

User Manual

AIR-500D

Embedded Box PC



Attention!

Please note:

This package contains a hard-copy user manual in Chinese for China CCC certification purposes. There is an English user manual included as a PDF file on the CD. Please disregard the Chinese hard copy user manual if the product is not to be sold and/or installed in China.

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Product Warranty (2 Years)

Advantech warrants the original purchaser that all of its products will be free from defects in materials and workmanship for two years from the date of purchase.

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

Because of Advantech's high quality-control standards and rigorous testing, most customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced free of charge during the warranty period. For out-of-warranty repairs, customers are billed according to the cost of replacement materials, service time, and freight. Please consult your dealer for more details.

If you believe that your product is defective, follow the steps outlined below.

- 1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software, etc.) Note anything abnormal and list any on-screen messages displayed 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 a return merchandise authorization (RMA) number from your dealer. This allows us to process your return more quickly.
- 4. Carefully pack the defective product, a completed Repair and Replacement Order Card, and a proof of purchase date (such as a photocopy of your sales receipt) into a shippable container. Products returned without a proof of purchase date are not eligible for warranty service.
- 5. Write the RMA number clearly on the outside of the package, and ship the package prepaid to your dealer.

Declaration of Conformity

FCC Class B

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in residential installations. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, users are encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult your dealer or an experienced radio/TV technician for help

Technical Support and Assistance

- 1. Visit the Advantech website at www.advantech.com/support to obtain the latest product information.
- 2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before calling:
 - 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

Warnings, Cautions, and Notes

Warning! Warnings indicate conditions that if not observed can cause personal injury!





Caution! Cautions are included to help prevent hardware damage and data losses.



Note! Notes provide additional optional information.

Packing List

Before system installation, check that the items listed below are included and in good condition. If any item does not accord with the list, contact your dealer immediately.

- 1 x AIR-500D Unit
- 1 x Mounting Kit
- 1 x User Manual (Simplified Chinese)
- 1 x Warranty
- 1 x China RoHS

Ordering Information

Part No.	CPU	DDR4	GbE	GPIO	VGA	2.5" SATA III HDD Bay	RS-232/ 422/485	USB 3.0	M.2 B Key	M.2 E Key	SIM	BMC	ТРМ	IPMI	Power Supply	Expansion
AIR- 500D- T10A1	Intel Xeon D-1746TER															
AIR- 500D- T40A1	Intel Xeon D-1735TR	Up to 128GB	4	1	1	2 (Up to 4)	4	6	1	1	1	2	Optional	Yes	1200W	1 x PCI 1 x PCIex4 2 x PCIx16
AIR- 500D- T50A1	Intel Xeon D-1715TER															

Note!

BMC having one each in COM/LAN port; Memory/Storage and operating system bundled by request.

AIR-500D Default SKU Option Items

Optional Item for Default SKU

Part Number	Description
1700021723-02	Power Cord UL 3P 15A 125V 183cm(IEC320-C19), USA type
1700023533-01	Power Cord EU 3P 16A 250V 183cm, EU type
1700023534-01	Power Cord BSI 3P 16A 250V 183cm, UK type
1700023536-01	Power Cord PSE 3P 20A 250V 183cm, PSE special connector*

*The PSE power cord (P/N: 1700023536-01) connector is special type, and the image is as below.

Safety Instructions

- 1. Read these safety instructions carefully.
- 2. Retain this user manual for future reference.
- 3. Disconnect the equipment from all AC outlets before cleaning. Use only a damp cloth for cleaning. Do not use liquid or sprayed detergent.
- 4. For pluggable equipment, the power outlet should be near the equipment and easily accessible.
- 5. Protect the equipment from humidity.
- 6. Place the equipment on a reliable surface during installation. Dropping or letting the equipment fall may cause damage.
- 7. The openings on the enclosure are for air convection and protect the equipment from overheating. Do not cover the openings.
- 8. Ensure that the voltage of the power source is correct before connecting the equipment to a power outlet.
- 9. Position the power cord away from high-traffic areas. Do not place anything over the power cord.
- 10. All cautions and warnings on the equipment should be noted.
- 11. If the equipment is not used for a long time, disconnect the equipment from the power source to avoid damage from transient over-voltage.
- 12. Never pour liquid into an opening as this can cause fire or electrical shock.
- 13. Never open the equipment. For safety reasons, only qualified service personnel should open the equipment.
- 14. If one of the following occurs, have the equipment checked by service personnel:
 - The power cord or plug is damaged.
 - Liquid has penetrated into the equipment.
 - The equipment has been exposed to moisture.
 - The equipment is malfunctioning or does not operate according to the user manual.
 - The equipment has been dropped and damaged.
 - The equipment shows obvious signs of breakage.
- 15. Do not leave the equipment in an environment with a storage temperature of below -40 °C (-40 °F) or above 85 °C (185 °F) as this may cause damage. The equipment should be stored in a controlled environment.
- 16. Any unverified component may cause unexpected damage. To ensure correct installation, always use the components (e.g., screws) provided in the accessory box.
- 17. CAUTION: The equipment is equipped with a battery-powered real-time clock circuit. There is a risk of explosion if a battery is incorrectly replaced. Replace only with same or equivalent type as recommended by the manufacturer. Discard all used batteries according to the manufacturer's instructions.
- 18. Always disconnect the power cord from the chassis before manually handling the hardware. Do not implement connections or configuration changes while the device is powered on. Sudden power surges may damage sensitive electronic components.
- 19. In accordance with IEC 704-1:1982 specifications, the sound pressure level at the operator's position does not exceed 70 dB (A).
- 20. The equipment should only be installed in a restricted access area.
- 21. This product is intended to be supplied by a UL Listed power supply suitable for use at minimum Tma 50° C (122° F) whose output meets PS2 (or LPS), ES1(or

SELV) and output is rated: 9-36Vdc, 16.65-4.16A. Please contact Advantech for further information.

DISCLAIMER: These instructions are provided according to IEC 704-1 specifications. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

Consignes de Sécurité

- 1. Veuillez lire attentivement ces instructions de sécurité.
- 2. Veuillez conserver ce manuel de l'utilisateur pour référence ultérieure.
- 3. Veuillez débrancher cet équipement de la prise secteur avant le nettoyage. Utilisez un chiffon humide. Ne pas utiliser de détergent liquide ou pulvérisé pour le nettoyage. Utilisez une feuille ou un chiffon humide pour le nettoyage.
- 4. Pour les équipements enfichables, la prise de courant doit être à proximité de l'équipement et doit être facilement accessible.
- 5. S'il vous plaît garder cet équipement de l'humidité.
- 6. Posez cet équipement sur une surface fiable lors de l'installation. Une chute ou une chute pourrait causer des blessures.
- 7. Les ouvertures sur le boîtier sont destinées à la convection d'air, protégeant. ainsi l'équipement de la surchauffe. NE COUVREZ PAS LES OUVERTURES.
- 8. La prise de courant doit avoir une connexion mise à la terre.
- 9. Placez le cordon d'alimentation de sorte que personne ne puisse marcher dessus.

Ne placez rien sur le cordon d'alimentation.

- 10. Tous les avertissements et mises en garde sur l'équipement doivent être notés.
- 11. Si l'appareil n'est pas utilisé pendant une longue période, débranchez-le du secteur pour ne pas être endommagé par une surtension transitoire.
- 12. Ne jamais verser de liquide dans les ouvertures de ventilation; Cela pourrait provoquer un incendie ou un choc électrique.
- 13. N'ouvrez jamais l'équipement. Pour des raisons de sécurité, seul le personnel de maintenance qualifié doit ouvrir l'équipement.
- 14. Si l'une des situations suivantes se présente, faites vérifier le matériel par le personnel de service:
- Le cordon d'alimentation ou la fiche est endommagé.
- Un liquide a pénétré dans l'appareil.
- L'équipement a été exposé à l'humidité.
- L'équipement ne fonctionne pas bien ou vous ne pouvez pas le faire. fonctionner conformément au manuel d'utilisation.
- Equipment L'équipement est tombé et a été endommagé.
- Equipment L'équipement présente des signes évidents de rupture.
- 15. Ne laissez pas cet équipement dans un environnement où la température de stockage peut être inférieure à -40° C (-40° F) ou supérieure à 85° C (185° F). Cela pourrait endommager l'équipement. L'équipement doit être dans un environnement contrôlé.
- 16. Tout composant non vérifié peut causer des dommages inattendus. Pour garantir une installation correcte, veuillez toujours utiliser les composants (ex. Vis) fournis avec la boîte d'accessoires.
- 17. ATTENTION: L'ordinateur est équipé d'un circuit d'horloge temps réel alimenté par batterie. Il y a un risque d'explosion si la batterie est remplacée de manière incorrecte. Remplacez uniquement avec le même type ou un type équivalent recommandé par le fabricant. Jetez les piles usagées conformément aux instructions du fabricant.

- 18. Débranchez toujours complètement le cordon d'alimentation de votre châssis lorsque vous utilisez du matériel. Ne faites pas de connexion quand l'appareil est sous tension. Les composants électroniques sensibles peuvent être endommagés par des surtensions soudaines.
- 19. Niveau de pression acoustique au poste de l'opérateur selon la norme CEI 704-1: 1982 n'est pas supérieur à 70 dB (A).
- 20. L'équipement ne doit être installé que dans une zone d'accès restreint.
- 21. Au moyen d'un cordon d'alimentation connecté à une prise de courant avec mise à la terre.
- 22. Ce produit est destiné à être alimenté par un bloc d'alimentation homologué UL adapté à une utilisation à Tma 50 degrés C min. dont la sortie est conforme à PS2 (ou LPS), ES1 (ou SELV) et dont la sortie est nominale: 9-36Vdc, 16.65-4.16A, si besoin d'aide supplémentaire, veuillez contacter Advantech pour plus d'informations.

AVERTISSEMENT: Cet ensemble d'instructions est donné conformément à la norme CEI 704-1. Advantech décline toute responsabilité quant à l'exactitude des déclarations contenues dans ce.

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Chapter

General Introduction

This chapter details background information on the AIR-500D series.

1.1 Introduction

Advantech's AIR-500D is a high-performance edge computer with multiple expansion slots and fast data transfer speeds that empower AI model training applications. It is equipped with Intel® Xeon® D-1700 series processor and 4 x DDR4 SODIMM sock- ets that support up to 128GB. AIR-500D provides slots for PCI, PCIe x4, and PCIe x16 for up to 350W graphics card, and this configuration is ideal for AI vision robotic applications to install motion control card, frame grabber and high-performance graphic card.

Multiple I/O and Storages

AIR-500D offers 4x GbE, 6x USB 3.0, 4x COM ports and BMC one each in LAN/COM port. In addition, to store and trans- fer a large amount of data, AIR-500D supports up to 4 x 2.5" SATA III hard drive bays and delivers high data transfer rates via optional 10GbE ports and M.2 B key for 5G modules.

Advanced Security and Remote Management

To enhance the security of AIR-500D, the system has dual BIOS for BIOS backup and recovery, lowering the risk of BIOS damage and protecting BIOS from potential virus or data corruptions. AIR-500D on-board BMC (baseboard management con- troller) provides IPMI architecture for remote management.

Built-in Intelligent Management Tools — Advantech SUSI API and WISE-Devi- ceOn

Advantech SUSI API provides a valuable suite of programmable APIs such as multi- level watchdog, hardware monitoring, system restoration, and other user-friendly interfaces.

SUSI API is an intelligent self-management cross platform tool that monitors the sys- tem's status for problems and takes action in the event of abnormalities. SUSI API offers a boot up guarantee in critical, low-temperature environments so systems can automatically recover when voltages dip. SUSI API makes the entire system more reliable and intelligent. AIR-500D also supports Advantech's own WISE-DeviceOn, which provides easy remote management so users can monitor, configure, and con- trol a large number of terminals to make maintenance and system recovery simpler.

1.2 Product Features

1.2.1 General

- CPU: Intel[®] Xeon[®] D-1700 series processor (up to 10 cores 67W) Intel[®] Xeon[®], 10 core, power consumption 67W Intel[®] Xeon[®], 8 core, power consumption 59W Intel[®] Xeon[®], 4 core, power consumption 50W
- System Chipset: SoC
- BIOS: AMI EFI 512Mbit?
- System Memory: 4x DDR4 2666/2933MHz ECC/non-ECC SO-DIMM, up to 128GB
- Watchdog Timer: Single chip Watchdog 255-level interval timer, setup by software
- I/O Interface: 4 x RS232/422/485
- USB: 6x USB 3.0 compliant ports
- Audio: High Definition Audio (HD), Line-out/Mic-in
- IPMI 2.0 support: Aspeed AST2500 BMC supports IPMI 2.0 (Intelligent Platform Management Interface 2.0) via dedicate LAN, VGA, and console port
 - 1 x VGA
 - 1 x GbE management port
 - 1 x console port
- Storage: 2 x 2.5" swappable SATAIII HDD Bay with RAID 0/1 and max height 15mm/0.591inch (up to 4 x 2.5" SATAIII HDD Bay by request)
- Expansion Interface:
 - 1 x M.2 2230/2242/2280/3030/3042/3052 B Key (support SIM holder)
 - 1 x M.2 2230 E key for Wi-Fi modules
- **TPM:** TPM2.0 (support by optional AMO-I029)

1.2.2 Ethernet

- Chipset: LAN1/2/3/4 Intel[®] i210
- **Speed:** LAN1/2/3/4 10/100/1000
- Interface: Up to 4 x RJ45

1.3 Chipset

1.3.1 Functional Specifications

1.3.1.1 Processor

Processor	Intel [®] Xeon [®] D-1746TER, 10 core, power consumption 67W Intel [®] Xeon [®] D-1735TR, 8 core, power consumption 59W Intel [®] Xeon [®] D-1715TER, 4 core, power consumption 50W
Memory	Supports DDR4 2666/2933MHz up to 128GB 4 x 260-pin SODIMM socket type

1.3.1.2 Chipset

SATA Interface		Supports several optional sections of Serial ATA III: Extensions to Serial ATA 1.0 Specification, Revision 1.0
		Supports SATA transfers to 600 Mbytes/sec.
		USB host interface with support for 6 x USB 3.0 ports
USB Interface	•	All ports are High-Speed, Full-Speed, and Low-Speed capa- ble
		Supports legacy keyboard/mouse
BIOS		AMI 512-Mbit EFI Flash BIOS via SPI

1.3.1.3 Others

	4x serial ports
Serial Ports	 Supports IRQ Sharing among serial ports under Microsoft Windows OS
	COM1, COM2, COM3, COM4: RS232/422/485
Ethornot	LAN1/2/3/4 support 10/100/1000 Mbps
Luemet	LAN Connectors: Phone Jack RJ45 8P 90D (F)
Battery Backup	BATTERY 3V/210 mAh with WIRE x 1
ТРМ	TPM 2.0 (support by optional AMO-I029)

1.3.2 SUSI 4.2

SUSI API	
Sequence Control	Supported
Watchdog Timer	Multi-level WDT (set by Advantech iManager) Programmable 1-255 sec/min
Hardware Monitor	CPU Temperature/input Current/input Voltage
System Information	Running HR/Boot record

1.4 Mechanical Specifications

1.4.1 System Dimensions

270[10.62] x 260 [10.23] x 399 [15.71] Unit: mm [Inch]



Figure 1.1 AIR-500D Mechanical Dimensions Diagram

1.4.2 Weight

10.6Kg (23.37 lbs)

1.5 Power Requirements

1.5.1 System Power

- Power Type: inbuilt ATX
- Minimum Power Input: 100~240V_{AC}
- **Power Supply:** 1200W power supply built in

1.6 Operating Environment Specifications

1.6.1 Operating Temperature

- With extended peripherals: -10 ~ 50° C
- 1.6.2 Relative Humidity
 - 95% @ 40° C (104° F) (non-condensing)

1.6.3 Storage Temperature

■ -40 ~ 85° C (-40 ~ 185° F)

1.6.4 Safety

CB (62368), UL (62368), UKCA, CCC, BSMI

1.6.5 **EMC**

■ CE/FCC Class B, UKCA, CCC, BSMI



Hardware Configuration

2.1 Introduction

The following sections show the internal jumper settings and the external connector pin assignments for different applications.

2.2 Jumpers

2.2.1 Jumper Description

You may configure AIR-500D to match the needs of your application by setting jumpers. A jumper is a metal bridge used to close an electric circuit. 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, remove the clip. Sometimes a jumper will have three pins, labeled 1, 2 and 3. In this case you would connect either pins 1 and 2, or 2 and 3.



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



A pair of needle-nose pliers may be helpful when working with jumpers. 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. Generally, you simply need a standard cable to make most connections.

2.2.2 Jumper List

Table 2.1: Jumper List					
JCMOS1	Clear CMOS				
PSON1	Auto Power On Setting				

2.2.3 Jumper Location



Figure 2.1 Jumper Layout

2.2.4 Jumper Settings

2.2.4.1 Clear CMOS Setting for JCMOS1

JCMOS1 Clear CMOS Setting				
Part Number	1653003101			
Foot Print	HD_3x1P_79_D			
Description	PIN HEADER 3x1P 2.0mm 180D(M) DIP 2000-13 WS			
Setting	Function			
(1-2)	Normal Operation (Default)			
(2-3)	Clear CMOS			

2.2.4.2 Auto Power On Setting for PSON1

PSON1 Clear CMOS Setting		
Part Number	1653003101	
Foot Print	HD_3x1P_79_D	
Description	PIN HEADER 3x1P 2.0mm 180D(M) DIP 2000-13 WS	
Setting	Function	
(1-2)	Auto Power On	
(2-3)	Power button for Power On (Default)	



2.2.5 Bottom Board Jump List

Table 2.1: Jumper List		
M2_SEL1	M2_SEL	
M2_SEL2	M2_SEL	
NGFF_SMBEN1	SMB Enable	
CN1	5G Module power switch	

2.2.6 Bottom Board Jumper Locations



2.2.7 Jumper Locations

2.2.7.1 M.2 Select Function Source Between SATA and PCIE by M2_SEL1

M2_SEL1 M.2 select function source setting		
Part Number	1653003101	
Foot Print	HD_3x1P_79_D	
Description	PIN HEADER 3x1P 2.0mm 180D(M) DIP 2000-13 WS	
Setting	Function	
(1-2)	Auto detect by card (Default)	
(2-3)	SATA	
Floating	PCIE	



2.2.7.2 M.2 Select Function Source Between USB3.0 and PCIE by M2_SEL2

M2_SEL2 M.2 select function source setting			
Part Number	1653003101		
Foot Print	HD_3x1P_79_D		
Description	PIN HEADER 3x1P 2.0mm 180D(M) DIP 2000-13 WS		
Setting	Function		
(1-2)	Auto detect by card (Default)		
(2-3)	USB3.0		
Floating	PCIE		

	1
0	2
0	3

2.2.7.3 M.2 SMBus Enable by NGFF_SMBEN1

M.2 SMBus Enable Setting		
Part Number 1653003101		
Foot Print	HD_3x1P_79_D	
Description	PIN HEADER 3x1P 2.0mm 180D(M) DIP 2000-13 WS	
Setting	Function	
(1-2)	Disable M.2 SMBus Channel	
(2-3)	Enable M.2 SMBus Channel (Default)	



2.2.7.4 For 5G Module Power Switch by CN1

Power switch Setting	
Part Number	1653003101
Foot Print	HD_3x1P_79_D
Description	PIN HEADER 3x1P 2.0mm 180D (M) DIP 2000-13 WS
Setting	Function
(1-2)	Set Vout 3.805V (For 5G module support +3.805V)
(2-3)	Set Vout 3.304V (Default)

2.3 Connectors

2.3.1 External I/O Locations



Figure 2.2 Front I/O Connector Diagram

2.3.1.1 COM Port Connector

AIR-500D provides up to four D-sub 9-pin connectors, which offers RS-232/422/485 serial communication interface ports. The default setting is RS-232, the mode RS-422/485 of AIR-500D can be supported via the BIOS settings.



Figure 2.3 COM Port Connector

Table 2.2: COM Connector Pin Assignments			
	RS-232	RS-422	RS-485
Pin	Signal Name	Signal Name	Signal Name
1	DCD	Tx-	DATA-
2	RxD	Tx+	DATA+
3	TxD	Rx+	NC
4	DTR	Rx-	NC
5	GND	GND	GND
6	DSR	NC	NC
7	RTS	NC	NC
8	CTS	NC	NC
9	RI	NC	NC

2.3.1.2 Ethernet Connector (LAN)

AIR-500D is equipped with up to 4x Ethernet ports. LAN1/2/3/4 controllers that are fully compliant with IEEE 802.3u 10/100/1000 Mbps CSMA/CD standards.

These Ethernet ports provides a standard RJ-45 jack connector with LED indicators on the front side to show its Active/Link status (Green LED) and Speed status (Yellow LED).



Figure 2.4 Ethernet Connector

For LAN1/2/3/4 Connector:

Table 2.3: Ethernet Connector Pin Assignments		
Pin	10/100/1000BaseT Signal Name	
C1	MDI_LAN_D0_P	
C2	MDI_LAN_D0_N	
C3	MDI_LAN_D1_P	

C4	MDI_LAN_D1_N
C5	MDI_LAN_D2_P
C6	MDI_LAN_D2_N
C7	MDI_LAN_D3_P
C8	MDI_LAN_D3_N

2.3.1.3 Power On/Off Button

AIR-500D has a Power On/Off button with LED indicators on the front side that show "On" (Green LED) and "Off/Suspend" statuses (Orange LED). The Power button supports dual functions: Soft Power -On/Off (Instant off or Delay 4 Seconds then off), and Suspend.



Figure 2.5 Power ON/OFF Button

2.3.1.4 LED Indicators

There are four LEDs on the front panel that indicate the system's status: HDD LED is for HDD status.



Figure 2.6 LED Indicators

Chapter 2 Hardware Configuration

2.3.1.5 USB 3.0 Connector

AIR-500D supports 6x USB 3.0 interfaces. The USB interfaces complies with USB UHCI, Rev. 3.0 standards. Please refer to Table 2.5 for its pin assignments. USB 3.0 connectors contain legacy pins to interface with USB 2.0 devices, and a new set of pins for USB 3.0 connectivity.



Figure 2.7 USB 3.0 Connector

Table 2.4: Table 2.5: USB 3.(Connector Pin Assignments			
Pin	Signal Name	Pin	Signal Name
1	+5V	2	USB_data-
3	USB_data+	4	GND
5	SSRX-	6	SSRX+
7	GND	8	SSTX-
9	SSTX+		

2.3.1.6 BMC Dedicated LAN Connector



Figure 2.8 BMC Dedicated LAN Connector

Pin	10/100/1000BaseT Signal Name	
C1	MDI_LAN_D0_P	
C2	MDI_LAN_D0_N	
C3	MDI_LAN_D1_P	
C4	MDI_LAN_D1_N	
C5	MDI_LAN_D2_P	
C6	MDI_LAN_D2_N	
C7	MDI_LAN_D3_P	
C8	MDI_LAN_D3_N	

2.3.1.7 BMC Dedicated COM Port



Figure 2.9 BMC Dedicated COM Port

Table 2.6: COM2 BMC Dedicated COM Port Pin Assignments			
Pin	Signal Name (RS232)		
2	RX		
3	ТХ		

2.3.1.8 BMC Dedicated VGA Connector



Figure 2.10 BMC Dedicated VGA Port

Table 2.7: VGA Connector Pin Assignments						
Pin	Signal Name	Pin	Signal Name			
1	Red	2	Green			
3	Blue	4	NC			
5	GND	6	GND			
7	GND	8	GND			
9	NC	10	GND			
11	NC	12	DDAT			
13	H-SYNC	14	V-SYNC			
15	DCLK					

2.3.1.9 DIO Connector



Figure 2.11 DIO Connector

Table 2.9	: DIO Connector Pin Assig	nment	
Pin	Signal Name	Pin	Signal Name
1	GND	14	GND
2	Port0 D0	15	Port1 D0
3	Port0 D1	16	Port1 D1
4	Port0 D2	17	Port1 D2
5	Port0 D3	18	Port1 D3
6	Port0 D4	19	Port1 D4
7	Port0 D5	20	Port1 D5
8	Port0 D6	21	Port1 D6
9	Port0 D7	22	Port1 D7
10	+5V (Maximum 5W)	23	+5V (Maximum 5W)
11	NC	24	NC
12	NC	25	NC
13	NC		

Note! NC represents "No Connection".



2.4 Installation

2.4.1 Memory Installation



- 1. Unscrew the 6 screws on the side cover, and remove the side cover.
- 2. Install the memory into the system.
- 3. Replace the side cover.
- Memory Configuration Instruction: Using 1x DIMM: install on CN1 or CN3 slot Using 2x DIMM: install on CN1 & CN3 slot Using 3xDIMM is not supported.



2.4.2 HDD/SSD Installation



- 1. Remove 8 screws for HDD/SSD bracket.
- 2. Take out HDD/SSD tray bracket.
- 3. Install HDD/SSD in the bracket and insert back to the system.
- 4. Screw back 8 screws and finish the installation.

2.4.3 miniPCle/mSATA/m.2 Module Installation



- 1. Remove bottom cover (2.4.2).
- 2. Install miniPCIe/mSATA module with 2 screws (MINI_PCIE1 with SIM holder), M.2 module with 1 screw (M2E).
- 3. Replace the bottom cover and fix in place with 6 screws.

2.4.3.1 PCIex16 Graphic Card Installation (in case of double GPU cards)



- 1. Remove the top and side covers.
- 2. Remove the AIR-500D trim.
- 3. Install the graphics card to the PCIex16 slot, pay attention to the rear of the graphics card on installing L-shaped bracket from the accessory bag in advance.
- 4. Reinstall the trim strip x1 fixing piece x 2 upper iron piece x 1 in sequence, with a total of 15 screws.
- 5. Replace the top and side covers.

Note! If PCiex16 occupy 1 or 2 slots, PCiex1/4 can be installed; If PCiex16 occupy more than 2 slots, PCiex1/4 cannot be installed, as shown below:



2.4.4 M.2 Module Installation



- 1. Remove 14 screws from the top cover and side cover.
- 2. Install M.2 module (M.2 E Key / M.2 B Key) and tighten 1 screw on the module.




The installation methods of the short board and the long board correspond to different hole distances and brackets.

2.4.4.1 Installing the Table Mount Bracket

- 1. Remove the wall mount bracket and 6 screws from the accessory bag.
- 2. Fasten 3 screws and brackets on the left and right sides of the bottom, be reminded to install horizontally.





BIOS Settings

3.1 Introduction

AMIBIOS has been integrated into motherboards for over two decades. With the AMIBIOS Setup program, users can modify BIOS settings and control various system features. This chapter describes the basic navigation of the AIR-500D BIOS setup screens.

Main Advanced Platform	Aptio Setup – AMI Configuration Socket Configuration	Server Mgmt Security Boot 🔹
BIOS Information BIOS Vendor Core Version Compliancy Project Version Build Date and Time Access Level Project Board Version Power Type	American Megatrends 5.0.2.5 0.03 x64 UEFI 2.8; PI 1.7 AI500D0060X010 08/24/2022 13:45:34 Administrator AIR-500D ATX	Set the Date. Use Tab to switch between Date elements. Default Ranges: Year: 1998–9999 Months: 1–12 Days: Dependent on month Range of Years may vary.
Memory Information Total Memory Memory Frequency System Date System Time	16384 MB 2400 MT/S [Wed 09/21/2022] [13:05:59]	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
	Version 2.22.1283 Copyright (C) 202	2 AMI

AMI's BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This information is stored in flash ROM so it retains the Setup information when the power is turned off.

3.2 Entering the Setup

Turn on the computer and check for the patch code. If there is a number assigned to the patch code, it means that BIOS supports your CPU. If there is no number assigned to the patch code, please contact an Advantech application engineer to obtain an up- to-date patch code file. This will ensure that your CPU's system status is valid. After ensuring that you have a number assigned to the patch code, press and you will immediately be allowed to enter Setup.

3.2.1 Main Setup

When users first enter the BIOS Setup Utility, they will enter the Main setup screen. Users can always return to the Main setup screen by selecting the Main tab. There are two Main Setup options. They are described in this section. The Main BIOS Setup screen is shown below.

BIOS Information BIOS VendorAmerican Megatrends S.0.2.5 0.03 x64 UEFI 2.8; PI 1.7 AIS0000060X010 Build Date and Time Access Level Project Board Version Power TypeSet the Date. Use Tab to switch between Date elements. Default Ranges: Year: 1998-9999 Months: 1-12 Days: Dependent on month Range of Years may vary.Memory Information Total Memory System Time16384 MB [13:05:59]**: Select Screen tit: Select Item Enter: Select Item Enter: Select Item Enter: Select Item Enter: Select Item Enter: Select Item Enter: Select Enter: Select */-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	Main Advanced Platform Configu	Aptio Setup – AMI uration Socket Configuration	Server Mgmt Security Boot →
System Date [Wed 09/21/2022] 11: Select Screen System Time [13:05:59] Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	BIOS Information BIOS Vendor Core Version Compliancy Project Version Build Date and Time Access Level Project Board Version Power Type Memory Information Total Memory	American Megatrends 5.0.2.5 0.03 x64 UEFI 2.8; PI 1.7 AI500D00600010 08/24/2022 13:45:34 Administrator AIR-500D ATX 16384 MB 2400 MT/S	Set the Date. Use Tab to switch between Date elements. Default Ranges: Year: 1998-9999 Months: 1–12 Days: Dependent on month Range of Years may vary.
	System Date System Time	[Wed 09/21/2022] [13:05:59]	<pre>++: Select Screen f4: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>

The Main BIOS setup screen has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured; options in blue can. The right frame displays the key legend.

Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it.

System time/System date

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

3.2.2 Advanced BIOS Features Setup

Select the Advanced tab from the AIR-500D setup screen to enter the Advanced BIOS Setup screen. Users can select any item in the left frame of the screen, such as CPU Configuration, to go to the sub menu for that item. Users can display an Advanced BIOS Setup option by highlighting it using the <Arrow> keys. All Advanced BIOS Setup options are described in this section. The Advanced BIOS Setup screens are shown below. The sub menus are described on the following pages.

Aptio Setup – AMI Main <mark>Advanced</mark> Platform Configuration Socket Configuration	Server Mgmt Security Boot 🕨
 Trusted Computing Embedded Controller NCT7802Y HW Monitor S5 RTC Wake Settings UEFI Variables Protection Serial Port Console Redirection USB Configuration Network Stack Configuration NVMe Configuration Tls Auth Configuration All Cpu Information 	<pre>Trusted Computing Settings ++: Select Screen 11: Select Item Enter: Select +/-: Change Out.</pre>
	F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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3.2.2.1 Trusted Computing

Main Advanced Plat	Ap [:] orm Configuration	tio Setu Socket	up – AMI Configuration	Server	Mgmt	Security	Boot 🕨
 Trusted Computing Embedded Controller NCT7802Y HW Monitor S5 RTC Wake Settings UEFI Variables Protect Serial Port Console Re USB Configuration Network Stack Configure NVMe Configuration T1s Auth Configuration All Cpu Information 	ion direction ration			Trust	ed Corr	puting Set	tings
				++: Si 14: Si Enter +/-: (F1: Gi F2: Pi F3: Oj F4: Si ESC: (elect elect : Sele Change eneral reviou otimiz ave & Exit	Screen Item .ct . Opt. . Help is Values .ed Default Exit	S
	Version 2.22.	1283 Cop	oyright (C) 202	2 AMI			

- TPM Support (Optional Part Installed)
 "Enable or Disable" TPM Support.
- Security Device Support Enables or Disables BIOS support for security device.

3.2.2.2 Embedded Controller Configuration

Aptio Setup – AMI Main Advanced Platform Configuration Socket Configuration	Server Mgmt Security Boot I
 Trusted Computing Embedded Controller NCT7802Y HW Monitor SS RTC Wake Settings UEFI Variables Protection Serial Port Console Redirection USB Configuration Network Stack Configuration NVMe Configuration Tls Auth Configuration All Cpu Information 	Embedded Controller Parameters. ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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Advanced	Aptio Setup – AMI	
Embedded Controller		Select Power Saving Mode
Embedded Controller Firmware Version	EIO-201 X00243291	
Power Saving Mode	[Normal]	
 Serial Port 1 Configuration Serial Port 2 Configuration Serial Port 3 Configuration Serial Port 4 Configuration Hardware Monitor Watch Dog Timer Configuration Digital I/O Configuration 		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Versior	n 2.22.1283 Copyright (C)	2022 AMI

Power Saving Mode

This item allows users to set the board's power saving mode when off.

Advanced	Aptio Setup – AMI	
Embedded Controller		Set Parameters of Serial Port
Embedded Controller Firmware Version	EIO-201 X00243291	1 (CUMA)
Power Saving Mode	[Normal]	
 Serial Port 1 Configuration Serial Port 2 Configuration Serial Port 3 Configuration Serial Port 4 Configuration 		
 Hardware Monitor Watch Dog Timer Configuration 		
Digital 1/U Contiguration		<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values</pre>
		F3: Optimized Defaults F4: Save & Exit ESC: Exit
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- Serial Port 1 Configuration Set Parameters of Serial Port 1.
- Serial Port 2 Configuration Set Parameters of Serial Port 2.

- Serial Port 3 Configuration Set Parameters of Serial Port 3.
- Serial Port 4Configuration Set Parameters of Serial Port 4.

Advanced	Aptio Setup – AMI	
Embedded Controller		Monitor hardware status
Embedded Controller Firmware Version	EID-201 X00243291	
Power Saving Mode	[Normal]	
 Serial Port 1 Configuration Serial Port 2 Configuration Serial Port 3 Configuration Serial Port 4 Configuration Hardware Monitor Watch Dog Timer Configuration Digital I/O Configuration 		<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Vencior	2 22 1222 Conunight (C) 2	022 AMT

Advanced	Aptio Setup – AMI	
Embedded Controller		Watch Dog Timer Configuration
Embedded Controller Firmware Version	EIO-201 X00243291	rage.
Power Saving Mode	[Normal]	
 Serial Port 1 Configuration Serial Port 2 Configuration Serial Port 3 Configuration Serial Port 4 Configuration Hardware Monitor Watch Dog Timer Configuration Digital I/O Configuration 		++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Versi	on 2 22 1283 Conuright (C) 2	2022 AMT
VCI 51	50 2.22.1200 Copyright (C) 2	



Advanced	Aptio Setup – AMI	
Embedded Controller		Configure Digital I/O Pins
Embedded Controller Firmware Version	EID-201 X00243291	
Power Saving Mode	[Normal]	
 Serial Port 1 Configuration Serial Port 2 Configuration Serial Port 3 Configuration Serial Port 4 Configuration Hardware Monitor Watch Dog Timer Configuration Digital I/O Configuration 		<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version	2.22.1283 Copyright (C) 2022	AMI

Advanced	Aptio Setup – AMI	
Advanced Digital I/O Configuration Digital I/O Pin 0 Digital I/O Pin 1 Digital I/O Pin 2 Digital I/O Pin 3 Digital I/O Pin 4 Digital I/O Pin 5 Digital I/O Pin 6 Digital I/O Pin 7 Digital I/O Pin 8 Digital I/O Pin 9 Digital I/O Pin 9 Digital I/O Pin 10 Digital I/O Pin 11 Digital I/O Pin 13 Digital I/O Pin 14 Digital I/O Pin 15	Aptio Setup - AMI [Input] [Input] [Input] [Input] [Input] [Input] [Input] [Input] [Input] [Input] [Input] [Input] [Input] [Input] [Input] [Input] [Input] [Input] [Input]	Configure Digital I/O Pin. ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values
Vers	ion 2.22.1283 Copyright (C)	F3: Optimized Defaults F4: Save & Exit ESC: Exit

Hardware Monitor

This page displays all information about system Temperature/Voltage/Current/ Fan.

- Watch Dog Timer Enabled or disabled Watch Dog Timer function (Start before boot to OS and must stop by self).
- Digital I/O Pin Configure digital I/O pins.



	Antio Rotun ANT	
Advanced	Aptio Setup - AMI	
NCT7802Y Health Status		Enable or Disable Smart Fan
System temperature	: +29°C	
SYS Fan1 Speed	: N/A	
SYS Fan2 Speed	: N/A	
Pmant Ean Eurotian	[Epoblod]	
Smart Fan Function	[Enabled]	
		++: Select Screen
		14: Select Item
		Enter: Select
		+/-: Change Opt.
		F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit
Version 2	.22.1283 Copyright (C) 2022	AMI

	Aptio Setup – AMI	
Advanced		
Smart Fan Mode Configuration		Fan1 Mode Select.
-		
Fan1 Mode	[SMART FAN IV Mode]	
FAN1 Temperature 1	15	
FAN1 DC/PWM 1	100	
FAN1 Temperature 2	50	
FAN1 DC/PWM 2	120	
FAN1 Temperature 3	57	
FAN1 DC/PWM 3	180	
FAN1 Temperature 4	65	
FAN1 DC/PWM 4	255	
FAN1 Critical Temperature	65	
Fan2 Mode	[SMART FAN IV Mode]	++: Select Screen
FAN2 Temperature 1	15	↑↓: Select Item
FAN2 DC/PWM 1	100	Enter: Select
FAN2 Temperature 2	50	+/−: Change Opt.
FAN2 DC/PWM 2	120	F1: General Help
FAN2 Temperature 3	57	F2: Previous Values
FAN2 DC/PWM 3	180	F3: Optimized Defaults
FAN2 Temperature 4	65	F4: Save & Exit
FAN2 DC/PWM 4	255	ESC: Exit
FAN2 Critical Temperature	65	
Versio	n 2.22.1283 Copyright (C) 2	022 AMI

Smart Fan Function
Enable or Disable Smart Fan.
Fan1 Mode
Fan1 Mode Select.
FAN1 Temperature 1
Input the System Smart Fan IV Temperature 1.
FAN1 DC/PWM 1
Input the System Smart Fan IV DC/PWM 1 Value.
FAN1 Temperature 2
Input the System Smart Fan IV Temperature 2.
FAN1 DC/PWM 2
Input the System Smart Fan IV DC/PWM 2 Value.
FAN1 Temperature 3
Input the System Smart Fan IV Temperature 3.
FAN1 DC/PWM 3
Input the System Smart Fan IV DC/PWM 3 Value.
FAN1 Temperature 4
Input the System Smart Fan IV Temperature 4.
FAN1 DC/PWM 4
Input the System Smart Fan IV DC/PWM 4 Value.
FAN1 Critical Temperature
Input the System Smart IV Critical Temperature.
Fan2 Mode
Fan2 Mode Select.
FAN2 Temperature 1
Input the System Smart Fan IV Temperature 1.
FAN2 DC/PWM 1
Input the System Smart Fan IV DC/PWM 1 Value.

- FAN2 Temperature 2 Input the System Smart Fan IV Temperature 2.
- FAN2 DC/PWM 2
 Input the System Smart Fan IV DC/PWM 2 Value.
- FAN2 Temperature 3 Input the System Smart Fan IV Temperature 3.
- FAN2 DC/PWM 3 Input the System Smart Fan IV DC/PWM 3 Value.
- FAN2 Temperature 4
 Input the System Smart Fan IV Temperature 4.
- FAN2 DC/PWM 4 Input the System Smart Fan IV DC/PWM 4 Value.
- FAN2 Critical Temperature
 Input the System Smart IV Critical Temperature.

3.2.2.3 S5 RTC Wake Settings

Aptio Setup – AMI Main Advanced Platform Configuration Socket Configu	ration Server Mgmt Security Boot →
 Trusted Computing Embedded Controller NCT7802Y HW Monitor SS RTC Wake Settings UEFI Variables Protection Serial Port Console Redirection USB Configuration Network Stack Configuration NVMe Configuration Tls Auth Configuration All Cpu Information 	Enable system to wake from S5 using RTC alarm
	<pre>++: Select Screen \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$</pre>
Version 2.22.1283 Copyright	(C) 2022 AMI

Wake System From S5

Enable or disable System wake on alarm event. Select Fixed Time, system will wake on the hr::min::sec specified.

3.2.2.4 UEFI Variables Protection

Aptio Setup – AMI			
Main Advanced Platform Configuration	Socket Configuration Se	rver Mgmt Security Boot 🔹 🕨	
 Trusted Computing Embedded Controller NCT7802Y HW Monitor S5 RTC Wake Settings UEFI Variables Protection Serial Port Console Redirection USB Configuration Network Stack Configuration NVMe Configuration 	N P	WRAM Runtime Variable rotection Settings	
 All Cpu Information All Cpu Information 	- + ↑ ₹ ₹ ₹ ₹	<pre>+: Select Screen 4: Select Item inter: Select ./-: Change Opt. 1: General Help 2: Previous Values 3: Optimized Defaults 4: Save & Exit SC: Exit</pre>	
Version 2.22.	283 Copyright (C) 2022 A	MI	

Password protection of Runtime Control the NVRAM Runtime Variable protection through System Admin Password.

3.2.2.5 Serial Port Console Redirection

Apti Main Advanced Platform Configuration S	o Setup – AMI ocket Configuration	Server Mgmt	Security	Boot 🕨
 Trusted Computing Embedded Controller NCT7802Y HW Monitor SS RTC Wake Settings UEFI Variables Protection Serial Port Console Redirection USB Configuration Network Stack Configuration NVMe Configuration Tls Auth Configuration All Cpu Information 		<pre>Serial Port +*: Select 14: Select Enter: Sele +/-: Change F1: General F2: Previou F3: Optimiz F4: Save & ESC: Exit</pre>	Console Re Screen Item ct Opt. Help s Values ed Default: Exit	edirection
Version 2.22.12	33 Copyright (C) 202	2 AMI		



Advanced	Aptio Setup – AMI	
COMO Console Redirection Legacy Console Redirection ▶ Legacy Console Redirection Settings	[Disabled]	Legacy Console Redirection Settings
		<pre>++: Select Screen f4: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2	.22.1283 Copyright (C) 2022	AMI

Advanced	Aptio Setup – AMI	
Legacy Console Redirection Settings Redirection COM Port Resolution Redirect After POST	[COMO] [80x24] [Always Enable]	Select a COM port to display redirection of Legacy OS and Legacy OPROM Messages
		<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2	.22.1283 Copyright (C) 2022	AMI

Console Redirection

This item allows users to enable or disable console redirection for Microsoft Windows Emergency Management Services (EMS).

Redirection COM Port

Select a COM port to display redirection of Legacy OS and Legacy OPROM Messages.

3.2.2.6 USB Configuration



Legacy USB Support

This supports USB devices with legacy OS such as DOS. When choosing "AUTO", the system will automatically detect USB devices. It will enable USB legacy mode when a USB device is plugged in and disable USB legacy mode when no USB device is plugged in.

3.2.2.7 Network Stack Configuration

Aptio Setup – AMI Main Advanced Platform Configuration Socket Configuration	Server Mgmt Security Boot I
 Trusted Computing Embedded Controller NCT7802Y HW Monitor S5 RTC Wake Settings UEFI Variables Protection Serial Port Console Redirection USB Configuration Network Stack Configuration NVMe Configuration Tls Auth Configuration All Cpu Information 	Network Stack Settings
	<pre>++: Select Screen 1↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
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3.2.2.8 NVMe Configuration

Aptio Setup - Main Advanced Platform Configuration Socket Cor	•AMI Ifiguration Server Mgmt Security Boot →
 Trusted Computing Embedded Controller NCT7802Y HW Monitor S5 RTC Wake Settings UEFI Variables Protection Serial Port Console Redirection USB Configuration Network Stack Configuration NVMe Configuration Tls Auth Configuration All Cpu Information 	NVMe Device Options Settings
	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.22.1283 Copyri	ght (C) 2022 AMI

3.2.2.9 TIs Auth Configuration

Aptio Setup – AMI Main Advanced Platform Configuration Socket Configuration	Server Mgmt Security Boot 🔹
 Trusted Computing Embedded Controller NCT7802Y HW Monitor S5 RTC Wake Settings UEFI Variables Protection Serial Port Console Redirection USB Configuration Network Stack Configuration NVMe Configuration T1s Auth Configuration All Cpu Information 	Press <enter> to select Tls Auth Configuration.</enter>
	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.22.1283 Copyright (C) 2023	2 AMI

3.2.2.10 All CPU Information

Aptio Setup - AMI			
Main Advanced Platform Configuration Socket Configuration	Server Mgmt Security Boot		
 Trusted Computing Embedded Controller NCT7802Y HM Monitor S5 RTC Wake Settings UEFI Variables Protection Serial Port Console Redirection USB Configuration Network Stack Configuration NVMe Configuration T1s Auth Configuration All Cpu Information 	Display all cpu information		
	<pre>++: Select Screen 1↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>		
Version 2.22.1283 Copyright (C) 202	2 AMI		

3.2.3 Platform Configuration

3.2.3.1 PCH-IO Configuration

Platform Configurat	Aptio Setup – AMI ion	
PCH-IO Configuration > PCI Express Configuration > SATA Configuration > USB Configuration > Security Configuration		PCI Express Configuration settings
Serial IRQ Mode State After G3 SSC override through CSME Flash Protection Range Registers (FPRR)	[Continuous] [S5 State] [Enabled] [Enabled]	
		<pre> ++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
LVersion 2	2.22.1283 Copyright (C) 2022	AMI

Serial IRQ Mode

Configure Serial IRQ Mode.

State After G3

Specify what state to go to when power is re-applied after a power failure (G3 state).

Flash Protection Range Registers (FPRR) Enable Flash Protection Range Registers.



PCI Express Configuration

- Port8xh Decode
 Enable/Disable PCI Express Port8xh Decode.
- Peer Memory Write Enable
 Enable/Disable Peer Memory Write.
- Compliance Test Mode
 Enable when using Compliance Load Board.
- LAN1/LAN2 Controller
 Enable/Disable on board LAN1/LAN2 from Intel i210 Controller support.
- Intel X550 Controller
 Enable/Disable on board LAN3/LAN4 from Intel X550 Controller support. (LAN3/LAN4 are optional by AMO-I031)

Platform Configurat	Aptio Setup – AMI <mark>ion</mark>	
PCI Express Configuration		PCI Express Root Port Settings.
Port8xh Decode Peer Memory Write Enable PCI Express Clock Gating Compliance Test Mode	[Disabled] [Disabled] [Enabled] [Disabled]	
 PCI Express Root Port 1(M.2 B Key) PCI Express Root Port 2(M.2 E Key) PCI Express Root Port 5(x1) 		
LAN1 Controller LAN2 Controller LAN3/4 Controller	[Enabled] [Enabled] [Enabled]	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

PCI Express Root Port

Configure PCI Express Root Port Settings.

- ASPM
 PCI Express Active State Power Management settings.
- L1 Substates
 PCI Express L1 Substates settings.
- PCle Speed Configure PCle Speed. Auto is equal to Gen2 or Gen3 depending on DTR soft strap.



- SATA Configuration
 Enable/Disable SATA controller.
- SATA Mode Selection
 Determine how SATA controllers operate.
- Aggressive LPM support Enables/Disables SATA Aggressive Link Power Management. This item will appear when "AHCI" or "RAID" is selected.
- SATA port 1/2/3/4
 Enable/disable SATA port. SATA port 3 & 4 are optional.

Chapter 3 BIOS Settings

3.2.3.2 Sever ME Configuration

Aptio Setup – AMI Main Advanced Platform Configuration Socket Configuration S	Server Mgmt Security Boot 🔹 🕨
 PCH-IO Configuration Server ME Configuration System Event Log Intel(R) Time Coordinated Computing Setup Warning: Setting items on this Screen to incorrect values may cause system to malfunction! 	Configure Server ME Technology Parameters
	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
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General ME Configuration Image: Configuration Oper. Firmware Version 11:5.0.3.67 Backup Firmware Version N/A Recovery Firmware Version 11:5.0.3.67 ME Firmware Status #1 0x00000245 Current State Operational Error Code No Error Recovery Cause N/A	Platform Confi	Aptio Setup – AMI guration	
Altitude 8000 MCTP Bus Owner 0 Server ME firmware features list	General ME Configuration Oper. Firmware Version Backup Firmware Version Recovery Firmware Version ME Firmware Status #1 ME Firmware Status #2 Current State Error Code Recovery Cause Altitude MCTP Bus Dumer Server ME firmware features lis	11:5.0.3.67 N/A 11:5.0.3.67 0x00000245 0x8A11A006 Operational No Error N/A 8000 0	▲ The altitude of the platform location above the sea level, expressed in meters. The hex number is decoded as 2's complement signed integer. Provide the 8000h value if the altitude is unknown.
NodeManager++: Select ScreenICC11: Select ItemMestorageServicesEnter: SelectBootGuard+/-: Change Opt.HSIOF1: General HelpPECIOverDMIF2: Previous ValuesPCHDebugF3: Optimized DefaultsPowerThermalUtilityF4: Save & ExitFiaMuxConfigurationESC: ExitDirectMeUpdateMctpInfrastructure	NodeManager ICC MeStorageServices BootGuard HSIO PECIOverDMI PCHDebug PowerThermalUtility FiaMuxConfiguration PCHThermalSensorInit DirectMeUpdate MctpInfrastructure		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>

MCTP Bus Owner

[15:8] bus, [7:3] device, [2:0] function. If all zeros sending bus owner is disabled.

3.2.3.3 System Event Log



System Error

Enable/Disable setup options.

3.2.4 Socket Configuration

3.2.4.1 Processor Configuration

	Aptio Setup – AMI Socket Configuration	
Processor Configuration		Change Per-Socket Settings
 Per-Socket Configuration Processor BSP Revision Processor Socket Processor ID Processor Frequency Processor Max Ratio Processor Min Ratio Microcode Revision L1 Cache RAM(Per Core) L2 Cache RAM(Per Core) L3 Cache RAM(Per Package) Processor 0 Version Hyper-Threading [ALL] 	606C1 - ICX-D LCC B Socket 0 Socket 1 000606C1* 2.400GHZ 18H 08H 010001A0 80KB 1280KB 10240KB Intel(R) Xeon(R) D-1715 TER CPU @ 2.40GHZ [Enable]	++: Select Screen 11: Select Item Enter: Select +/-: Change Opt.
Check CPU BIST Result	[Enabled]	F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Apt	o <mark>Setup – AMI</mark> ocket Configuration
▶ CPU Socket 0 Configuration	++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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3.2.4.2 Memory Configuration



	Aptio Setup – AMI Socket Configuration	
Integrated Memory Controller (iMC) Memory Frequency ▶ Memory Topology	[Auto]	Maximum Memory Frequency Selections in Mhz. If Enforce POR is disabled, user will be able to run at higher frequencies than the memory support (limited by processor support). Do not select Reserved
		<pre>++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2	2.22.1283 Copyright (C) 2022	AMI

	Aptio Setup – AMI Socket Configuration	
DIMMAO Size Number of Ranks Manufacturer	Populated & Enabled 8192MB 2 0x 0	++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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Memory Frequency

Maximum Memory Frequency Selections in Mhz. If Enforce POR is disabled, user will be able to run at higher frequencies than the memory support (limited by processor support). Do not select Reserved.

3.2.4.3 IIO Configuration



	Aptio Setup – AMI Socket Configuration	
IIO Configuration		All IIO performance tuning configuration options
▶ IIO Global Performance Tuning		
IIO-PCIE Express Global Options		
PCIE Train by BIOS NTB Link Train by BIOS Delay before link training PCIE Hot Plug Mask PCIE RP warm reset MCA PCIE Low Latency Retimers Skip PCIE retimers detection PCI-E Completion Timeout PCI-E Completion Timeout PCI-E Completion Timeout PCI-E ASPM Support (Global) Snoop Response Hold Off PCIE LTR Support PCIE Extended Tag Support PCIE 10-bit Tag Support PCIE Atomic Op Support PCIE Max Read Request Size PCIE PTM Support PCIE Relaxed Ordering	[Yes] [Auto] [No delay] [No] [Enable] [No] [Global] [260ms to 900ms] [Per-Port] 9 [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Yes]	++: Select Screen f1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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PCIe Train by BIOS

Assume IIO is strapped for Wait-for-BIOS because straps are unreliable in A-0 Silicon.

NTB Link Train by BIOS

This knob enables or disables the BIOS to train the NTB link.

- Delay before link training Custom delay before PCIe link training on IIO ports.
- PCle Hot Plug Enable/Disable PCle Hot Plug globally.
- Mask PCIe RP warm reset MCA Enable/Disable Mask CPU Complex PCIe Root Port warm reset MCA.
- PCIe ACPI Hot Plug Enable/Disable PCIe ACPI Hot Plug globally, or allow per-port control. When Disabled, MSI is generated on HP event. When Enabled, _HPGPE message is generated.
- PCIe Low Latency Retimers
 Enable/Disable PCIe low latency retimers.
- Skip PCIe retimers detection Skip PCIe retimers detection to speedup the boot. Retimers are preent only in specific HW configurations.
- PCI-E Completion Timeout
 Enable/disable the PCIe Completion Timeout in Device Control2 register.
- PCI-E Completion Timeout
 PCIe Completion Timeout to program in Device Control2 register.
- PCI-E ASPM Support (Global) This option enables/disables the ASPM support for all downstream devices.
- Snoop Response Hold Off Sets Snoop Response Hold Off value, 256 cycles as Default.

PCIe LTR Support

This option can disable Latency Tolerance Reporting support in all PCIe root ports. 'Auto' keeps hardware default.

PCIe Extended Tag Support

This option can disable 8-bit Tag support in all PCIe root ports. 'Auto' keeps hardware default.

PCle 10-bit Tag Support This option can disable PCle 10-bit Tag Requester support in all PCle root ports. 'Auto' keeps hardware default.

PCle Atomic Op Support
 This option can disable Atomic Operation Routing support in all PCIe root ports and block Atomic Operation Requester in PCI hierarchy. 'Auto' keeps hardware default.

 PCle Max Read Request Size

Set Max Read Request Size in EndPoints.

PCle PTM Support

This option can disable Precision Time Management support in PCI hierarchy. 'Auto' keeps hardware default.

PCIe Relaxed Ordering

Enable Relaxed Ordering in PCIe devices where it is supported. Note that in some devices it can be not supported, hardwired to zero.

IIO Global Performance Tuning



- Performance Tuning Mode

Select IIO performance tuning mode, where Safe mode contains the default HW state and Performance Enable Mode has the recommended performance values.

Chapter 3 BIOS Setting

3.2.4.4 Advanced Power Management Configuration

	Aptio Setup – AMI Socket Configurat	ion
CPU P State Control AVX Licence Pre-Grant Override SpeedStep (Pstates) Config TDP Lock AVX P1 EIST PSD Function Boot performance mode Energy Efficient Turbo Turbo Mode CPU Flex Ratio Override CPU Core Flex Ratio GPSS timer ► Perf P-Limit	[Disable] [Enable] [Enable] [Normal] [HW_ALL] [Max Performance] [Enable] [Enable] [Disable] 23 [500 us]	Enables AVX ICCP pre-grant level override.
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- AVX Licence Pre-Grant Override
 Enables AVX ICCP pre-grant level override.
- SpeedStep (Pstates) Enable/Disable EIST (P-States).
- Config TDP Lock
 Config TDP CONTROL Lock Bit.
- AVX P1

AVX P1 level selection.

- Dynamic SST-PP

Support Dynamic SST-PP Select. NOTE: Disable: Static SST-PP can be displayed.

– Intel SST-PP

Intel SST-PP Select allows user to choose from up to two additional base frequency conditions.

- Activate SST-BF This Option allows SST-BF to be enabled.
- EIST PSD Function Choose HW_ALL/SW_ALL in _PSD return.

- Boot performance mode

Select the performance state that the BIOS will set before OS hand off.

Energy Efficient Turbo

Energy Efficient Turbo Disable, MSR 0x1FC [19].

- Turbo Mode Enable/Disable processor Turbo Mode (requires EMTTM enabled too).
- CPU Flex Ratio Override
 Enable/Disable CPU Flex Ratio Programming.

GPSS timer

P-state change hysteresis time window.

- Perf P-Limit
 - Program PERF_P_LIMIT 1:30:2:0xe4 Sub Menu.

3.2.5 Server Management

Main Advanced Platform	Aptio Setup – AMI Configuration Socket Configuration	Server Mgmt Security Boot 🕨
BMC Self Test Status BMC Device ID BMC Device Revision BMC Firmware Revision IPMI Version IPMI BMC Interface BMC Support FRB-2 Timer FRB-2 Timer timeout FRB-2 Timer timeout FRB-2 Timer Policy OS Watchdog Timer OS Wtd Timer	PASSED 32 1 12.04 2.0 KCS [Enabled] [Enabled] 6 [Do Nothing] [Disabled] 10	Enable/Disable interfaces to communicate with BMC
OS Wtd Timer Policy > System Event Log > Bmc self test log > BMC network configuration > View System Event Log > BMC User Settings	[Reset]	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
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BMC Support

Enable/Disable interfaces to communicate with BMC.

FRB-2 Timer

Enable or Disable FRB-2 timer (POST timer).

FRB-2 Timer timeout

Enter value Between 1 to 30 min for FRB-2 Timer Expiration.

FRB-2 Timer Policy

Configure how the system should respond if the FRB-2 Timer expires. Not available if FRB-2 Timer is disabled.

OS Watchdog Timer

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.

OS Wtd Timer Timeout

Enter the value Between 1 to 30 min for OS Boot Watchdog Timer Expiration. Not available if OS Boot Watchdog Timer is disabled.

OS Wtd Timer Policy

Configure how the system should respond if the OS Boot Watchdog Timer expires. Not available if OS Boot Watchdog Timer is disabled.

3.2.5.1 System Event Log

Main Advanced Platform Configurat	Aptio Setup – AMI ion Socket Configuration <mark>:</mark>	Server Mgmt <mark>Security Boot →</mark>
BMC Self Test Status BMC Device ID BMC Device Revision BMC Firmware Revision IPMI Version IPMI BMC Interface BMC Support FRB-2 Timer FRB-2 Timer timeout FRB-2 Timer Policy OS Watchdog Timer DS With Timer Timeout	PASSED 32 1 12.04 2.0 KCS [Enabled] [Enabled] 6 [Do Nothing] [Disabled] 10	Press <enter> to change the SEL event log configuration.</enter>
 OS Wtd Timer Policy System Event Log Bmc self test log BMC network configuration View System Event Log BMC User Settings 	[Reset]	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>

3.2.5.2 BMC Self Test Log



3.2.5.3 BMC Network Configuration

Main Advanced Platform Configurat	Aptio Setup – AMI ion Socket Configuration	Server Mgmt Security Boot D
BMC Self Test Status BMC Device ID BMC Device Revision BMC Firmware Revision IPMI Version IPMI BMC Interface BMC Support FRB-2 Timer FRB-2 Timer timeout FRB-2 Timer Policy OS Watchdog Timer OS Wtd Timer Timeout OS Wtd Timer Policy System Event Log Bmc self test log BMC network configuration View System Event Log BMC User Settings	PASSED 32 1 12.04 2.0 KCS [Enabled] [Enabled] 6 [Do Nothing] [Disabled] 10 [Reset]	Configure BMC network parameters ++: Select Screen fl: 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	Server Mømt
––BMC network configuration––		Select to configure LAN
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx		channel parameters statically
хококококококококококококококококококок		BMC). Unspecified option will
Lan channel 1		parameters during BIOS phase
Configuration Address source	[Unspecified]	
Current Configuration Address source	DynamicAddressBmcDhcp	
Station IP address	0.0.0.0	
Subnet mask	0.0.0.0	
Station MAC address	5E-4A-4B-B9-4D-0A	
Router IP address	0.0.0	· · · · · · · · · · · · · · · · · · ·
Router MAC address	00-00-00-00-00	++: Select Screen
		↑↓: Select Item
***		Enter: Select
Configure IPv6 support		+/-: Change Opt.
***		F1: General Help
		F2: Previous Values
Lan channel 1		F3: Optimized Defaults
		F4: Save & Exit
IPv6 Support	[Enabled]	ESU: EXIT
Configuration Address source	[Upoposified]	
configuration Address source	[Unspectrifed]	
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Configuration Address Source

Select to configure LAN channel parameters statically or dynamically (by BMC). Unspecified option will not modify any BMC network parameters during BIOS phase.
3.2.5.4 View System Event Log

Main Advanced Platform Configu	Aptio Setup – AMI ration Socket Configuration	Server Mgmt <u>Security Boot</u> ►
BMC Self Test Status BMC Device ID BMC Device Revision BMC Firmware Revision IPMI Version IPMI BMC Interface BMC Support FRB-2 Timer FRB-2 Timer timeout FRB-2 Timer Policy OS Watchdog Timer	atus PASSED 32 sion 1 fision 12.04 2.0 ice KCS [Enabled] [Enabled] icy [Do Nothing] ich [Disabled]	Press <enter> to view the System Event Log Records.</enter>
US Wtd Timer Timeout OS Wtd Timer Policy System Event Log Bmc self test log BMC network configuration View System Event Log BMC User Settings	10 [Reset]	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Versio	on 2.22.1283 Copyright (C) 202	2 AMI

If any event logs occur during boot up, the event logs will be display at this page.

3.2.5.5 BMC User Settings

Main Advanced Platform Cont	Aptio Setup – AMI figuration Socket Configuratio	on Server Mgmt Security Boot
BMC Self Test Status BMC Device ID BMC Device Revision BMC Firmware Revision IPMI Version IPMI BMC Interface BMC Support FRB-2 Timer FRB-2 Timer timeout	PASSED 32 1 12.04 2.0 KCS [Enabled] [Enabled] 6	Press <enter> to Add, Delete and Set Privilege level for users.</enter>
 FRB-2 Timer Policy OS Watchdog Timer OS Wtd Timer Timeout OS Wtd Timer Policy System Event Log Bmc self test log BMC network configuration View System Event Log BMC User Settings 	[Do Nothing] [Disabled] 10 [Reset]	++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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- Add User Add user information.
- Delete User
 Delete user information.
- Change User Settings Allow change User settings.

3.2.6 Security

	Main Advanced Platform Configurat	Aptio Setup – AMI ion Socket Configuration	Server Mgmt Security Boot
Γ	Password Description		Set Administrator Password
	If ONLY the Administrator's password then this only limits access to Setu only asked for when entering Setup. If ONLY the User's password is set, is a power on password and must be e boot or enter Setup. In Setup the Us have Administrator rights. The password length must be in the following range: Minimum length	is set, p and is then this ntered to er will 3	
	Maximum length	20	++· Select Screen
	Administrator Password		t↓: Select Item
•	User Password ► Secure Boot		Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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Administrator Password Set Administrator Password.

 User Password Set User Password.

Main Advanced Plat	Aptio Setup – AN form Configuration Socket Config	¶I guration Server Mgmt <mark>Security</mark> Boot →
Password Description		Secure Boot configuration
If ONLY the Administr then this only limits only asked for when a If ONLY the User's pa is a power on passwor boot or enter Setup. have Administrator r: The password length in the following rang Minimum length	rator's password is set, access to Setup and is entering Setup. assword is set, then this and must be entered to In Setup the User will ghts. nust be ge: 3	
Maximum length Administrator Passwor User Password ▶ Secure Boot	20 rd	<pre>++: Select Screen 1↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
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	Aptio Setup – AMI	Security
System Mode	Setup	Secure Boot feature is Active
Secure Boot	[Disabled] Not Active	Platform Key(PK) is enrolled and the System is in User mode.
Secure Boot Mode ▶ Restore Factory Keys ▶ Reset To Setup Mode	(Custom)	platform reset
▶ Key Management		
		<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
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- Secure Boot

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

Secure Boot mode options: Standard or Custom.

Main Advanced Platform Configurat	Aptio Setup – AMI ion Socket Configuration	Server Mgmt Security Boot
Boot Configuration Setup Prompt Timeout Bootup NumLock State Quiet Boot	3 [On] [Disabled]	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Boot Option Priorities Boot Option #1 Boot Option #2	[UEFI: JetFlashTS4GJFV30 8.07, Partition 1 (JetFlashTS4GJFV30 8.07)] [UEFI: Built-in EFI Chall	
	Shell]	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
LVersion 2	.22.1281 Copyright (C) 202	2 AMI

- Setup Prompt Timeout Number of seconds to wait for setup activation key. 65535 (0xFFFF) means indefinite waiting.
- Bootup NumLock State Select the keyboard NumLock state.
- Quiet Boot Enables or disables Quiet Boot option.
- Boot Option Display and select boot devices.

3.2.8 Save & Exit

Aptio Setup – AMI		
Save Options Save Changes and Exit Discard Changes and Exit	Exit system setup after saving the changes.	
Save Changes and Reset Discard Changes and Reset		
Save Changes Discard Changes		
Restore Defaults Save as User Defaults		
Restore User Defaults Boot Override	↔: Select Screen 1∔: Select Item Enter: Select	
UEFI: JetFlashTS4GJFV30 8.07, Partition 1 (JetFlashTS4GJFV30 8.07) UEFI: Built-in EFI Shell	+/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	
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- Save Changes and Exit Exit system setup after saving the changes.
 Discard Changes and Exit
 - Exit system setup without saving any changes.
- Save Changes and Reset Reset the system after saving the changes.
- Discard Changes and Reset Reset system setup without saving any changes.
- Save Changes
 Save Changes done so far to any of the setup options.
- Discard Changes Discard Changes done so far to any of the setup options.
- Restore Defaults Restore/Load Default values for all the setup options.
- Save as User Defaults
 Save the changes done so far as User Defaults.

Restore User Defaults

Restore the User Defaults to all the setup options.



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