



MegaEdge Series

AIP-FR68-A2

USER MANUAL

Version control

Version	Date	Description	Authors
V0.1	2023/11/07	Preliminary Release.	Sean Shih
V0.2	2023/11/22		Felipe
V0.3	2023/12/13		Sean Shih
V1.0	2024/01/22	Add power supply wiring information	Sean Shih
V1.1	2026/03/02	Revise GPU support information	Sean Shih

Disclaimer

The information presented in this document is for informational purposes only and may contain technical inaccuracies, omissions and typographical errors.

The information contained herein is subject to change and may be rendered inaccurate for many reasons, including but not limited to product and roadmap changes, component and motherboard version changes, new model and/or product releases, product differences between differing manufacturers, software changes, BIOS flashes, firmware upgrades, or the like. Aetina assumes no obligation to update or otherwise correct or revise this information. However, Aetina reserves the right to revise this information and to make changes from time to time to the content hereof without obligation of Aetina to notify any person of such revisions or changes.

Aetina makes no representations or warranties with respect to the contents hereof and assumes no responsibility for any inaccuracies, errors or omissions that may appear in this information. Aetina specifically disclaims any implied warranties of merchantability or fitness for any particular purpose. in no event will Aetina be liable to any person for any direct, indirect, special or other consequential damages arising from the use of any information contained herein, even if nvidia is expressly advised of the possibility of such damages.

Copyright Notice

No part of this manual may be reproduced, copied, translated, or transmitted in any form or by any means without the prior written permission of the original manufacturer. Information provided in this manual is intended to be accurate and reliable. However, the original manufacturer assumes no responsibility for its use, or for any infringements upon the rights of third parties that may result from its use.

The material in this document is for product information only and is subject to change without notice. While reasonable efforts have been made in the preparation of this document to assure its accuracy, Aetina assumes no liabilities resulting from errors or omissions in this document, or from the use of the information contained herein.

Aetina reserves the right to make changes in the product design without notice to its users.

Version 1.0

Copyright©2024 by Aetina, Inc. All rights reserved.

Acknowledgements

All other products' name or trademarks are properties of their respective owners.

- NVIDIA®, the NVIDIA logo, Jetson™ and Jetson Xavier™ are trademarks of the NVIDIA Corporation
- Intel®, Core™ are trademarks of Intel®, Corporation.
- Microsoft Windows® is a registered trademark of Microsoft Corp
- IBM and VGA are trademarks of International Business Machines Corporation.
- Ubuntu is a registered trademark of Canonical
- ESS is a trademark of ESS Technology, Inc.

All other product names or trademarks are properties of their respective owners. No ownership is implied or assumed for products, names or trademarks not herein listed by the publisher of this document. For more information about this and other Aetina products, please visit our web-site at: <http://www.Aetina.com/>

Customer Support Overview

Contact your distributor, sales representative, or Aetina's customer service center for technical support if you need additional assistance. Please have the 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

Visit the Aetina website at <https://www.Aetina.com/support-warranty-policy.php> where you can find the latest information about the product.

Contact Information

Aetina Corporation | Headquarters

17F, No.237, Sec.1, Datong Rd., Xizhi Dist., New Taipei City 221, TAIWAN

Phone +886-2-7709 2568

Fax +886-2-7746 1102

Mail sales@Aetina.com

Product Warranty (2 years)

Aetina guarantees that each of its products will be free from material and workmanship defects for two years from the purchase date, for you, the original buyer.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Aetina, or which have been subject to misuse, abuse, accident or improper installation. Aetina assumes no liability under the terms of this warranty as a consequence of such events.

Because of Aetina's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an Aetina product is defective, it will be repaired or replaced at no charge during the warranty period. For out of warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU speed, Aetina products used other hardware and software used, etc.) Note anything abnormal and list any onscreen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return merchandise authorization) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy of the proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

ESD Warning

This product, like all electronic products, uses the product that can be damaged by electrostatic discharge (ESD). When handling, care must be taken so that the devices are not damaged. Damage due to inappropriate handling is not covered by the warranty. The following precautions must be taken:

- Do not open the protective conductive packaging until you have read the following and are at an approved anti-static workstation.
- If working on a prototyping board, use a soldering iron or station that is marked as ESD-safe.
- Always disconnect the product from the prototyping board when it is being worked on.
- Always discharge yourself by touching a grounded bare metal surface or approved anti-static

- mat before picking up an ESD - sensitive electronic component.
- Use an approved anti-static mat to cover your work surface.

Safety Precautions

Please read the following safety instructions carefully. It is advised that you keep this manual for future references:

1. All cautions and warnings on the equipment should be noted.
2. Make sure the power source matches the power rating of the device.
3. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
6. Always completely disconnect the power before working on the system's hardware.
7. Keep this equipment away from humidity.
8. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
9. The openings on the enclosure are for air convection. Protect the equipment from overheating. **DO NOT COVER THE OPENINGS.**
10. Be sure that the room in which you choose to operate your system has adequate air circulation. Ensure that the chassis cover is secure.
11. The chassis design allows cooling air to circulate effectively. An open chassis permits air leaks, which may interrupt and redirect the flow of cooling air from internal components.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
14. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
15. If any of the following situations arises, please the contact our service personnel:
 - Damaged power cord or plug
 - Liquid intrusion to the device
 - Exposure to moisture
 - Device is not working as expected or in a manner as described in this manual
 - The device is dropped or damaged
 - vi. Any obvious signs of damage displayed on the device
16. System Battery
 - This product contains a button battery.
 - If swallowed, a lithium button battery can cause severe or fatal injuries within 2 hours.

- Keep batteries out of reach of children.
- If you think batteries may have been swallowed or placed inside any part of the body, seek immediate
- medical attention.
- To avoid potential battery explosion, causing injury or damage to components, ensure that you replace
- the existing battery with a battery of the same type.
- Dispose of used batteries properly according to local regulations or the instructions of the battery

Box Contents

Item	Quantity
AIP-FR68 System	1
Wall Mount Bracket_C/FR68	2
Stopper Bracket_PCl e Card	2
Silicon Rubber Foot (Type1)	4
Silicon Rubber Foot (Type2)	4
Silicon Rubber Foot (Type3)	4
Circle Key Lock_D12x2 positionsx1 key pullxTurn90	1
MEAN WELL HEP-600-24 (Option)	1
Power Supply AC Cable (Option)	1
Power Supply DC Cable (Option)	1
Power Cord (Option)	1
2.5" SSD Screw	16

Content

Version control	1
Disclaimer	2
Copyright Notice.....	2
Acknowledgements.....	3
Customer Support Overview	3
Contact Information	3
Product Warranty (2 years).....	4
ESD Warning	4
Safety Precautions	5
Box Contents	7

Product information 9

System outlook.....	9
Feature	9
Specification	10
I/O layout	12
Mechanical layout.....	13
I/O Connectors & Function	14
GPU Card installation.....	24
SSD installation	26
Internal I/O.....	28

EdgeEye 29

Aetina 360 Edge Administration Platform	29
---	----

BIOS Setup..... 30

Beep Codes.....	30
Entering BIOS Setup	31
BIOS Controls	31
BIOS Main Tab	32
BIOS Advanced Tab.....	33
BIOS Chipset Tab	40
BIOS Security Tab	48
BIOS Boot Tab	49

Product information

System outlook



Feature

- Featuring with NVIDIA® RTX PRO™ 6000 Blackwell Max-Q Workstation Edition deliver strong performance for AI workload.
- Specialized Thermal design to support Dual Qualcomm Cloud AI100 Ultra for localized AI Inference
- Drive breakthrough AOI AI defect inspection with Metropolis for Factories.
- Support out-of-band (OOB) management for remote maintenance of edge devices

Specification

Model Number	AIP-FR68-A2
CPU	12/13/14 th Gen. Intel® Core™ i9/i7/i5 Processor up to 65W
Graphics	Intel® UHD Graphics 770
Chipset	Intel® R680E Chipset
System Memory	4x DDR5 U-DIMM Slot support, up to 8/16/32/48GB Capacity/ch -2DPC-1DMM 4400MT/s -2DPC-2DIMM(1R) 4000MT/s -2DPC-2DIMM(2R) 3600MT/s
Storage	4 x 2.5" SATAIII SSD (RAID 0/1/5/10) 1 x M.2 M-Key Slot, Support PCIe Gen4 x4 for NVME, Size 2280 1 x M.2 M-Key Slot, Support PCIe Gen4 x4 for NVME/SATAIII, Size 2280 (NVME Gen 4 available to support dual M.2 AI accelerator)
USB	8 x USB 3.2 Gen2 x 1 (Type-A), 1 x USB 3.2 Gen2 x 2 (Type-C)
LAN	3 x 2.5G RJ-45 Ethernet (I226-LM, LAN2/LAN3 optional support 803.2at PoE up to 30W/ch), 1 x 10G BASE-T RJ-45 (Marvell AQC113)
Serial port	1 x RS-485 (COM3, RJ45), 2 x RS-232/422/485 (COM1/2, DB9)
Display	1x HDMI 2.0 (resolution up to 4K @60Hz) 2x DP++1.4 (resolution up to 4K @60Hz) 1x VGA (resolution up to 4K @60Hz), (VGA optional / GPIO either one)
Expansion Slots	1x M.2 E-Key 2230 (USB2.0/PCIe) 1x M.2 B-Key 3052 (USB2.0/USB3.2) 1x PCIe Gen4 x16 or Gen4 x8 (PCIe x16 slot) 1x PCIe Gen4 x8 (PCIe x16 slot) 1x PCIe Gen3 x4 (PCIe x4 slot) 1x PCIe Gen3 x4 (PCIe x16 slot) 1x PCIe Gen3 x1 (PCIe x1 slot)

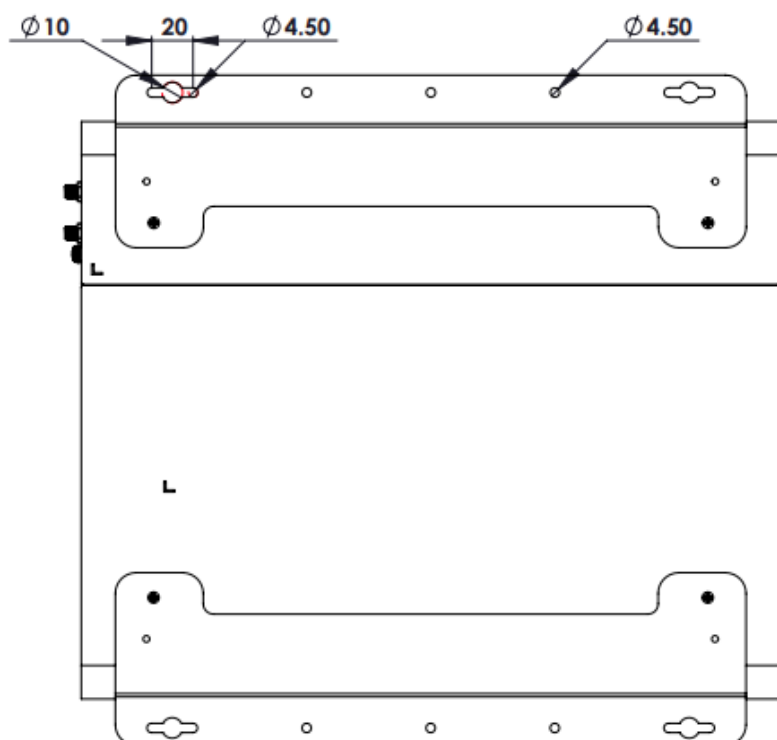
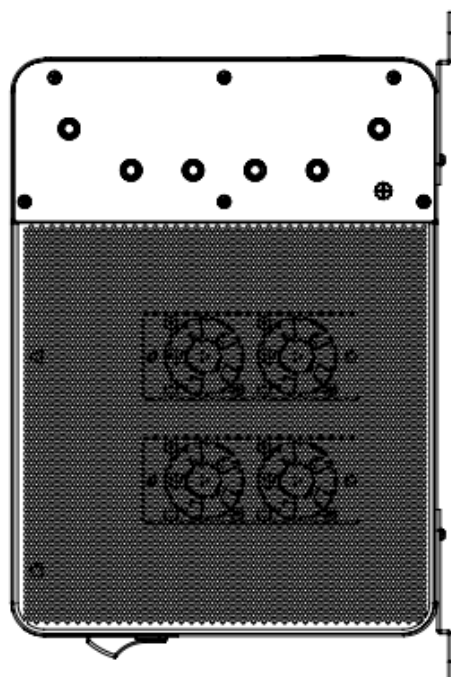
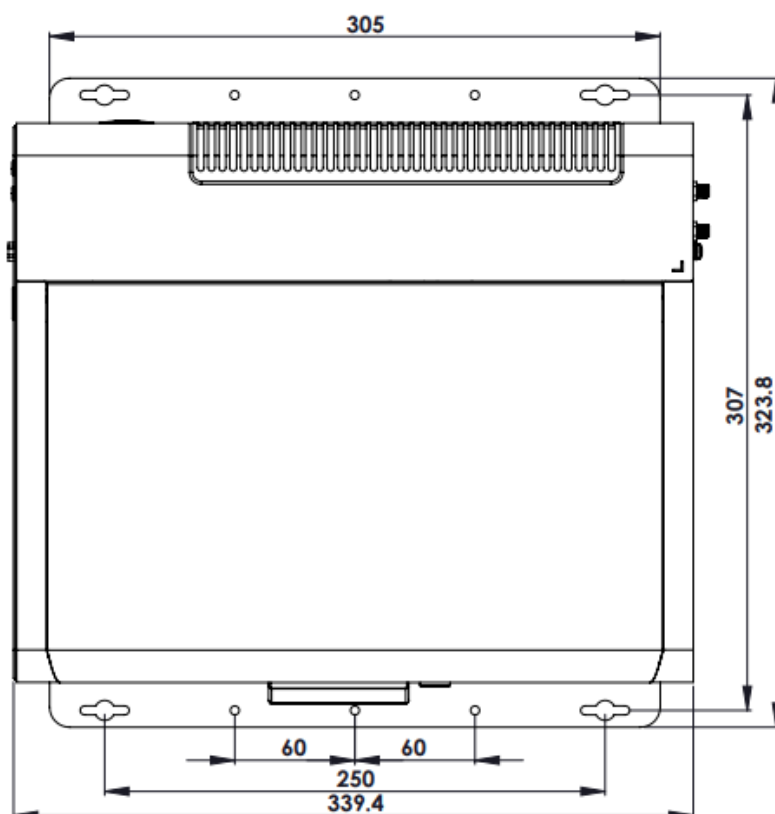
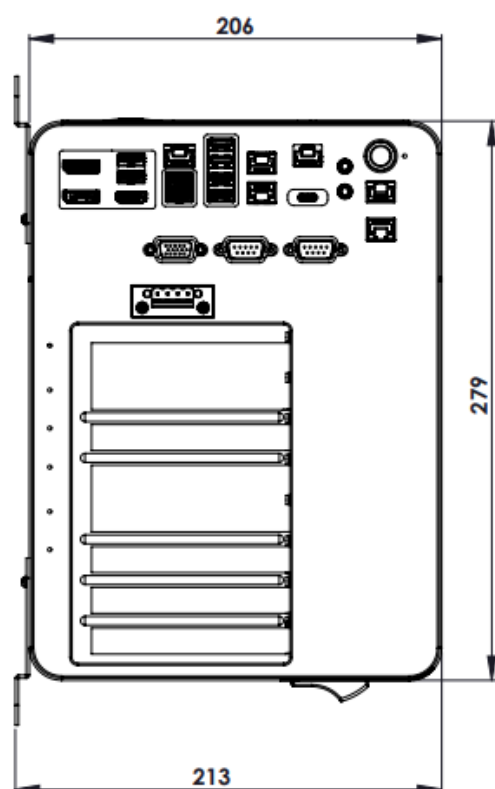
SIM Slot	1 x Nano SIM slot
GPIO	8 x bits GPIO (Default 8x in)
Audio	1 x Line-out, 1 x Mic-in
Button	1 x Power button, 1 x AI button
Indicator	PCIe Slot 1&2 status indicator (POWER/FAN/TEMP)
MISC. Function	OOB (out of band), Built-in Innodisk – InnoAgent
Power Consumption	Full loading: Support up to 600 Watts
Power Input /Connector	DC-in 24~48V (Power input up to 600W), 4-pin Terminal Block
Dimension (WxDxH)	340 x 213 x 279 mm
GPU Card support Dimension (HxWxD)	Based on NVFF5.0, 112 x 269 x 39 mm (for Dual slots card) 112 x 244 x 19 mm (for Single Slot card)
Mounting	Wall mount
Net Weight	11 kg
Vibration	1Grms, IEC60068-2-64, Random, 5 ~ 500 Hz ,1Hr / Axis (operation, w/o PCIe Card)
Shock	10G, IEC 60068-2-27, Half Sine, 11 ms Duration (operation, w/o PCIe Card)
Temperature	Operating Temp.: 0°C ~ + 50°C (32°F ~ 122°F) (w/o GPU) Operating Temp.: 0°C ~ + 50°C (32°F ~ 122°F) (w/ 165W Passive GPU) Operating Temp.: 0°C ~ + 40°C (32°F ~ 104°F) (w/ 300W Active GPU) Storage Temp.: -40°C ~ + 85°C (- 40°F ~185°F)
Humidity	95% @ 40°C Related Humidity, Non-condensing
OS Support	Win10 IOT LTSC, Win11, Linux Ubuntu 22.04
Security	TPM 2.0
Certification	CE/FCC Class A, UKCA, LVD, RoHS, BIS

I/O layout



No	item	No	item
1	Power Button	11	DP++1.4
2	10G LAN	12	COM1 (RS-232/422/485)
3	OOB	13	COM2 (RS-232/422/485)
4	Line out/Mic in	14	DIO/VGA (either one)
5	COM3(RS-485)	15	Power input connector
6	USB Type-C	16	PCIe slot status indicator
7	LAN2/3 (PSE optional)	17	PCIe Slot
8	USB3.2 Type-A	18	Antenna hole (back view)
9	LAN1/USB3.2 Type-A	19	Key lock (side view)
10	USB3.2 Type-A/HDMI 2.0	20	2.5" SATA Bay (in chassis)

Mechanical layout



I/O Connectors & Function

1. Power button

Power on/off button, system startup & shutdown or awaken the system from sleep state. With PWR LED in Green. S3 Sleep mode LED Flashing.



2. 10G LAN (RJ45 connector)

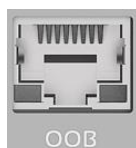
Provide 10G LAN by Marvell AQC113 LAN chip



Mode	Indicator
Active/Link	Green
Speed	Indicator
10G	Green
Under 5G	Orange

3. OOB (RJ45 connector)

Out-of-Band (OOB) LAN module with RJ45 connector allows remote management of network infrastructure at 10/100Mbps. Aetina's OOB enables remote power control and rebooting of devices. Ideal for managing networks at remote locations efficiently..



■ Please find OOB User manual

4. Line-out/Mic-in

-Line-out: (Diameter 3.5mm Jack), High-Definition Audio port, an onboard Realtek ALC888S codec is used to provide high quality audio I/O ports. Line-Out can be connected to a headphone or amplifier.

-Mic-in: (Diameter 3.5mm Jack), High-Definition Audio port, an onboard Realtek ALC888S codec is used to provide high quality audio I/O ports. Mic-In is used for the connection of external audio source via a Mic-in cable connected to microphone.



5. COM3 (RS-485, RJ-45)

Rear serial port, standard RJ45 port is provided RS-485 to make a direct connection to serial devices.



Pin#	Pin out
C1	Data -
C2	NC
C3	Data +
C4	NC
C5	NC
C6	NC
C7	NC
C8	NC

6. USB3.2 (Type-C)

Rear standard USB3.2 Type-C port with PCIe Gen2 x2 offers 5VDC/3A power, enabling direct connection to USB Type-C devices.



7. LAN2/LAN3 (RJ45 connector)

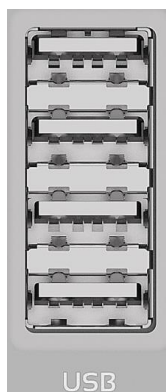
Provide 10M/100M/1G/2.5Gbps by Intel i226LM LAN Chip, option with Aetina PSE module to provide 803.2at 30W/channel. PSE total power supply up to 60W.



Mode	Indicator
Active/Link	Green
Speed	Indicator
2.5G	Green
1G	Orange
10/100M	Turn-off

8. USB3.2 (Type-A Stack)

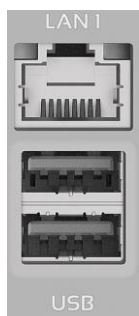
(Quad Stack USB Type A) Rear USB connector offers four USB3.2 ports for data transfer speeds up to 10.0Gb/s. It's compatible with USB 2.0 for both full-speed and low-speed signaling. Each USB Type A port has a current limit of 0.9A.



9. LAN1 (RJ45)/USB3.2 (Type-A)

(Double Stack USB Type A) Rear USB connector supports up to 2x USB3.2 ports, enabling data transfer speeds up to 10.0Gb/s. Compatible with USB 2.0 for both full-speed and low-speed signaling. Each USB Type A port has a current limit of 0.9A

LAN1: (RJ45 Connector), Rear LAN port, one standard 10M/100M/1G/2.5Gbps RJ-45 Ethernet port is provided. Use Intel I226LM chipset.

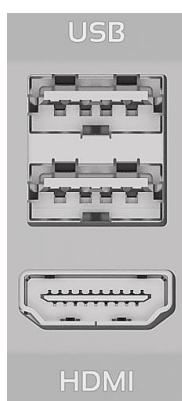


Mode	Indicator
Active/Link	Green
Speed	Indicator
2.5G	Green
1G	Orange
10/100M	Turn-off

10. USB3.2 (Type-A) / HDMI

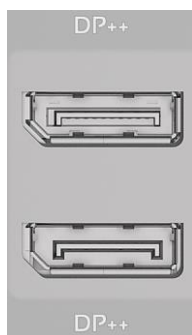
(Double Stack USB Type A) Rear USB connector offers four USB3.2 ports, supporting data transfer speeds up to 10.0Gb/s. It's compatible with USB 2.0 for full-speed and low-speed signaling. Each USB Type A port has a current limit of 0.9A

-High-Definition Multimedia Interface connector, supports HDMI version 2.0



11. DP (Stack DP Connector)

Display Port Interface connector. Support DP++1.4



12. COM1

Rear serial port, standard DB9 Male serial port is provided to make a direct connection to serial devices. RS-232/422/485 Mode selected by BIOS, Default RS-232 mode.

13. COM2

Rear serial port, standard DB9 Male serial port is provided to make a direct connection to serial devices. RS-232/422/485 Mode selected by BIOS, Default RS-232 mode.



■ COM1 & COM2 RS-232 Pin out

Pin#	Pin out
Pin 1	DCD
Pin 2	RXD
Pin 3	TXD
Pin 4	DTR
Pin 5	GND
Pin 6	DSR
Pin 7	RTS
Pin 8	CTS
Pin 9	RI

■ COM1 & COM2 RS-422/HALF Pin out

Pin#	Pin out
Pin 1	
Pin 2	RX+
Pin 3	
Pin 4	RX-
Pin 5	
Pin 6	
Pin 7	
Pin 8	
Pin 9	

■ COM1 & COM2 RS-422/FULL Pin out

Pin#	Pin out
Pin 1	TX-
Pin 2	TX+
Pin 3	RX+
Pin 4	RX-
Pin 5	
Pin 6	
Pin 7	
Pin 8	
Pin 9	

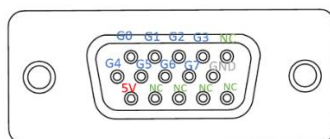
■ COM1 & COM2 RS-485 Pin out

Pin#	Pin out
Pin 1	DATA-
Pin 2	DATA+
Pin 3	
Pin 4	
Pin 5	
Pin 6	
Pin 7	
Pin 8	
Pin 9	

14. VGA/DIO (either one, Default GPIO by cable from MB)

GPIO in DB15 Male connector, pin out reference down below.

VGA in DB15 Female connector, (CRT Connector DB15), video graphic array port, provides high-quality video output.



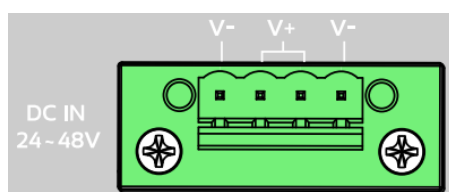
■ GPIO Pin out

Pin #	Function	Remark
1	GPIO_G0	Setup by BIOS
2	GPIO_G1	Setup by BIOS
3	GPIO_G2	Setup by BIOS
4	GPIO_G3	Setup by BIOS
5, 12, 13, 14, 15	NC	
6	GPIO_G4	Setup by BIOS
7	GPIO_G5	Setup by BIOS
8	GPIO_G6	Setup by BIOS
9	GPIO_G7	Setup by BIOS
10	GND	
11	5V	

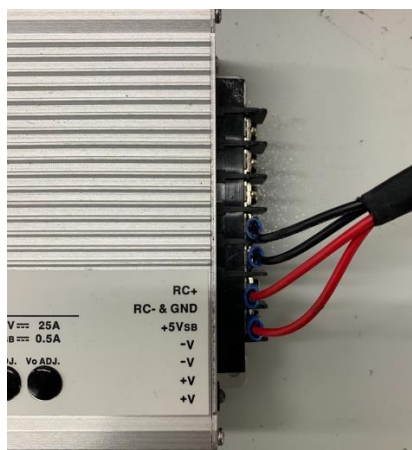
■ GPIO Call function please find GPIO EAPI User manual

15. Power connector

DC24~48V system power input connector supports up to 600 watts by HEP-600-24 power supply for maximum system consumption. See below for power connector pin-out detail



Power supply wiring



HEP-600-24 Power supply DC Side wiring

Pin #	Power supply	DC Cable
1	RC+	
2	RC- & GND	
3	+5Vsb	
4	-V	Black
5	-V	Black
6	+V	Red
7	+V	Red



HEP-600-24 Power supply AC Side wiring

Pin #	Power supply	AC Cable
1	GND	Green
2	L	Black
3	N	White

16. PCIe status indicator,

Those indicators for Power, Fan & Temp show PCIe slot status.



	Item	PCIE 1	PCIE 2
POWER	install with PCIe Card	Green	Green
	No PCIe Card	Red	Red
FAN	install PCIe Card & power access to FAN	Green	Green
	install with PCIe Card but no power access to FAN	Red	Red
TEMP	install with PCIe Card & Chassis temp < 65°C	Green	Green
	install with PCIe Card & Chassis temp > 65°C	Red	Red

17. PCIe Slot

Chassis space design based on NVFF5.0. Therefore, PCIe GPU Card supported dimensions are:

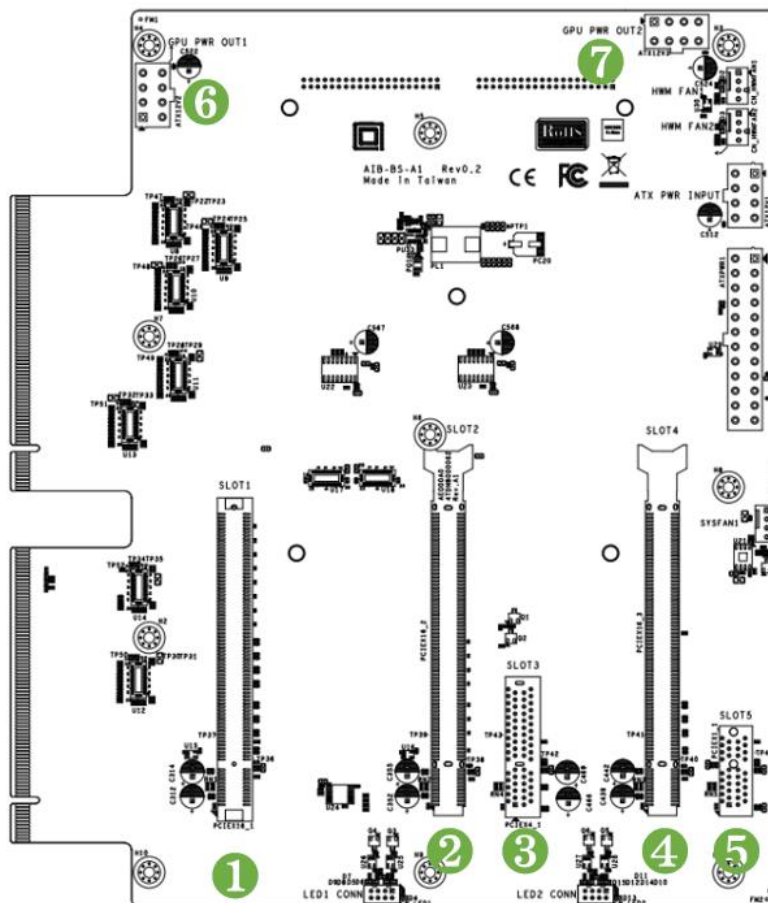
- 112 x 269 x 39 mm (slot1 & 2, for Dual slots GPU Card)
- 112 x 244 x 19 mm (slot1 & 2, for Single Slot GPU card)

and backplane total **power budget up to 300 watts.**

1. Slot1: PCIe Gen4 x16 (or Gen4 x8 while slot2 access) in PCIe x16 slot
2. Slot2: PCIe Gen4 x8 in PCIe x16 slot

-Slot 1 & 2 PCIE Lens from CPU, support GPU & NVME only.

3. Slot3: PCIe Gen3 x4 in PCIe x4 slot
4. Slot4: PCIe Gen3 x4 in PCIe x16 slot
5. Slot5: PCIe Gen3 x1 in PCIe x1 slot
6. ATX 8pin provide 12V/28A for GPU power
7. ATX 8pin provide 12V/28A for GPU power



■ AIP-FR68 Back plane view

GPU Card installation

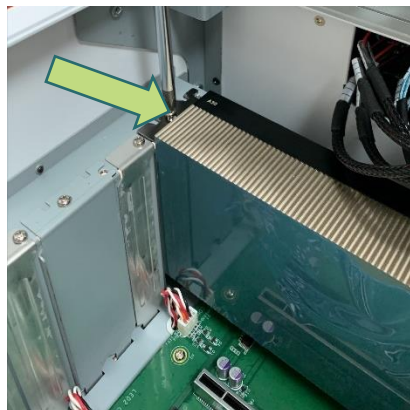
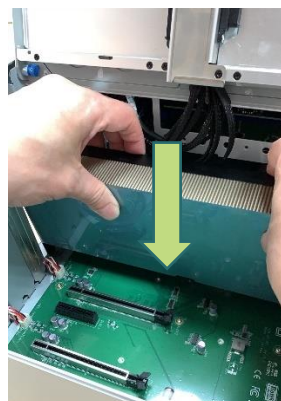
Step 1, Remove PCIe Slot front bracket, insert the GPU card into chassis.



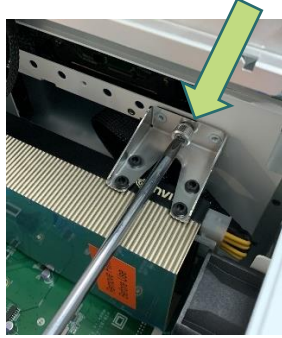
Step 2, Plug in the power cable into the GPU card and backplane ATX-8 pin power connector (ATX-8 pin connector please refer to the back plane view No.6 or No.7.)



Step 3, lower and insert GPU card into the PCIe slot, and secure the front bracket.



Step 4, Choose proper PCIe stopper to fasten the GPU card.



18. Antenna hole

With 6 Antenna holes, it supports SMA connector for 5G/Wi-Fi/BT antenna.

19. Chassis lock hole

Chassis can be either open or locked, with the key located in the peripheral.

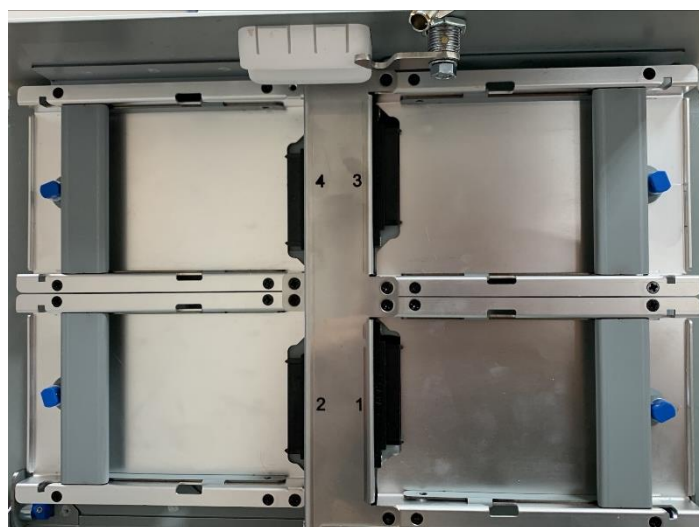


20. 2.5" SSD Bay

4 x2.5" SSD Bay with SATAIII speed up to 6.0Gb/s, and it supports RAID 0/1/5/10.

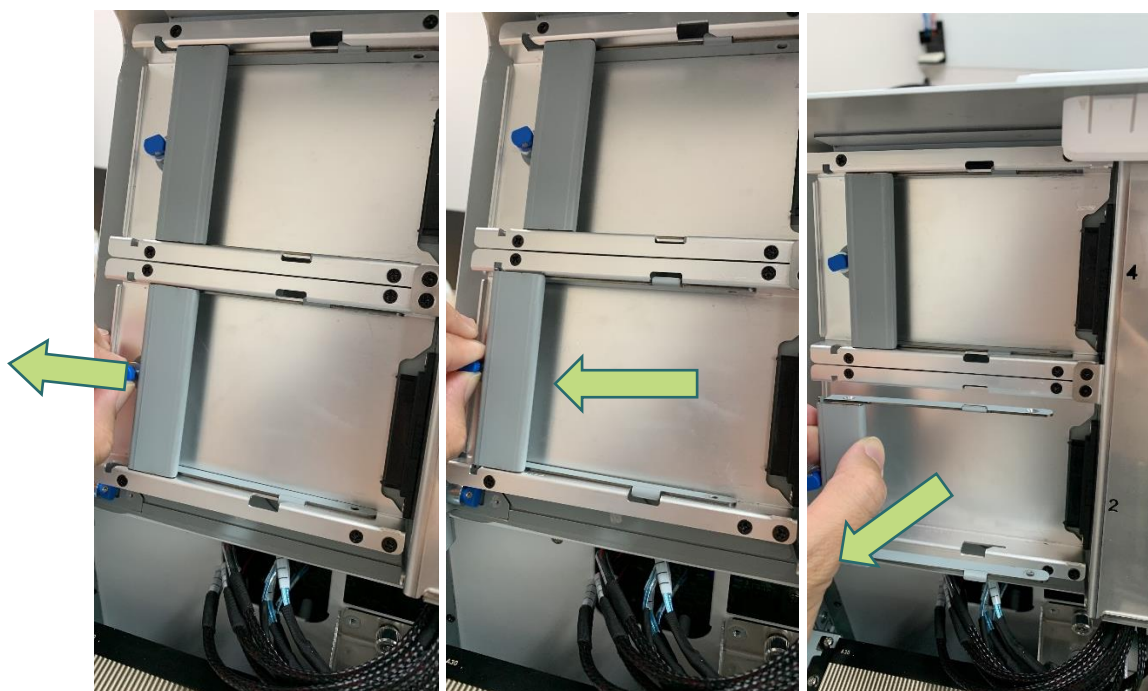


SSD installation



■ 4x2.5" SSD bay view

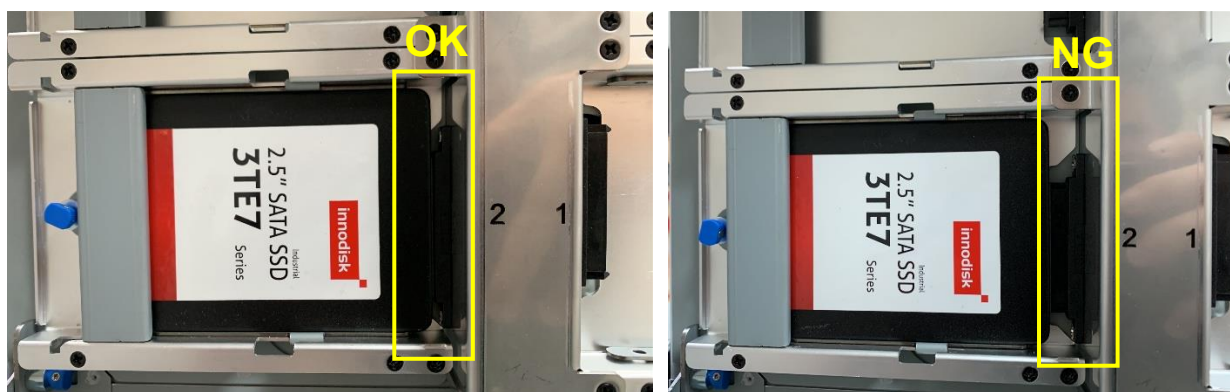
Step 1: pull up blue button then pull-out the SSD bracket and lift the bracket.



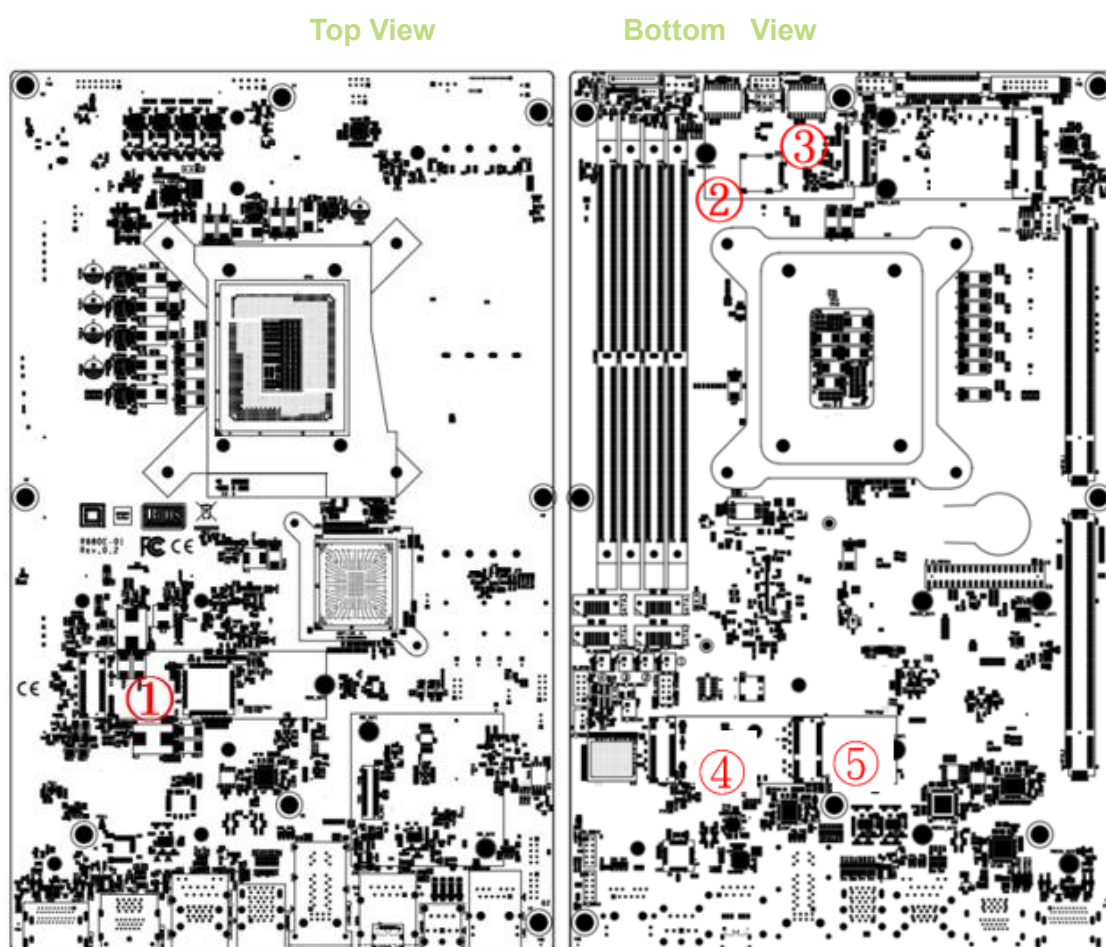
Step 2: secure SSD on bracket (4 screws: 2 on left side & 2 on right side)
(with 16 screws in peripheral for using)



Step 3: Push the SSD back into its bay, ensuring a secure connection to the SATA connector (listen for a click sound to confirm).



Internal I/O



1. M.2 M Key

(M.2 Socket) The M.2 M-Key socket, located on the top side, supports M.2 M-Key devices with PCIe Gen4 x4 and 2280 NVMe.

2. Nano SIM (Nano SIM Socket)

Support Nano SIM Card devices.

3. M.2 B key

(M.2 Socket) The M.2 B-Key socket, situated on the bottom side, supports M.2 B-Key devices with USB3.2 Gen2x1, SIM, and USB2.0 signaling. It is compatible with 3052 size cards.

Function	Support	Remark
USB2.0	V	
USB3.2 Gen2 x1	V	
SIM	V	Bottom view No.2 nano SIM Slot

4. M.2 M Key

(M.2 Socket) Located on the bottom side, the M.2 M-Key socket supports M.2 M-Key devices with PCIe Gen4 x4 2280 NVMe or SATAIII 6.0Gb/s signal.

5. M.2 E key

(M.2 Socket) The M.2 E-Key socket, positioned on the bottom side, supports M.2 E-Key devices with USB2.0 and PCIe Gen3 x1 signals, and is compatible with 2230 size cards.

Function	Support	Remark
USB2.0	V	
PCIe Gen3 x1	V	

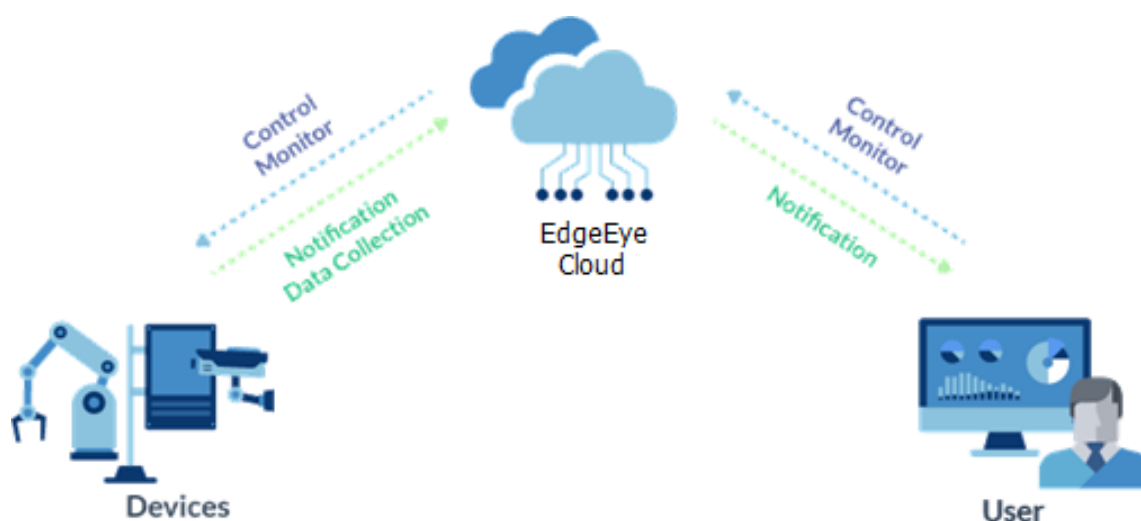
EdgeEye

Aetina 360 Edge Administration Platform

EdgeEye, the Aetina 360 Edge Administration Platform, is a browser-accessed management platform that allows you to monitor and manage edge IOT device around the world. EdgeEye can monitor device's hardware components' utilization and capacity and send notifications immediately. EdgeEye accomplishes this by gathering data from all connected devices and storing it on a central server, either in the cloud or on one's intranet. From there, the data is easily accessible from internet-connected cell phones, tablets, or laptops anywhere.

EdgeEye also can remote control edge device, reboot and shutdown device remotely.

Using EdgeEye can reduce management labor and time. Control and manage edge IOT devices anytime and anywhere.



BIOS Setup

Beep Codes

PEI Beep Codes	Description
1	Memory not Installed
1	Install Per Memory routine in PEI Core was called twice
2	Recovery started
3	DXE IPL was not found
3	DXE Core firmware volume was not found
4	Recovery failed
4	S3 resume failed
7	Reset PPI is not available

DXE Beep Codes	Description
1	Invalid password
3	Some of the architectural protocols are not available
4	No console input devices found
5	No console output devices found
6	Flash update failed
7	Reset protocol is not available
8	Platform PCI resource requirements cannot be met

Entering BIOS Setup

To enter the BIOS setup, press the DELETE key during system boot.

BIOS Controls

The BIOS is entirely controlled by the keyboard, using the following keys:

Hot Key	Description
Left/right	Switch selected menu
Up/down	Select item
Enter	Confirm selection or open sub menu
Plus/minus or F5/F6	Change the value of a setting
F1	Display help screen
F2	Restore previous value
F9	Load optimized default
F10	Save the selected setting
ESC	Discard changes and exit BIOS

BIOS Main Tab

Aptio Setup - AMI

Main Advanced Chipset Security Boot Save & Exit

Project Name	AIP-FR68
BIOS Version	1.00
FSP version	0C.00.BD.20
RC version	0C.E0.BD.20
FSP Mode	Dispatch Mode
CPU Type	13th Gen Intel(R)
	Core(TM) i5-13500E
CPU ID	0xB06F2
Stepping	C0
L1 Data Cache	48 KB x 6
L1 Instruction Cache	32 KB x 6
L2 Cache	1280 KB x 6
L3 Cache	24 MB
Number of Efficient-cores	8Core(s) / 8Thread(s)
Number of Performance-cores	6Core(s) / 12Thread(s)
Microcode Revision	32
Memory RC Version	0.0.4.174
Total Memory	32768 MB
Memory Frequency	4000 MHZ
ME FW Version	16.1.30.2255
LAN1 MAC Address	F8-02-78-22-7B-8D
LAN2 MAC Address	F8-02-78-22-7B-8E
LAN3 MAC Address	F8-02-78-22-7B-8F
LAN4 MAC Address	F8-02-78-22-7B-90
Power Type	ATX

Version 2.22.1290 Copyright (C) 2023 AMI

++: Select Screen
 ↑↓: Select Item
 Enter: Select
 +/-,F5/F6: Change Value
 F1: Help
 F2: Previous Values
 F9: Optimized Defaults
 F10: Save & Reset
 Ctrl+P: Enable MEBx Menu
 ESC: Exit

Aptio Setup - AMI

Main Advanced Chipset Security Boot Save & Exit

RC version	0C.E0.BD.20
FSP Mode	Dispatch Mode
CPU Type	13th Gen Intel(R)
	Core(TM) i5-13500E
CPU ID	0xB06F2
Stepping	C0
L1 Data Cache	48 KB x 6
L1 Instruction Cache	32 KB x 6
L2 Cache	1280 KB x 6
L3 Cache	24 MB
Number of Efficient-cores	8Core(s) / 8Thread(s)
Number of Performance-cores	6Core(s) / 12Thread(s)
Microcode Revision	32
Memory RC Version	0.0.4.174
Total Memory	32768 MB
Memory Frequency	4000 MHZ
ME FW Version	16.1.30.2255
LAN1 MAC Address	F8-02-78-22-7B-8D
LAN2 MAC Address	F8-02-78-22-7B-8E
LAN3 MAC Address	F8-02-78-22-7B-8F
LAN4 MAC Address	F8-02-78-22-7B-90
Power Type	ATX
System Date	[Sun 01/07/2024]
System Time	[21:50:09]

Version 2.22.1290 Copyright (C) 2023 AMI

Set the Time. Use Tab to switch between Time elements.
 ++: Select Screen
 ↑↓: Select Item
 Enter: Select
 +/-,F5/F6: Change Value
 F1: Help
 F2: Previous Values
 F9: Optimized Defaults
 F10: Save & Reset
 Ctrl+P: Enable MEBx Menu
 ESC: Exit

Location: Main

Setting Name	Available Options
System Date	01/01/1998 – 31/12/9999 (DD/MM/YYYY)
System Time	00:00:00 – 23:59:59 (HH/MM/SS)

BIOS Advanced Tab

Aptio Setup - AMI

Main **Advanced** Chipset Security Boot Save & Exit

- ▶ ACPI Settings
- ▶ Warning Settings
- ▶ CPU Configuration
- ▶ Power & Performance
- ▶ Trusted Computing
- ▶ DIO Settings
- ▶ Super IO Configuration
- ▶ Hardware Monitor
- ▶ Serial Port Console Redirection
- ▶ USB Configuration
- ▶ Network Stack Configuration
- ▶ NVMe Configuration
- ▶ BIOS Update

System ACPI Parameters

→+: Select Screen
 ↑↓: Select Item
 Enter: Select
 +/-, F5/F6: Change Value
 F1: Help
 F2: Previous Values
 F9: Optimized Defaults
 F10: Save & Reset
 Ctrl+P: Enable MEBx Menu
 ESC: Exit

Version 2.22.1290 Copyright (C) 2023 AMI

Aptio Setup - AMI

Advanced

ACPI Settings

Wake System from S5 via RTC [Disabled]

Wake up hour 0

Wake up minute 0

Wake up second 0

State After G3 [S5 State]

Wake On PME [Disabled]

ErP Supported [Disabled]

USB Wake from S3/S4 [S4]

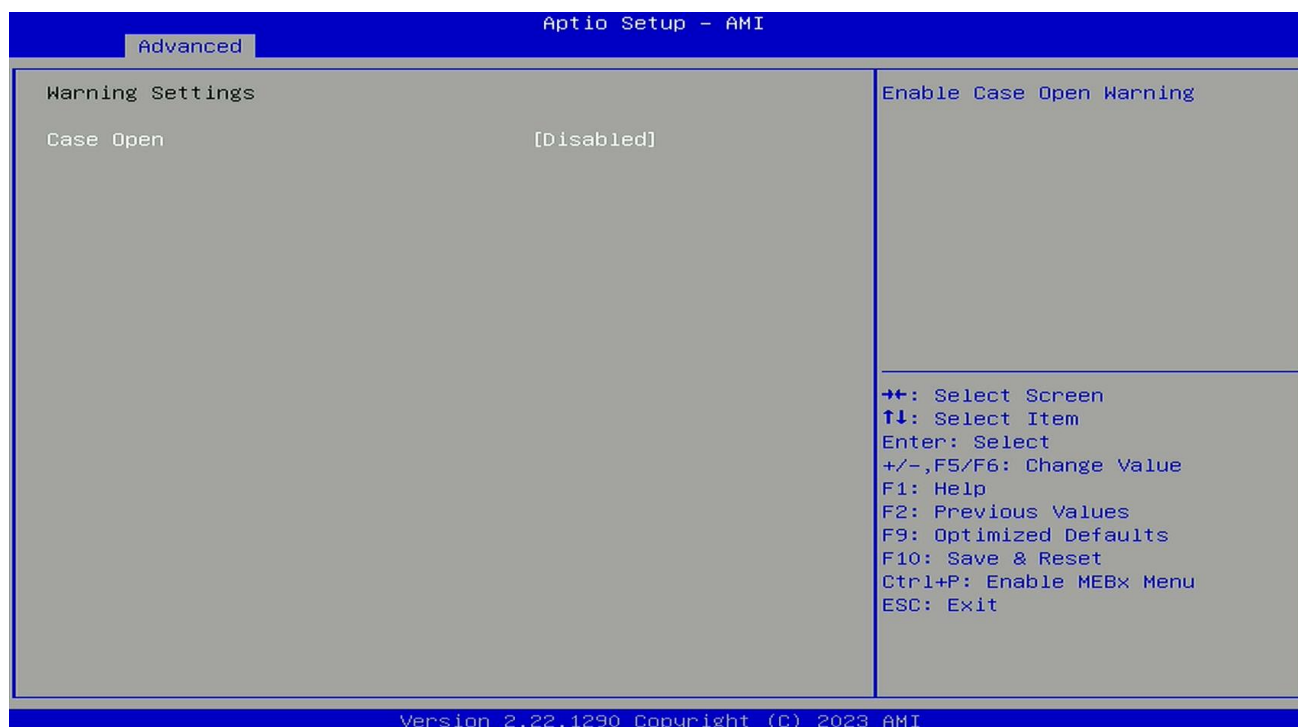
Enable or disable System wake on alarm event. When enabled, System will wake on the hr::min::sec specified

→+: Select Screen
 ↑↓: Select Item
 Enter: Select
 +/-, F5/F6: Change Value
 F1: Help
 F2: Previous Values
 F9: Optimized Defaults
 F10: Save & Reset
 Ctrl+P: Enable MEBx Menu
 ESC: Exit

Version 2.22.1290 Copyright (C) 2023 AMI

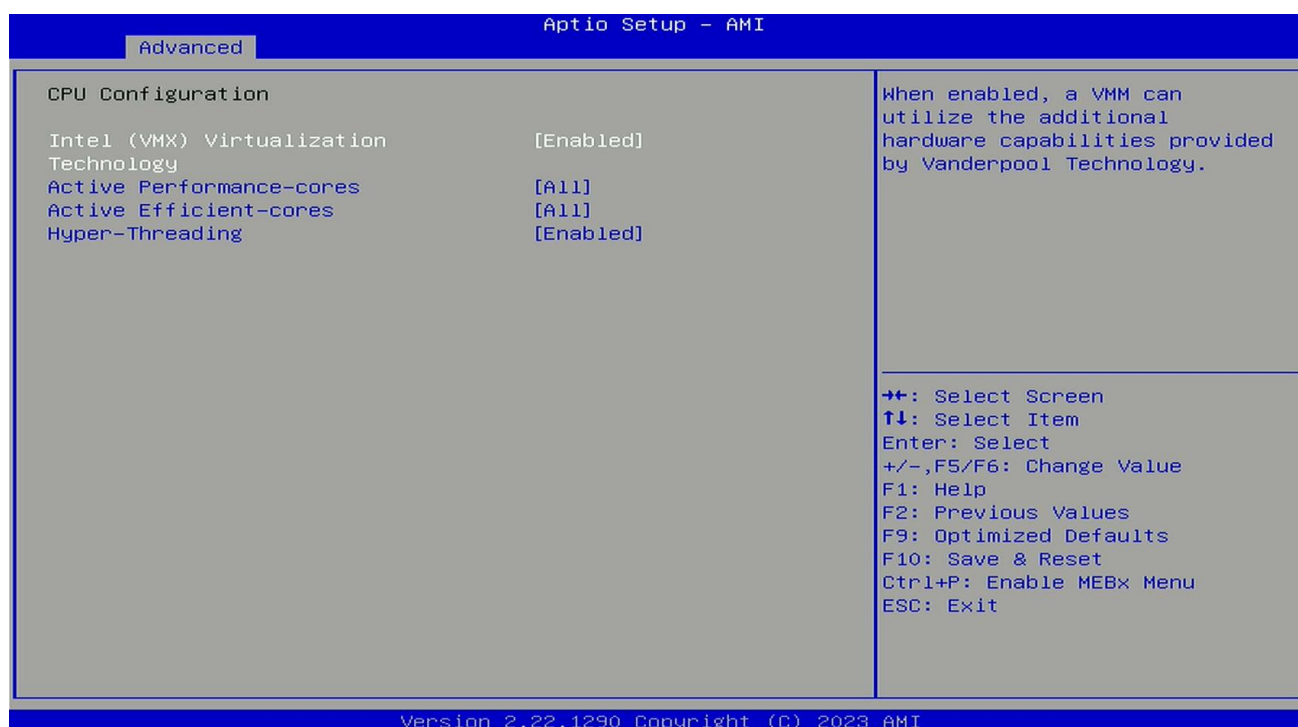
■ Location: Advanced > ACPI Settings

Setting Name	Available Options
Wake System from S5 via RTC	Enabled, Disabled
Wake up hour	0 – 23
Wake up minute	0 – 59
Wake up second	0 – 59
State After G3	S0 State, S5 State, Last State
Wake on PME	Enabled, Disabled
ErP Supported	Enabled, Disabled
USB Wake from S3/S4	S3, S4



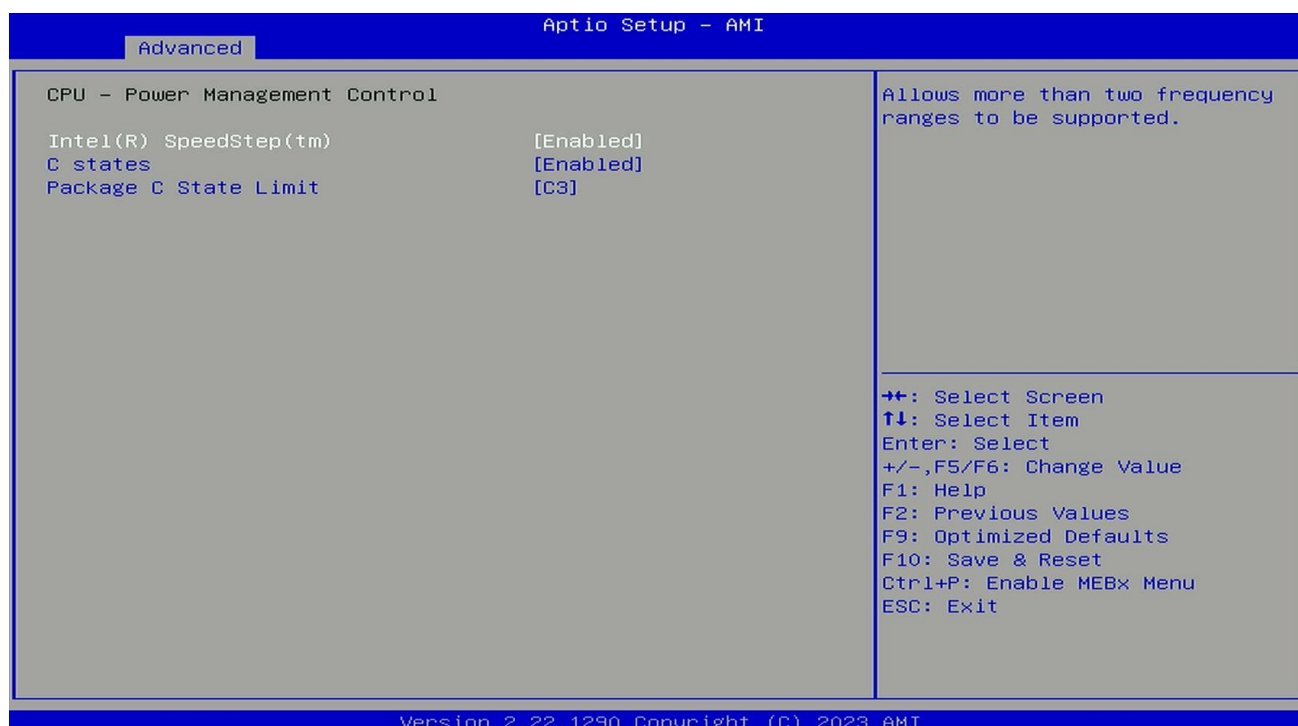
■ Location: Advanced > Warning Settings

Setting Name	Available Options
Case Open	Enabled, Disabled



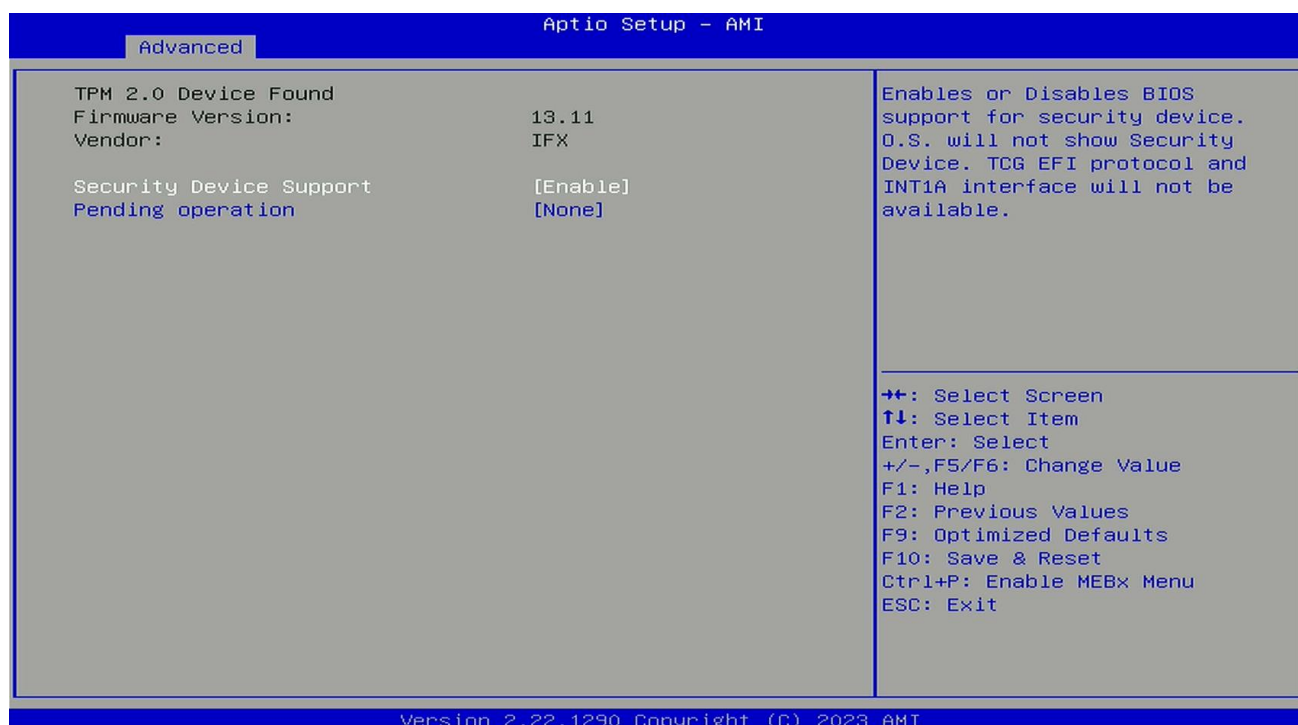
■ Location: Advanced > CPU Configuration

Setting Name	Available Options
Intel (VMX) Virtualization Technology	Enabled, Disabled
Active Performance-cores	All, 1, 2, 3, 4, 5
Active Efficient-cores	All, 0, 1, 2, 3, 4, 5, 6, 7
Hyper-Threading	Enabled, Disabled



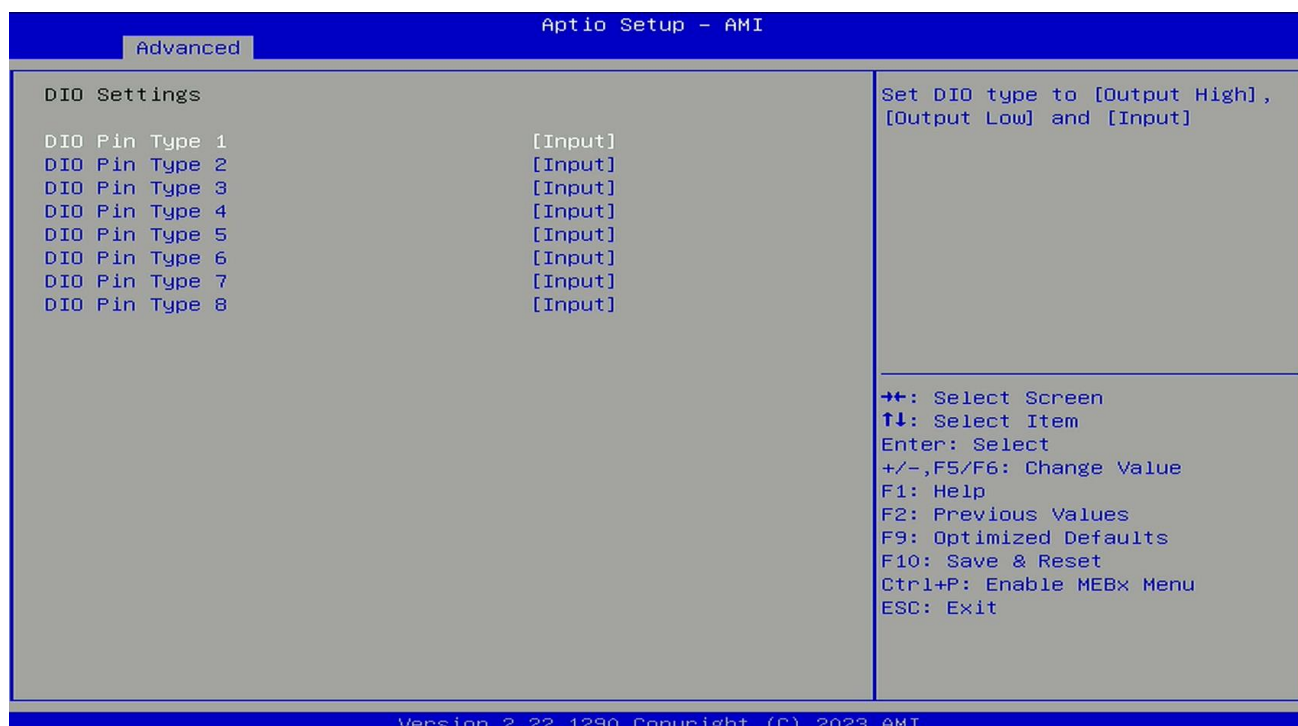
■ Location: Advanced > Power & Performance > CPU – Power Management Control

Setting Name	Available Options
Intel® SpeedStep™	Enabled, Disabled
C states	Enabled, Disabled
Package C State Limit	C0/C1, C2, C3, C6, C7, C7S, C8, C9, C10, CPU Default, Auto



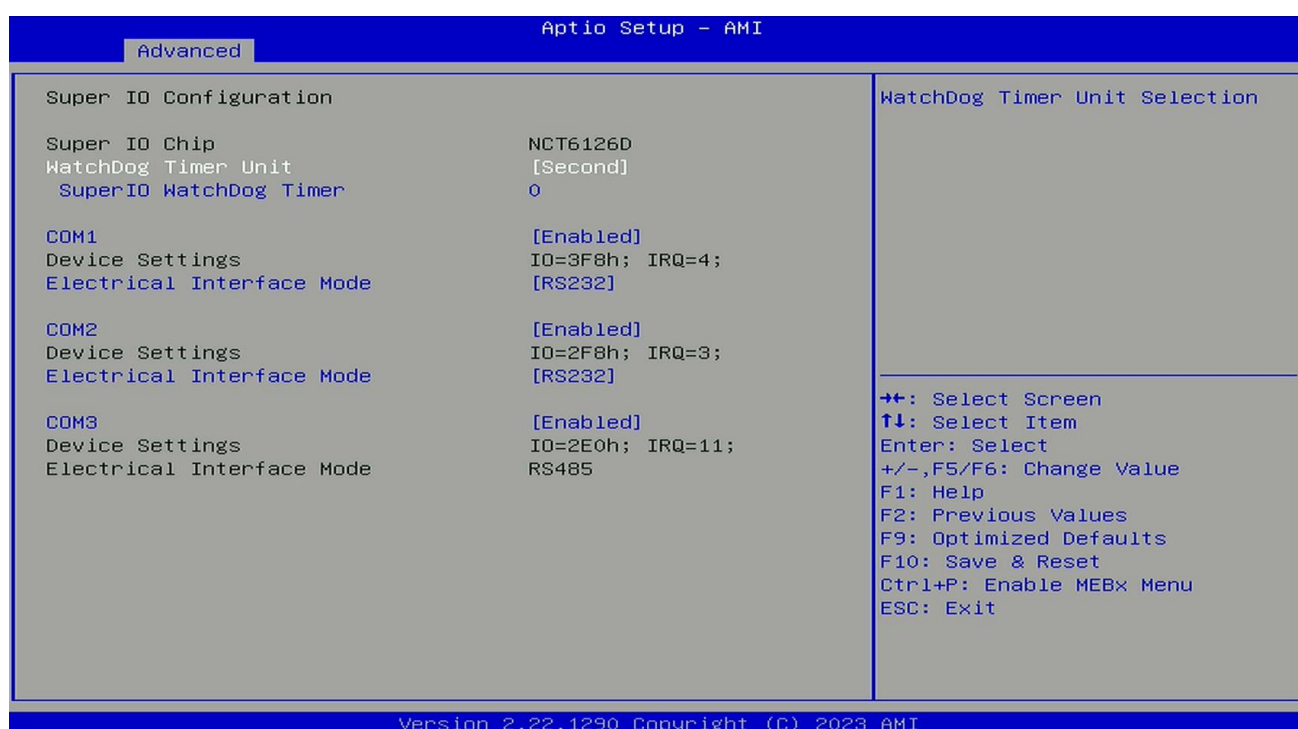
■ Location: Advanced > Trust Computing

Setting Name	Available Options
Security Device Support	Enabled, Disabled
Pending operation	None, TPM Clear



■ Location: Advanced > DIO Settings

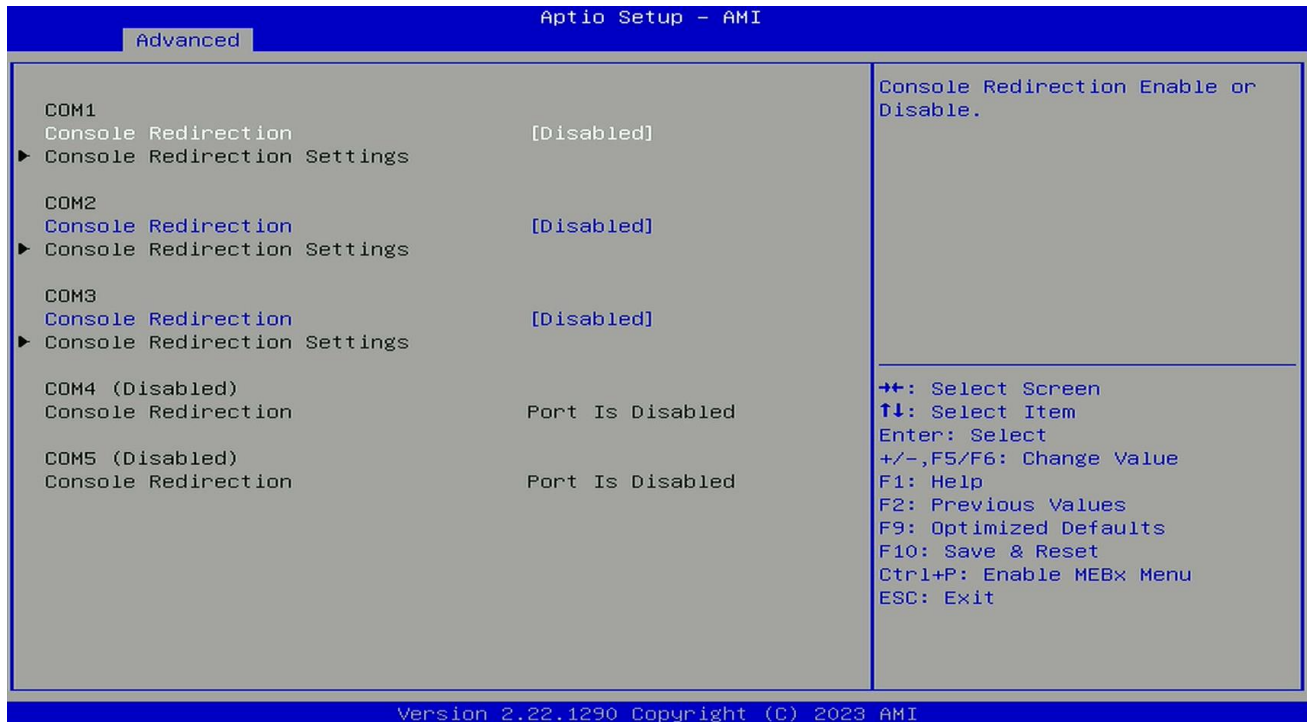
Setting Name	Available Options
DIO PIN Type 1	Output Low, Output High, Input
DIO PIN Type 2	Output Low, Output High, Input
DIO PIN Type 3	Output Low, Output High, Input
DIO PIN Type 4	Output Low, Output High, Input
DIO PIN Type 5	Output Low, Output High, Input
DIO PIN Type 6	Output Low, Output High, Input
DIO PIN Type 7	Output Low, Output High, Input
DIO PIN Type 8	Output Low, Output High, Input



■ Location: Advanced > Super IO Configuration

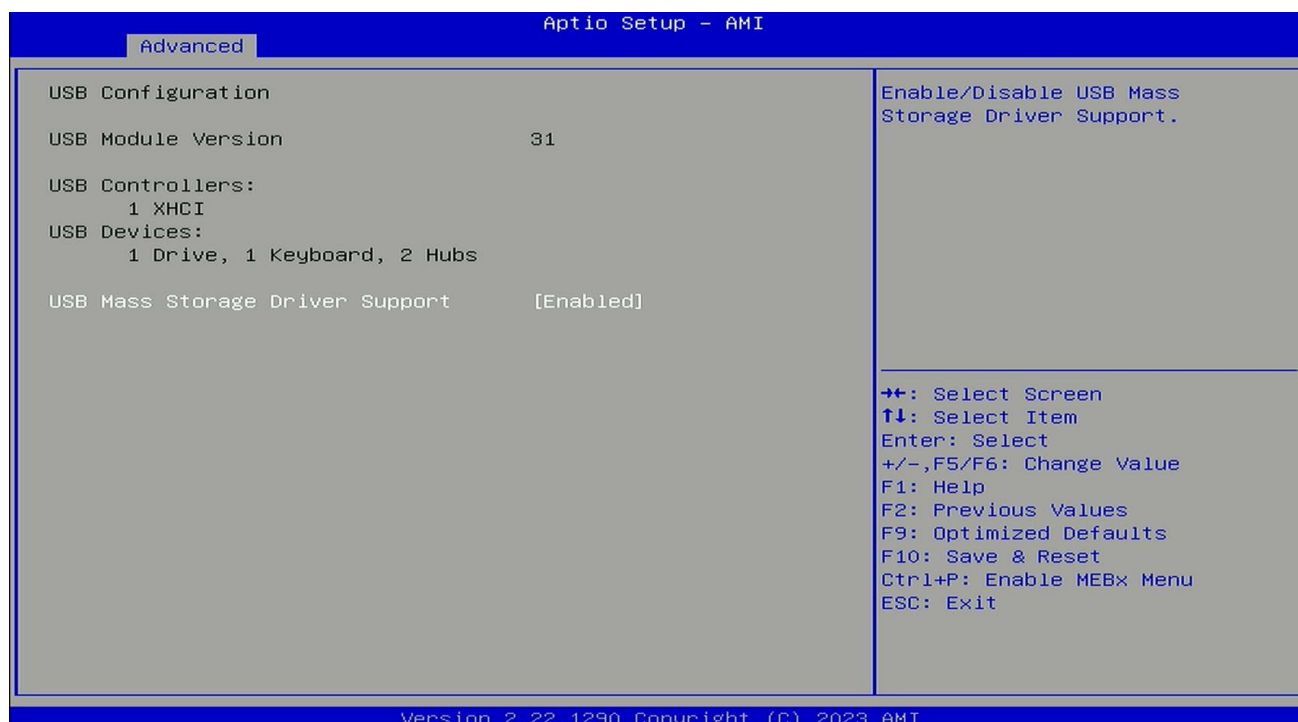
Setting Name	Available Options
--------------	-------------------

WatchDog Timer Unit	Second, Minute
Super IO WatchDog Timer	0 – 255
COM1	Enabled, Disabled
Electrical Interface Mode	RS232, RS485, RS422
COM2	Enabled, Disabled
Electrical Interface Mode	RS232, RS485, RS422
COM3	Enabled, Disabled
Electrical Interface Mode	RS485



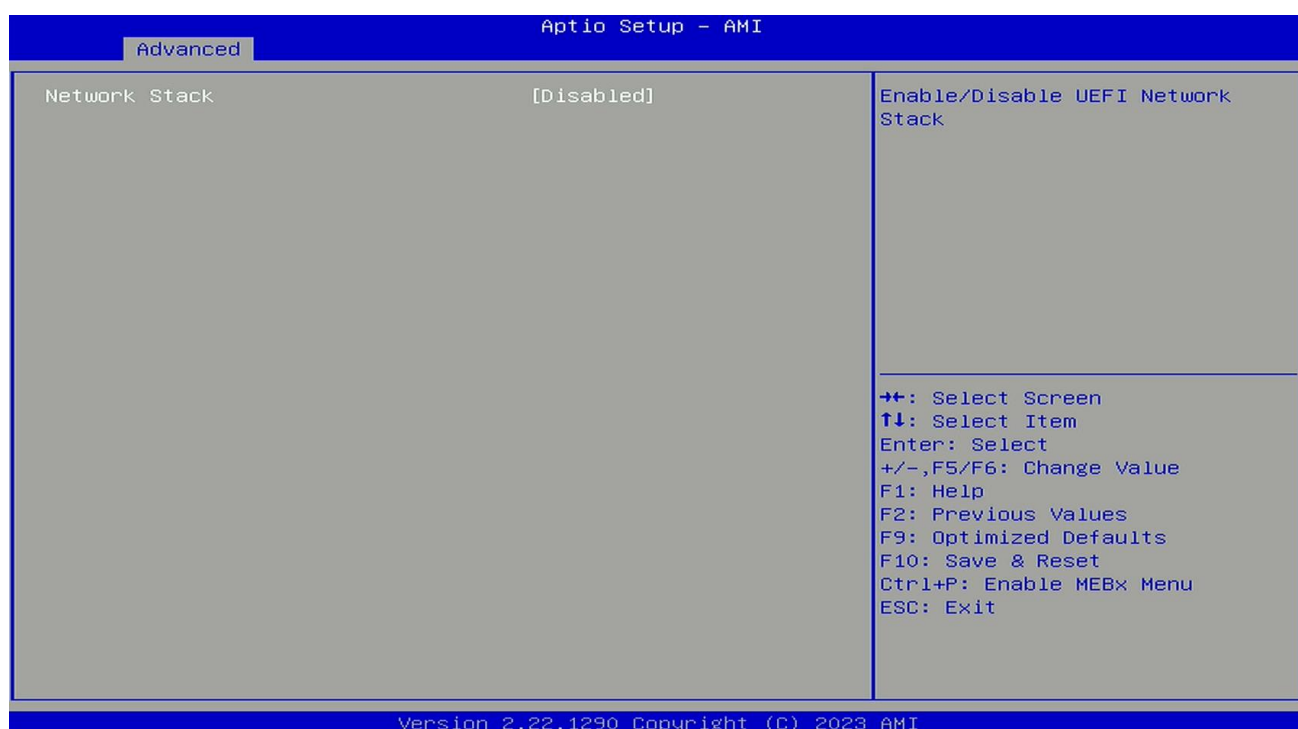
■ Location: Advanced > Serial Port Console Redirection

Setting Name	Available Options
COM1 Console Redirection	Enabled, Disabled
COM2 Console Redirection	Enabled, Disabled
COM3 Console Redirection	Enabled, Disabled



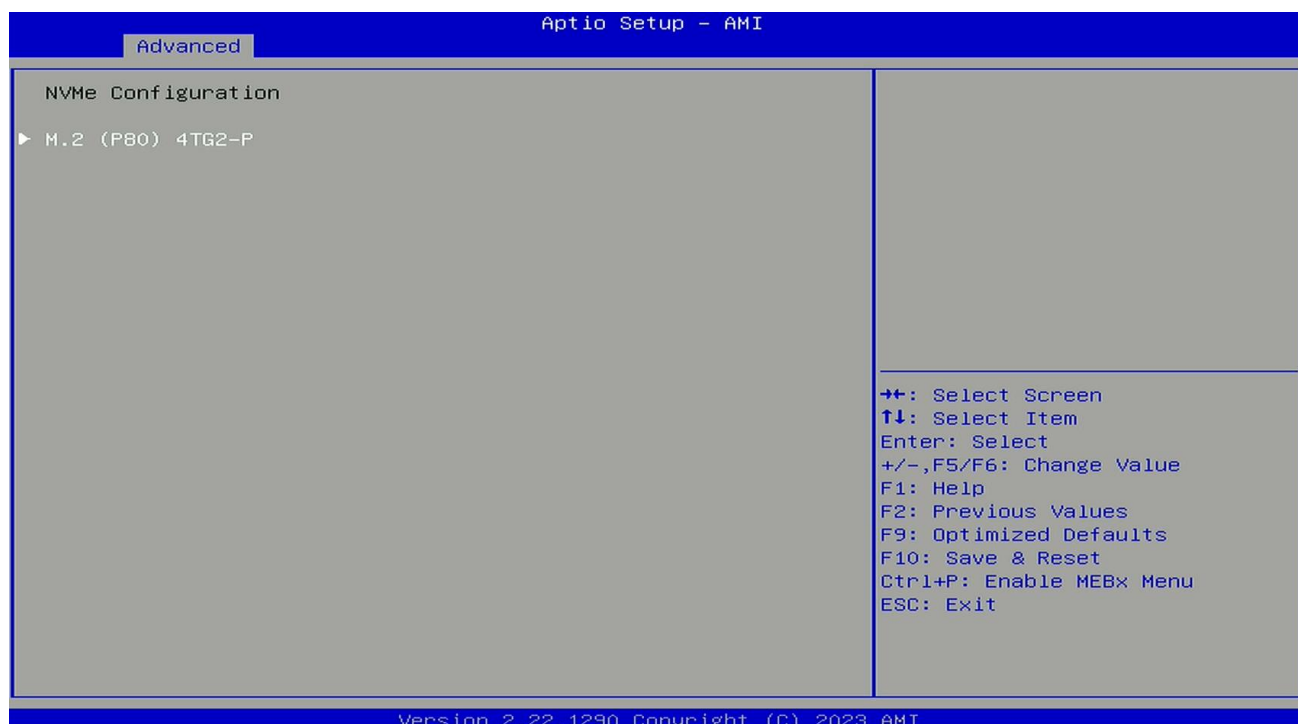
■ **Location: Advanced > USB Configuration**

Setting Name	Available Options
USB Mass Storage Driver Support	Enabled, Disabled



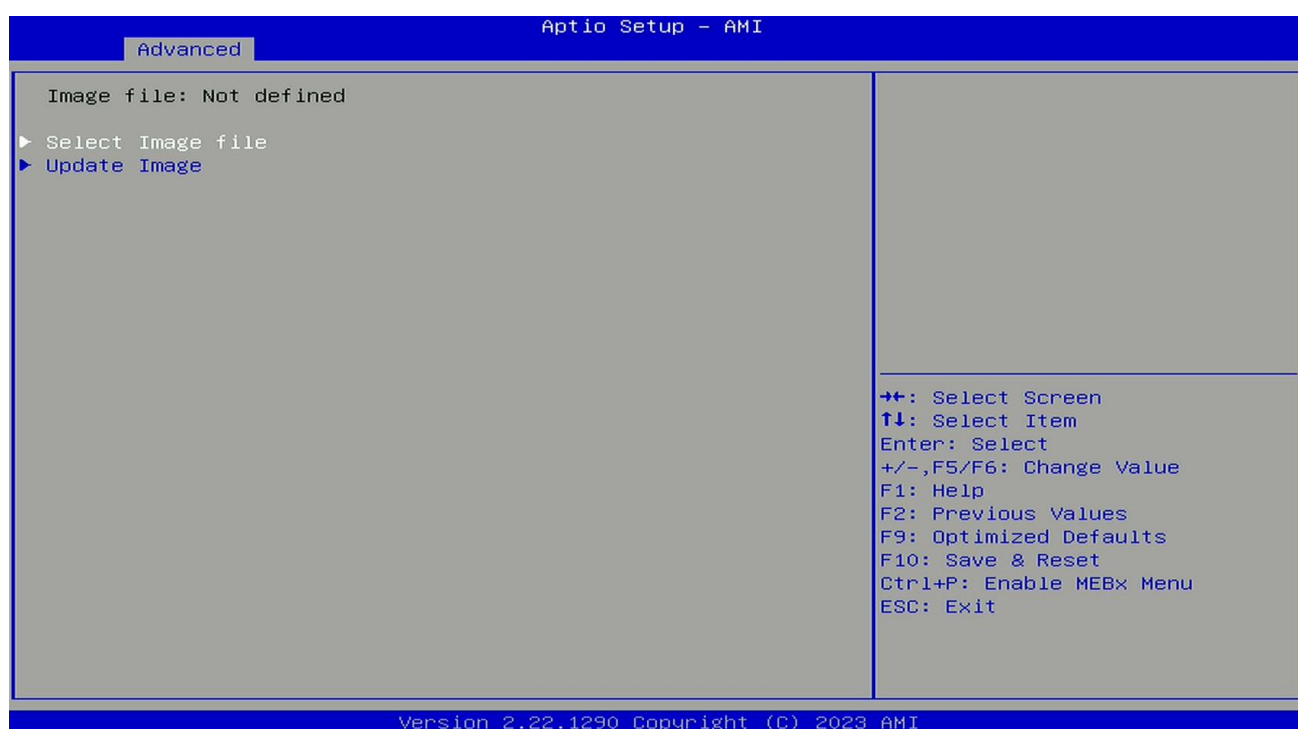
■ **Location: Advanced > Network Stack Configuration**

Setting Name	Available Options
Network Stack	Enabled, Disabled



■ Location: Advanced > NVMe Configuration

Setting Name	Available Options
M.2 (P80) 4TG2-P	Show information



■ Location: Advanced > BIOS Update Image

Setting Name	Available Options
Select Image file	Select Storage Device
Update Image	Yes, No

BIOS Chipset Tab

Aptio Setup - AMI

Chipset

Graphics Configuration		Select which of IGFX/PEG/PCI Graphics device should be Primary Display Or select HG for Hybrid Gfx. Initial priority: AUTO: PCI->IGFX IGFX: IGFX->PCI PCI: PCI->IGFX
Primary Display	[Auto]	
Internal Graphics	[Enabled]	→←: Select Screen ↑↓: Select Item Enter: Select +/-,F5/F6: Change Value F1: Help F2: Previous Values F9: Optimized Defaults F10: Save & Reset Ctrl+P: Enable MEBx Menu ESC: Exit

Version 2.22.1290 Copyright (C) 2023 AMI

■ Location: Chipset > System Agent (SA) Configuration > Graphics Configuration

Setting Name	Available Options
Primary Display	Auto, IGFX, PEG Slot, PCH PCI
Internal Graphics	Auto, Disabled, Enabled

Aptio Setup - AMI

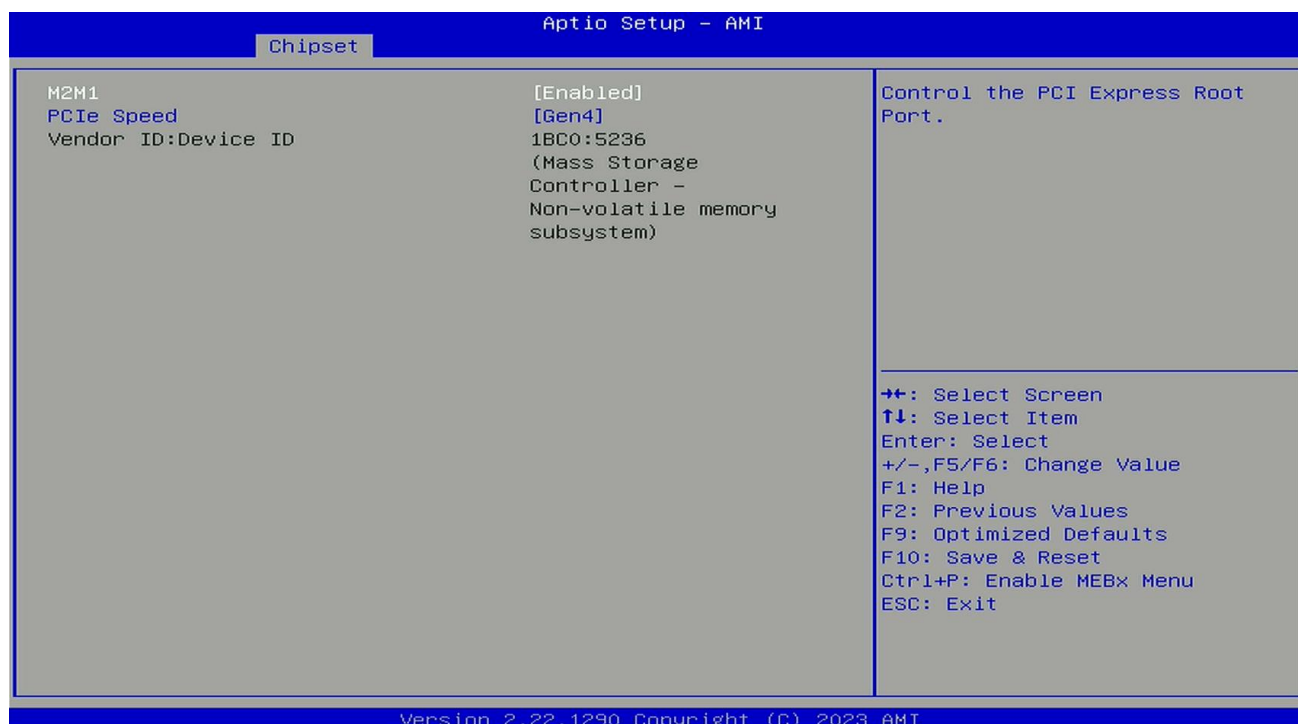
Chipset

VMD Configuration		Enable/Disable to VMD controller
Enable VMD controller	[Disabled]	
		→←: Select Screen ↑↓: Select Item Enter: Select +/-,F5/F6: Change Value F1: Help F2: Previous Values F9: Optimized Defaults F10: Save & Reset Ctrl+P: Enable MEBx Menu ESC: Exit

Version 2.22.1290 Copyright (C) 2023 AMI

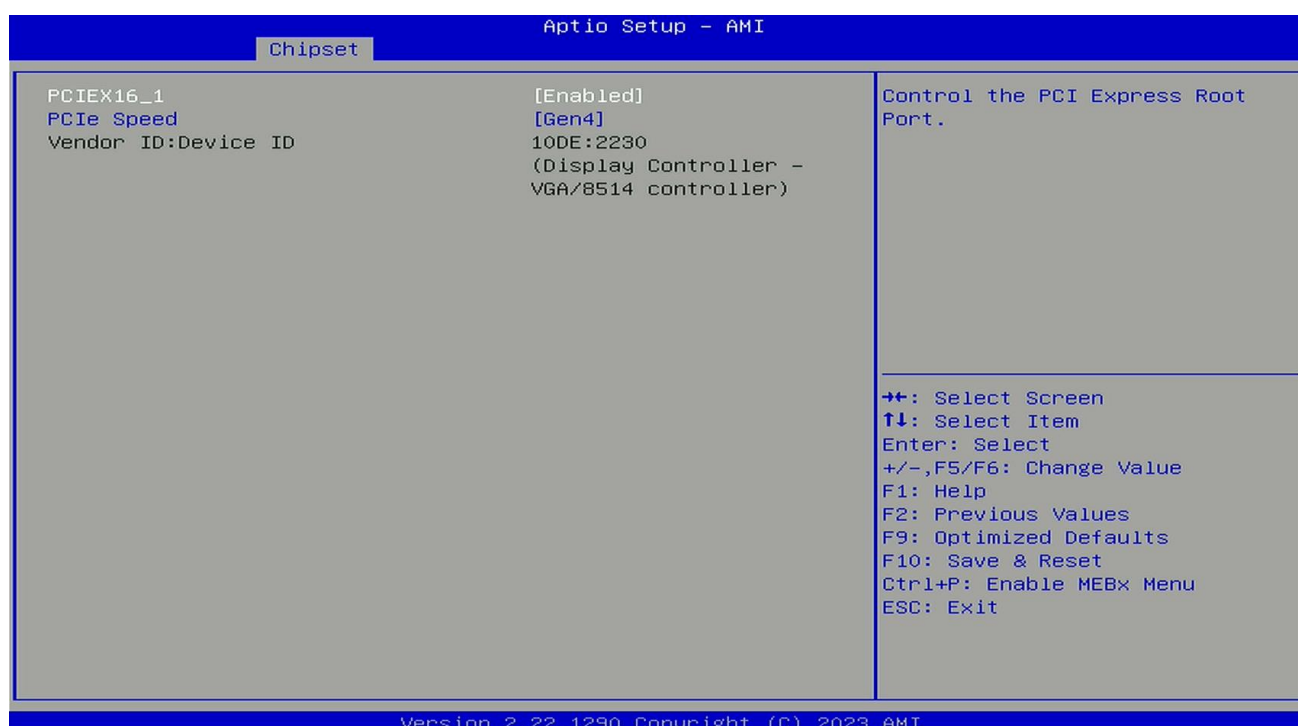
■ Location: Chipset > System Agent (SA) Configuration > VMD Setup Menu

Setting Name	Available Options
Enable VMD Controller	Enabled, Disabled



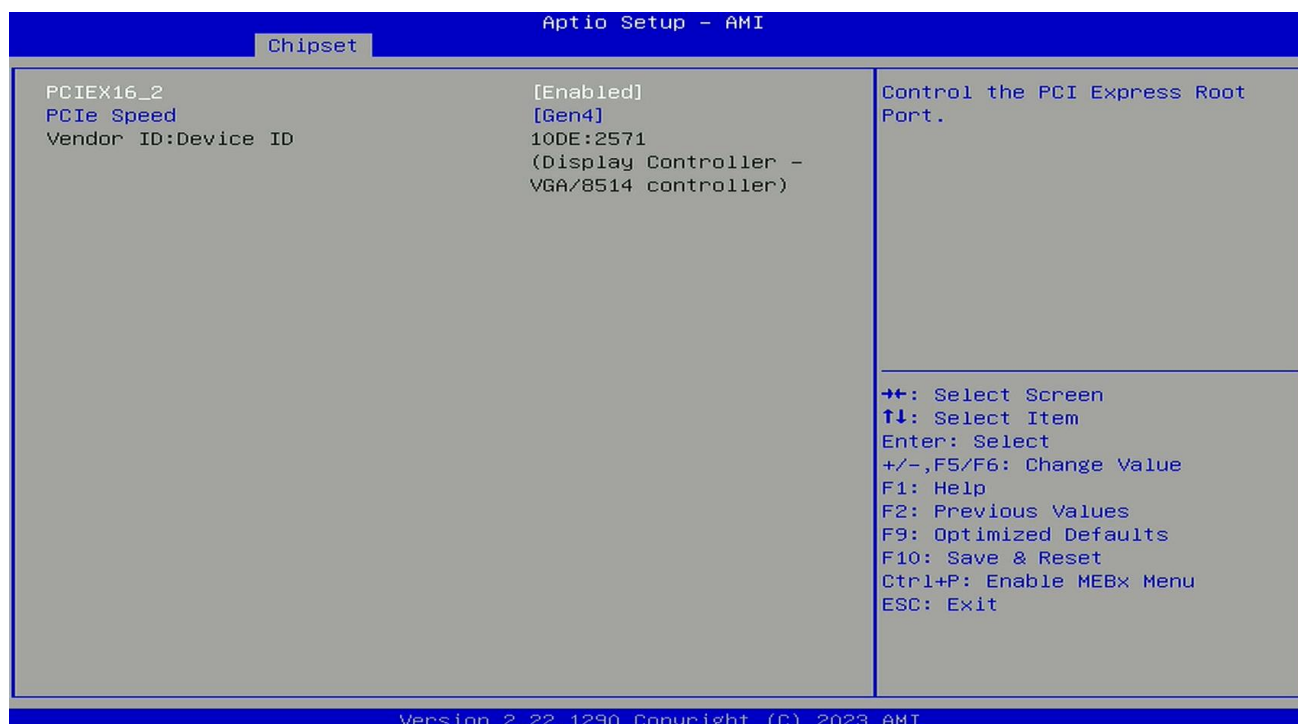
- Location: Chipset > System Agent (SA) Configuration > PCI Express Configuration > M2M1

Setting Name	Available Options
M2M1	Enabled, Disabled
PCIe Speed	Auto, Gen1, Gen2, Gen3, Gen4



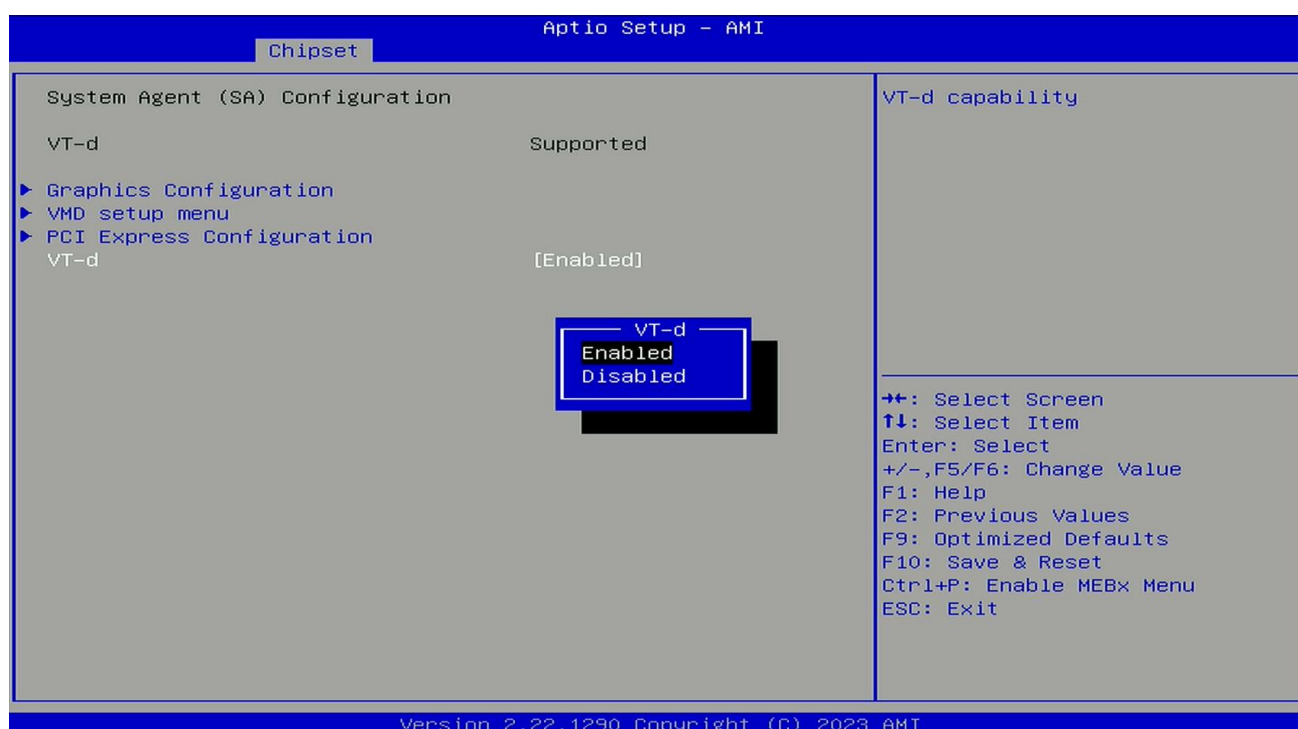
- Location: Chipset > System Agent (SA) Configuration > PCI Express Configuration > PCIEX16_1

Setting Name	Available Options
PCIEX16_1	Enabled, Disabled
PCIe Speed	Auto, Gen1, Gen2, Gen3, Gen4



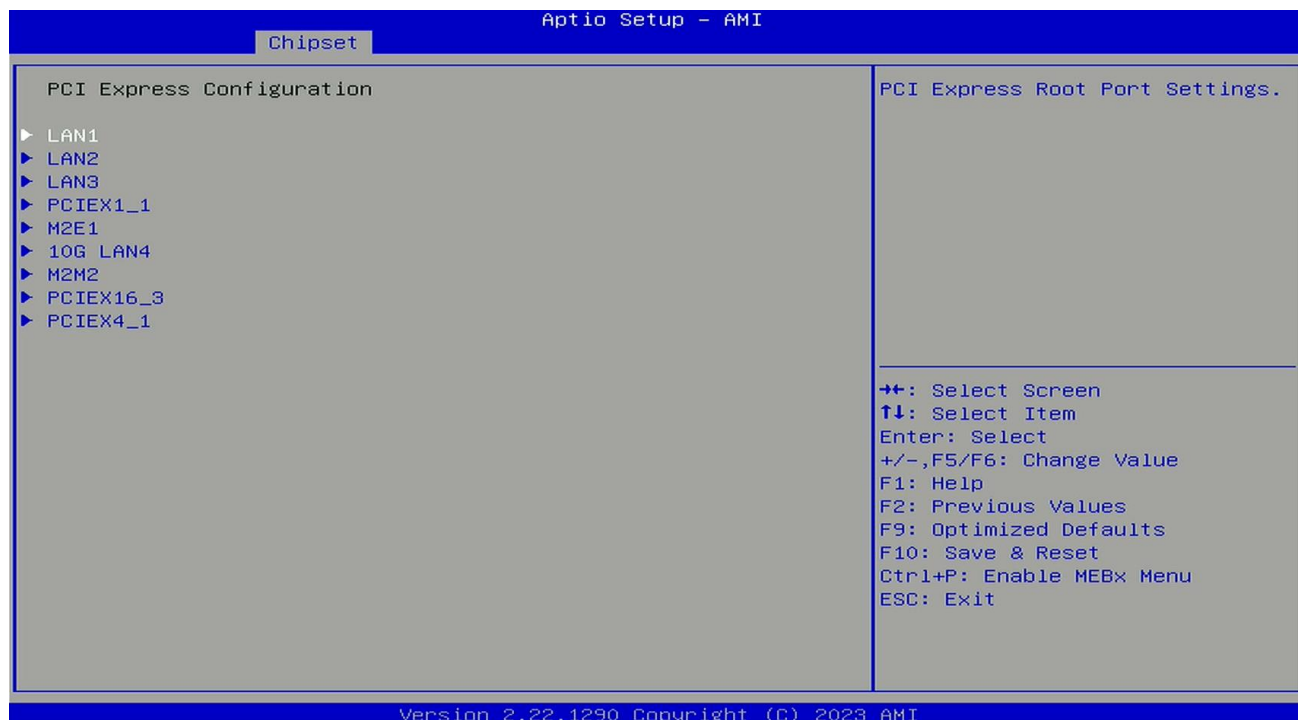
- Location: Chipset > System Agent (SA) Configuration > PCI Express Configuration > PCIEX16_2

Setting Name	Available Options
PCIEX16_2	Enabled, Disabled
PCIe Speed	Auto, Gen1, Gen2, Gen3, Gen4



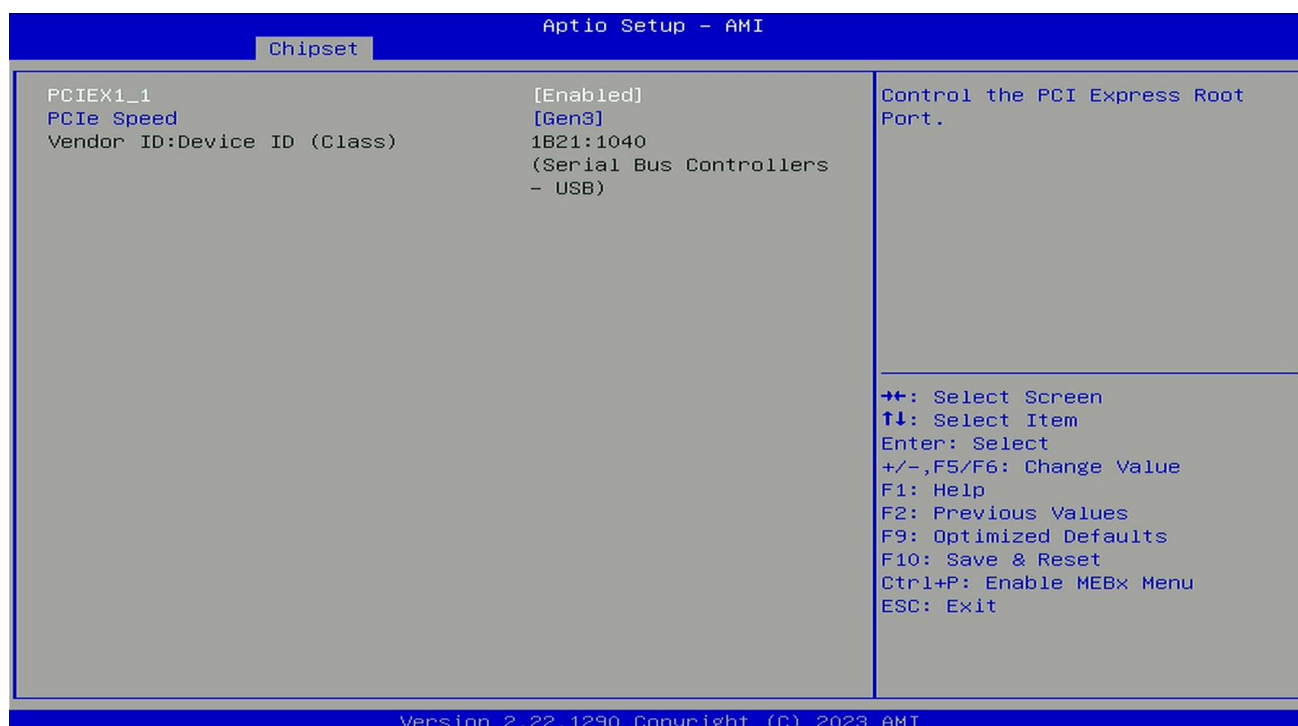
- Location: Chipset > System Agent (SA) Configuration > VT-d

Setting Name	Available Options
VT-d	Enabled, Disabled



■ Location: Chipset > PCH-IO Configuration > PCI Express Configuration

Setting Name	Available Options
LAN1	Enabled, Disabled
LAN2	Enabled, Disabled
LAN3	Enabled, Disabled



■ Location: Chipset > PCH-IO Configuration > PCI Express Configuration > PCIEX1_1

Setting Name	Available Options
PCIEX1_1	Enabled, Disabled
PCIe Speed	Gen1, Gen2, Gen3

Aptio Setup - AMI		
Chipset		
M2E1	[Enabled]	Control the PCI Express Root Port.
PCIe Speed	[Gen1]	
Vendor ID:Device ID (Class)	Not Installed	
		→+: Select Screen ↑↓: Select Item Enter: Select +/-,F5/F6: Change Value F1: Help F2: Previous Values F9: Optimized Defaults F10: Save & Reset Ctrl+P: Enable MEBx Menu ESC: Exit
Version 2.22.1290 Copyright (C) 2023 AMI		

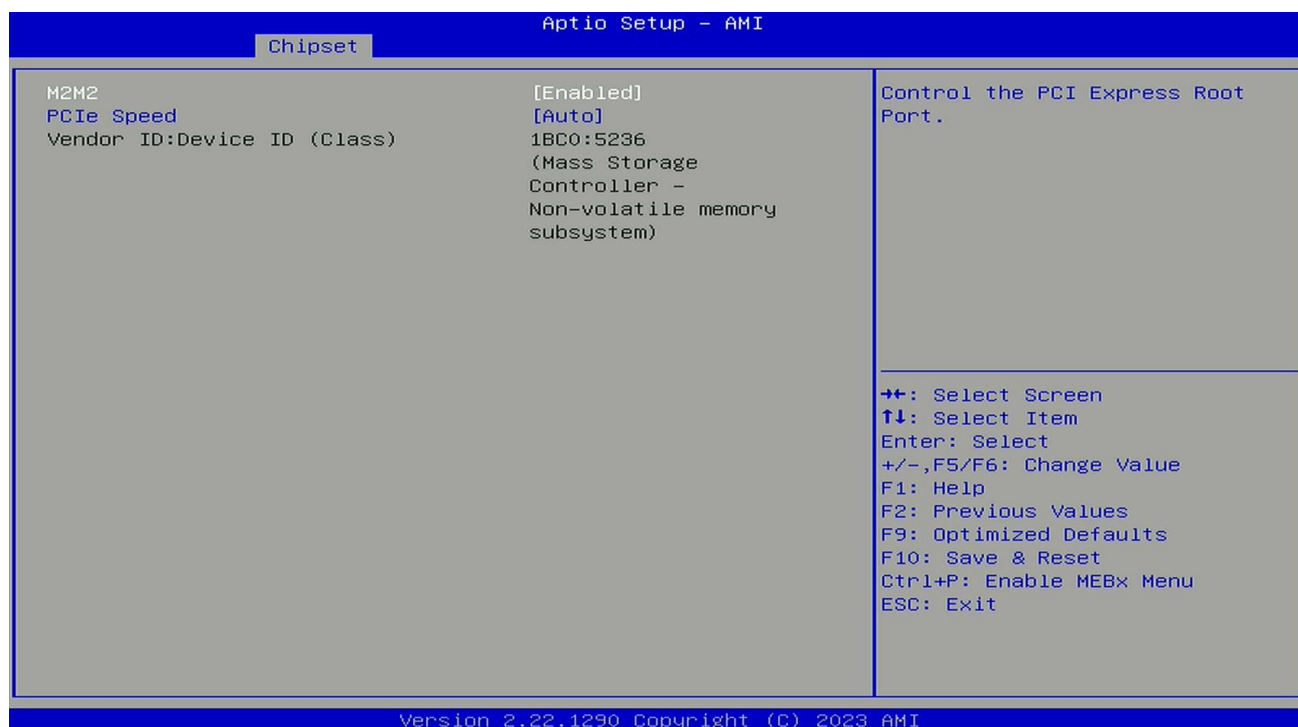
■ Location: Chipset > PCH-IO Configuration > PCI Express Configuration > M2E1

Setting Name	Available Options
M2E1	Enabled, Disabled
PCIe Speed	Auto, Gen1, Gen2, Gen3, Gen4

Aptio Setup - AMI		
Chipset		
10G LAN4	[Enabled]	Control the PCI Express Root Port.
		→+: Select Screen ↑↓: Select Item Enter: Select +/-,F5/F6: Change Value F1: Help F2: Previous Values F9: Optimized Defaults F10: Save & Reset Ctrl+P: Enable MEBx Menu ESC: Exit
Version 2.22.1290 Copyright (C) 2023 AMI		

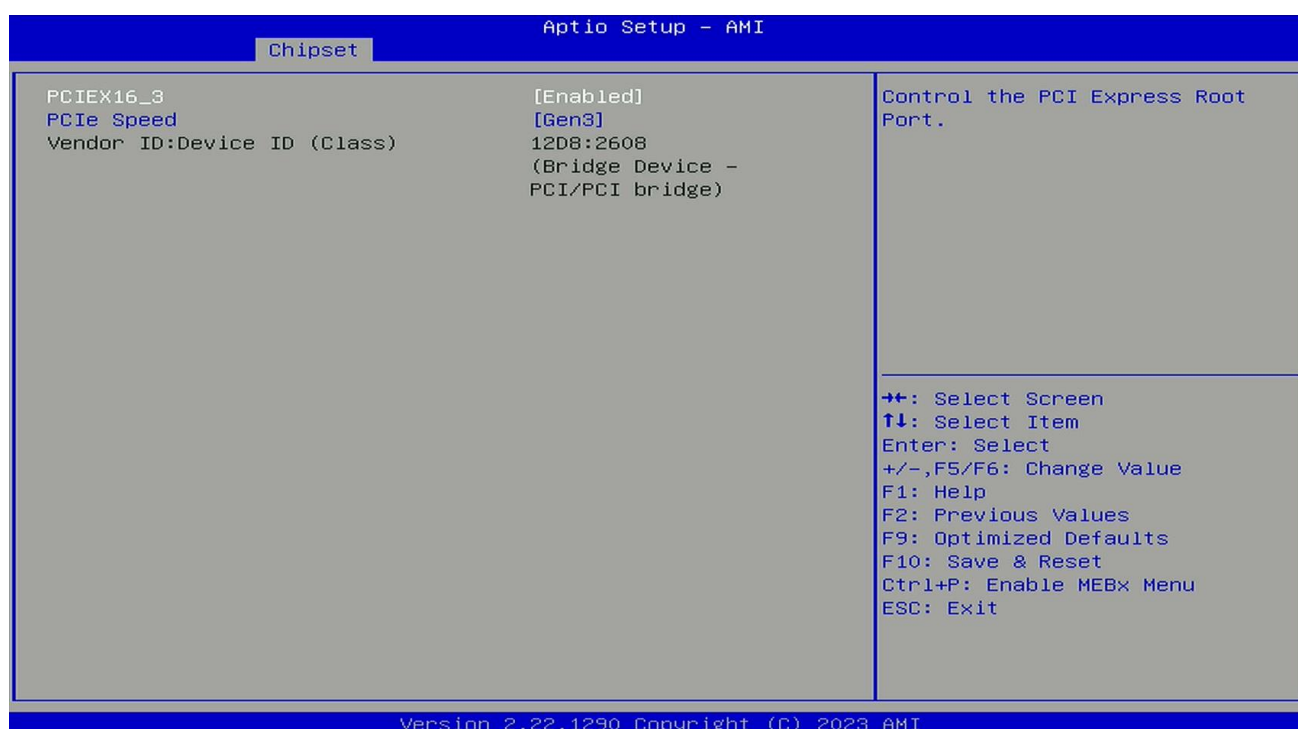
■ Location: Chipset > PCH-IO Configuration > PCI Express Configuration > 10G LAN4

Setting Name	Available Options
10G LAN4	Enabled, Disabled



■ Location: Chipset > PCH-IO Configuration > PCI Express Configuration > M2M2

Setting Name	Available Options
M2M2	Enabled, Disabled
PCIe Speed	Auto, Gen1, Gen2, Gen3, Gen4



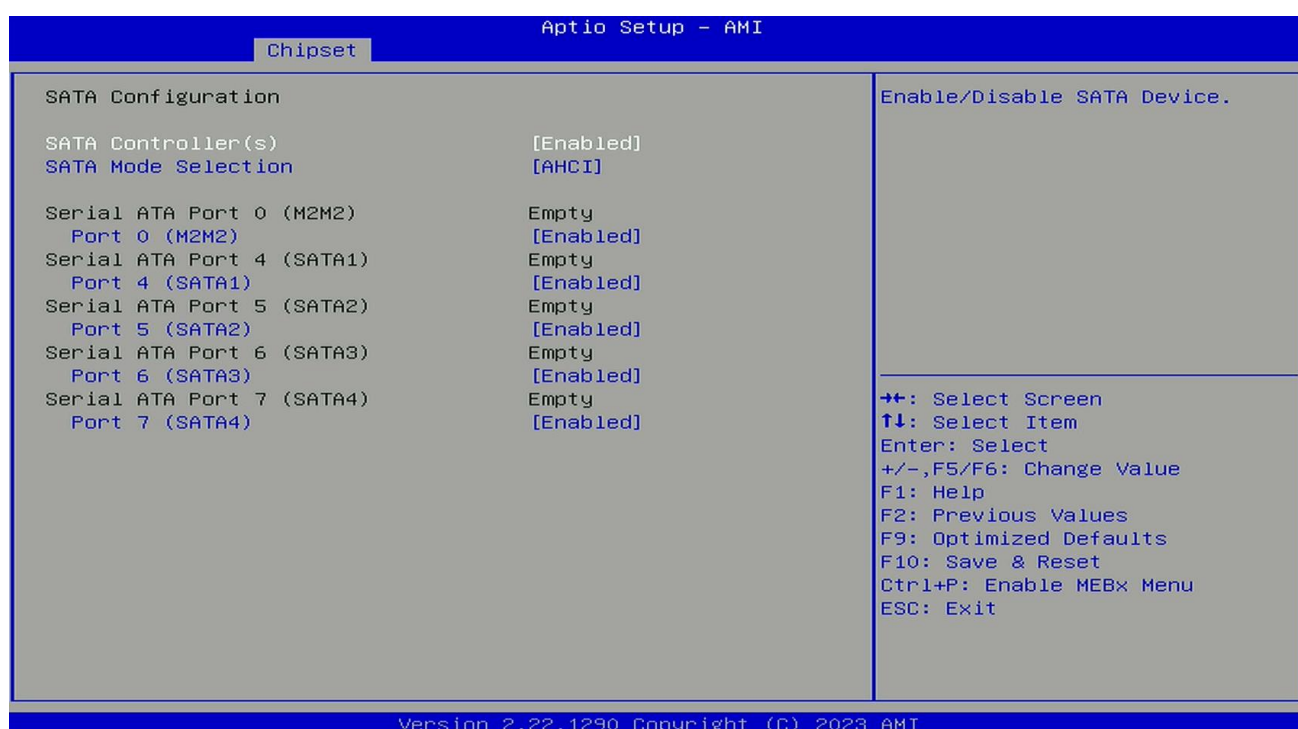
■ Location: Chipset > PCH-IO Configuration > PCI Express Configuration > PCIEX16_3

Setting Name	Available Options
PCIEX16_3	Enabled, Disabled
PCIe Speed	Gen1, Gen2, Gen3



■ Location: Chipset > PCH-IO Configuration > PCI Express Configuration > PCIEX4_1

Setting Name	Available Options
PCIEX4_1	Enabled, Disabled
PCIe Speed	Gen1, Gen2, Gen3



■ Location: Chipset > PCH-IO Configuration > SATA Configuration

Setting Name	Available Options
SATA Controller(s)	Enabled, Disabled
SATA Mode Selection	AHCI
Port 0 (M2M2)	Enabled, Disabled
Port 4 (SATA1)	Enabled, Disabled
Port 5 (SATA2)	Enabled, Disabled

Port 6 (SATA3)	Enabled, Disabled
Port 7 (SATA4)	Enabled, Disabled



■ Location: Chipset > PCH-IO Configuration > HD Audio Configuration

Setting Name	Available Options
HD Audio	Enabled, Disabled

BIOS Security Tab



■ Location: Security

Setting Name	Available Options
Administrator Password	3 to 20 characters
User Password	3 to 20 characters

Aptio Setup - AMI

Security

System Mode	Setup	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
Vendor Keys	Valid	
Secure Boot	[Disabled] Not Active	
Secure Boot Mode	[Custom]	
▶ Restore Factory Keys		
▶ Reset To Setup Mode		

++: Select Screen
 ↑↓: Select Item
 Enter: Select
 +/-, F5/F6: Change Value
 F1: Help
 F2: Previous Values
 F9: Optimized Defaults
 F10: Save & Reset
 Ctrl+P: Enable MEBx Menu
 ESC: Exit

Version 2.22.1290 Copyright (C) 2023 AMI

■ Location: Security > Secure Boot

Setting Name	Available Options
Secure Boot	Enabled, Disabled
Secure Boot Mode	Standard, Custom
Restore Factory Keys	Yes, No

BIOS Boot Tab

Aptio Setup - AMI

Main Advanced Chipset Security **Boot** Save & Exit

Boot Configuration		Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Setup Prompt Timeout	1	
Bootup NumLock State	[Off]	
Quiet Boot	[Enabled]	
OS Selection	[Windows]	
Boot Option Priorities		
Boot Option #1	[Windows Boot Manager (M.2 (P80) 4TG2-P)]	
Boot Option #2	[UEFI: USB Hard Drive, Partition 1]	
Driver Option Priorities		

++: Select Screen
 ↑↓: Select Item
 Enter: Select
 +/-, F5/F6: Change Value
 F1: Help
 F2: Previous Values
 F9: Optimized Defaults
 F10: Save & Reset
 Ctrl+P: Enable MEBx Menu
 ESC: Exit

Version 2.22.1290 Copyright (C) 2023 AMI

■ **Location: Boot**

Setting Name	Available Options
Setup Prompt Timeout	0 - 9999
Bootup Num Lock State	On, Off
Quiet Boot	Enabled, Disabled
OS Selection	Windows, Linux, Real Time OS
Boot Option #1	
Boot Option #2	

Aetina Corporation | Headquarters

17F, No.237, Sec.1, Datong Rd., Xizhi Dist., New Taipei City 221, TAIWAN

Phone: +886-2-7709 2568

Fax : +886-2-7746 1102

Mail : sales@Aetina.com

www.aetina.com