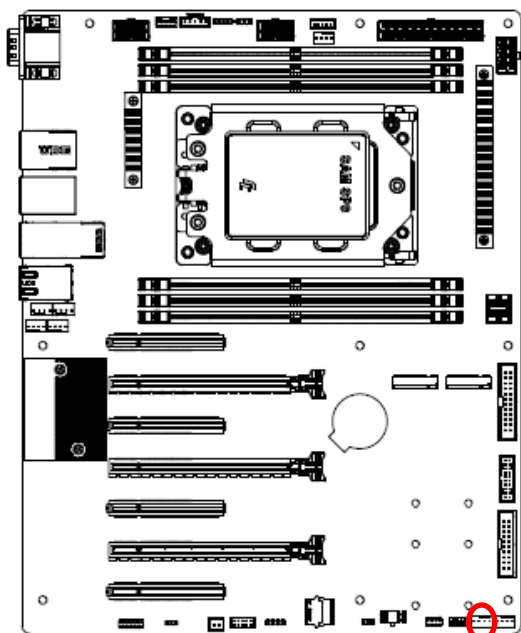
Signal	PIN
GND	1
+12V	2
FAN_TACH4	3
SYS_PWM4	4

2.3.7 System fan connector 5 (SYS_FAN5)



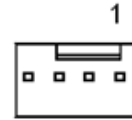
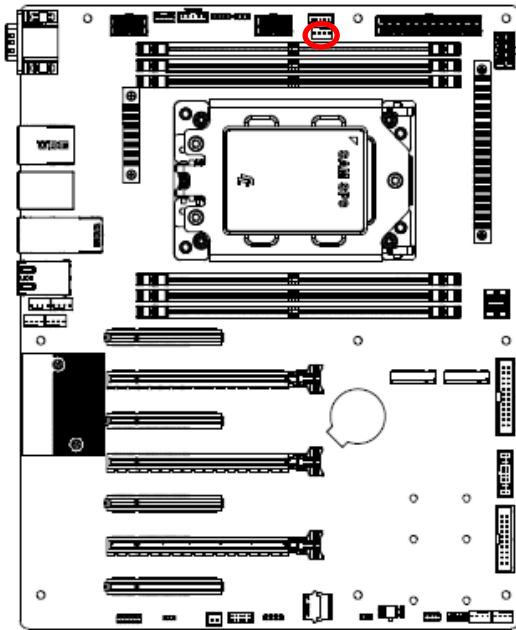
Signal	PIN
GND	1
+12V	2
FAN_TACH5	3
SYS_PWM5	4

2.3.8 System fan connector 6 (SYS_FAN6)



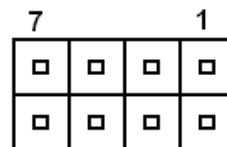
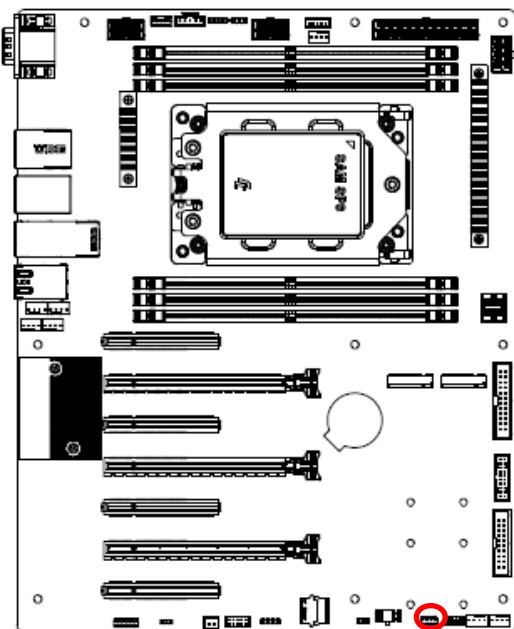
Signal	PIN
GND	1
+12V	2
FAN_TACH6	3
SYS_PWM6	4

2.3.9 CPU fan connector 1 (CPU_FAN1)



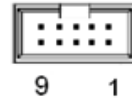
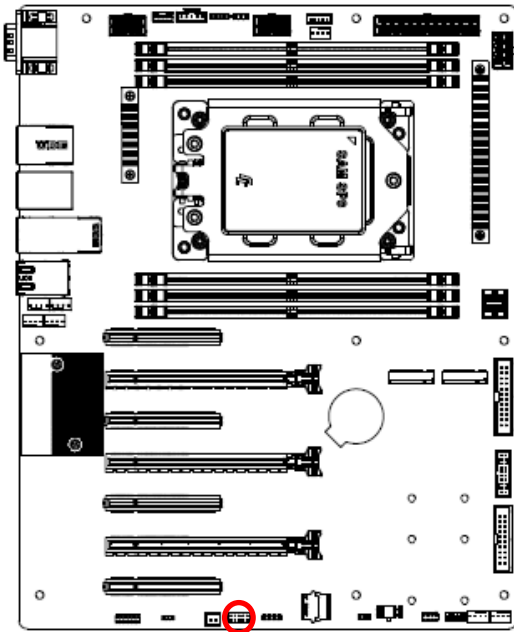
Signal	PIN
GND	1
+12V	2
FAN_TACH0	3
CPU0_PWM	4

2.3.10 SPI connector (JSPI1)



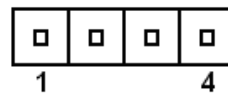
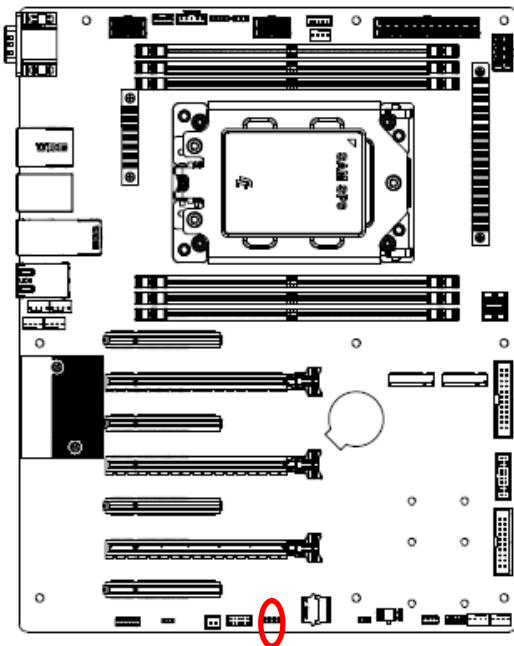
Signal	PIN	PIN	Signal
GND	2	1	+1.8VSB
SPI_CLK	4	3	SPI_CS#
SPI_MOSI	6	5	SPI_MISO
SPI_IO2	8	7	SPI_IO3

2.3.11 Serial port 2 connector (JCOM2)



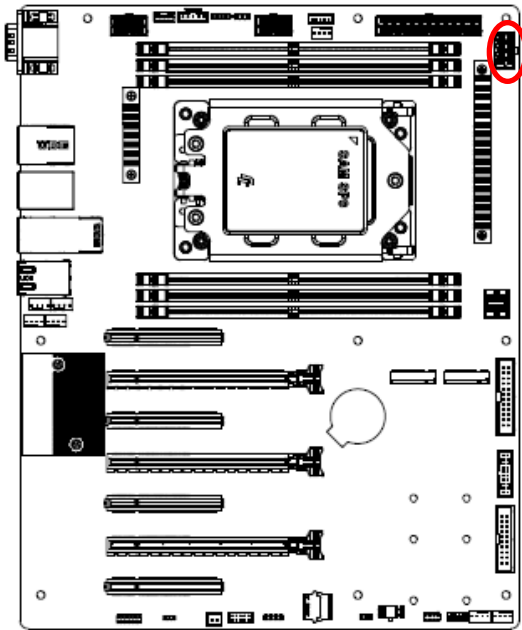
Signal	PIN	PIN	Signal
COM_RXD2	2	1	COM_DCD#2
COM_DTR#2	4	3	COM_TXD2
COM_DSR#2	6	5	GND
COM_CTS#2	8	7	COM_RTS#2
NC	10	9	COM_RI#2

2.3.12 BMC_UART5 debug connector (JCOM5)



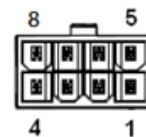
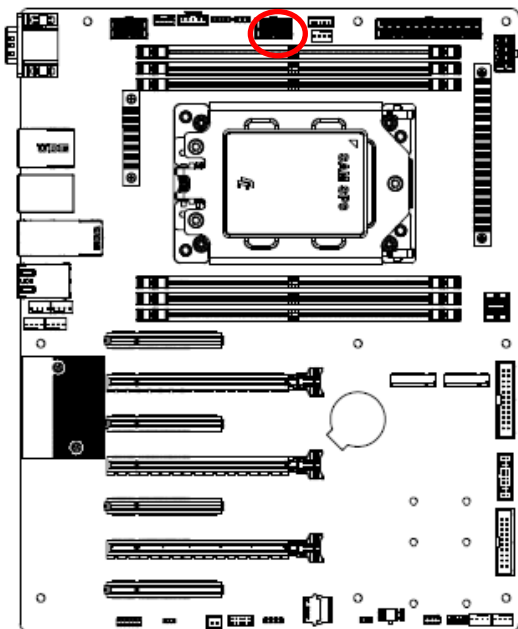
Signal	PIN
UART5_TXD	1
UART5_RXD	2
GND	3
+3.3VSB	4

2.3.13 ATX 12V power connector 1 (ATX12V1)



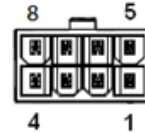
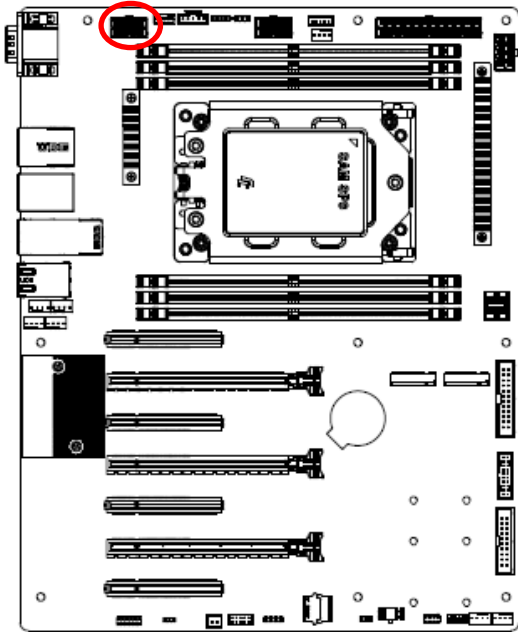
Signal	PIN	PIN	Signal
GND	4	8	+12V
GND	3	7	+12V
GND	2	6	+12V
GND	1	5	+12V

2.3.14 ATX 12V power connector 2 (ATX12V2)



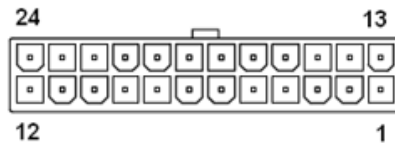
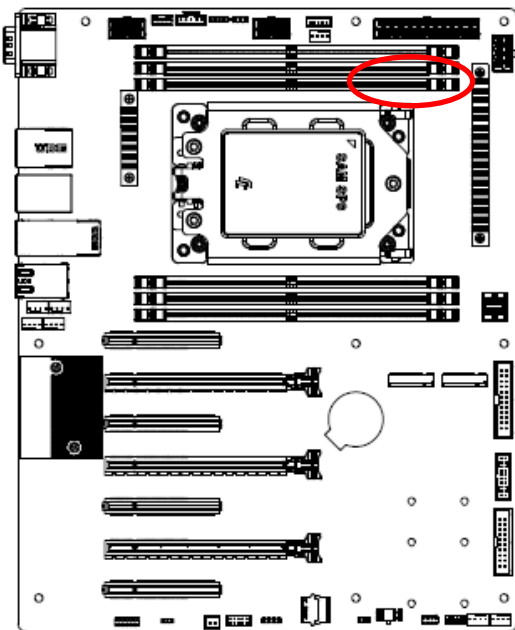
Signal	PIN	PIN	Signal
+12V	5	1	GND
+12V	6	2	GND
+12V	7	3	GND
+12V	8	4	GND

2.3.15 ATX 12V power connector 3 (ATX12V3)



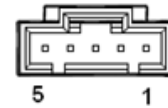
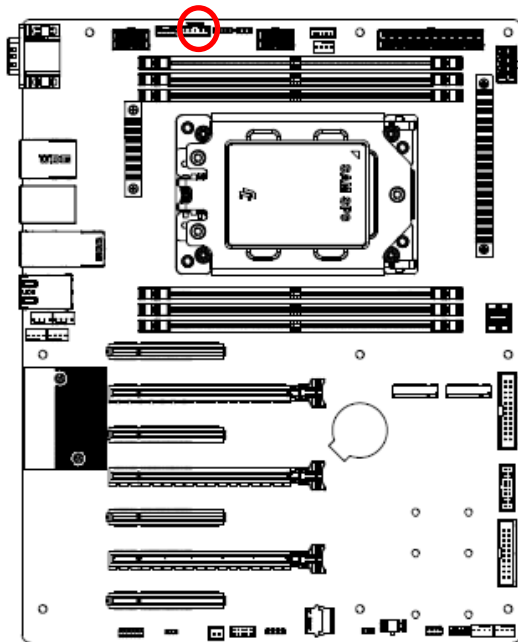
Signal	PIN	PIN	Signal
+12V	5	1	GND
+12V	6	2	GND
+12V	7	3	GND
+12V	8	4	GND

2.3.16 ATX power connector (ATXPWR1)



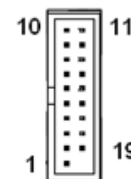
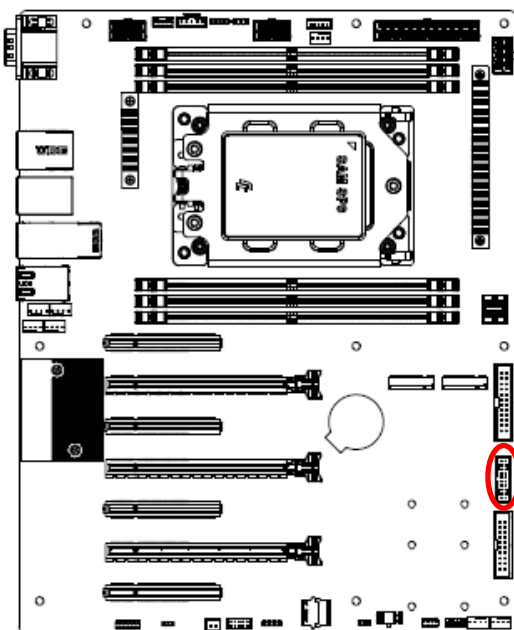
Signal	PIN	PIN	Signal
+3.3V	13	1	+3.3V
-12V	14	2	+3.3V
GND	15	3	GND
PSON#	16	4	+5V
GND	17	5	GND
GND	18	6	+5V
GND	19	7	GND
NC	20	8	PSU_PWRGD
+5V	21	9	+V5SB
+5V	22	10	+12V
+5V	23	11	+12V
GND	24	12	+3.3V

2.3.17 Power supply PMBus connector (JPMBUS1)



Signal	PIN
SMB_PSU_SCL	1
SMB_PSU_SDA	2
SMB_PSU_ALERT#	3
GND	4
NC	5

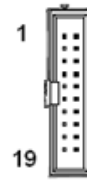
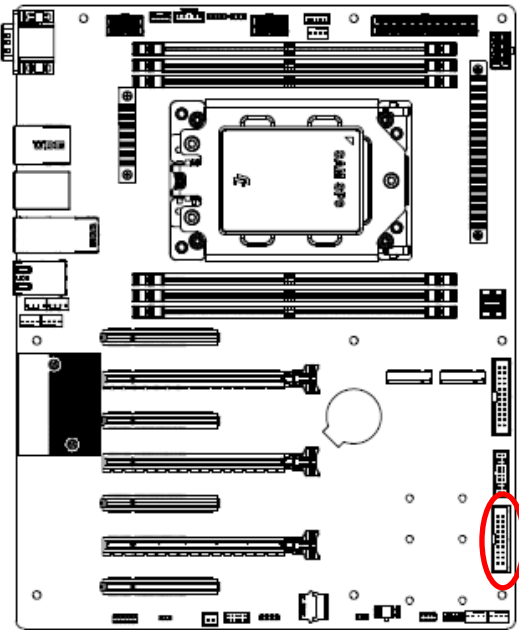
2.3.18 USB3.2 Gen1 connector (JUSB1)



Signal	PIN	PIN	Signal
FROONTUSB3_OC1_N	10	11	P0_USB_z_PP1
P0_USB_z_PP0	9	12	P0_USB_z_PN1
P0_USB_z_PN0	8	13	GND
GND	7	14	P0_USB3_z_TP1
P0_USB3_z_TP0	6	15	P0_USB3_z_TN1
P0_USB3_z_TN0	5	16	GND
GND	4	17	P0_USB3_z_RP1
P0_USB3_z_RP0	3	18	P0_USB3_z_RN1
P0_USB3_z_RN0	2	19	+5V
+5V	1		

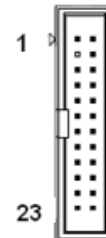
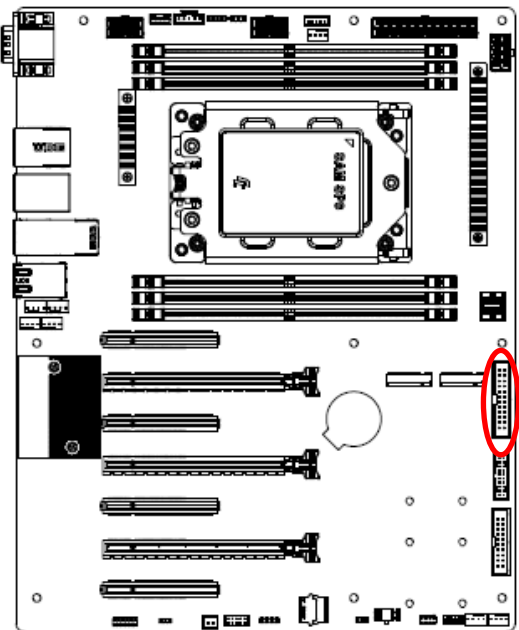
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2.3.19 Front Panel connector 1 (JFP1)



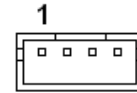
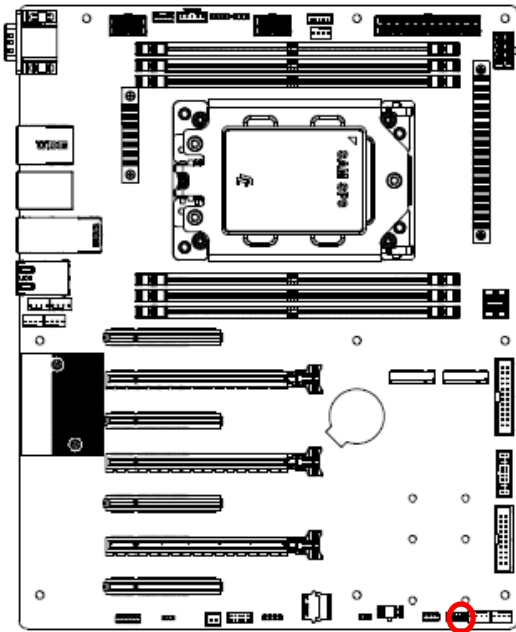
Signal	PIN	PIN	Signal
HDD_LED_P	1	2	+3.3VSB
HDD_LED#	3	4	PWR_LED#
RESET_BUTTON#	5	6	PWRON_BUTTON#
GND	7	8	GND
STATUS_LED_P	9	10	LAN1_LED_P
STATUS_LE#	11	12	LAN1_LED#
UID_LED#	13	14	SBPWRLED_P
UID_LED_P	15	16	GND
UID_BUTTON#	17	18	LAN2-X_LED_P
GND	19	20	LAN2-X_LED#

2.3.20 Front Panel connector 2 (JFP2)



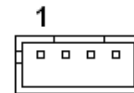
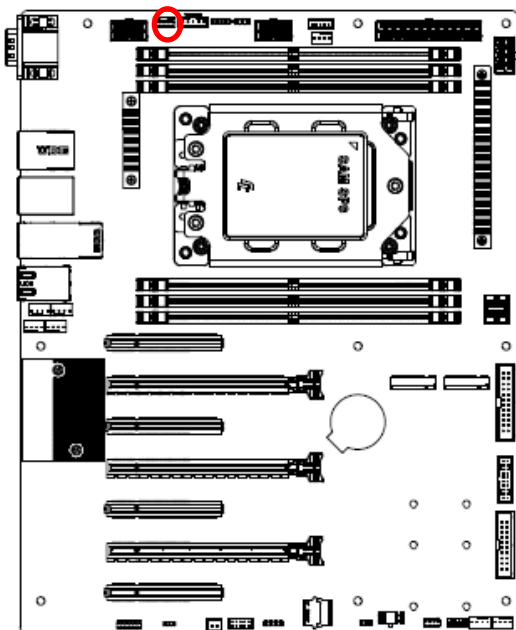
Signal	PIN	PIN	Signal
+3.3VSB	1	2	+3.3VSB
		4	UID_LED_P
PWR_LED#	5	6	UID_LED#
HDD_LED_P	7	8	STATUS_LED#
LED_HDD#	9	10	STATUS_LED_P
PWRON_BUTTON#	11	12	LAN1_LED_P
GND	13	14	LAN1_LED#
RESET_BUTTON#	15	16	SMBus_SDA
GND	17	18	SMBus_SCL
UID_BUTTON#	19	20	INTRUSION#
NC	21	22	LAN2-X_LED_P
NMI_BUTTON#	23	24	LAN2-X_LED#

2.3.21 Inlet Thermal Sensor (JINLET_SER1)



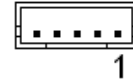
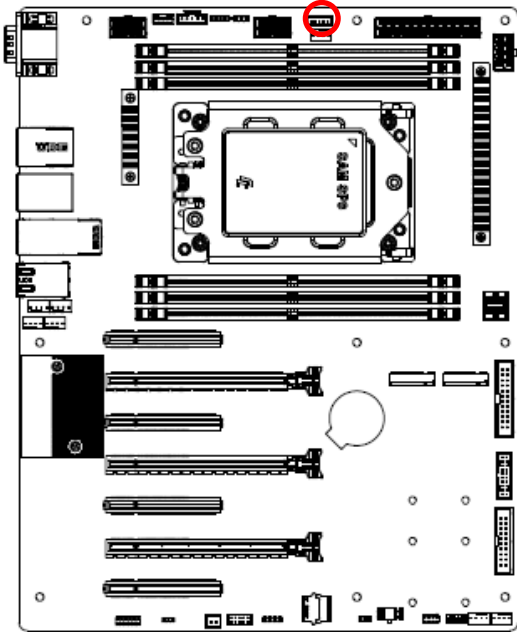
Signal	PIN
+3.3VSB	1
SMB_INLET_TEMPSENSOR_SDA	2
SMB_INLET_TEMPSENSOR_SCL	3
GND	4

2.3.22 Outlet Thermal Sensor (JOUTLET_SER1)



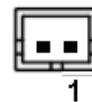
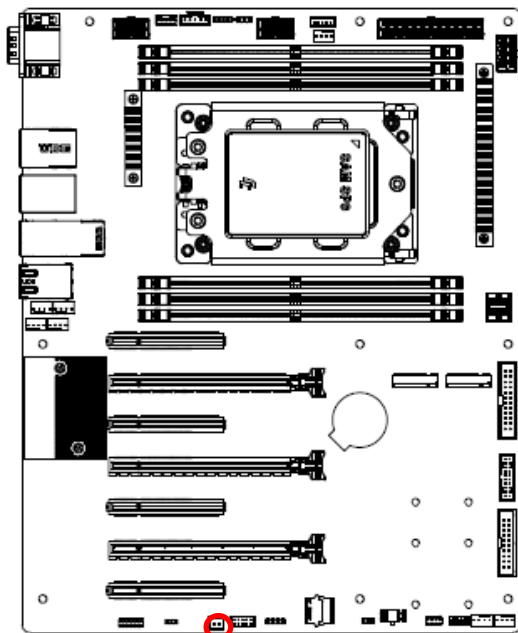
Signal	PIN
+3.3VSB	1
SMB_OUTLET_TEMPSENSOR_SDA	2
SMB_OUTLET_TEMPSENSOR_SCL	3
GND	4

2.3.23 HDD Backplane thermal Sensor (JHDD_SER1)



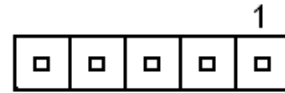
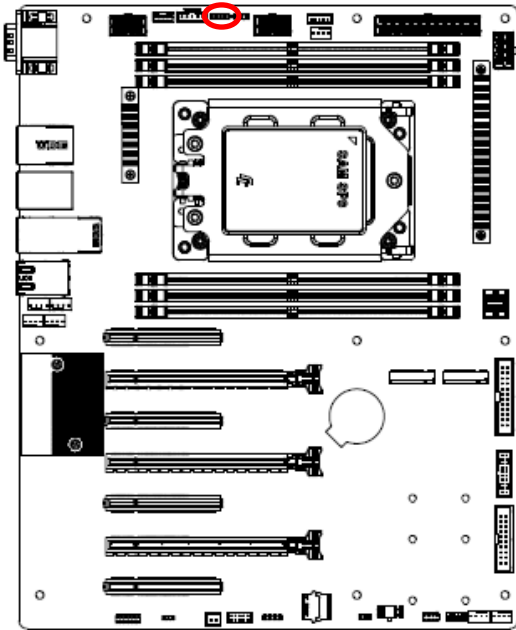
Signal	PIN
+3.3VSB	1
SMB_HDBP_TEMPSENSOR_SDA	2
SMB_HDBP_TEMPSENSOR_SCL	3
GND	4
SSD_LED_N	5

2.3.24 CASE OPEN connector (JCASE_OPEN1)



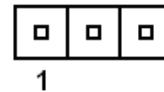
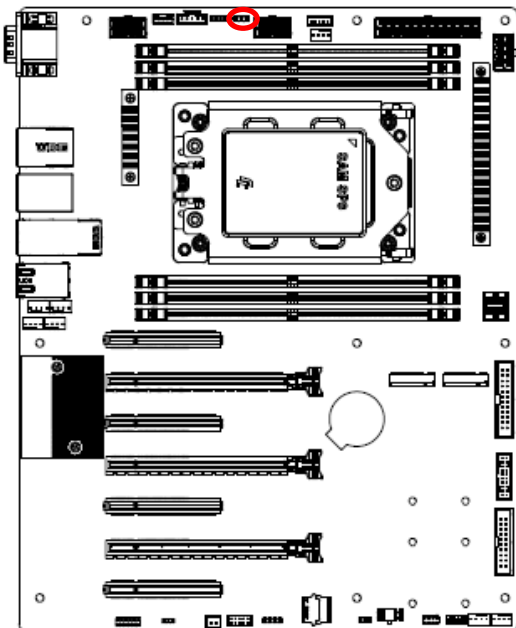
Signal	PIN
CHASSIS_INTRUSION	1
GND	2

2.3.25 CPU PCIE HP SMB connector (JPEHPSMB1)



Signal	PIN
SMB_CPUHP_SCL	1
GND	2
SMB_CPUHP_SDA	3
GND	4
SMB_CPUHP_ALERT#	5

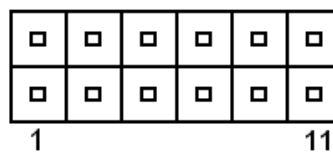
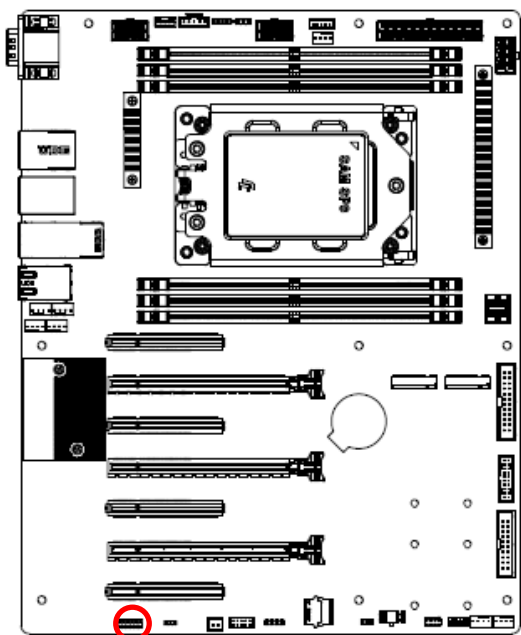
2.3.26 SMBUS VR connector (JVR_PRG1)



Signal	PIN
SMB_VR_SDA	1
GND	2
SMB_VR_SCL	3

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2.3.27 ESPI connector (JESPI1)



Signal	PIN	PIN	Signal
ESPI_D0	1	2	+3.3VSB
ESPI_D1	3	4	PLTRST#
ESPI_D2	5	6	ESPI_CS#
ESPI_D3	7	8	ESPI_CLK
NC	9	10	GND
ESPI_RESET#	11	12	ESPI_ALERT#

2.4 Processor Installation SOP

Overview of the Processor Assembly installation procedure

The processor assembly contains the AMD CPU and CPU cooler.

- 1x AMD EPYC8004 processors
- 1x Cooler module (Avalue P/N:BCC-FAN-484-01R)

Note: Ensure your workspace is clean and organized. Gather all necessary tools and materials.

1. Open the captive screw and Retention Frame.

Locate the 3 screws on the socket. Refer to the socket diagram for the exact positions. (Figure 1)

- A. Using the T20 screwdriver, begin with the screw labeled as "1" on the socket diagram.
- B. Next, remove the screw labeled as "2".
- C. Finally, remove the screw labeled as "3".

→The Retention Frame will automatically pump up. (Figure 2)

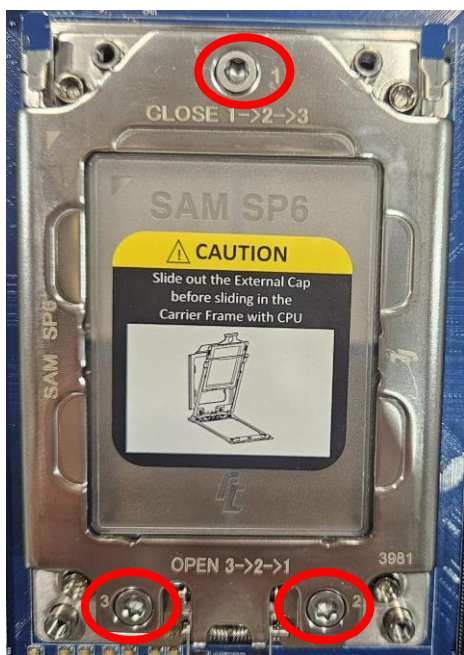


Figure 1

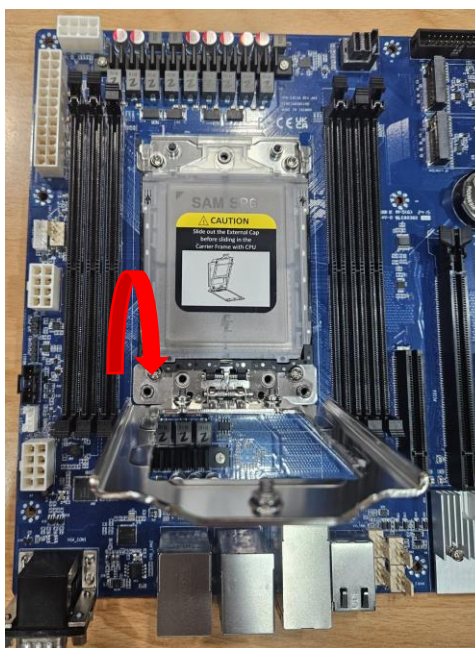


Figure 2

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2. Bounce the Rail Frame.

- A. Use your index finger on both hands placed on the Rail Frame on both sides of the metal handle. (Figure 3)
- B. Then rotate the Rail frame to the fully open position. (Figure 4)



Figure 3

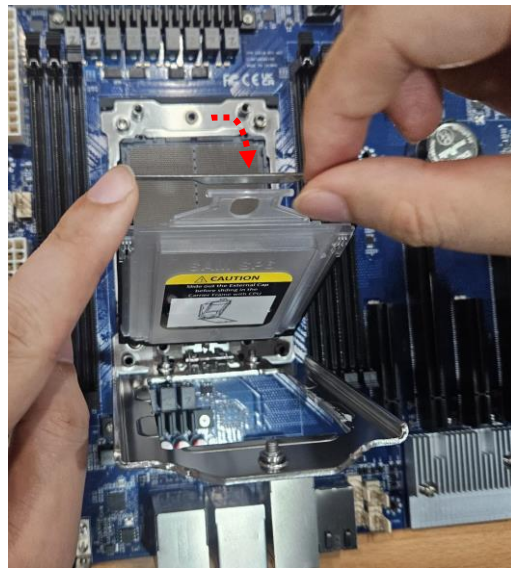


Figure 4

3. Remove the PnP Cap.

- A. Use thumb and forefinger to hold the removal tap of the PnP Cap. (Figure 5.1)
- B. Carefully remove the PnP Cap in a vertical motion only. (Figure 5.2)

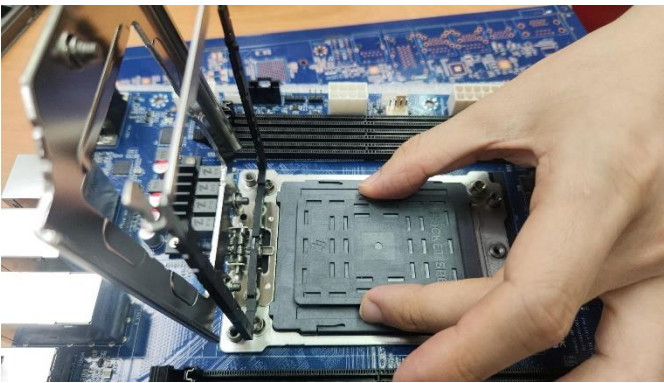


Figure 5.1

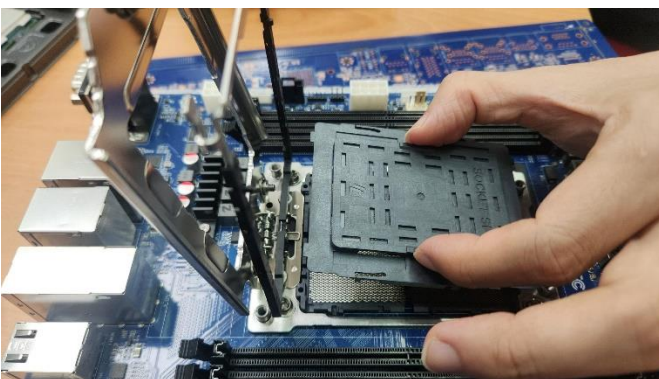


Figure 5.2

4. Insert the CPU package.

A. Remove the CPU protective cover. (Figure 6)

B. Insert the Carrier Frame with the CPU package into the Rail Frame slot by holding the finger grip. (Figure 7 & 7.1)

Note:

- Don't touch the CPU package pad.
- The Carrier Frame should **slide into** the Rail Frame slot when inserting the Package.

Warning!

- Ensure the Carrier Frame with the Package is securely fixed in the Rail Frame slot to prevent it from dropping.
- Ensure the carrier frame makes a slight 'click' when engaging with the rail frame. Failure to secure it may result in damage to the socket cap and contacts.



Figure 6



CPU

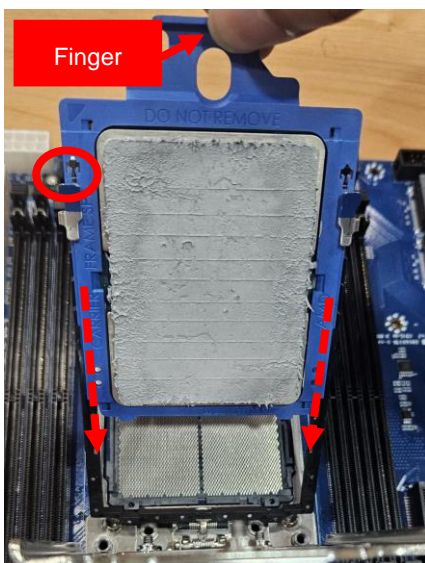


Figure 7

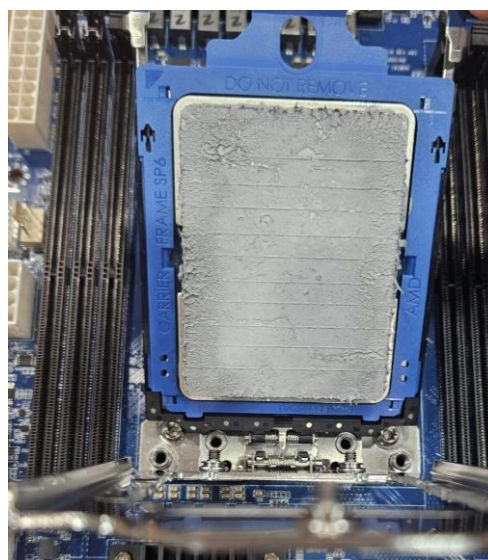


Figure 7.1

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5. Assemble CPU package

A. Use the finger of two hands to press the Rail Frame with the CPU package on the Stiffener Frame. Slightly press down fully, it will get stuck and won't bounce back. (Figure 8)

B. Press Retention Frame and then tighten the captive screw with T20 screwdriver. (Figure 9)

Note:

➤ Tighten the screws completely in the order of 1→2→3

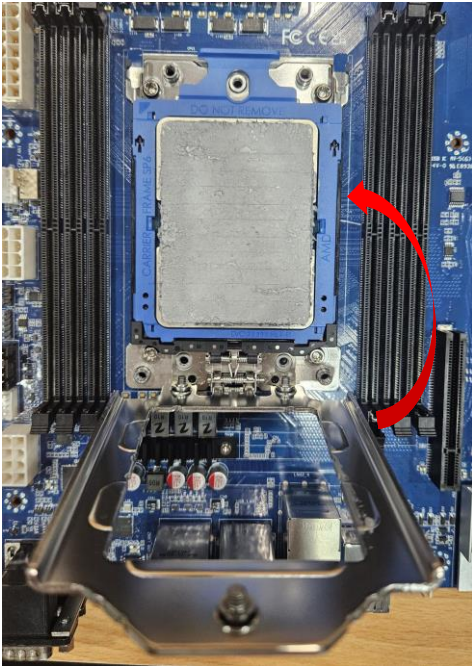


Figure 8

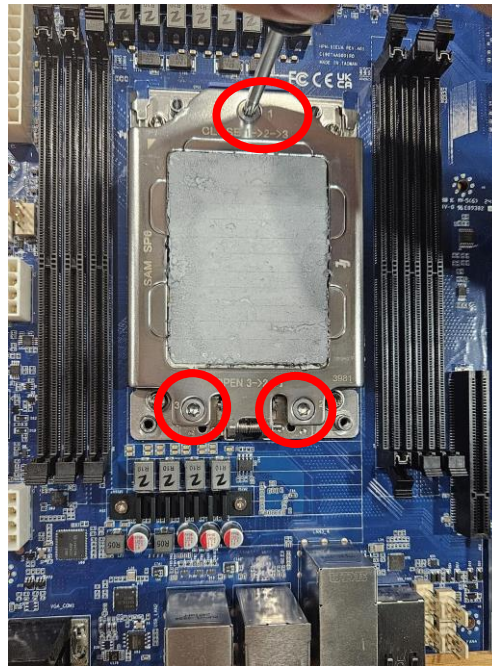


Figure 9

6. Install the CPU Cooler

A. Align the CPU Cooler with 4 nuts on the Stiffener Frame. (Figure 10)

B. Use the T20 screwdriver to tighten 4 Heatsink nuts in sequence as 1 to 4. (Figure 11)

Memo:

- For the first time securing the CPU Cooler, tighten it in sequences 1 to 4 using a screwdriver as Figure 11. Apply downward pressure for about 1–2 seconds, then stop tightening.
- Repeat the process by tightening the screws complete down in numerical order to complete the module assembly.

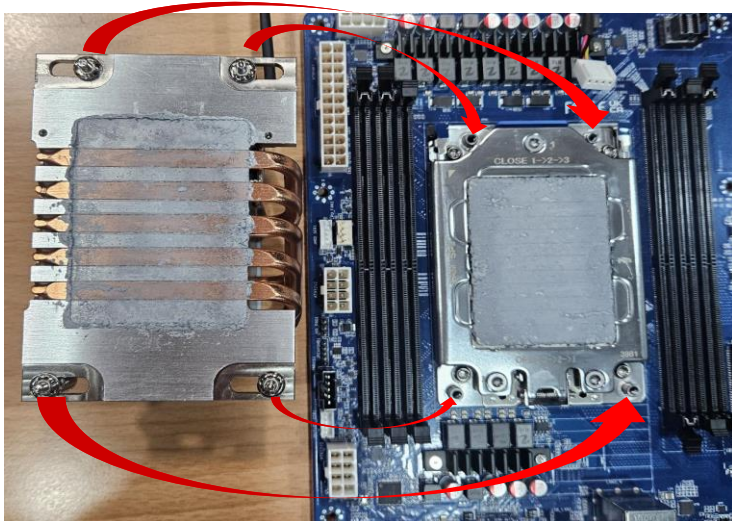


Figure 10

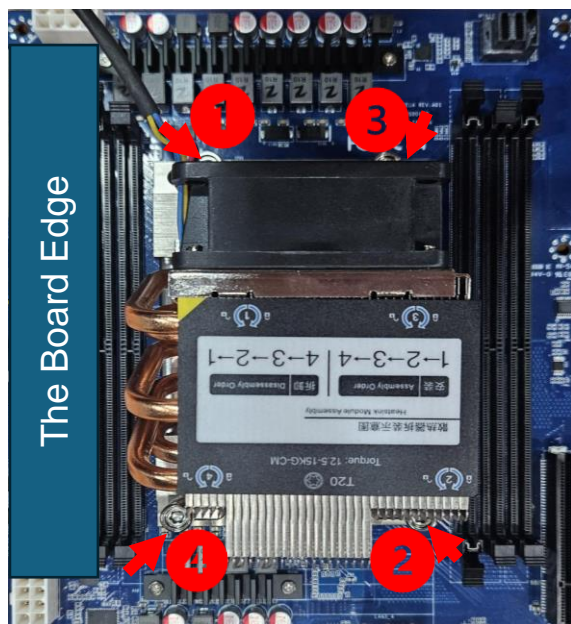


Figure 11

3. Drivers Installation

All the drivers are available on Avalue Downloads Area (<https://www.avaluetech.com/en/support/download>). Type the model name and press Enter to find all the relevant software, utilities, and documentation.



Note: Installation procedures and screen shots in this section are for your reference and may not be exactly the same as shown on your screen.

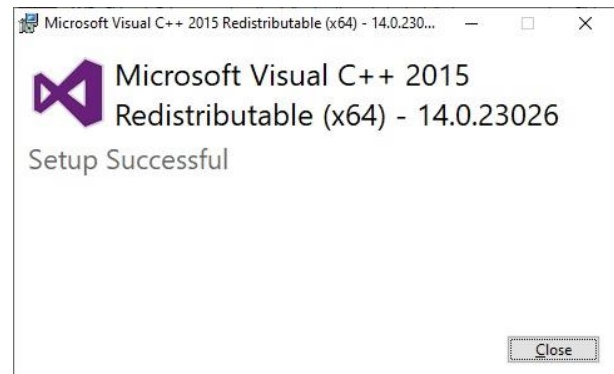
3.1 Install Chipset Driver

All drivers can be found on the Avalue Official Website:

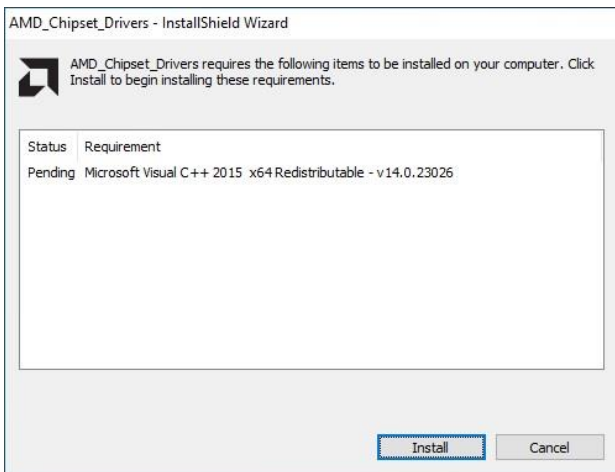
www.avalue.com.



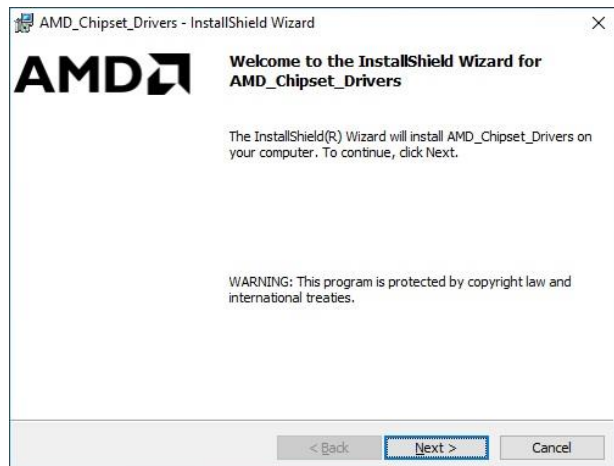
Note: The installation procedures and screen shots in this section are based on Windows Server operation system.



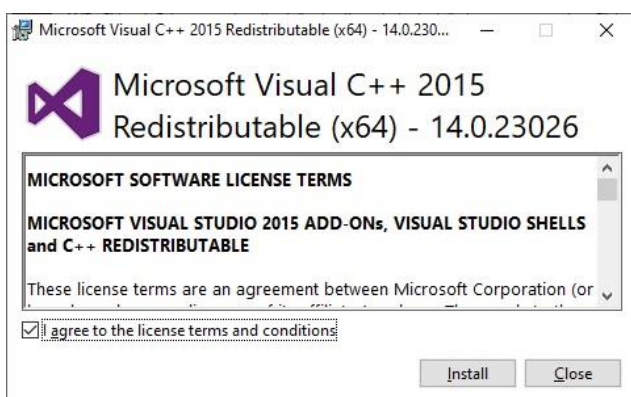
Step 3. Setup Successful.



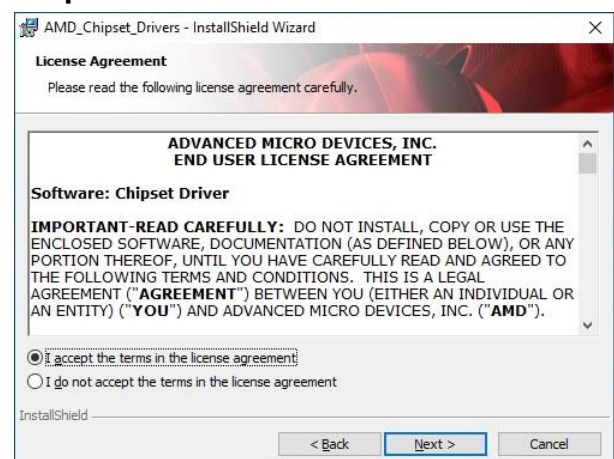
Step1. Click Install.



Step 4. Click Next.



Step 2. Click Install.

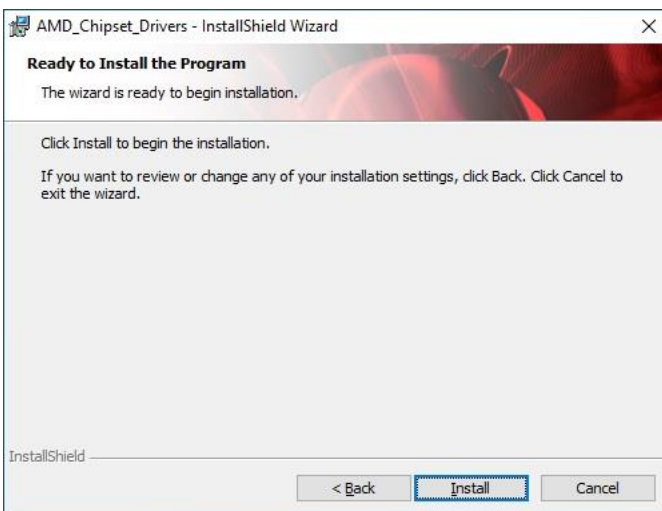


Step 5. Click Next.

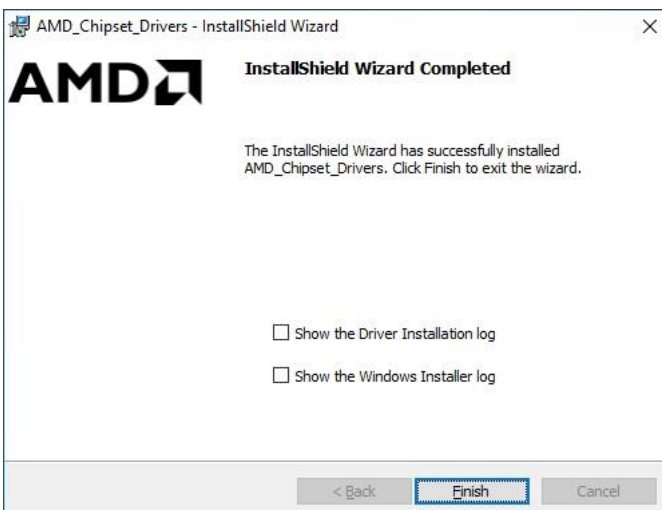
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Step 6. Click Next.



Step 7. Click Install.



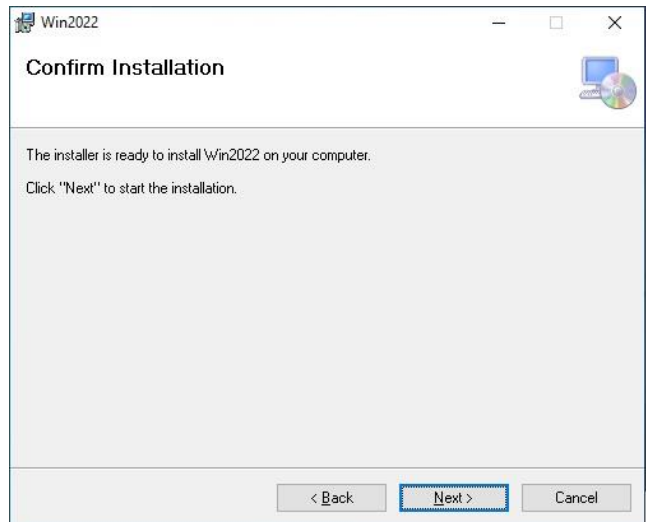
Step 8. Setup completed.

3.2 Install VGA Driver

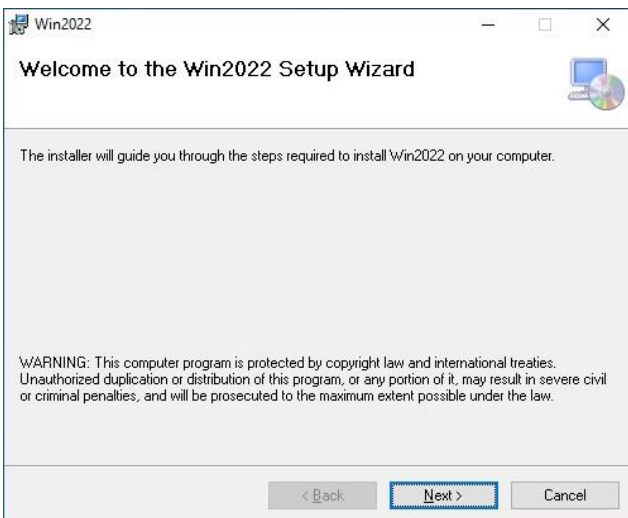
All drivers can be found on the Avalue Official Website:
www.avalue.com.



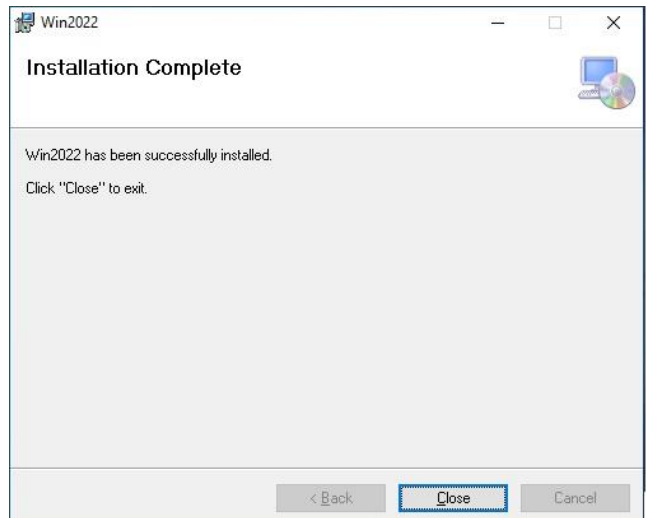
Note: The installation procedures and screen shots in this section are based on Windows Server operation system.



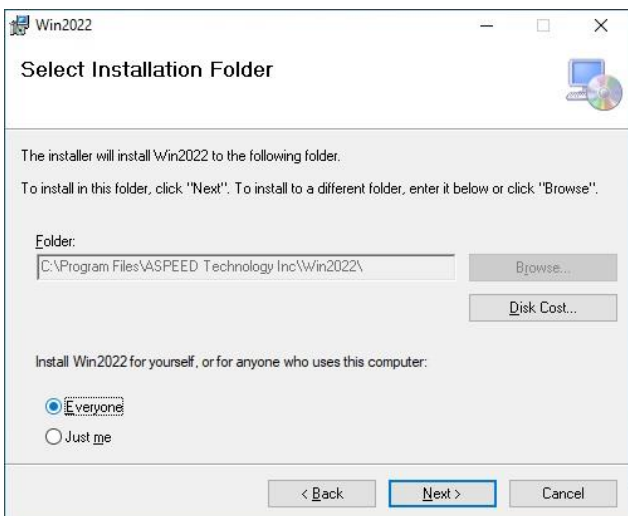
Step 3. Click Next.



Step 1. Click Next to continue installation.



Step 4. Setup completed.



Step 2. Click Next.

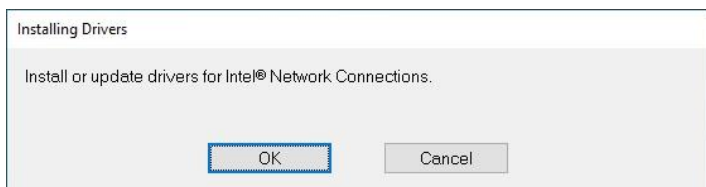
3.3 Install Ethernet Driver

All drivers can be found on the Avalue Official Website:

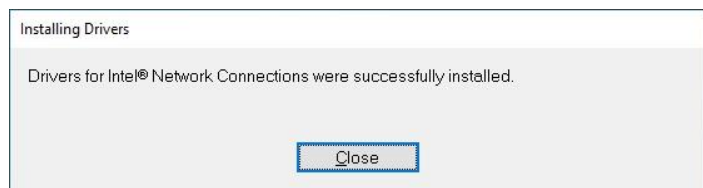
www.avalue.com.



Note: The installation procedures and screen shots in this section are based on Windows Server operation system.



Step 1. Click **OK** to continue installation.



Step 2. Setup completed.

4. BIOS Setup

4.1 Introduction

The BIOS setup program allows users to modify the basic system configuration. In this following chapter will describe how to access the BIOS setup program and the configuration options that may be changed.

4.2 Starting Setup

AMI BIOS™ is immediately activated when you first power on the computer. The BIOS reads the system information contained in the NVRAM and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.

While the BIOS is in control, the Setup program can be activated in one of two ways:

By pressing <ESC> or immediately after switching the system on, or

By pressing the <ESC> or key when the following message appears briefly at the left-top of the screen during the POST (Power On Self Test).

Press <ESC> or to enter SETUP

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

4.3 Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the PageUp and PageDown keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

Button	Description
↑	Move to previous item
↓	Move to next item
←	Move to the item in the left hand
→	Move to the item in the right hand
Esc key	Main Menu -- Quit and not save changes into NVRAM Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2 key	Previous Values
F3 key	Optimized defaults
F4 key	Save & Exit Setup

- **Navigating Through The Menu Bar**

Use the left and right arrow keys to choose the menu you want to be in.



Note: Some of the navigation keys differ from one screen to another.

- **To Display a Sub Menu**

Use the arrow keys to move the cursor to the sub menu you want. Then press <Enter>. A “>” pointer marks all sub menus.

4.4 Getting Help

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc> or the <Enter> key again.

4.5 In Case of Problems

If, after making and saving system changes with Setup, you discover that your computer no longer is able to boot, the AMI BIOS supports an override to the NVRAM settings which resets your system to its defaults.

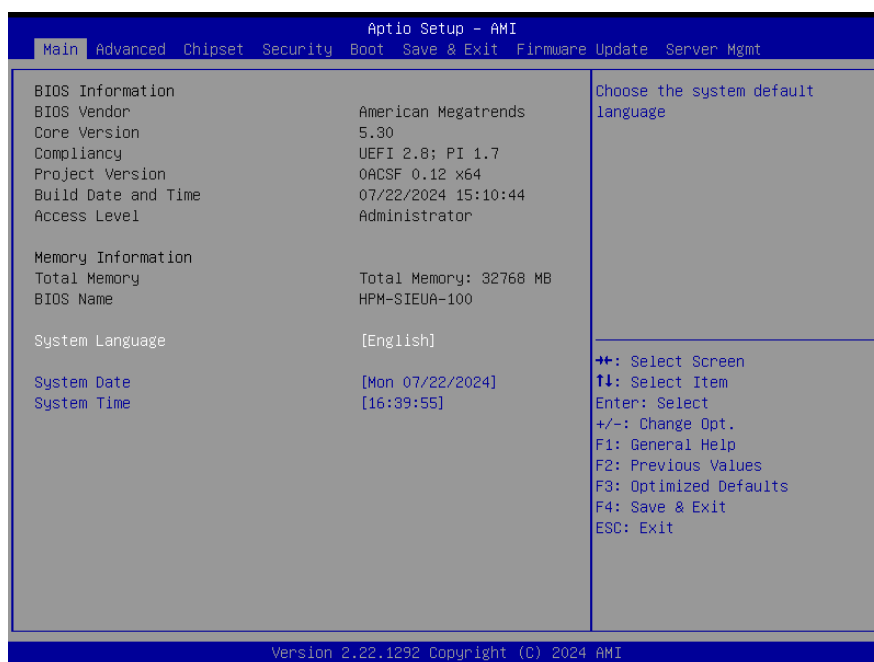
The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both BIOS Vendor and your systems manufacturer to provide the absolute maximum performance and reliability. Even a seemingly small change to the chipset setup has the potential for causing you to use the override.

4.6 BIOS setup

Once you enter the Aptio Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

4.6.1 Main Menu

This section allows you to record some basic hardware configurations in your computer and set the system clock.



4.6.1.1 System Language

This option allows choosing the system default language.

4.6.1.2 System Date

Use the system date option to set the system date. Manually enter the Month, day and year.

4.6.1.3 System Time

Use the system time option to set the system time. Manually enter the hours, minutes and seconds.



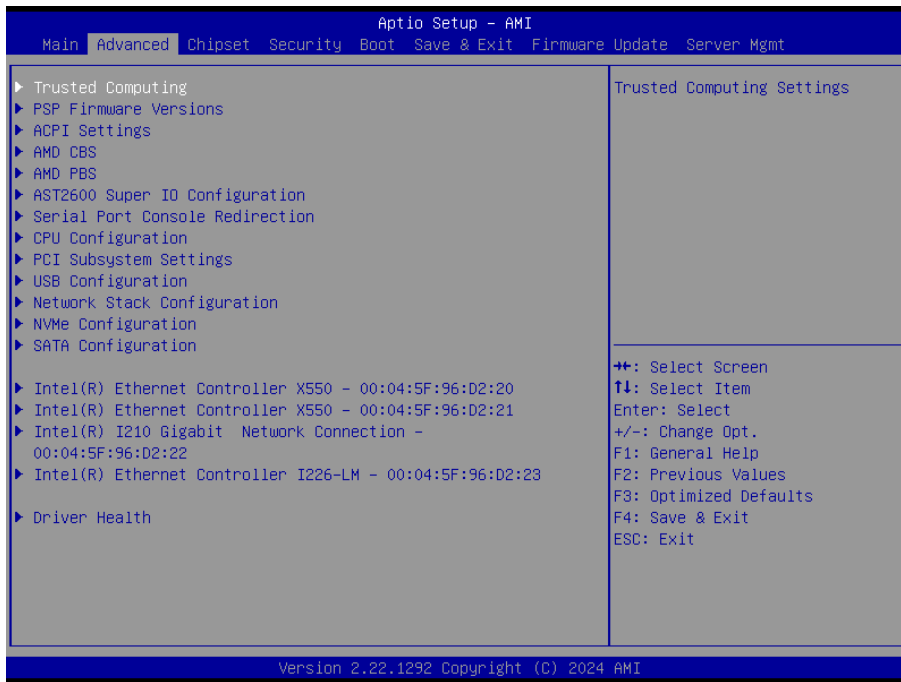
Note: The BIOS setup screens shown in this chapter are for reference purposes only, and may not exactly match what you see on your screen.

Visit the Avalue website (www.avalue.com) to download the latest product and BIOS information.

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4.6.2 Advanced Menu

This section allows you to configure your CPU and other system devices for basic operation through the following sub-menus.

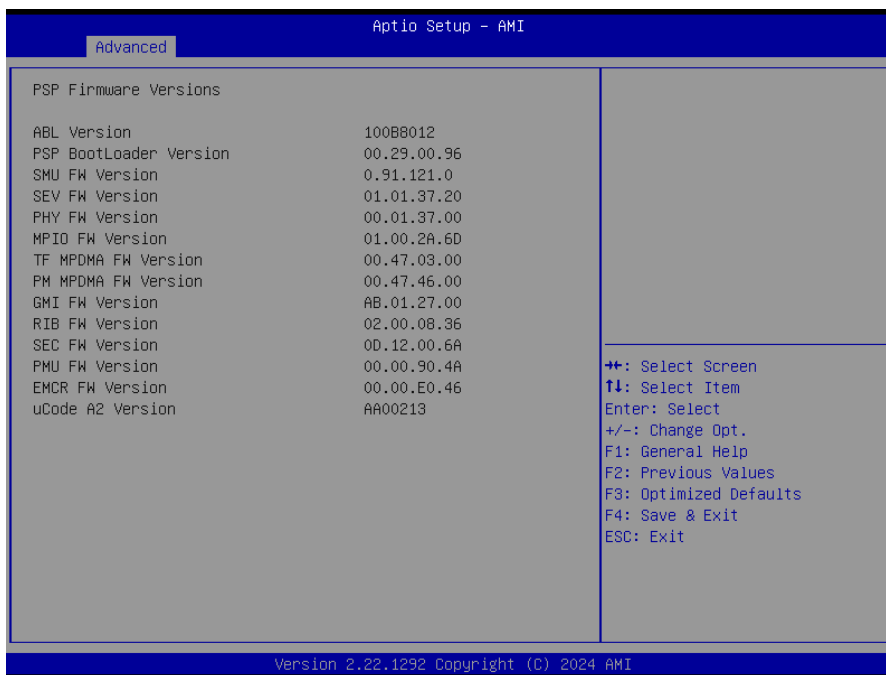


4.6.2.1 Trusted Computing



Item	Options	Description
Security Device Support	Disable, Enable[Default]	Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.

4.6.2.2 PSP Firmware Versions



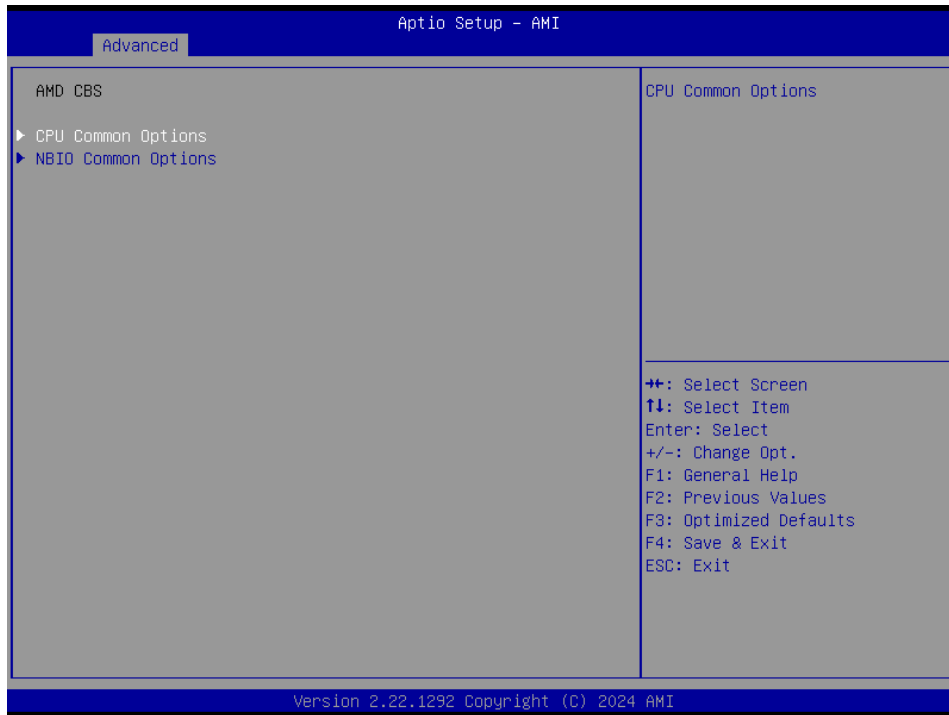
4.6.2.3 ACPI Settings



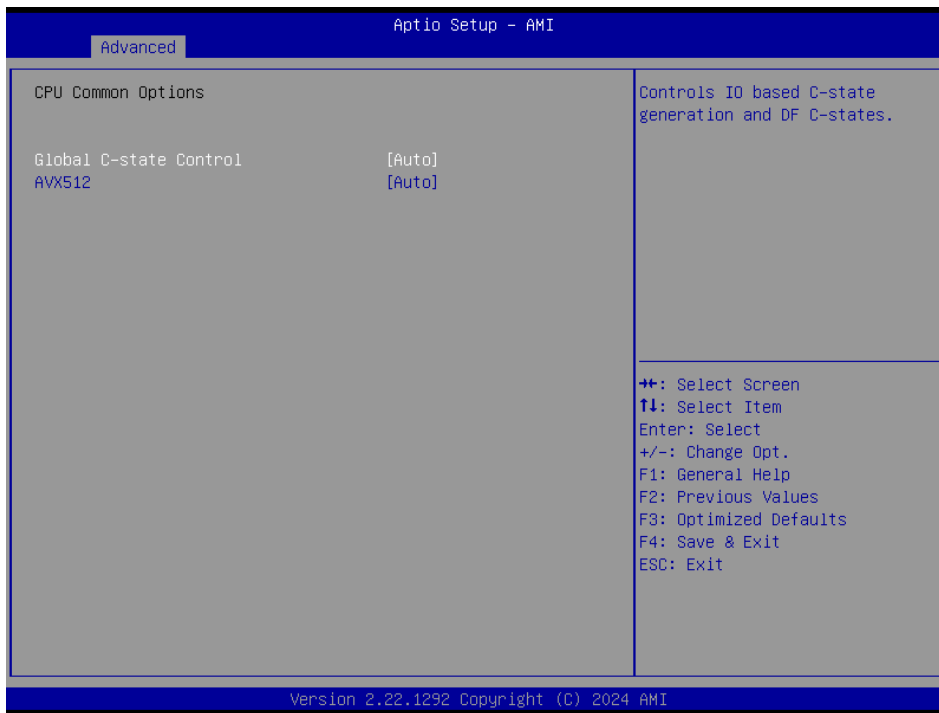
Item	Options	Description
Enable ACPI Auto Configuration	Disabled[Default] Enabled	Enables or Disables BIOS ACPI Auto Configuration.

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4.6.2.4 AMD CBS

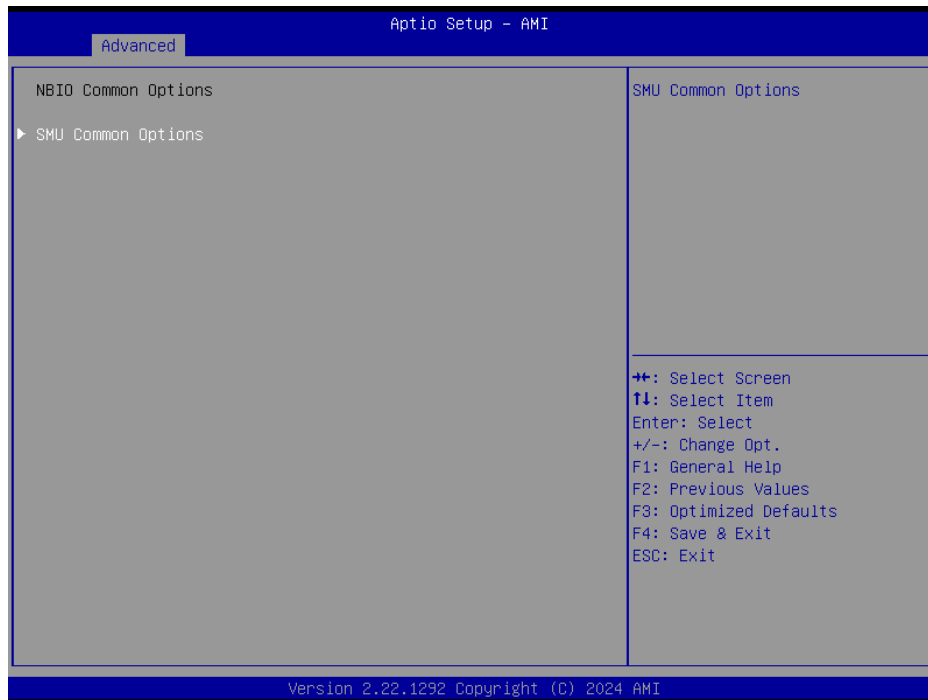


4.6.2.4.1 CPU Common Options

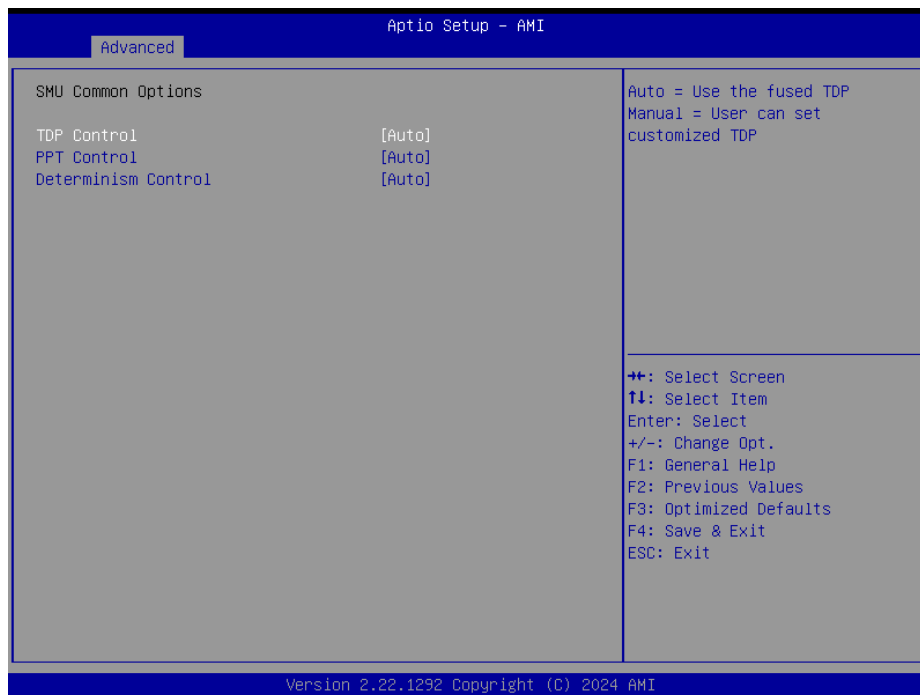


Item	Option	Description
Global C-state Control	Disabled Enabled Auto[Default],	Controls IO based C-state generation and DF C-states.
AVX512	Disabled Enabled Auto[Default],	Enable/Disable AVX512.

4.6.2.4.2 NBIO Common Options



4.6.2.4.2.1 SMU Common Options

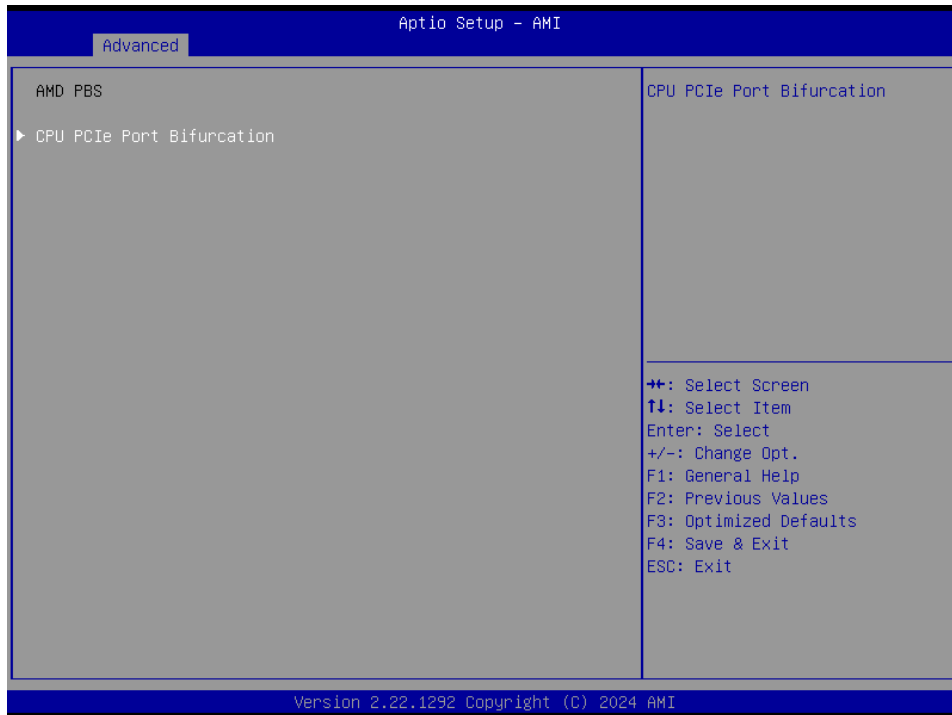


Item	Option	Description
TDP Control	Manual Auto[Default],	Auto = Use the fused TDP Manual = User can set customized TDP.
PPT Control	Manual Auto[Default],	Auto = Use the fused PPT Manual = User can set customized PPT.

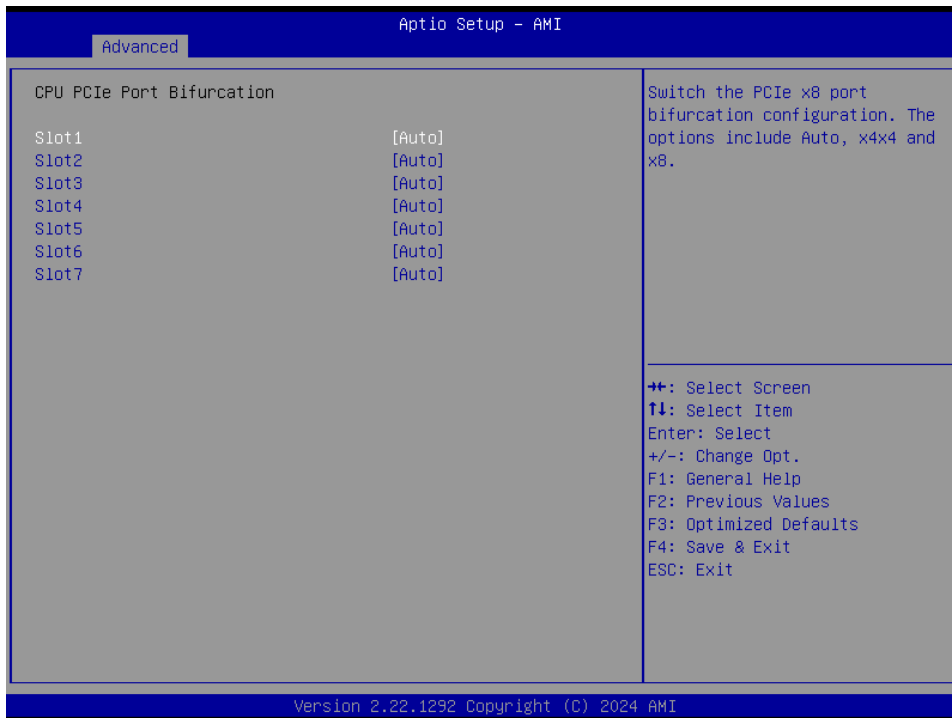
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<p>Determinism Control</p>	<p>Manual Auto[Default],</p>	<p>Auto = Use default performance determinism settings Manual = User can set custom performance determinism settings.</p>
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4.6.2.5 AMD PBS



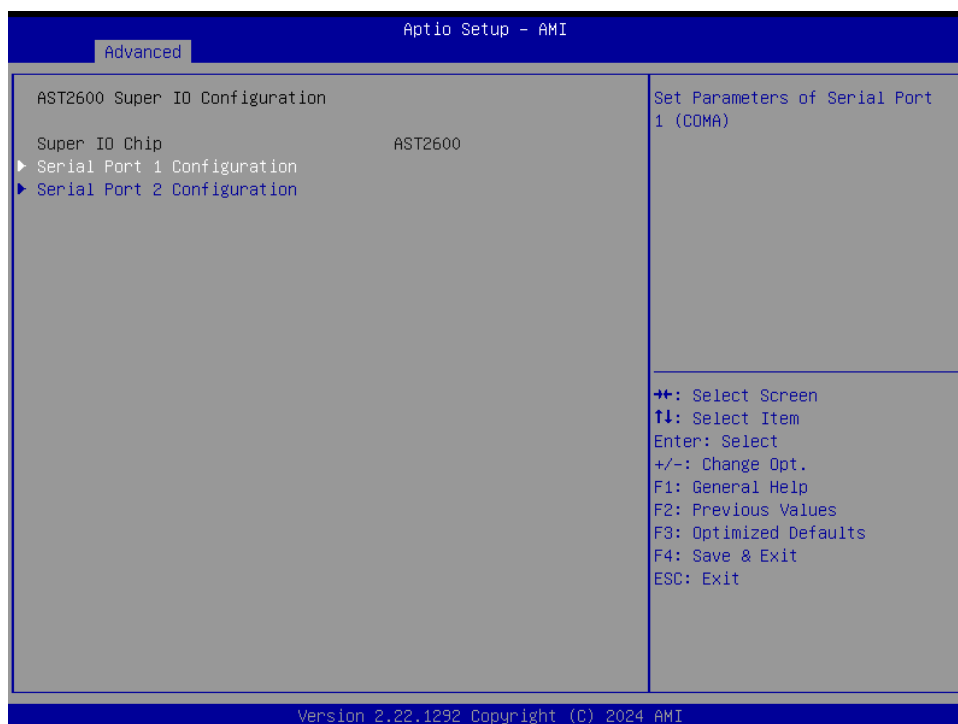
4.6.2.5.1 CPU PCIe Port Bifurcation



Item	Option	Description
Slot 1	Auto[Default], x4x4	Switch the PCIe x8 port bifurcation configuration. The options include Auto, x4x4 and x8.

	x8	
Slot 2	Auto[Default], x4x4x4x4 x4x4x8 x8x4x4 x8x8 x16	Switch the PCIe x8 port bifurcation configuration. The options include Auto, x4x4x4x4, x4x4x8, x8x4x4, x8x8 and x16.
Slot 3	Auto[Default], x4x4 x8	Switch the PCIe x8 port bifurcation configuration. The options include Auto, x4x4 and x8.
Slot 4	Auto[Default], x4x4x4x4 x4x4x8 x8x4x4 x8x8 x16	Switch the PCIe x8 port bifurcation configuration. The options include Auto, x4x4x4x4, x4x4x8, x8x4x4, x8x8 and x16.
Slot 5	Auto[Default], x4x4 x8	Switch the PCIe x8 port bifurcation configuration. The options include Auto, x4x4 and x8.
Slot 6	Auto[Default], x4x4x4x4 x4x4x8 x8x4x4 x8x8 x16	Switch the PCIe x8 port bifurcation configuration. The options include Auto, x4x4x4x4, x4x4x8, x8x4x4, x8x8 and x16.
Slot 7	Auto[Default], x4x4 x8	Switch the PCIe x8 port bifurcation configuration. The options include Auto, x4x4 and x8.

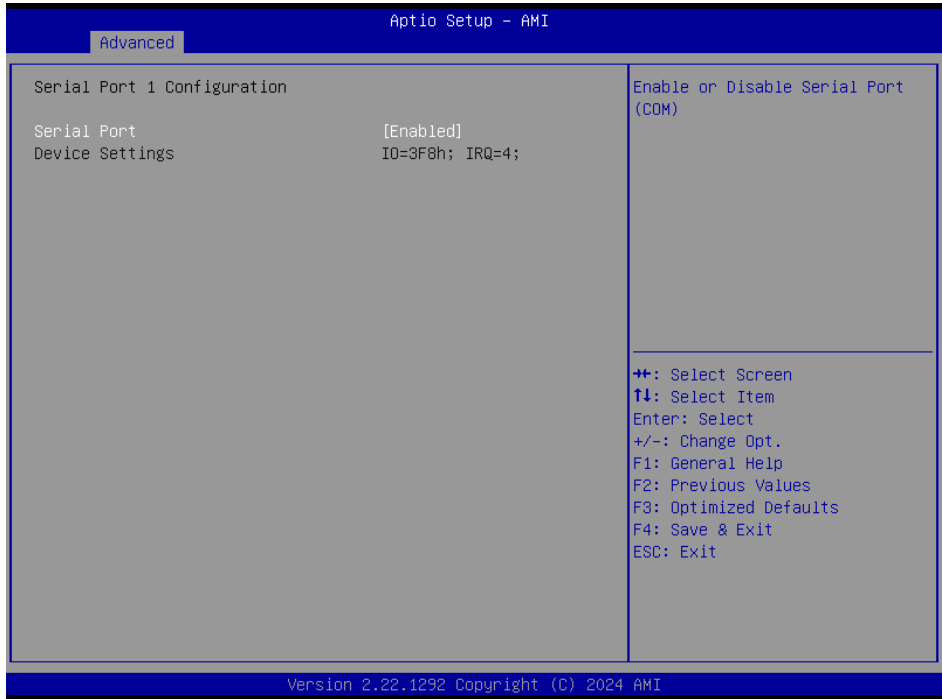
4.6.2.6 AST2600 Super IO Configuration



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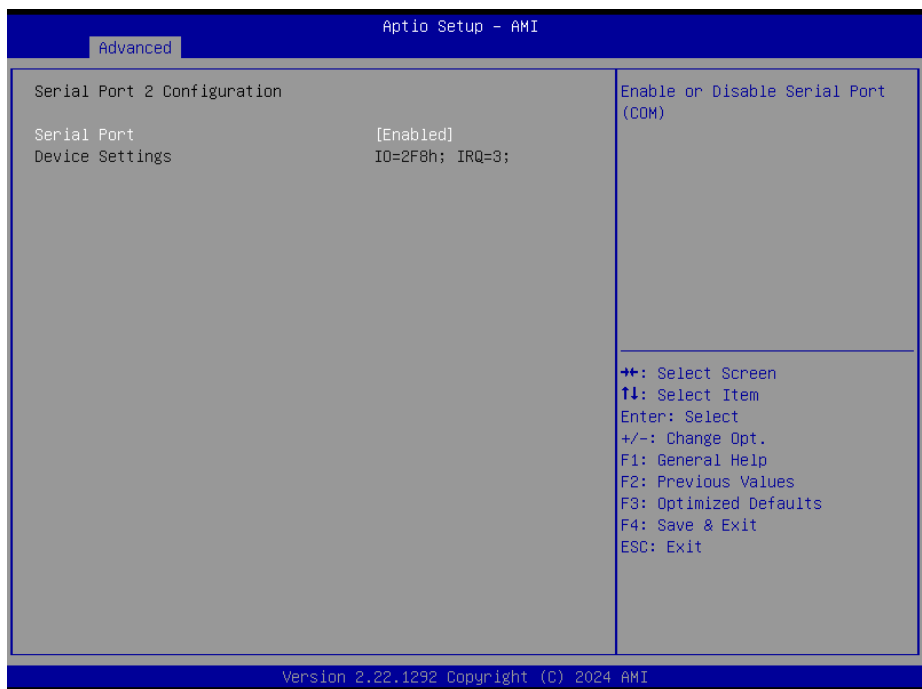
Item	Description
Serial Port 1 Configuration	Set Parameters of Serial Port 1 (COMA).
Serial Port 2 Configuration	Set Parameters of Serial Port 2 (COMB).

4.6.2.6.1 Serial Port 1 Configuration



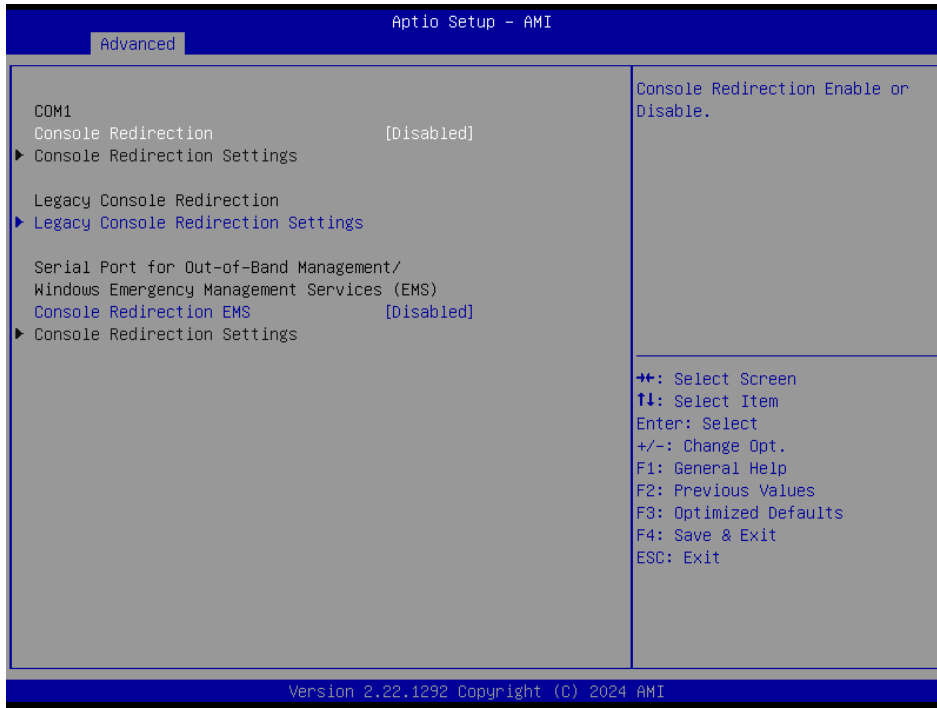
Item	Option	Description
Serial Port	Enabled[Default], Disabled	Enable or Disable Serial Port (COM).

4.6.2.6.2 Serial Port 2 Configuration



Item	Option	Description
Serial Port	Enabled[Default], Disabled	Enable or Disable Serial Port (COM).

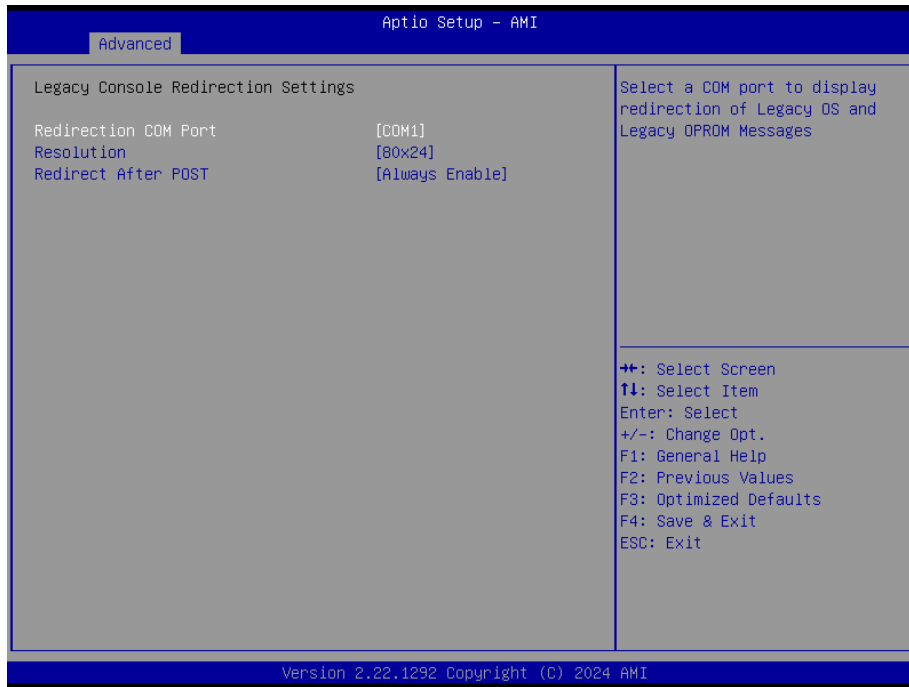
4.6.2.7 Serial Port Console Redirection



Item	Options	Description
Console Redirection	Disabled[Default], Enabled	Console Redirection Enable or Disable.
Console Redirection EMS	Disabled[Default], Enabled	Console Redirection Enable or Disable.

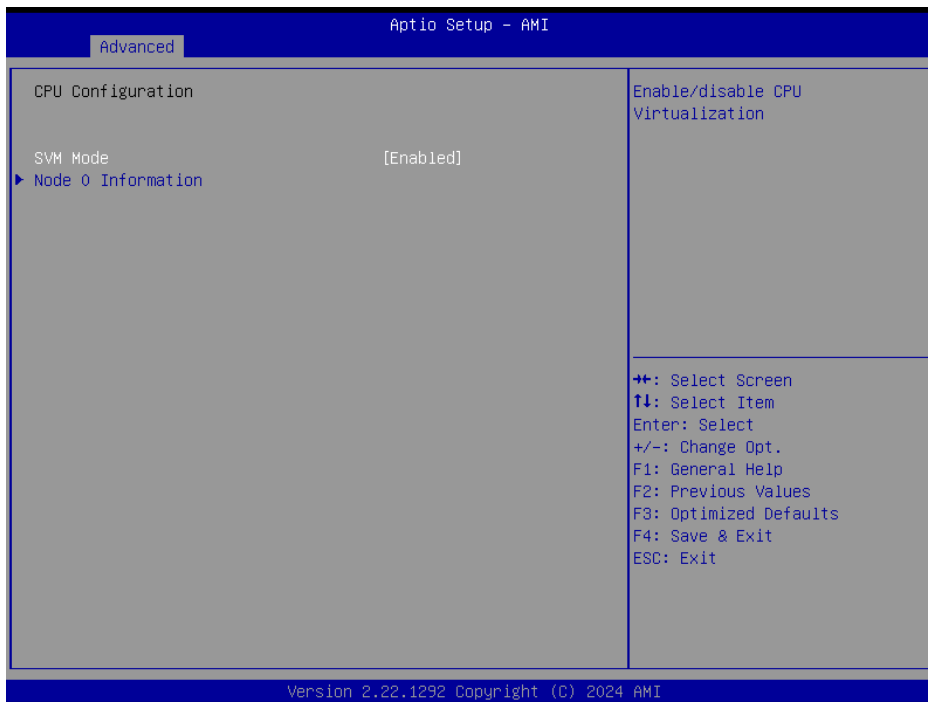
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4.6.2.7.1 Legacy Console Redirection Settings



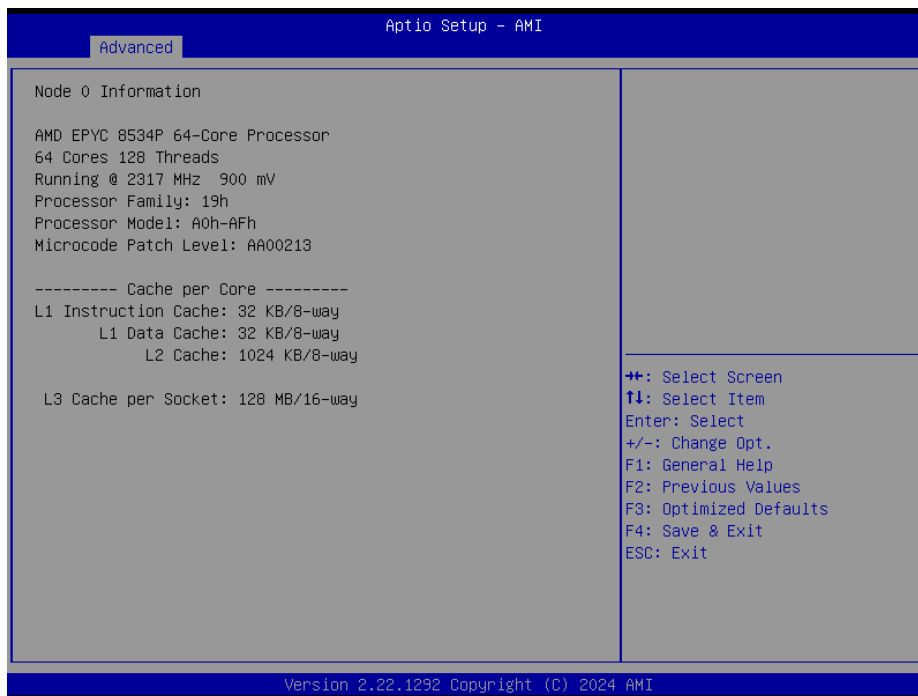
Item	Option	Description
Redirection COM Port	COM1[Default]	Select a COM port to display redirection of Legacy OS and Legacy OPRM Messages.
Resolution	80x24[Default] 80x25	On Legacy OS, the Number of Rows and Columns supported redirection.
Redirect After POST	Always Enable[Default] BootLoader	When Bootloader is selected, then Legacy Console Redirection is disabled before booting to legacy OS. When Always Enable is selected, then Legacy Console Redirection is enabled for legacy OS. Default setting for this option is set to Always Enable.

4.6.2.8 CPU Configuration

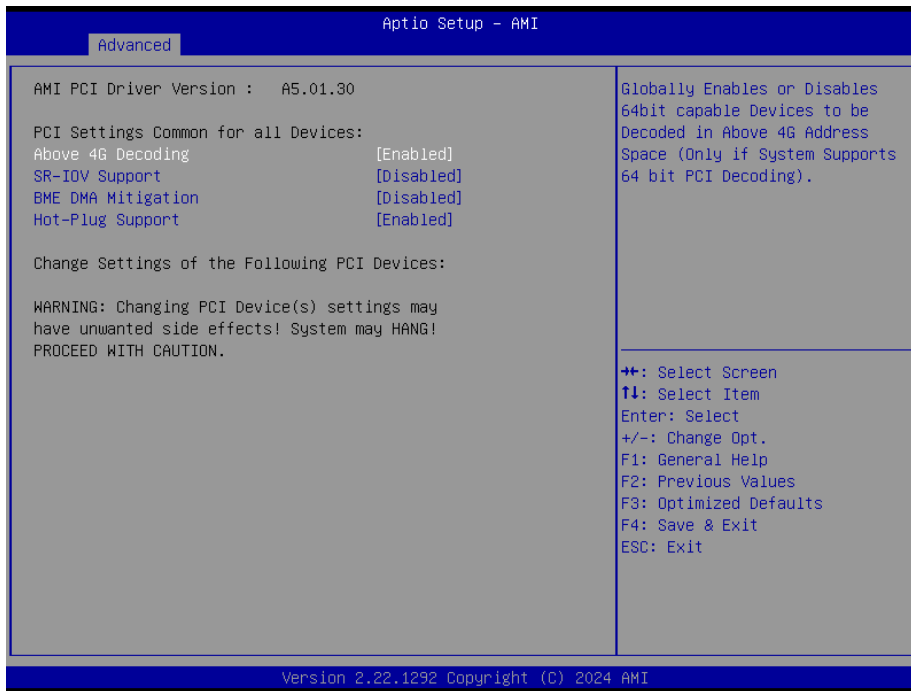


Item	Options	Description
SVM Mode	Disabled Enabled[Default],	Enable/disable CPU Virtualization

4.6.2.8.1 Node 0 Information



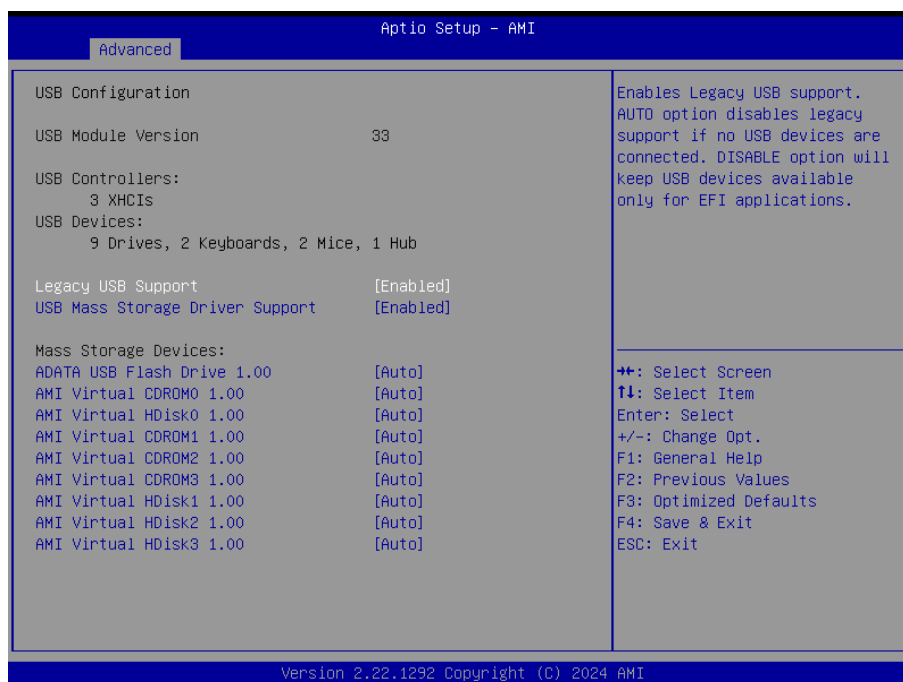
4.6.2.9 PCI Subsystem Settings



Item	Options	Description
Above 4G Decoding	Disabled Enabled[Default],	Globally Enables or Disables 64bit capable Devices to be Decoded in Above 4G Address Space (Only if System Supports 64 bit PCI Decoding).
SR-IOV Support	Disabled[Default] Enabled,	If System has SR-IOV capable PCIe Devices, this option Enables or Disables Single Root IO Virtualization Support.
BME DMA Mitigation	Disabled[Default] Enabled,	Re-enable Bus Master Attribute disabled during Pci enumeration for PCI Bridges after SMM Locked.
Hot-Plug Support	Disabled Enabled[Default],	Globally Enables or Disables Hot-Plug support for the entire System has Hot-Plug capable Slots and this option set to Enabled, it provides a Setup screen for selecting PCI resource padding for Hot-Plug.

4.6.2.10 USB Configuration

The USB Configuration menu helps read USB information and configures USB settings.



Item	Options	Description
Legacy USB Support	Enabled[Default], Disabled Auto	Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.
USB Mass Storage Driver Support	Disabled Enabled[Default],	Enable/Disable USB Mass Storage Driver Support.
Mass Storage Devices	Auto[Default] Floppy Forced FDD Hard Disk CD-ROM	Mass storage device emulation type. 'AUTO' enumerates devices according to their media format. Optical drives are emulated as 'CDROM', drives with no media will be emulated according to a drive type.

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4.6.2.11 Network Stack Configuration



Item	Option	Description
Network stack	Enabled Disabled[Default]	Enable/Disable UEFI Network Stack.

4.6.2.12 NVMe Configuration



4.6.2.13 SATA Configuration



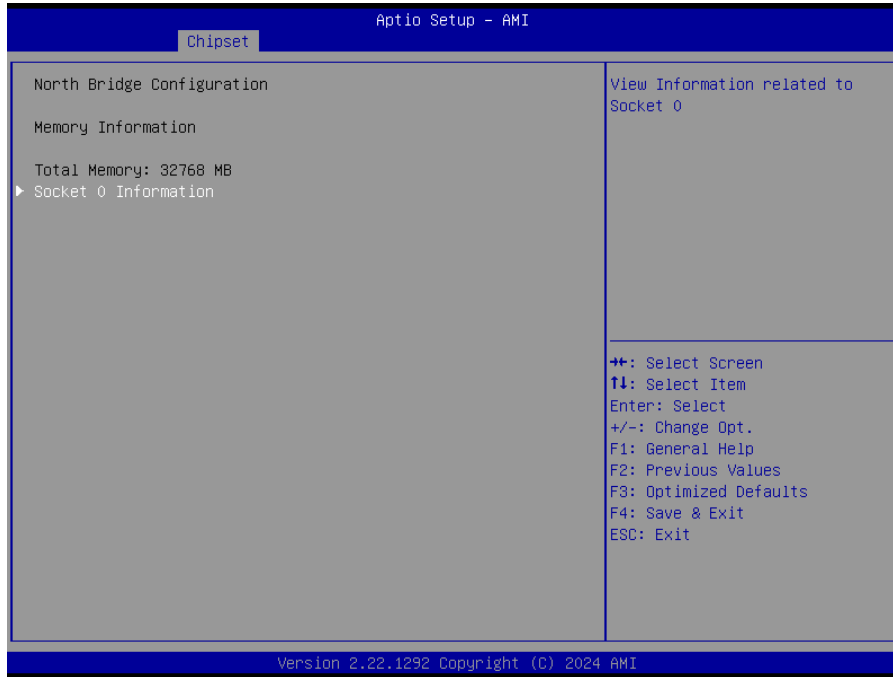
4.6.3 Chipset



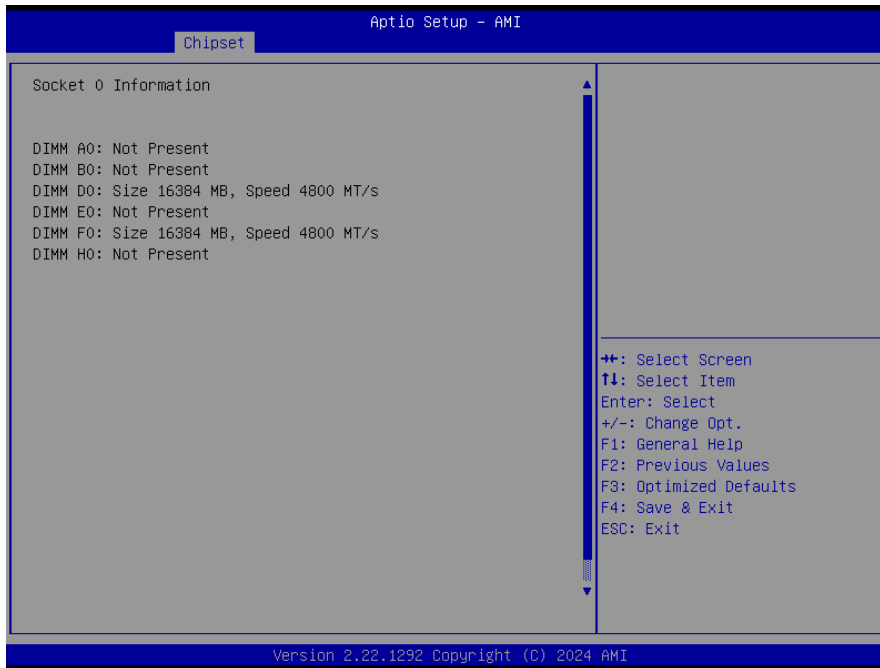
Item	Option	Description
PCIe Compliance Mode	Off[Default] On	PCIe Link Compliance Mode.

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4.6.3.1 North Bridge



4.6.3.1.1 Socket 0 Information



4.6.4 Security



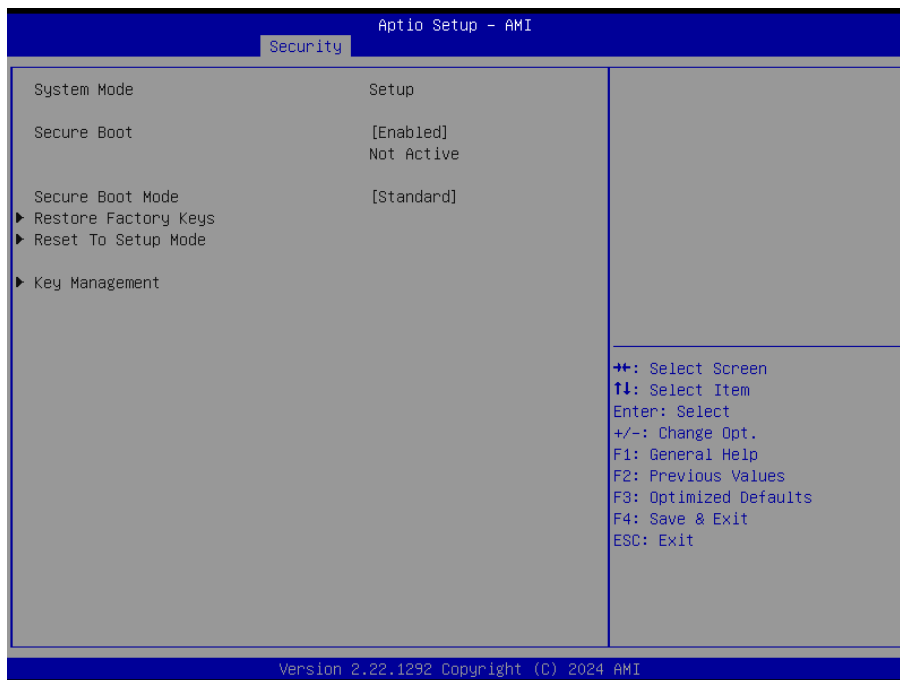
- **Administrator Password**

Set setup Administrator Password

- **User Password**

Set User Password

4.6.4.1 Secure Boot



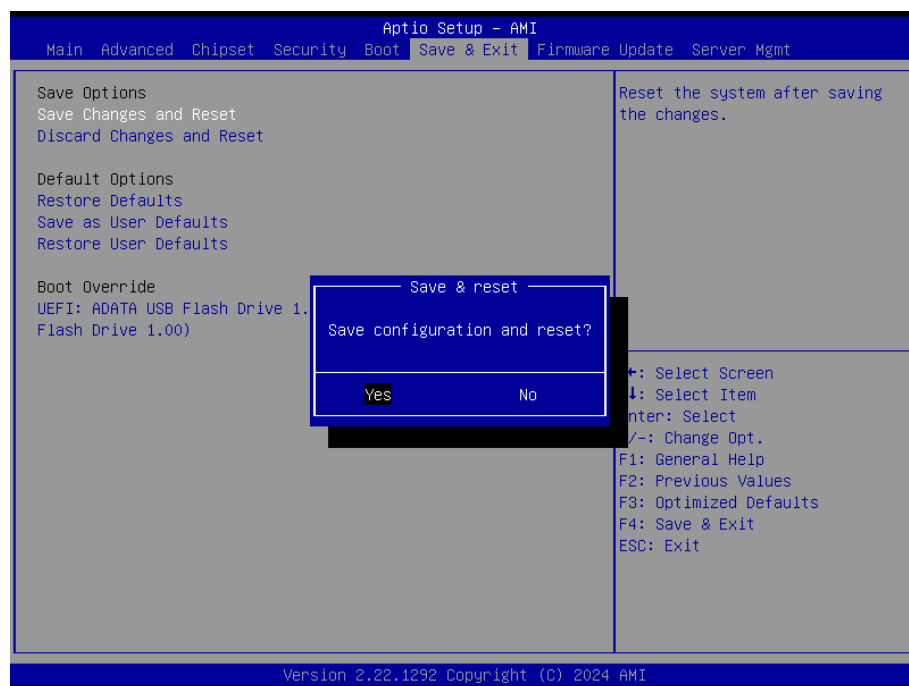
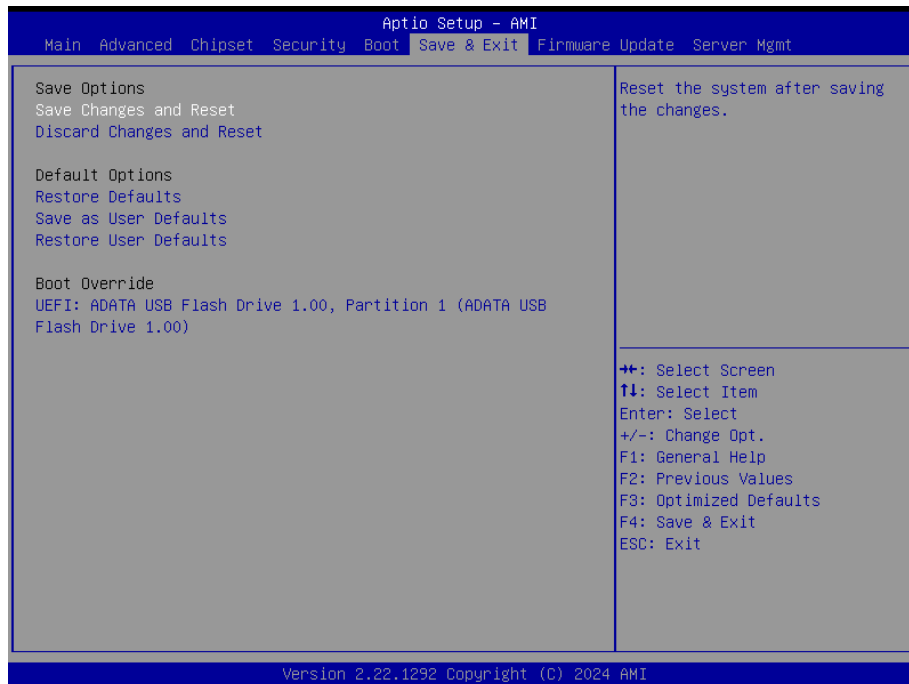
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4.6.5 Boot



Item	Option	Description
Setup Prompt Timeout	1~ 65535	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Bootup NumLock State	On[Default] Off	Select the keyboard NumLock state
Quiet Boot	Disabled[Default] Enabled	Enables or disables Quiet Boot option
Boot Option #1	Set the system boot order.	
Fast Boot	Disabled[Default] Enabled	Enables or disables boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options.

4.6.6 Save and Exit



4.6.6.1 Save Changes and Reset

Reset the system after saving the changes.

4.6.6.2 Discard Changes and Reset

Any changes made to BIOS settings during this session of the BIOS setup program are discarded. The setup program then exits and reboots the controller.

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4.6.6.3 Restore Defaults

This option restores all BIOS settings to the factory default. This option is useful if the controller exhibits unpredictable behavior due to an incorrect or inappropriate BIOS setting.

4.6.6.4 Save as User Defaults

This option saves a copy of the current BIOS settings as the User Defaults. This option is useful for preserving custom BIOS setup configurations.

4.6.6.5 Restore User Defaults

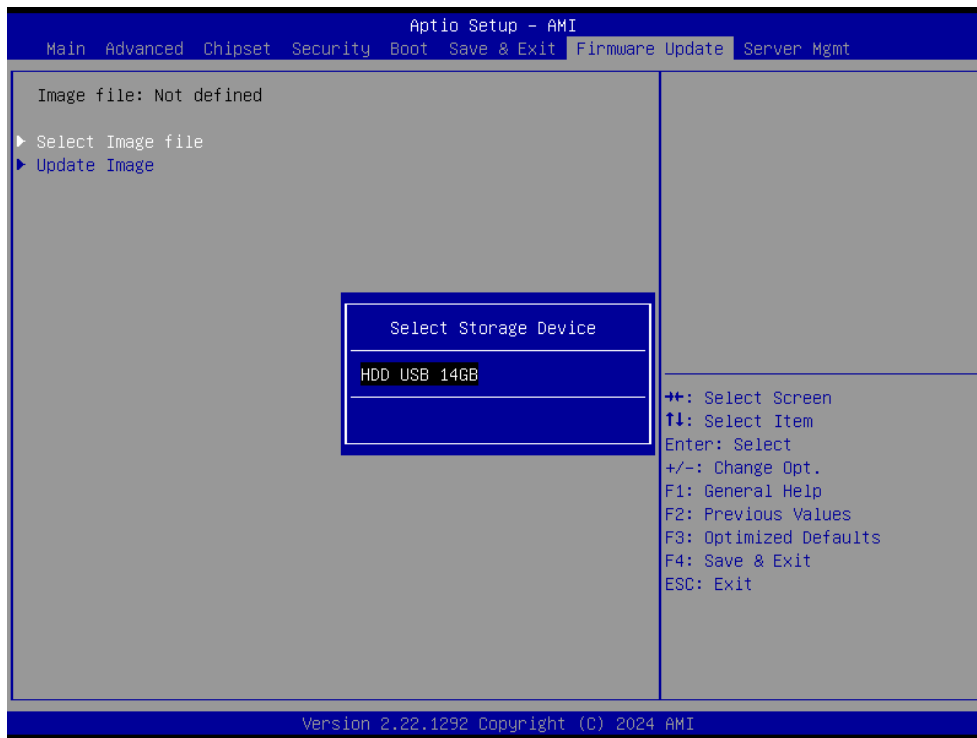
This option restores all BIOS settings to the user defaults. This option is useful for restoring previously preserved custom BIOS setup configurations.

4.6.6.6 Launch EFI Shell from filesystem device

Attempts to Launch EFI Shell application (Shellx64.efi) from one of the available filesystem devices.

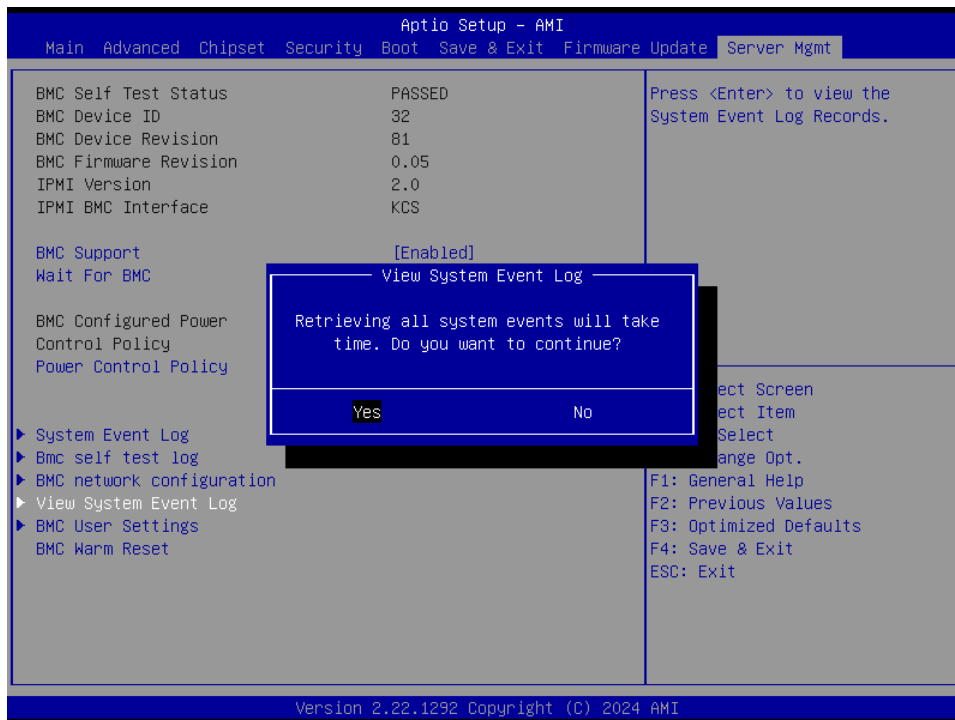
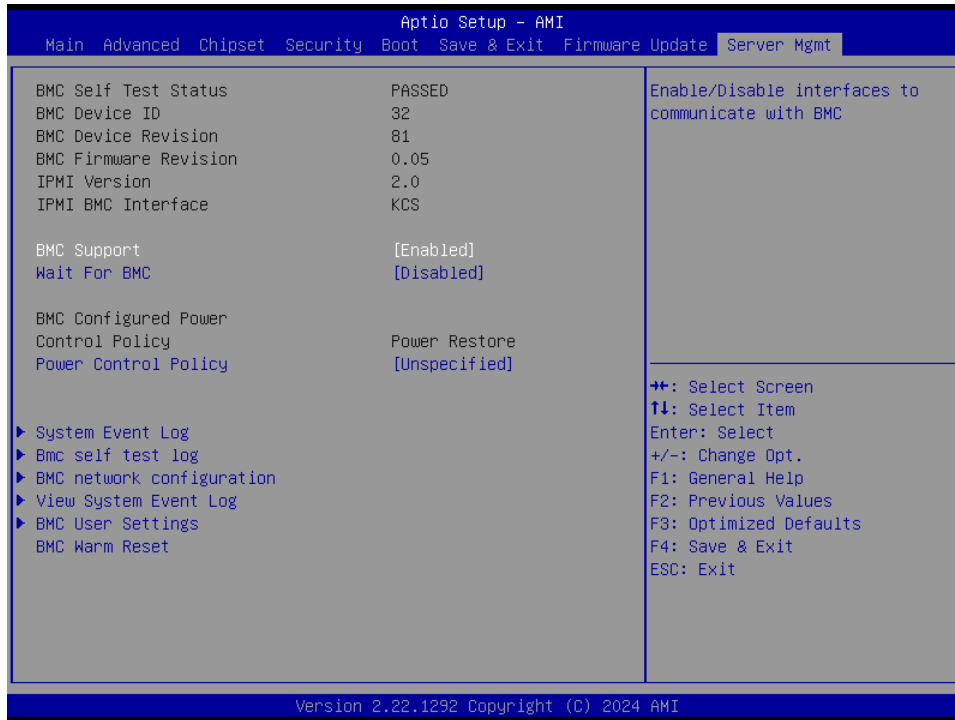
4.6.7 Firmware Update





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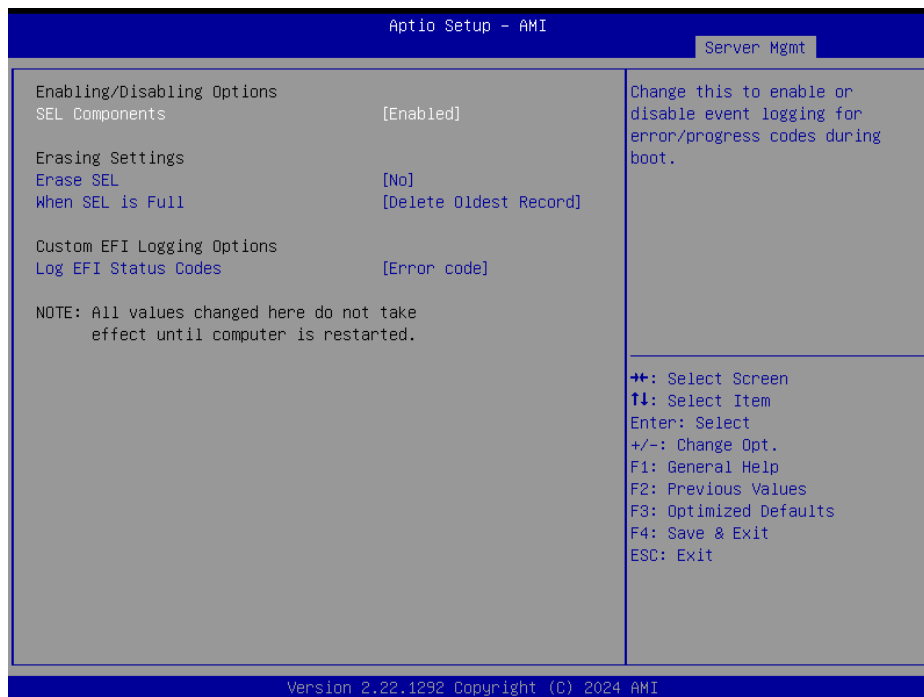
4.6.8 Server Mgmt



Item	Options	Description
BMC Support	Enabled[Default] Disabled	Enable/Disable interfaces to communicate with BMC.
Wait For BMC	Enabled Disabled[Default]	Wait For BMC response for specified time out. BMC starts at the same time when BIOS starts during AC power ON. It takes around 30 seconds to initialize Host to BMC interfaces.

<p>Power Control Policy</p>	<p>Do Not PowerUp Last Power State Power Restore Unspecified[Default]</p>	<p>Configure how the system should respond if AC Power is lost, Reset not required as selected Power policy will be set in BMC when policy is saved.</p>
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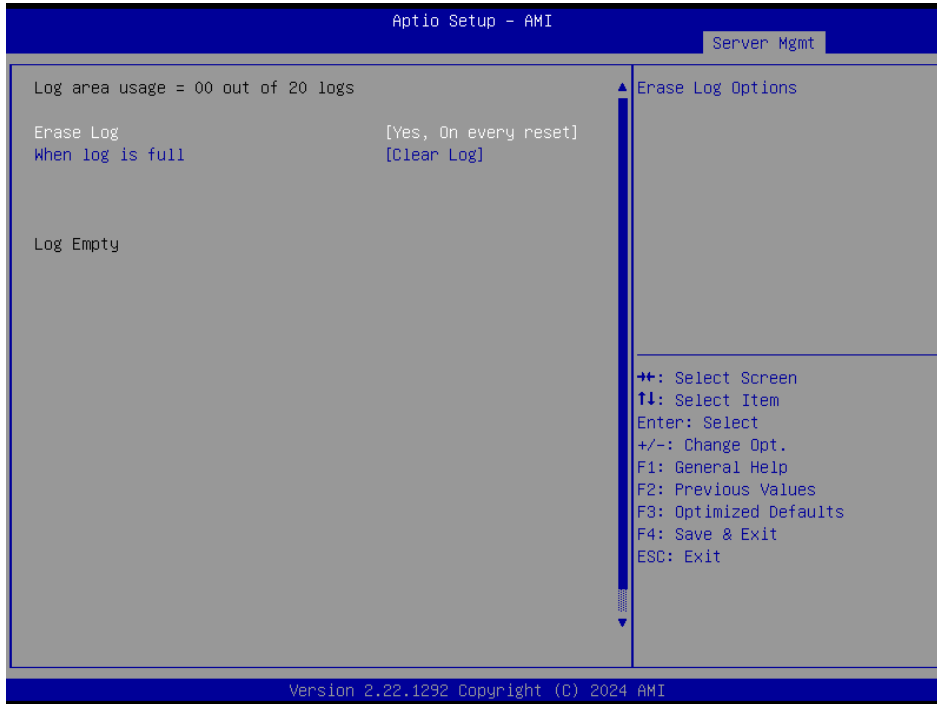
4.6.8.1 System Event Log



Item	Option	Description
SEL Components	Enabled[Default] Disabled	Change this to enable or disable event logging for error/progress codes during boot.
Erase SEL	No[Default] Yes, On next reset Yes, On every reset	Choose options for erasing SEL.
When SEL is Full	Do Nothing Erase Immediately Delete Oldest Record[Default]	Choose options for reactions to a full SEL.
Log EFI Status Codes	Disabled Both Error code[Default] Progress code	Disable the logging of EFI Status Codes or log only error code or only progress code or both.

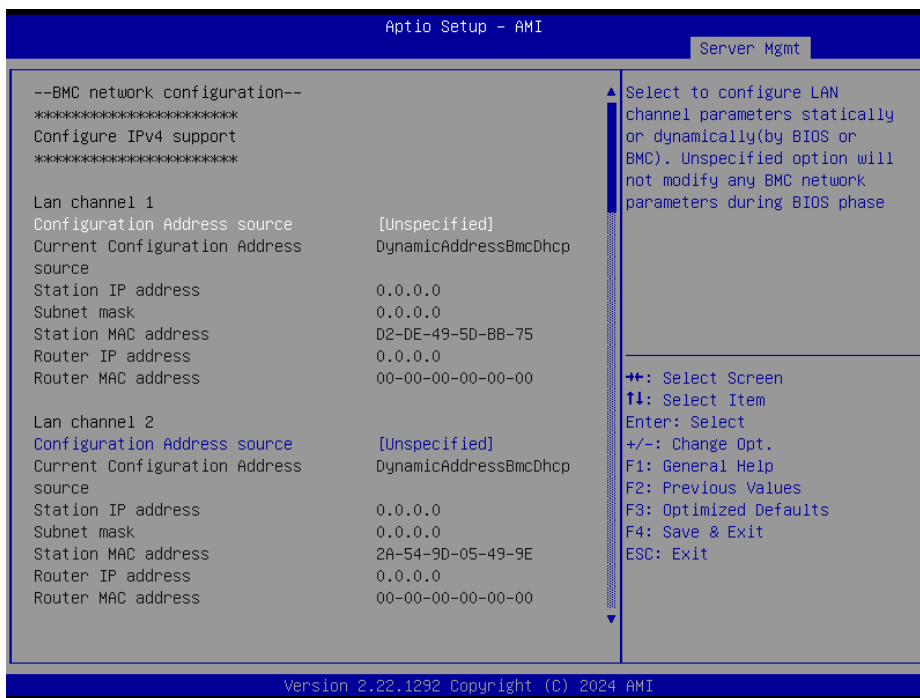
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4.6.8.2 BMC self test log



Item	Option	Description
Erase Log	Yes, On every reset[Default]	Erase Log Options.
	No	
When log is full	Clear Log[Default] Do not log any more	Select the action to be taken when log is full.

4.6.8.3 BMC network configuration

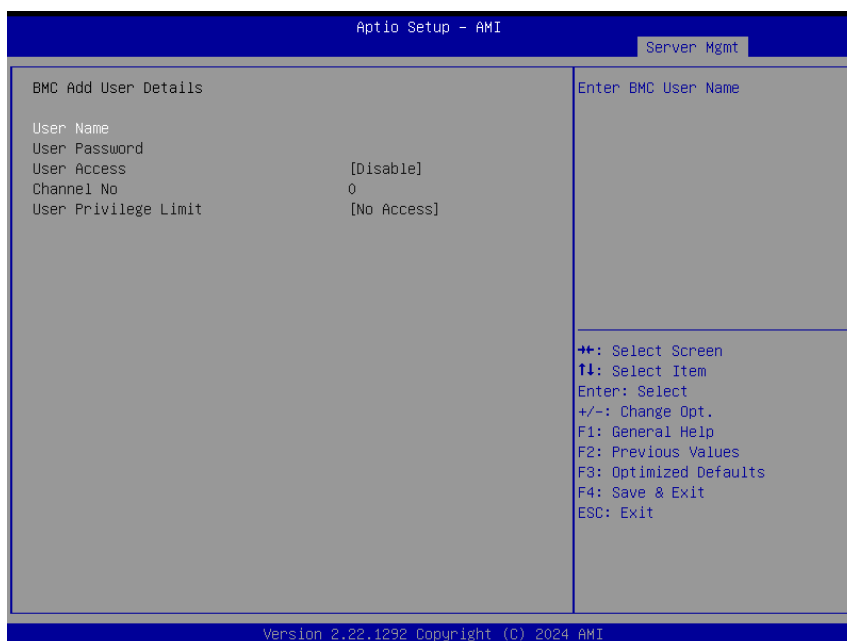


Item	Option	Description
Configuration Address source	Unspecified[Default] Static DynamicBmcDhcp DynamicBmcNonDhcp	Select configure LAN channel parameters statically or dynamically(by BIOS or BMC). Unspecified option will not modify any BMC network parameters during BIOS phase.
Configuration Address source	Unspecified[Default] Static DynamicBmcDhcp	Select to configure LAN channel parameters statically or dynamically(by BIOS or BMC). Unspecified option will not modify any BMC network parameters during BIOS phase.

4.6.8.4 BMC User Settings



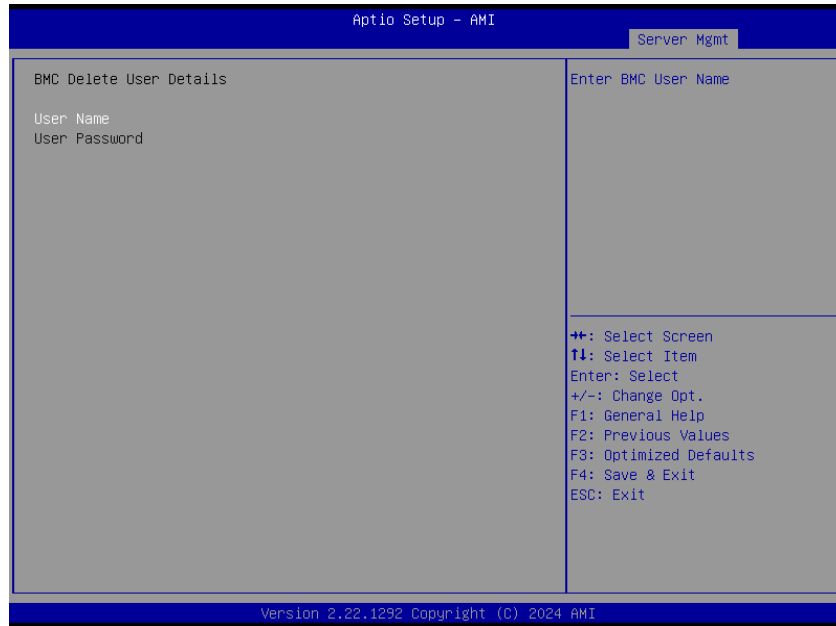
4.6.8.4.1 BMC Add User Details



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Item	Description
User Name	Enter BMC User Name.

4.6.8.4.2 BMC Delete User Details



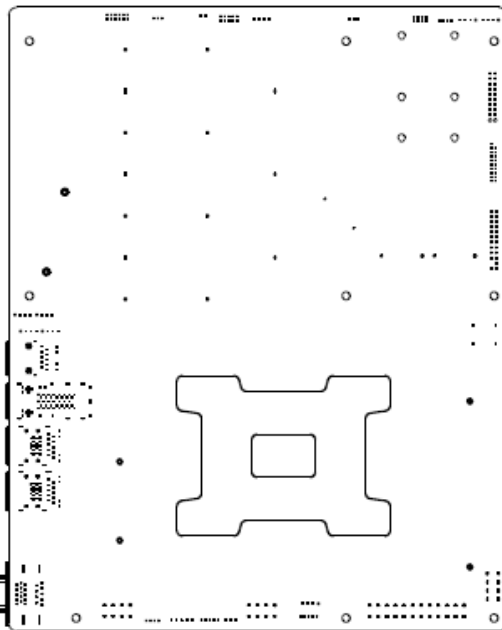
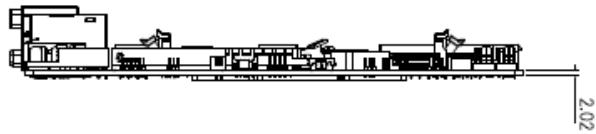
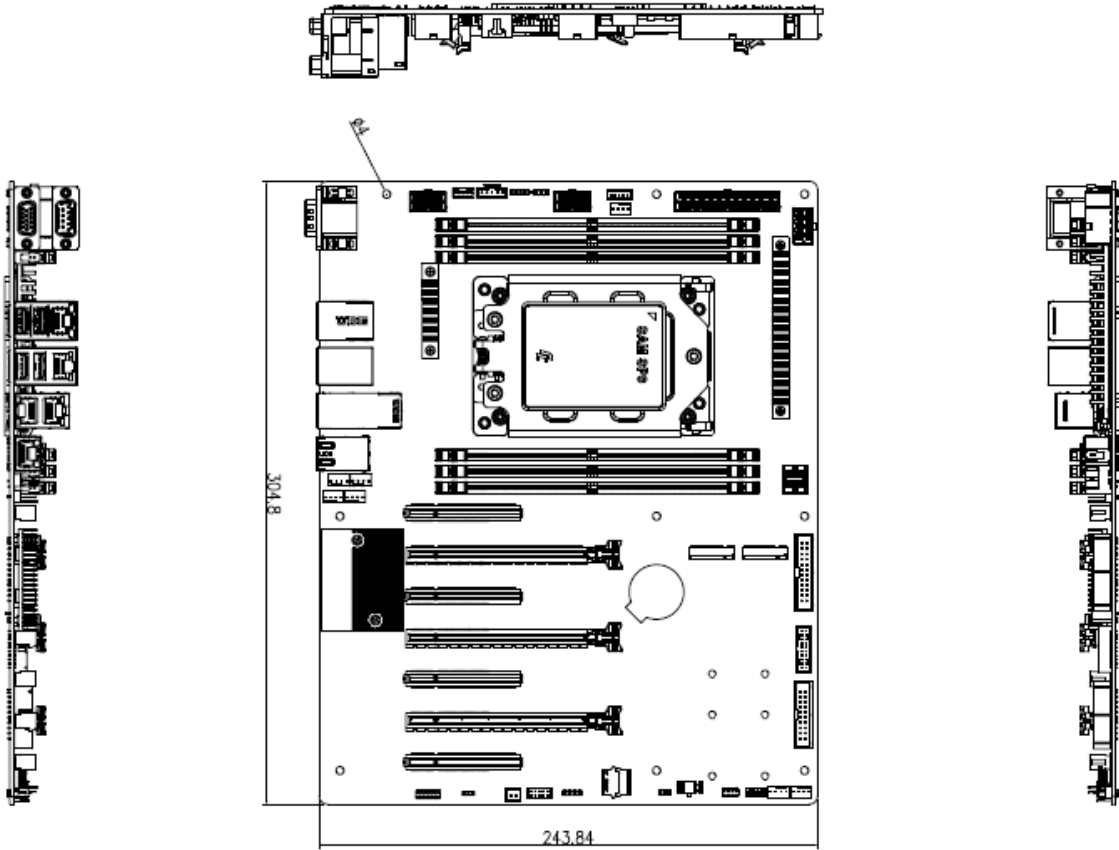
Item	Description
User Name	Enter BMC User Name.

4.6.8.4.3 BMC Change User Settings



Item	Description
User Name	Enter BMC User Name.

5. Mechanical Drawing



Unit: mm

