HPM-GNR1U

Single Intel® Xeon® 6 Processor Proprietary Server Board and IPMI2.0. Processor supports up to 350W TDP

User's Manual

2nd Ed – 07 October 2026

Copyright Notice

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1st	August 2026		Initial Release
2nd	October 2026		Update 2.3 Setting Jumpers & Connectors

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 to change without notice. It does not represent a commitment. 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

Customer Services

Each and every 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 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 has come to be known.

Your satisfaction is our primary concern. Here is a guide to 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 website 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

Product Warranty (Returns & Warranties policy)

1. Purpose

We establishe 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

We endeavor to offer customers the most comprehensive post-sales services and protection; besides offering a 2-year warranty for standard 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 are offered a 2-year warranty, from the date of delivery. For ODM/OEM products manufactured 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 (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. 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. For other products, the product warranty and repair time shall be based on the service standards provided by the original manufacturer; in principle we 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 product DOA (Defect-on-Arrival) when the customer finds any defect within 1 month after the delivery, we 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, we will immediately proceed with new product replacement for the said DOA case. On validation of the confirmed defect, we are 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.

As for other conditions, we will handle defects by way of repair. The customer will be requested to send the defective product to an authorized service center, and we 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. We reserve the right for the ruling of the aforementioned situations.
- Product damage resulting from lightning, flood, earthquake or other calamities.
- The warranty rules of other 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.
- Semi-product and outsourced products without 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, we will not provide any repair service for the rejected product, and the product will be returned to the customer at customer's cost. We 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 and log-in with an account number and a password.

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 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 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 we 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. We 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 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, we 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, we 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

We 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

or other causes. We reserve the right for the ruling of the aforementioned situations.

- Product damage resulting from lightning, flood, earthquake or other calamities.
- The warranty rules for other 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.
- Semi-product and outsourced products without 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, we 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, we reserve the right of whether or not to provide the repair service. In case the customer does not reply in 3 months, we 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, we 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 to be unable to repair/replace a warranted but phased-out product, we 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 faulty design or process, the analysis fee will be exempted.

4. Service Products

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

Defect Analysis Report (DAR)

We provide 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

We are 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 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

		Fragile Packaging
		Beware of water damage, moisture-proof
		Carton recyclable
		Handle with care
		Follow operating instructions of consult instructions for use.
		**WARNING** • **INGESTION HAZARD**: This product contains a button cell or coin battery. • **DEATH** or serious injury can occur if ingested. • A swallowed button cell or coin battery can cause **Internal Chemical Burns** in as little as **2 hours**. • **KEEP** new and used batteries **OUT OF REACH of CHILDREN**. • **Seek immediate medical attention** if a battery is suspected to be swallowed or inserted inside any part of the body.

Disposing of your old product

WARNING:
There is danger of explosion if the battery is mishandled or incorretly 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 ther 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-GNR1U motherboard	1
2	LGA4710 CPU carrier-E2B	1



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

1.3 Manual Objectives

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-GNR1U 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 Intel LGA4710 Sockets support 6th Gen. Intel Xeon Scalable Processor (Max. TDP at 350W)
BIOS	AMI UEFI BIOS
System Memory	8x DDR5 6400MT/s RDIMM Up to 2TB
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)
RAID	Intel VMD and Virtual RAID on CPU(VROC) 1 x Intel VROC header (Note: RAID key for CPU PCIe NVME only)
TPM	TPM 2.0 NuvoTon_NPCT760AAEYX or equivalent TPM header
Other	IPMI 2.0 with AST 2600 BMC controller onboard.
Expansion Slot	
PCIe	1 x PCIe Gen5 x32 Slot, 1 x PCIe Gen 5 x 8 Slot Slot 1, PCIe Gen5 x16 FHFL Slot via option riser card Slot 2, PCIe Gen5 x16 FHFL Slot via option riser card Slot 3, PCIe Gen5 x8 HHHL(In x16 Physical Slot) via option riser card
Storage	
Other	5 x MCIOx8 connectors (SFF-TA-1016)
Edge I/O	
COM	1 x DB-9 male connector
LAN	MGMT port : Dedicated IPMI function access 1 x 1GbE Ethernet port for Intel I210-AT controller, shared with IPMI function access 2 x 10GbE Ethernet ports for Intel E610-XAT2 controller (Only support x2 link in hardware design) (Connector : 1 x 2x1 10G Base-T RJ45 module jack)
USB	2x USB 3.2 Gen1 ports by Renesas UPD720201K8-701-BAC-A (From PCIe Gen2 x1)
DP	1 x Mini-DisplayPort
Onboard I/O	
USB	4x USB 3.2 Gen1 ports by via VL822-Q7 (1 x USB Hub to 4 x USB)

<table>
<tr><td></td><td>- 1x USB 3.2 Gen1 ports type A vertical port
- 1x USB 2.0 port
- 2x USB 3.2 Gen1 ports in two USB 3.0 internal headers</td></tr>
<tr><td>CPU/System FAN</td><td>1 x 4 Pin, pitch 2.54mm CPU Fan Header (4 Pin PWM)
6 x 4 Pin, pitch 2.54mm Chassis Fan Header (4 Pin PWM, 6 for Middle fan)</td></tr>
<tr><td>Buzzer</td><td>1 x onboard buzzer</td></tr>
<tr><td>Front Panel</td><td>1 x Front panel connector (2.54 mm Pitch)(SSI SPEC)
Front Panel DB add 1x Inlet sensor IC
The pin-out for SSI control cable is as follows:
Table 51. Front Panel SSI connector pin-out
<table>
<tr><th>Pin</th><th>Signal Name</th><th>Pin</th><th>Signal Name</th></tr>
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<tr><td>9</td><td>LED_HDD_ACTIVITY_N</td><td>10</td><td>FP_LED_STATUS_A MBER_N</td></tr>
<tr><td>11</td><td>FP_PWR_BTN_N</td><td>12</td><td>NIC3_LINK_LED_N</td></tr>
<tr><td>13</td><td>GND (Power Button GND)</td><td>14</td><td>NIC1_LINK_LED_N</td></tr>
<tr><td>15</td><td>BMC_RST_BTN_N</td><td>16</td><td>SMB_SENSOR_3V3STB_DATA</td></tr>
<tr><td>17</td><td>GND (Reset GND)</td><td>18</td><td>SMB_SENSOR_3V3STB_CLK</td></tr>
<tr><td>19</td><td>FP_ID_BTN_N</td><td>20</td><td>FP_CHASSIS_INTRU</td></tr>
<tr><td>21</td><td>NIC5_LINK_LED_N</td><td>22</td><td>NIC4_LINK_LED_N</td></tr>
<tr><td>23</td><td>FP_NMI_BTN_N</td><td>24</td><td>NIC2_LINK_LED_N</td></tr>
</table>
Front panel USB connector pin-out is as follows:</td></tr>
<tr><td>RTC Battery</td><td>1 x Horizontal Socket Type CMOS Battery Holder with CR2450 +
NXP/PCF85053ATKJ
1 x Coin battery header</td></tr>
<tr><td>Clear CMOS</td><td>1 x Clear CMOS header (1 x 2.0 mm pitch Header)</td></tr>
<tr><td>Other</td><td>1 x Outlet Sensor Onboard (TI TMP75AIDGKT or Equivalent)
1 x Inlet Sensor Header
1 x Outlet Sensor Header</td></tr>
<tr><td>Display</td><td></td></tr>
<tr><td>Graphic Chipset</td><td>1 x Mini DP port
AST2600 BMC controller</td></tr>
<tr><td>Spec. & Resolution</td><td>1920x1200@60Hz 32bpp</td></tr>
<tr><td>Ethernet</td><td></td></tr>
<tr><td>LAN Chipset</td><td>1 x Intel I210AT 1GbE controller
1 x Intel E610-XAT2 10GbE controller supports 2 x 10GbE Ethernet ports</td></tr>
<tr><td>LAN Spec.</td><td>1 x 1G Base-T Ethernet Controller
1 x Dual 10G Base-T Ethernet controller</td></tr>
<tr><td>LED Indicator</td><td>1G LAN:</td></tr>
</table>

WOL	Status	Right	Left	
		Yellow	Green	Orange
Don't care	No Link			
On	100Mb Inactive			
On	100Mb Active	B		
On	1Gb Inactive			
On	1Gb Active	B		
On	10Gb Inactive			
On	10Gb Active	B		

10G LAN:

WOL	Status	Right	Left	
		Yellow	Green	Orange
Don't care	No Link			
On	100Mb Inactive			
On	100Mb Active	B		
On	1Gb Inactive			
On	1Gb Active	B		
On	10Gb Inactive			
On	10Gb Active	B		

Power Indicator: To identify whether the system is ready or dead.

1. Power button ON
2. Power indicator ON
3. BIOS initialization, Power indicator from ON to blinking
4. Power indicator to always on means: A. ON. B. System Error.

Power Indicator	Condition	Memo	FAN status
OFF	S5	Power off	OFF
ON	System always Failed	System boot failed/VGA is not ready	ON
ON	BIOS ready to boot	VGA is ready. (Informed by BIOS)	ON
Blinking	BIOS initializing	Blinking (BMC to implement)	ON

Mechanical & Environmental	
Power Requirement	1 x Std. 24 pin ATX Connector 2 x 8 Pin SSI 12V Connectors
ACPI	Yes, S0 and S5
Power Mode	H/W: ATX power well design only BMC: AT (Default)

Operating Temp.	0 ~ 55°C (32 ~ 131°F)to support up to 350W 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)**	Proprietary form factor 13" x8" PCB thickness is 2.79 mm
Weight	1.9 kg
Vibration Test	Follow standard test. Random Vibration Operation Reference IEC60068-2-64 Testing procedures 1. Test PSD : 0.00454G²/Hz , 1.5 Grms 2. System condition : operation mode 3. Test frequency : 5~500 Hz 4. Test axis : X,Y and Z axis 5. Test time : 30 minutes per each axis 6. System condition : Operation mode 7. IEC60068-2-64 Test Fh Storage : mSATA Random vibration test (Non-operation) Reference IEC60068-2-64 Testing procedures 1. PSD: 0.00808G²/Hz , 2.0 Grms 2. Non-Operation mode 3. Test Frequency : 5-500Hz 4. Test Axis : X,Y and Z axis 5. 30 min. per each axis 6. System condition : Non-Operation mode 7. IEC 60068-2-64 Test:Fh Package Vibration Test: Reference IEC60068-2-64 Testing procedures 1. Test PSD : 0.026G²/Hz , 2.16 Grms 2. Non-operation mode 3. Test frequency : 5~500 Hz 4. Test axis : X,Y and Z axis 5. Test time : 30 minutes per each axis IEC 60068-2-64 Test Fh
Drop Test	Follow standard test.

	Reference ISTA 2A, Method : IEC-60068-2-32 Test:Ed Test Ea : Drop Test 1 Test phase : One corner, three edges, six faces 2 Test high : 96.5cm 3 Package weight : 5Kg 4 Test drawing
OS Information	Windows 11 LTSC (24H2) Windows Server 2025 LTSC Ubuntu 24.04 Red Hat Enterprise Linux (RHEL) 8.0 or above



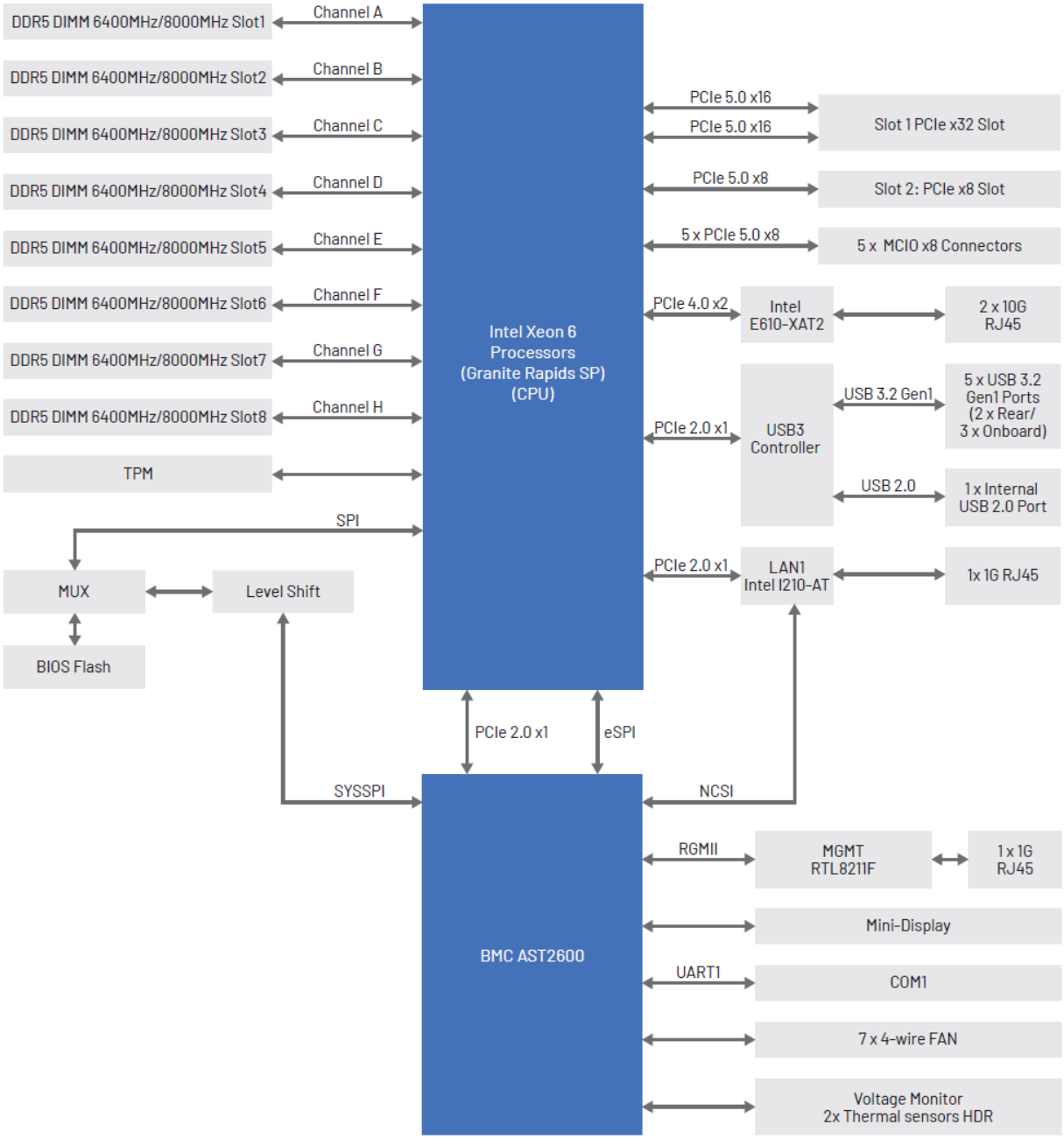
Note: Specifications are subject to change without notice.

DIMM population requirements

		Install DIMM Qty:			
DIMM No.	CPU MEM Ch.	1	4	4	8
DIMM1	CPU1 CH-A DIMM0	V	V		V
DIMM2	CPU1 CH-B DIMM0			V	V
DIMM3	CPU1 CH-C DIMM0		V		V
DIMM4	CPU1 CH-D DIMM0			V	V
DIMM5	CPU1 CH-E DIMM0		V		V
DIMM6	CPU1 CH-F DIMM0			V	V
DIMM7	CPU1 CH-G DIMM0		V		V
DIMM8	CPU1 CH-H DIMM0			V	V

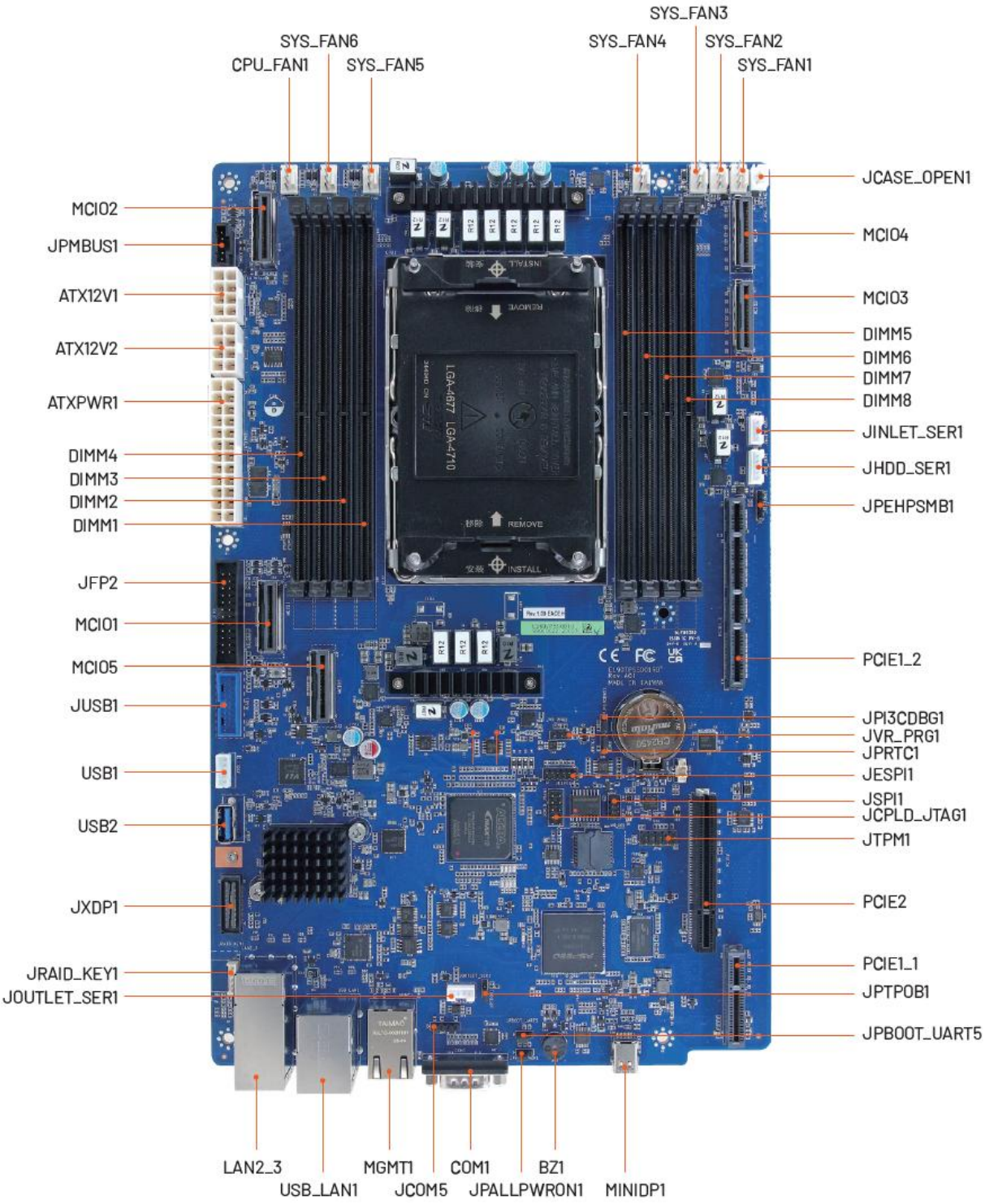
1.5 Architecture Overview—Block Diagram

The following block diagram shows the architecture and main components of HPM-GNR1U.



2. Hardware Configuration

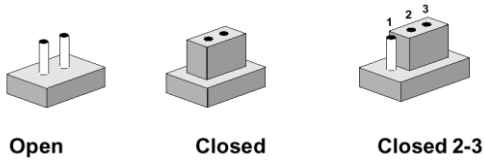
2.1 Product Overview



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
JPALLPWRON1	Force PWRON setting	3 x 1 header, pitch 2.00mm
JPRTC1	Clear CMOS	3 x 1 header, pitch 2.00mm
JPI3CDBG1	CPU I3C Debug setting	3 x 1 header, pitch 2.00mm
JPTPOB1	TPM setting	3 x 1 header, pitch 2.00mm

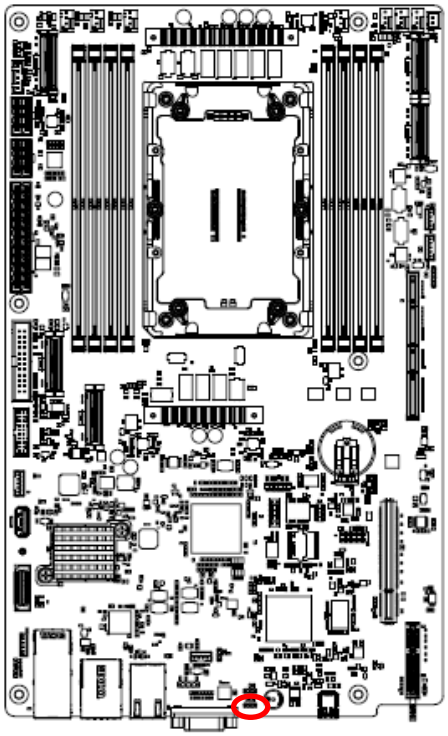
Connectors

Label	Function	Note
SYS_FAN1-6	System fan connector 1-6	4 x 1 wafer, pitch 2.54mm
CPU_FAN1	CPU fan connector	4 x 1 wafer, pitch 2.54mm
COM1	Serial port 1 connector	
JTPM1	TPM connector	5 x 2 header, pitch 2.54mm

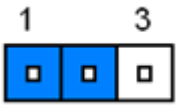
JCOM5	BMC_UART5 debug connector	4 x 1 header, pitch 2.54mm
MGMT1	MGMT port	
PCIE1_1	PCIe Gen5 x16	
PCIE1_2	PCIe Gen5 x8	
PCIE2	PCIe Gen5 x16	
MINIDP1	Mini-DisplayPort	
JFP2	Front Panel connector	12 x 2 wafer, pitch 2.54mm
USB_LAN1	2 x USB3.2 Gen1 connector 1 x RJ-45 Ethernet (LAN1 Share IPMI Port)	
LAN2_3	2 x RJ-45 Ethernet	
USB1	USB2.0 connector	5 x 1 wafer, pitch 2.00mm
USB2	USB3.2 Gen1 connector	
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
MCIO1-4	5 x MCIOx8 connectors	
JXDP1	XDP connector	
BZ1	PC Buzzer connector	
JRAID_KEY1	VROC RAID KEY connector	4 x 1 wafer, pitch 2.00mm
DIMM1-8	8 x DDR5 RDIMM socket	
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
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
JCPLD_JTAG1	CPLD JTAG header	5 x 2 header, pitch 2.54mm
JVR_PRG1	SMBUS VR connector	3 x 1 header, pitch 2.54mm

2.3 Setting Jumpers & Connectors

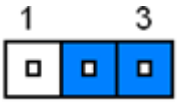
2.3.1 Force PWRON setting (JPALLPWRON1)



Disable*

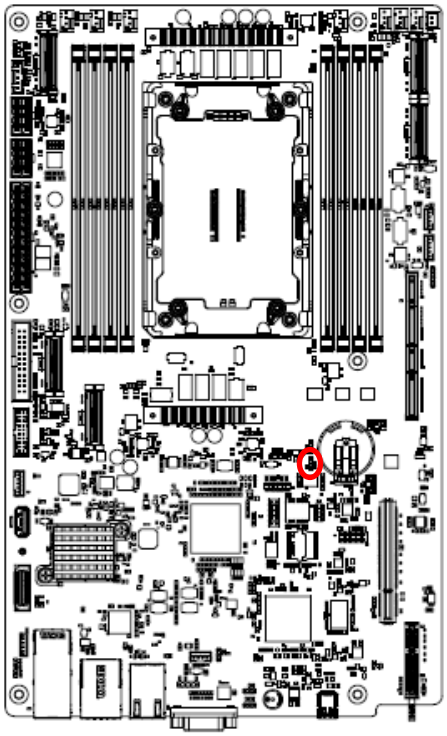


Enable

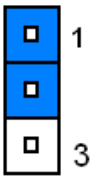


*** Default**

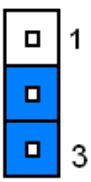
2.3.2 Clear CMOS (JPRTC1)



Normal RTC Reset*

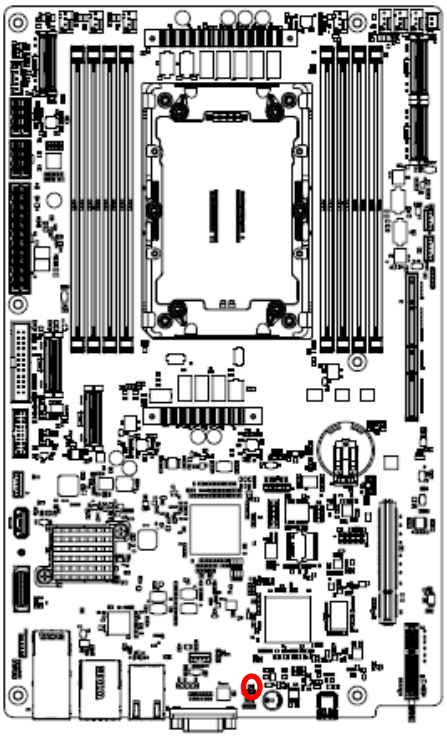


Clear RTC REGISTERS

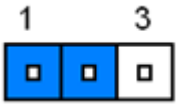


*** Default**

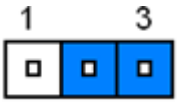
2.3.3 Boot UART5 setting (JPBOOT_UART5)



Disable*

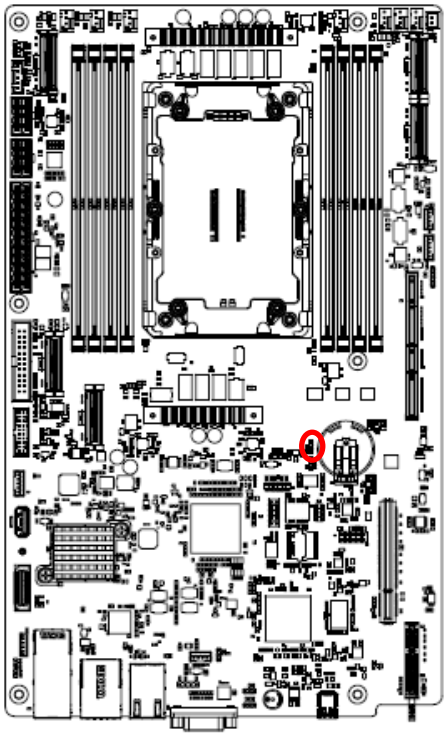


Enable BOOT FROM UART5

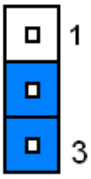


*** Default**

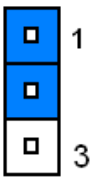
2.3.4 CPU I3C Debug setting (JPI3CDBG1)



MBP Functionality*

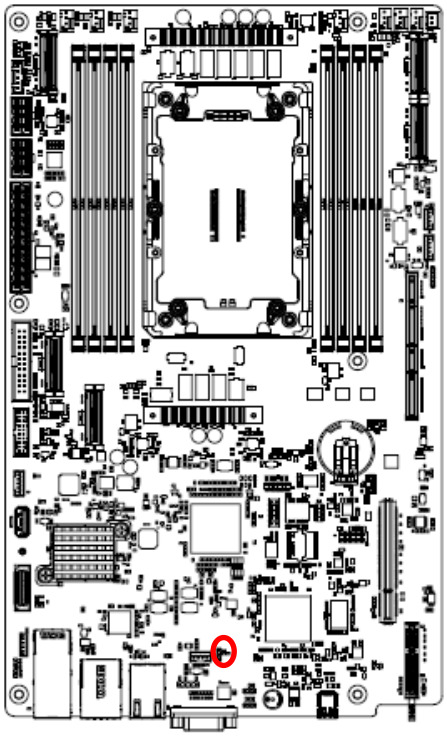


I3C Functionality

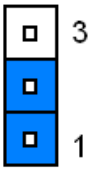


*** Default**

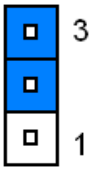
2.3.5 TPM setting (JPTPOB1)



NORMAL Onboard TPM Enable*

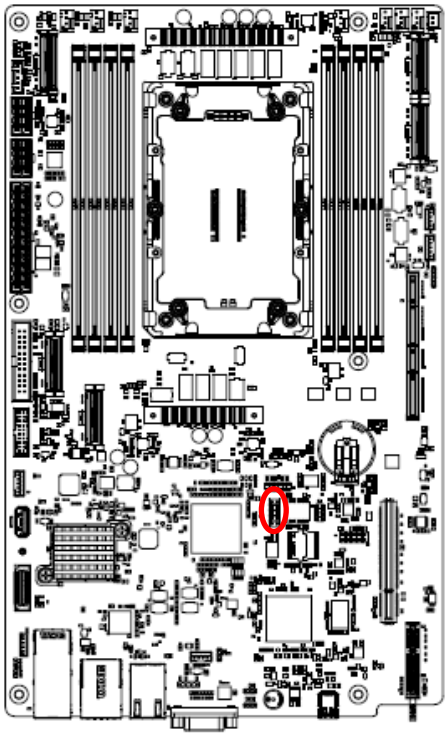


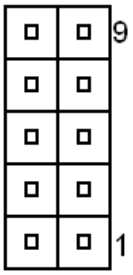
Disabled Onboard TPM/JTPM module use



*** Default**

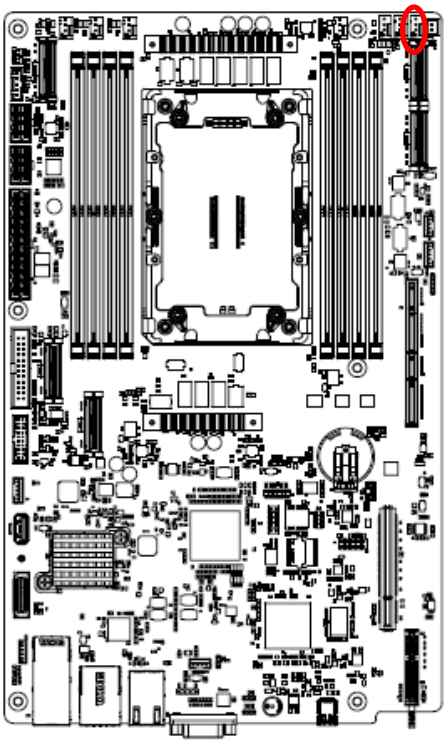
2.3.6 CPLD JTAG header (JCPLD_JTAG1)





Signal	PIN	PIN	Signal
GND	10	9	JTAG_TDI_CONN
NC	8	7	NC
NC	6	5	JTAG_TMS_CONN
+3.3VSB	4	3	JTAG_TDO_CONN
CPLD_JTAG_MUX_CTL	2	1	JTAG_TCK_CONN

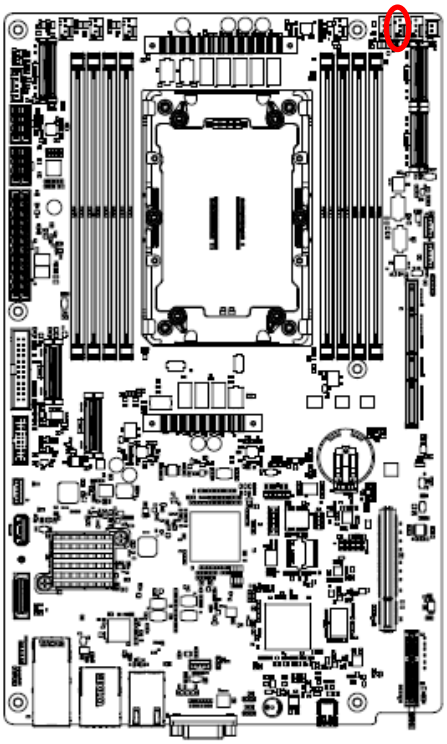
2.3.7 System fan connector 1 (SYS_FAN1)





Signal	PIN
SYS_PWM1	4
FAN_R2_TACH1	3
+12V	2
GND	1

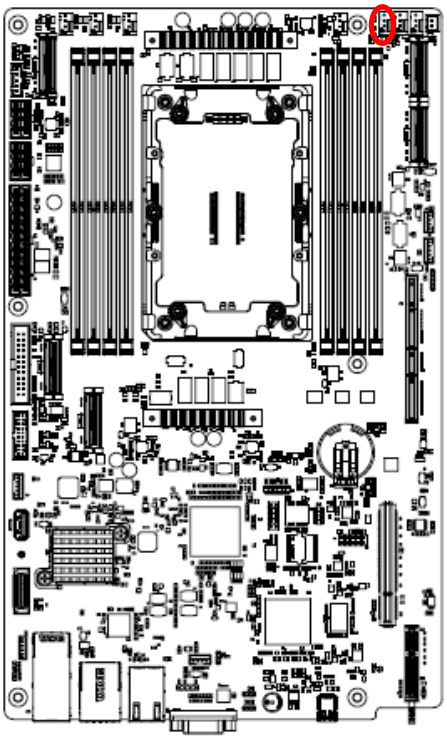
2.3.8 System fan connector 2 (SYS_FAN2)





Signal	PIN
SYS_PWM2	4
FAN_R2_TACH2	3
+12V	2
GND	1

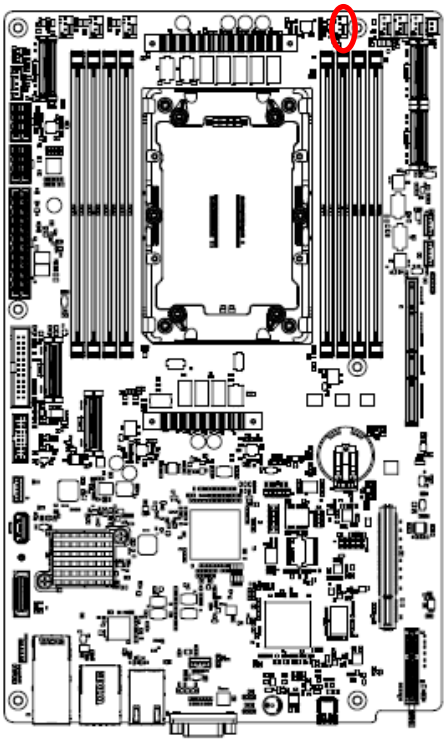
2.3.9 System fan connector 3 (SYS_FAN3)





Signal	PIN
SYS_PWM3	4
FAN_R2_TACH3	3
+12V	2
GND	1

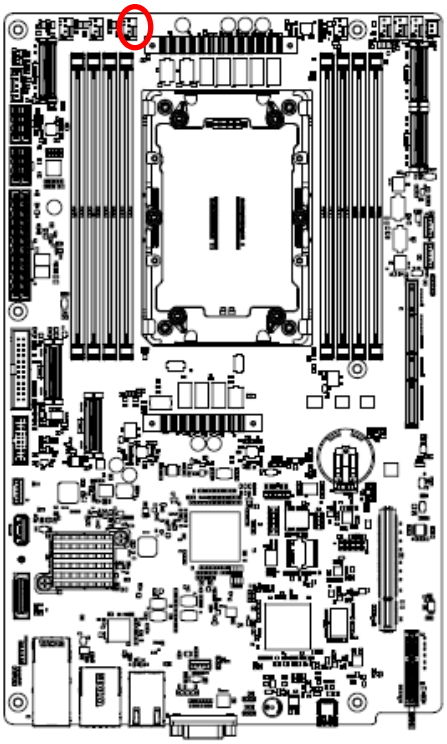
2.3.10 System fan connector 4 (SYS_FAN4)





Signal	PIN
SYS_PWM4	4
FAN_R2_TACH4	3
+12V	2
GND	1

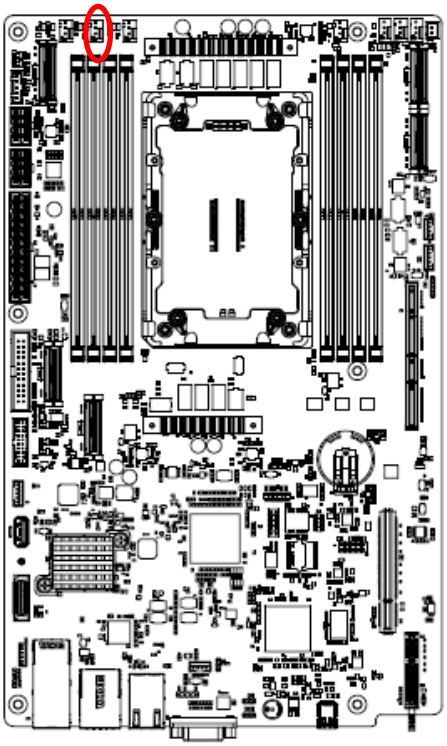
2.3.11 System fan connector 5 (SYS_FAN5)





Signal	PIN
SYS_PWM5	4
FAN_R2_TACH5	3
+12V	2
GND	1

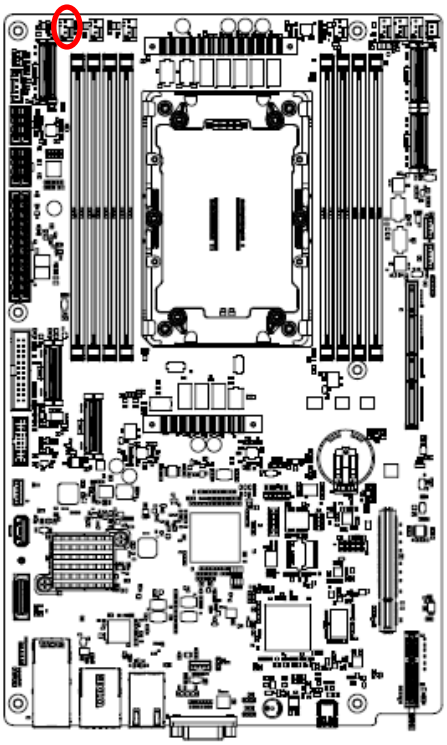
2.3.12 System fan connector 6 (SYS_FAN6)





Signal	PIN
SYS_PWM6	4
FAN_R2_TACH6	3
+12V	2
GND	1

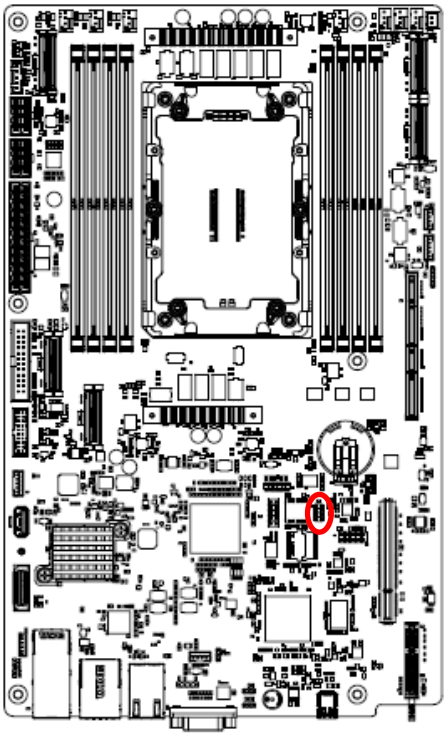
2.3.13 CPU fan connector 1 (CPU_FAN1)

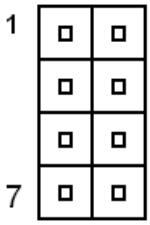




Signal	PIN
CPU0_PWM	4
FAN_R2_TACH0	3
+12V	2
GND	1

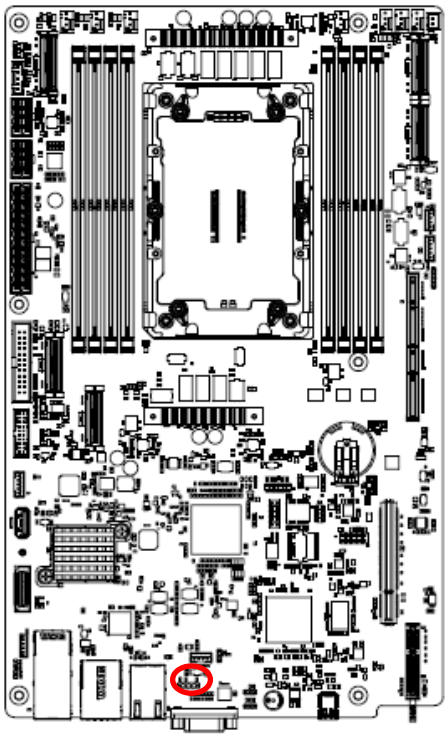
2.3.14 SPI connector (JSPI1)

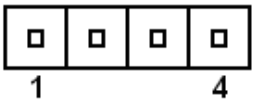




Signal	PIN	PIN	Signal
+1.8VSB	1	2	GND
SPI_DED_CS0_N	3	4	CPI_DED_CLK
SPI_DED_MISO	5	6	SPI_DED_MOSI
SPI_DED_IO3	7	8	SPI_DED_IO2

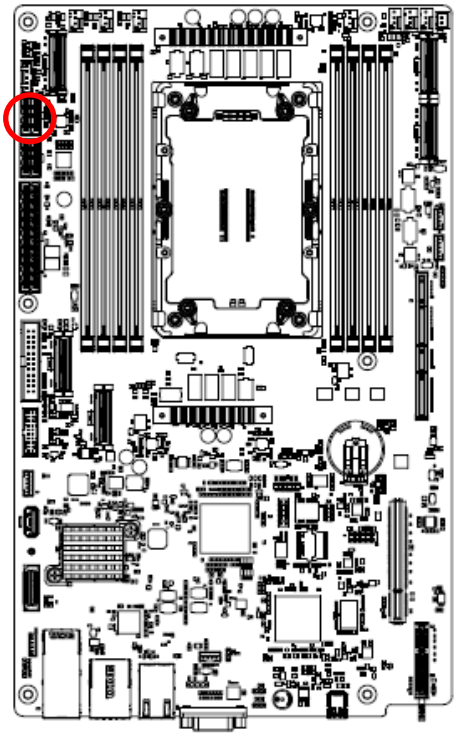
2.3.15 BMC_UART5 debug connector (JCOM5)

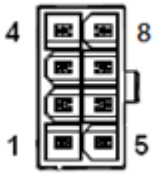




Signal	PIN
UART5_TX	1
UART5_RX	2
GND	3
+3.3VSB	4

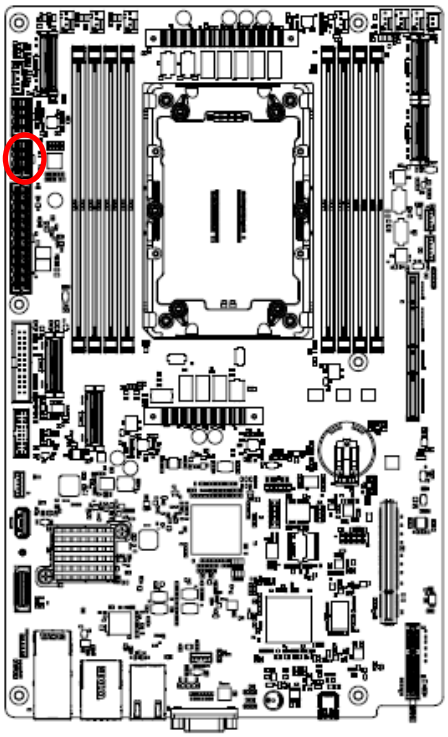
2.3.16 ATX 12V power connector 1 (ATX12V1)

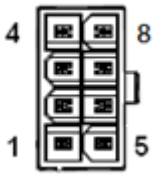




Signal	PIN	PIN	Signal
GND	4	8	+12V
GND	3	7	+12V
GND	2	6	+12V
GND	1	5	+12V

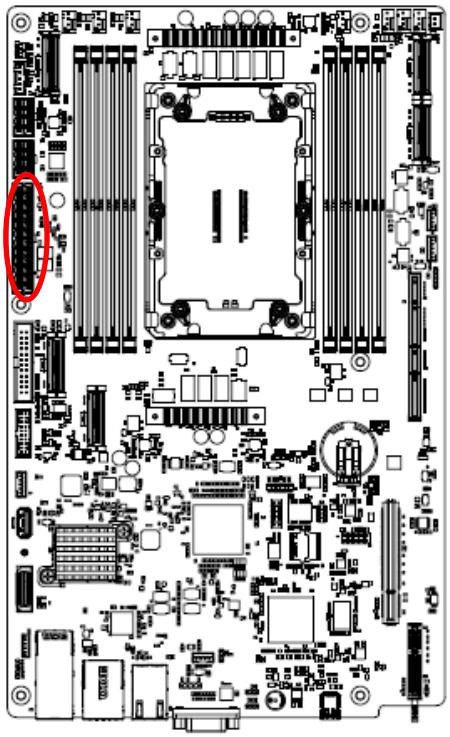
2.3.17 ATX 12V power connector 2 (ATX12V2)

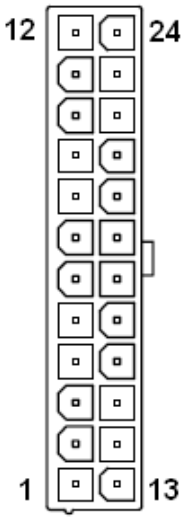




Signal	PIN	PIN	Signal
GND	4	8	+12V
GND	3	7	+12V
GND	2	6	+12V
GND	1	5	+12V

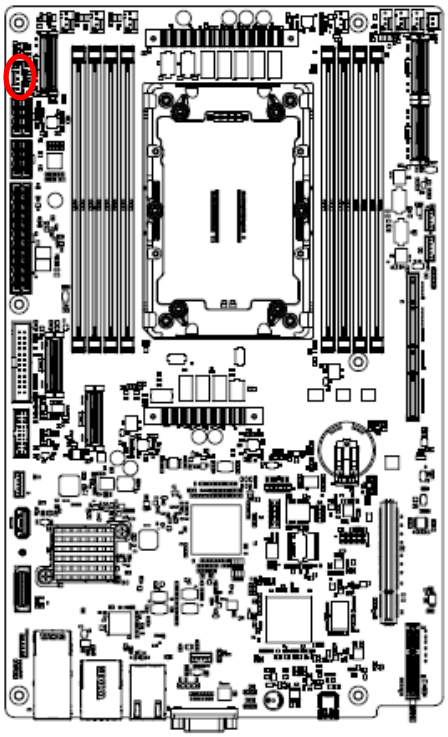
2.3.18 ATX power connector (ATXPWR1)

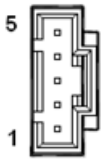




Signal	PIN	PIN	Signal
+3.3V	12	24	GND
+12V	11	23	+5V
+12V	10	22	+5V
+V5SB	9	21	+5V
PWRGD_PS_PWROK_R	8	20	NC
GND	7	19	GND
+5V	6	18	GND
GND	5	17	GND
+5V	4	16	FM_PS_EN_PSU_N
GND	3	15	GND
+3.3V	2	14	-12V
+3.3V	1	13	+3.3V

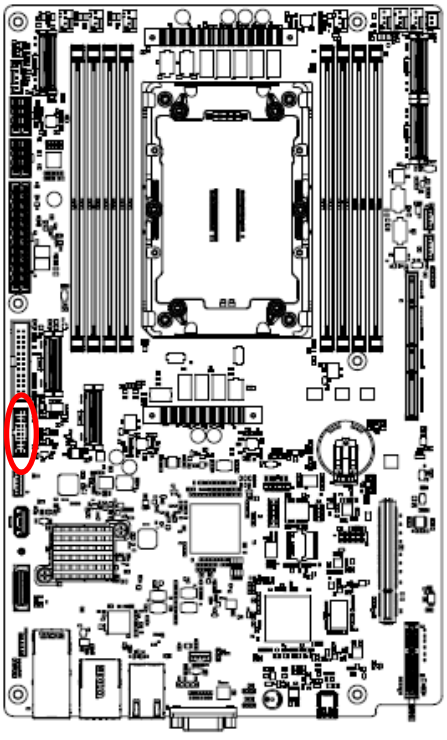
2.3.19 Power supply PMBus connector (JPMBUS1)

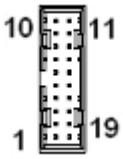




Signal	PIN
NC	5
GND	4
PSU_ALERT_z_N	3
PSU_z_SDA	2
PSU_z_SCL	1

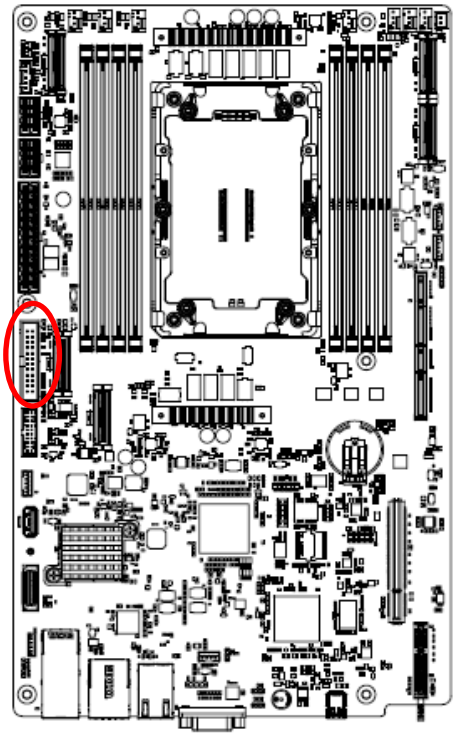
2.3.20 USB3.2 Gen1 connector (JUSB1)

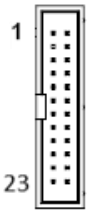




Signal	PIN	PIN	Signal
FRONTUSB3_OC1_N	10	11	USB_z_PP6
USB_z_PP5	9	12	USB_z_PN6
USB_z_PN5	8	13	GND
GND	7	14	USB3_z_TP6
USB3_z_TP5	6	15	USB3_z_TN6
USB3_z_TN5	5	16	GND
GND	4	17	USB3_z_RP6
USB3_z_RP5	3	18	USB3_z_RN6
USB3_z_RN5	2	19	+5V
+5V	1		

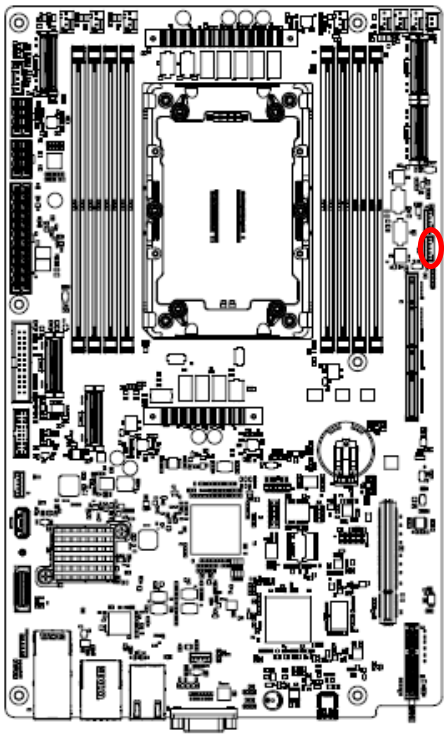
2.3.21 Front Panel connector (JFP2)





Signal	PIN	PIN	Signal
+3.3VSB	1	2	+3.3VSB
		4	FRONT_UID_LED_P
PWRLED_R_N	5	6	FRONT_UID_LED_N
HDD_LED_P	7	8	STATUS_LED_N
LED_HDD_ACTIVITY_N	9	10	STATUS_LED_P
FP_PWR_BTN_N_R	11	12	LAN1_FRONT_LED_ACT_P
GND	13	14	LAN1_LED_ACT_N
FP_RST_BTN_N_R	15	16	SMB_FP_SDA
GND	17	18	SMB_FP_SCL
FP_UID_BTN_N_R	19	20	FP_CHASSIS_INTRUSION
NC	21	22	LAN2_FRONT_LED_ACT_P
FP_NMI_BTN_N_R	23	24	LAN2_LED_ACT_N

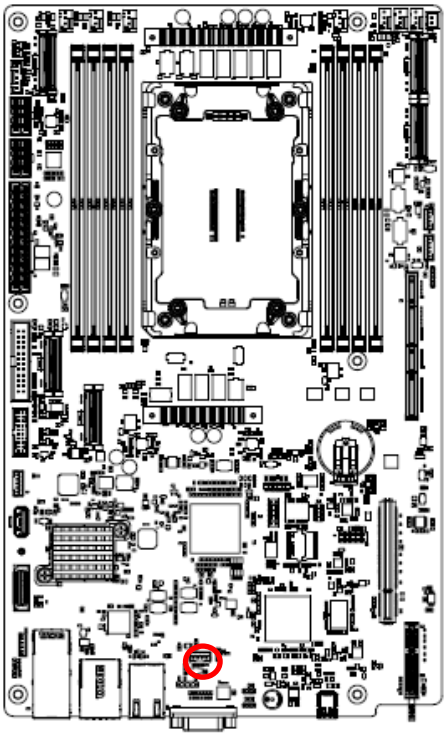
2.3.22 Inlet Thermal Sensor (JINLET_SER1)

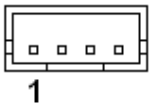




Signal	PIN
+3.3VSB	4
SMB_INLET_TEMPSENSOR_SDA	3
SMB_INLET_TEMPSENSOR_SCL	2
GND	1

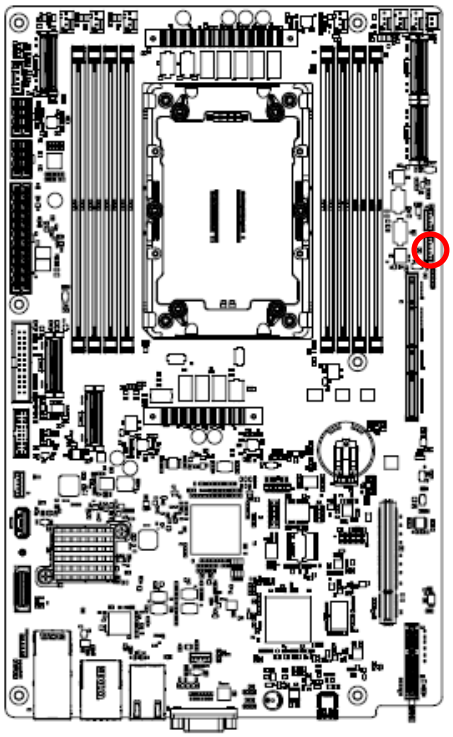
2.3.23 Outlet Thermal Sensor (JOUTLET_SER1)





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

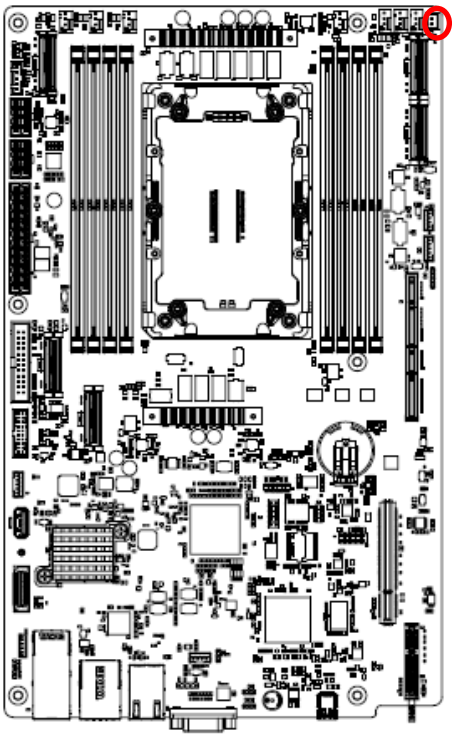
2.3.24 HDD Backplane thermal Sensor (JHDD_SER1)





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

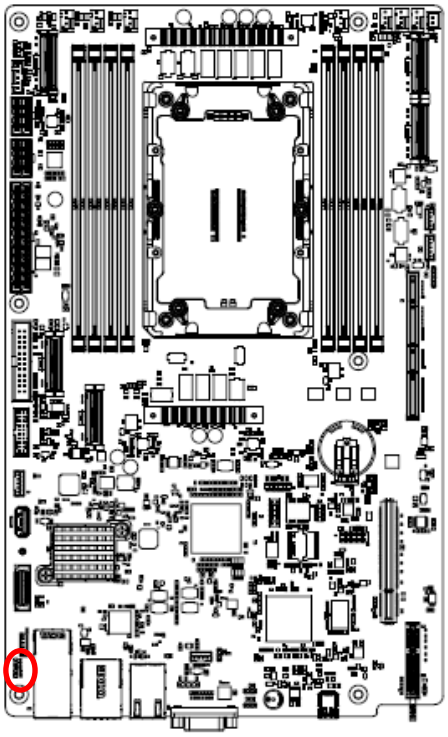
2.3.25 CASE OPEN connector (JCASE_OPEN1)





Signal	PIN
GND	2
FP_CHASSIS_INTRUSION	1

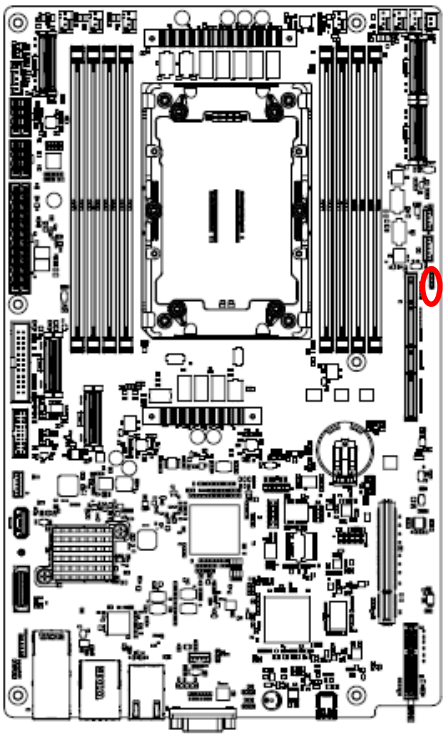
2.3.26 VROC RAID KEY connector (JRAID_KEY1)

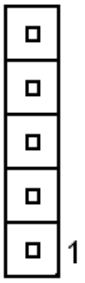




Signal	PIN
GND	1
PU_VROC_HW_KEY_CONN_PIN2_R	2
GND	3
FM_VROC_HW_KEY_R_LVC3	4

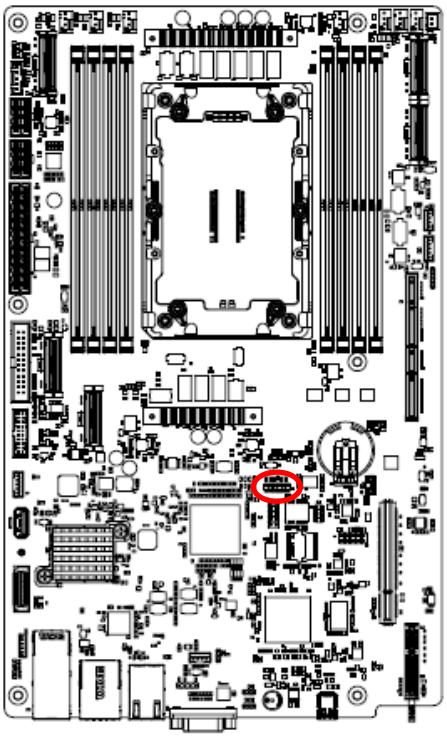
2.3.27 CPU PCIE HP SMB connector (JPEHPSMB1)

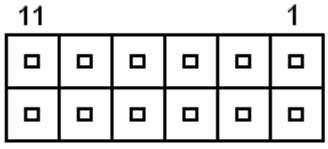




Signal	PIN
FM_SMB_CPU0_ALERT_N	5
GND	4
SMB_PEHPCPU0_LVC3_SDA_JP	3
GND	2
SMB_PEHPCPU0_LVC3_SCL_JP	1

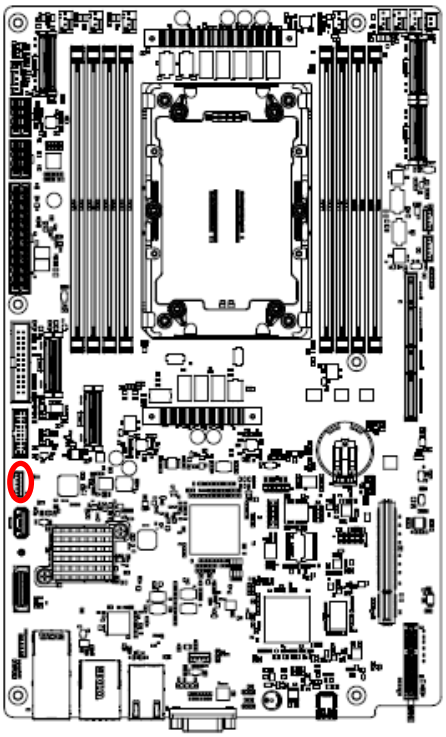
2.3.28 ESPI connector (JESPI1)





Signal	PIN	PIN	Signal
ESPI_CONN_D0_P1V8	1	2	+3.3VSB
ESPI_CONN_D1_P1V8	3	4	RST_PLTRST_LPC_HEADER_N
ESPI_CONN_D2_P1V8	5	6	ESPI_CONN_CS_P1V8
_NESPI_CONN_D3_P1V8	7	8	ESPI_CONN_CLK_P1V8
NC	9	10	GND
ESPI_CONN_RESET_P1V8_N	11	12	ESPI_CONN_ALERT_P1V8_N

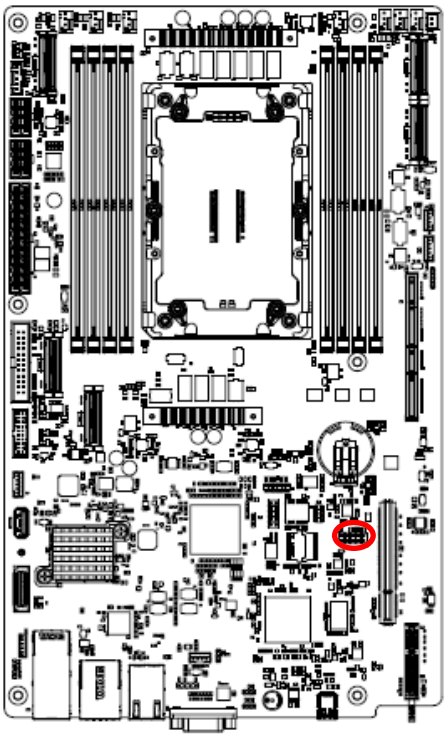
2.3.29 USB2.0 connector (USB1)

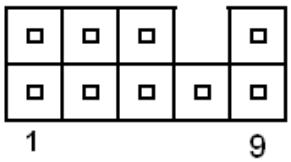




Signal	PIN
GND	1
GND	2
USB_z_PP7	3
USB_z_PN7	4
+5V	5

2.3.30 TPM connector (JTPM1)

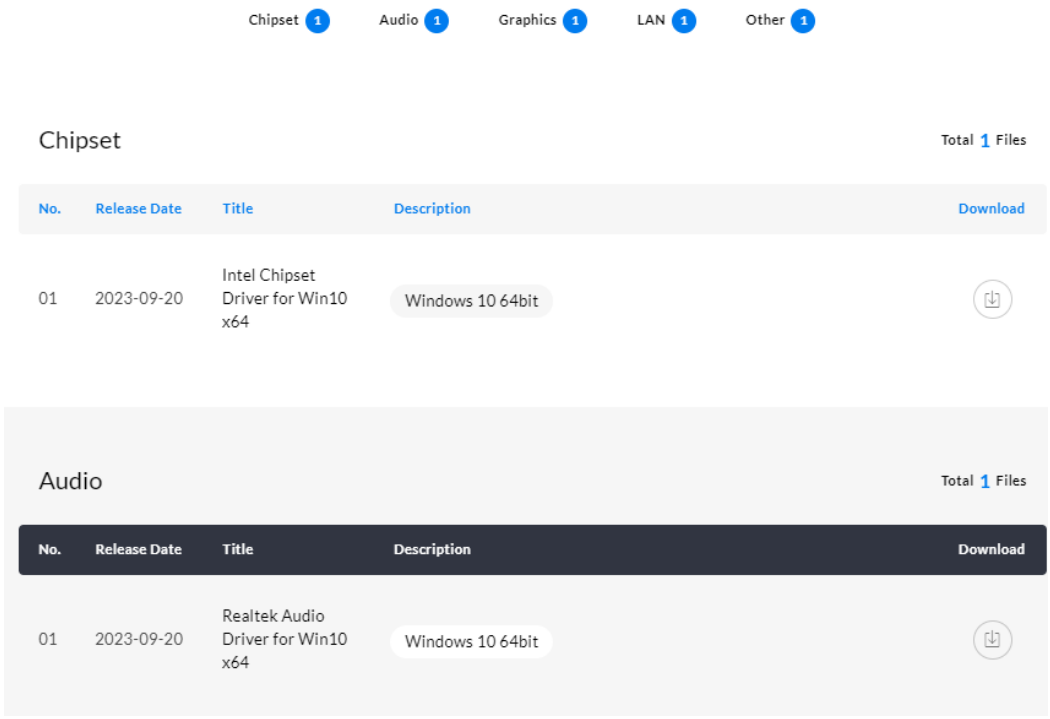




Signal	PIN	PIN	Signal
+V1.8S_+V3.3S_JTPM_CONN	1	2	SPI_CPU0_TPM_CONN_CS_N
RST_CPU0_PLTRST_TPM_CONN_N	3	4	SPI_CPU0_TPM_CONN_MISO
SPI_CPU0_TPM_CONN_CLK	5	6	GND
SPI_CPU0_TPM_CONN_MOSI	7		
+VCCFA_EHV_+V1.8A_CPU0	9	10	IRQ_CPU0_TPM_CONN_PIRQ_N

3. Drivers Installation

All the drivers are available on Downloads Area. Type the model name and press Enter to find all the relevant software, utilities, and documentation.



(For reference only)

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 website.

Note: The installation procedures and screen shots in this section are based on Windows 11 operation system. If the warning message appears while the installation process, click Continue to go on.



Step 3. Click **Install**.



Step1. Click **Next**.



Step 4. Click **Finish** to complete setup.

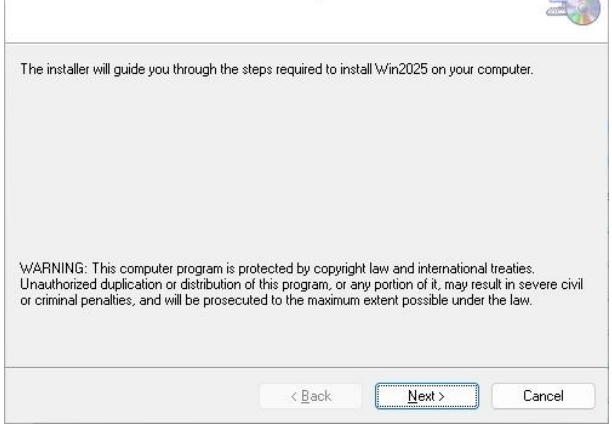


Step 2. Click **Accept**.

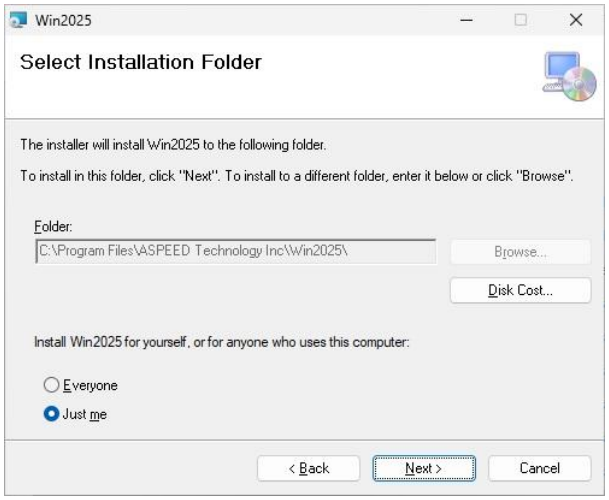
3.2 Install VGA Driver

All drivers can be found on the website.

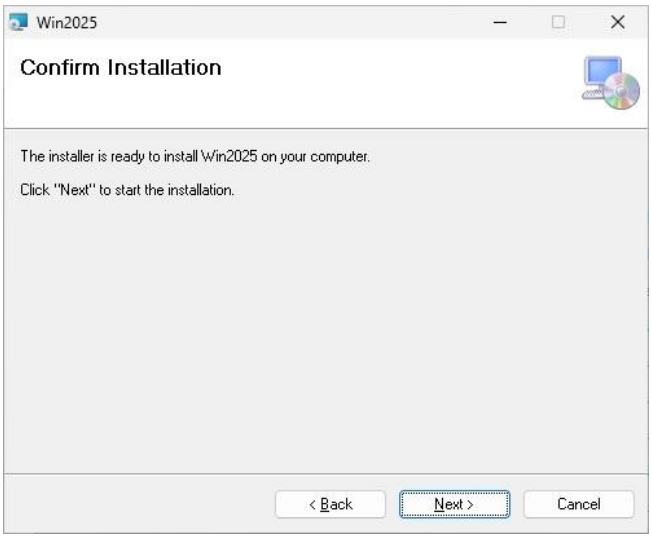
Note: The installation procedures and screen shots in this section are based on Windows 11 operation system.



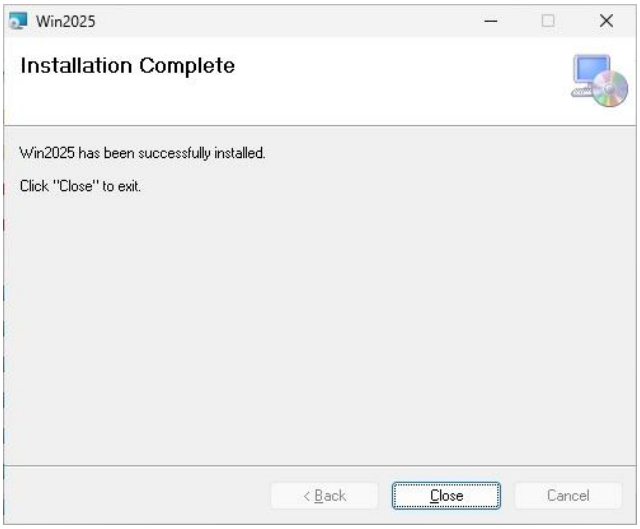
Step 1. Click **Next** to continue installation.



Step 2. Click **Next**.



Step 3. Click **Next.**



Step 4. Setup completed.

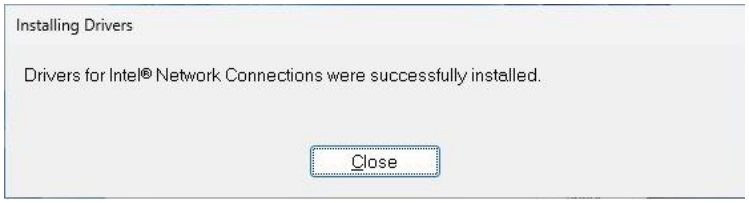
3.3 Install Ethernet Driver

All drivers can be found on the website.

Note: The installation procedures and screen shots in this section are based on Windows 11 operation system.



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

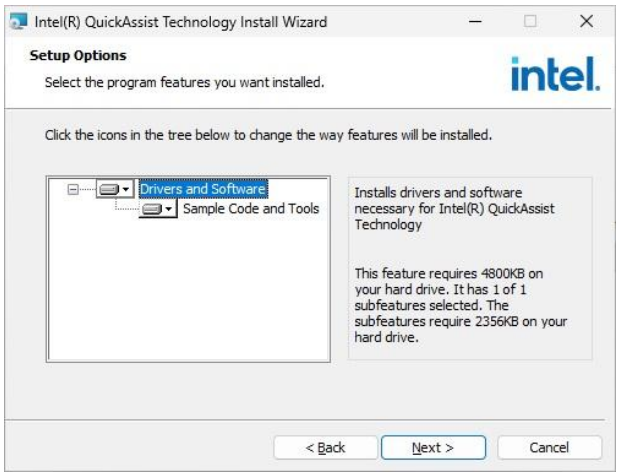


Step 2. Setup completed.

3.4 Install QuickAssist Technology Driver

All drivers can be found on the website.

Note: The installation procedures and screen shots in this section are based on Windows 11 operation system.



Step 3. Click **Next**.



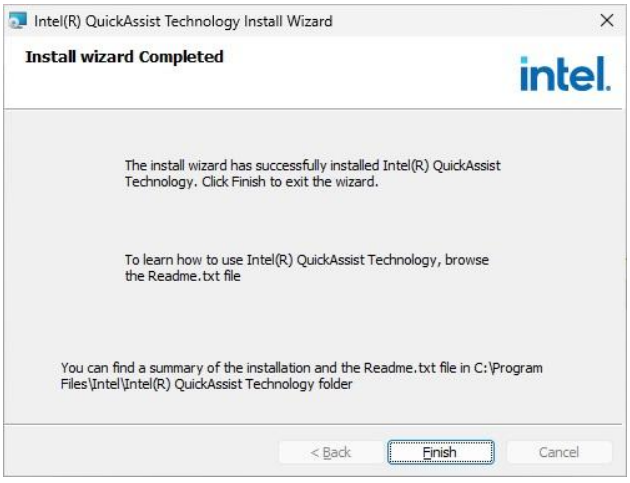
Step 1. Click **Next** to continue installation.



Step 4. Click **Install**.



Step 2. Click **Next**.

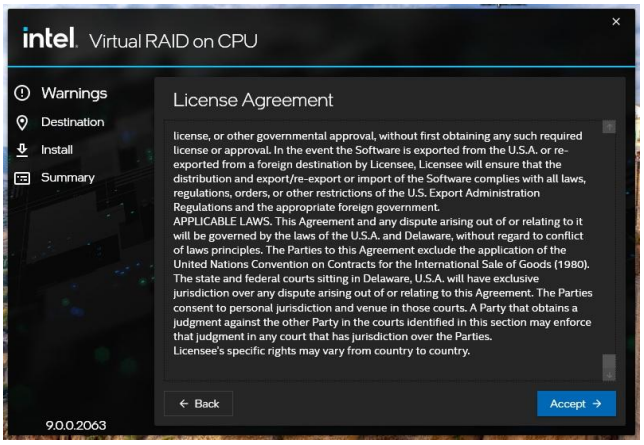


Step 5. Click **Finish** to complete setup.

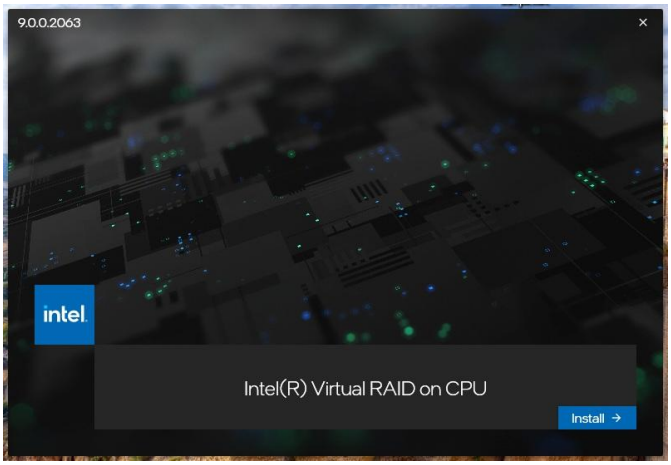
3.5 Install VROC Driver

All drivers can be found on the website.

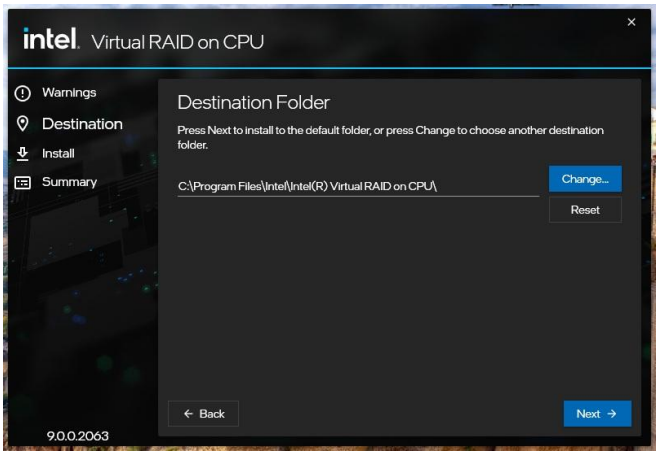
Note: The installation procedures and screen shots in this section are based on Windows 11 operation system.



Step 3. Click **Accept**.



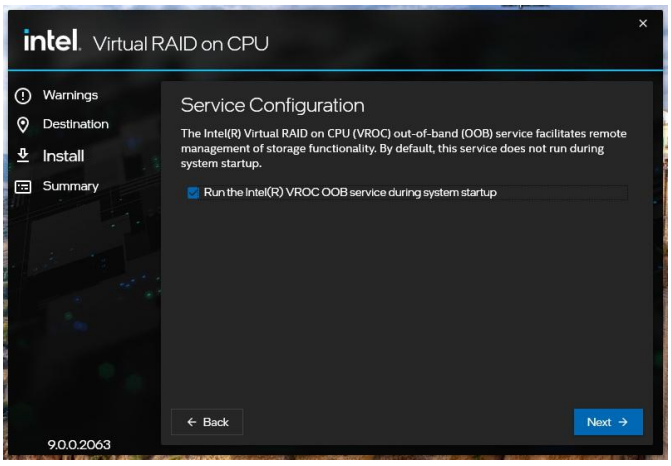
Step 1. Click **Install** to continue installation.



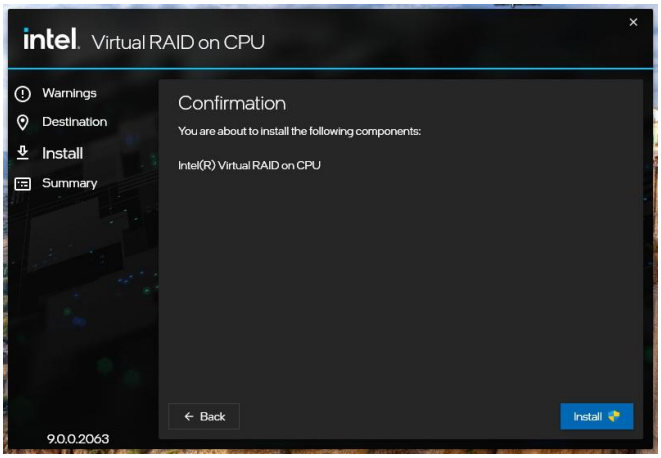
Step 4. Click **Next**.



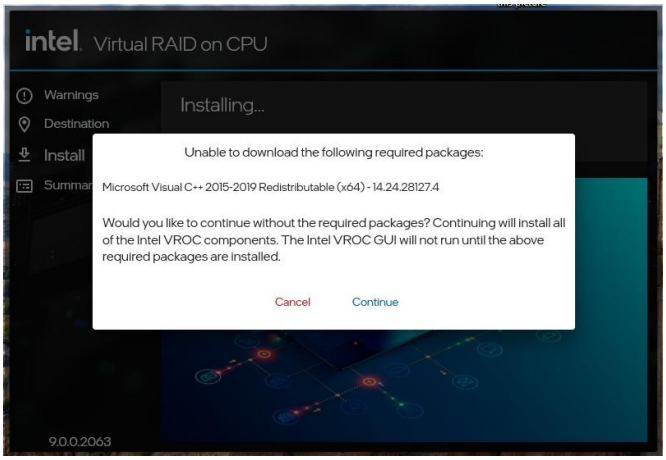
Step 2. Click **Next**.



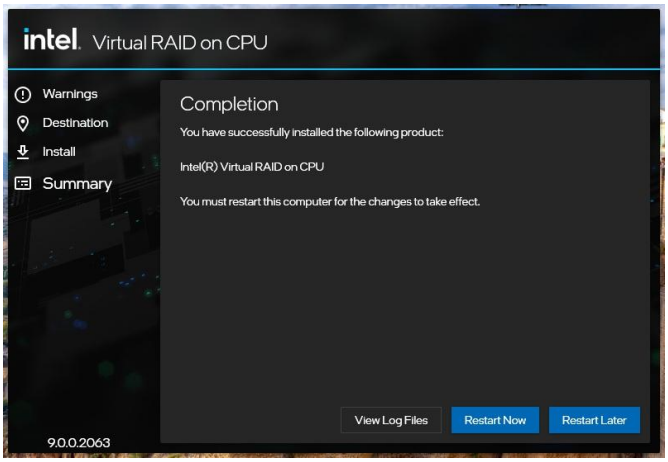
Step 5. Click **Next**.



Step 6. Click **Install**.



Step 7. Click **Continue**.



Step 8. 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 <Del> immediately after switching the system on, or
By pressing the < ESC> or <Del> key when the following message appears briefly at the left-top of the screen during the POST (Power On Self Test).

Press <ESC> or <Del> 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.

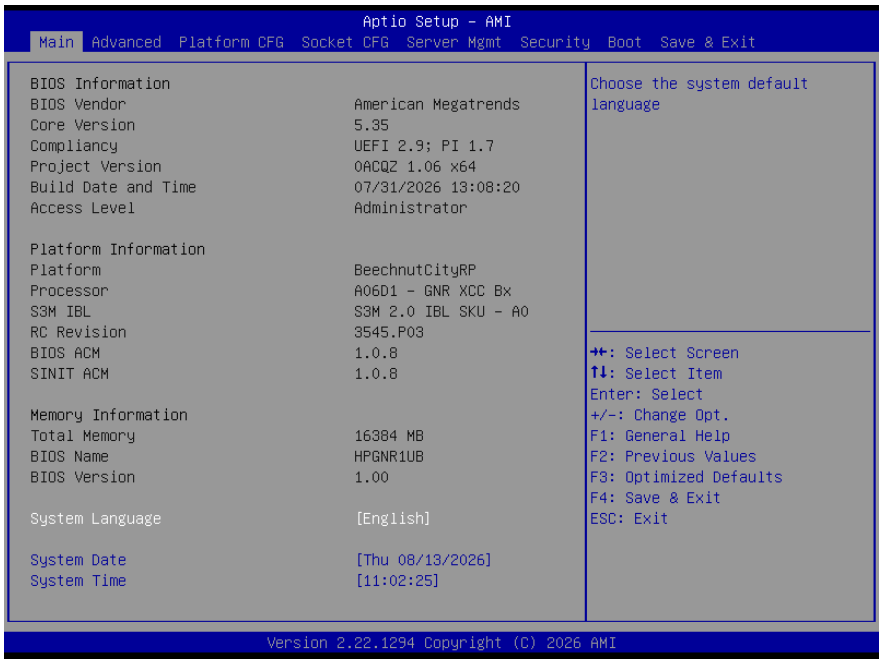
The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both BIOS Vendor and your systems manufacturer to provide the absolute maximum performance 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.

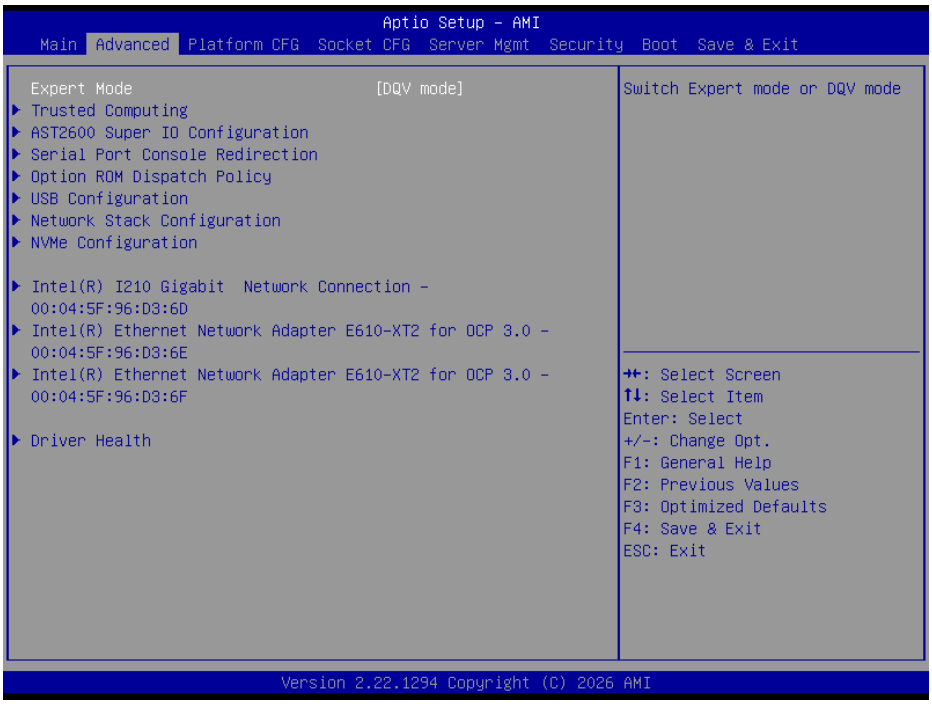
4.6.1.3 System Time

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

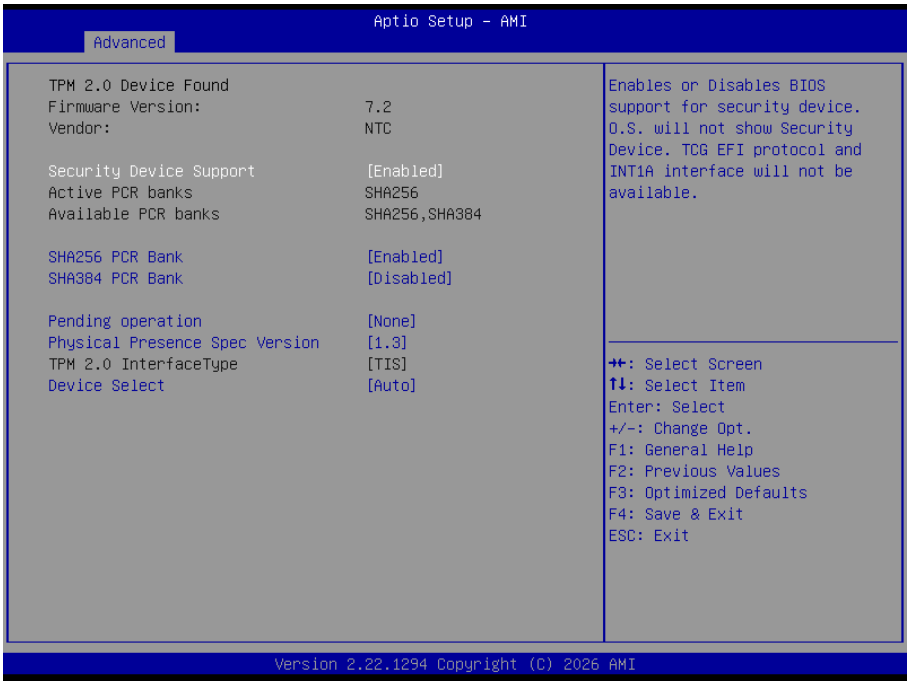
Note: The BIOS setup screens shown in this chapter are for reference purposes only, and may not exactly match what you see on your screen.
Visit the website to download the latest product and BIOS information.

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.



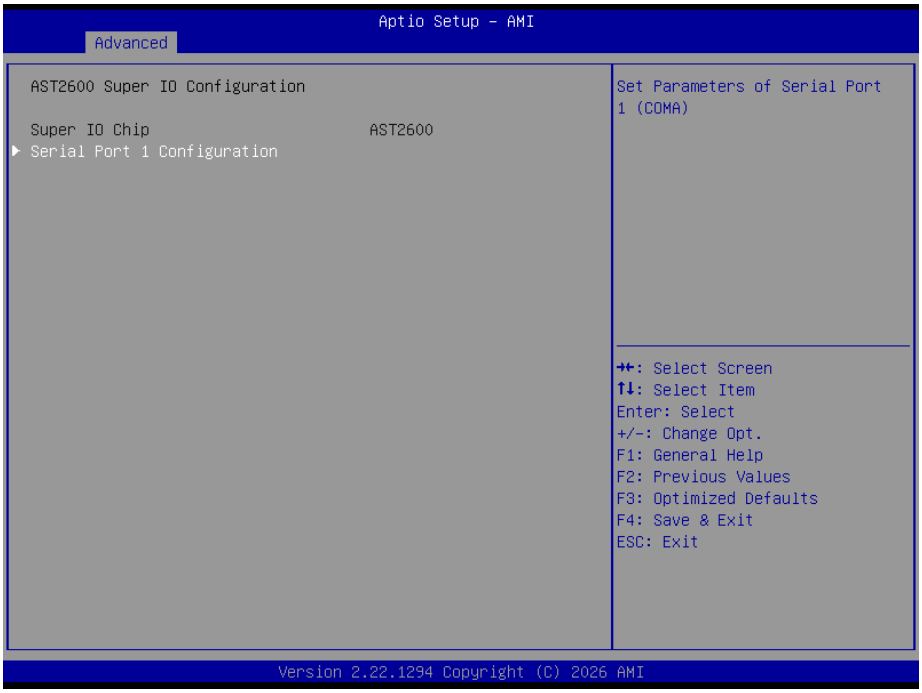
4.6.2.1 Trusted Computing



	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.
SHA256 PCR Bank	Disabled, Enabled**[Default]**	Enables or Disables SHA256 PCR Bank.

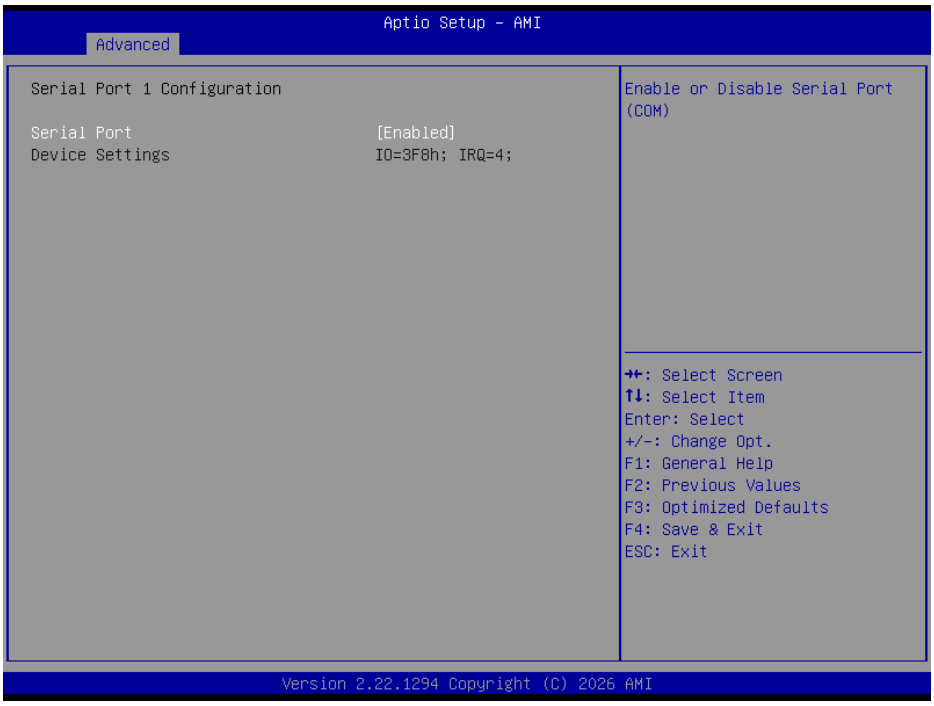
SHA384 PCR Bank	Disabled**[Default]**, Enabled	Enables or Disables SHA384 PCR Bank.
Pending operation	None**[Default]** TPM Clear	Schedule an Operation for the Security Device. NOTE: Your Computer will reboot during restart in order to change State of Security Device.
Physical Presence Spec Version	1.2 1.3**[Default]**	Select to Tell O.S. to support PPI Spec Version 1.2 or1.3 Note some HCK tests might not support 1.3.
Device Select	TPM 2.0 Auto**[Default]**	TPM 1.2 will restrict support to TPM 1.2 devices, TPM 2.0 will restrict support to TPM 2.0 devices, Auto will support both with default set to TPM 2.0 devices if not found, TPM 1.2 devices will be enumerated.

4.6.2.2 AST2600 Super IO Configuration



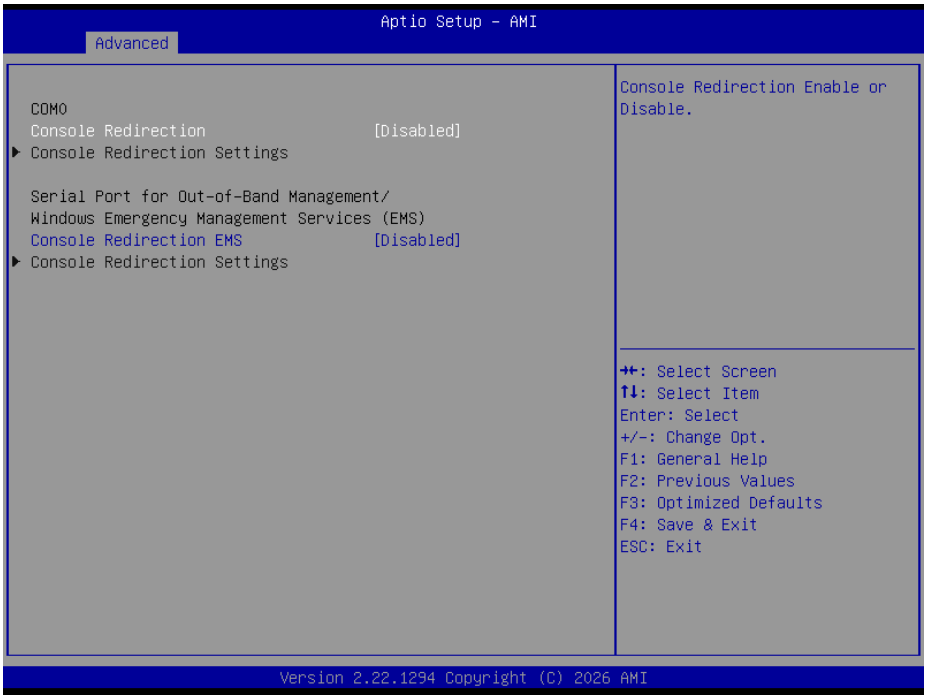
Item	Description
Serial Port 1 Configuration	Set Parameters of Serial Port 1 (COMA).

4.6.2.2.1 Serial Port 1 Configuration



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

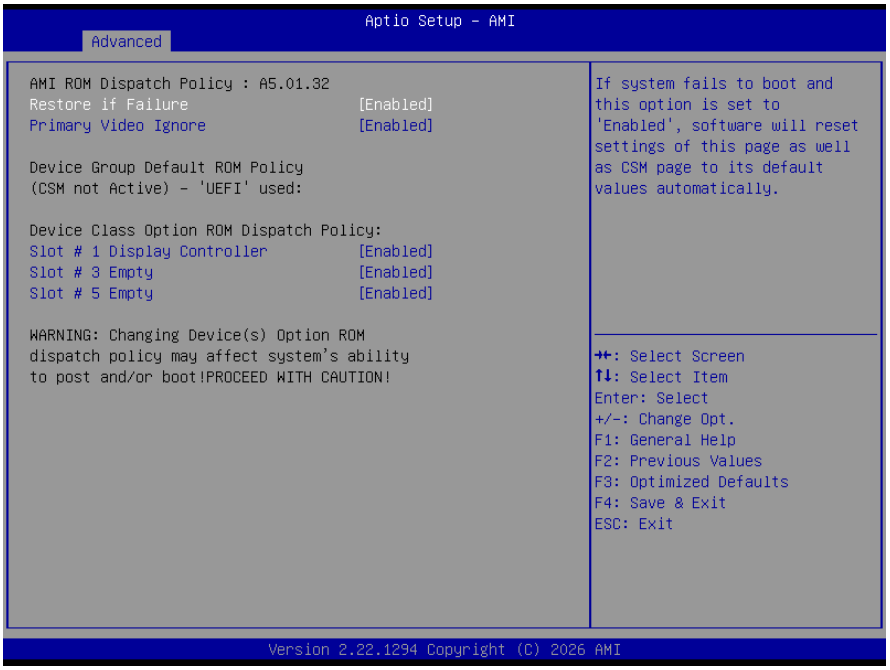
4.6.2.3 Serial Port Console Redirection



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

Console Redirection EMS	Disabled**[Default]**, Enabled	Console Redirection Enable or Disable.

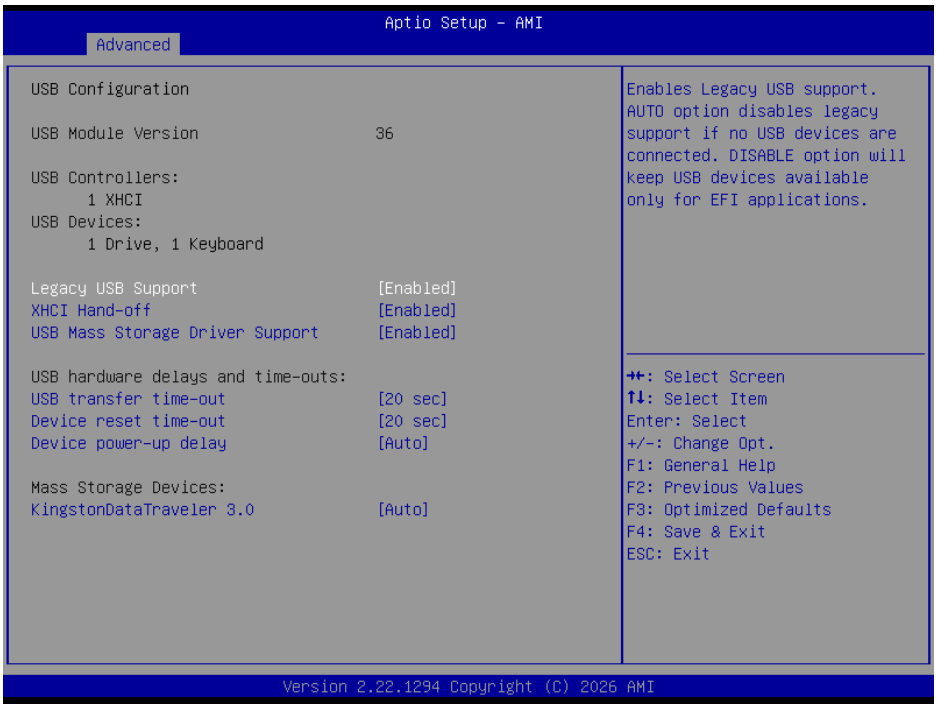
4.6.2.4 Option ROM Dispatch Policy



Item	Options	Description
Restore if Failure	Disabled Enabled**[Default]**,	If system fails to boot and this option is set to 'Enabled', software will reset settings of this page as well as CSM page to its default values automatically.
Primary Video Ignore	Disabled Enabled**[Default]**,	If software will detect that due to the Policy settings. Option ROM of Primary Video Device will not dispatch, it will ignore this device policy settings, and restore it to 'Enable' automatically.
Slot#1 Empty	Enabled**[Default],** Disabled	Enable or Disable Option ROM execution for selected Slot.
Slot#3 Empty	Enabled**[Default],** Disabled	Enable or Disable Option ROM execution for selected Slot.
Slot#5 Empty	Enabled**[Default],** Disabled	Enable or Disable Option ROM execution for selected Slot.

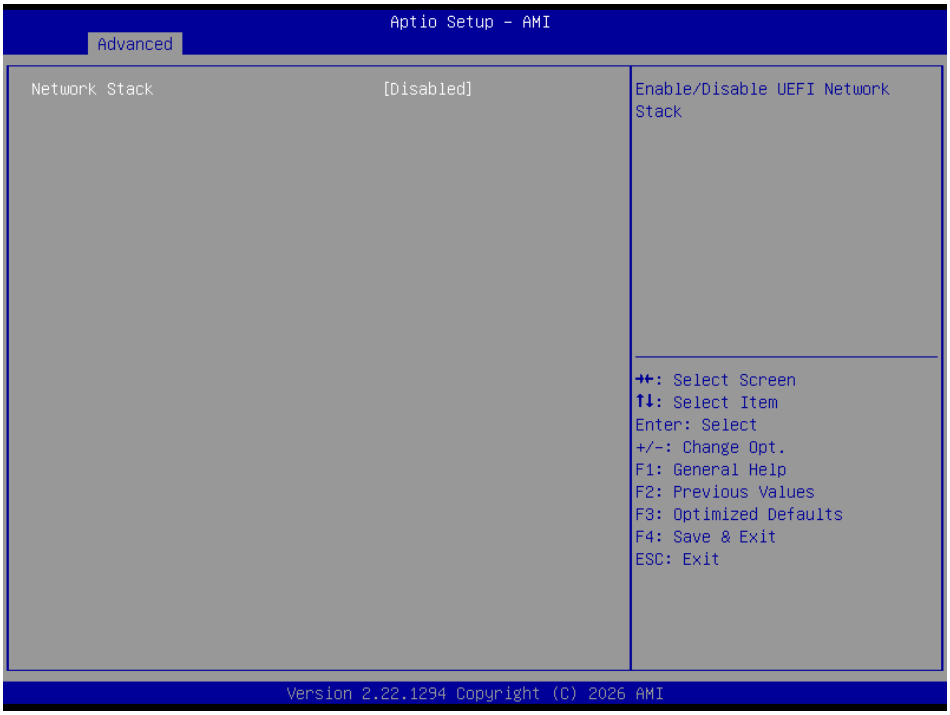
4.6.2.5 USB Configuration

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



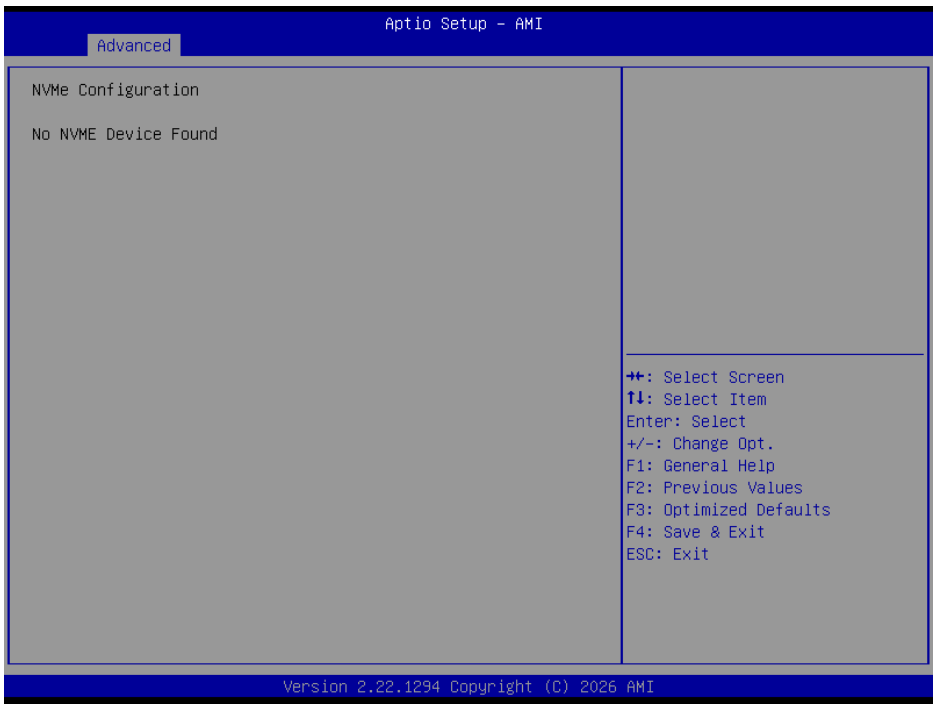
Item	Options	Description
Legacy USB Support	Enabled**[Default]**, Disabled Auto	Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.
XHCI Hand-off	Enabled**[Default]**, Disabled	This 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	Disabled Enabled**[Default]**,	Enable/Disable USB Mass Storage Driver Support.
USB transfer time-out	1 sec 5 sec 10 sec 20 sec**[Default]**	The time-out value for Control, Bulk, and Interrupt transfers.
Device reset time-out	10 sec 20 sec**[Default]** 30 sec 40 sec	USB mass storage device Start Unit command time-out.
Device power-up delay	Auto**[Default]** Manual	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 100 ms, for a Hub port the delay is taken from Hub descriptor.
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.

4.6.2.6 Network Stack Configuration

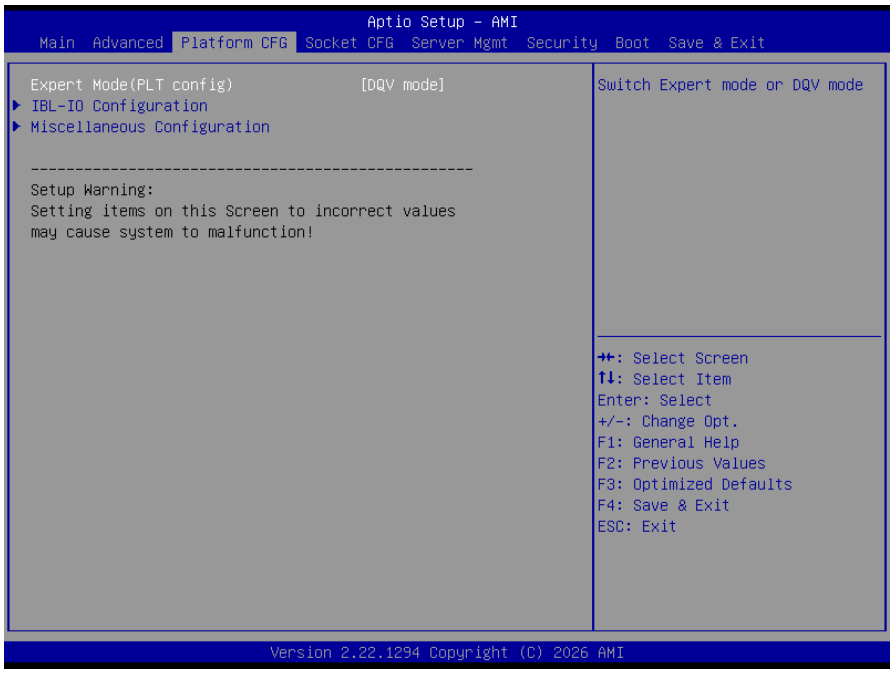


Item	Option	Description
Network stack	Enabled Disabled**[Default]**	Enable/Disable UEFI Network Stack.

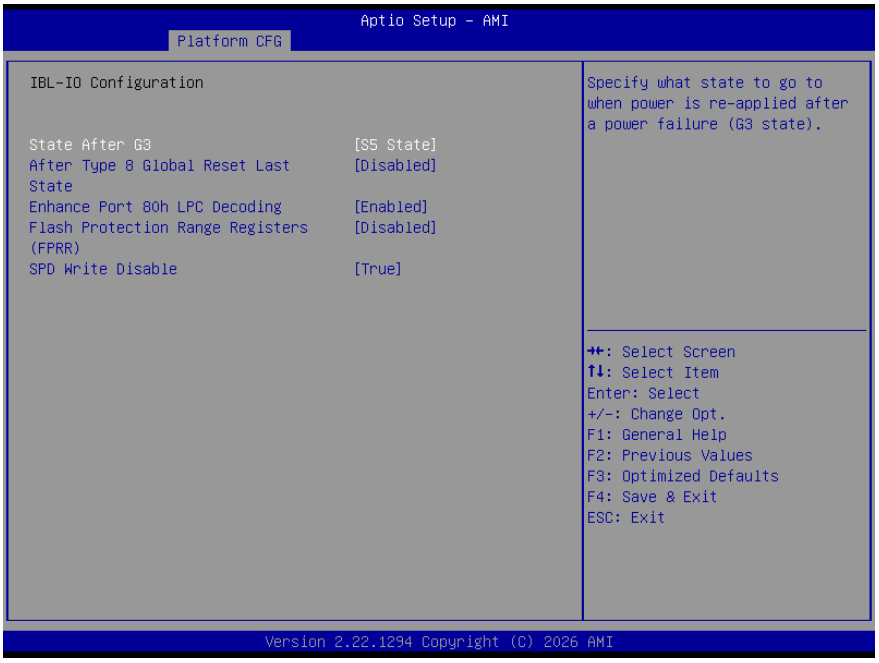
4.6.2.7 NVMe Configuration



4.6.3 Platform Config



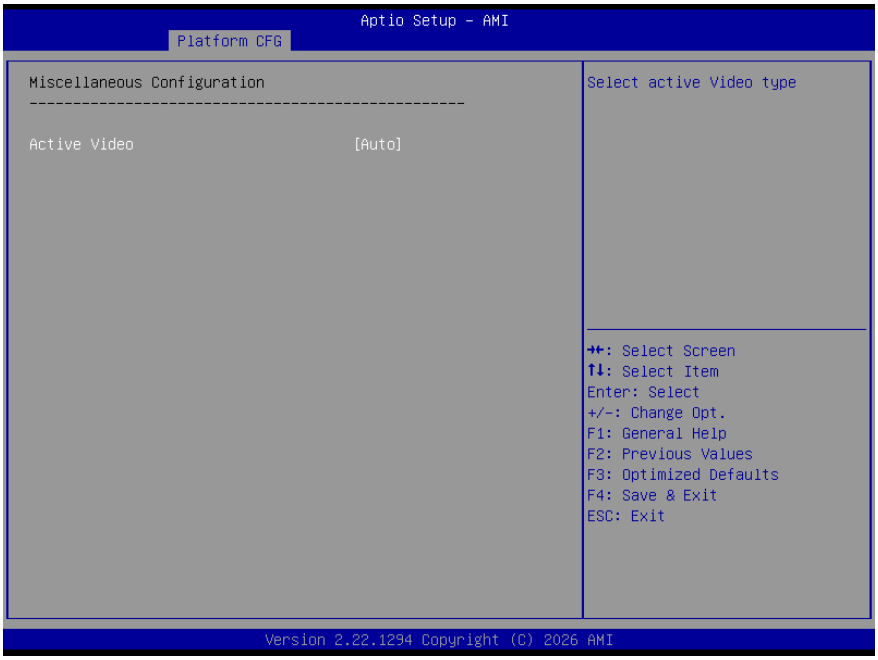
4.6.3.1 IBL-IO Configuration



Item	Option	Description
State After G3	S0 State S5 State**[Default]**	Specify what state to go to when power is re-applied after a power failure (G3 state).
After Type 8 Global Reset Last State	Disabled**[Default]** Enabled	Specify whether platform's previous state will be considered when deternining whether to power-up after non-thernal and non-explicitly requested type 8 globeal resets.
Enhance Port 80h LPC Decoding	Disabled Enabled**[Default]**	Support the word/dword decoding of port 80h behind LPC.

Flash Protection Range Registers (FRRR)	Disabled**[Default]** Enabled	Enable Flash Protection Range Registers.
SPD Write Disable	True**[Default]** False	Enable/Disable setting SPD Write Disable.

4.6.3.2 Miscellaneous Configuration

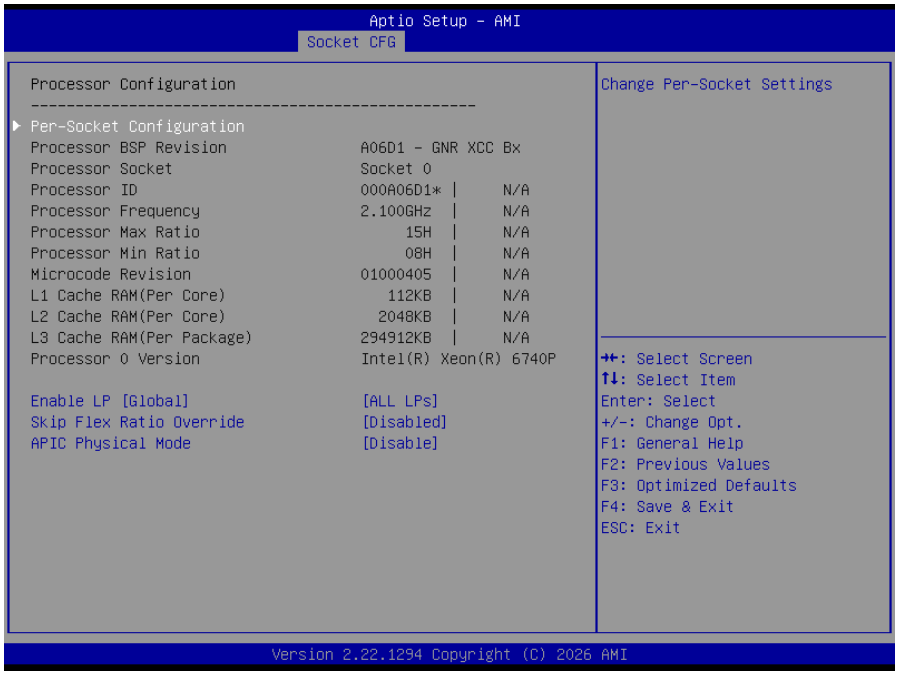


Item	Option	Description
Active Video	Auto**[Default]** Onboard Device(BMC VGA) PCIE Device	Select active Video type. Early display always output to BMC-VGA. BIOS P.O.S.T display output to PCIe if system have discrete GPU with Option Auto/PCIe-Device.

4.6.4 Socket Config

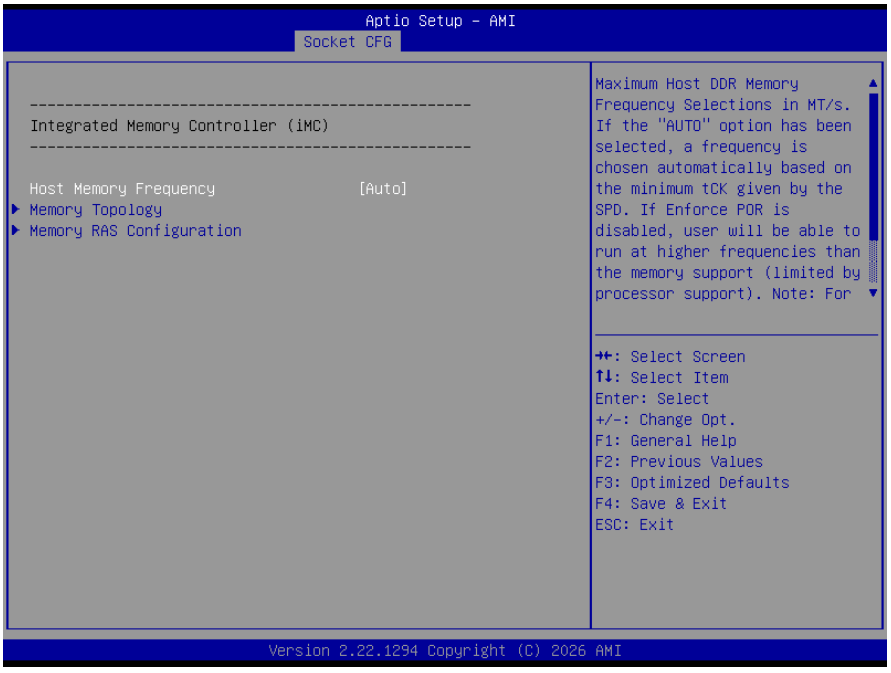


4.6.4.1 Processor Configuration



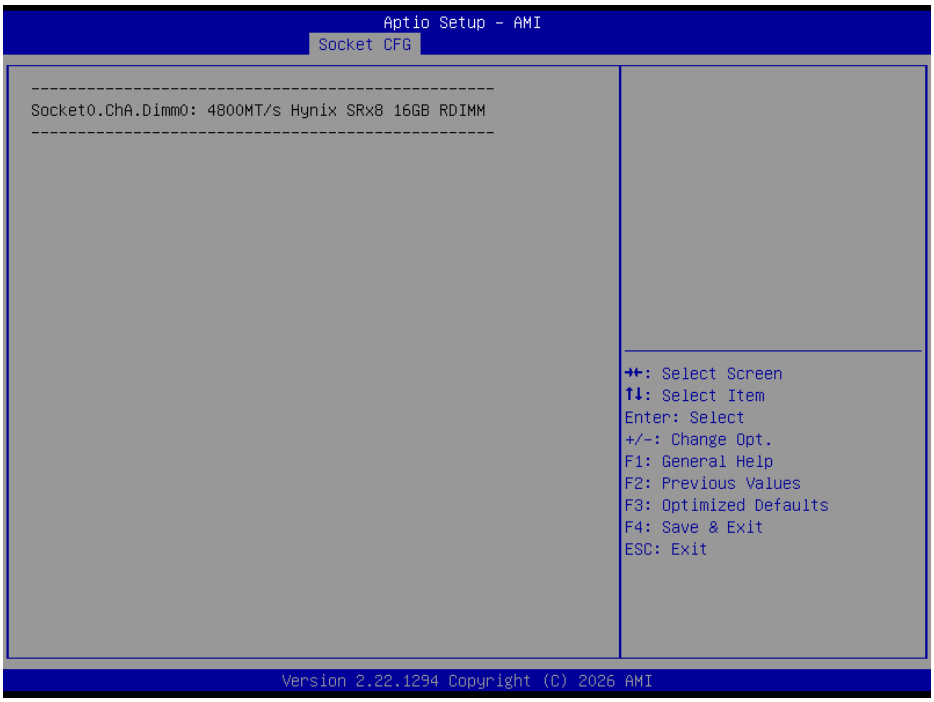
Item	Option	Description
Enable LP [Global]	All LPs**[Default]** Single LP Two LPs	Enables Logical processor (Software Method o Enable/Disable Logical Processor threads).
Skip Flex Ratio Override	Disabled**[Default]** Enabled	Skip Flex Ratio override to use power-on default Flex Ratio values. In multi-socket systems, this will allow mixed flex ratio limits.
APIC Physical Mode	Disabled**[Default]** Enabled	Enable/Disable the APIC physical destination mode.

4.6.4.2 Memory Configuration

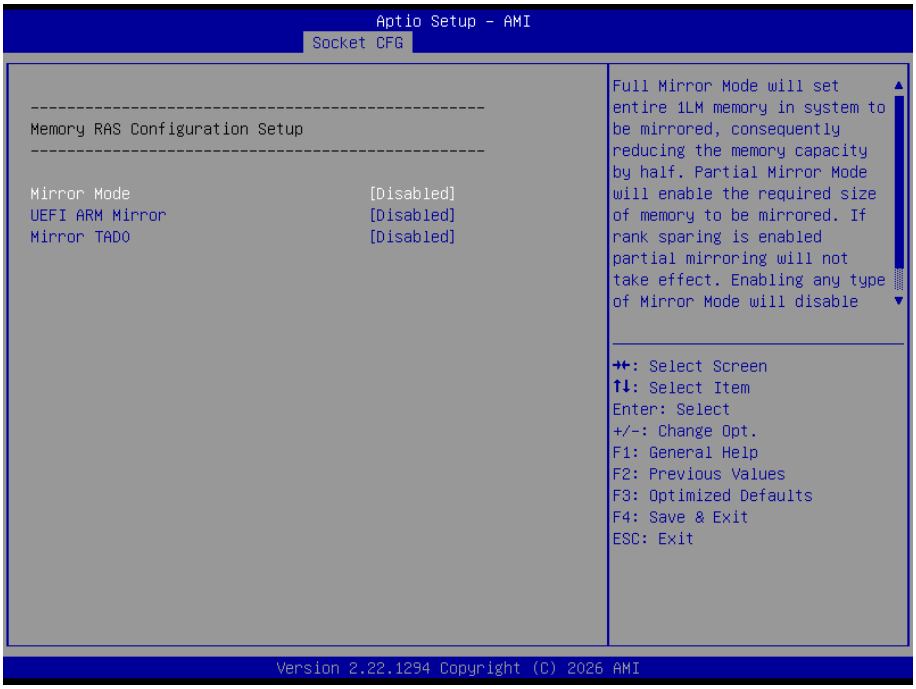


Item	Option	Description
Memory Frequency	Auto**[Default]** 3200 3600 4000 4400 4800 5200 5600	Maximum Memory Frequency Selections in MT/s. If Enforce POR is disabled, user will be able to run at higher frequencies than the memory suppot (limited by processor support). Do not select Reserved.

4.6.4.2.1 Memory Topology

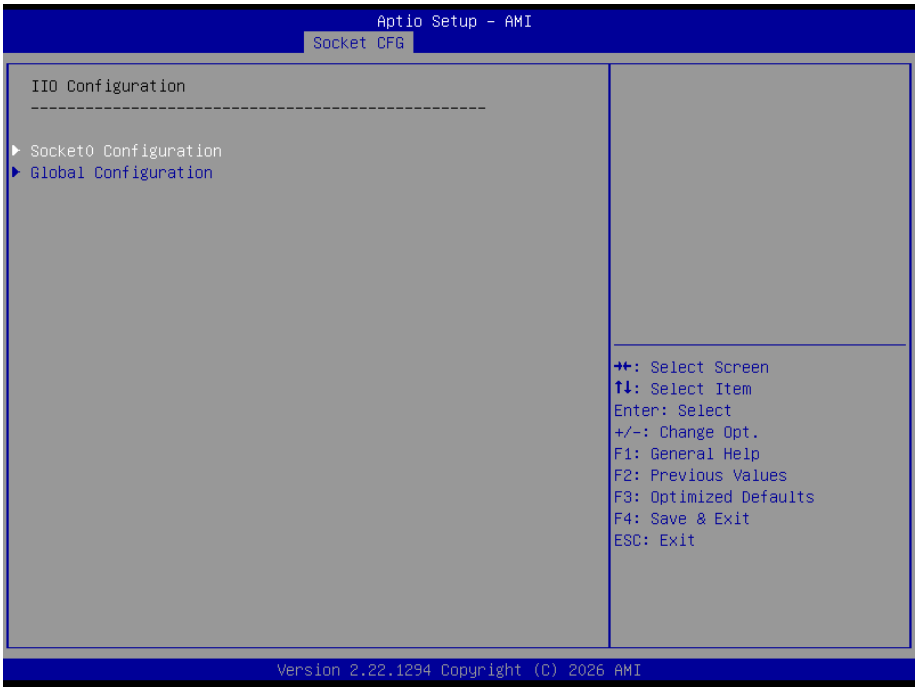


4.6.4.2.2 Memory RAS Configuration

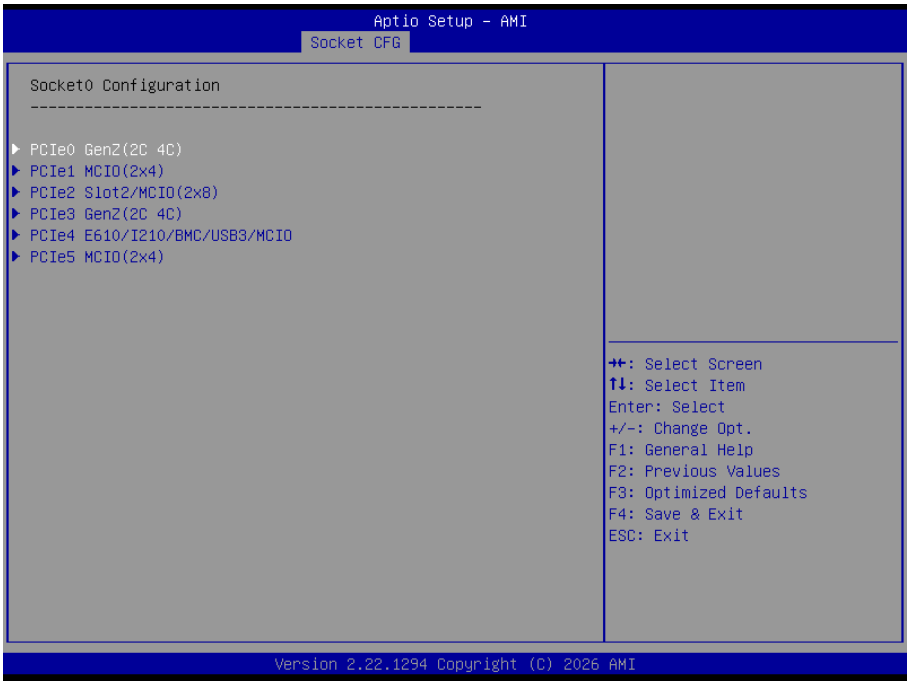


Item	Option	Description
Mirror Mode	Disabled**[Default]** Full Mirror Mode	Full Mirror Mode will set entire 1LM memory in system to be mirrored, consequently reducing the memory capacity by half, Partial Mirror Mode will enable the required size of memory to be mirrored. If rank sparing is enabled partial mirroring will not take effect. Enabling any type of Mirror Mode will disable XPT Prefetch.
UEFI ARM Mirror	Disabled**[Default]** Enabled	Imitate behavior of UEFI based Address Range Mirror with setup option.
Mirror TAD0	Disabled**[Default]** Enabled	Enable Mirror on entire memory for TAD0.

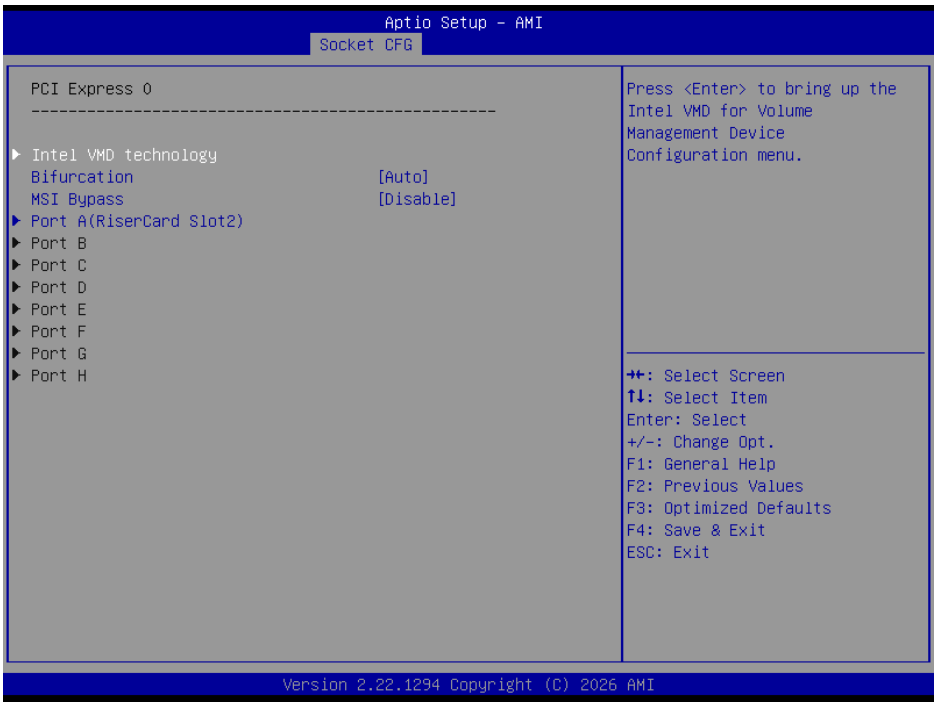
4.6.4.3 IIO Configuration



4.6.4.3.1 Socket0 Configuration

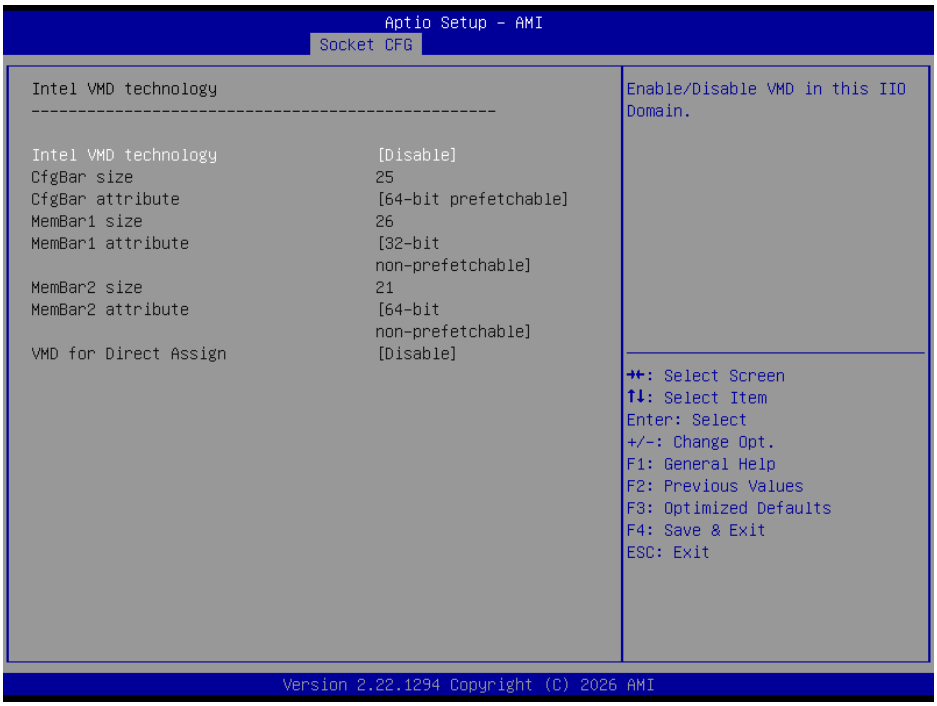


4.6.4.3.1.1 PCI Express 0



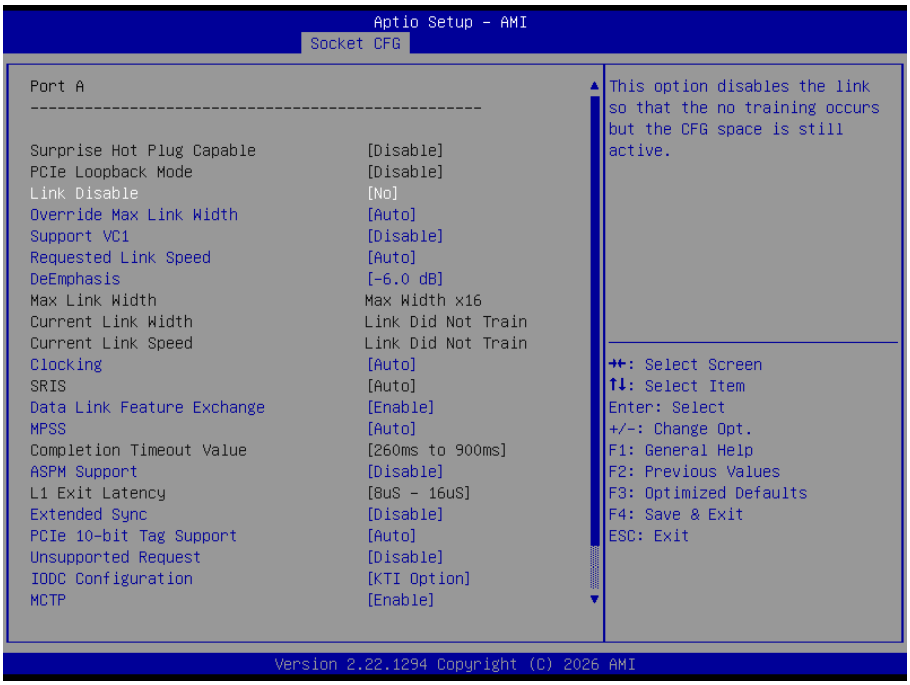
Item	Option	Description
Bifurcation	Auto**[Default]** x4x4x4x4 x4x4x_x8 x_x8x4x4 x_x8x_x8 x_x_x_x16 x2x2x4x_x8 x4x2x2x_x8 x_x8x2x2x4 x2x2x4x4x4 x4x2x2x4x4 x4x4x2x2x4 x2x2x2x2x_x8 x2x2x2x2x4x4 x2x2x4x2x2x4 x4x2x2x2x2x4 x2x2x2x2x2x2x4 x_x8x4x2x2 x4x4x4x2x2 x_x8x2x2x2x2 x2x2x4x4x2x2 x4x2x2x4x2x2 x4x4x2x2x2x2 x2x2x2x2x4x2x2 x2x2x4x2x2x2x2 x4x2x2x2x2x2x2 x2x2x2x2x2x2x2x2	Select PCIe port Bifurcation for selected slot(s) Port Format: xGxExCxA The port can further be x2x2 Disable-disable all PCIe Lanes and the controller.

4.6.4.3.1.1.1 Intel VMD technology



Item	Option	Description
Intel VMD technology	Disabled**[Default]** Enabled	Intel VMD technology

4.6.4.3.1.1.2 Port A ~ Port H

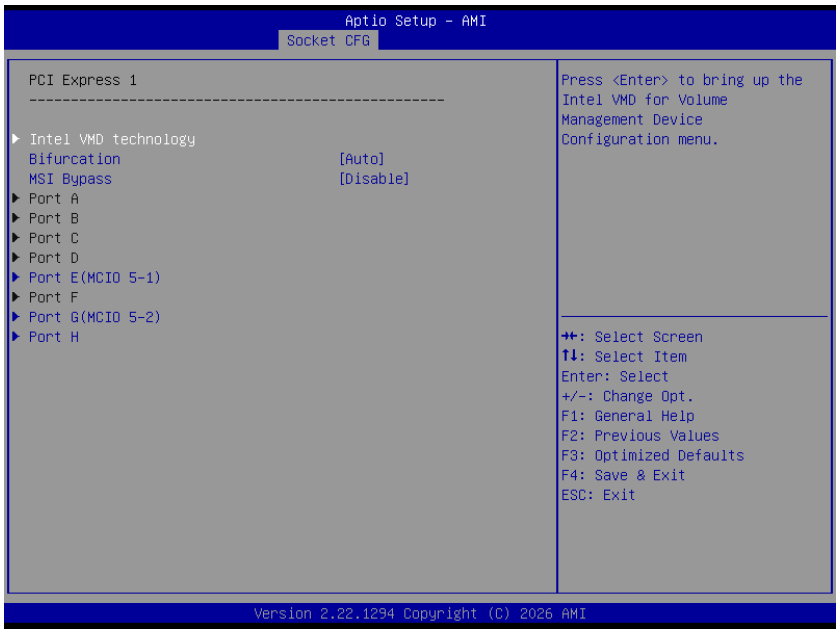


Item	Option	Description
Link Disable	No**[Default]** Yes	This option disables the link so that the no training occurs but the CFG space is

		still active.
Override Max Link Width	Auto**[Default]** x1 x2 x4 x8 x16	Override the max link width that was set by bifurcation.
Support VC1	Disable**[Default]** Enable	Enable/Disable PCIe Port VC1 support. x2 ports share the same VC1 channel.
Requested Link Speed	Auto**[Default]** Gen 1 (2.5 GT/s) Gen 2 (5 GT/s) Gen 3 (8 GT/s) Gen 4 (16 GT/s) Gen 5 (32 GT/s)	Choose Link Speed for this PCIe port.
DeEmphasis	-6.0 dB**[Default]** -3.5 dB	DeEmphais control (LNKCON2[6]) for this PCIe port.
Clocking	Distinct Common Auto**[Default]**	Configure port clocking via LNKCON[6]. This refers to this components and the down stream component. ;Auto' keeps board default.
Data Link Feature Exchange	Disable Enable**[Default]**	Enable/Disable data link feature negotiation in the Data Link Feature Capabilities (DLFCAP) register.
MPSS	128B 256B 512B Auto**[Default]**	Configure Max Payload Size Supported in PCIe Device Capabilities register. 'Auto' keeps hardware default.
ASPM Support	Disabled**[Default]** Auto	This option can disable ASPM support in a PCIe root port. 'Auto' keeps hardware default.
Extended Sync	Disable**[Default]** Enable	Enable/disable the Extended Sync Mode (D:x F:0 O:7Ch B:7) where x is 0-9.
PCIe 10-bit Tag Support	Disable Auto**[Default]** Force Enable	'Disable' option can disable PCIe 10-bit Tag Requester (not Completer) supoort in a PCIe Root Port. 'Auto' keeps hardware default. When disabled system FW does not configure 10-bit Tag in hierarchy under Root Port, however OS could reconfigure and enable it . Advanced user may use 'Force Enable' option to enforce enabling 10-bit Tag in a hierarchy wherer Root Port is 10-bit Tag Completer capable, but not all nodes support 10-bit Tag Completer. The user assures, there will be no peer-to-peer traffic from node with 10-bit Tag Requester capability to a node without 10-bit Tag Completer capability, In such

		hierarchy 10-bit Tag Requester is not enabled in Root Port regardless of Root Port capability.
Unsupported Request	Disable**[Default]** Enable	Controls the reporting of unsupported requests that IIO itself detects on requests its receives from a PCI Express/DMI port.
IODC Configuration	KTI Option**[Default]**/Auto/ Enable for Remote InvItoM Hybrid Push/InvItoM AllocFlow/ Enable for Remote InvItoM Hybrid AllocNonAllow/Enable for Remote InvItoM and Remote WViLF	Enable/Disable IODC (IO Direct Cashe): Generate snoops instead of memory lookups, for remote InvItoM(IIO) and/or WCiLF(cores).
MCTP	Disable Enable**[Default]**	Enable/Disable MCTP.
Equalization Bypass To Highest Rate on port	Disable Enable[Default]	Equalization Bypass To Highest Rate Support Enable/Disable.
Intel VMD Technology	Disable[Default] Enable	Enable/Disable Intel Volume Management Device Technology on specific root port.

4.6.4.3.1.2 PCI Express 1

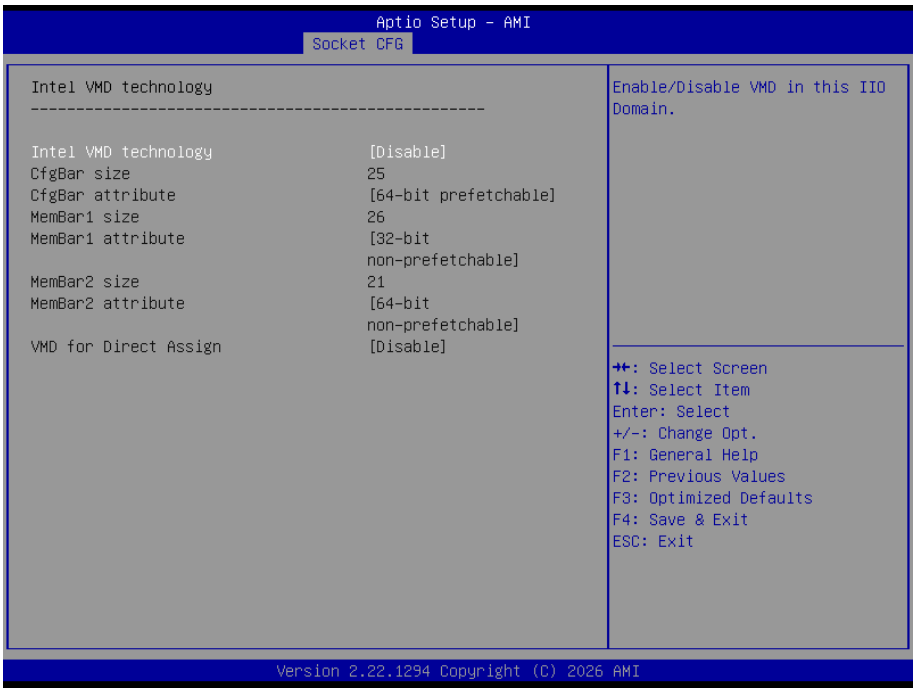


Item	Option	Description
Bifurcation	Auto**[Default]** x4x4x4x4 x4x4x_x8 x_x8x4x4 x_x8x_x8 x_x_x_x16 x2x2x4x_x8 x4x2x2x_x8 x_x8x2x2x4 x2x2x4x4x4 x4x2x2x4x4	Select PCIe port Bifurcation for selected slot(s) Port Format: xGxExCxA The port can further be x2x2 Disable-disable all PCIe Lanes and the controller.

	x4x4x2x2x4 x2x2x2x2x_x8 x2x2x2x2x4x4 x2x2x4x2x2x4 x4x2x2x2x2x4 x2x2x2x2x2x2x4 x_x8x4x2x2 x4x4x4x2x2 x_x8x2x2x2x2 x2x2x4x4x2x2 x4x2x2x4x2x2 x4x4x2x2x2x2 x2x2x2x2x4x2x2 x2x2x4x2x2x2x2 x4x2x2x2x2x2x2 x2x2x2x2x2x2x2x2	
MSI Bypass	Disable**[Default]** Enable	MSI Bypass Default is Disable.

4.6.4.3.1.2.1 Intel VMD technology

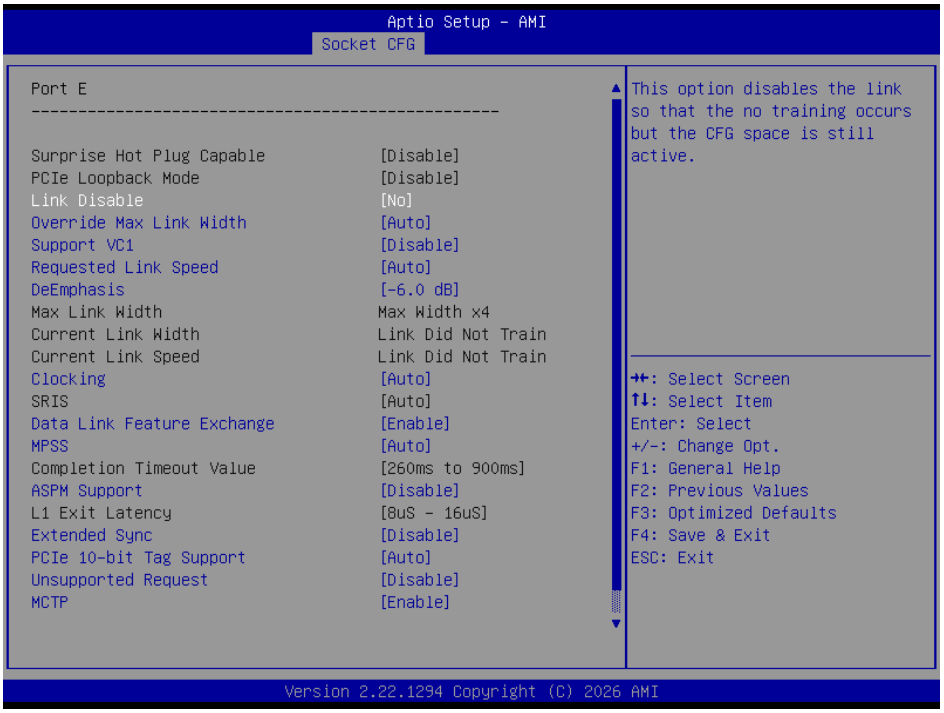
Please refer to 4.6.4.3.1.1.1 for more information.

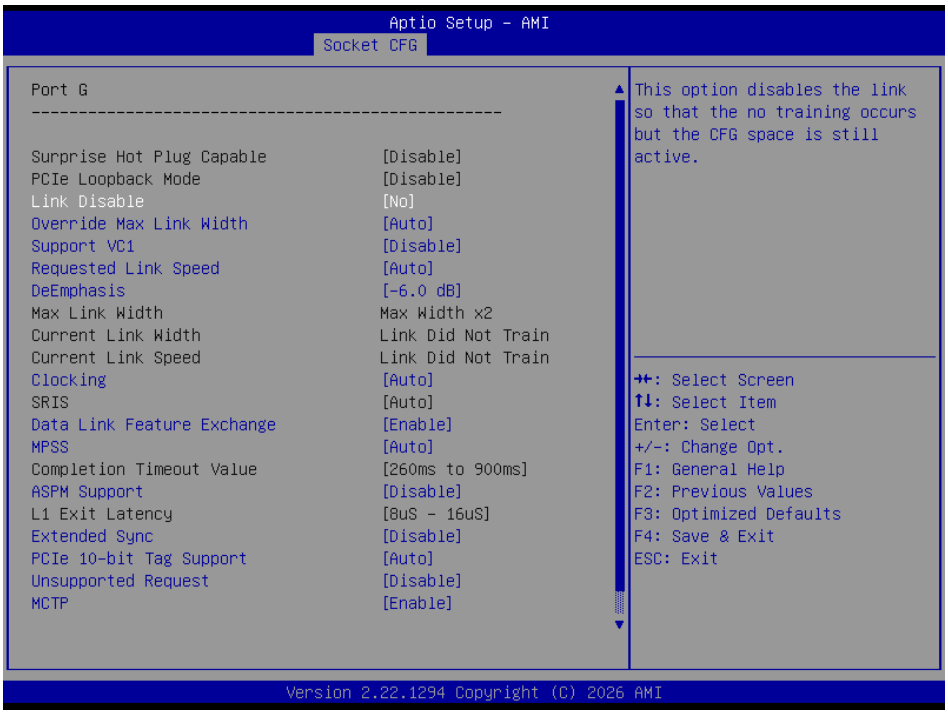


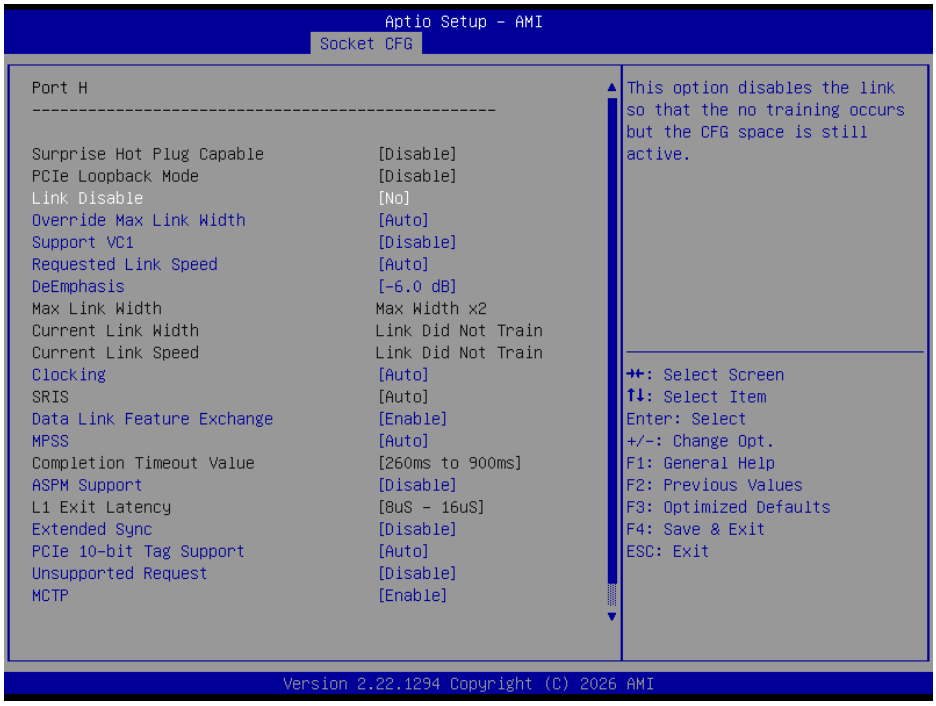
Item	Option	Description
Intel VMD technology	Disabled**[Default]** Enabled	Intel VMD technology

4.6.4.3.1.2.2 Port A ~ Port H

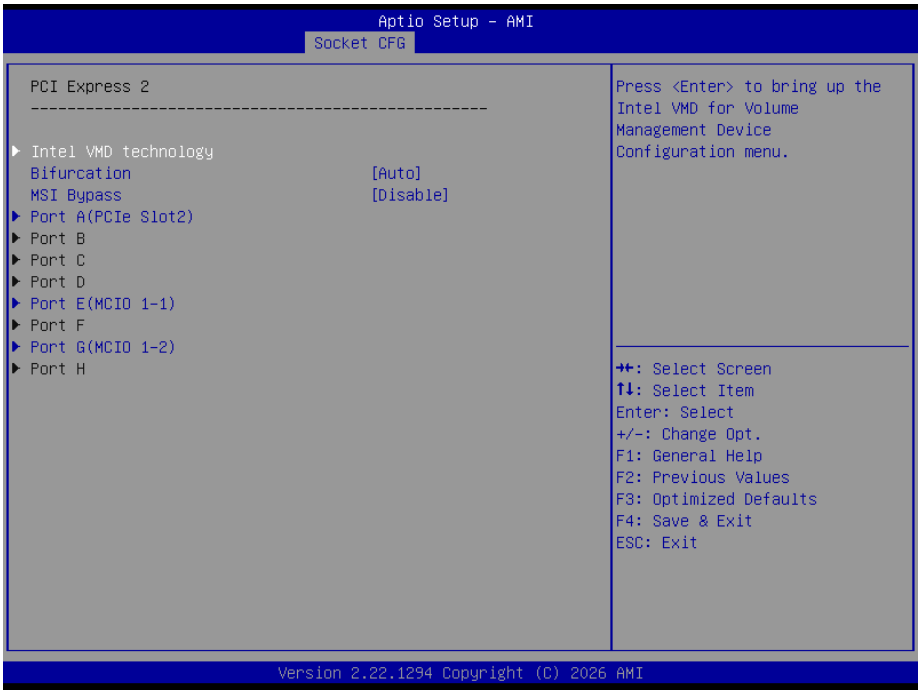
Please refer to 4.6.4.3.1.1.2 for more information.







4.6.4.3.1.3 PCI Express 2

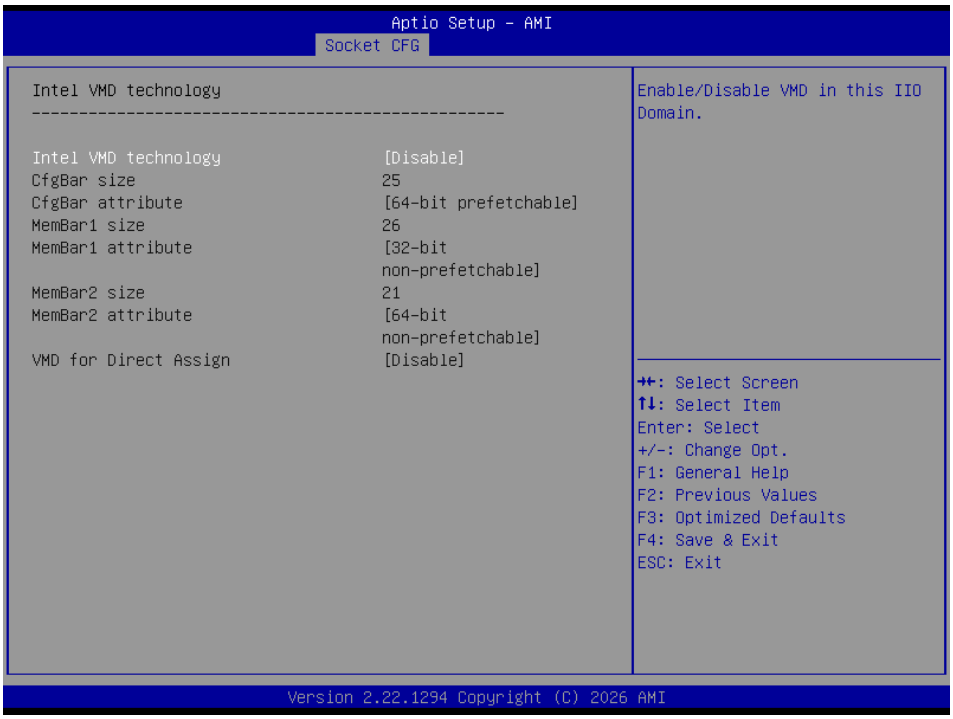


Item	Option	Description
Bifurcation	Auto**[Default]** x4x4x4x4 x4x4x_x8 x_x8x4x4 x_x8x_x8 x_x_x_x16 x2x2x4x_x8 x4x2x2x_x8 x_x8x2x2x4	Select PCIe port Bifurcation for selected slot(s) Port Format: xGxExCxA The port can further be x2x2 Disable-disable all PCIe Lanes and the controller.

	x2x2x4x4x4 x4x2x2x4x4 x4x4x2x2x4 x2x2x2x2x_x8 x2x2x2x2x4x4 x2x2x4x2x2x4 x4x2x2x2x2x4 x2x2x2x2x2x2x4 x_x8x4x2x2 x4x4x4x2x2 x_x8x2x2x2x2 x2x2x4x4x2x2 x4x2x2x4x2x2 x4x4x2x2x2x2 x2x2x2x2x4x2x2 x2x2x4x2x2x2x2 x4x2x2x2x2x2x2 x2x2x2x2x2x2x2x2	
MSI Bypass	Disable**[Default]** Enable	MSI Bypass Default is Disable.

4.6.4.3.1.3.1 Intel VMD technology

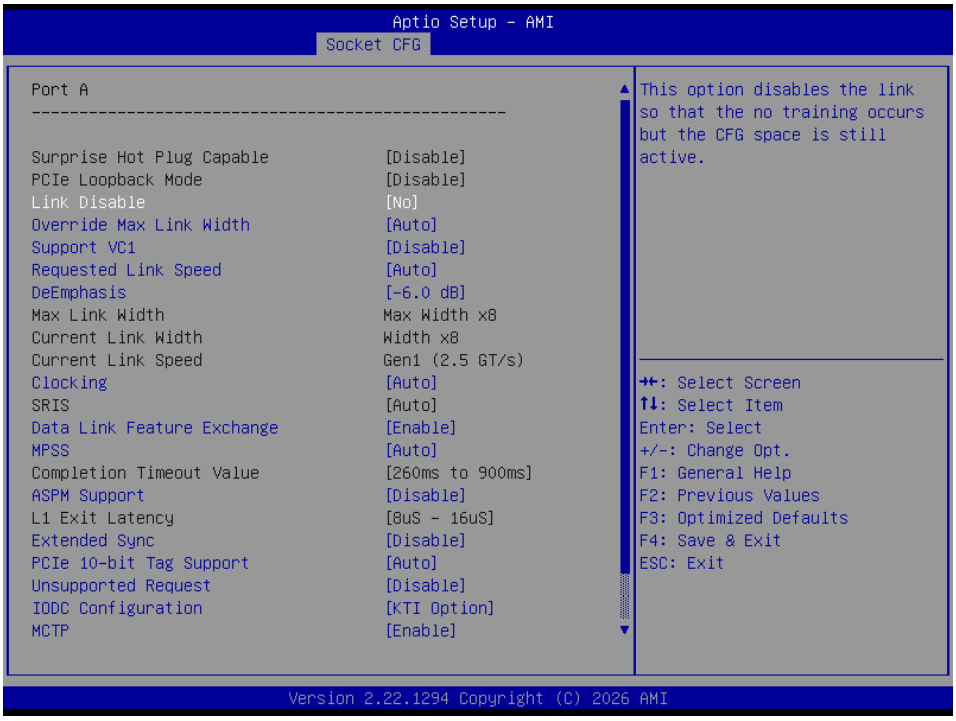
Please refer to 4.6.4.3.1.1.1 for more information.

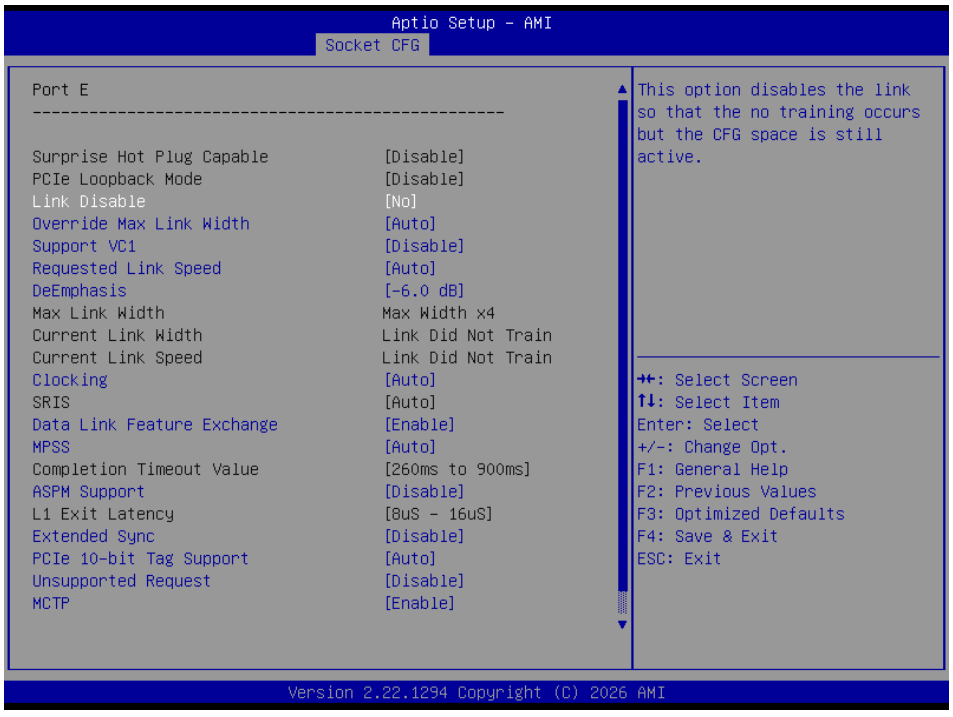


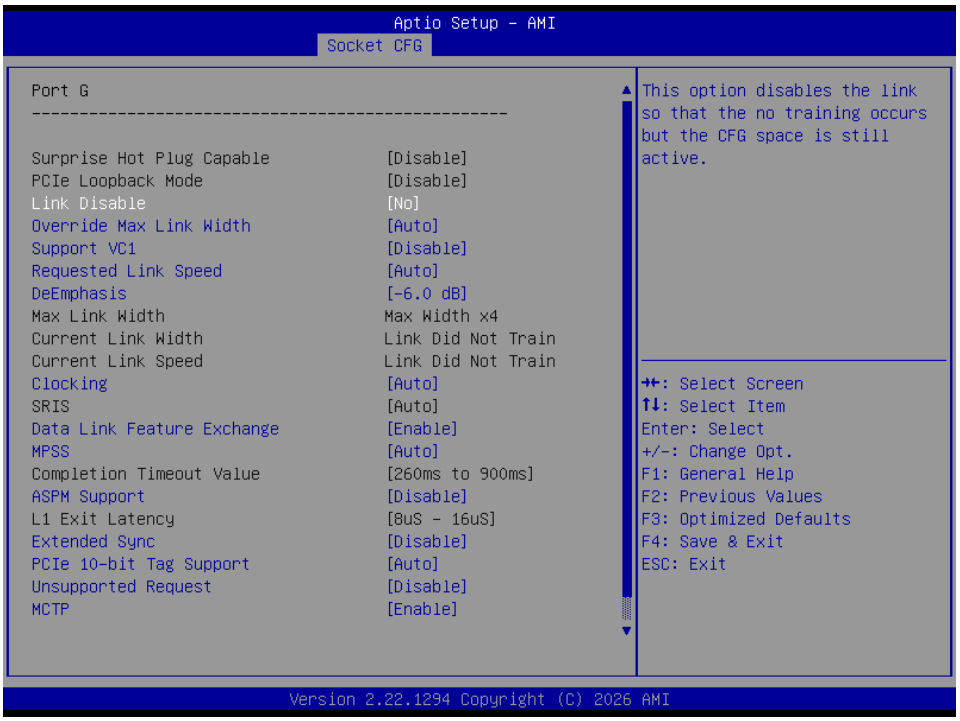
Item	Option	Description
Intel VMD technology	Disabled**[Default]** Enabled	Intel VMD technology

4.6.4.3.1.3.2 Port A ~ Port H

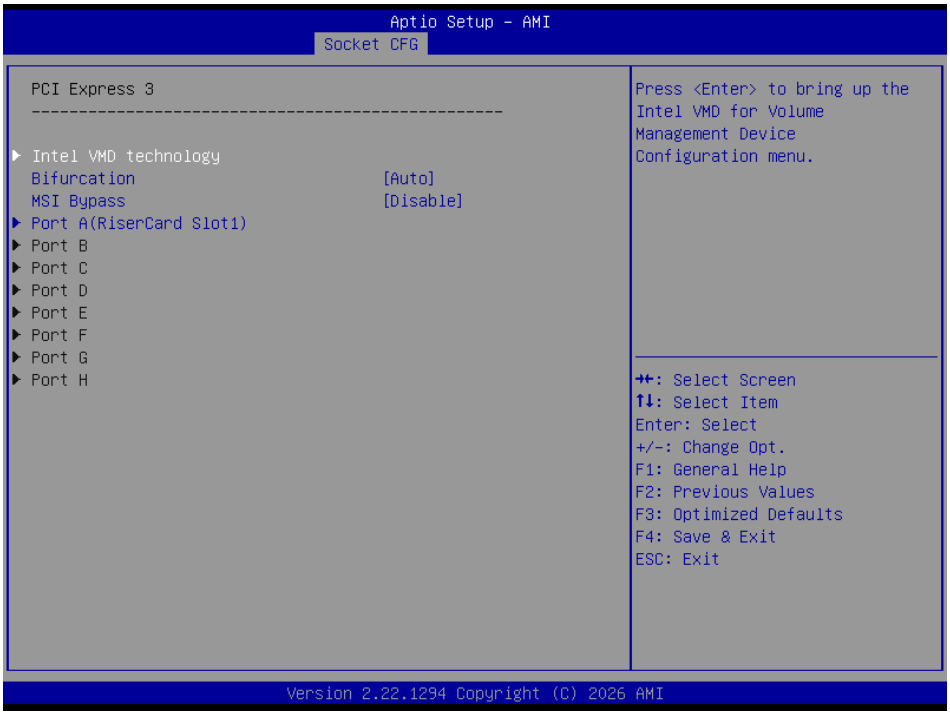
Please refer to 4.6.4.3.1.1.2 for more information.







4.6.4.3.1.4 PCI Express 3

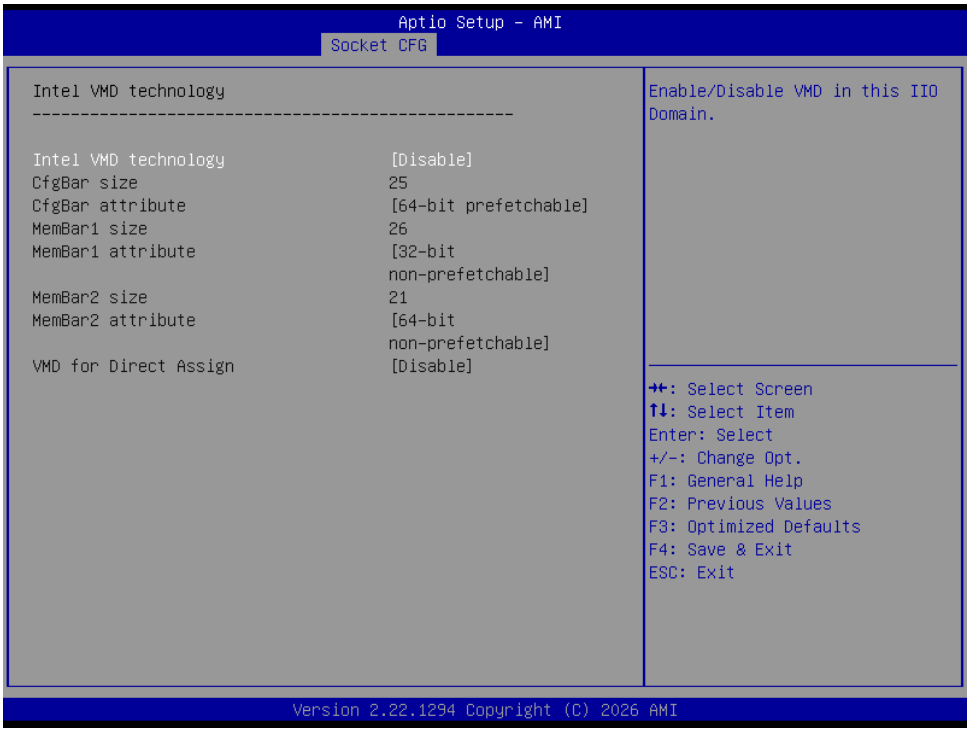


Item	Option	Description
Bifurcation	Auto**[Default]** x4x4x4x4 x4x4x_x8 x_x8x4x4 x_x8x_x8 x_x_x_x16 x2x2x4x_x8 x4x2x2x_x8 x_x8x2x2x4	Select PCIe port Bifurcation for selected slot(s) Port Format: xGxExCxA The port can further be x2x2 Disable-disable all PCIe Lanes and the controller.

	x2x2x4x4x4 x4x2x2x4x4 x4x4x2x2x4 x2x2x2x2x_x8 x2x2x2x2x4x4 x2x2x4x2x2x4 x4x2x2x2x2x4 x2x2x2x2x2x2x4 x_x8x4x2x2 x4x4x4x2x2 x_x8x2x2x2x2 x2x2x4x4x2x2 x4x2x2x4x2x2 x4x4x2x2x2x2 x2x2x2x2x4x2x2 x2x2x4x2x2x2x2 x4x2x2x2x2x2x2 x2x2x2x2x2x2x2x2	
MSI Bypass	Disable**[Default]** Enable	MSI Bypass Default is Disable.

4.6.4.3.1.4.1 Intel VMD technology

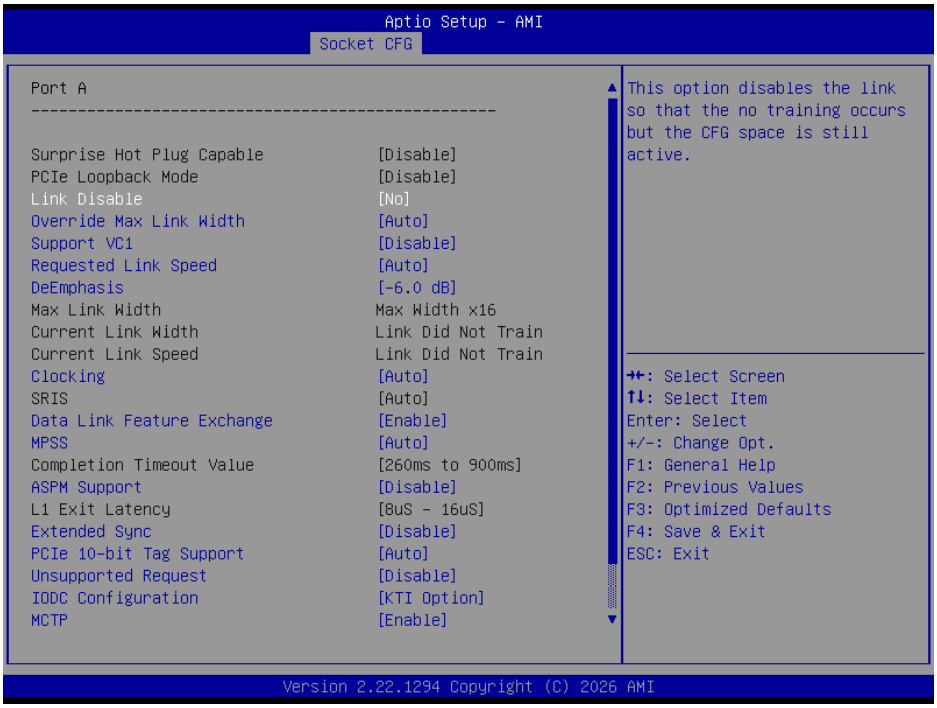
Please refer to 4.6.4.3.1.1.1 for more information.



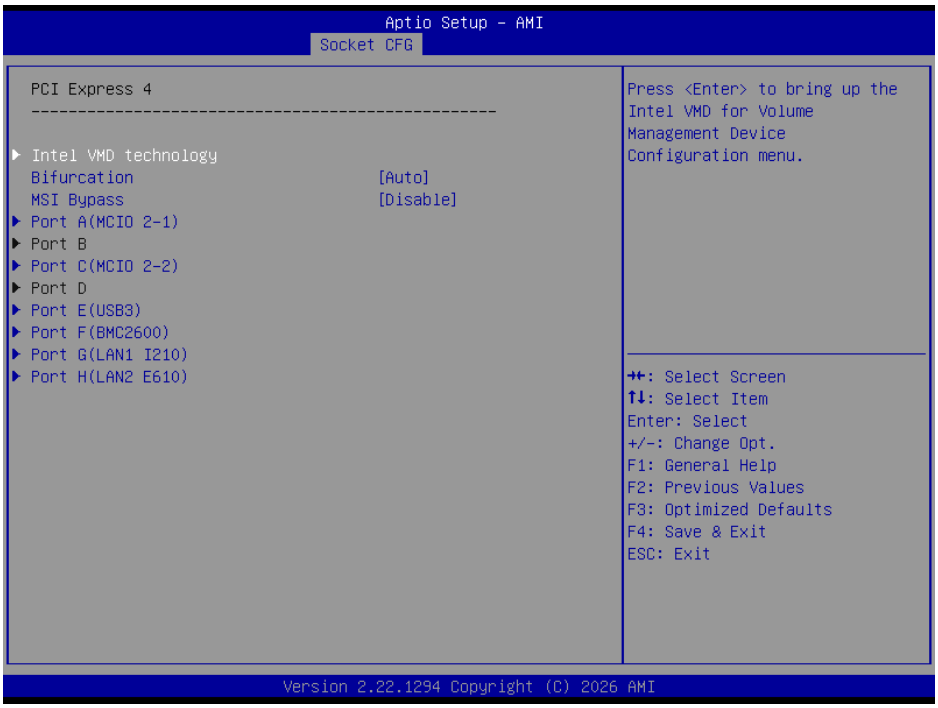
Item	Option	Description
Intel VMD technology	Disabled**[Default]** Enabled	Intel VMD technology

4.6.4.3.1.4.2 Port A ~ Port H

Please refer to 4.6.4.3.1.1.2 for more information.



4.6.4.3.1.5 PCI Express 4

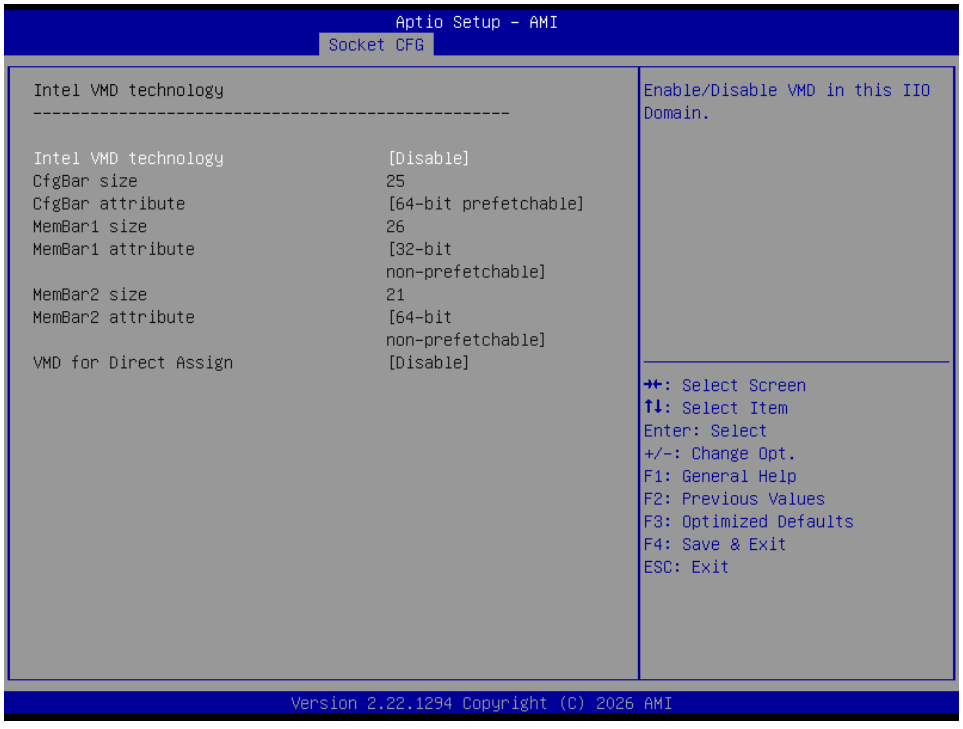


Item	Option	Description
Bifurcation	Auto**[Default]** x4x4x4x4 x4x4x_x8 x_x8x4x4 x_x8x_x8 x_x_x_x16	Select PCIe port Bifurcation for selected slot(s) Port Format: xGxExCxA The port can further be x2x2 Disable-disable all PCIe Lanes and the controller.

	x2x2x4x_x8 x4x2x2x_x8 x_x8x2x2x4 x2x2x4x4x4 x4x2x2x4x4 x4x4x2x2x4 x2x2x2x2x_x8 x2x2x2x2x4x4 x2x2x4x2x2x4 x4x2x2x2x2x4 x2x2x2x2x2x2x4 x_x8x4x2x2 x4x4x4x2x2 x_x8x2x2x2x2 x2x2x4x4x2x2 x4x2x2x4x2x2 x4x4x2x2x2x2 x2x2x2x2x4x2x2 x2x2x4x2x2x2x2 x4x2x2x2x2x2x2 x2x2x2x2x2x2x2x2	
MSI Bypass	Disable**[Default]** Enable	MSI Bypass Default is Disable.

4.6.4.3.1.5.1 Intel VMD technology

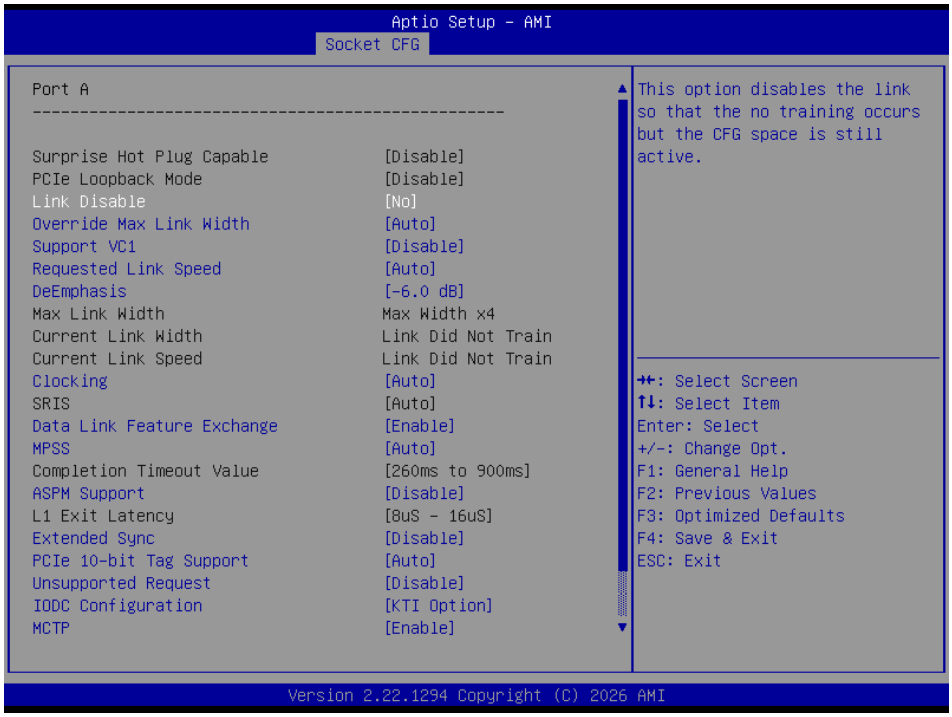
Please refer to 4.6.4.3.1.1.1 for more information.

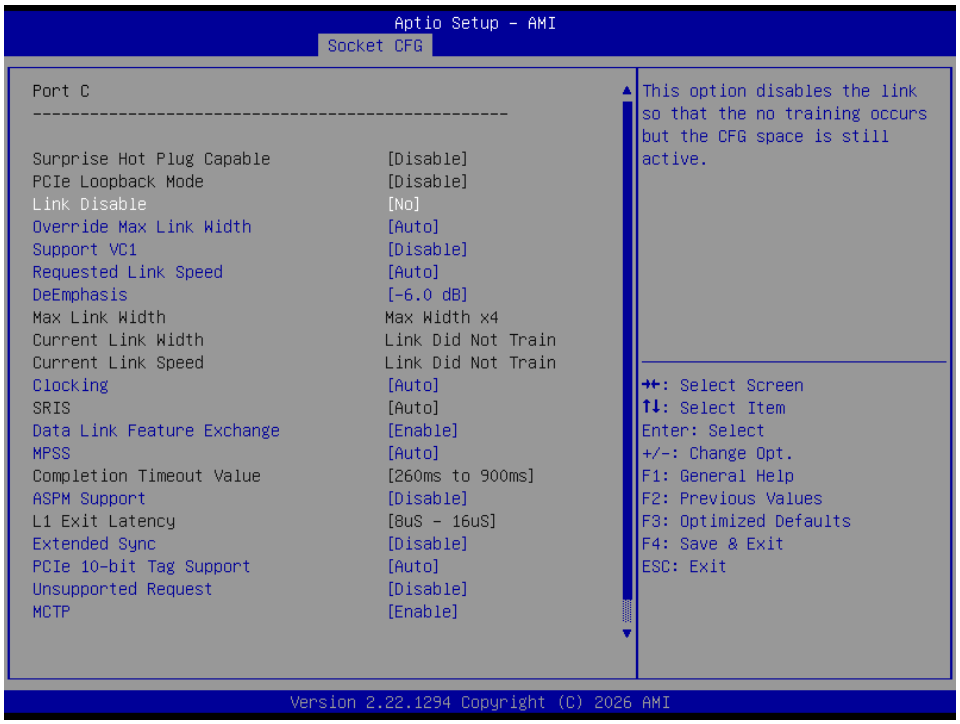


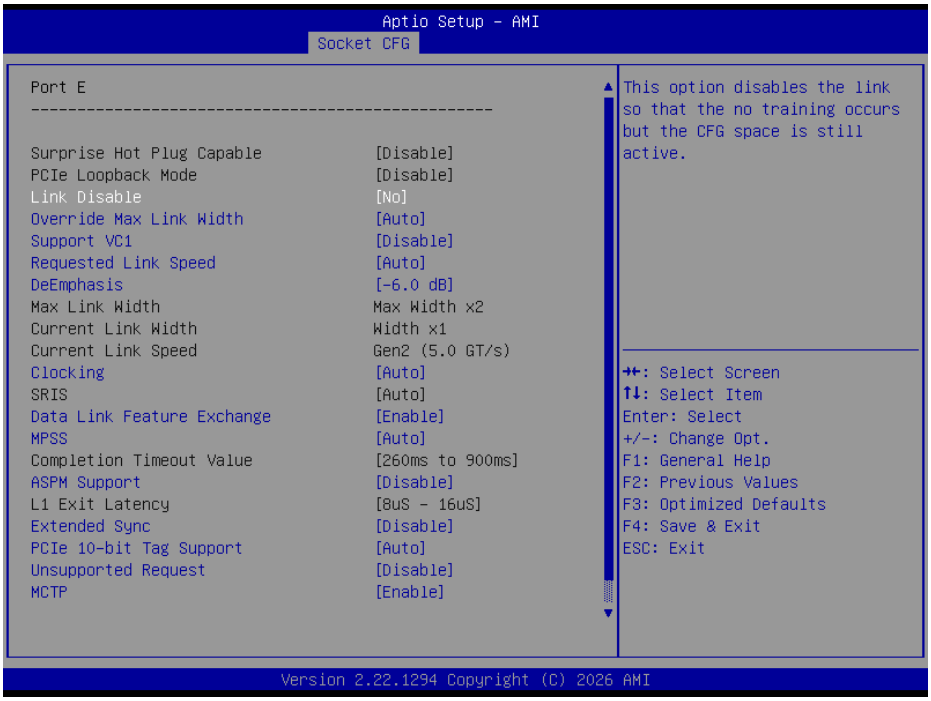
Item	Option	Description
Intel VMD technology	Disabled**[Default]** Enabled	Intel VMD technology

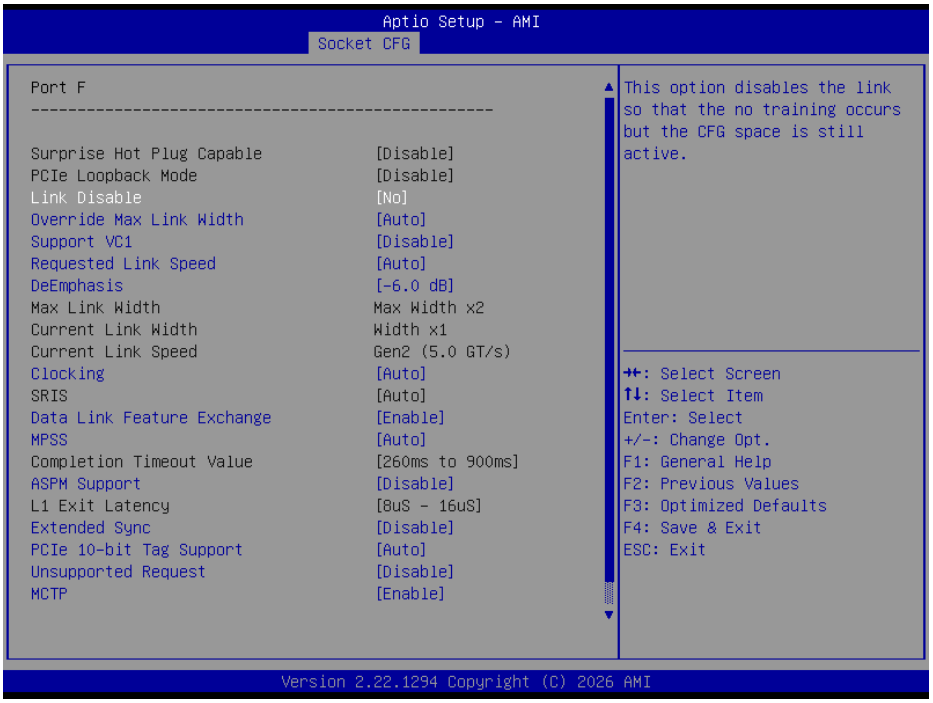
4.6.4.3.1.5.2 Port A ~ Port H

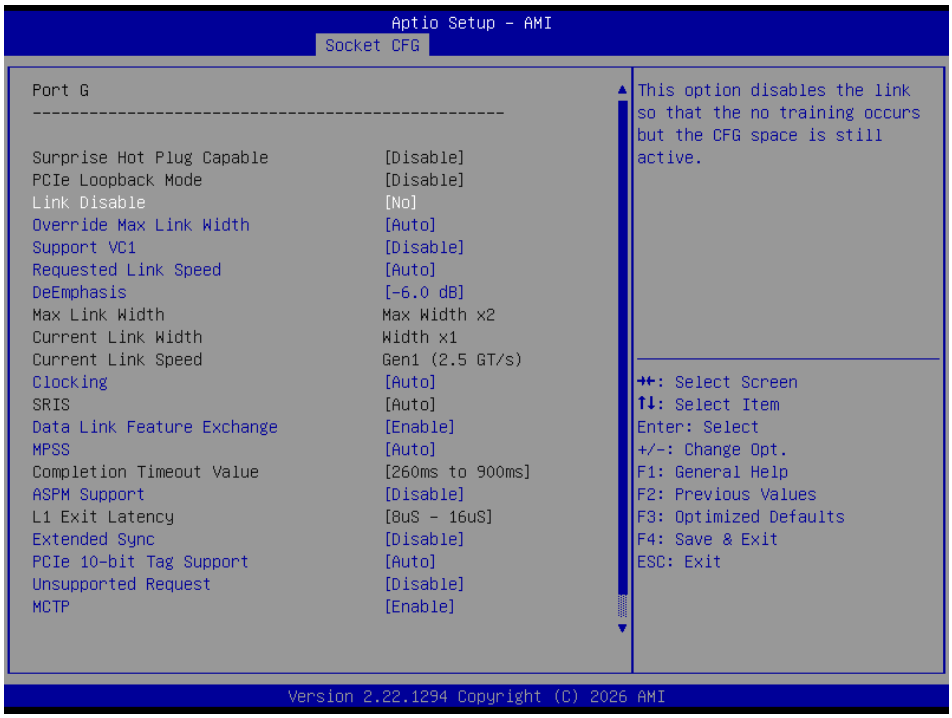
Please refer to 4.6.4.3.1.1.2 for more information.

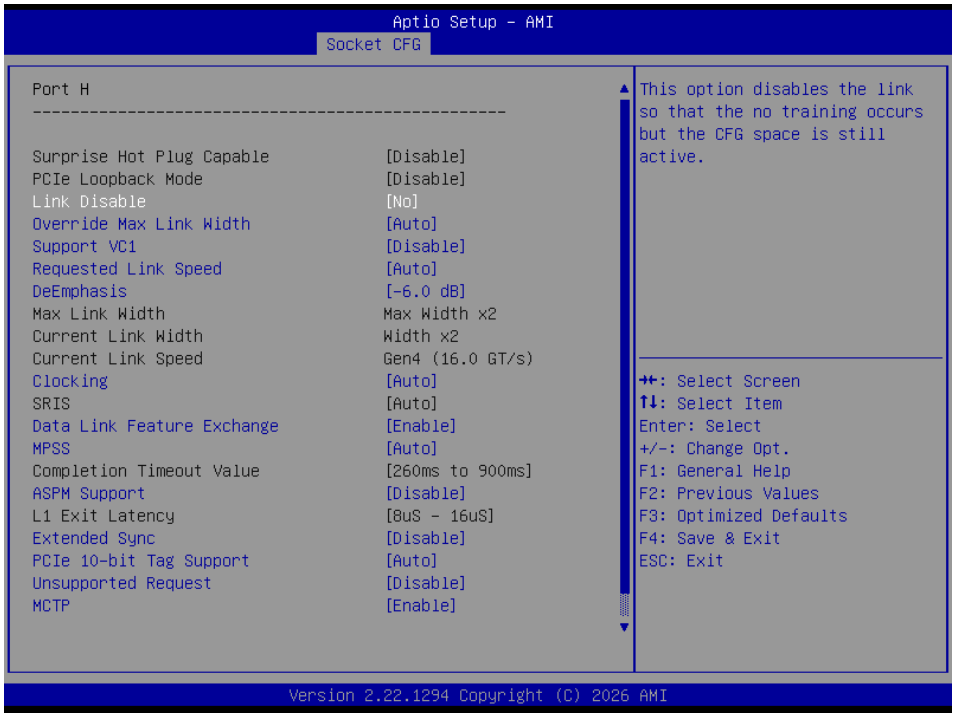




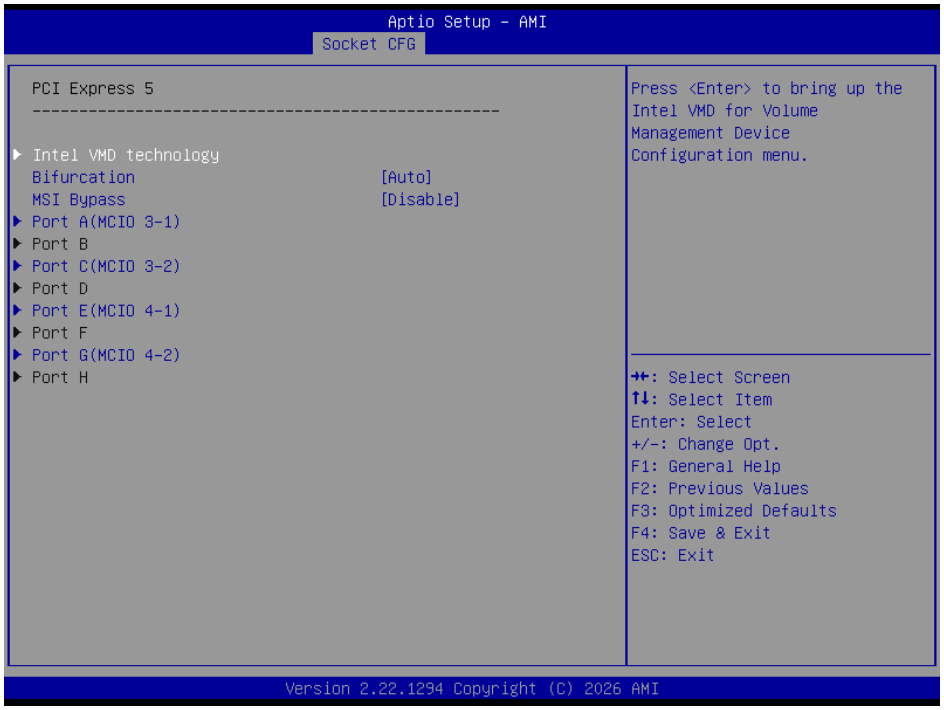

Aptio Setup – AMI
Socket CFG
Port E
Surprise Hot Plug Capable [Disable]
PCIe Loopback Mode [Disable]
Link Disable [No]
Override Max Link Width [Auto]
Support VC1 [Disable]
Requested Link Speed [Auto]
DeEmphasis [-6.0 dB]
Max Link Width Max Width x2
Current Link Width Width x1
Current Link Speed Gen2 (5.0 GT/s)
Clocking [Auto]
SRIS [Auto]
Data Link Feature Exchange [Enable]
MPSS [Auto]
Completion Timeout Value [260ms to 900ms]
ASPM Support [Disable]
L1 Exit Latency [8uS – 16uS]
Extended Sync [Disable]
PCIe 10-bit Tag Support [Auto]
Unsupported Request [Disable]
MCTP [Enable]
This option disables the link so that the no training occurs but the CFG space is still active.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
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Aptio Setup – AMI
Socket CFG
Port F
Surprise Hot Plug Capable [Disable]
PCIe Loopback Mode [Disable]
Link Disable [No]
Override Max Link Width [Auto]
Support VC1 [Disable]
Requested Link Speed [Auto]
DeEmphasis [-6.0 dB]
Max Link Width Max Width x2
Current Link Width Width x1
Current Link Speed Gen2 (5.0 GT/s)
Clocking [Auto]
SRIS [Auto]
Data Link Feature Exchange [Enable]
MPSS [Auto]
Completion Timeout Value [260ms to 900ms]
ASPM Support [Disable]
L1 Exit Latency [8uS – 16uS]
Extended Sync [Disable]
PCIe 10-bit Tag Support [Auto]
Unsupported Request [Disable]
MCTP [Enable]
This option disables the link so that the no training occurs but the CFG space is still active.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.22.1294 Copyright (C) 2026 AMI


Aptio Setup – AMI
Socket CFG
Port G
Surprise Hot Plug Capable [Disable]
PCIe Loopback Mode [Disable]
Link Disable [No]
Override Max Link Width [Auto]
Support VC1 [Disable]
Requested Link Speed [Auto]
DeEmphasis [-6.0 dB]
Max Link Width Max Width x2
Current Link Width Width x1
Current Link Speed Gen1 (2.5 GT/s)
Clocking [Auto]
SRIS [Auto]
Data Link Feature Exchange [Enable]
MPSS [Auto]
Completion Timeout Value [260ms to 900ms]
ASPM Support [Disable]
L1 Exit Latency [8uS – 16uS]
Extended Sync [Disable]
PCIe 10-bit Tag Support [Auto]
Unsupported Request [Disable]
MCTP [Enable]
This option disables the link so that the no training occurs but the CFG space is still active.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.22.1294 Copyright (C) 2026 AMI


Aptio Setup – AMI
Socket CFG
Port H
Surprise Hot Plug Capable [Disable]
PCIe Loopback Mode [Disable]
Link Disable [No]
Override Max Link Width [Auto]
Support VC1 [Disable]
Requested Link Speed [Auto]
DeEmphasis [-6.0 dB]
Max Link Width Max Width x2
Current Link Width Width x2
Current Link Speed Gen4 (16.0 GT/s)
Clocking [Auto]
SRIS [Auto]
Data Link Feature Exchange [Enable]
MPSS [Auto]
Completion Timeout Value [260ms to 900ms]
ASPM Support [Disable]
L1 Exit Latency [8uS – 16uS]
Extended Sync [Disable]
PCIe 10-bit Tag Support [Auto]
Unsupported Request [Disable]
MCTP [Enable]
This option disables the link so that the no training occurs but the CFG space is still active.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
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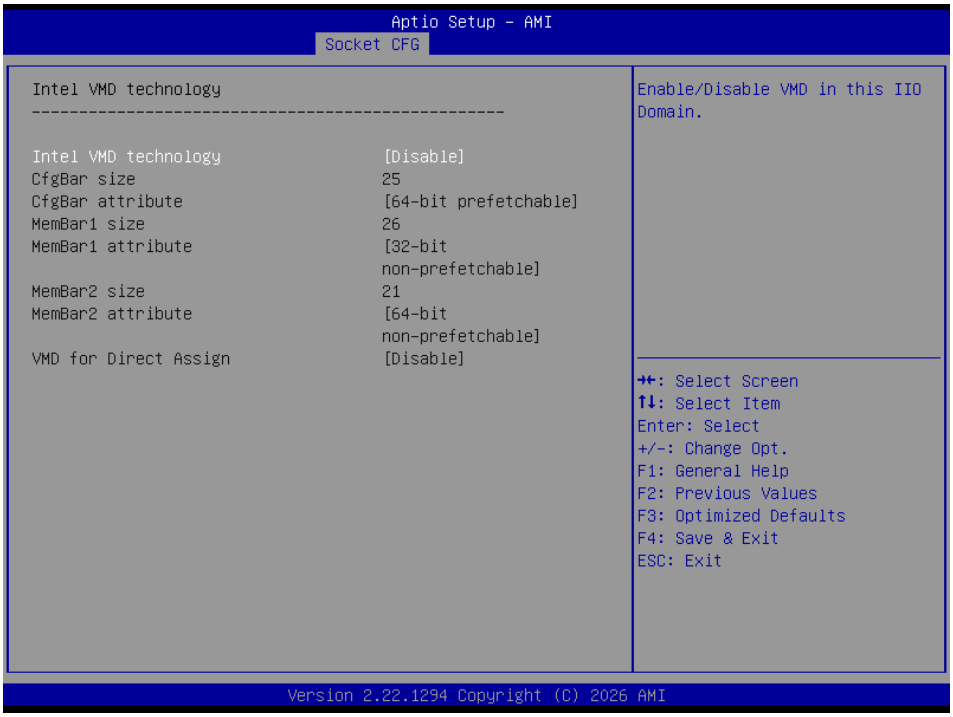
4.6.4.3.1.6 PCI Express 5



Item	Option	Description
Bifurcation	Auto**[Default]** x4x4x4x4 x4x4x_x8 x_x8x4x4 x_x8x_x8 x_x_x_x16 x2x2x4x_x8 x4x2x2x_x8 x_x8x2x2x4 x2x2x4x4x4 x4x2x2x4x4 x4x4x2x2x4 x2x2x2x2x_x8 x2x2x2x2x4x4 x2x2x4x2x2x4 x4x2x2x2x2x4 x2x2x2x2x2x2x4 x_x8x4x2x2 x4x4x4x2x2 x_x8x2x2x2x2 x2x2x4x4x2x2 x4x2x2x4x2x2 x4x4x2x2x2x2 x2x2x2x2x4x2x2 x2x2x4x2x2x2x2 x4x2x2x2x2x2x2 x2x2x2x2x2x2x2x2	Select PCIe port Bifurcation for selected slot(s) Port Format: xGxExCxA The port can further be x2x2 Disable-disable all PCIe Lanes and the controller.
MSI Bypass	Disable**[Default]** Enable	MSI Bypass Default is Disable.

4.6.4.3.1.6.1 Intel VMD technology

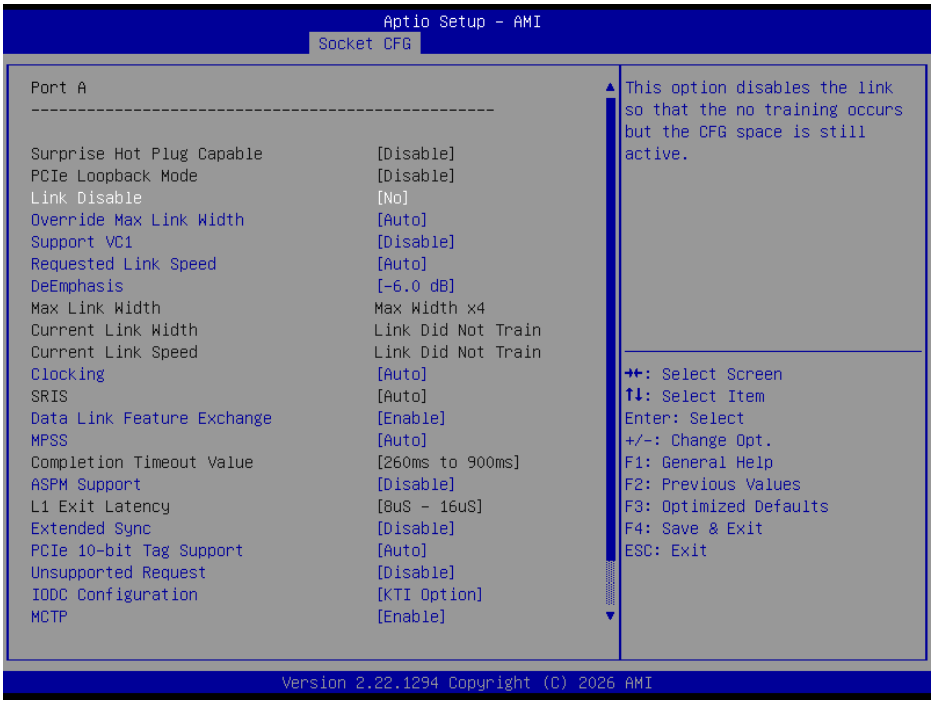
Please refer to 4.6.4.3.1.1.1 for more information.

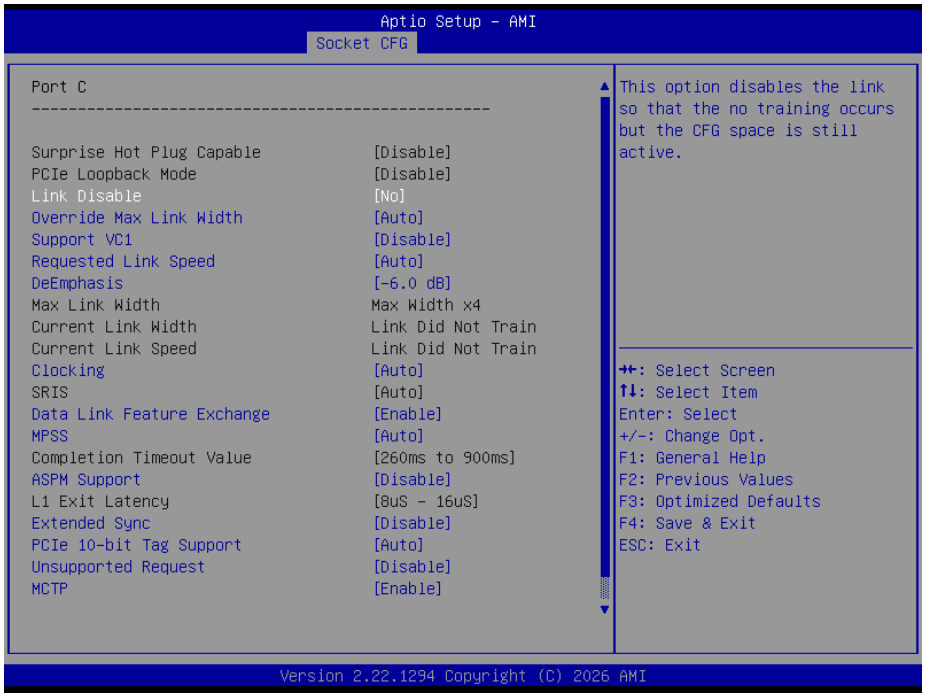


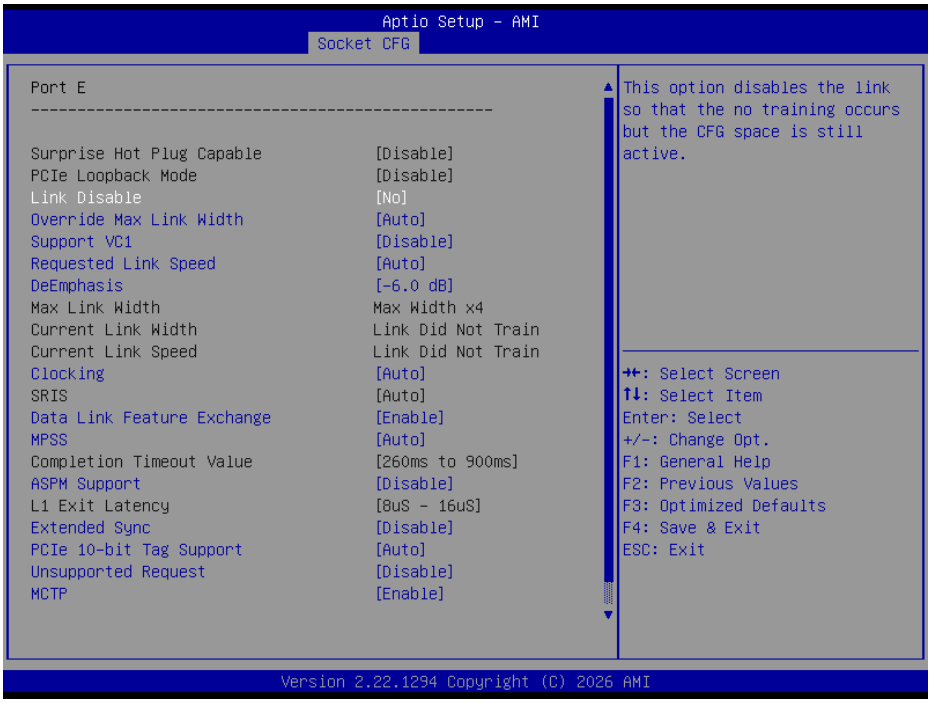
Item	Option	Description
Intel VMD technology	Disabled**[Default]** Enabled	Intel VMD technology

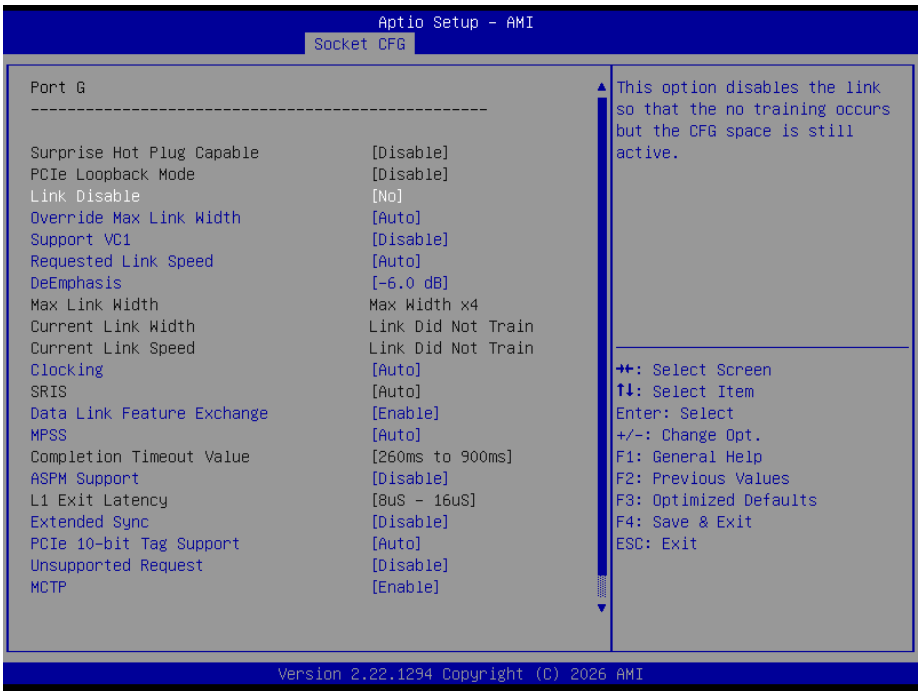
4.6.4.3.1.6.2 Port A ~ Port H

Please refer to 4.6.4.3.1.1.2 for more information.

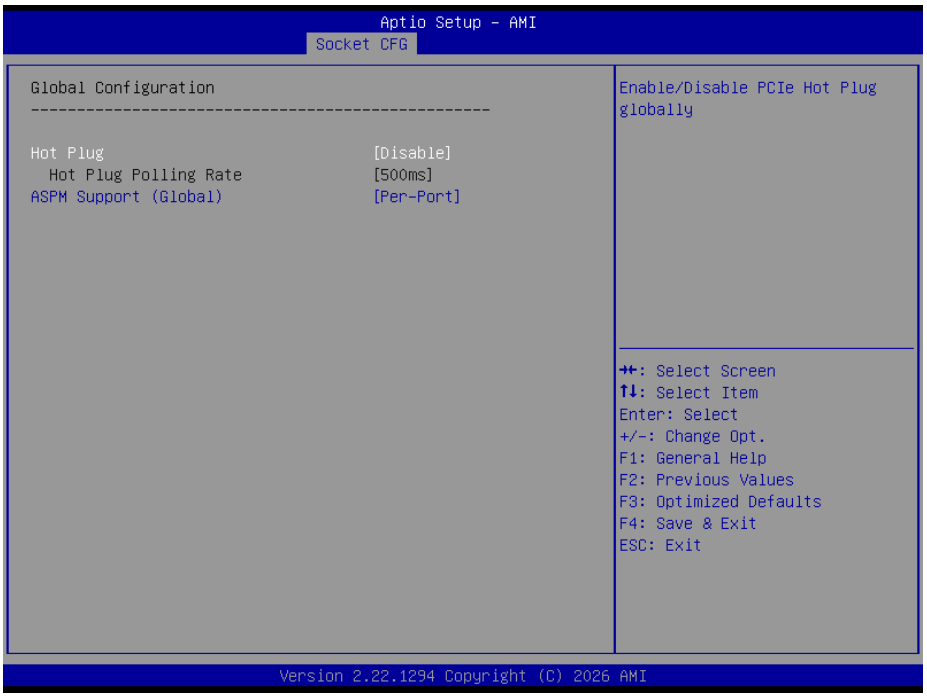



Aptio Setup – AMI
Socket CFG
Port C
Surprise Hot Plug Capable [Disable]
PCIe Loopback Mode [Disable]
Link Disable [No]
Override Max Link Width [Auto]
Support VC1 [Disable]
Requested Link Speed [Auto]
DeEmphasis [-6.0 dB]
Max Link Width Max Width x4
Current Link Width Link Did Not Train
Current Link Speed Link Did Not Train
Clocking [Auto]
SRIS [Auto]
Data Link Feature Exchange [Enable]
MPSS [Auto]
Completion Timeout Value [260ms to 900ms]
ASPM Support [Disable]
L1 Exit Latency [8uS – 16uS]
Extended Sync [Disable]
PCIe 10-bit Tag Support [Auto]
Unsupported Request [Disable]
MCTP [Enable]
This option disables the link so that the no training occurs but the CFG space is still active.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
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Aptio Setup – AMI
Socket CFG
Port E
Surprise Hot Plug Capable [Disable]
PCIe Loopback Mode [Disable]
Link Disable [No]
Override Max Link Width [Auto]
Support VC1 [Disable]
Requested Link Speed [Auto]
DeEmphasis [-6.0 dB]
Max Link Width Max Width x4
Current Link Width Link Did Not Train
Current Link Speed Link Did Not Train
Clocking [Auto]
SRIS [Auto]
Data Link Feature Exchange [Enable]
MPSS [Auto]
Completion Timeout Value [260ms to 900ms]
ASPM Support [Disable]
L1 Exit Latency [8uS – 16uS]
Extended Sync [Disable]
PCIe 10-bit Tag Support [Auto]
Unsupported Request [Disable]
MCTP [Enable]
This option disables the link so that the no training occurs but the CFG space is still active.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.22.1294 Copyright (C) 2026 AMI

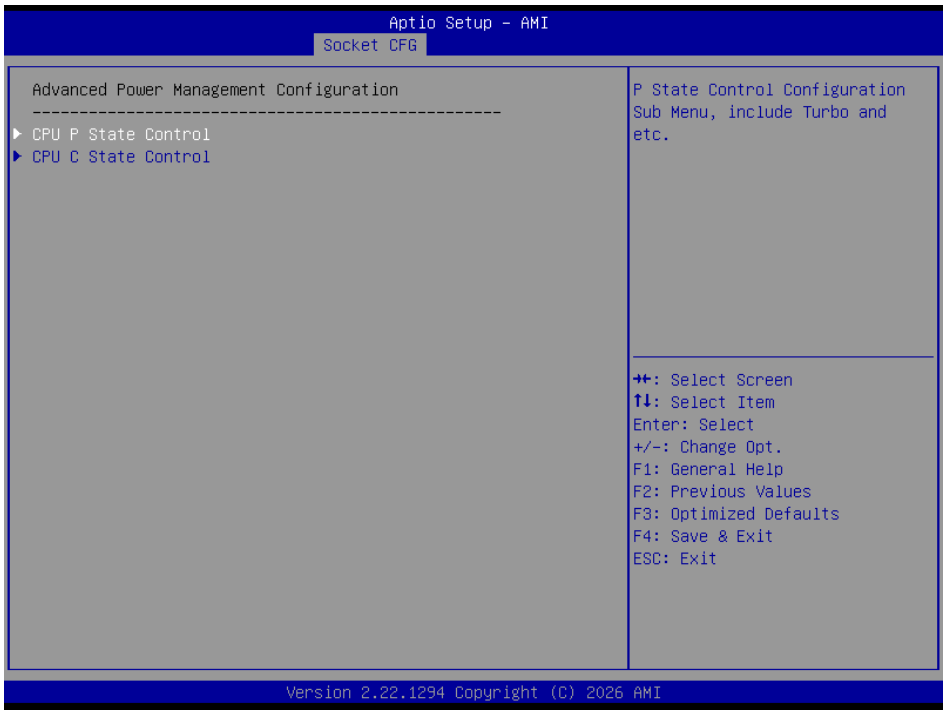


4.6.4.3.2 Global Configuration

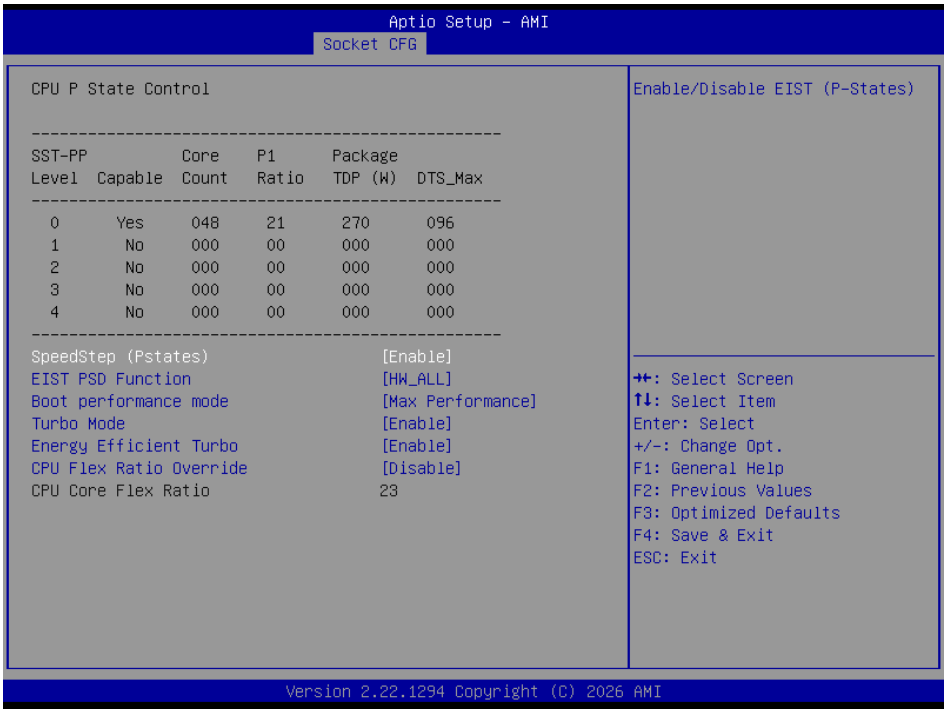


Item	Options	Description
Hot Plug	Enable Disable**[Default]**	Hot Plug.
ASPM Support (Global)	Disable Per-Port**[Default]**	This option can disable ASPM support for all PCIe root ports.

4.6.4.3.3 Advanced Power Management Configuration



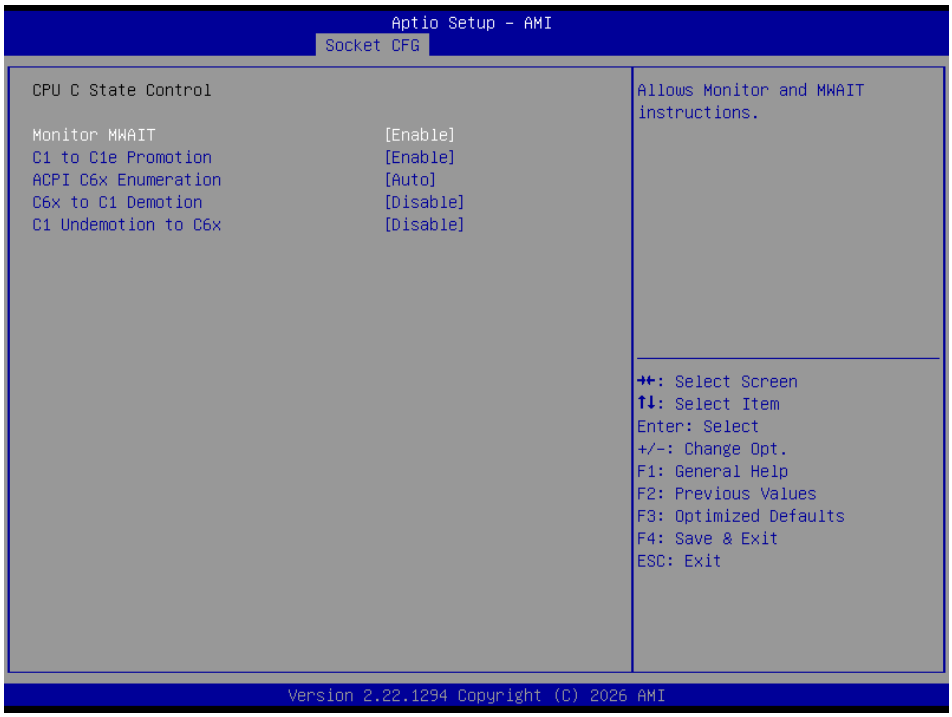
4.6.4.4.1 CPU P State Control



Item	Option	Description
SpeedStep (Pstates)	Disable Enable**[Default]**	Enable/Disable EIST (P-States).
EIST PSD Function	HW_ALL**[Default]** SW_ALL	Choose HW_ALL/SW_ALL in _PSD return.
Boot performance mode	Max Performance**[Default]** Max Efficient Set by Intel Node Manager	Select the performance state that the BIOS will set before OS hand off.

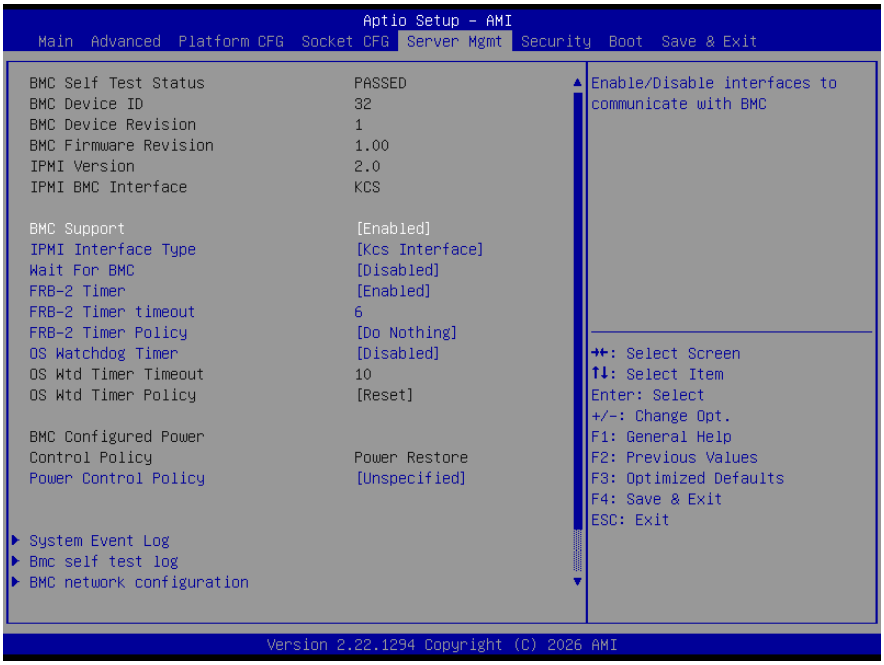
Turbo Mode	Disable Enable**[Default]**	Enable/Disable processor Turbo Mode (requires EMTTM enabled too).
Energy Efficient Turbo	Enable**[Default]** Disable	Energy Efficient Turbo Disable, MSR 0x1FC[19].
CPU Flex Ratio Override	Disable**[Default]** Enable	Enable/Disable CPU Flex Ratio Programming.

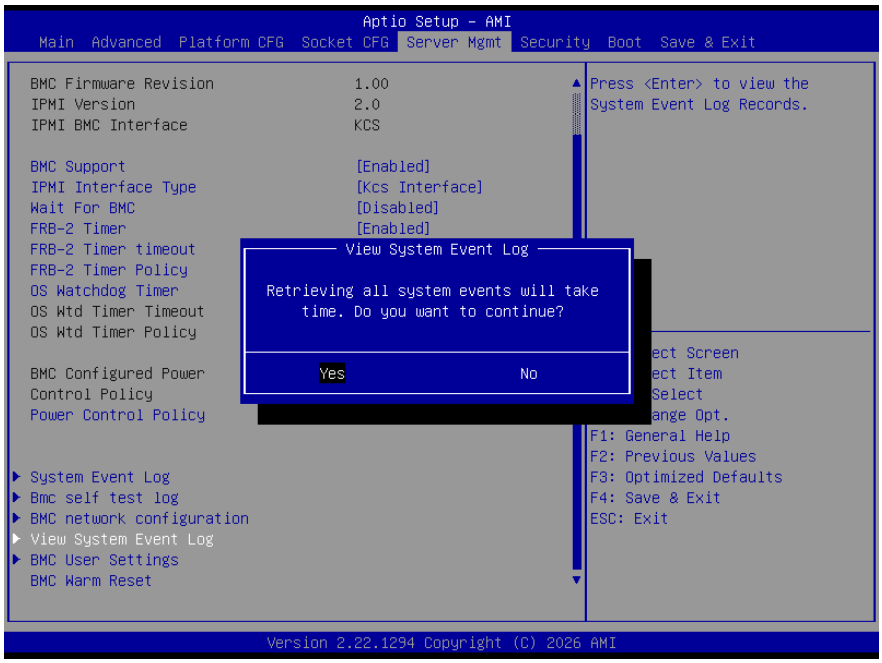
4.6.4.4.2 CPU C State Control



Item	Option	Description
Monitor MWAIT	Disable Enable**[Default]**	Allows Monitor and MWAIT instructions.
C1 to C1e Promotion	Disable Enable**[Default]**	Allows CPU to automatically demote to C1. Takes effect after reboot.
ACPI C6x Enumeration	Disable Auto**[Default]**	ACPI C6x Enumeration.
C6x to C1 Demotion	Disable**[Default]** Enable	Allows CPU to demote C6x state to C1 state.
C1 Undemotion to C6x	Disable**[Default]** Enable	Allows CPU to undemote demoted C1 state to C6x state.

4.6.5 Server Mgmt

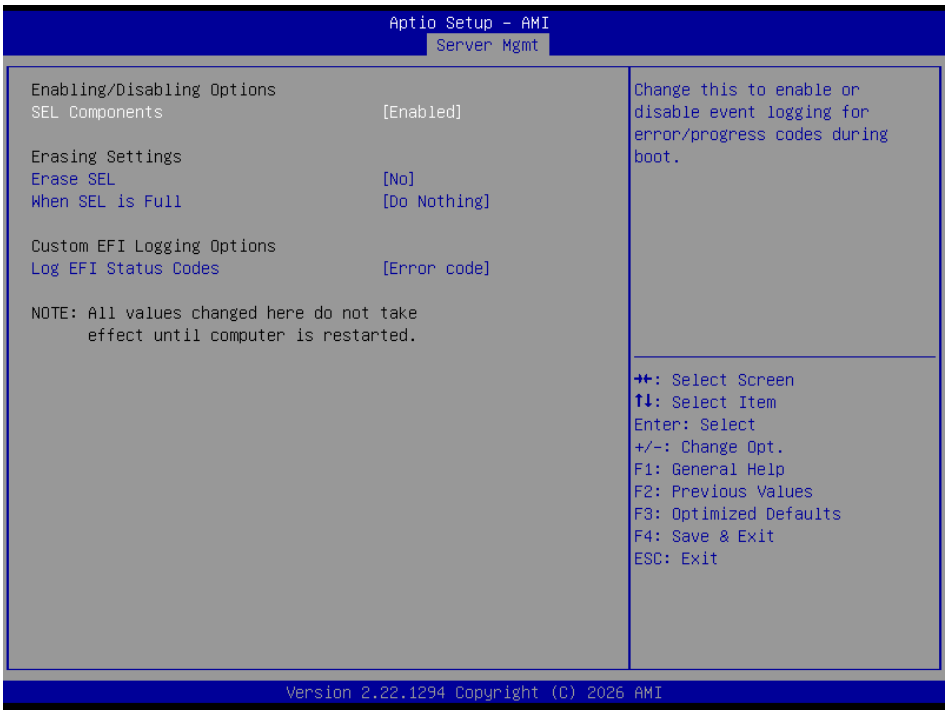




Item	Options	Description
BMC Support	Enabled**[Default]** Disabled	Enable/Disable interfaces to communicate with BMC.
IPMI Interface Type	Kcs Interface**[Default]** Ssif Interface Ipmb Interface Usb Interface Oem1 Interface Oem2 Interface	Type of Interface to communicate BMC from HOST.
Wait For BMC	Enabled 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.

FRB-2 Timer	Enabled**[Default]** Disabled	Enable or Disable FRB-2 time (POST timer).
FRB-2 Timer timeout	6	Enter value Between 3 to 6 min for FRB-2 Timer Expiration value.
FRB-2 Timer Policy	Do Nothing**[Default]** Reset Power Down Power Cycle	Configure how the system should respond if the FRB-2 Timer expires. Not available if FRB-2 Timer is disabled.
OS Watchdog Timer	Enabled Disabled**[Default]**	If enabled, starts a BIOS timer which can only be shut off by Management Software after the OS loads. Helps determine that the OS successfully loaded or follows the OS Boot Watchdog Timer policy.
Power Control Policy	Do Not PowerUp Last Power State Power Restore Unspecified**[Default]**	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.

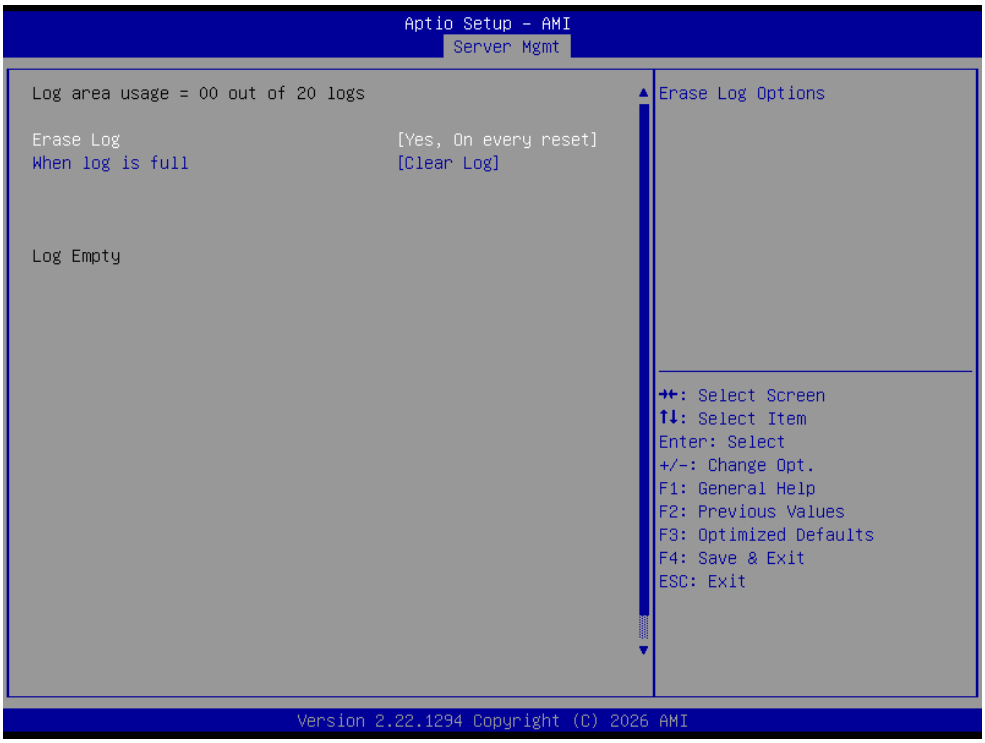
4.6.5.1 System Event Log



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**[Default]** Erase Immediately Delete Oldest Record	Choose options for reactions to a full SEL.
Log EFI Status Codes	Disabled Both	Disable the logging of EFI Status Codes or log only error code or only progress code or both.

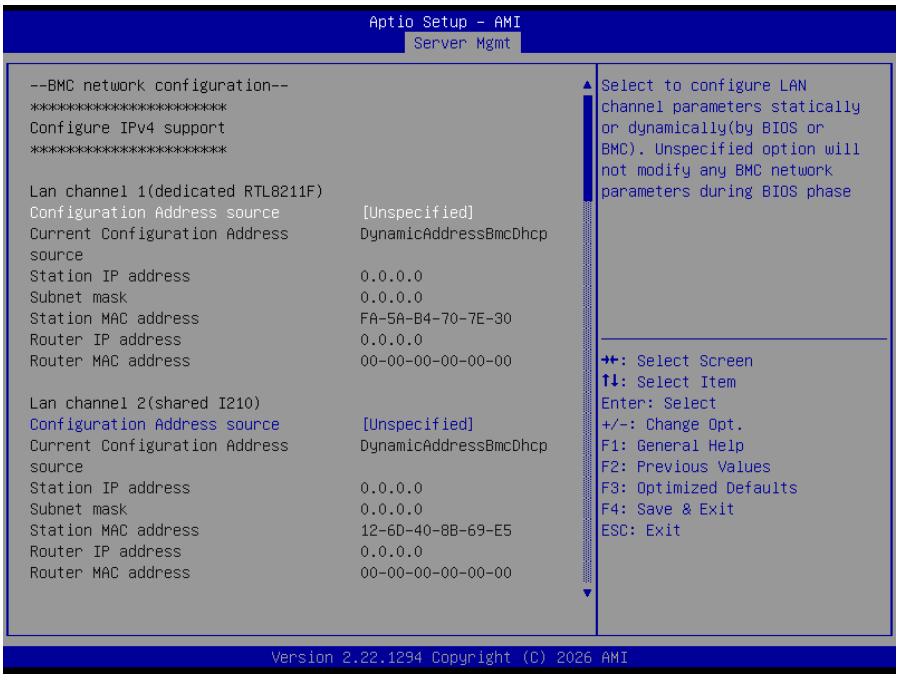
	Error code**[Default]** Progress code	

4.6.5.2 Bmc self test log



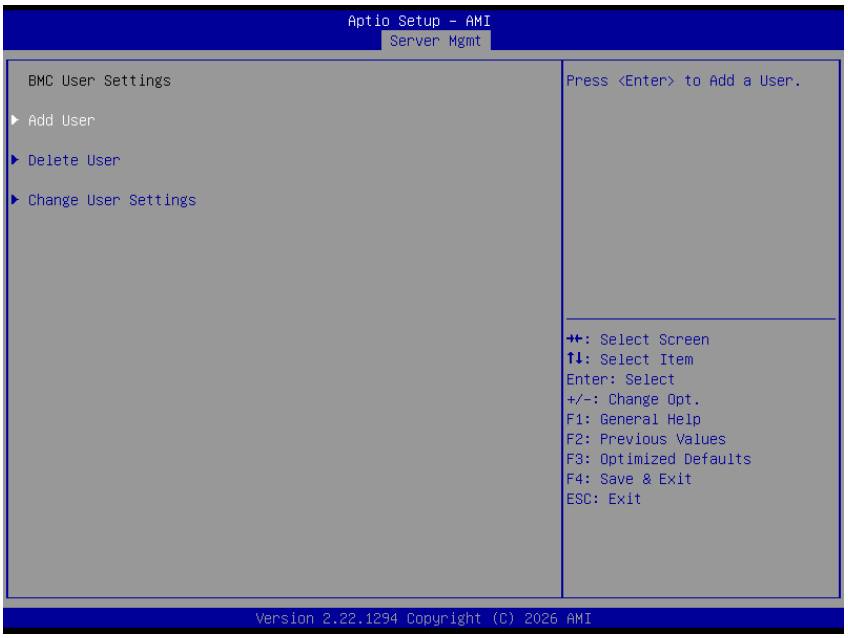
Item	Option	Description
Erase Log	Yes, On every reset**[Default]** No	Erase Log Options.
When log is full	Clear Log**[Default]** Do not log any more	Select the action to be taken when log is full.

4.6.5.3 BMC network configuration

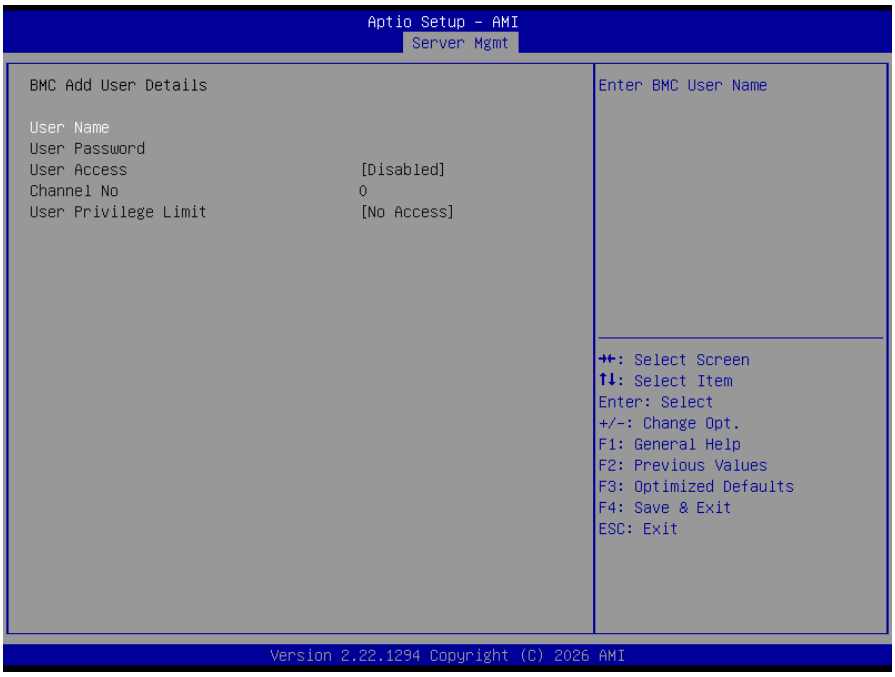


Item	Option	Description
Configuration Address source	Unspecified**[Default]** Static DynamicBmcDhcp DynamicBmcNonDhcp	Select configure LAN channel parameters statically or dynamically(by BIOS or BMC). Unspecified option will not modify any BMC network parameters during BIOS phase.
Configuration Address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

4.6.5.4 BMC User Settings

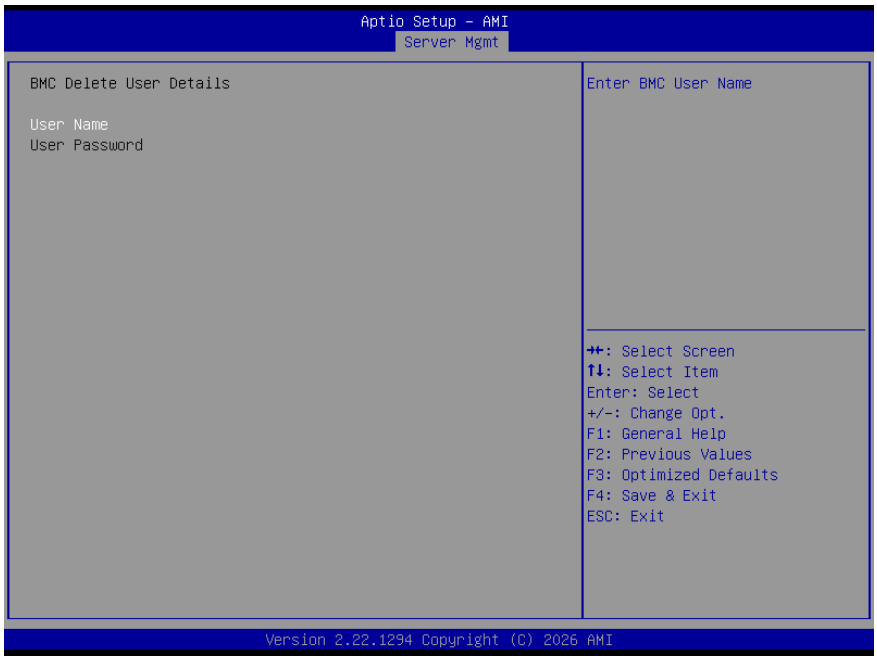


4.6.5.4.1 BMC Add User Details



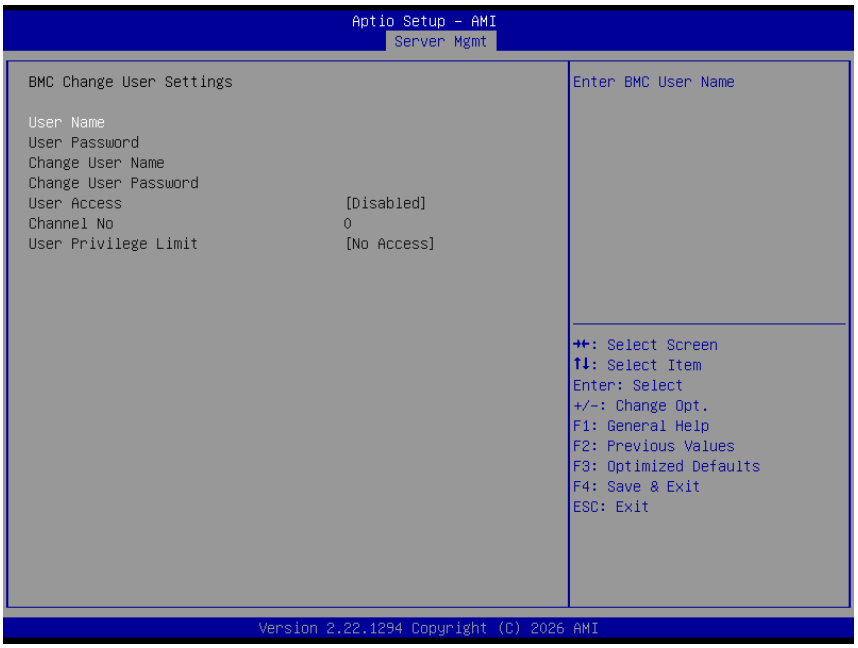
Item	Description
User Name	Enter BMC User Name.

4.6.5.4.2 BMC Delete User Details



Item	Description
User Name	Enter BMC User Name.

4.6.5.4.3 BMC Change User Settings



Item	Description
User Name	Enter BMC User Name.

4.6.6 Security



- **Administrator Password**

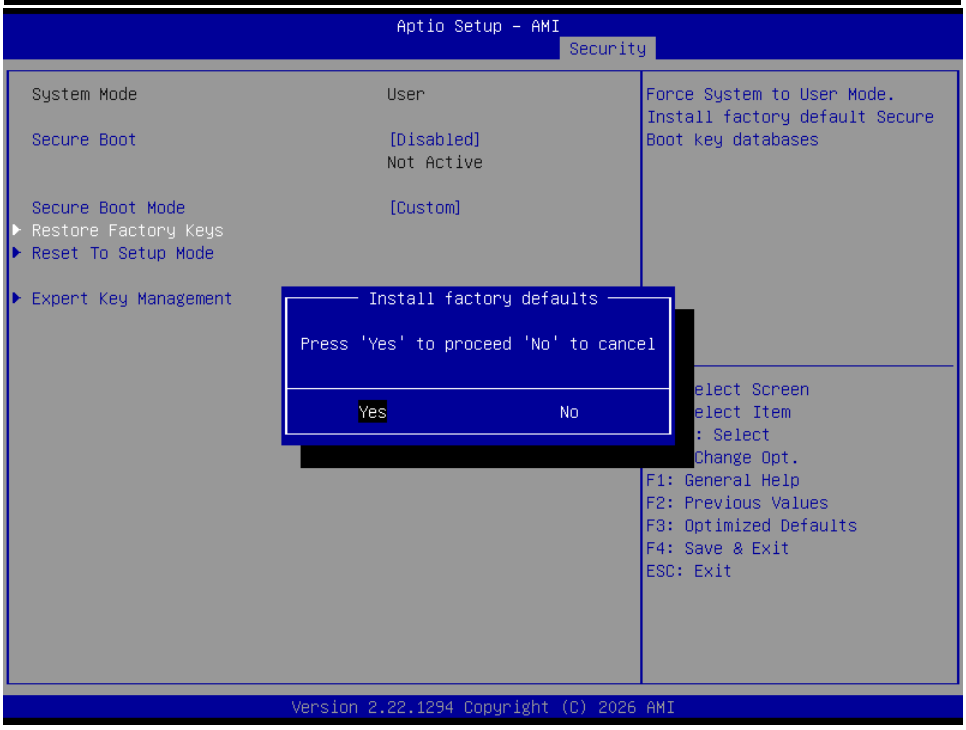
Set setup Administrator Password

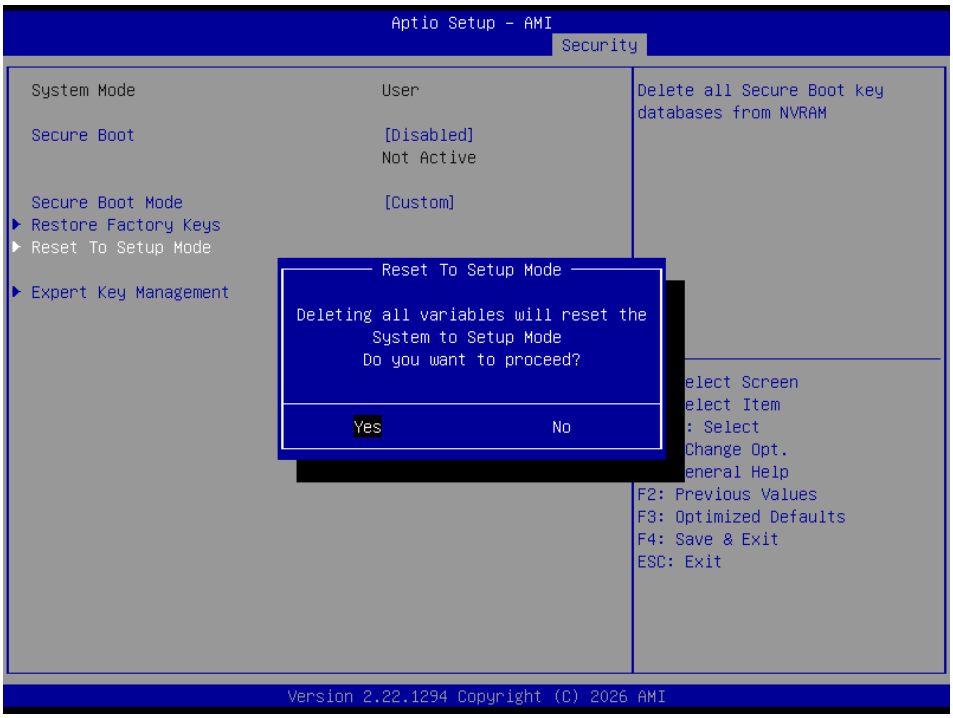
- **User Password**

Set User Password

4.6.6.1 Secure Boot

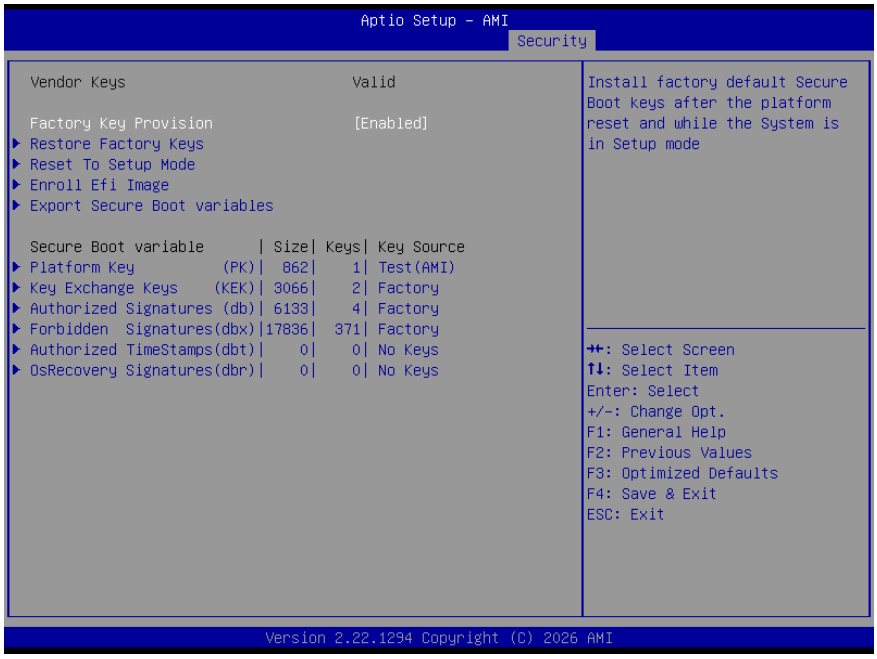






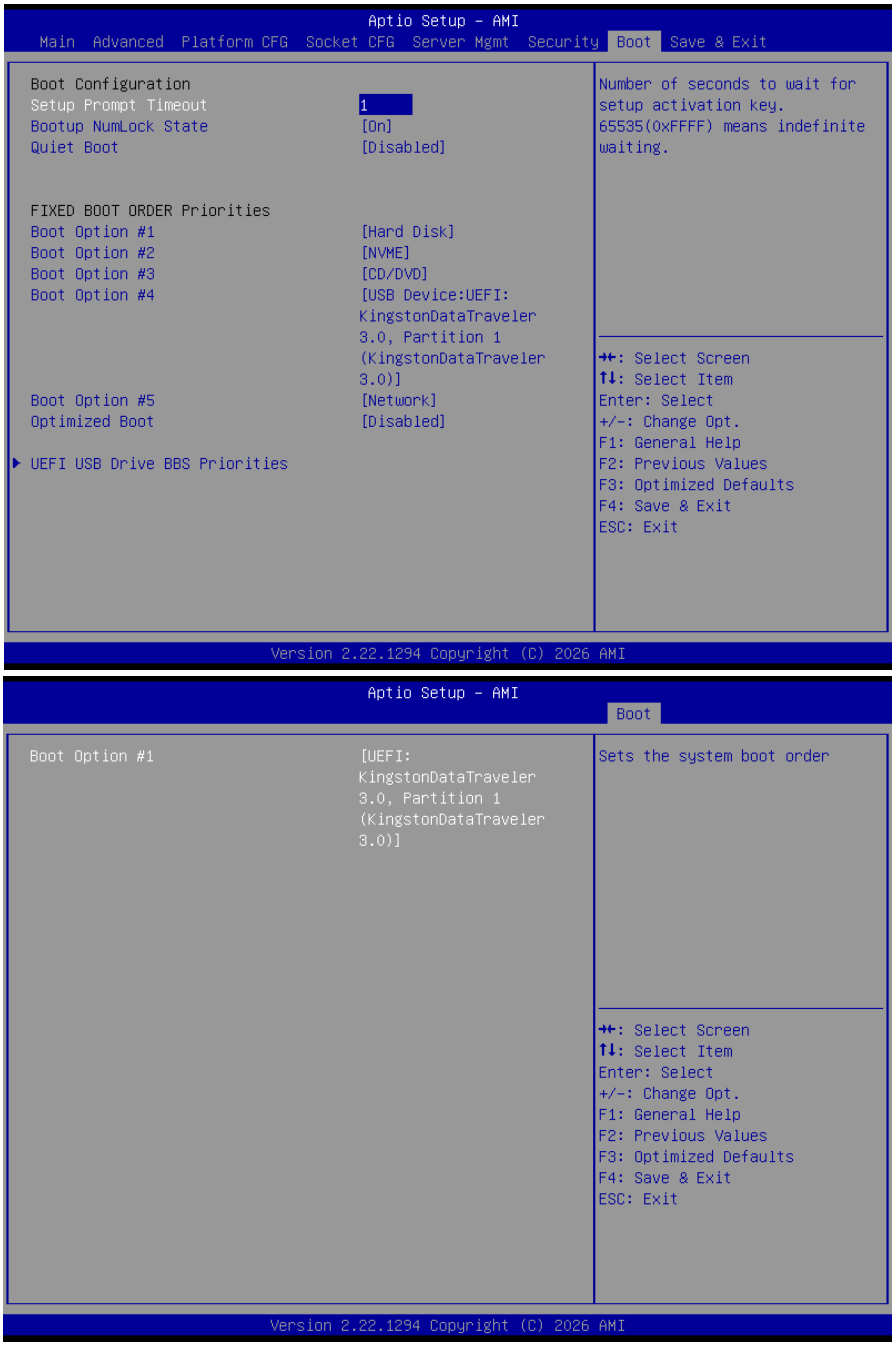
Item	Option	Description
Secure Boot	Disabled**[Default]** Enabled	Secure Boot feature is Active if Secure Boot is Enabled, Platform Key(PK) is enrolled and the System is in User mode. The mode change requires platform reset.
Secure Boot Mode	Standard**[Default]** Custom	Secure Boot mode options: Standard or Custom. In Custom mode, Secure Boot Policy variables can be configured by a physically present user without full authentication.

4.6.6.1.1 Expert Key Management



Item	Option	Description
Factory Key Provision	Disabled**[Default]** Enabled	Install factory default Secure Boot keys after the platform reset and while the Sysstem is in Setup mode.

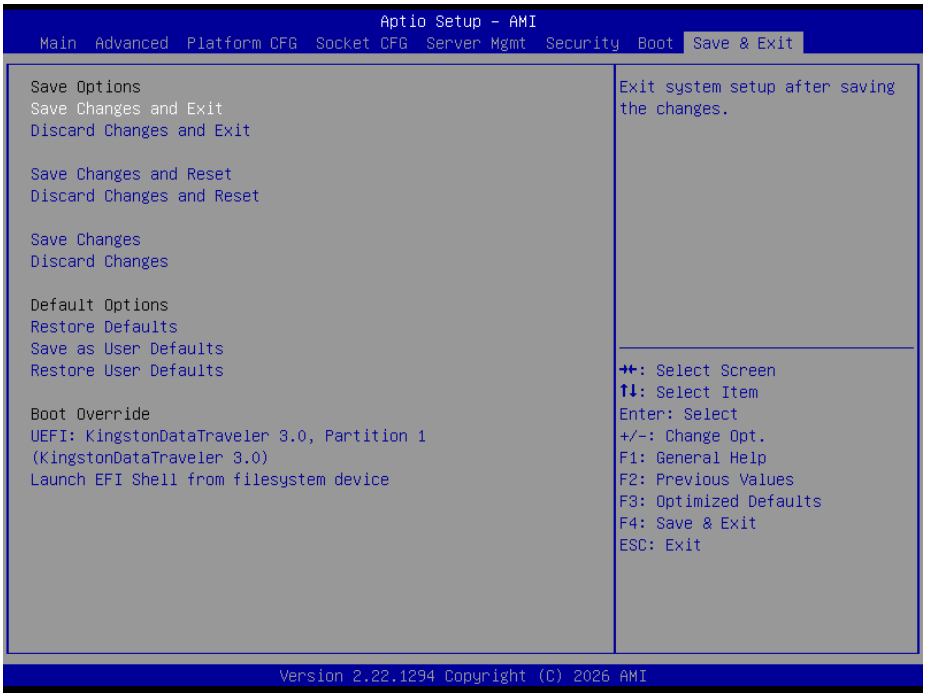
4.6.7 Boot

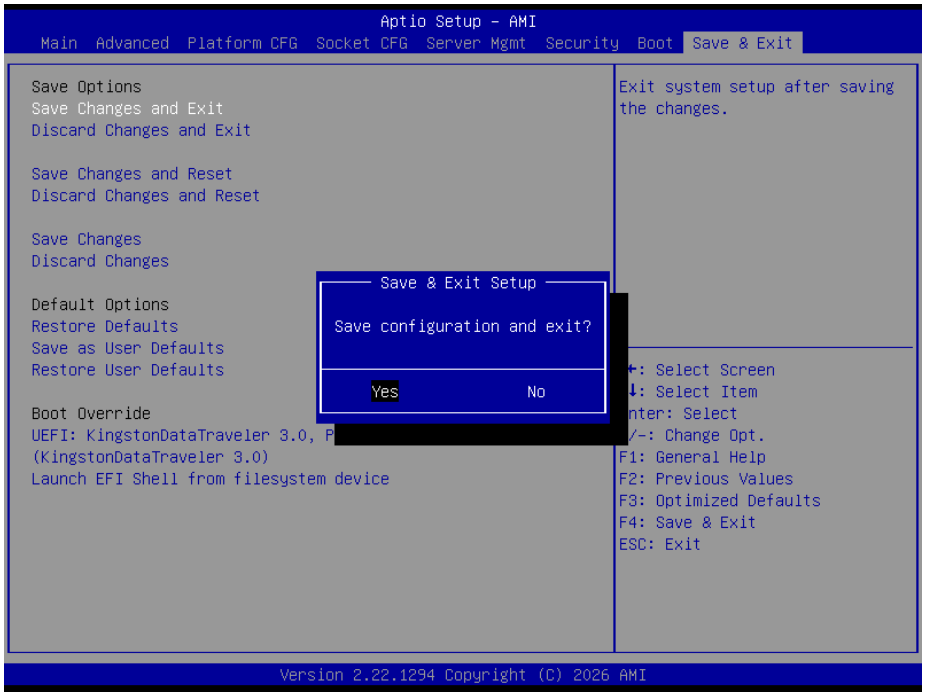


Item	Option	Description
Setup Prompt Timeout	1~ 65535	Set the default timeout before system boot. A value of 65535 will disable the timeout completely.
Bootup NumLock State	On**[Default]** Off	Select the keyboard NumLock state

Quiet Boot	Disabled**[Default]** Enabled	Enables or disables Quiet Boot option
Boot Option #1	Hard Disk**[Default]** NVME CD/DVD SD USB Device Network	Set the system boot order.
Boot Option #2	Hard Disk NVME**[Default]** CD/DVD SD USB Device Network	Set the system boot order.
Boot Option #3	Hard Disk NVME CD/DVD**[Default]** SD USB Device Network	Set the system boot order.
Boot Option #4	Hard Disk NVME CD/DVD SD**[Default]** USB Device Network	Set the system boot order.
Boot Option #5	Hard Disk NVME CD/DVD SD USB Device Network**[Default]**	Set the system boot order.
Optimized Boot	Disabled**[Default]** Enabled	Enables or disables Optimized Boot. Enabling Optimized Boot will disable Csm support and disable connecting Network devices to decrease boot time. While disabling Optimized Boot, make sure to restore Csm Support option to previous value before enabling Optimized Boot.

4.6.8 Save and exit





4.6.8.1 Save Changes and Exit

Use the save changes and reset option to save the changes made to the BIOS options and to exit the BIOS configuration setup program.

4.6.8.2 Discard Changes and Exit

Use the Discard changes and Exit option to exit the system without saving the changes made to the BIOS configuration setup program.

4.6.8.3 Save Changes and Reset

Reset the system after saving the changes.

4.6.8.4 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.

4.6.8.5 Save Changes

Changes made to BIOS settings during this session are committed to NVRAM. The setup program remains active, allowing further changes.

4.6.8.6 Discard Changes

Any changes made to BIOS settings during this session of the BIOS setup program are discarded. The BIOS setup continues to be active.

4.6.8.7 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.

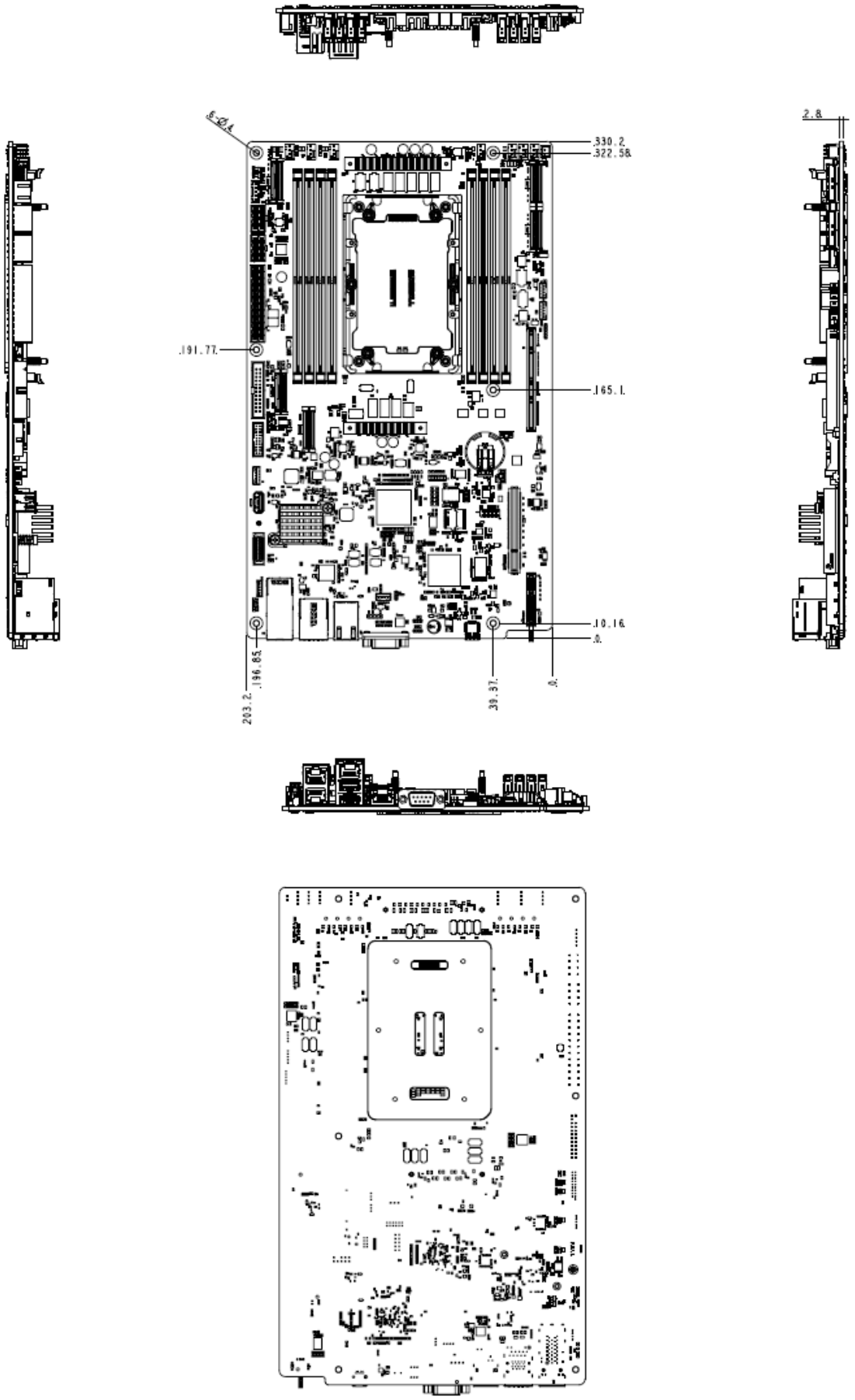
4.6.8.8 Save as User Defaults

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

4.6.8.9 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.

5. Mechanical Drawing



Unit: mm

6. Maintenance & Troubleshooting

System Maintenance Introduction
If the components of the product fail they must be replaced.
Please contact the system reseller or vendor to purchase the replacement parts. Please follow the safety precautions outlined in the sections that follow

General Safety Precautions

Please ensure the following safety precautions are adhered to at all times.

1. Follow the electrostatic precautions outlined below whenever the device is opened.
2. Make sure the power is turned off and the power cord is disconnected whenever the product is being installed, moved or modified.
3. To prevent the risk of electric shock, make sure power cord is unplugged from wall socket. To fully disengage the power to the unit, please disconnect the power cord from the AC outlet. Refer servicing to qualified service personnel. The AC outlet shall be readily available and accessible.
4. Do not apply voltage levels that exceed the specified voltage range. Doing so may cause fire and/or an electrical shock. Use a power cord that matches the voltage of the power outlet, which has been approved and complies with the safety standard of your particular country.
5. Electric shocks can occur if the product chassis is opened when it is running. To avoid risk of electric shock, this device must only be connected to a supply mains with protective earth.
6. Do not drop or insert any objects into the ventilation openings of the product.
7. If considerable amounts of dust, water, or fluids enter the device, turn off the power supply immediately, unplug the power cord, and contact your dealer or the nearest service center.
8. This equipment is not suitable for use in locations where children are likely to be present.
9. DO NOT:

- Drop the device.
- In a site where the ambient temperature exceeds the rated temperature.

Anti-Static Precautions

WARNING:
Failure to take ESD precautions during the installation of the product may result in permanent damage to the product and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the product. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the product is opened and any of the electrical components are handled, the following anti-static precautions are strictly adhered to.

- Wear an anti-static wristband: Wearing a simple anti-static wristband can help to prevent ESD from damaging any electrical component.
- Self-grounding: Before handling any electrical component, touch any grounded conducting material. During the time the electrical component is handled, frequently touch any conducting materials that are connected to the ground.
- Use an anti-static pad: When configuring or working with an electrical component, place it on an anti-static pad. This reduces the possibility of ESD damage.
- Only handle the edges of the electrical component. When handling the electrical component, hold the electrical component by its edges. Please ensure the following safety precautions are adhered to at all times.

Maintenance and Cleaning

When maintaining or cleaning the product, please follow the guidelines below.

WARNING:

- For safety reasons, turn-off the power and unplug the PC before cleaning.
- If you dropped any material or liquid such as water onto the PC when cleaning, unplug the power cable immediately and contact your dealer or the nearest service center. Always make sure your hands are dry when unplugging the power cable.

Maintenance and Cleaning

Prior to cleaning any part or component of the product, please read the details below.

- Never spray or squirt liquids directly onto any other components.
- The interior of the device does not require cleaning. Keep fluids away from the device interior.
- Be cautious of all small removable components when vacuuming the device.
- Never drop any objects or liquids through the openings of the device.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the device.
- Avoid eating, drinking and smoking within vicinity of the device.