TS70A-B8056
TS70A-B8056-HE

Service Engineer's Manual

PREFACE

Copyright

Version 1.0j

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● FCC Declaration

Notice for the USA

Compliance Information Statement (Supplier's Declaration of Conformity, SDoC**)**
FCC Part 15: This device complies with part 15 of the FCC Rules.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

–This device may not cause harmful interference.

–This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Notice for Canada

This Class A digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la Classe A est conforme à la norme NMB-003 du Canada.

● Notice for Europe (CE Mark)

This product is in conformity with the Council Directive 2014/30/EU and 2014/35/EU.

Warning

This equipment is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.

クラスA機器

この装置は、クラスA機器です。この装置を住宅環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

ＶＣＣＩ－Ａ

● Safety: IEC/EN 62368-1

This equipment is compliant with CB/LVD of Safety: IEC/EN 62368-1.

About this Manual

This manual is intended for technicians, authorized service personnel or trained hardware service personnel with hardware knowledge of computers. This is aimed to provide you with instructions on installing your TYAN TS70A-B8056.

How this guide is organized

This guide contains the following parts:

Chapter 1: Overview
This chapter provides an introduction to the TYAN TS70A-B8056 barebones and standard parts list, describes the external components, gives an overview of the product from different angles.

Chapter 2: Setting Up
This chapter covers procedures on installing the memory modules, hard drivers and other optional parts.

Chapter 3: Replacing the Pre-installed Components
This chapter covers the removal and replacement procedures for pre-installed components.

Chapter 4: Motherboard Information
This chapter lists the hardware setup procedures that you need to abide by when installing system components. It includes description of the jumpers and connectors on the motherboard.

Chapter 5: BIOS Setup
This chapter tells how to change system settings through the BIOS setup menu. Detailed descriptions of the BIOS parameters are also provided.

Chapter 6: Diagnostics
This chapter introduces some BIOS codes and technical terms to provide better service for the customers.

Appendix:
This chapter provides the cable connection table, how to install IO plate for OCP Card, the FRU parts list for reference of system setup, and technical support in case a problem arises with your system.

Safety and Compliance Information

Before installing and using TYAN TS70A-B8056, take note of the following precautions:

- Read all instructions carefully.
- Do not place the unit on an unstable surface, cart, or stand.
- Do not block the slots and opening on the unit, which are provided for ventilation.
- Only use the power source indicated on the marking label. If you are not sure, contact the power company.
- The unit uses a three-wire ground cable, which is equipped with a third pin to ground the unit and prevent electric shock. Do not defeat the purpose of this pin. If your outlet does not support this kind of plug, contact your electrician to replace your obsolete outlet.
- Do not place anything on the power cord. Place the power cord where it will not be in the way of foot traffic.
- Follow all warnings and cautions in this manual and on the unit case.
- Do not push objects in the ventilation slots as they may touch high voltage components and result in shock and damage to the components.
- When replacing parts, ensure that you use parts specified by the manufacturer.
- When service or repairs have been done, perform routine safety checks to verify that the system is operating correctly.
- Avoid using the system near water, in direct sunlight, or near a heating device.
- Cover the unit when not in use.

Safety Information

Retain and follow all product safety and operating instructions provided with your equipment. In the event of a conflict between the instructions in this guide and the instructions in equipment documentation, follow the guidelines in the equipment documentation.

Observe all warnings on the product and in the operating instructions. To reduce the risk of bodily injury, electric shock, fire and damage to the equipment, observe all precautions included in this guide.

You must become familiar with the safety information in this guide before you install, operate, or service TYAN products.

Symbols on Equipment

	**CAUTION:** There is a risk of personal injury and equipment damage. Follow the instructions provided in the Tyan product documentation or displayed on the product.
	Read the e-manual. https://www.tyan.com/
	**CAUTION:** Hazardous moving fan blade. Keep body parts away from moving fan blades.
	**CAUTION:** Hot parts. Avoid contact. Surfaces are hot and may cause personal injury if touched. To reduce risk of injury from Hot parts, allow the surface to cool before touching.
	**CAUTION:** Hazardous voltages are present. To reduce the risk of electric shock and danger to personal health, follow the instructions.
	**CAUTION:** Multiple power connections. Prior to servicing, disconnect all power cords. **ATTENTION:** Raccordements de puissance multiples. Avant l'entretien, vous devez débranchez tous les cordons d'alimentation.

General Precautions

- Follow all caution and warning instructions marked on the equipment and explained in the accompanying equipment documentation.

Machine Room Environment

- Make sure that the area in which you install the system is properly ventilated and climate-controlled.
- Ensure that the voltage and frequency of your power source match the voltage and frequency inscribed on the electrical rating label of the equipment.
- Do not install the system in or near a plenum, air duct, radiator, or heat register.
- Never use the product in a wet location.

Equipment Chassis

- Do not block or cover the openings to the system.
- Never push objects of any kind through openings in the equipment. Dangerous voltages might be present.
- Conductive foreign objects can produce a short circuit and cause fire, electric shock, or damage to your equipment.
- Lift equipment using both hands and with your knees bent.

Equipment Racks

To avoid injury or damage to the equipment:

- Observe local occupational health and safety requirements and guidelines for manual materials handling.
- Do not attempt to move a rack by yourself; a minimum of two people are needed to move a rack.
- Do not attempt to move a fully loaded rack. Remove equipment from the rack before moving it.
- Do not attempt to move a rack on an incline that is greater than 10 degrees from the horizontal.

- Make sure the rack is properly secured to the floor or ceiling.
- Make sure the stabilizing feet are attached to the rack if it is a single-rack installation.
- Make sure racks are coupled together if it is a multiple-rack installation.
- Make sure the rack is level and stable before installing an appliance in the rack.
- Make sure the leveling jacks are extended to the floor.
- Make sure the full weight of the rack rests on the leveling jacks.
- Always load the rack from the bottom up. Load the heaviest component in the rack first.
- Make sure the rack is level and stable before pulling a component out of the rack.
- Make sure only one component is extended at a time. A rack might become unstable if more than one component is extended.

To avoid damage to the equipment:

- The rack width and depth must allow for proper serviceability and cable management.
- Ensure that there is adequate airflow in the rack. Improper installation or restricted airflow can damage the equipment.
- The rack cannot have solid or restricted airflow doors. You must use a mesh door on the front and back of the rack or remove the doors to ensure adequate air flow to the system.
- If you install the Model in a rack, do not place equipment on top of the unit. It will cause restricted airflow and might cause damage to the equipment.
- Make sure the product is properly matted with the rails. Products that are improperly matted with the rails might be unstable.
- Verify that the AC power supply branch circuit that provides power to the rack is not overloaded. This will reduce the risk of personal injury, fire, or damage to the equipment. The total rack load should not exceed 80 percent of the branch circuit rating. Consult the electrical authority having jurisdiction over your facility wiring and installation requirements.

Equipment Power Cords

- Use only the power cords and power supply units provided with your system. The system might have one or more power cords.
- Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.
- In all European electrical environments, you must ground the Green/Yellow tab on the power cord. If you do not ground the Green/Yellow tab, it can cause an electrical shock due to high leakage currents.
- Do not place objects on AC power cords or cables. Arrange them so that no one might accidentally step on or trip over them.
- Do not pull on a cord or cable. When unplugging from the electrical outlet, grasp the cord by the plug.
- To reduce the risk of electrical shock, disconnect all power cords before servicing the appliance.

Batteries

- The equipment battery contains lithium manganese dioxide. If the battery pack is not handled properly, there is risk of fire and burns.
- Do not disassemble, crush, puncture, short external contacts, or dispose of the battery in fire or water.
- Do not expose the battery to temperatures higher than 60°C (140°F).
- Do not attempt to recharge the battery.
- Dispose of used batteries according to the instructions of the manufacturer. Do not dispose of batteries with the general office waste.

CAUTION: Risk of Explosion if Battery is replaced by an Incorrect Type. Replace the battery only with a spare designated for your equipment.

Equipment Modifications

- Do not make mechanical modifications to the system. TYAN is not responsible for the regulatory compliance of TYAN equipment that has been modified.

Equipment Repairs and Servicing

• The installation of internal options and routine maintenance and service of this product should be performed by technicians, authorized service personnel or trained hardware service personnel who are knowledgeable about the procedures, precautions, and hazards associated with equipment containing hazardous energy levels.

• Do not exceed the level of repair specified in the procedures in the product documentation. Improper repairs can create a safety hazard.

• Allow the product to cool before removing covers and touching internal components.

• Remove all watches, rings, or loose jewelry when working before removing covers and touching internal components.

• Do not use conductive tools that could bridge live parts.

• Use gloves when you remove or replace system components; they can become hot to the touch.

• If the product sustains damage requiring service, disconnect the product from the AC electrical outlet and refer servicing to an authorized service provider. Examples of damage requiring service include:

– The power cord, extension cord, or plug has been damaged.

– Liquid has been spilled on the product or an object has fallen into the product.

– The product has been exposed to rain or water.

– The product has been dropped or damaged.

– The product does not operate normally when you follow the operating instructions.

• Be sure to replace the cover before re-connecting the power cord.

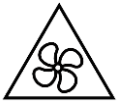
安全資訊

請保留和遵守隨本設備提供的所有產品安全與操作說明。本指南的說明與設備文件的說明內容如有沖突，請遵守設備文件中的指導。

遵守產品上和操作說明中的所有警告。為降低人身傷害、電擊、火災及設備損壞的風險，請遵守本指南中包括的所有注意事項。

在安裝、操作和維修產品之前，您必須先熟悉本指南中的安全資訊。

設備上的符號

	警告： 該符號表示可能存在危險。如果未遵守注意事項，則可能出現傷害。請查閱設備文件了解詳細資訊。
	請於以下網站讀取電子手冊。 https://www.tyan.com/
	警告： 該符號表示可能存在危險的移動風扇葉片。 請保持身體部位遠離移動中的風扇葉片。
	警告： 該符號表示表面或元件高溫。如果接觸到表面，則可能被燙傷。為降低被高溫元件燙傷的風險，請在接觸之前先讓表面溫度冷卻下來。
	警告： 該符號表示存在高壓電路或電擊危險。所有維修工作應交由專業人員。
	警告： 維修前須切斷所有電源。

一般注意事項

- 遵守設備上標示的以及隨附設備文件中介紹的所有注意事項和警告資訊。

機房環境

- 本裝置僅適用於機房或資訊室。
- 確保系統安裝的區域通風良好，溫度濕度等可控制。
- 確保機房電源的電壓和頻率與設備電力標籤上標示的電壓和頻率相符。
- 安裝系統時應遠離高壓、排氣管、散熱器等。
- 切勿在潮濕環境中使用本產品。

設備底座

- 請勿堵塞或蓋住系統的槽孔。
- 切勿將任何物件插入設備的槽孔。內部可能存在高壓。
- 可導電的物件可能造成短路並引起火災、電擊或設備損壞。
- 雙膝彎曲，用雙手提起設備。

設備機架

避免人身傷害或設備損壞指引：

- 遵守當地的職業健康和安全規定以及手工物料搬運的指導。
- 請勿嘗試獨自搬動機架，搬動機架至少需要兩人。
- 請勿嘗試搬動滿載的機架。從機架上卸下設備後再搬動它。
- 請勿嘗試在大於 10 度的斜坡上搬動機架，以免造成危險。
- 確保機架已正確固定到地板或天花板上。
- 如果是單機架安裝，確保穩定支腳已裝到機架。
- 如果是多機架安裝，確保各機架已咬合在一起。

- 將裝置安裝到機架之前，確保機架是水平和穩定的。
- 確保承重腳已伸展至地板。
- 確保機架的全部重量放在承重腳上。
- 務必從下至上裝入機架。先在機架中裝入最重的元件。
- 從機架中拉出元件之前，確保機架是水平和穩定的。
- 確保一次只有一個元件被伸展。如果一次伸展一個以上的元件，則機架可能會不穩定。

避免設備損壞指引：

- 機架寬度和深度必須保證能夠適當地進行維修和排列纜線。
- 保證機架內的通風良好。安裝不當或通風不良可能會損壞設備。
- 機架不能有實心或受限制的通風門。您必須在機架前後使用絲網門，或者將門卸下以保證系統的良好通風。
- 如果您在機架中安裝設備，請勿將設備放在裝置上。這會造成通風不暢，並可能會造成設備損壞。
- 確保產品與護欄正確咬合。與護欄咬合不良的產品可能會不穩定。
- 驗證為機架提供電源的交流電源分支電路沒有多載， 以降低人身傷害、電擊、火災及設備損壞的風險。
- 機架總負載不應超過分支電路額定值的 80%。請向對您的設備連線和安裝規定具有管轄權限的電力部門查詢。

設備電源線

- 只使用隨系統提供的電源線和電源裝置。系統可能配有一條或多條電源線。
- 將電源線插入到能方便接觸到的接地電源插座。
- 在歐洲供電環境中，您必須將電源線上的綠色/ 黃色接頭接地。如果沒有將綠色/黃色接頭接地，則可能由於大量電流洩露而造成電擊。
- 請勿在交流電源線或纜線上放置物件。將電源線或纜線放在人們不易踩到

或被絆倒的地方。

- 請勿拉扯電源線或纜線。從電源插座上斷開電源線時，應抓住電源線插頭。
- 為降低電擊風險，請在維修裝置之前，斷開所有電源線連接。

設備電池

- 本系統使用鋰錳電池。如果電池組處理不當，則會有起火風險。
- 請勿拆解、擠壓、穿刺電池，將其投入火中或水中，或使其與外部短路接觸。
- 請勿將電池置於 60°C (140°F) 以上的高溫環境中。
- 請勿嘗試給電池充電。
- 按照製造商的說明處理用過的電池。請勿將電池當作一般家庭垃圾處理。若要對電池進行回收再用或正確處理，請使用公共收集系統，或將其送回授權合作夥伴或其代理。

警告: 若置換不同型式之電池有起火或爆炸風險。請換上專為本產品指定的備用電池。

設備改造

- 不要對本設備進行機械或電氣修改, 以免造成安全問題。對於被改造設備的認證合格概不負責。

設備維修與維護

- 安裝內部元件和日常的產品維護應由熟悉程序、注意事項及高壓設備危險的專業人員執行。
- 請勿任意拆裝設備. 任何未經授權或認證人員之設備拆裝可能造成嚴重的

安全問題. 任何問題, 請洽您的銷售人員或經銷商尋求協助。

■ 除非安裝手冊或使用手冊中提及, 否則請勿嘗試維修您的設備. 永遠遵守安裝手冊及使用手冊的說明。

■ 在卸下機蓋和接觸內部元件之前，應先讓產品冷卻下來。

■ 卸下機蓋和接觸內部元件之前進行工作時，應取下手錶、戒指或鬆散的珠寶等物品。

■ 請勿使用可能會橋接執行中部件的導電工具。

■ 卸下或更換系統元件時，請戴上手套，以免被高溫的元件表面燙傷。

■ 如果產品持續發生損壞，需要維修，請從交流電源插座上斷開產品，並交由授權的服務提供商進行維修。下面是一些需要維修的情況：

– 電源線、延長線或插頭損壞。
– 有液體濺到產品上，或異物進入到產品內。
– 產品遭到雨淋或進水。
– 產品跌落或損壞。
– 在您按照操作說明使用時，產品操作不正常。

操作環境溫度升高

■ 如果將此設備安裝在封閉式或具有多個設備的機架上，機架的操作環境溫度可能會高於設備房間的溫度。因此，在安裝此設備時必須考慮滿足生產廠商規定的最高環境溫度 (Tma) 要求。

減少通風

■ 將設備安裝於機架上不會造成安全操作設備所需的通風出現通風不良的狀況。

機械負載

- 將設備安裝於機架上不會造成因為機械負載不均而出現危險的狀況。

電路過度負荷

- 必須考量將設備連接到供電電路時的狀況，而過流防護及供電線路可能出現電路過度負荷的問題。對於這類疑慮，必須妥適考量設備標示牌的額定值。

牢固的地面固定

- 務必使安裝於機架上的裝置在地面固定牢固。必須特別注意非直接接上電源的其他分路供電 (例如使用電源排插座)。

警告使用者:
警告: 為避免電磁干擾，本產品不應安裝或使用於住宅環境。
連絡方式
製造商: 神雲科技股份有限公司
地址: 新竹科學園區新竹縣研發二路 1 號 3 樓
電話: 886-3-5779088

Taiwan BSMI RoHS Declaration

設備名稱：伺服器 / 型號（型式）：TS70A-B8056

Equipment Name：Server / Type：TS70A-B8056

單位 Unit	限用物質及其化學符號 Restricted substances and its chemical symbols					
	鉛 Lead (Pb)	汞 Mercury (Hg)	鎘 Cadmium (Cd)	六價鉻 Hexavalent Chromium (Cr^{+6})	多溴聯苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
印刷電路板總成 Printed Circuit Board Assembly	–	O	O	O	O	O
機械組件 Mechanical Assemblies	–	O	O	O	O	O
風扇 Fans	–	O	O	O	O	O
散熱器 Heatsink	O	O	O	O	O	O
電源線 Power Cord	O	O	O	O	O	O
電源供應器 Power Supply	–	O	O	O	O	O

備考1.〝○〞係指該項限用物質之百分比含量未超出百分比含量基準值。

Note1. 〝○〞indicates that the percentage content of the restricted substance does not exceed the percentage of reference value of presence.

備考2.〝—〞係指該項限用物質為排除項目。

Note2. 〝—〞indicates that the restricted substance corresponds to the exemption.

Taiwan BSMI RoHS Declaration

設備名稱：伺服器 / 型號（型式）：TS70A-B8056-HE

Equipment Name：Server / Type：TS70A-B8056-HE

單位 Unit	限用物質及其化學符號 Restricted substances and its chemical symbols					
	鉛 Lead (Pb)	汞 Mercury (Hg)	鎘 Cadmium (Cd)	六價鉻 Hexavalent Chromium (Cr^{+6})	多溴聯苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
印刷電路板總成 Printed Circuit Board Assembly	–	O	O	O	O	O
機械組件 Mechanical Assemblies	–	O	O	O	O	O
風扇 Fans	–	O	O	O	O	O
散熱器 Heatsink	O	O	O	O	O	O
電源線 Power Cord	O	O	O	O	O	O
電源供應器 Power Supply	–	O	O	O	O	O

備考1. 〝○〞係指該項限用物質之百分比含量未超出百分比含量基準值。

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NOTE

Chapter 1: Overview

1.1 About the TYAN TS70A-B8056

Congratulations on your purchase of the TYAN® TS70A-B8056, a highly optimized rack-mountable barebone system. The TS70A-B8056 is designed to AMD® EPYC™ 9004 series Processor, and up to 3,072GB RDIMM/3DS RDIMM DDR5 4800/4400/4000 MHz memory. Leveraging advanced technology from AMD®, TS70A-B8056 server system is capable of offering scalable 32 and 64-bit computing, high bandwidth memory design, providing a rich feature set and incredible performance, and lightning-fast PCI-E bus implementation. The TS70A-B8056 not only empowers your company in nowadays IT demand but also offers a smooth path for future application usage.

TYAN® also offers the TS70A-B8056 in a version that can support up to twenty-six hot-swap 2.5" NVMe SSD. The TS70A-B8056 uses TYAN®'s latest chassis, featuring a robust structure and a solid mechanical enclosure. All of this provides TS70A-B8056 the power and flexibility to meet the needs of nowadays server application.

1.2 Product Model

The system boards within the Tyan barebone systems contain different features and chipsets, which are defined by the following models:

- **B8056T70AE26HR-2T:** AMD-based platform, support (26) Hot-Swap 2.5'' NVMe SSDs + S8056GM2NRE-2T MB, with 1000W/1600W 80+ Platinum PSU
- **B8056T70AE26HR-2T-HE:** AMD-based platform, support (26) Hot-Swap 2.5'' NVMe SSDs + S8056GM2NRE-2T MB, with 1600W 80+ Titanium PSU
- **B8056T70AE26HR:** AMD-based platform, support (26) Hot-Swap 2.5" NVMe SSDs + S8056GME MB, with 1000W/1600W 80+ Platinum PSU
- **B8056T70AE26HR-HE**: AMD-based platform, support (26) Hot-Swap 2.5" NVMe SSDs + S8056GME MB, with 1600W 80+ Titanium PSU

1.3 Features

B8056T70AE26HR-2T Specifications

System	Form Factor	2U Rackmount
	Chassis Model	TS70A
	Dimension (D x W x H)	27.56" x 17.26" x 3.42" (700 x 438.5 x 87mm)
	Motherboard Name	S8056GM2NRE-2T
	Board Dimension	Prop. 14.18" x 12.16" (360.2 x 308.8mm)
Front Panel	Buttons	(1) ID / (1) PWR w/ LED / (1) RST
	LEDs	(1) HDD / (1) ID / (2) LAN / (1) System Event
	I/O Ports	(2) USB 3.2 Gen.1 ports
External Drive Bay	Q'ty / Type	(26) 2.5" Hot-Swap NVMe
	Front Drive Bay Interface	(26) NVMe U.2
	Front HDD Backplane Support	NVMe
System Cooling Configuration	FAN	(3) hot-swap 8056 fans
	Redundancy	Yes
Power Supply	Type	CRPS
	Input Range	AC 100-127V/13A , AC 200-240V/9.5A
	Frequency	50-60 Hz
	Output Watts	1,000 Watts (100-127V AC input) / 1,600 Watts (200-240V AC input)
	Efficiency	80 plus Platinum
	Redundancy	1+1
Processor	Q'ty / Socket Type	(1) AMD Socket SP5
	Supported CPU Series	(1) AMD EPYC™ 9004 Series Processor
	Thermal Design Power Wattage	Max up to 400W* (cTDP)
Memory	Supported DIMM Qty	(24) DIMM slots
	DIMM Type / Speed	RDDR5 4800 w/ ECC (1.1V) when 2DPC/1DPC / 3DS RDDR5 4800 w/ ECC (1.1V) when 2DPC/1DPC
	Capacity	Up to 3,072GB RDIMM/3DS RDIMM DDR5 4800/4400/4000 memory
	Memory channel	12 Channels per CPU
	Memory voltage	1.1V
Expansion Slots	PCIe	(1) PCI-E Gen.5 x8 slot
	Pre-installed TYAN Riser Card (PCIe Gen.5)	(1) M7136T70-R24-2F riser card for for (2) FH/HL PCIe 5.0 x16 slots / (1) M7136T70-L28-1F riser card for for (1) FH/HL PCIe 5.0 x8 slot
	Others	(1) PCI-E Gen.5 x16 OCP 3.0 mezzanine slot
LAN	Q'ty / Port	(2) 10GbE ports + (1) GbE dedicated for IPMI
	Controller	Intel X710-AT2

	PHY	Realtek RTL8211F
Storage NVMe	**Connector (M.2)**	(2) 22110/2280 (by PCIe Gen.4 interface)
	Connector (U.2)	(2) P2305-4E storage mezz. for (8) NVMe ports / (9) SFF-TA-1016 (MCIO 8x) for (18) front NVMe Nvme(#0~#23) *width x4 / Nvme(#24~#25) *width x2
Graphic	**Connector type**	D-Sub 15-pin
	Resolution	Up to 1920x1200
	Chipset	Aspeed AST2600
I/O Ports	**USB**	(1) USB3.2 Gen.1 conn. (Type-A) / (1) USB3.2 Gen.1 header / (2) USB3.2 Gen.1 ports (@ front) / (2) USB3.2 Gen.1 ports (@ rear)
	COM	(1) DB-9 COM port
	VGA	(1) D-Sub 15-pin port
	RJ-45	(2) 10 GbE ports + (1) dedicated GbE for IPMI
	Button	ID Button / Power Button / Reset Button
TPM (Optional)	**TPM Support**	Please refer to our TPM supported list.
	Interface	SPI
System Monitoring	**Chipset**	Aspeed AST2600
	Temperature	Monitors temperature for CPU & system environment
	Voltage	Monitors voltage for CPU, memory, chipset & power supply
	LED	Over temperature warning indicator / Fan & PSU fail LED indicator / Over voltage warning indicator
	Others	Watchdog timer support
Server Management	**Onboard Chipset**	Onboard Aspeed AST2600
	AST2600 iKVM Feature	24-bit high quality video compression / Supports storage over IP and remote platform-flash / USB 2.0 virtual hub
	AST2600 IPMI Feature	IPMI 2.0 compliant baseboard management controller (BMC) / 10/100/1000 Mb/s MAC interface
BIOS	**Brand / ROM size**	AMI / 64MB
	Feature	Hardware Monitor / FAN speed control automatic / Boot from USB device/PXE via LAN/Storage / Console Redirection / SMBIOS 3.3/PnP/Wake on LAN / ACPI 6.2 / ACPI sleeping states S0, S5
Operating System	**OS supported list**	Please refer to our AVL support lists.
Regulation	**FCC (SDoC)**	Class A
	CE (DoC)	Class A
	CB/LVD	Yes
	VCCI	Class A
	C-Tick	Class A
Operating Environment	**Operating Temp.**	10° C ~ 35° C (50° F~ 95° F)
	Non-operating Temp.	- 40° C ~ 70° C (-40° F ~ 158° F)
	In/Non-operating Humidity 90	90%, non-condensing at 35° C

Package Contains	**Barebone**	(1) TS70A-B8056 Barebone
	Manual	(1) Quick Installation Guide
RoHS	**RoHS 6/6 Compliant**	Yes

B8056T70AE26HR Specifications

System	**Form Factor**	2U Rackmount
	Chassis Model	TS70A
	Dimension (D x W x H)	27.56" x 17.26" x 3.42" (700 x 438.5 x 87mm)
	Motherboard Name	S8056GME
	Board Dimension	Prop. 14.18" x 12.16" (360.2 x 308.8mm)
Front Panel	**Buttons**	(1) ID / (1) PWR w/ LED / (1) RST
	LEDs	(1) HDD / (1) ID / (2) LAN / (1) System Event
	I/O Ports	(2) USB 3.2 Gen.1 ports
External Drive Bay	**Q'ty / Type**	(26) 2.5" Hot-Swap NVMe
	Front Drive Bay Interface	(26) NVMe U.2
	Front HDD Backplane Support	NVMe
System Cooling Configuration	**FAN**	(3) hot-swap 8056 fans
	Redundancy	Yes
Power Supply	**Type**	CRPS
	Input Range	AC 100-127V/13A , AC 200-240V/9.5A
	Frequency	50-60 Hz
	Output Watts	1,000 Watts (100-127V AC input) / 1,600 Watts (200-240V AC input)
	Efficiency	80 plus Platinum
	Redundancy	1+1
Processor	**Q'ty / Socket Type**	(1) AMD Socket SP5
	Supported CPU Series	(1) AMD EPYC™ 9004 Series Processor
	Thermal Design Power Wattage	Max up to 400W* (cTDP)
Memory	**Supported DIMM Qty**	(24) DIMM slots
	DIMM Type / Speed	RDDR5 4800 w/ ECC (1.1V) when 2DPC/1DPC / 3DS RDDR5 4800 w/ ECC (1.1V) when 2DPC/1DPC
	Capacity	Up to 3,072GB RDIMM/3DS RDIMM DDR5 4800/4400/4000 memory
	Memory channel	12 Channels per CPU
	Memory voltage	1.1V
Expansion Slots	**PCIe**	(1) PCI-E Gen.5 x8 slot
	Pre-installed TYAN Riser Card (PCIe	(1) M7136T70-R24-2F riser card for for (2) FH/HL PCIe 5.0 x16 slots / (1) M7136T70-L28-1F riser card for for

	Gen.5)	(1) FH/HL PCIe 5.0 x8 slot
	Others	(1) PCI-E Gen.5 x16 OCP 3.0 mezzanine slot
LAN	**Q'ty / Port**	(1) GbE dedicated for IPMI
	PHY	Realtek RTL8211F
Storage NVMe	**Connector (M.2)**	(2) 22110/2280 (by PCIe Gen.4 interface)
	Connector (U.2)	(2) P2305-4E storage mezz. for (8) NVMe ports / (9) SFF-TA-1016 (MCIO 8x) for (18) front NVMe Nvme(#0~#23) *width x4 / Nvme(#24~#25) *width x2
Graphic	**Connector type**	D-Sub 15-pin
	Resolution	Up to 1920x1200
	Chipset	Aspeed AST2600
I/O Ports	**USB**	(1) USB3.2 Gen.1 conn. (Type-A) / (1) USB3.2 Gen.1 header / (2) USB3.2 Gen.1 ports (@ front) / (2) USB3.2 Gen.1 ports (@ rear)
	COM	(1) DB-9 COM port
	VGA	(1) D-Sub 15-pin port
	RJ-45	(1) GbE port dedicated for IPMI
	Button	ID Button / Power Button / Reset Button
TPM (Optional)	**TPM Support**	Please refer to our TPM supported list.
	Interface	SPI
System Monitoring	**Chipset**	Aspeed AST2600
	Temperature	Monitors temperature for CPU & system environment
	Voltage	Monitors voltage for CPU, memory, chipset & power supply
	LED	Over temperature warning indicator / Fan & PSU fail LED indicator / Over voltage warning indicator
	Others	Watchdog timer support
Server Management	**Onboard Chipset**	Onboard Aspeed AST2600
	AST2600 iKVM Feature	24-bit high quality video compression / Supports storage over IP and remote platform-flash / USB 2.0 virtual hub
	AST2600 IPMI Feature	IPMI 2.0 compliant baseboard management controller (BMC) / 10/100/1000 Mb/s MAC interface
BIOS	**Brand / ROM size**	AMI / 64MB
	Feature	Hardware Monitor / FAN speed control automatic / Boot from USB device/PXE via LAN/Storage / Console Redirection / SMBIOS 3.3/PnP/Wake on LAN / ACPI 6.2 / ACPI sleeping states S0, S5
Operating System	**OS supported list**	Please refer to our AVL support lists.
Regulation	**FCC (SDoC)**	Class A
	CE (DoC)	Class A
	CB/LVD	Yes
	VCCI	Class A
	C-Tick	Class A
Operating	**Operating Temp.**	10° C ~ 35° C (50° F~ 95° F)

Environment	**Non-operating Temp.**	- 40° C ~ 70° C (-40° F ~ 158° F)
	In/Non-operating Humidity 90	90%, non-condensing at 35° C
Package Contains	**Barebone**	(1) TS70A-B8056 Barebone
	Manual	(1) Quick Installation Guide
RoHS	**RoHS 6/6 Compliant**	Yes

B8056T70AE26HR-2T-HE Specifications

System	**Form Factor**	2U Rackmount
	Chassis Model	TS70A
	Dimension (D x W x H)	27.56" x 17.26" x 3.42" (700 x 438.5 x 87mm)
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	Front Drive Bay Interface	(26) NVMe U.2
	Front HDD Backplane Support	NVMe
System Cooling Configuration	**FAN**	(3) hot-swap 8056 fans
	Redundancy	Yes
Power Supply	**Type**	CRPS
	Input Range	AC 100-127V/12A , AC 200-240V/10A
	Frequency	50/60 Hz
	Output Watts	1,000 Watts (100-127V AC input) / 1,600 Watts (200-240V AC input)
	Efficiency	80 plus Titanium
	Redundancy	1+1
Processor	**Q'ty / Socket Type**	(1) AMD Socket SP5
	Supported CPU Series	(1) AMD EPYC™ 9004 Series Processor
	Thermal Design Power Wattage	Max up to 400W* (cTDP)
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	DIMM Type / Speed	RDDR5 4800 w/ ECC (1.1V) when 2DPC/1DPC / 3DS RDDR5 4800 w/ ECC (1.1V) when 2DPC/1DPC
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		(1) M7136T70-L28-1F riser card for for (1) FH/HL PCIe 5.0 x8 slot
	Others	(1) PCI-E Gen.5 x16 OCP 3.0 mezzanine slot
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BIOS	**Brand / ROM size**	AMI / 64MB
	Feature	Hardware Monitor / FAN speed control automatic / Boot from USB device/PXE via LAN/Storage / Console Redirection / SMBIOS 3.3/PnP/Wake on LAN / ACPI 6.2 / ACPI sleeping states S0, S5
Operating System	**OS supported list**	Please refer to our AVL support lists.
Regulation	**FCC (SDoC)**	Class A
	CE (DoC)	Class A
	CB/LVD	Yes
	VCCI	Class A

	C-Tick	Class A
Operating Environment	**Operating Temp.**	10° C ~ 35° C (50° F~ 95° F)
	Non-operating Temp.	- 40° C ~ 70° C (-40° F ~ 158° F)
	In/Non-operating Humidity 90	90%, non-condensing at 35° C
Package Contains	**Barebone**	(1) TS70A-B8056 Barebone
	Manual	(1) Quick Installation Guide
RoHS	**RoHS 6/6 Compliant**	Yes

B8056T70AE26HR-HE Specifications

System	**Form Factor**	2U Rackmount
	Chassis Model	TS70A
	Dimension (D x W x H)	27.56" x 17.26" x 3.42" (700 x 438.5 x 87mm)
	Motherboard Name	S8056GME
	Board Dimension	Prop. 14.18" x 12.16" (360.2 x 308.8mm)
Front Panel	**Buttons**	(1) ID / (1) PWR w/ LED / (1) RST
	LEDs	(1) HDD / (1) ID / (2) LAN / (1) System Event
	I/O Ports	(2) USB 3.2 Gen.1 ports
External Drive Bay	**Q'ty / Type**	(26) 2.5" Hot-Swap NVMe
	Front Drive Bay Interface	(26) NVMe U.2
	Front HDD Backplane Support	NVMe
System Cooling Configuration	**FAN**	(3) hot-swap 8056 fans
	Redundancy	Yes
Power Supply	**Type**	CRPS
	Input Range	AC 100-127V/12A , AC 200-240V/10A
	Frequency	50/60 Hz
	Output Watts	1,000 Watts (100-127V AC input) / 1,600 Watts (200-240V AC input)
	Efficiency	80 plus Titanium
	Redundancy	1+1
Processor	**Q'ty / Socket Type**	(1) AMD Socket SP5
	Supported CPU Series	(1) AMD EPYC™ 9004 Series Processor
	Thermal Design Power Wattage	Max up to 400W* (cTDP)
Memory	**Supported DIMM Qty**	(24) DIMM slots
	DIMM Type / Speed	RDDR5 4800 w/ ECC (1.1V) when 2DPC/1DPC / 3DS RDDR5 4800 w/ ECC (1.1V) when 2DPC/1DPC
	Capacity	Up to 3,072GB RDIMM/3DS RDIMM DDR5 4800/4400/4000 memory

	Memory channel	12 Channels per CPU
	Memory voltage	1.1V
Expansion Slots	**PCIe**	(1) PCI-E Gen.5 x8 slot
	Pre-installed TYAN Riser Card (PCIe Gen.5)	(1) M7136T70-R24-2F riser card for for (2) FH/HL PCIe 5.0 x16 slots / (1) M7136T70-L28-1F riser card for for (1) FH/HL PCIe 5.0 x8 slot
	Others	(1) PCI-E Gen.5 x16 OCP 3.0 mezzanine slot
LAN	**Q'ty / Port**	(1) GbE dedicated for IPMI
	PHY	Realtek RTL8211F
Storage NVMe	**Connector (M.2)**	(2) 22110/2280 (by PCIe Gen.4 interface)
	Connector (U.2)	(2) P2305-4E storage mezz. for (8) NVMe ports / (9) SFF-TA-1016 (MCIO 8x) for (18) front NVMe Nvme(#0~#23) *width x4 / Nvme(#24~#25) *width x2
Graphic	**Connector type**	D-Sub 15-pin
	Resolution	Up to 1920x1200
	Chipset	Aspeed AST2600
I/O Ports	**USB**	(1) USB3.2 Gen.1 conn. (Type-A) / (1) USB3.2 Gen.1 header / (2) USB3.2 Gen.1 ports (@ front) / (2) USB3.2 Gen.1 ports (@ rear)
	COM	(1) DB-9 COM port
	VGA	(1) D-Sub 15-pin port
	RJ-45	(1) GbE port dedicated for IPMI
	Button	ID Button / Power Button / Reset Button
TPM (Optional)	**TPM Support**	Please refer to our TPM supported list.
	Interface	SPI
System Monitoring	**Chipset**	Aspeed AST2600
	Temperature	Monitors temperature for CPU & system environment
	Voltage	Monitors voltage for CPU, memory, chipset & power supply
	LED	Over temperature warning indicator / Fan & PSU fail LED indicator / Over voltage warning indicator
	Others	Watchdog timer support
Server Management	**Onboard Chipset**	Onboard Aspeed AST2600
	AST2600 iKVM Feature	24-bit high quality video compression / Supports storage over IP and remote platform-flash / USB 2.0 virtual hub
	AST2600 IPMI Feature	IPMI 2.0 compliant baseboard management controller (BMC) / 10/100/1000 Mb/s MAC interface
BIOS	**Brand / ROM size**	AMI / 64MB
	Feature	Hardware Monitor / FAN speed control automatic / Boot from USB device/PXE via LAN/Storage / Console Redirection / SMBIOS 3.3/PnP/Wake on LAN / ACPI 6.2 / ACPI sleeping states S0, S5
Operating System	**OS supported list**	Please refer to our AVL support lists.
Regulation	**FCC (SDoC)**	Class A

	CE (DoC)	Class A
	CB/LVD	Yes
	VCCI	Class A
	C-Tick	Class A
Operating Environment	**Operating Temp.**	10° C ~ 35° C (50° F~ 95° F)
	Non-operating Temp.	- 40° C ~ 70° C (-40° F ~ 158° F)
	In/Non-operating Humidity 90	90%, non-condensing at 35° C
Package Contains	**Barebone**	(1) TS70A-B8056 Barebone
	Manual	(1) Quick Installation Guide
RoHS	**RoHS 6/6 Compliant**	Yes

NOTE:

1. The specifications are subject to change without prior notice.
2. Please visit our website for the latest specifications.

1.4 Standard Parts List

This section describes TS70A-B8056 package contents and accessories. Open the box carefully and ensure that all components are present and undamaged. The product should arrive with packaged as illustrated below.

1.4.1 Box Contents

If any items are missing or appear damaged, contact your retailer or browse to TYAN's website for service: http://www.tyan.com

- 2U chassis for 2.5 " HD TS70A-B8056
- (1+1)1600W(80+Platinum) CRPS (Common Redundant Power Supply) (pre-installed)
- (1) CPU Air Duct 2U (pre-installed)
- (3) 80*80*56 system fans (pre-installed)
- (1) S8056GM2NRE/S8056GM2NE-2T Motherboard(pre-installed)
- (1) M1718T65-FPB Front Panel Board(pre-installed)
- (1) M1717T65-USB Front Panel USB Board(pre-installed)
- (1) M7136T70-L28-1F PCI-E Riser(pre-installed)
- (1) M7136T70-R24-2F PCI-E Riser(pre-installed)
- (1) M7063F86-PBP Power Distribution Board(pre-installed)
- (1) M7126T65-PDB Power Distribution Board(pre-installed)
- (1) 2x2.5" HDD: M1318T65-BP12E-2 HDD Backplane (pre-installed)
- (3) 8x2.5 NVME: M1322T70A-BPE-8 NVME Backplane (pre-installed)
- (2) Re-timer card :P2305-4E(pre-installed)

1.4.2 Accessories

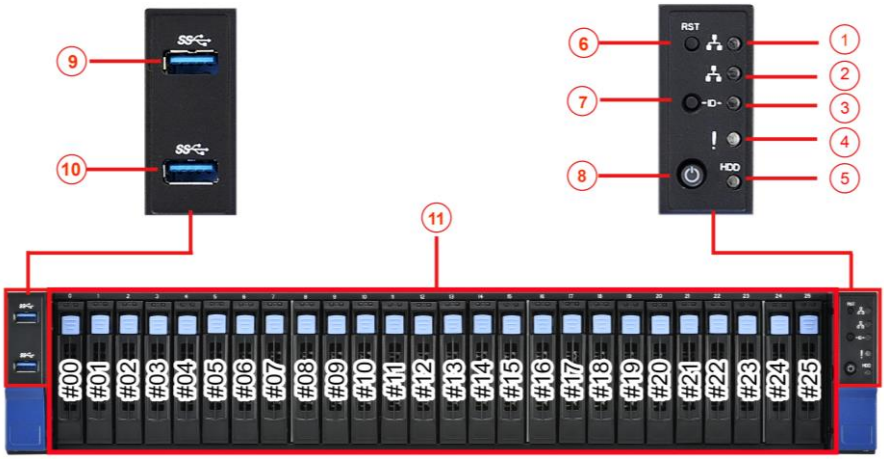
If any items are missing or appear damaged, contact your retailer or browse to TYAN's website for service: http://www.tyan.com

- (1) Tool-less Rail Kit
- (1) CPU heatsink
- (2) US Power Cords
- (2) EU Power Cords
- (1) M.2 Card Latch
- Tyan Quick Installation Guide
- Screw kit (452T48800004 for TPM)
- CHINA ROHS TO DECLARE sheet

1.5 About the Product

The following views show you the product.

1.5.1 System Front View



M1718T65-FPB Front Panel Board/ M1717T65-USB USB Board			
1	LAN1LED	7	ID Button
2	LAN2 LED	8	Power Button with green LED
3	ID LED	9	USB 3.0 Port
4	Warning LED	10	USB 3.0 Port
5	HDD LED	11	2.5” NVMe bays
6	RESET Button		

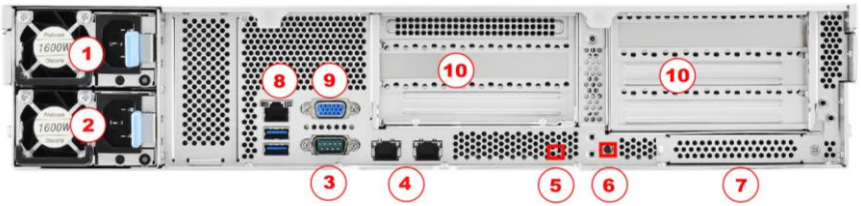
M1718T65-FPB Front Panel LED Control Board

Switch and LED Indication

Field	QTY	Color	Behavior
Power	1	Green	System Power off / off System Power On / solid on
LAN1/LAN2	2	Green	Offline / LED Off Linking / Solid on Access / Blinking
ID	1	Blue	Normal / Off Located / Solid on
Warning	1	Red/Green/Blue	System normal /All off Memory warning / Green blinking PSU warning / Blue solid on FAN warning / Blue blinking System fault / Red solid on
HDD LED	1	Green/Red	HDD present / Green solid on HDD activity / Green blinking HDD fail / Red solid on

LED	Color	State	Description
HDD fail LED	Red	ON	SATA/SAS HDD fail
		OFF	No failure found
HDD Power/Access LED	Green	ON	SATA/SAS HDD ready
		Blinking	SATA/SAS HDD access activity
		OFF	Power disconnected

1.5.2 System Rear View



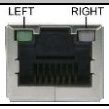
1	PSU1	6	ID Button
2	PSU0	7	Dedicate to OCP Card
3	Serial Port (COM1)USB3.2 Gen1 Ports	8	Dedicate to IPMI Port (LAN3)
4	RJ45 LAN Port (LAN1/ LAN2)	9	VGA Port
5	ID LED (Blue)	10	Add-On Card field

ID LED

LED	State	Color	Description
ID LED	On	Blue	System identified
	Off	Off	System not identified

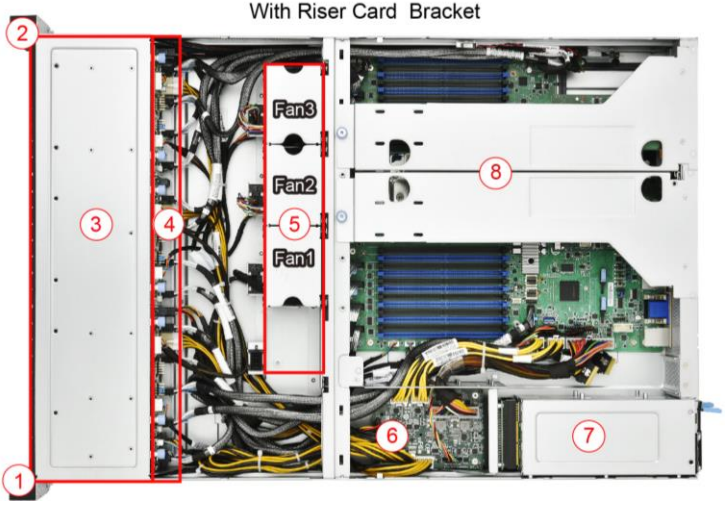
Rear I/O: Onboard LAN LED Color Definition

The **three (3)** onboard Ethernet ports have green and amber LEDs to indicate LAN status. The chart below illustrates the different LED states.

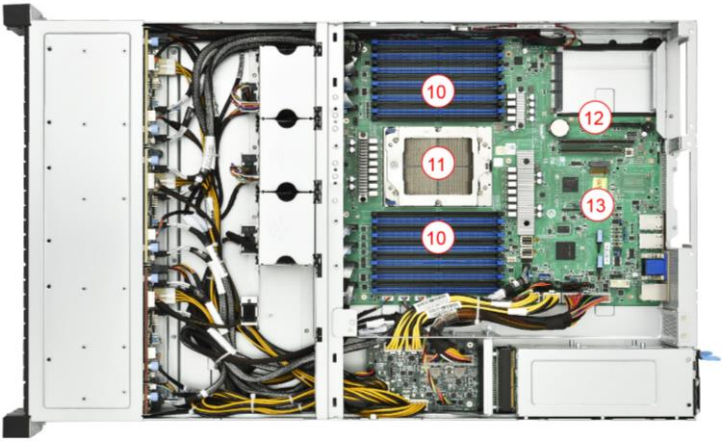
10Mbps/100Mbps/1Gbps/10Gbps LAN Link/Activity LED Scheme			
		**Left LED**	**Right LED**
No Link		Off	Off
10Mbps	**Link**	Green	Off
	Active	Blinking Green	Off
100Mbps	**Link**	Green	Solid Green
	Active	Blinking Green	Solid Green
1Gbps	**Link**	Green	Solid Yellow
	Active	Blinking Green	Solid Yellow
10Gbps	**Link**	Yellow	Solid Yellow
	Active	Blinking Yellow	Solid Yellow

1.5.3 System Top View

With Riser Card Bracket



Without Riser Card Bracket



1	(1) M1717T65-USB USB Board
2	(1) M1718T65-FPB Front Panel Board
3	HDD Module
4	M1322T70A-BPE-8/ M1318T65-BP12E-2 HDD Backplane Board
5	(3) System fans
6	M7100F48B-PDB Power Distribution Board
7	M7063F86-PBP Power Backplane Board
8	Power Module
9	Riser Card Bracket (M7136T70-L28-1F, M7136T70-R24-2F pre-installed) pre-installed)
10	Memory Slots
11	CPU Sockets
12	PCIE#1 x24 (PESLOT1) /PCIE#2 x16 (PESLOT2)
13	M.2 Area

NOTE

Chapter 2: Setting Up

2.0.1 Before you Begin

This chapter explains how to install the CPUs, CPU heatsinks, memory modules, and hard drives. Instructions on inserting add on cards are also given.

2.0.2 Work Area

Make sure you have a stable, clean working environment. Dust and dirt can get into components and cause malfunctions. Use containers to keep small components separated. Putting all small components in separate containers prevents them from becoming lost. Adequate lighting and proper tools can prevent you from accidentally damaging the internal components.

2.0.3 Tools

The following procedures require only a few tools, including the following:

- A cross head (Phillips) screwdriver
- A grounding strap or an anti-static pad
- A T20 Security Torx screwdriver

Most of the electrical and mechanical connections can be disconnected with your hands. It is recommended that you do not use pliers to remove connectors as it may damage the soft metal or plastic parts of the connectors.

Caution!

1. To avoid damaging the motherboard and associated components, use torque force within the range **7 kgf/cm (6.09 lb/in)** on each mounting screw for motherboard installation.
2. Do not apply power to the board if it has been damaged.

2.0.4 Precautions

Components and electronic circuit boards can be damaged by discharges of static electricity. Working on a system that is connected to a power supply can be extremely dangerous. Follow the guidelines below to avoid damage to TS70A-B8056 or injury to yourself.

- Ground yourself properly before removing the top cover of the system. Unplug the power from the power supply and then touch a safely grounded object to release static charge (i.e. power supply case). If available, wear a grounded wrist strap. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.

- Avoid touching motherboard components, IC chips, connectors, memory modules, and leads.

- The motherboard is pre-installed in the system. When removing the motherboard, always place it on a grounded anti-static surface until you are ready to reinstall it.

- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress circuit boards.

- Leave all components inside the static-proof packaging that they ship with until they are ready for installation.

- After replacing optional devices, make sure all screws, springs, or other small parts are in place and are not left loose inside the case. Metallic parts or metal flakes can cause electrical shorts.

NOTE: All connectors are keyed to only attach one way.
All use the correct screw size as indicated in the procedures.

2.1 Installing Motherboard Components

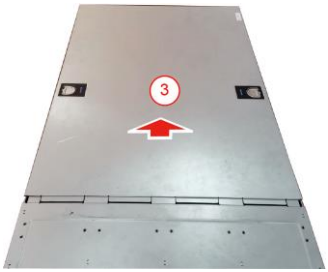
This section describes how to install components on to the mainboard, including CPUs, memory modules and add on cards.

2.1.1 Removing the Chassis Cover

Follow these instructions to remove TS70A-B8056 chassis cover.

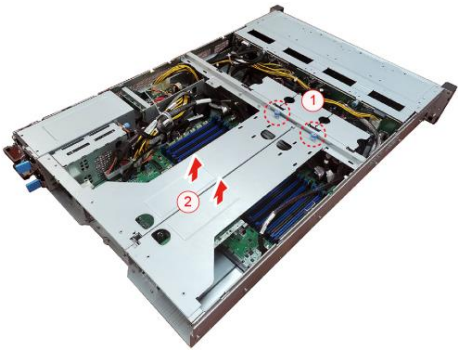
1. Press the latches simultaneously and slide the chassis cover backwards.

2. Slide to lift the rear top cover up.



2.1.2 Removing the Riser Bracket

1. Use a screwdriver to loosen two thumb screws. Then lift up the Riser Card Brackets.

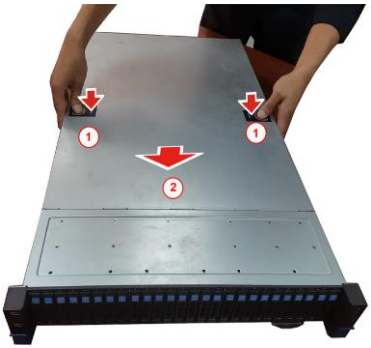


2.1.3 Replacing the Chassis Cover

Follow these instructions to replace TS70-B8056 chassis cover.

1. Place the chassis cover on top.

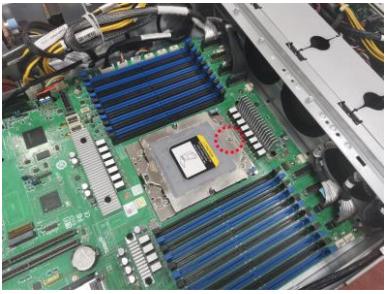
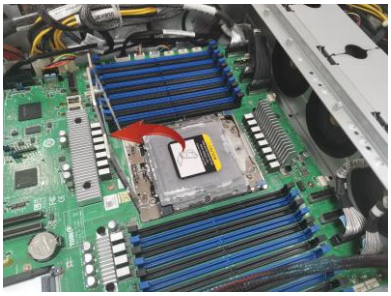
2. Push the latches simultaneously and slide the chassis cover forwards until it clicks.



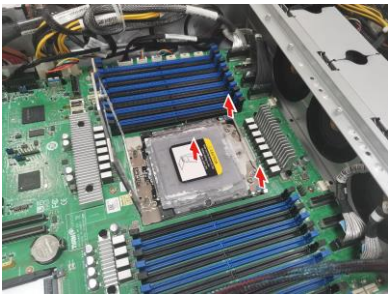
2.1.4 Installing the CPU and Heatsink

Follow the steps below on installing CPU and CPU heat sink. The TS70A-B8056 supports single AMD Zen 4 (Genoa) series CPU. The following installation is based on an AMD SP5 socket.

1. Use a T20 Torx screwdriver to loosen the screws securing the force frame. Note: The force frame will automatically eject after the captive screws are being released.

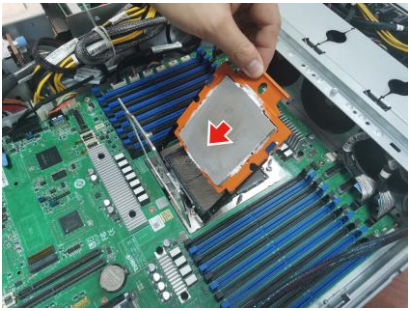



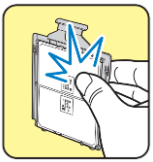
2. By placing your both index fingers on the sides on the metal handle, pull to release the rail frame. Then lift the rail frame to its fully open position.




3. Remove the external cap from the rail frame.

4. Align and install the carrier frame with package into the slot on the rail frame.
Note: During installation, observe the following:





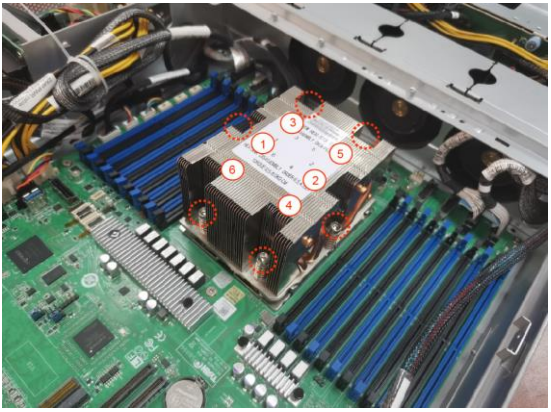
NOTE:

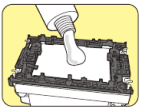
During installation, observe the following:
1. Make sure to push the carrier frame with package towards the end of the rail frame until it clicks into place.
2. Do not drop the carrier frame or touch the package pad to avoid component damage.

5. Carefully close the rail frame with the installed package. Then push both edges of the rail frame firmly until it locks in place.

6. Close the force frame. Then use a T20 Torx screwdriver to tighten the screws to secure the force frame.

7. To secure the heatsink, use a T20 Security Torx to tighten the screws. Tighten the six screws in a sequential order (1→2→3→4→5→6) to secure the heat sink. Disassemble the heatsink in a sequential order (6→5→4→3→2→1) to loosen the heatsink.



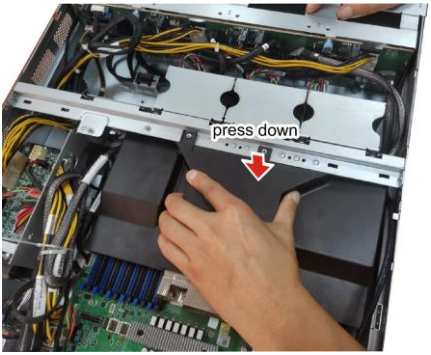


NOTE: A new heatsink comes with pre-installed thermal grease. Once the heatsink has been removed from the processor, you need to clean the processor and heatsink using an alcohol solvent. Then apply new thermal grease before reinstalling the heatsink.

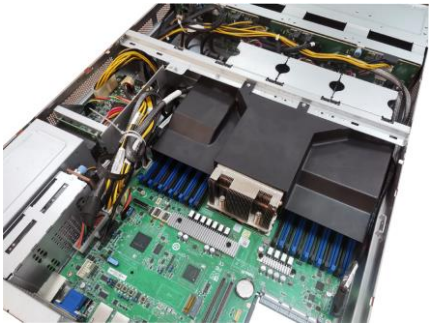
2.1.5 Installing the Airduct

Follow the steps below on installing Airduct to the heat sink.

1. Press down the airduct onto the heatsink.



2. The airduct installation has finished.

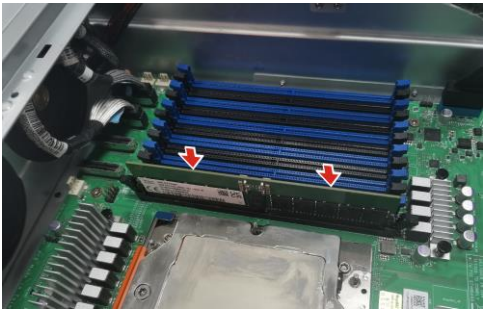


2.1.6 Installing the Memory

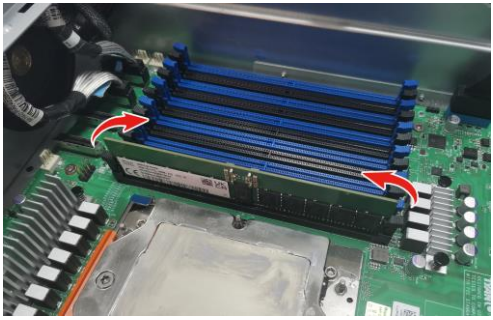
Follow these instructions to install the memory modules onto the motherboard.

1. Unlock the clips.

2. Insert the memory module.



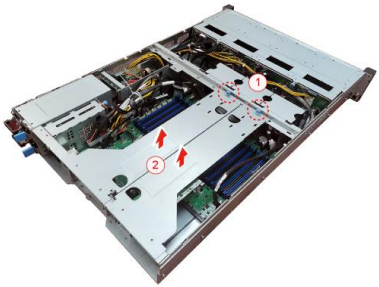
3. Lock the clips.



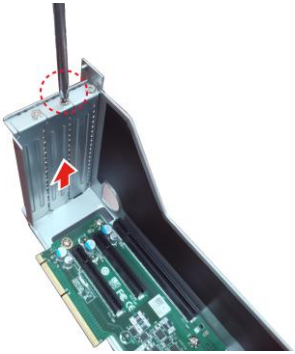
2.1.7 Installing the PCI-E Card

Follow these instructions to install the PCI-E card.

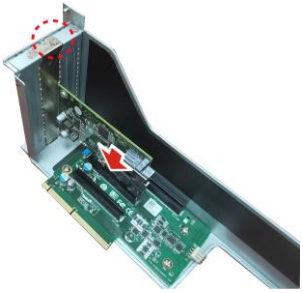
1. Unscrew the riser card bracket.



2. Unscrew to remove the dummy bracket.



3. Insert the PCI-E card into the slot and screw it firmly to the riser card bracket.



4. Replace the riser card bracket into the chassis and use a screw driver to fasten the thumb screw.

2.1.8 Installing Hard Drives

The TS70A-B8056 supports twenty-six 2.5” hot-swap NVMe SSDs.

Installing 2.5” Hot-Swap Hard Drives

Follow these instructions to install a 2.5” SSD.

Warning!!! Always install the hard disk drive to the chassis after the chassis has been secured on the rack.

1. Press the locking lever latch and pull the locking lever open.

2. Slide the HDD tray out.

3. Open the lock to place the 2.5” hard disk drive into the HDD tray.

4. Lock the tray lever to secure HDD.

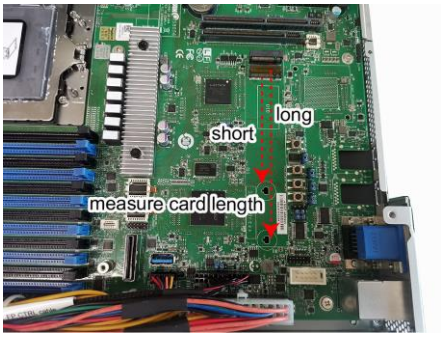
5. Reinsert the HDD tray into the chassis. Push to secure the locking lever until it clicks into place.

2.1.9 Installing the M.2 Latch

Follow these instructions to install the M.2 Latch.

1. Take out the M.2 Latch from the AK box.

2. Measure the length of the M.2 card and insert the latch into the appropriate hole.



3. Insert the M.2 Latch into the appropriate hole.

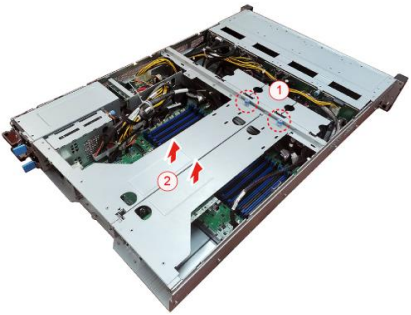
4. Insert the M.2 card into the slot. Pull the latch to lock the M.2 card.

5. One latch can fix two M.2 cards.

2.1.10 Installing OCP Card

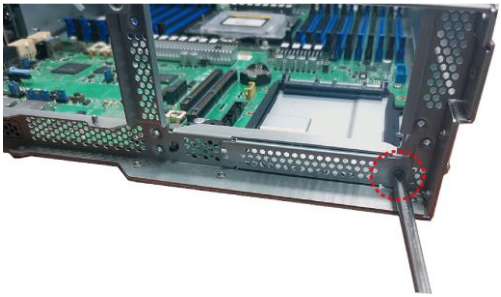
Follow these instructions to install the OCP Card. Here is a sample showing how to install the dual-port LAN card M7062-I599-2T.

1. Unscrew the riser card bracket.



2. Remove the riser card bracket from the chassis.

3. Use a screwdriver to release the OCP card slot. Take out the OCP bracket.



4. Insert the LAN card into the OCP slot and Push forward the OCP card to the OCP slot.

5. The OCP card installation has been completed.

2.2 Rack Mounting

After installing the necessary components, the TYAN TS70A-B8056 can be mounted in a rack using the supplied rack mounting kit.

Sliding Rail Kit

- Sliding Rails x 2
- Rail screw Pack x 1

2.2.1 Installing the Server in a Rack

Follow these instructions to mount the TYAN TS70-B8056 into an industry standard 19" rack.

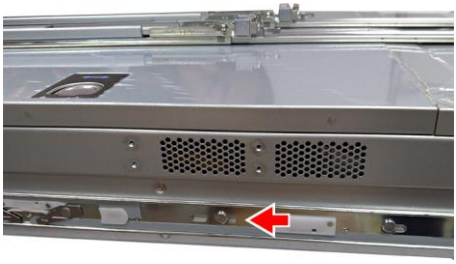
NOTE: Before mounting the TYAN TS70-B8056 in a rack, ensure that all internal components have been installed and that the unit has been fully tested. However, to make the installation easier, we suggest that you remove all HDD trays before you insert the chassis into the rack.

Installing the Inner Rails to the Chassis

1. Draw out the inner rail from the rail assembly. When the rail comes to a stop, push the **white** tab in the direction as the arrow shows to release the latch and completely draw the inner rail out.

2. Align the inner sliding rail on the side of the server, and pull in the direction as the arrow shows to secure the hooks

3. Align the inner sliding rail on the side of the server, and pull towards the arrow to secure the hooks



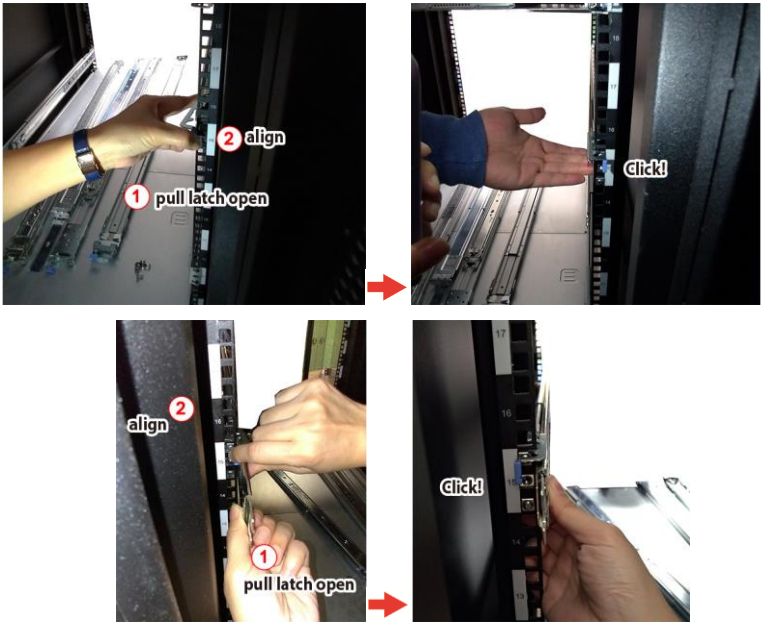
4. Repeat steps 2 to 4 to secure the sliding rail to the other side of the server.

NOTE: Use a screwdriver to slightly push the latch open and then push the inner rail forwards to unlock.

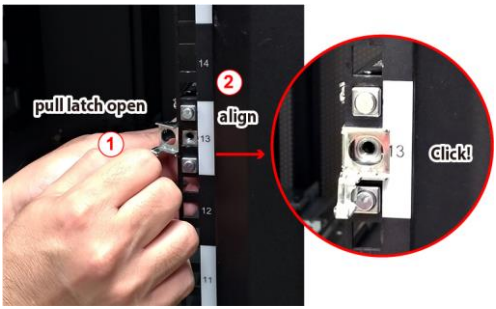
Installing the Outer Rails to the Unit

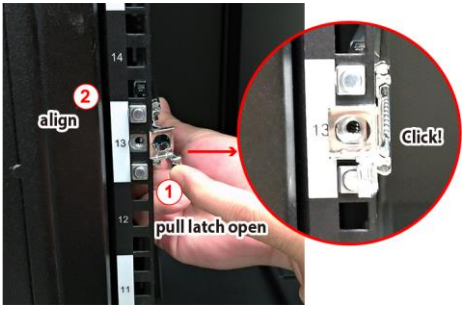
1. Attach the outer rail to the rack. Pull the latch open and align the square stud with the square hole on the rack rail. Please note that the square stud must be fully attached inside the square hole and then close the latch to lock.

Rear



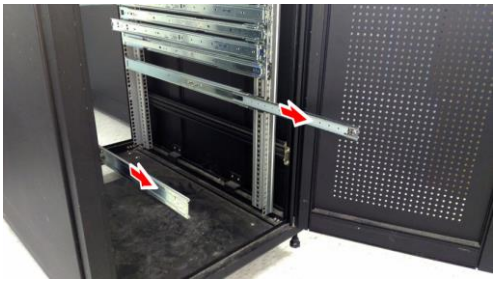
Front


pull latch open
1
2
align
Click!


2
align
1
pull latch open
Click!

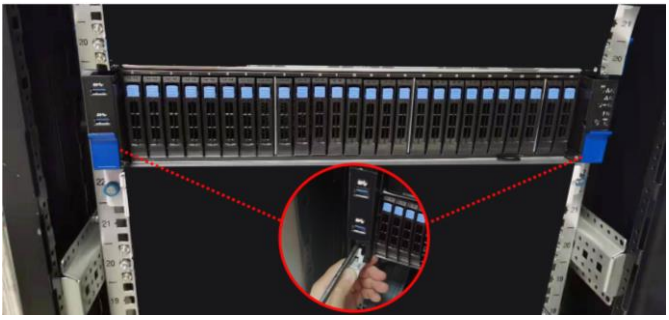
2.2.2 Rack mounting the Server

1. Draw out the middle rail to the latch position.



2. When the inner rails come to a stop, pull the tab to release the latch and push the whole system in.

3. Secure the unit to the rack.



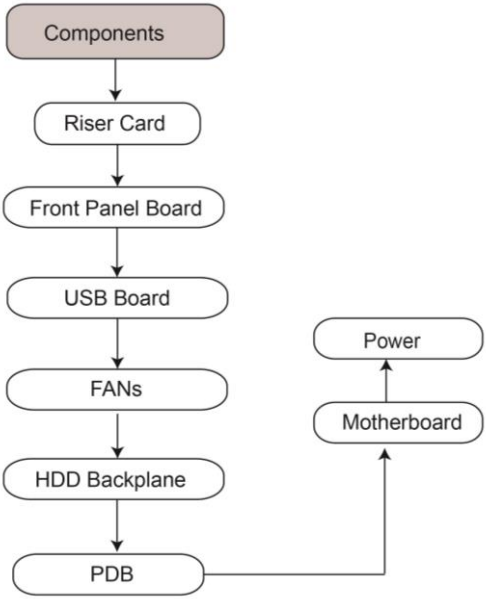
Chapter 3: Replacing Pre-Installed Components

3.1 Introduction

This chapter explains how to replace the pre-installed components, including the Motherboard, M1717T65-FPB Front Panel Board, M1718T65-USB Board, M1322T70A-BPE-8 HDD Backplane, M7126T65-PDB Power Distribution board, M7063F86-PBP Power Backplane Board. M7136T70-L28-1F and M7136T70-R24-2F Riser cards, P2305-4E PCIE Re-timer Board, System fan and Power supply unit etc.

3.2 Disassembly Flowchart

The following flowchart outlines the disassembly procedure.



3.3 Removing the Cover

Before replacing any parts you must remove the chassis cover first.
Follow **Chapter 2.1.1** to remove the cover of the TS70A-B8056.

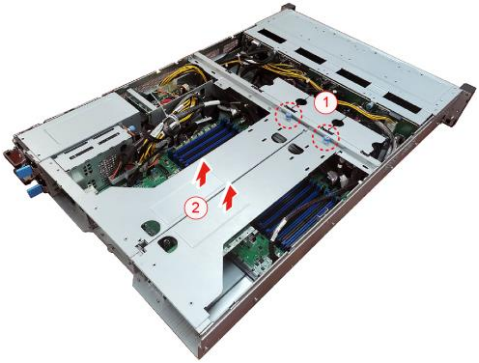
3.4 Replacing Motherboard Components

Follow these instructions to replace motherboard components, including the motherboard.

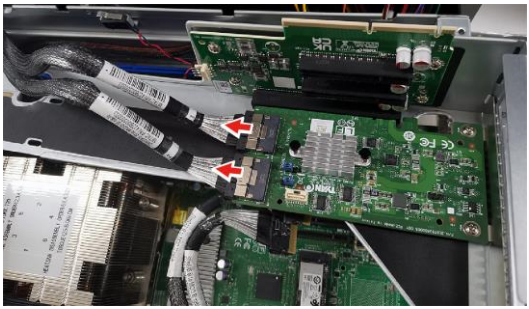
3.4.1 Replacing the Riser Card

Follow these instructions to replace the M7136T70-L28-1F and M7136T70-R24-2F Riser cards.

1. Unscrew the riser card bracket.



2. Disconnect the P2305-4E PCIE Re-timer Board cables.



3. Unscrew the P2305-4E PCIE Re-timer Board to replace with a new one on both left and right riser card.

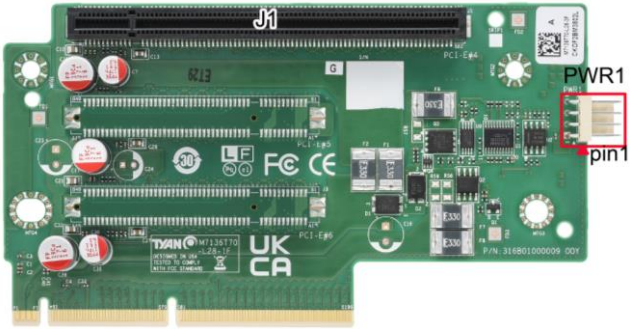
4. Unscrew the M7136T70-L28-1F / M7136T70-R24-2F riser card to replace with a new one.

5. Follow the steps described earlier in reverse to reinstall the riser card bracket.

P2305-4E PCIE Re-timer Board

3.4.2 PCI-E Riser Cards Specification

M7136T70-L28-1F Riser Card



M7136T70-R24-2F Riser Card

M7136T70-L28-1F/ M7136T70-R24-2F Riser Card	
Form Factor	**M7136T70-L28-1F:** 68.47mmx131mm,T=1.6mm **M7126T65-L32-3F:** 73.8mm x 132.99mm,T=1.6mm
Specifications	● PCI-E Gen5 x16 SLOT x2 (J1) ● PCI-E Gen5 x8 SLOT x1(J3) ● 4P PWR Connector x1(PWR1)

(PWR1)	Pin	Signal	Pin	Signal
	1	+12V	2	GND
	3	GND	4	+5V

3.5 Replacing the Front Panel Board

Follow these instructions to replace the M1718T65-FPB Front Panel Board.

1 Unscrew to release the Front Panel Board cover.

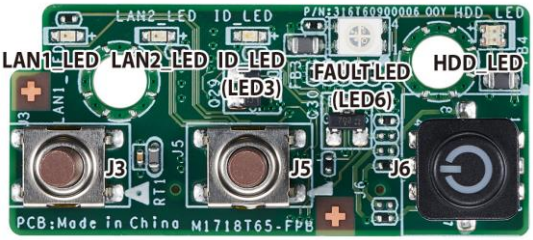
2 Remove the Front Panel Board cover.

3 Unscrew and disconnect the Front Panel Board to replace a new one.

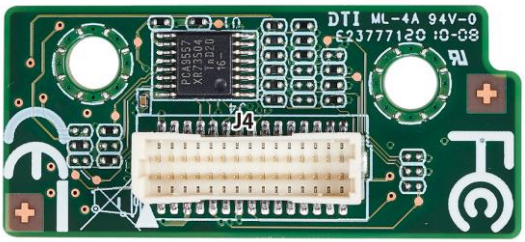
4 Follow the steps described earlier in reverse to reinstall the Front Panel Board.

3.5.1 Front Panel Board Specifications

Front View



Rear View



M1718T65-FPB Front Panel Board	
Form Factor	18mmx40mm,T=1.6mm
Specifications	● IO: 2x15-pin Front Panel Header (J4) ● 3 Buttons: Reset Button (J3), ID Button (J5), Power Button with LED (J6) ● 6 LEDs: LAN1 LED, LAN2 LED, ID LED (LED3), Fault LED (LED6), HDD LED, Power LED

3.5.2 FPB LED Definitions

Front Panel Bezel

Front Panel Board

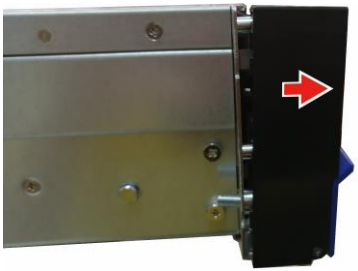
No.	Function	LED	LED Behavior	Status	Button
1	LAN1	LAN1_LED	Green Solid on	Linking	
2	LAN2	LAN2_LED	Green Blinking	Active	
3	System monitoring	ID LED (LED3)	Orange Solid on	Memory fail	
			Orange Blinking	FAN fail	
			Red Solid on	PSU alert	
			Red Blinking	System over Temp.	
			Blue Solid on	ID located	ID Button
4	Healthy	FAULT_LED(LED6)	Amber Solid on	System event alert	
5	HDD	HDD_LED	Amber Solid on	HDD fail	
			Green(default)or Blue Solid on	HDD Present& Standby	
			Green(default)or Blue Blinking	HDD active	
6	Reset Button	NA			Reset Button
7	ID Button	NA			ID Button
8	Power Button	J6	Green Solid on	PS-ON	Power Button w/LED

3.6 Replacing the USB Board

Follow these instructions to replace the M1717T65-USB Front USB Board.

1 Unscrew to release the USB front cover.

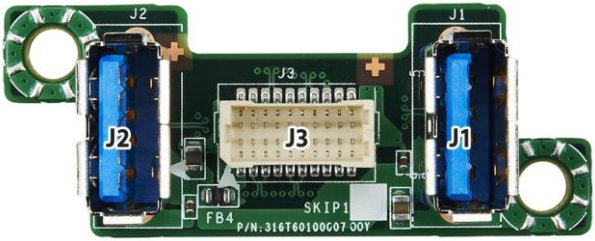
2 Remove the USB front cover.



3 Disconnect the USB cable and then unscrew the Front USB Board to replace with a new one.

4 Follow the steps described earlier in reverse to reinstall the the Front USB Board and Front USB Bezel.

3.6.1 USB Board Specifications

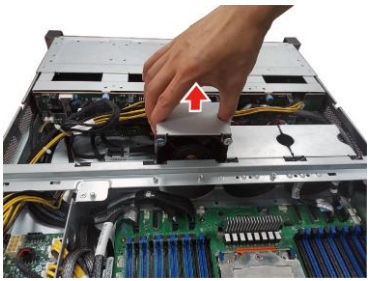


M1717T65-USB USB Board	
Form Factor	48mmx19mm,T=1.6mm
Specifications	● USB 3.0 Connector (J1, J2) ● 20-pin Header Input Connector (J3)

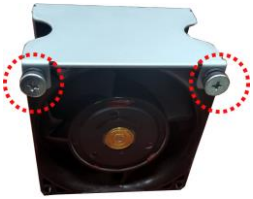
3.7 Replacing the System Fan

Follow these instructions to replace the fan.

1. Take out the fan from the chassis.

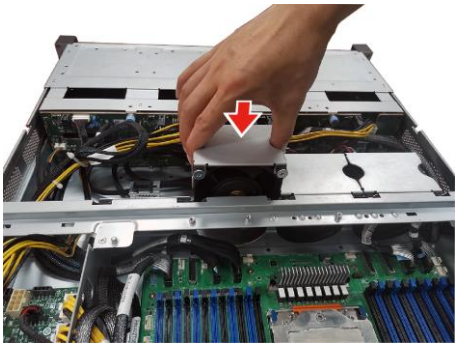


2. Release the four screws to detach the fan module.



3. Use a screwdriver to press the latch and move the latch in the direction as the arrow shows to get off the fan cage.

4. Follow the steps described earlier in reverse order to replace a new fan module into the chassis.



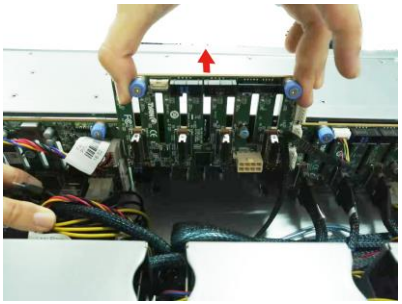
3.8 Replacing the HDD Backplane Board

NOTE: Before detach the HDD backplane, please remove all the HDD trays with HDDs, otherwise the HDD backplane will be damage when strains at the disassembly.

1. Disconnect all cables connected to thM1322T70A-BPE-8/M1318T65-BP12E-2 HDD backplane Board.

2. Unscrew the HDD BP Board.

3. Release the HDD Backplane from the hook.



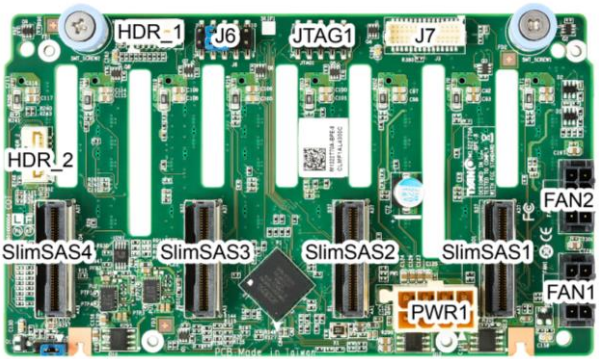
4. Follow the procedures described earlier to reinstall the HDD backplane board bracket into the chassis.

3.8.1 HDD Backplane Board Features

M1322T70A-BPE-8

Here shows the M1322T70A-BPE-8 HDD Backplane Board in details.

Front View



Rear View

Form Factor	PCB Dimensions: 131mm*76mm*3mm
Specifications Overview	● (2)10Pin FAN Header ● (4) MCIO Connector Input ● (8) NVME HDD Output ● (2) SMbus Header ● (2) FAN Connectors(Fan1/Fan2)

3.8.2 Connector Definition

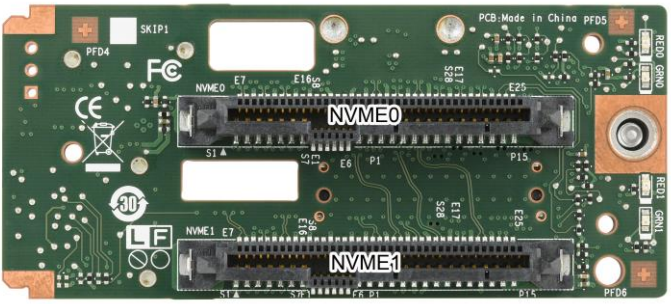
Location	Definition
NVME 0	NVME HDD Connector
NVME 1	NVME HDD Connector
NVME 2	NVME HDD Connector
NVME 3	NVME HDD Connector
NVME 4	NVME HDD Connector
NVME 5	NVME HDD Connector
NVME 6	NVME HDD Connector
NVME 7	NVME HDD Connector
MCIO1	SLIMSAS Connector
MCIO2	SLIMSAS Connector
MCIO3	SLIMSAS Connector
MCIO4	SLIMSAS Connector
PW1	Power Connector
HDR_1	SMBUS Header
HDR_2(For Broadcom 9460-16i)	SMBUS Header
JTAG1	CPLD JTAG Header
J6	HDD BP ADDRESS_SELECT Header
J7	FAN signal Header
Fan1	FAN Header
Fan2	FAN Header

M1318T65-BP12E-2

Here shows the M1318T65-BP12E-2 HDD Backplane Board in details.

Front View

Rear View



PCB Dimensions:	76mm*33.5mm*3mm
Thickness:	3mm
Layer:	8 layers
Integrated I/O	Slimsas Connector (J1) SATA + NVMe Connector(NVME0) SATA + NVMe Connector(NVME1) SATA Connector(SATA0) SATA Connector(SATA1) 4P Power Connector (PW1) Nvme(#0~#23) *width x4 / Nvme(#24~#25) *width x2

3.9 Replacing the Power Distribution Board

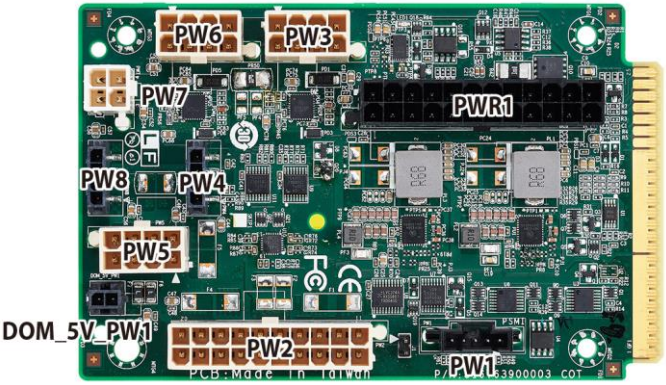
Follow these instructions to replace the M7126T65-PDB Power Distribution Board in your system.

1. Disconnect all cables connected to the power distribution board.

2. Unscrew to take off the power distribution board and replace with a new one.

3. Insert the PDB into the chassis following the above procedures in reverse.

3.9.1 Power Distribution Board Features



M7126T65-PDB Power Distribution Board	
Board Size	82MMx 127.3, MM,T=1.6mm
● Integrated I/O	● (1) ATX 24-pin power connector ● (1) ATX 20-pin power connector ● (3) ATX 8-pin power connector ● (1) ATX 4-pin power connector ● (2) HDD 4P power connector ● (1) DOM 5V power connector ● (1) PMBUS connector

3.9.2 Pin Definitions

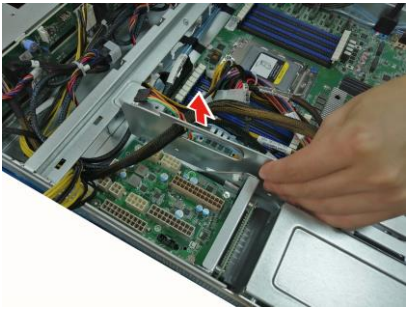
Location	Definition
PWR1	ATX Power 12x2
PW2	ATX Power 10x2
PW3	ATX Power 4x2
PW5	ATX Power 4x2
PW6	ATX Power 4x2
PW7	ATX Power 2x2
PW4	HDD Power 4x1
PW8	HDD Power 4x1
PW1	PMBUS
DOM_5V_PW1	DOM Power

3.10 Replacing the Power Backplane Board

Follow these instructions to replace the M7063F86-PBP Power Backplane Board.

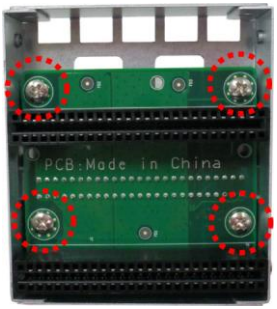
1. Unscrew the Power BP Board bracket from the chassis.

2. Remove the bracket beside and release the power distribution tray.



3. Slide to take out the power backplane board tray.

4. Unscrew to replace with a new power backplane board.

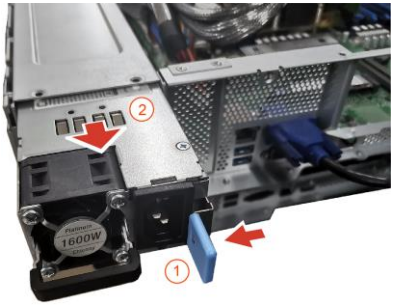


5. Follow the steps described earlier in reverse order to reinstall the power backplane board tray into the chassis.

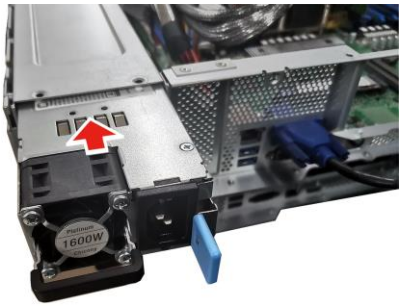
3.11 Replacing the Power Supply

Follow these instructions to replace the power supply module in your system.

1. Press the latch to pull the power supply out.



2. After replacing a new power supply, press and hold the latch to push the power supply back into the chassis.



3.12 Disconnecting All Motherboard Cables

1. Disconnect all cables connected to the motherboard.

Chapter 4: Board Information

You are now ready to install your motherboard.

How to install our products right… the first time

The first thing you should do is read this user's manual. It contains important information that will make configuration and setup much easier. Here are some precautions you should take when installing your motherboard:

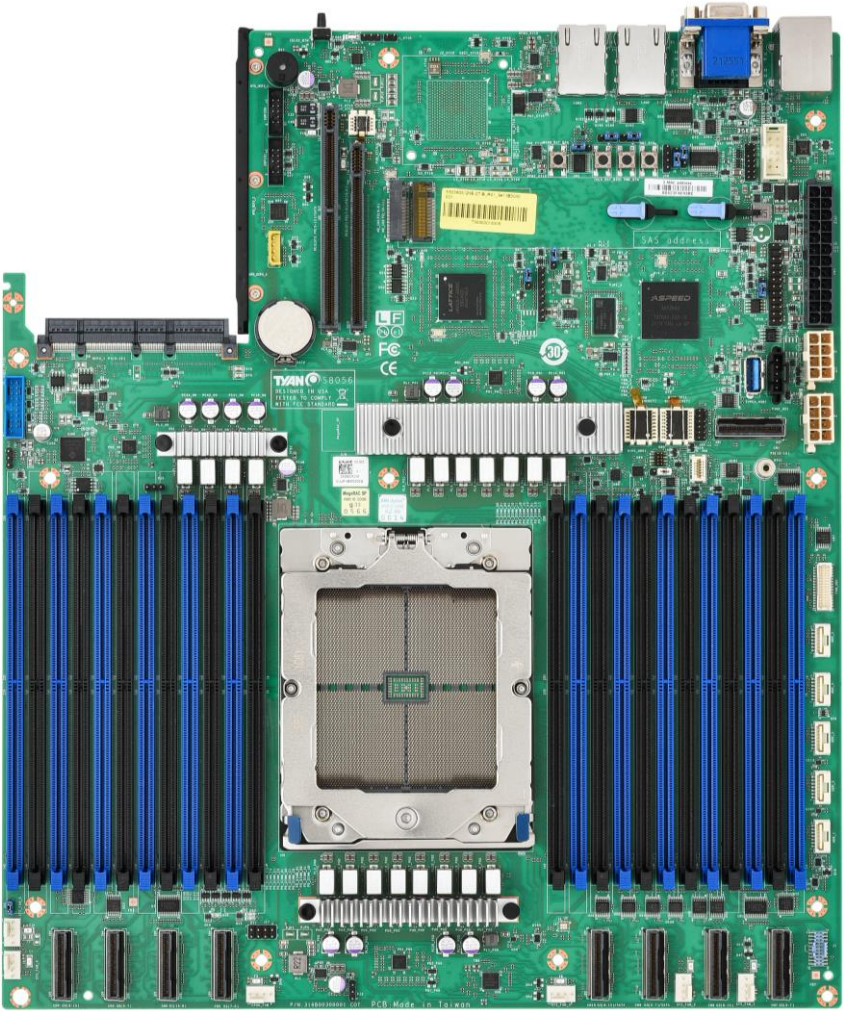
(1) Ground yourself properly before removing your motherboard from the antistatic bag. Unplug the power from your computer power supply and then touch a safely grounded object to release static charge (i.e. power supply case). For the safest conditions, MiTAC recommends wearing a static safety wrist strap.
(2) Hold the motherboard by its edges and do not touch the bottom of the board, or flex the board in any way.
(3) Avoid touching the motherboard components, IC chips, connectors, memory modules, and leads.
(4) Place the motherboard on a grounded antistatic surface or on the antistatic bag that the board was shipped in.
(5) Inspect the board for damage.

The following pages include details on how to install your motherboard into your chassis, as well as installing the processor, memory, disk drives and cables.

Caution!

1. To avoid damaging the motherboard and associated components, do not use torque force greater than 5~7kgf/cm (4.35~6.09 lb/in) on each mounting screw for motherboard installation.
2. Do not apply power to the board if it has been damaged.

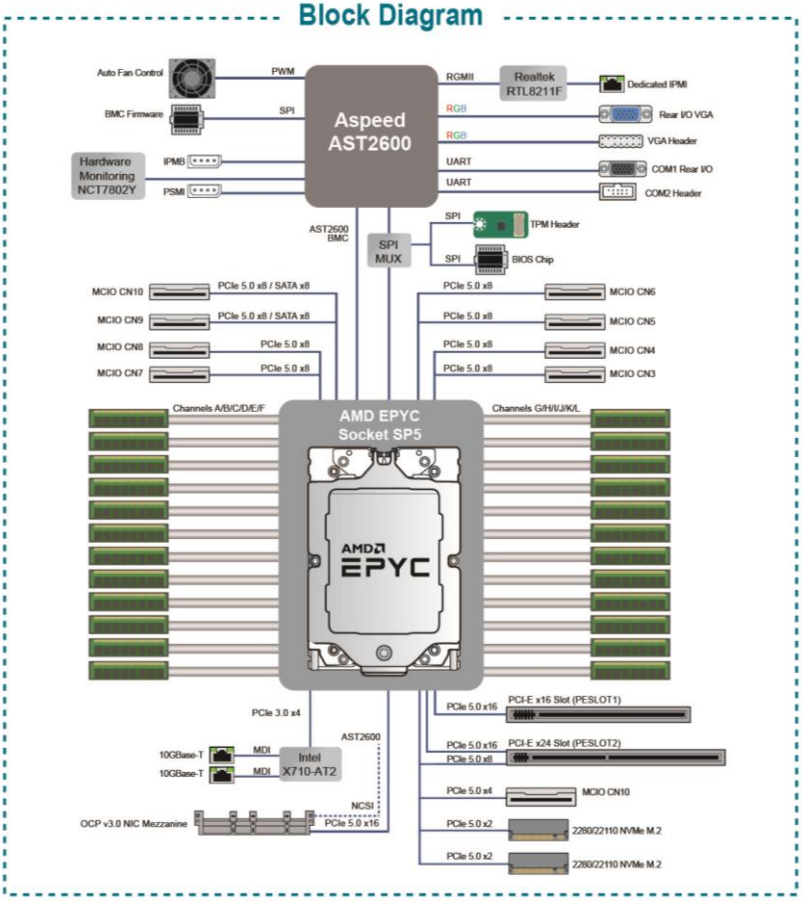
4.1 Board Image



S8056GM2NE-2T

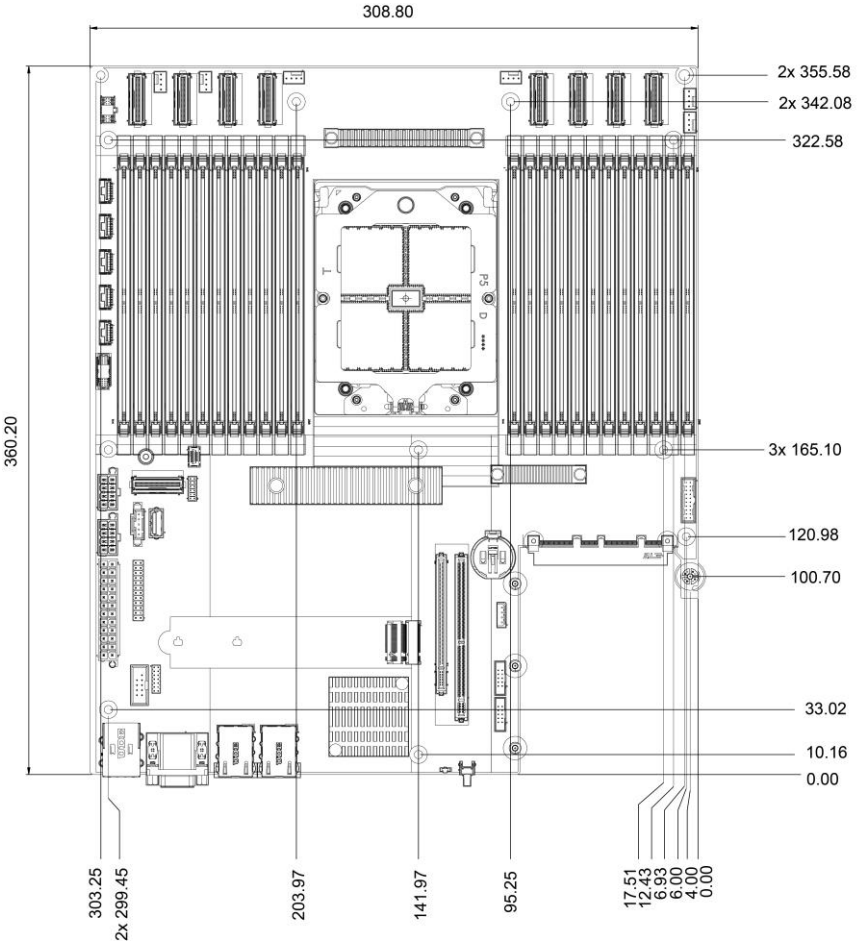
This picture is representative of the latest board revision available at the time of publishing. The board you receive may not look exactly like the above picture.

4.2 Block Diagram

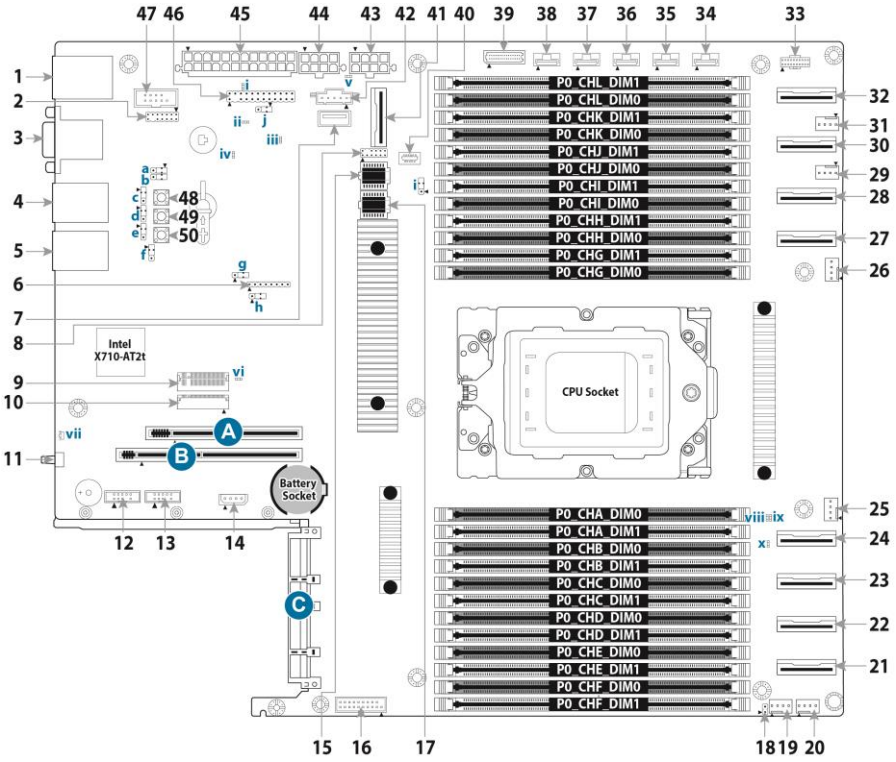


S8056 Block Diagram

4.3 Motherboard Mechanical Drawing



4.4 Board Parts, Jumpers and Connectors



This diagram is representative of the latest board revision available at the time of publishing. The board you receive may not look exactly like the above diagram. The DIMM slot numbers shown above can be used as a reference when reviewing the DIMM population guidelines shown later in the manual. For the latest board revision, please visit our web site at **http://www.tyan.com.**

Jumpers & Connectors

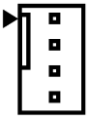
Connectors	
1. RJ45 LAN Port (LAN3) Dedicated IPMI+ USB3.2 Gen1x2	26 4-pin FAN Connector (SYS_FAN3)
2. VGA Header (VGA1)	27 MCIO SATA/NVME (CN10)
3. VGA Port + COM port	28 MCIO SATA/NVME (CN9)
4 RJ45 LAN Port (LAN2)	29 4-pin FAN Connector (SYS_FAN2)
5. RJ45 LAN Port (LAN1)	30 MCIO NVME (CN8)
6. CPLD JTAG Connector (J12)	31 4-pin FAN Connector (SYS_FAN1)
7. TYPE A USB3.2 Gen1 Header (TYPEA_USB1)	32. MCIO NVME (CN7)
8. ESPI DEBUG PORT (J62)	33. HDT Header (J1)
9. M.2 Connectors (M2_CN2)	34. HDD BP SMBUS Header (HDR_1)
10. M.2 Connectors (M2_CN1)	35. HDD BP SMBUS Header (HDR_2)
11. ID Button	36. HDD BP SMBUS Header (HDR_3)
12. SGPIO0 Header (SGPIO0)	37. HDD BP SMBUS Header (HDR_4)
13. SGPIO1 Header (SGPIO1)	38. HDD BP SMBUS Header (HDR_5)
14. IPMB Connector (IPMB1)	39. Fan Connector for BB(FAN_HD1)
15. BIOS Socket	40. ESPI TPM Header (J56)
16. USB3.2 Gen1 Header (USB3_FPIO1)	41. MCIO NVME (CN1)
17. BMC Socket	42. PSMI Connector (PSMI_HD1)
18. Chassis Intrusion Header (J66)	43. CPU and Memory Power Connector (PW3)
19. 4-pin FAN Connector (SYS_FAN5) support S5 state	44. CPU and Memory Power Connector (PW2)
20. 4-pin FAN Connector (SYS_FAN4)	45. Power Connector (PW1)
21. MCIO NVME(CN4)	46. Front Panel Connector (FPIO_2)
22. MCIO NVME(CN3)	47. COM2 Header (COM2)
23. MCIO NVME(CN6)	48. NMI Button
24. MCIO NVME(CN5)	49. PWR Button
25 4-pin FAN Connector (CPU0_FAN)	50. COLD RST Button
Slots	
A. PCIE#1 x24 (PESLOT1)	C. OCP 3.0 Mezzanine Slot
B. PCIE#2 x16 (PESLOT2)	
Jumpers	
a. COM2 Switch Jumper(J7)	f. NCSI SEL Jumper (J4)
b. COM2 Switch Jumper (J6)	g. SMBUS SEL Jumper (3PHD1)
c. BMC Jumper (J2)	h. CPLD force PowerOn SEL Jumper (J3)
d. COM1 Switch Jumper (J8)	i. Clear CMOS Jumper (J75)
e. COM1 Switch Jumper (J9)	j. Reset Jumper (J33)

LEDS	
I BMC ALERT LED (D18)	VI SATA & M.2 LED (D39)
II SYS_PWROK LED (D32)	VII ID LED
III BMC heartbeat LED (D1_2)	VIII PWR_GOOD LED (D52)
IV PROCHOT LED (D26)	IX PWROK LED (D57)
V PSU_ALERT LED (D31)	X CPU RESET LED (D58)

Jumper Legend

	**OPEN - Jumper OFF**	Without jumper cover
	**CLOSED - Jumper ON**	With jumper cover

CPU0_FAN, SYS_FAN_1~5: 4-pin FAN Connector



Pin	1	2	3	4
Signal	GND	P12V	FAN_TACH	FAN_PWM
Use this header to connect the cooling fan to your motherboard to keep the system stable and reliable.				

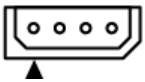
FPIO_2: Front Panel Connector

Signal	Pin	Pin	Signal
PWRLED+	1	2	VDD_33_DUAL
KEY	3	4	IDLED+
PWRLED-	5	6	IDLED-
HDDLED+	7	8	SYS_FAULT1-
HDDLED-	9	10	SYS_FAULT2-
PWR_SW#	11	12	LAN1LED+
GND	13	14	LAN1LED-
RESET_SW#	15	16	SMBDATA
GND	17	18	SMBCLK
IDLED_SW#	19	20	INTRUSION#
NC	21	22	LAN2LED+
NMI_SW#	23	24	LAN2LED-

PSMI_HD1: PSMI Connector

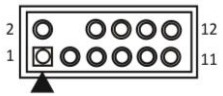
Pin	Signal
1	SMB_CLK
2	SMB_DAT
3	PSU_SMBALERT_N
4	GND
5	V3.3

IPMB_HD1: 4-pin IPMB Connector



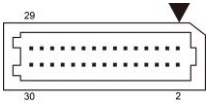
Pin	Signal
1	IPMB_DAT
2	GND
3	IPMB_CLK
4	VCC3_AUX

J62: ESPI DEBUG PORT



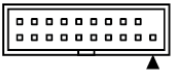
Signal	Pin	Pin	Signal
VDD_33_DUAL	1	2	ESPI_CS1
IO0	3	4	KEY
IO1	5	6	RESET#
IO2	7	8	GND
IO3	9	10	CLK
ALERT	11	12	GND

FAN_HD1: Fan Connector (Reserved for Barebone)



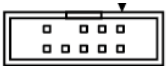
Signal	Pin	Pin	Signal
TACH1	1	2	TACH6
TACH2	3	4	TACH7
TACH3	5	6	TACH8
TACH4	7	8	TACH9
TACH5	9	10	TACH10
GND	11	12	GND
PWM3	13	14	PWM2
TACH11	15	16	SDA
TACH12	17	18	SCL
GND	19	20	PWM4
GND	21	22	GND
TACH13	23	24	TACH15
TACH14	25	26	TACH16
PWM5	27	28	PWM7
PWM0	29	30	GND

USB3_FPIO1: USB3.2 Gen1 Header



Signal	Pin	Pin	Signal
+5V	1	20	KEY
P0_RX_N	2	19	+5V
P0_RX_P	3	18	P1_RX_N
GND	4	17	P1_RX_P
P0_TX_N	5	16	GND
P0_TX_P	6	15	P1_TX_N
GND	7	14	P1_TX_P
P0_N	8	13	GND
P0_P	9	12	P1_N
OC_N	10	11	P1_P

SSATA_SGPIO0/1: SATA SGPIO Pin Header for SSATA0-1

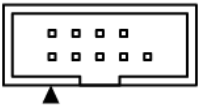


Signal	Pin	Pin	Signal
SCL	1	2	NC
SDA	3	4	SDATA OUT-
GND	5	6	SLOAD
KEY	7	8	SCLOCK
VCC3_AUX	9	10	NC

VGA1: Front Panel VGA Header

Signal	Pin	Pin	Signal
GND	1	2	VGA2_5V
GND	3	4	HD_VGA_R
GND	5	6	HD_VGA_G
GND	7	8	HD_VGA_B
GND	9	10	HD_VGA_DAT
HD_VGA_HS	11	12	KEY
HD_VGA_CLK	13	14	HD_VGA_VS

COM2: COM Port Header

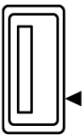


Signal	Pin	Pin	Signal
COM2_DCD	1	2	COM2_DSR
COM2_RXD	3	4	COM2_RTS
COM2_TXD	5	6	COM2_CTS
COM2_DTR	7	8	COM2_NRI
GND	9	10	KEY

HDR_1/2/3/4/5: 7-pin NVMe Hot Plug Function Connector

Signal	Pin	Pin	Signal
VCC3_AUX	1	2	HP0_SCK
HP0_SDA	3	4	CPU01_SMBALERT_N_C
NC	5	6	NC
GND	7		

TYPEA_USB3: Vertical Type-A USB3.0 Connector



Signal	Pin	Pin	Signal
USB3_N3_RX_TYPEA	5	1	VCC5
USB3_P3_RX_TYPEA	6	2	USB2_N8_TYPE_A_R
GND	7	3	USB2_P8_TYPE_A_R
USB3_N3_TX_TYPEA	8	4	GND
USB3_P3_TX_TYPEA	9		

IDLED_BTN1: Rear IO ID LED Button

Signal	Pin	Pin	Signal
FP_IDLED_BTN_N	1	2	GND

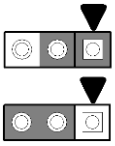
PWR_BTN1: System Power Button

Signal	Pin	Pin	Signal
GND	1,2	3,4	PWR_BTN1

RST_BTN1: COLD Reset Button

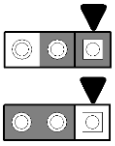
Signal	Pin	Pin	Signal
GND	1,2	3,4	FP_RST_BTN_N

J6/J7: COM2 Switch Jumper



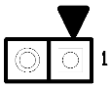
Signal	Pin	Pin	Signal
BMC_TXD2 BMC_RXD2	1	2	TXD_OUT RXD_OUT
BMC_TXD5 BMC_RXD5	3		
Pin1-2 closed: Normal Mode (Default) Pin2-3 closed: Debug Mode			

J8/J9: COM1 Switch Jumper



Signal	Pin	Pin	Signal
BMC_TXD1 BMC_RXD1	1	2	TXD_OUT RXD_OUT
FTDI_UART_RXD FTDI_UART_TXD	3		
Pin1-2 closed: Normal Mode (Default) Pin2-3 closed: Debug Mode			

J66: Intrusion Header

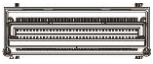


Pin	Signal
1	SCM_CHASSIS_INTR_L
2	GND

NGFF1: M.2 Connector

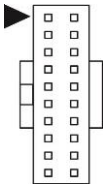
Signal	Pin	Pin	Signal
GND	1	2	VCC3
GND	3	4	VCC3
NC	5	6	NC
NC	7	8	VCC3_AUX
GND	9	0	M2_LED_N
NC	11	12	VCC3
NC	13	14	VCC3
GND	15	16	VCC3
NC	17	18	VCC3
NC	19	20	NC
GND	21	22	NC
NC	23	24	NC
NC	25	26	NC
GND	27	28	NC
PCH_PE1_M2_1_RX_N	29	30	NC
PCH_PE1_M2_1_RX_P	31	32	NC
GND	33	34	NC
PCH_PE1_M2_1_TX_N	35	36	NC
PCH_PE1_M2_1_TX_P	37	38	NC
GND	39	40	M2_SMB_CLK_R
PCH_PE0_M2_0_RX_N	41	42	M2_SMB_DAT_R
PCH_PE0_M2_0_RX_P	43	44	NC
GND	45	46	NC
PCH_PE0_M2_0_TX_N	47	48	NC
PCH_PE0_M2_0_TX_P	49	50	M2_PERST_N_R
GND	51	52	NC
CLK_100M_M2_DN	53	54	M2_2_PEWAKE_N
CLK_100M_M2_DP	55	56	NC
GND	57	58	NC
PE_M.2_DETECT_N	67	68	NC
NC	69	70	VCC3
GND	71	72	VCC3
GND	73	74	VCC3
GND	75	76	GND
GND	77		

CN1/3/4/5/6/7/8/9/10: MCIO Connector



Signal Name	Pin	Pin	Signal Name
GND	A1	B1	GND
CPU0_PE4_RX_DN<7>	A2	B2	CPU0_PE4_TX_DN<7>
CPU0_PE4_RX_DP<7>	A3	B3	CPU0_PE4_TX_DP<7>
GND	A4	B4	GND
CPU0_PE4_RX_DN<6>	A5	B5	CPU0_PE4_TX_DN<6>
CPU0_PE4_RX_DP<6>	A6	B6	CPU0_PE4_TX_DP<6>
GND	A7	B7	GND
PE4_TYPEA	A8	B8	CPU0_PE4_HDD0_SCL0
WAKE_NVME_N0	A9	B9	CPU0_PE4_HDD0_SDA0
GND	A10	B10	GND
CLK_100M_DB2000_CPU0_NVME1_DP	A11	B11	RST_NVME0_CPU0_PERST_N
CLK_100M_DB2000_CPU0_NVME1_DN	A12	B12	FM_CPU0_PE4_PRSTNA_N
GND	A13	B13	GND
CPU0_PE4_RX_DN<5>	A14	B14	CPU0_PE4_TX_DN<5>
CPU0_PE4_RX_DP<5>	A15	B15	CPU0_PE4_TX_DP<5>
GND	A16	B16	GND
CPU0_PE4_RX_DN<4>	A17	B17	CPU0_PE4_TX_DN<4>
CPU0_PE4_RX_DP<4>	A18	B18	CPU0_PE4_TX_DP<4>
GND	A19	B19	GND
CPU0_PE4_RX_DN<3>	A20	B20	CPU0_PE4_TX_DN<3>
CPU0_PE4_RX_DP<3>	A21	B21	CPU0_PE4_TX_DP<3>
GND	A22	B22	GND
CPU0_PE4_RX_DN<2>	A23	B23	CPU0_PE4_TX_DN<2>
CPU0_PE4_RX_DP<2>	A24	B24	CPU0_PE4_TX_DP<2>
GND	A25	B25	GND
PE4_TYPEB	A26	B26	CPU0_PE4_HDD0_SCL1
WAKE_NVME_N1	A27	B27	CPU0_PE4_HDD0_SDA1
GND	A28	B28	GND
CLK_100M_DB2000_CPU0_NVME2_DP	A29	B29	RST_NVME1_CPU0_PERST_N
CLK_100M_DB2000_CPU0_NVME2_DN	A30	B30	FM_CPU0_PE4_PRSTNB_N
GND	A31	B31	GND
CPU0_PE4_RX_DN<1>	A32	B32	CPU0_PE4_TX_DN<1>
CPU0_PE4_RX_DP<1>	A33	B33	CPU0_PE4_TX_DP<1>
GND	A34	B34	GND
CPU0_PE4_RX_DN<0>	A35	B35	CPU0_PE4_TX_DN<0>
CPU0_PE4_RX_DP<0>	A36	B36	CPU0_PE4_TX_DP<0>
GND	A37	B37	GND

J1: HDT Header

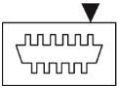


Signal	Pin	Pin	Signal
P1V8_AUX	1	2	TCK
GND	3	4	TMS
GND	5	6	TDI
GND	7	8	TDO
TRST_N	9	10	PEROK
NC	11	12	RESET_N
NC	13	14	NC
NC	15	16	DBREQ_N
GND	17	18	NC
P1V8_AUX	19	20	NC

J12: CPLD JTAG Connector (reserved)

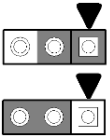
Signal	Pin	Pin	Signal
VDD_33_DUAL	1	2	TDO
TDI	3	4	NC
NC	5	6	TMS
GND	7	8	TCK

J56: ESPI TPM Header



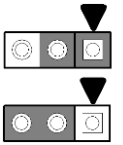
Signal	Pin	Pin	Signal
SPI_TPM_CONN_CLK	1	7	P3V3_AUX
RST_PLTRST_TPM_CONN_N	2	8	FM_TPM_CONN_PRSNT_R_N
SPI_TPM_CONN_MOSI	3	9	IRQ_TPM_CONN_PIRQ_N
SPI_TPM_CONN_MISO	4	10	P3V3
SPI_PCH_TPM_CONN_CS_N	5	11	GND
NC_TPM_PIN6	6		

J3: CPLD force pwron options SEL Connector



Signal	Pin	Pin	Signal
NC	1	2	FORCE_PWRON_LVC3
Rpu 1k	3		
Pin1-2 closed: Normal Mode (Default) Pin2-3 closed: POWER ON			

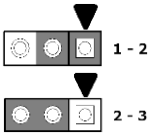
J4: NCSI SEL Connector



Signal	Pin	Pin	Signal
NC	1	2	NCSI_X710_OCP
GND	3		

Pin1-2 closed: NCSI to OCP (Default)
Pin2-3 closed: NCSI to X710

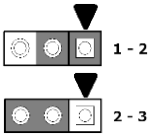
J33: reset sys/bmc SEL Connector



Signal	Pin	Pin	Signal
COLD_RST_BTN_L	1	2	FP_RST_BTN_JP_L
FP_BMC_RST_BTN_N	3		

Pin1-2 closed: SYS RESET (Default)
Pin2-3 closed: BMC RESET

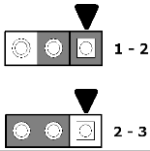
J75: Clear CMOS Jumper



Signal	Pin	Pin	Signal
VDD_RTC	1	2	P0_VDD_RTC
GND	3		

Pin1-2 closed: Normal Mode (Default)
Pin2-3 closed: Clear CMOS

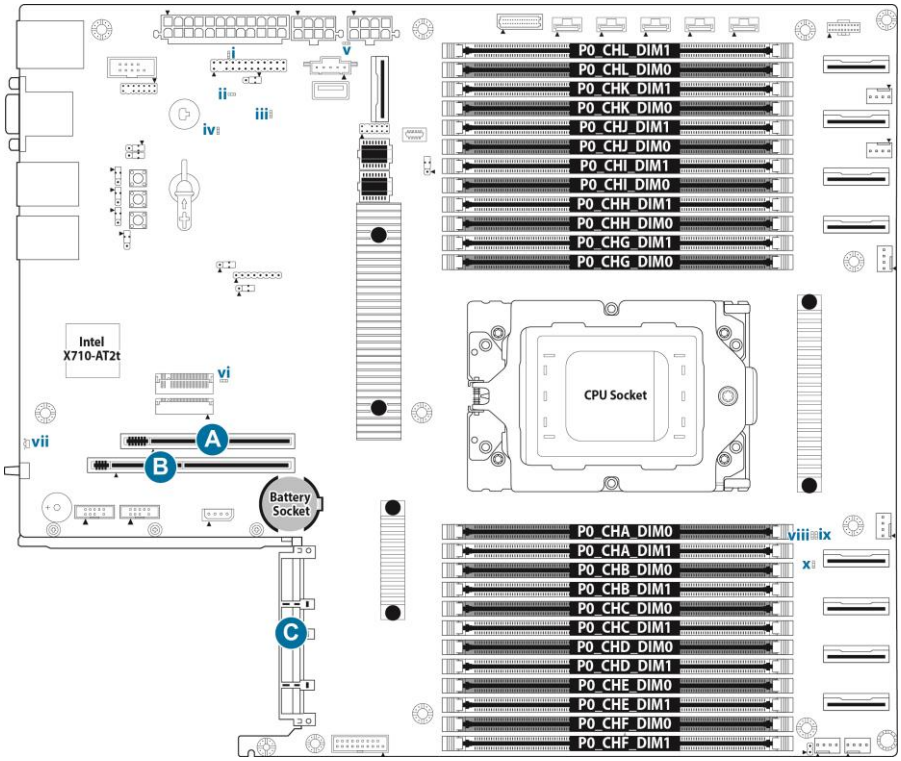
3PHD_1: VRM SMBUS SEL Connector



Signal	Pin	Pin	Signal
NC	1	2	VR_I2C_CPU0_EN
GND	3		

Pin1-2 closed: VRM SMBus to BMC (Default)
Pin2-3 closed: BMC SMBus open（for Power FW update）

4.5 LED Definitions



i. D18	BMC ALERT LED	**Pin**	**Signal**	
		+	VDD_33_DUAL	
		-	BMC_HW_FAULT_L	
		State	**Description**	
		OFF	OFF	NORMAIL
		ON	Orange	BMC ALERT
ii. D32	SYS_PWROK LED	**Pin**	**Signal**	
		+	VDD_33_DUAL	
		-	SCM_SYS_PWROK-	
		State	**Description**	
		OFF	OFF	NORMAIL
		ON	Green	SYSTEM POWER OK
iii. D1_2	BMC heartbead LED	**Pin**	**Signal**	
		+	VDD_33_DUAL	
		-	BMC_HB_LED_L	
		State	**Description**	
		OFF	OFF	BMC not ready
		ON	Green 1HZ	BMC READY
iv. D26	PROCHOT LED	**Pin**	**Signal**	
		+	VDD_33_DUAL	
		-	BMC_P0_PROCHOT_N	
		State	**Description**	
		OFF	OFF	NORMAIL
		ON	RED	SYSTEM PROCHOT OR BMC NOT ready
v. D31	PSU_ALERT LED	**Pin**	**Signal**	
		+	VDD_33_DUAL	
		-	PSMI_PSU_ALERT_LED_L	
		State	**Description**	
		OFF	OFF	NORMAIL
		ON	RED	PSU_ALERT
vi. D39	SATA & M.2 LED	**Pin**	**Signal**	
		+	VDD_33_DUAL	
		-	HDD_ACT_LED_ALL_L	
		State	**Description**	
		OFF	OFF	HDD non-activity
		ON	Blue	HDD activity
viii. D52	PWR_GOOD LED	**Pin**	**Signal**	
		+	VDD_5_DUAL	
		-	P0_PWR_GOOD_LED-	

		State	**Description**	
		OFF	OFF	POWER OFF
		ON	Green	SYSTEM POWER GOOD
ix. D57	PWROK LED	**Pin**	**Signal**	
		+	VDD_5_DUAL	
		-	P0_PWROK_LED-	
		State	**Description**	
		OFF	OFF	CPU POWER OFF
		ON	Green	CPU POWER OK
x. D58	CPU RESET LED	**Pin**	**Signal**	
		+	VDD_5_DUAL	
		-	P0_RESET_LED_L	
		State	**Description**	
		OFF	OFF	CPU RESET NORMAIL
		ON	RED	CPU RESET NOT SEND OUT

4.6 Installing the Processor and Heatsink

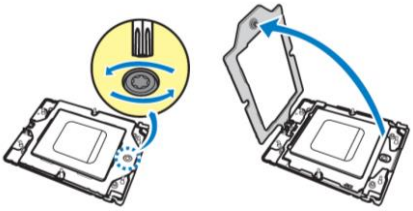
The types of processors supported by the S8056 are listed in the 1.3 Features section on page 17. Check our website at **http://www.tyan.com** for the latest list of validated **AMD**® processors for this specific motherboard.

> **NOTE:** MiTAC is not liable for damage as a result of operating an unsupported configuration.

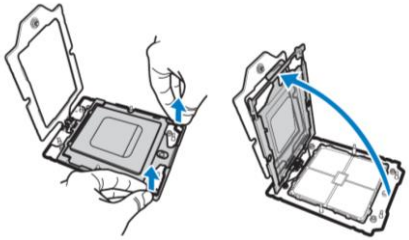
Processor Installation (Single Socket / for AMD® EPYC™ 9004 Series CPU)

Follow the steps below to install the processors and heat sinks.
Please note that the illustrations are based on socket which may not look exactly like the motherboard you purchased. Therefore, the illustrations should be held for your reference only.
NOTE: Please save and replace the flip CPU protection cap when returning for service.

1. Use a T20 Torx screwdriver to loosen the screws securing the force frame. **NOTE**: The force frame will automatically eject after the captive screws are being released.



2. By placing your both index fingers on the sides on the metal handle, pull to release the rail frame. Then lift the rail frame to its fully open position.



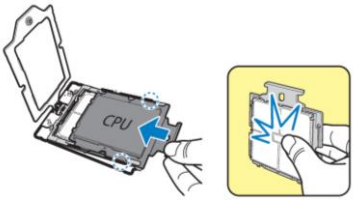
3. Remove the external cap from the rail frame.

4. Align and install the carrier frame with package into the slot on the rail frame.

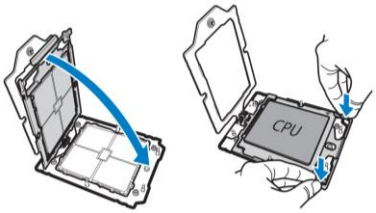
   NOTE: During installation, observe the following:

   →make sure to push the carrier frame with package towards the end of the rail frame until it clicks in place.

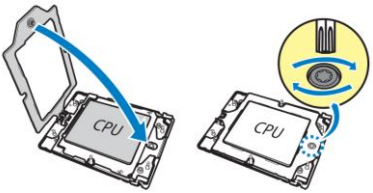
   →do not drop the carrier frame or touch the package pad to avoid component damage.



5. Carefully close the rail frame with the installed package. Then push both edges of the rail frame firmly until it locks in place.



6. Close the force frame. Then use a T20 Torx screwdriver to tighten the screw to secure the force frame.



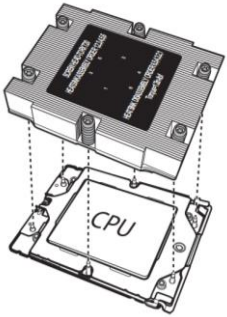
Heat sink Installation

After installing the processor, you will need to proceed to install the heat sink. The CPU heat sink will ensure that the processor do not overheat and continue to operate at maximum performance for as long as you own them. An overheated processor is dangerous to the motherboard. The processors will overheat within seconds, enter thermal protection, and shut down if heatsinks are not installed.
Caution：Take caution of the air flow must be in the direction which paralleled with memories.

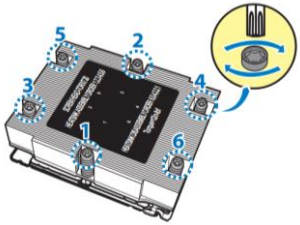
For the safest method of installation and information on choosing the appropriate heat sink, using heat sinks validated by **AMD**®. Please refer to the AMD® website: **http://www.amd.com**

The following diagram illustrates how to install the heatsink on the AMD® CPU Socket:

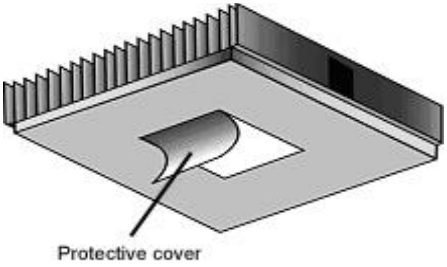
1. Align and install the CPU heatsink onto the top of the CPU socket.



2. Use a T20 Torx screwdriver to tighten the heatsink screws in a sequential order(1→2→3→4→5→6).

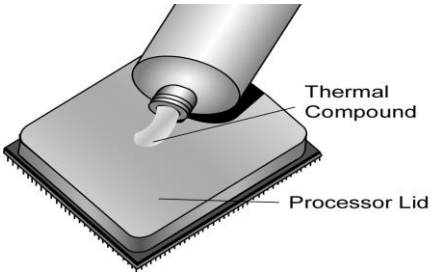


4.7 Thermal Interface Material



There are two types of thermal interface materials designed for use with the processors.

The most common material comes as a small pad attached to the heat sink at the time of purchase. There should be a protective cover over the material. Take care not to touch this material. Simply remove the protective cover and place the heat sink on the processor.

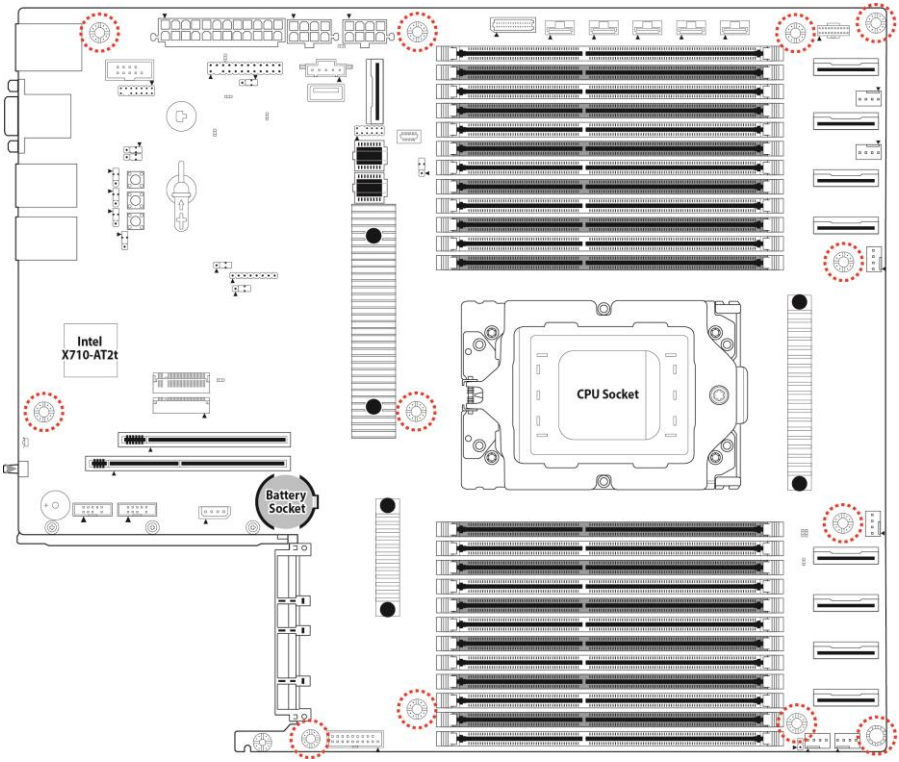


The second type of interface material is usually packaged separately. It is commonly referred to as 'thermal compound'. Simply apply a thin layer on to the CPU lid (applying too much will actually reduce the cooling).

NOTE: Always check with the manufacturer of the heat sink & processor to ensure that the thermal interface material is compatible with the processor and meets the manufacturer's warranty requirements.

4.8 Tips on Installing Motherboard in Chassis

Before installing your motherboard, make sure your chassis has the necessary motherboard support studs installed. These studs are usually metal and are gold in color. Usually, the chassis manufacturer will pre-install the support studs. If you are unsure of stud placement, simply lay the motherboard inside the chassis and align the screw holes of the motherboard to the studs inside the case. If there are any studs missing, you will know right away since the motherboard will not be able to be securely installed.

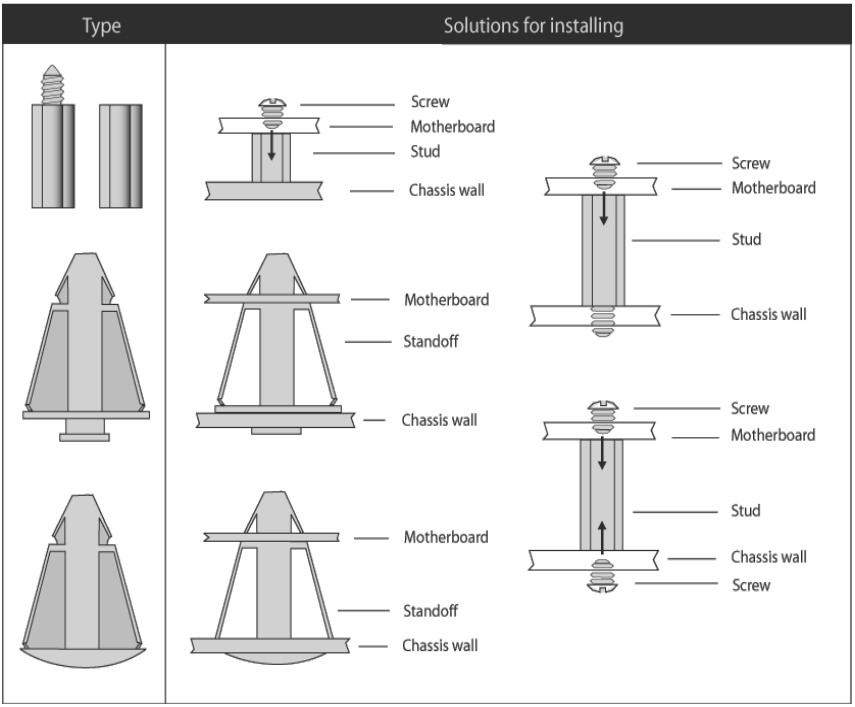


Note: Be especially careful to look for extra stand-offs. If there are any stand-offs present that are not aligned with a mounting hole on the motherboard, it will likely short components on the back of the motherboard when installed. This will cause malfunction and/or damage to your motherboard.

Some chassis include plastic studs instead of metal. Although the plastic studs are usable, MiTAC recommends using metal studs with screws that will fasten the motherboard more securely in place.

Below is a chart detailing what the most common motherboard studs look like and how they should be installed.

Mounting the Motherboard



4.9 Installing the Memory

Before installing memory, ensure that the memory you have is compatible with the motherboard and processor. Check the TYAN Web site at **http://www.tyan.com** for details of the type of memory recommended for your motherboard.

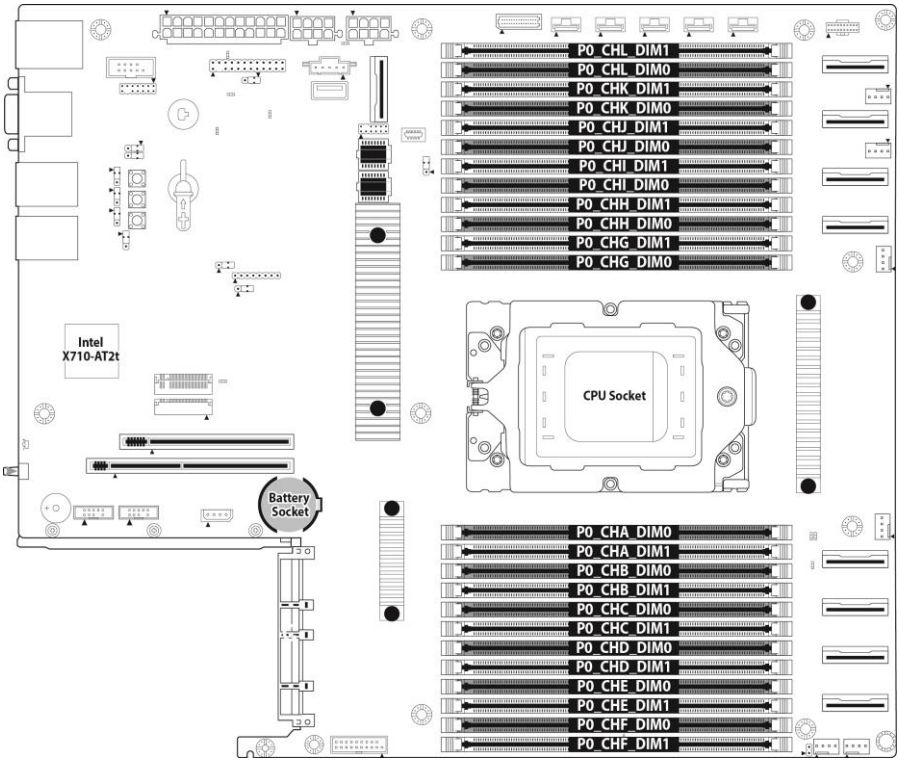


Table 1. Recommended Memory Channels per Configuration

Number of Memory Channels Populated	Recommended Memory Channels (UMC to Memory Channel Mapping)													Nodes per Socket (NPS) supported[2]
12	Memory Channel	A	C	B	E	D	F	G	I	H	K	J	L	
	UMC instance	3	0	4	1	5	2	9	6	10	7	11	8	NPS4, NPS2, NPS1
10	Memory Channel	A	C	B	E	D		G	I	H	K	J		
	UMC instance	3	0	4	1	5		9	6	10	7	11		NPS2, NPS1
8	Memory Channel	A	C	B	E			G	I	H	K			
	UMC instance	3	0	4	1			9	6	10	7			NPS4, NPS2, NPS1
6	Memory Channel	A	C	B				G	I	H				
	UMC instance	3	0	4				9	6	10				NPS2, NPS1
4	Memory Channel	A	C					G	I					
	UMC instance	3	0					9	6					NPS4, NPS2, NPS1
2	Memory Channel	A						G						
	UMC instance	3						9						NPS2, NPS1
1	Memory Channel	A												
	UMC instance	3												NPS1

	DIMM Population/Channel		DDR5 Frequency MT/s
DIMM Type	DIMM 0	DIMM 1	Genoa platforms
			14L 74mil low-DK PCB stackup
RDIMM	-	1R	4800
	1R	1R	4000
	-	2R	4800
	1R	2R	3600
	2R	2R	3600
3DS RDIMM*	-	2SxR	4800
	2SxR	2SxR	3600
*For 3DS RDIMM	When x = 2	DIMM Ranks = 4	
	When x = 4	DIMM Ranks = 8	
	When x = 8	DIMM Ranks = 16	

DIMM SLOT	Silk screen	DIMM SLOT	Silk screen
P0_DIMM_A0	P0_CHA_DIM0	P0_DIMM_G0	P0_CHG_DIM0
P0_DIMM_A1	P0_CHA_DIM1	P0_DIMM_G1	P0_CHG_DIM1
P0_DIMM_B0	P0_CHB_DIM0	P0_DIMM_H0	P0_CHH_DIM0
P0_DIMM_B1	P0_CHB_DIM1	P0_DIMM_H1	P0_CHH_DIM1
P0_DIMM_C0	P0_CHC_DIM0	P0_DIMM_I0	P0_CHI_DIM0
P0_DIMM_C1	P0_CHC_DIM1	P0_DIMM_I1	P0_CHI_DIM1
P0_DIMM_D0	P0_CHD_DIM0	P0_DIMM_J0	P0_CHJ_DIM0
P0_DIMM_D1	P0_CHD_DIM1	P0_DIMM_J1	P0_CHJ_DIM1
P0_DIMM_E0	P0_CHE_DIM0	P0_DIMM_K0	P0_CHK_DIM0
P0_DIMM_E1	P0_CHE_DIM1	P0_DIMM_K1	P0_CHK_DIM1
P0_DIMM_F0	P0_CHF_DIM0	P0_DIMM_L0	P0_CHL_DIM0
P0_DIMM_F1	P0_CHF_DIM1	P0_DIMM_L1	P0_CHL_DIM1

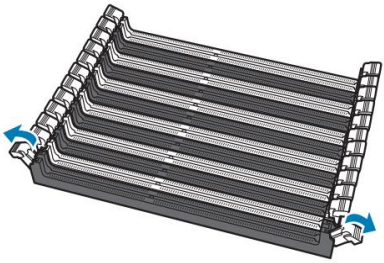
Recommended Memory Population Table

CPU Installed	Quantity of memory installed							
	1	2	4	6	8	10	12	24
P0_CHA_DIM0								√
P0_CHA_DIM1	√	√	√	√	√	√	√	√
P0_CHB_DIM0								√
P0_CHB_DIM1				√	√	√	√	√
P0_CHC_DIM0								√
P0_CHC_DIM1			√	√	√	√	√	√
P0_CHD_DIM0								√
P0_CHD_DIM1						√	√	√
P0_CHE_DIM0								√
P0_CHE_DIM1					√	√	√	√
P0_CHF_DIM0								√
P0_CHF_DIM1							√	√
P0_CHG_DIM0								√
P0_CHG_DIM1		√	√	√	√	√	√	√
P0_CHH_DIM0								√
P0_CHH_DIM1				√	√	√	√	√
P0_CHI_DIM0								√
P0_CHI_DIM1			√	√	√	√	√	√
P0_CHJ_DIM0								√
P0_CHJ_DIM1						√	√	√
P0_CHK_DIM0								√
P0_CHK_DIM1					√	√	√	√
P0_CHL_DIM0								√
P0_CHL_DIM1							√	√

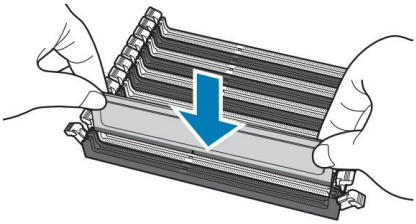
Memory Installation Procedure

Follow these instructions to install memory modules into the S8056.

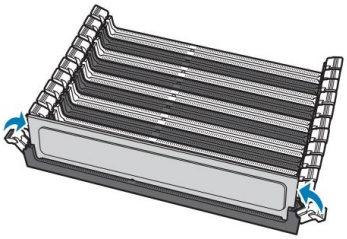
1. Unlock a DIMM socket by Press the retaining clip outwardly in the following illustration.



2. Align the memory module with the socket，such that the DIMM NOTCH match the KEY SLOT on the socket.

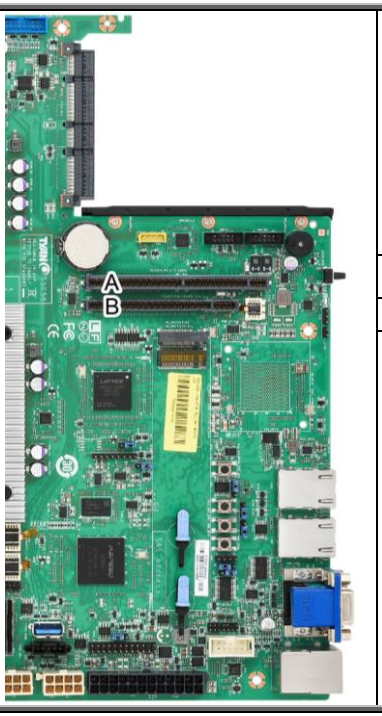


3. Seat the module firmly into the socket by gently pressing down until it sits flush with the socket. The locking levers pop up into place.



4.10 Installing Add-In Cards

Before installing add-in cards, it's helpful to know if they are fully compatible with your motherboard. For this reason, we've provided the diagrams below, showing the slots that may appear on your motherboard.



A: PCIE#1 Gen.4/5 x16 (PESLOT2)

B: PCIE#2 Gen.4/5 x24 (PESLOT1)

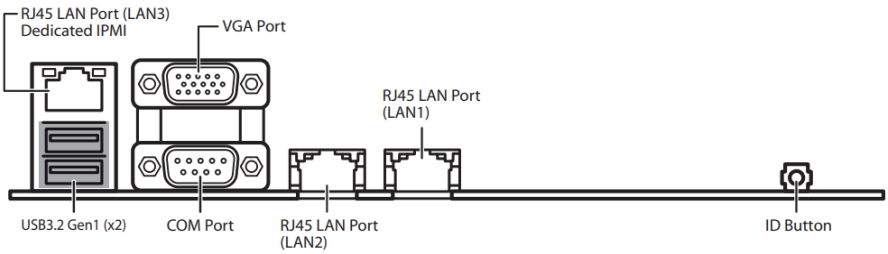
Simply find the appropriate slot for your add-in card and insert the card firmly. Do not force any add-in cards into any slots if they do not seat in place. It is better to try another slot or return the faulty card rather than damaging both the motherboard and the add-in card.

TIP: It's a good practice to install add-in cards in a staggered manner rather than making them directly adjacent to each other. Doing so allows air to circulate within the chassis more easily, thus improving cooling for all installed devices.

NOTE: You must always unplug the power connector from the motherboard before performing system hardware changes to avoid damaging the board or expansion device.

4.11 Connecting External Devices

Connecting external devices to the motherboard is an easy task. The motherboard supports a number of different interfaces through connecting peripherals. See the following diagrams for the details.



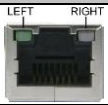
S8056GM2NE-2T

S8056GME

NOTE: RJ45 (1Gb) LAN3 is from Realtek RTL8211F chipset.
RJ45 (10Gb) LAN1/LAN2 are from Intel X710 chipset.

Onboard LAN LED Color Definition

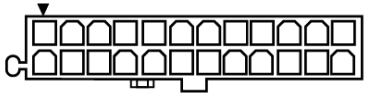
The **Three (3)** onboard Ethernet ports have green and Amber LEDs to indicate LAN status. The chart below illustrates the different LED states.

10Mbps/100Mbps/1Gbps/10Gbps LAN Link/Activity LED Scheme			
		**Left LED**	**Right LED**
No Link		Off	Off
10Mbps	**Link**	Green	Off
	Active	Blinking Green	Off
100Mbps	**Link**	Green	Solid Green
	Active	Blinking Green	Solid Green
1Gbps	**Link**	Green	Solid Yellow
	Active	Blinking Green	Solid Yellow
10Gbps	**Link**	Yellow	Solid Yellow
	Active	Blinking Yellow	Solid Yellow

4.12 Installing the Power Supply

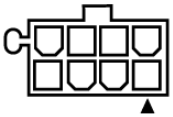
There are **Three (3)** power connectors on your S8056 motherboard. The S8056 supports EPS 12V power supply.

PWR1: ATX 24-pin Main Power Connector



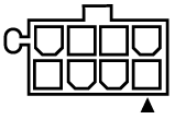
Signal	Pin	Pin	Signal
+3.3V_1	**1**	**13**	+3.3V_4
+3.3V_2	**2**	**14**	-12V
COM_1	**3**	**15**	COM_4
+5V_1	**4**	**16**	PS-ON#
COM_2	**5**	**17**	COM_5
+5V_2	**6**	**18**	COM_6
COM_3	**7**	**19**	COM_7
PWR_OK	**8**	**20**	RES
5VSB	**9**	**21**	+5V_3
+12V_1	**10**	**22**	+5V_4
+12V_2	**11**	**23**	+5V_5
+3.3V_3	**12**	**24**	COM_8

PWR2: 8-PIN Power Connector



Signal	Pin	Pin	Signal
COM_1	1	5	+12VDIG_1
COM_2	2	6	+12VDIG_ 2
COM_3	3	7	+12VDIG_3
COM_4	4	8	+12VDIG_4

PWR3: 8-PIN Power Connector



Signal	Pin	Pin	Signal
COM_1	1	5	+12VDIG_1
COM_2	2	6	+12VDIG_ 2
COM_3	3	7	+12VDIG_3
COM_4	4	8	+12VDIG_4

NOTE:
1. You must unplug the power supply before plugging the power cables to motherboard connectors.
2. Two ATX 2x4 pin power connector are for 400W CPU + 24 DIMMs.

4.13 Finishing Up

Congratulations on making it this far! You have finished setting up the hardware aspect of your computer. Before closing up your chassis, make sure that all cables and wires are connected properly, especially SATA cables and most importantly, jumpers. You may have difficulty powering on your system if the motherboard jumpers are not set correctly.

In the rare circumstance that you have experienced difficulty, you can find help by asking your vendor for assistance. If they are not available for assistance, please find setup information and documentation online at our website or by calling your vendor's support line.

Chapter 5: BIOS Setup

5.1 About the BIOS

The BIOS is the basic input/output system, the firmware on the motherboard that enables your hardware to interface with your software. The BIOS determines what a computer can do without accessing programs from a disk. The BIOS contains all the code required to control the keyboard, display screen, disk drives, serial communications, and a number of miscellaneous functions. This chapter describes the various BIOS settings that can be used to configure your system.

The BIOS section of this manual is subject to change without notice and is provided for reference purposes only. The settings and configurations of the BIOS are current at the time of print and are subject to change, and therefore may not match exactly what is displayed on screen.

This section describes the BIOS setup program. The setup program lets you modify basic configuration settings. The settings are then stored in a dedicated, battery-backed memory (called NVRAM) that retains the information even when the power is turned off.

To start the BIOS setup utility:

1. Turn on or reboot your system.
2. Press <**Del>** or <**F2**> during POST (**Del** on remote console) to start the BIOS setup utility.

5.1.1 Setup Basics

The table below shows how to navigate in the setup program using the keyboard.

Key	Function
Left/Right Arrow Keys	Change from one menu to the next
Up/Down Arrow Keys	Move between selections
Enter	Open highlighted section
PgUp/PgDn Keys	Change pages
+/-	Change options
ESC	Exit

5.1.2 Getting Help

Pressing [**F1**] will display a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window, press [**ESC**] or the [**Enter**] key again.

5.1.3 In Case of Problems

If you have trouble booting your computer after making and saving the changes with the BIOS setup program, you can restart the computer by holding the power button down until the computer shuts off (usually within 4 seconds); resetting by pressing CTRL-ALT-DEL; or clearing the CMOS.
The best advice is to only alter settings that you thoroughly understand. In particular, do not change settings in the Chipset section unless you are absolutely sure of what you are doing. The Chipset defaults have been carefully chosen either by MITAC or your system manufacturer for best performance and reliability. Even a seemingly small change to the Chipset setup options may cause the system to become unstable or unusable.

5.1.4 Setup Variations

Not all systems have the same BIOS setup layout or options. While the basic look and function of the BIOS setup remains more or less the same for most systems, the appearance of your Setup screen may differ from the charts shown in this section. Each system design and chipset combination requires a custom configuration. In addition, the final appearance of the Setup program depends on the system designer. Your system designer may decide that certain items should not be available for user configuration, and remove them from the BIOS setup program.

NOTE: The following pages provide the details of BIOS menu. Please be noticed that the BIOS menu are continually changing due to the BIOS updating. The BIOS menu provided are the most updated ones when this manual is written. Please visit TYAN's website at http://www.tyan.com for the information of BIOS updating.

5.2 Main Menu

In this section, you can alter general features such as the date and time.
Note that the options listed below are for options that can directly be changed within the Main Setup screen.

BIOS Information
It displays BIOS related information.

Product Name
It displays Product information.

BIOS Version
It displays BIOS version information

Build Date and Time
It displays the time when built

Memory Information
It displays the total memory size.

Memory Frequency
It displays Memory frequency

System Language
Choose the system default language.
English / Simplified Chinese / Japanese

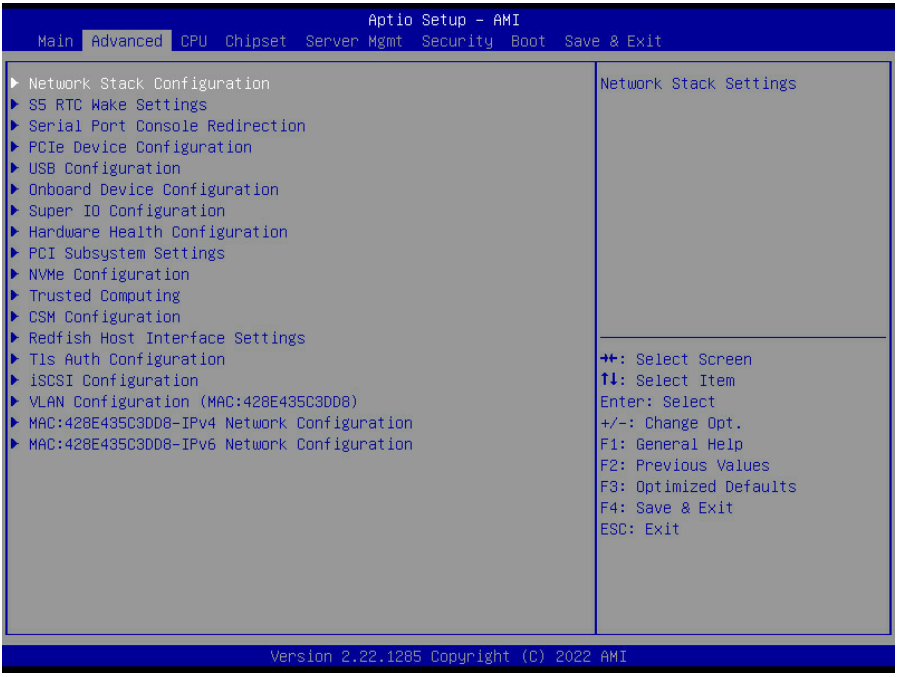
System Date
Set the Date. Use Tab to switch between Date elements. Default Ranges:
Year: 2005-2099
Months: 1-12
Days: dependent on month

System Time
Adjust the system clock.
HH (24 hours format): MM (Minutes): SS (Seconds)

Access Level
Administrator

5.3 Advanced Menu

This section facilitates configuring advanced BIOS options for your system.



NOTE: This is a sample screenshot of the Advanced Menu. The HII network drivers displayed here depend on the card(s) you installed and the functions you enabled.

Network Stack Configuration
Network Stack Settings

S5 RTC Wake Settings
Enable system to wake from S5 using RTC alarm

Serial Port Console Redirection
Serial Port Console Redirection

PCIe Device Configuration
Onboard PCIE Slot Configuration

USB Configuration
USB Configuration Parameters

Onboard Device Configuration
Onboard Device and Function Configuration.

Super IO Configuration
System Super IO Chip Parameters.

Hardware Health Configuration
Hardware Health Configuration

PCI Subsystem Settings
PCI, PCI-X and PCI Express Settings

NVMe Configuration
NVMe Device Information

Trusted Computing
Trusted Computing settings.

CSM Configuration
CSM Configuration, Enable/Disable Option ROM execution setting, etc

Redfish Host Interface Settings
Redfish Host Interface Parameters

Tls Auth Configuration
Press<Enter> to select Tls Auth configuration.

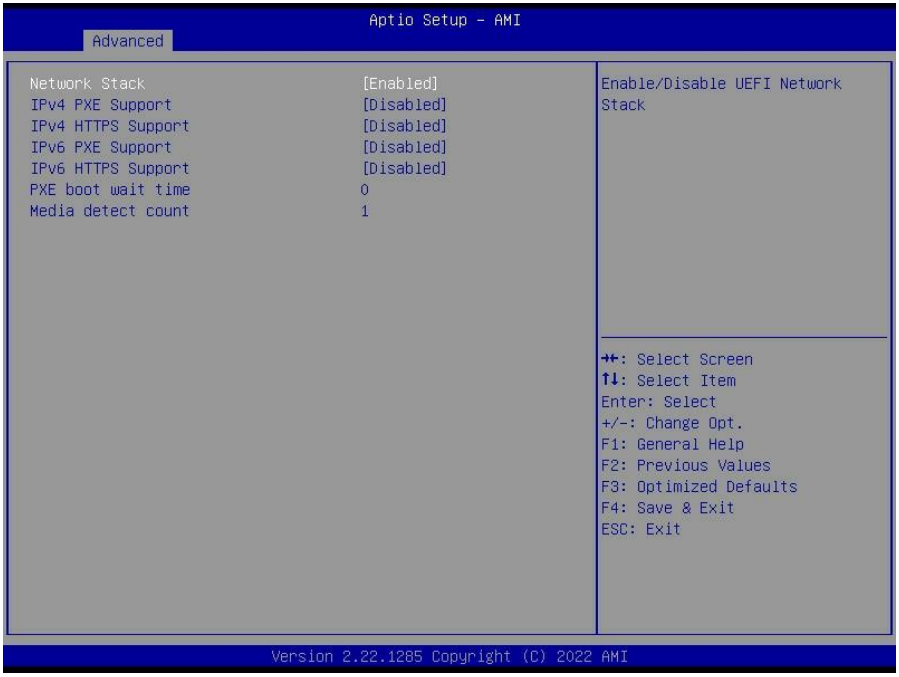
iSCSI Configuration
Configure the iSCSI parameters

VLAN Configuration(MAC:428E435C3DD8)
VLAN Configuration(MAC: 428E435C3DD8)

MAC: 428E435C3DD8-IPv4 Network Configuration
Configure IPv4 network parameters.(MAC: 428E435C3DD8)

MAC: 428E435C3DD8-IPv6 Network Configuration
Configure IPv6 network parameters.(MAC: 428E435C3DD8)

5.3.1 Network Stack Configuration



Network Stack
Enable/Disable UEFI Network Stack
Disabled **/ Enabled**

NOTE: When Network Stack was set to **Enabled,** the following item will appear**.**

IPv4 PXE Support
Enable/Disable IPv4 PXE boot support. If disabled, IPv4 PXE boot support will not be available.
Disabled / Enabled

IPv4 HTTPs Support
Enable/Disable IPv4 HTTPs boot support. If disabled, IPv4 HTTPS boot support will not be available.
Disabled / Enabled

IPv6 PXE Support
Enable/Disable IPv6 PXE boot support. If disabled, IPv6 PXE boot support will not be available.
Disabled / Enabled

IPv6 HTTPs Support
Enable/Disable IPv6 HTTPs boot support. If disabled, IPv6 HTTPS boot support will not be available.

Disabled / Enabled

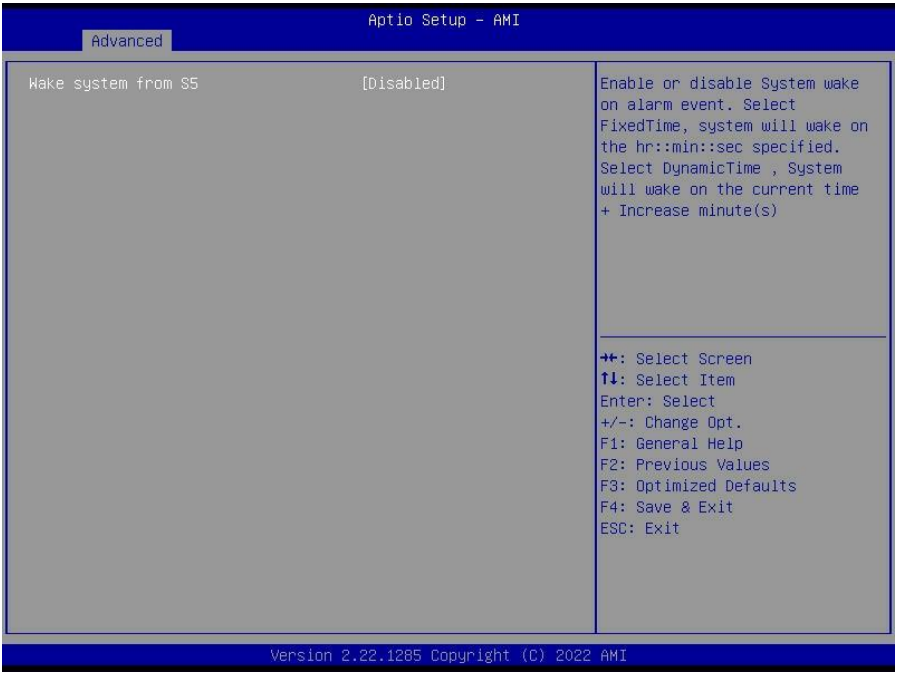
PXE boot wait time
Wait time in seconds to press ESC key to abort the PXE boot. Use either +/- or numeric keys to set the value.

0

Media detect count
Number of times the presence of media will be checked. Use either +/- or numeric keys to set the value.

1

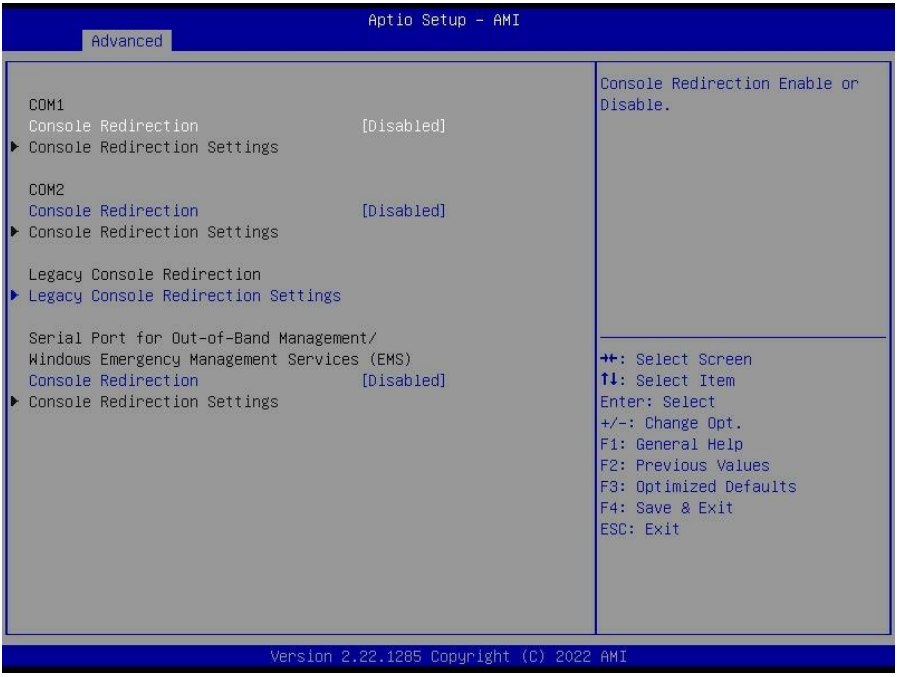
5.3.2 S5 RTC Wake Settings



Wake system from S5
Enable or disable system wake on alarm event. Select Fixed time, system will wake on the hr::min::sec specified. Select dynamic time, system will wake on the current time+ increase minute(s)

Disabled / Fixed Time / Dynamic Time

5.3.3 Serial Port Console Redirection



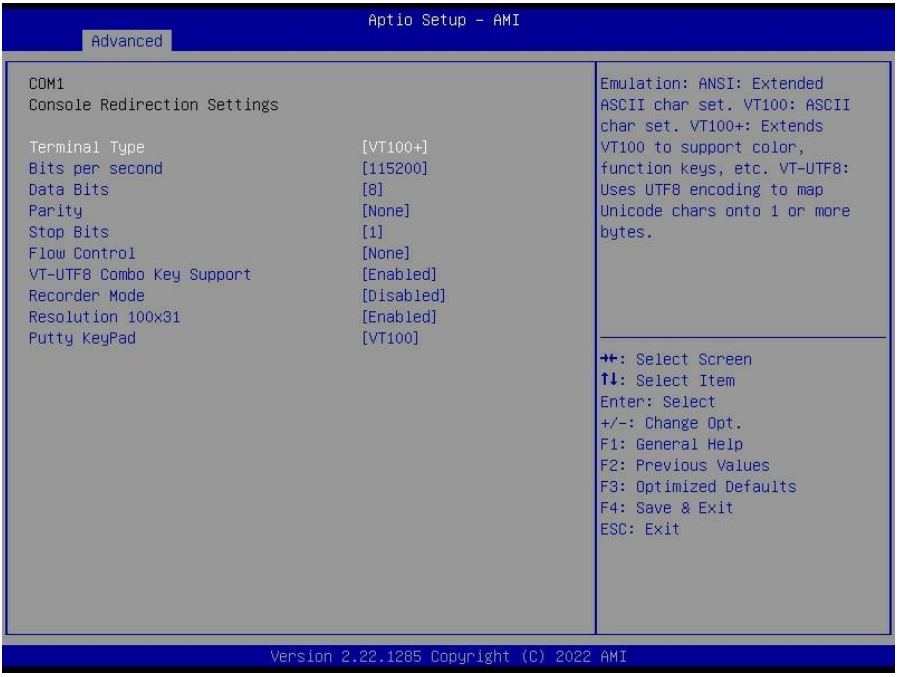
COM1/COM2
Console Redirection
Console redirection enable or disable.
Disabled / Enabled

Legacy Console Redirection
Legacy Console Redirection Settings

Serial Port for Out-Of-Band Management/Windows Emergency Services (EMS) Console Redirection
Console redirection enable or disable.
Disabled / Enabled

Console Redirection Settings
The settings specify how the host computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.
NOTE: Console Redirection Settings menu only appear when **Console Redirection** was set to **[Enabled].**

5.3.3.1 COM1 Console Redirection Settings



Terminal Type
Emulation: ANSI: Extended ASCII char set.
VT100: ASCII char set.
VT100+: Extends VT100 to support color function keys, etc.
VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.
VT-UTF8 **/** VT100 / **VT100+** / ANSI

Bits per Second
Select serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.
9600 / 19200 / 38400 / 57600 **/ 115200**

Data Bits
8 / 7

Parity
A parity bit can be sent with the data bits to detect some transmission errors. Even: parity bit is 0 if the num of 1's in the data bits is even. Odd: parity bit is 0 if the num of 1's in the data bits is odd. Mark: parity bit is always 1. Space: parity bit is always 0. Mark and Space parity do not allow for error detection.
None / Even / Odd / Mark / Space

Stop Bits
Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit.

1 / 2

Flow Control
Flow Control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a 'stop' signal can be sent to stop the data flow. Once the buffers are empty, a 'start' signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signal.

None / Hardware RTS/CTS

VT-UTF8 Combo Key Support
Enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals.

Enabled / Disabled

Recorder Mode
With this mode enabled only text will be sent. This is to capture Terminal data.

Disabled / Enabled

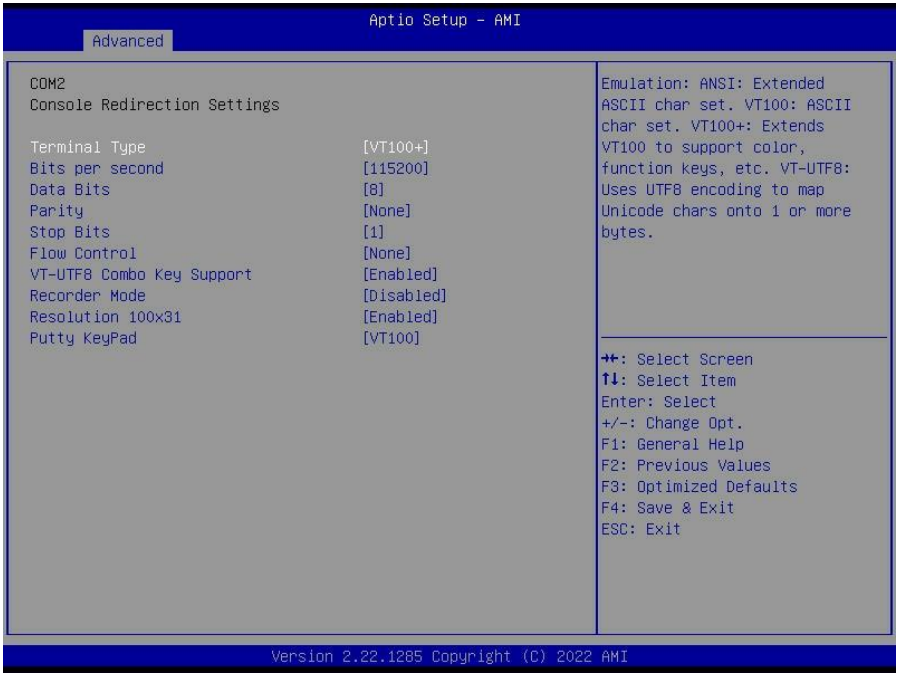
Resolution 100x31
Enable or disable extended terminal resolution.

Disabled **/ Enabled**

Putty KeyPad
Select FunctionKey and KeyPad on Putty.

VT100 / LINUX / XTERMR6 / SCO / ESCN / VT400

5.3.3.2 COM2 Console Redirection Settings



Terminal Type
Emulation: ANSI: Extended ASCII char set.
VT100: ASCII char set.
VT100+: Extends VT100 to support color function keys, etc.
VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.
VT100 / **VT100+** / VT-UTF8 **/** ANSI

Bits per Second
Select serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.
9600 / 19200 / 38400 / 57600 / **115200**

Data Bits
8 / 7

Parity
A parity bit can be sent with the data bits to detect some transmission errors. Even: parity bit is 0 if the num of 1's in the data bits is even. Odd: parity bit is 0 if the num of 1's in the data bits is odd. Mark: parity bit is always 1. Space: parity bit is always 0. Mark and Space parity do not allow for error detection.
None / Even / Odd / Mark / Space

Stop Bits
Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit.

1 / 2

Flow Control
Flow Control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a 'stop' signal can be sent to stop the data flow. Once the buffers are empty, a 'start' signal can be sent to re-start the flow. Hardware flow control uses two wires to send start/stop signals.

None / Hardware RTS/CTS

VT-UTF8 Combo Key Support
Enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals.

Enabled / Disabled

Recorder Mode
With this mode enabled only text will be sent. This is to capture Terminal data.

Disabled / Enabled

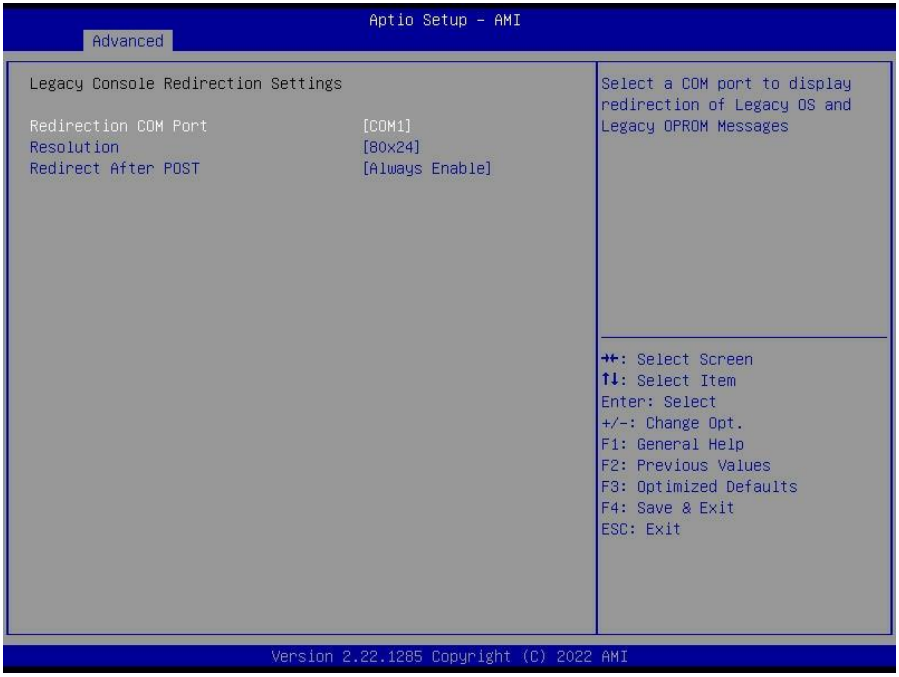
Resolution 100x31
Enable or disable extended terminal resolution.

Disabled **/ Enabled**

Putty KeyPad
Select FunctionKey and KeyPad on Putty.

VT100 / LINUX / XTERMR6 / SCO / ESCN / VT400

5.3.3.3 Legacy Console Redirection Settings



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

COM1 / COM2

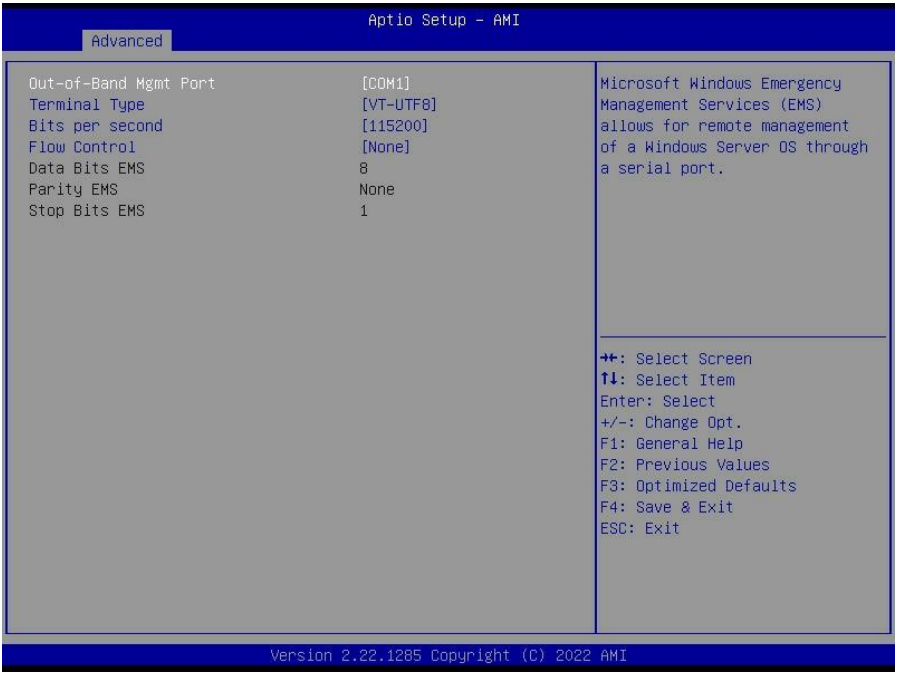
Resolution
On Legacy OS, the Number of Rows and Columns supported redirection

80x24 / 80x25

Redirect After POST
when Bootloader is selected, then Legacy Console Redirection is disabled before booting to legacy OS, when Always Enable is selected, then Legacy Console Redirection is enabled for Legacy OS. Default setting for this option is set to Always Enable.

Always Enable / BootLoader

5.3.3.4 Serial Port for Out-Of-Band Management/Windows Emergency Services (EMS) Console Redirection Settings



Out-of Band Mgmt Port
Microsoft Windows Emergency Management Services (EMS) allows for remote management of a Windows Server OS through a serial port.

COM1 / COM2

Terminal Type
VT-UTF8 is the preferred terminal type for out-of-band management. The next best choice is VT100+ and then VT100. See above, in Console Redirection Settings page, for more Help with Terminal Type/Emulation.

VT-UTF8 / VT100 / VT100+ / ANSI

Bits per Second
Select serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.

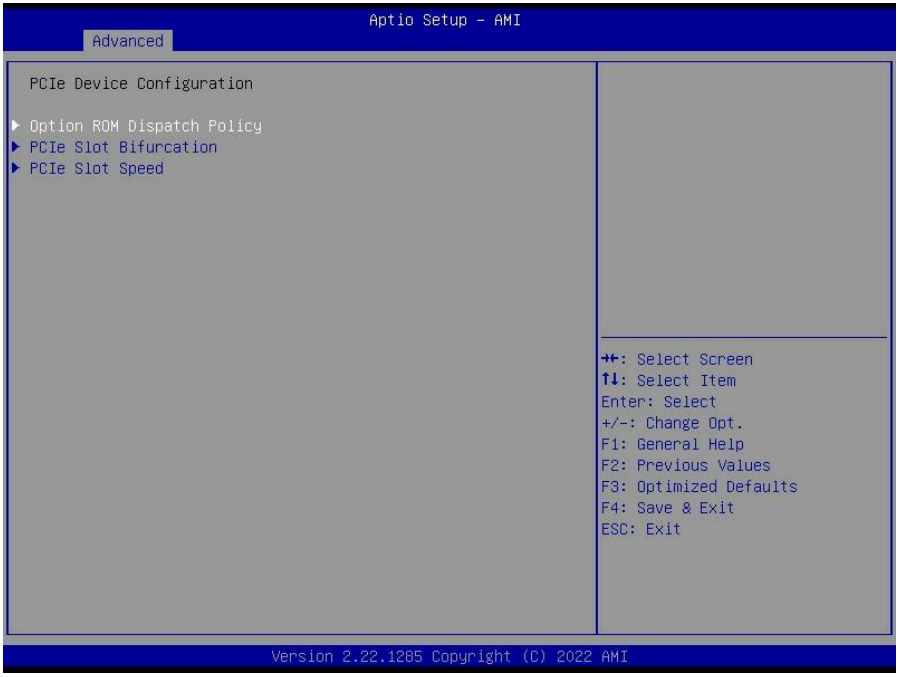
9600 / 19200 / 57600 / **115200**

Flow Control
Flow Control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a ‘stop’ signal can be sent to stop the data flow. Once the buffers are empty, a ‘start’ signal can be sent to restart the flow. Hardware flow control uses two wires to send start/stop signal.

None / Hardware RTS/CTS / Software Xon/Xoff

Data Bits EMS / Parity EMS / Stop Bits EMS
Read only.

5.3.4 PCIe Device Configuration

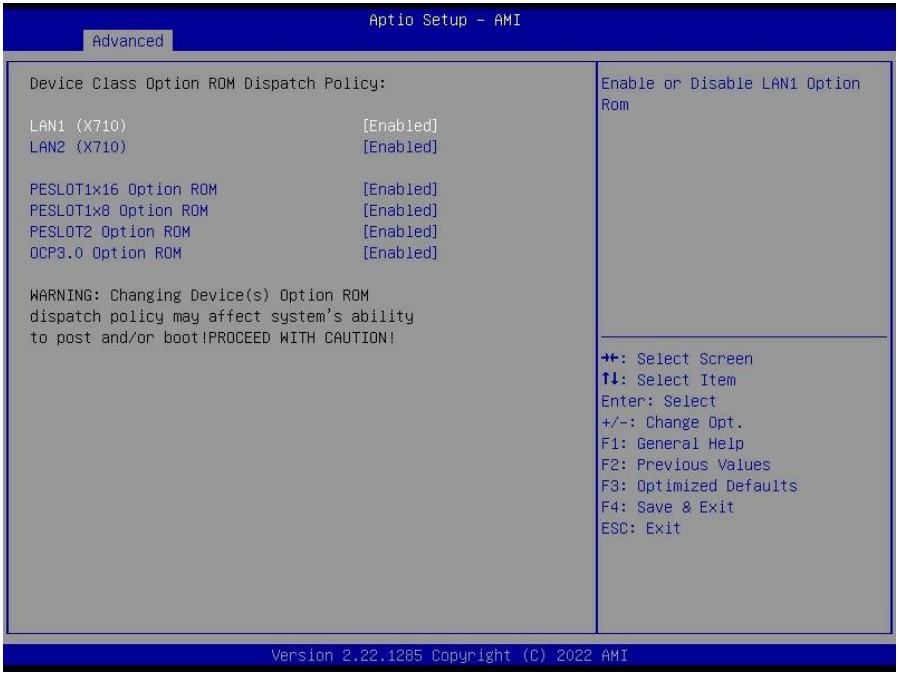


Option ROM Dispatch Policy
Option ROM Dispatch Policy settings.

PCIe Slot Bifurcation
PCIe Slot Bifurcation settings.

PCIe Slot Speed
PCIe Slot Speed settings.

5.3.4.1 Device Class Option ROM Dispatch Policy



LAN1 (X710)
Enable or Disable LAN1 Option Rom
Enabled / Disabled

LAN2 (X710)
Enable or Disable LAN2 Option Rom
Enabled / Disabled

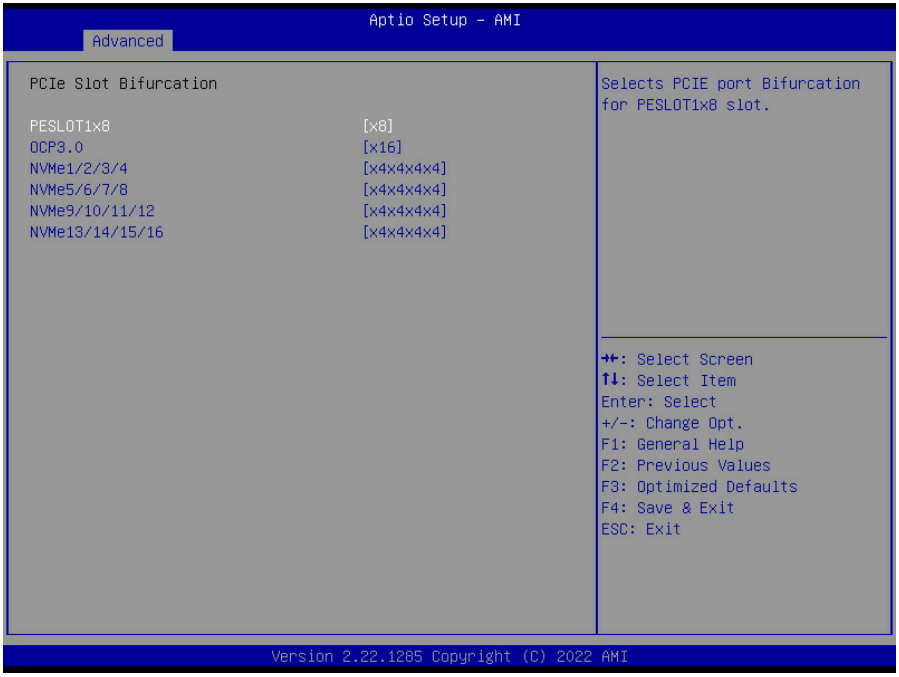
PESLOT1x16 Option ROM
Enable or Disable Option ROM execution for selected Slot.
Enabled / Disabled

PESLOT1x8 Option ROM
Enable or Disable Option ROM execution for selected Slot.
Enabled / Disabled

PESLOT2 Option ROM
Enable or Disable Option ROM execution for selected Slot.
Enabled / Disabled

OCP3.0 Option ROM
Enable or Disable Option ROM execution for selected Slot.
Enabled / Disabled

5.3.4.2 PCIe Slot Bifurcation



PESLOT1x8
Selects PCIE port Bifurcation for PESLOT1x16 slot.
x8 / x4x4

OCP3.0
Selects PCIE port Bifurcation for OCP3.0 slot
x16 / x8x8 / x4x4x4x4
NOTE： After the OCP card overheats, it will be power off for a period of time. During this period , it is not supported to wake on LAN.

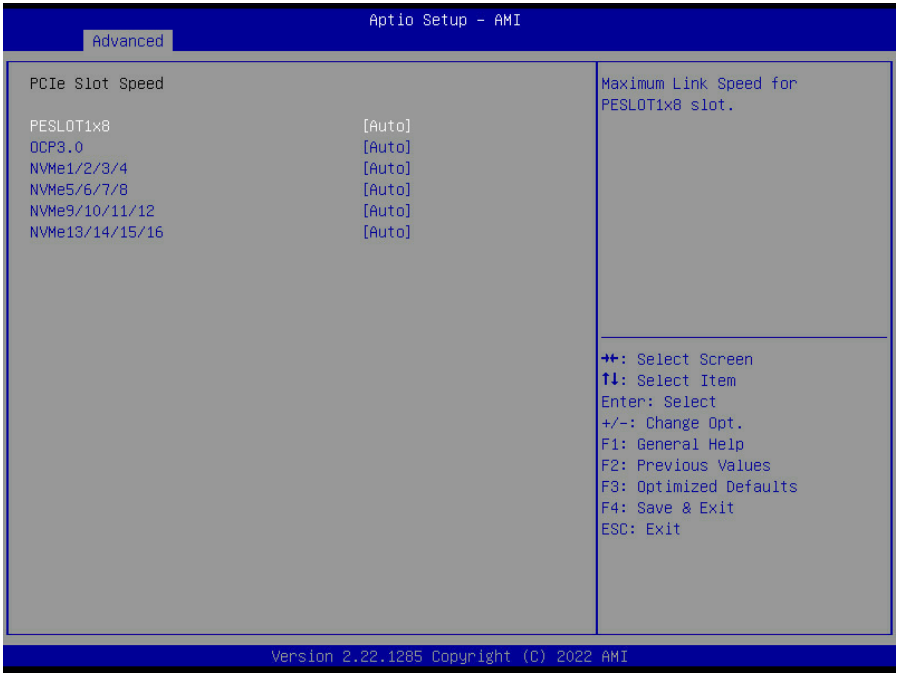
NVMe1/2/3/4
Selects PCIE port Bifurcation for NVMe1/2/3/4 slot.
x16 / x8x8 / **x4x4x4x4**

NVMe5/6/7/8
Selects PCIE port Bifurcation for NVMe5/6/7/8 slot.
x16 / x8x8 / **x4x4x4x4**

NVMe9/10/11/12
Selects PCIE port Bifurcation for NVMe9/10/11/12 slot.
x16 / x8x8 / **x4x4x4x4**

NVMe13/14/15/16
Selects PCIE port Bifurcation for NVMe13/14/15/16 slot.
x16 / x8x8 / **x4x4x4x4** /SATAx8/SATAx8

5.3.4.3 PCIe Slot Speed



PESLOT1x8
Maximum Link Speed for PESLOT x8 slot.
Auto / GEN1(2.5 GT/s) / GEN2(5 GT/s) / GEN3(8 GT/s) / GEN4(16 GT/s) / GEN5 (32GT/s)

OCP3.0
Maximum Link Speed for OCP3.0 slot.
Auto / GEN1(2.5 GT/s) / GEN2(5 GT/s) / GEN3(8 GT/s) / GEN4(16 GT/s) / GEN5 (32GT/s)

NVMe1/2/3/4
Maximum Link Speed for NVMe1/2/3/4 slot.
Auto / GEN1(2.5 GT/s) / GEN2(5 GT/s) / GEN3(8 GT/s) / GEN4(16 GT/s) / GEN5 (32GT/s)

NVMe5/6/7/8
Maximum Link Speed for NVMe 5/6/7/8 slot.
Auto / GEN1(2.5 GT/s) / GEN2(5 GT/s) / GEN3(8 GT/s) / GEN4(16 GT/s) / GEN5 (32GT/s)

NVMe9/10/11/12
Maximum Link Speed for NVMe 9/10/11/12 slot.
Auto / GEN1(2.5 GT/s) / GEN2(5 GT/s) / GEN3(8 GT/s) / GEN4(16 GT/s) / GEN5 (32GT/s)

NVMe13/14/15/16
Maximum Link Speed for NVMe 13/14/15/16 slot.
Auto / GEN1(2.5 GT/s) / GEN2(5 GT/s) / GEN3(8 GT/s) / GEN4(16 GT/s) / GEN5 (32GT/s)

5.3.5 USB Configuration

Legacy USB Support
Enables USB legacy support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.

Enabled / Disabled / Auto

XHCI Hand-off
This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.

Enabled / Disabled

USB Mass Storage Driver Support
Enable/Disable USB Mass Storage Driver Support.

Disabled **/ Enabled**

Port 60/64 Emulation
Enable I/O port 60h/64h emulation support. This should be enabled for the complete USB keyboard legacy support for non-USB aware OSes.

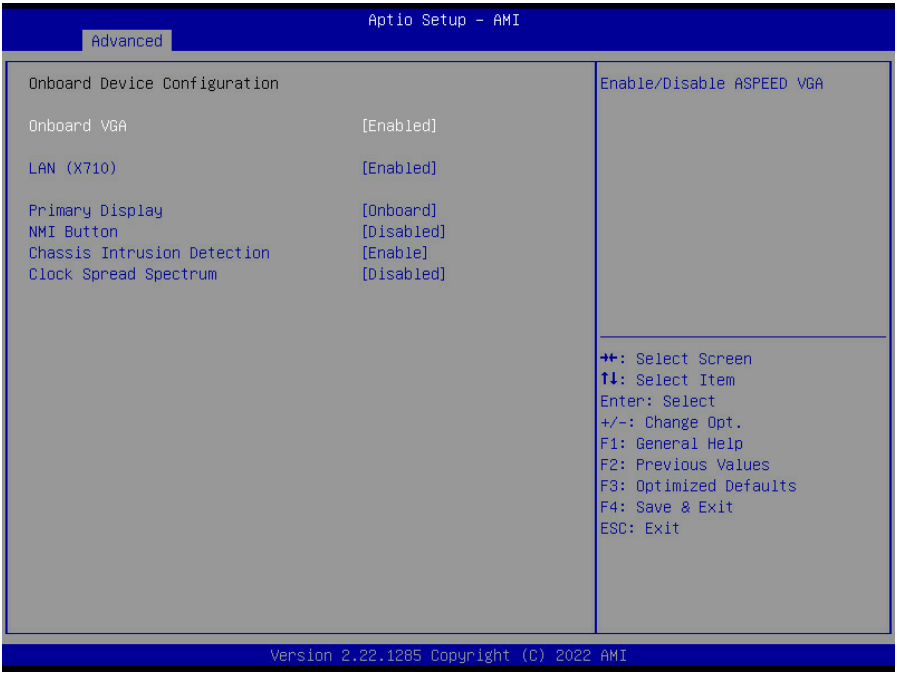
Disabled **/ Enabled**

USB transfer time-out
The time-out value for Control, Bulk and Interrupt transfers.
1 sec / 5 sec **/** 10 sec / **20 sec**

Device reset time-out
USB mass storage device Start Unit command time-out.
10 sec / **20 sec** / 30 sec / 40 sec

Device power-up delay
Maximum time the device will take before it properly reports itself to the Host Controller. AUTO uses default value: for a Root port it is 100 ms, for a Hub port the delay is taken from Hub descriptor.
Auto / Manual

5.3.6 Onboard Device Configuration



Onboard VGA
Enable/Disable ASPEED VGA
Disabled / **Enabled**

LAN (X710)
LAN Enable/Disable control function.
Disabled / **Enabled**

Primary Display
Select active Video type.
Onboard / External

NMI Button
Enable or disable NMI button.
Disabled / Enabled

Chassis Intrusion Detention
Enable：When a chassis open event is detected, the BIOS will display the event.
Disabled / **Enabled**

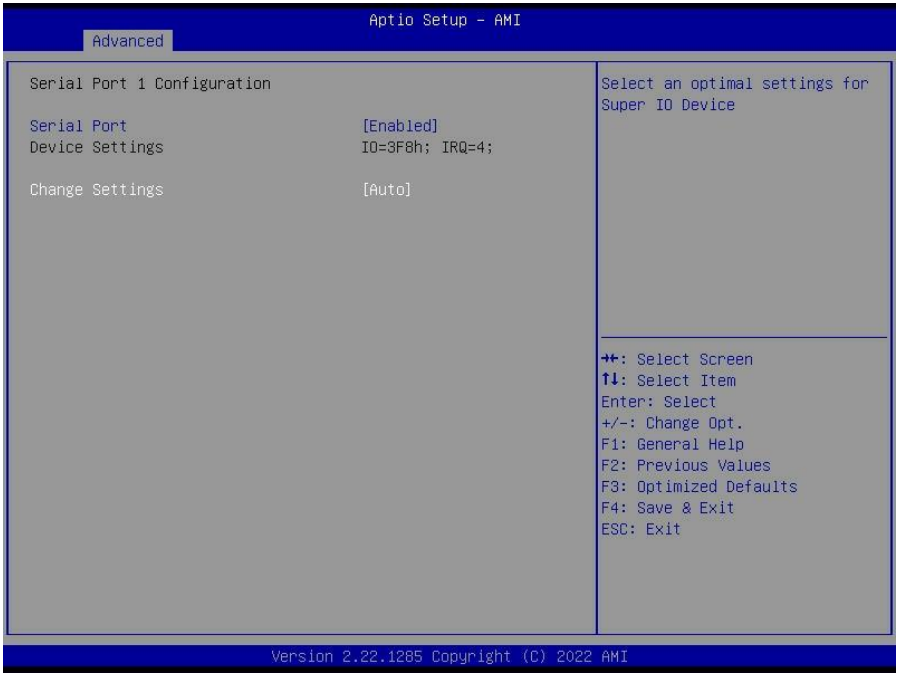
Clock Spread Spectrum
Enable/Disable Clock Spread Spectrum.
Disabled / Enabled

5.3.7 Super IO Configuration

Serial Port 1 Configuration
Set Parameters of serial Port 1 (COMA)

Serial Port 2 Configuration
Set Parameters of serial Port 2 (COMB)

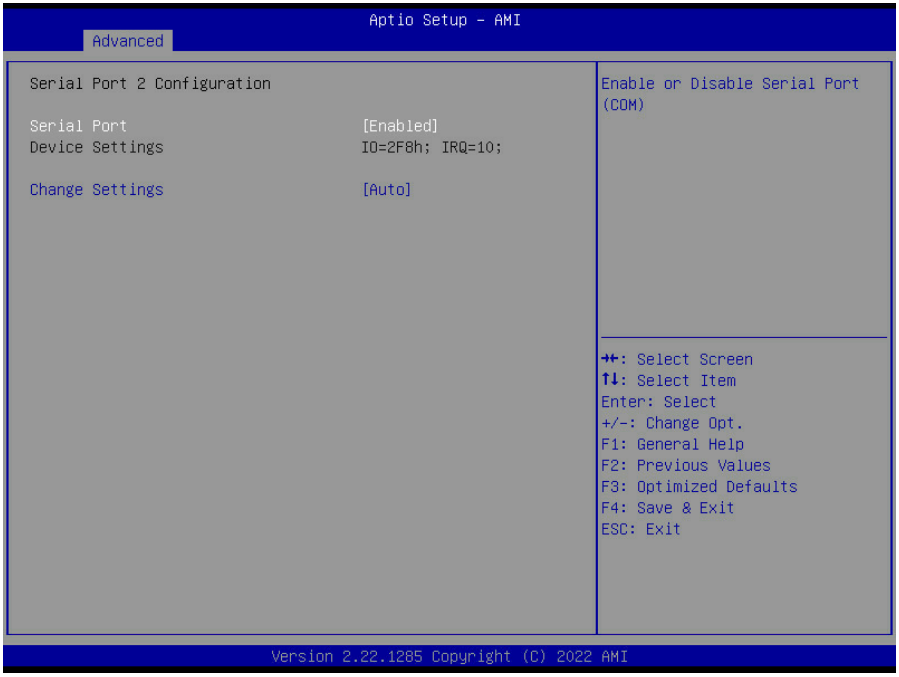
5.3.7.1 Serial Port 1 Configuration



Serial Port
Select an optimal settings for Super IO Device.
Disabled **/ Enabled**
NOTE: Serial Port has set to **Enabled**, the following items will be appear.

Change Settings
Allows the user to change the device resource settings. New settings will be reflected on this setup page after system restarts.
Auto / IO=3F8h; IRQ=4;
/ IO=2F8h, IRQ=4,
/ IO=3F8h; IRQ=4,
/ IO=2E8h, IRQ=4,

5.3.7.2 Serial Port 2 Configuration



Serial Port
Enable or Disable Serial Port (COM).
Disabled **/ Enabled**
NOTE: Serial Port has set to **Enabled**, the following items will be appear.

Change Settings
Select an optimal settings for Super IO device.
Auto / IO=3F8h; IRQ=3;
/ IO=2F8h, IRQ=3,
/ IO=3E8h; IRQ=3,
/ IO=2E8h, IRQ=3,

5.3.8 Hardware Health Configuration

Fan Speed Control
Fan Speed Control help.
Automatic / Manual **/** Full Speed

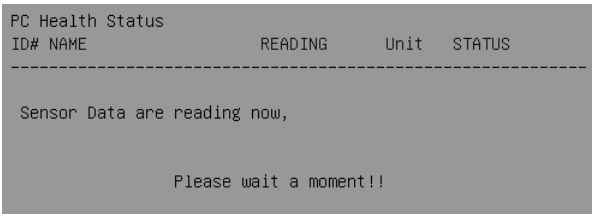
BMC Alert Beep
Enable/Disable BMC Alert Beep.
On / Off

PMBus support
PMBus Support
Disabled **/ Enabled**
NOTE: When PMBus support was set to **Enabled** Number of PSU Item will appear.

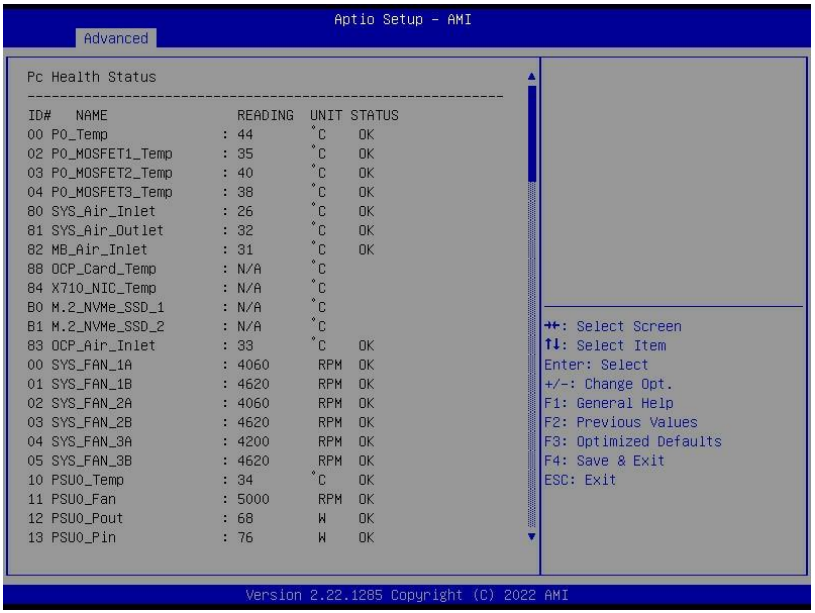
Number of PSU
User can select PSU number for needed
1 **/ 2**

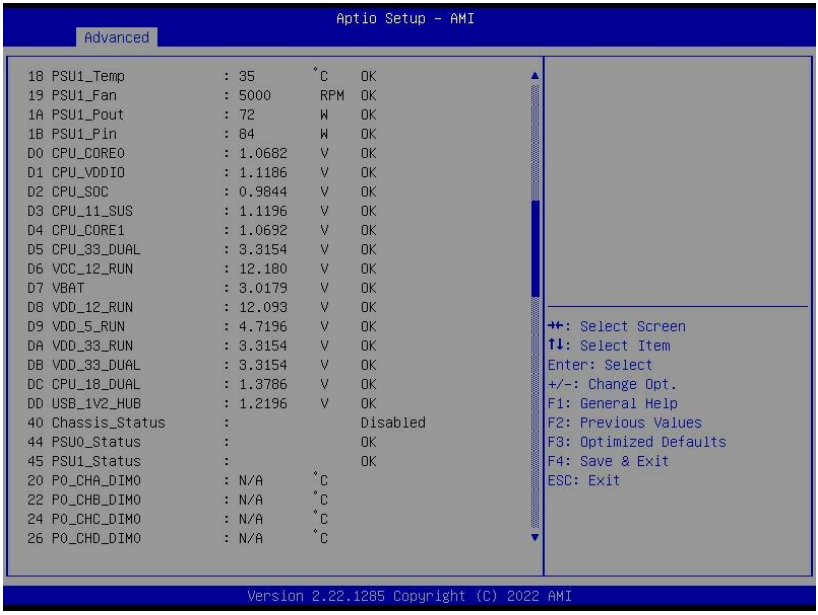
5.3.8.1 Sensor Data Register Monitoring

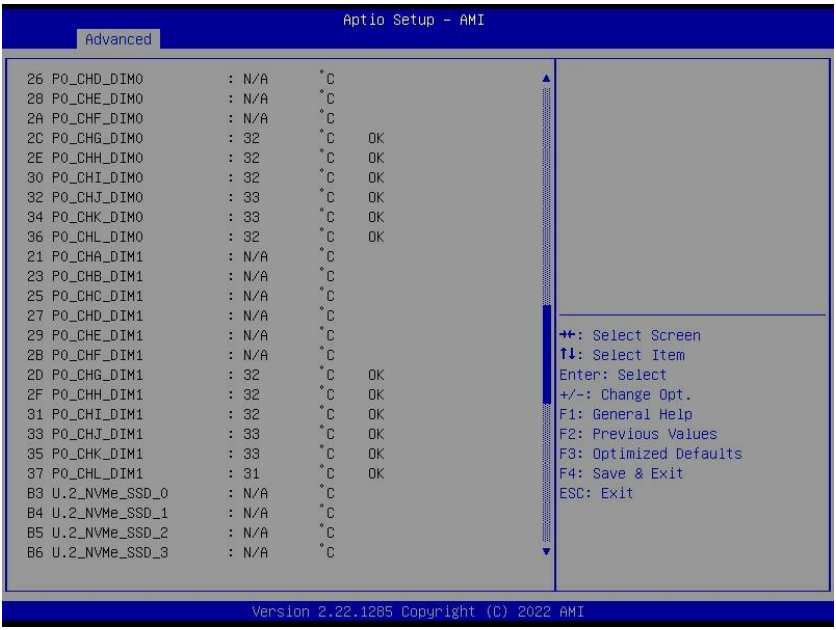
When you enter the **Sensor Data Register Monitoring** submenu, you will see the following dialog window pop out. Please wait 8~10 seconds.

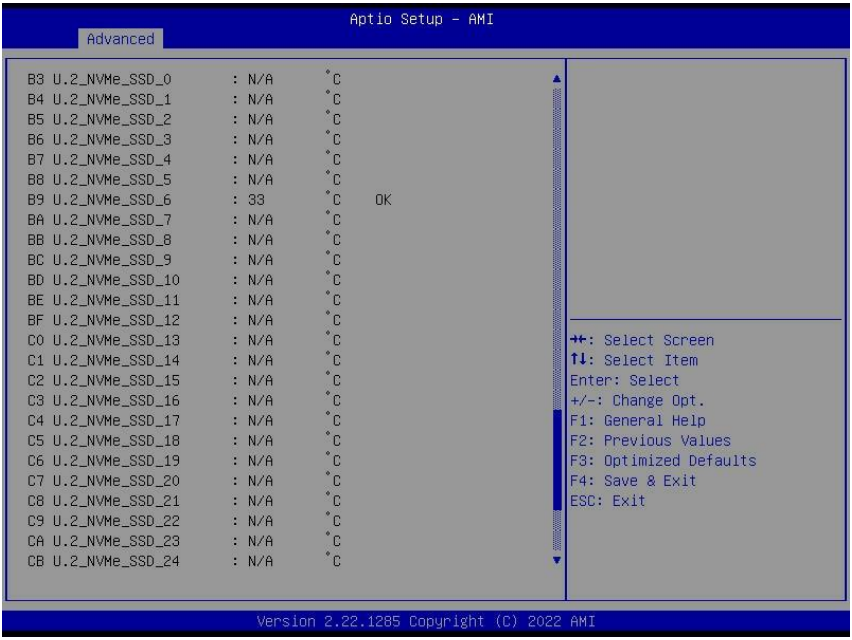


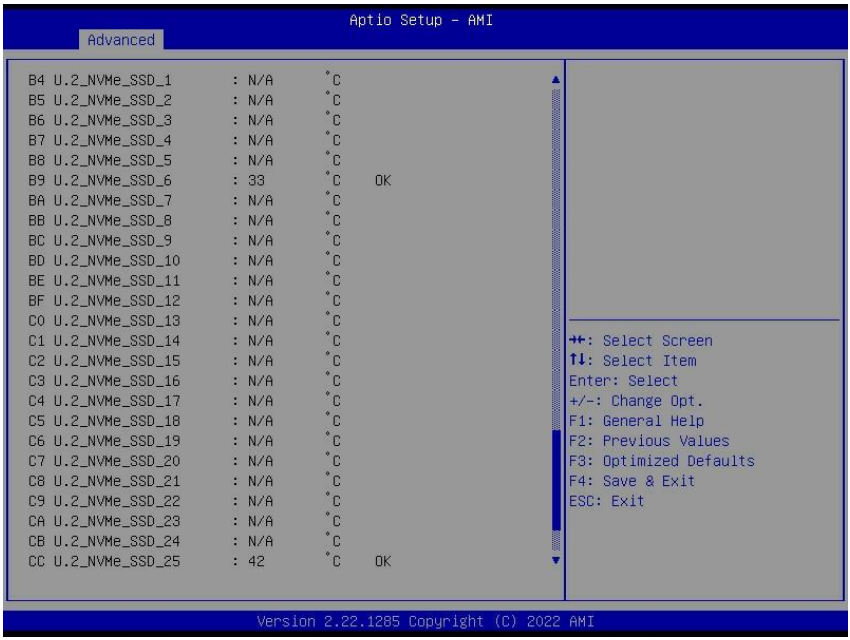
NOTE 1: SDR can not be modified. Read only.



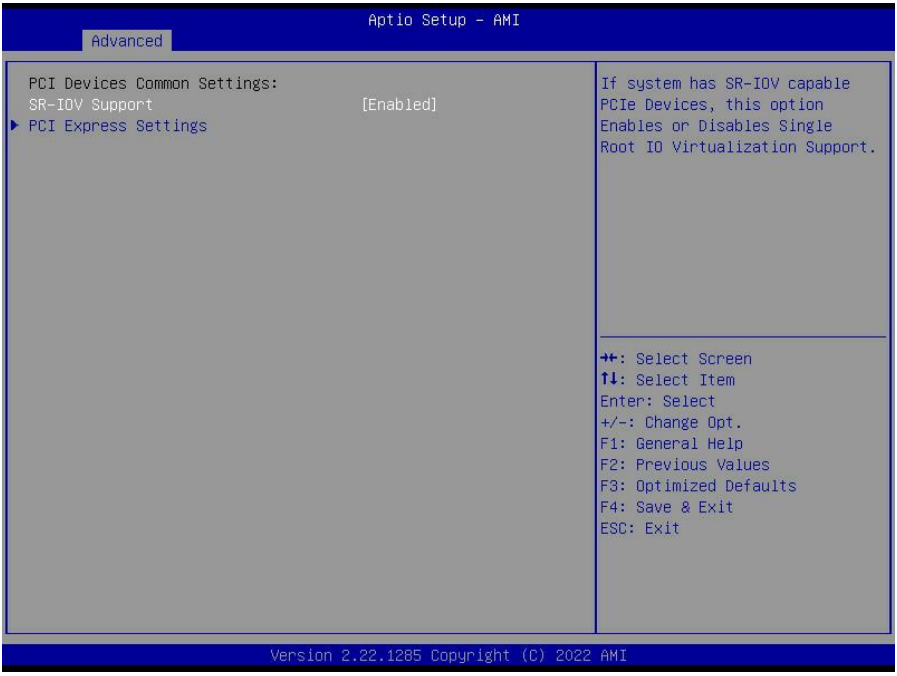

Aptio Setup – AMI
Advanced
18 PSU1_Temp : 35 °C OK
19 PSU1_Fan : 5000 RPM OK
1A PSU1_Pout : 72 W OK
1B PSU1_Pin : 84 W OK
D0 CPU_CORE0 : 1.0682 V OK
D1 CPU_VDDIO : 1.1186 V OK
D2 CPU_SOC : 0.9844 V OK
D3 CPU_11_SUS : 1.1196 V OK
D4 CPU_CORE1 : 1.0692 V OK
D5 CPU_33_DUAL : 3.3154 V OK
D6 VCC_12_RUN : 12.180 V OK
D7 VBAT : 3.0179 V OK
D8 VDD_12_RUN : 12.093 V OK
D9 VDD_5_RUN : 4.7196 V OK
DA VDD_33_RUN : 3.3154 V OK
DB VDD_33_DUAL : 3.3154 V OK
DC CPU_18_DUAL : 1.3786 V OK
DD USB_1V2_HUB : 1.2196 V OK
40 Chassis_Status : Disabled
44 PSU0_Status : OK
45 PSU1_Status : OK
20 P0_CHA_DIM0 : N/A °C
22 P0_CHB_DIM0 : N/A °C
24 P0_CHC_DIM0 : N/A °C
26 P0_CHD_DIM0 : N/A °C
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.22.1285 Copyright (C) 2022 AMI


Aptio Setup – AMI
Advanced
26 P0_CHD_DIM0 : N/A °C
28 P0_CHE_DIM0 : N/A °C
2A P0_CHF_DIM0 : N/A °C
2C P0_CHG_DIM0 : 32 °C OK
2E P0_CHH_DIM0 : 32 °C OK
30 P0_CHI_DIM0 : 32 °C OK
32 P0_CHJ_DIM0 : 33 °C OK
34 P0_CHK_DIM0 : 33 °C OK
36 P0_CHL_DIM0 : 32 °C OK
21 P0_CHA_DIM1 : N/A °C
23 P0_CHB_DIM1 : N/A °C
25 P0_CHC_DIM1 : N/A °C
27 P0_CHD_DIM1 : N/A °C
29 P0_CHE_DIM1 : N/A °C
2B P0_CHF_DIM1 : N/A °C
2D P0_CHG_DIM1 : 32 °C OK
2F P0_CHH_DIM1 : 32 °C OK
31 P0_CHI_DIM1 : 32 °C OK
33 P0_CHJ_DIM1 : 33 °C OK
35 P0_CHK_DIM1 : 33 °C OK
37 P0_CHL_DIM1 : 31 °C OK
B3 U.2_NVMe_SSD_0 : N/A °C
B4 U.2_NVMe_SSD_1 : N/A °C
B5 U.2_NVMe_SSD_2 : N/A °C
B6 U.2_NVMe_SSD_3 : N/A °C
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.22.1285 Copyright (C) 2022 AMI


Aptio Setup – AMI
Advanced
B3 U.2_NVMe_SSD_0 : N/A °C
B4 U.2_NVMe_SSD_1 : N/A °C
B5 U.2_NVMe_SSD_2 : N/A °C
B6 U.2_NVMe_SSD_3 : N/A °C
B7 U.2_NVMe_SSD_4 : N/A °C
B8 U.2_NVMe_SSD_5 : N/A °C
B9 U.2_NVMe_SSD_6 : 33 °C OK
BA U.2_NVMe_SSD_7 : N/A °C
BB U.2_NVMe_SSD_8 : N/A °C
BC U.2_NVMe_SSD_9 : N/A °C
BD U.2_NVMe_SSD_10 : N/A °C
BE U.2_NVMe_SSD_11 : N/A °C
BF U.2_NVMe_SSD_12 : N/A °C
C0 U.2_NVMe_SSD_13 : N/A °C
C1 U.2_NVMe_SSD_14 : N/A °C
C2 U.2_NVMe_SSD_15 : N/A °C
C3 U.2_NVMe_SSD_16 : N/A °C
C4 U.2_NVMe_SSD_17 : N/A °C
C5 U.2_NVMe_SSD_18 : N/A °C
C6 U.2_NVMe_SSD_19 : N/A °C
C7 U.2_NVMe_SSD_20 : N/A °C
C8 U.2_NVMe_SSD_21 : N/A °C
C9 U.2_NVMe_SSD_22 : N/A °C
CA U.2_NVMe_SSD_23 : N/A °C
CB U.2_NVMe_SSD_24 : N/A °C
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.22.1285 Copyright (C) 2022 AMI


Aptio Setup – AMI
Advanced
B4 U.2_NVMe_SSD_1 : N/A °C
B5 U.2_NVMe_SSD_2 : N/A °C
B6 U.2_NVMe_SSD_3 : N/A °C
B7 U.2_NVMe_SSD_4 : N/A °C
B8 U.2_NVMe_SSD_5 : N/A °C
B9 U.2_NVMe_SSD_6 : 33 °C OK
BA U.2_NVMe_SSD_7 : N/A °C
BB U.2_NVMe_SSD_8 : N/A °C
BC U.2_NVMe_SSD_9 : N/A °C
BD U.2_NVMe_SSD_10 : N/A °C
BE U.2_NVMe_SSD_11 : N/A °C
BF U.2_NVMe_SSD_12 : N/A °C
C0 U.2_NVMe_SSD_13 : N/A °C
C1 U.2_NVMe_SSD_14 : N/A °C
C2 U.2_NVMe_SSD_15 : N/A °C
C3 U.2_NVMe_SSD_16 : N/A °C
C4 U.2_NVMe_SSD_17 : N/A °C
C5 U.2_NVMe_SSD_18 : N/A °C
C6 U.2_NVMe_SSD_19 : N/A °C
C7 U.2_NVMe_SSD_20 : N/A °C
C8 U.2_NVMe_SSD_21 : N/A °C
C9 U.2_NVMe_SSD_22 : N/A °C
CA U.2_NVMe_SSD_23 : N/A °C
CB U.2_NVMe_SSD_24 : N/A °C
CC U.2_NVMe_SSD_25 : 42 °C OK
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.22.1285 Copyright (C) 2022 AMI

5.3.9 PCI Subsystem Settings



SR-IOV Support
If system has SR-IOV capable PCIe devices, this option Enables or Disables Single Root IO virtualization Support
Enabled / Disabled

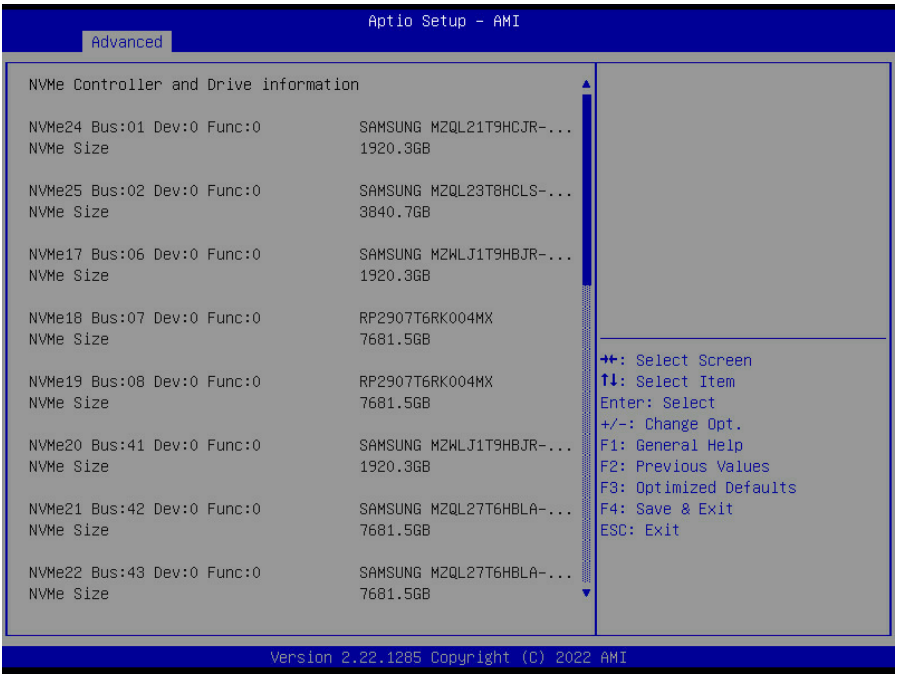
PCI Express Settings
Change PCI Express Devices Settings

5.3.9.1 PCI Express Subsystem

Maximum Payload
Set Maximum Payload of PCI Express Device or allow System BIOS to select the value.

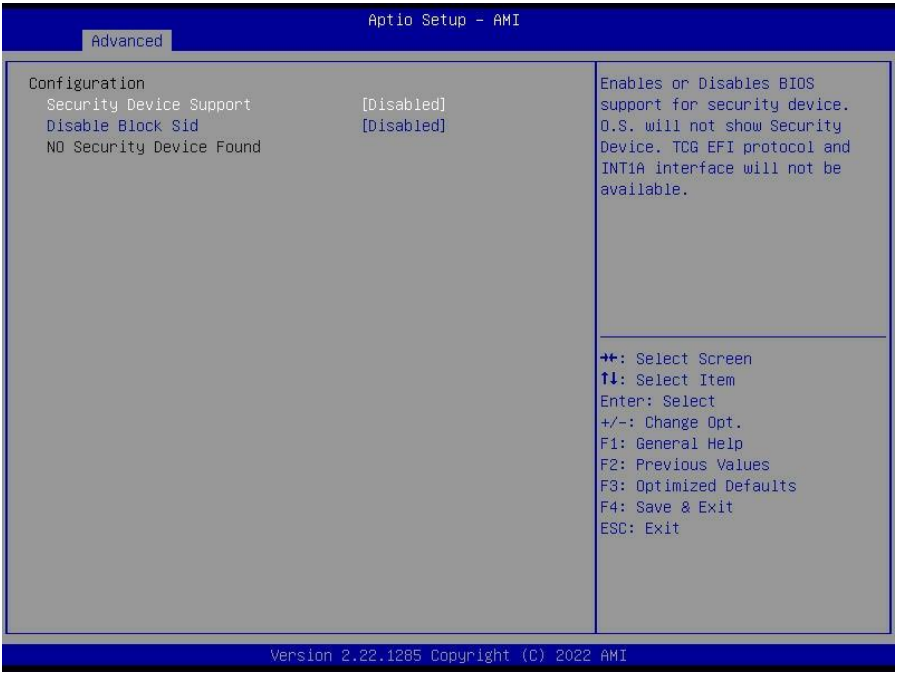
Auto / 128 Bytes / 256 Bytes / 512 Bytes / 1024 Bytes / 2048 Bytes / 4096 Bytes

5.3.10 NVMe Configuration



Read only.

5.3.11 Trusted Computing



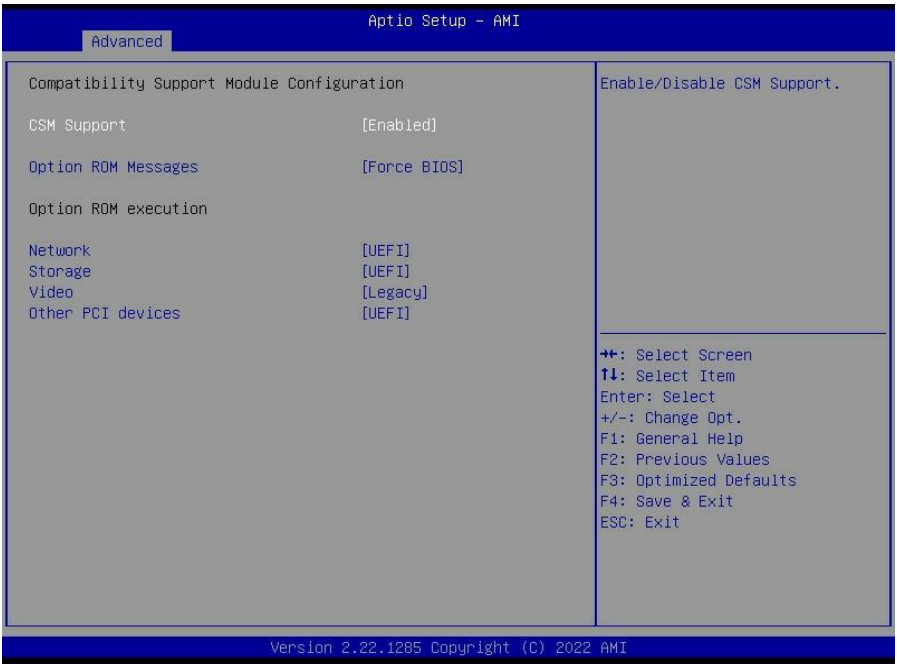
Security Device Support
Enables or disables BIOS support for security device. O.S. will not show Security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.

Enabled **/ Disabled**

Disable Block sid
Override to allow SID authentication in TCG Storage device.

Enabled **/ Disabled**

5.3.12 CSM Configuration



CSM support
Enable/Disable CSM Support
Enabled / Disabled

Option ROM Messages
Set display mode for Option ROM
Force BIOS / Keep Current

Network
Controls the execution of UEFI and legacy PXE OpROM
UEFI / legacy

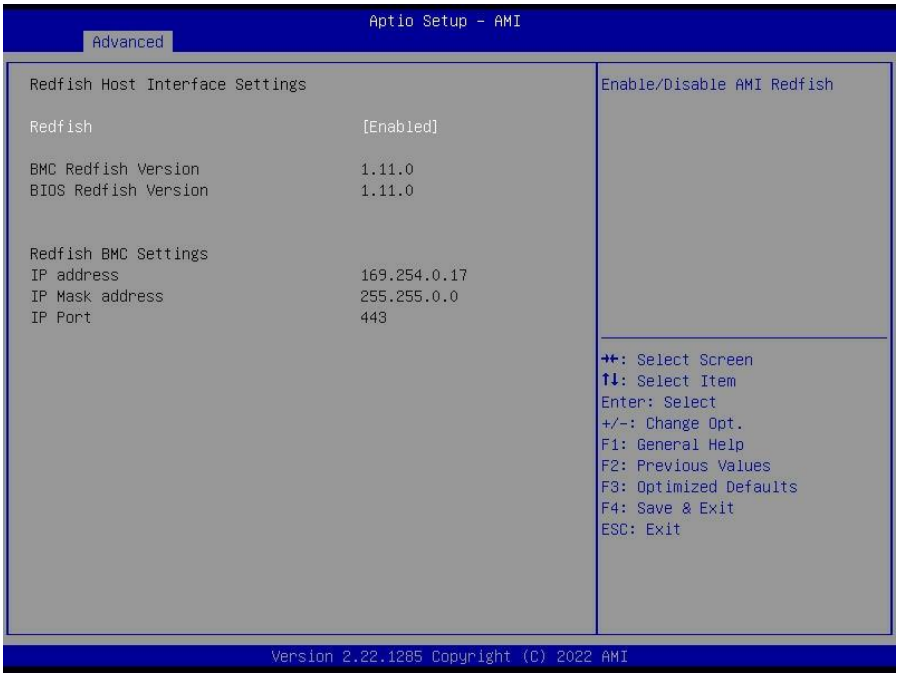
Storage
Controls the execution of UEFI and legacy PXE OpROM
UEFI / legacy

Video
Controls the execution of UEFI and legacy Video OpROM
UEFI / **legacy**

Other PCI devices
Determines OpRom execution policy for devices other than network, storage, or video

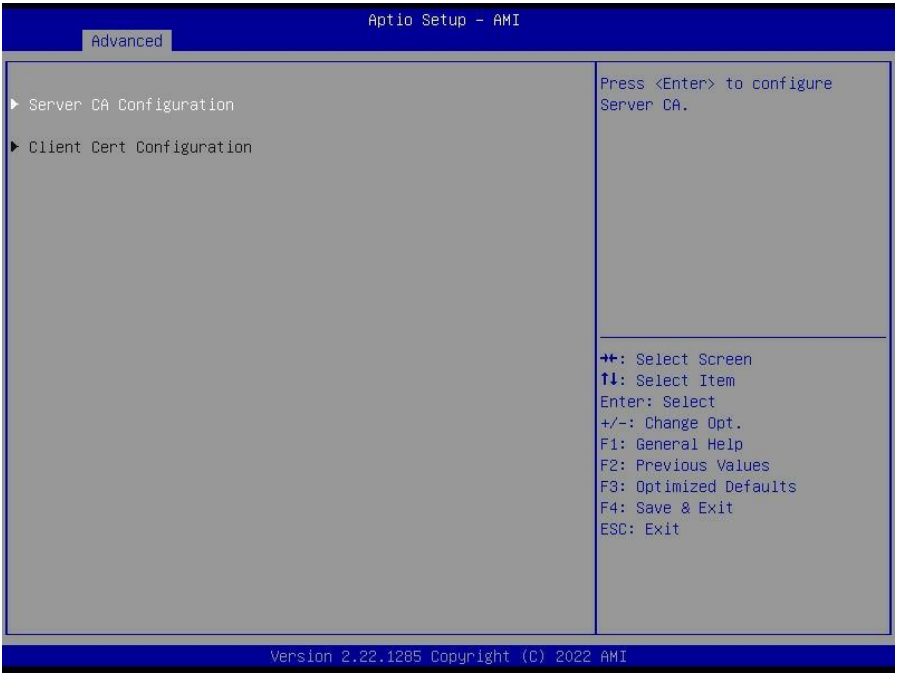
UEFI / legacy

5.3.13 Redfish Host Interface Settings



Redfish
Enable/Disable AMI Redfish.
Disabled / **Enabled**

5.3.14 Tls Auth Configuration



Server CA Configuration
Press <Enter> to configure Server CA.

5.3.14.1 Server CA Configuration

Enroll Cert
Press <Enter> to enroll cert.

Delete Cert
Press <Enter> to delete cert.

5.3.14.1.1 Enroll Cert Configuration

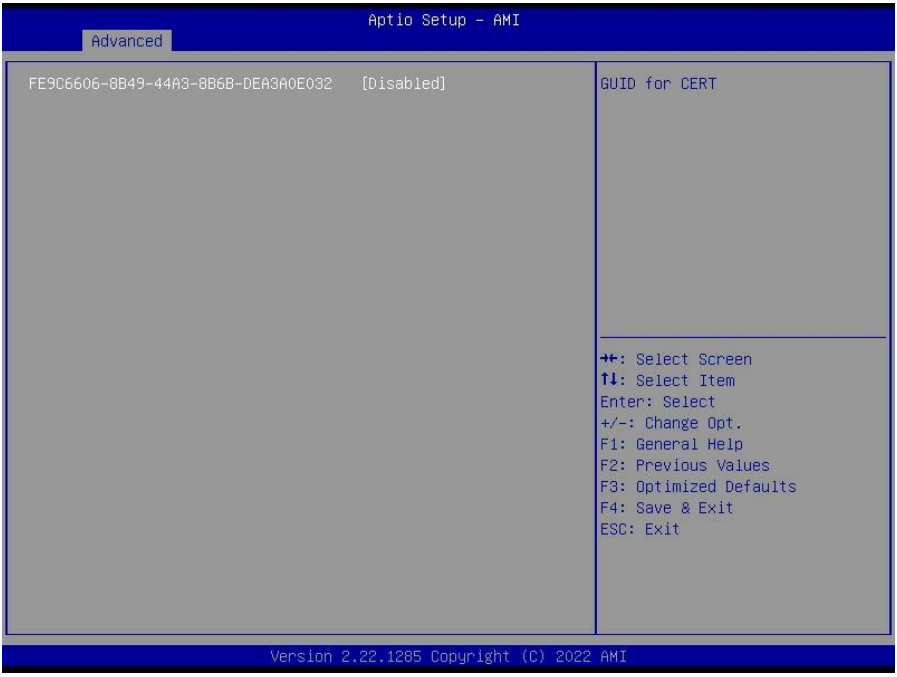
Enroll Cert Using File
Enroll Cert Using File

Cert GUID
Input digit character in 11111111-2222-3333-4444-1234567890ab format.

Commit Changes and Exit
Commit Changes and Exit

Discard Changes and Exit
Discard Changes and Exit

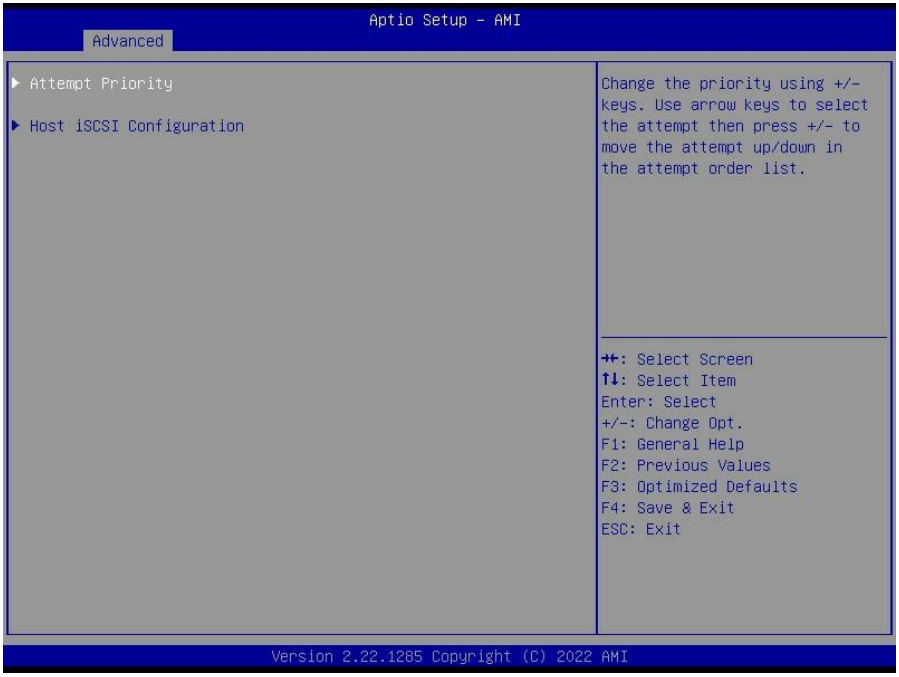
5.3.14.1.2 Delete Cert Configuration



FEXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXX
GUID for CERT

Disabled / Enabled

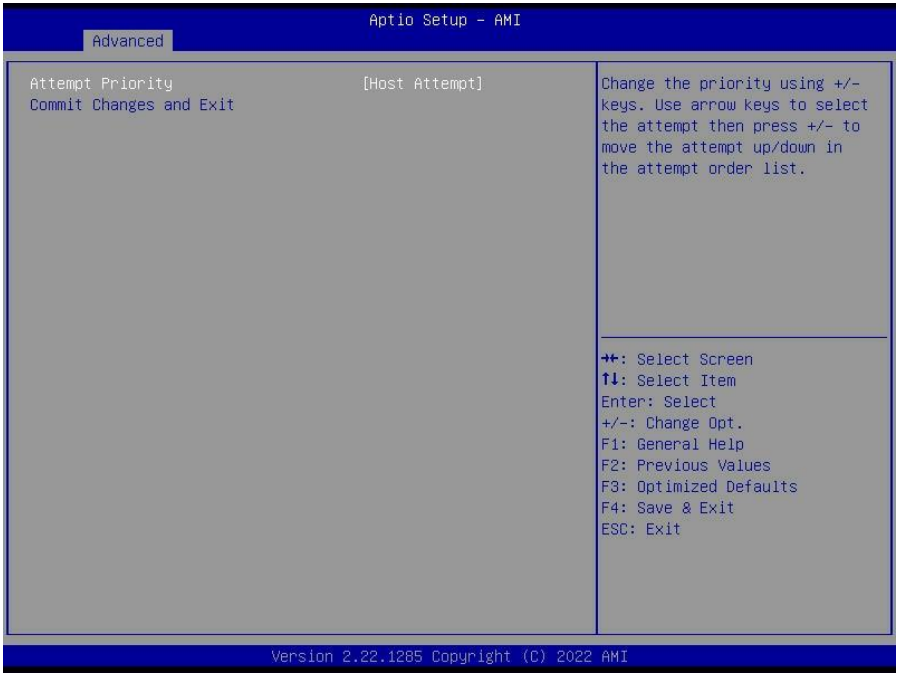
5.3.15 ISCSI Initiator Configuration



Attempt Priority
Change the priority using +/- keys. Use arrow keys to select the attempt then press +/- to move the attempt up/down in the attempt order list.

Host iSCSI Configuration
Host iSCSI Configuration settings

5.3.15.1 Attempt Priority

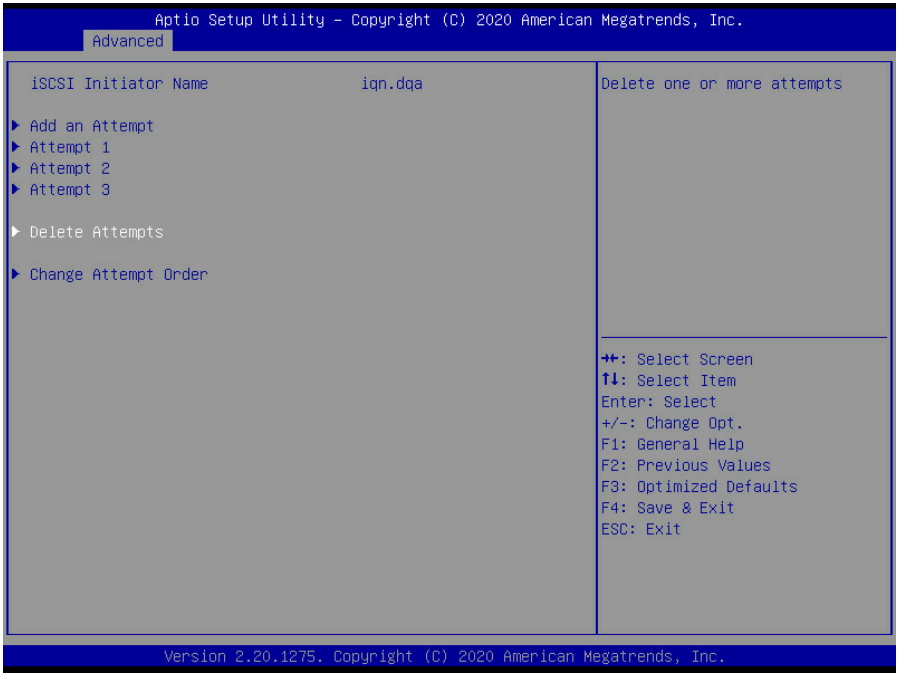


Attempt Priority
Change the priority using +/- keys. Use arrow keys to select the attempt then press +/- to move the attempt up/down in the attempt order list.

Host Attempt / Redfish Attempt

Commit Changes and Exit
Commit Changes and Exit.

5.3.15.2 Host iSCSI Configuration



Please follow the instructions to initiate the iSCSI function.
Step 1.
Select **Advanced → CSM Configuration → Network →** [UEFI].
Step 2.
Select **Advanced → Network Stack Configuration → Network Stack →** [Enabled]
Step 3.
Save changes and reboot.

iSCSI Initiator Name

The worldwide unique name of iSCSI Initiator. Only IQN format is accepted. Range is from 4 to 223.

Add an Attempt
Add one or more attempts

Attempt 1
Attempt 2
Attempt 3

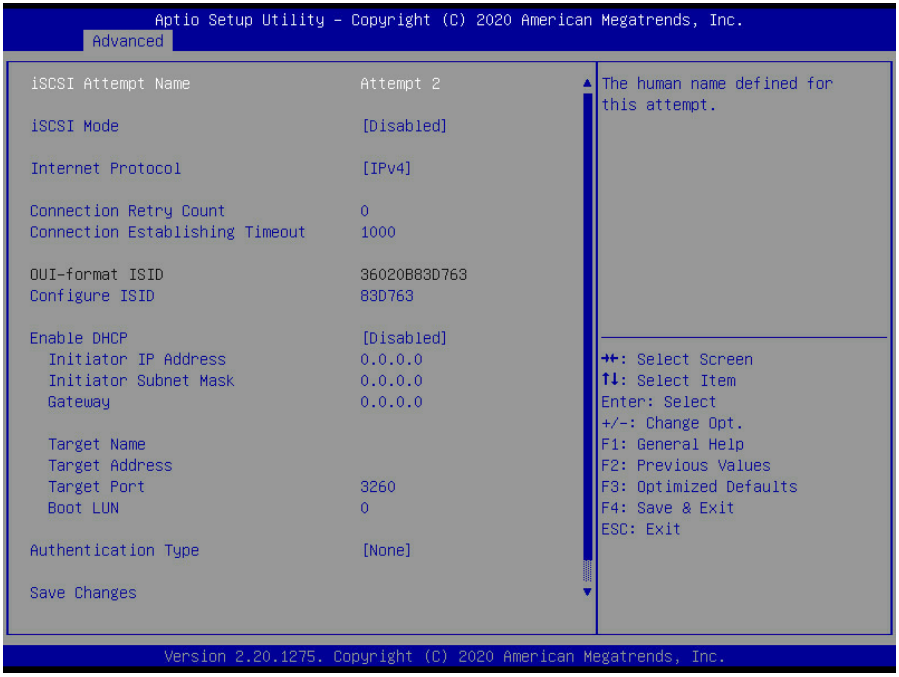
Delete Attempts
Delete one or more attempts

Change Attempt Order
Change attempt sequence

5.3.15.3 Add an Attempt

Read only.

5.3.15.3.1 MAC 36:02:0B:83:D7:63



iSCSI Mode
Disabled, Enabled, Enabled for MPIO.
Disabled / Enabled / Enabled for MPIO

Internet Protocol
Initiator IP address is system assigned in IP6 mode. In Autoconfigure mode, iSCSI driver will attempt to connect iSCSI target via IPv4 stack, if failed then attempt IPv6 stack.
IPv4 / IPv6 / Autoconfigure

Connection Retry Count
The minimum value is 0 and the maximum is 16. 0 means no retry.

Connection Establishing Timeout
The timeout value in milliseconds. The minimum value is 100 milliseconds and the maximum is 20 seconds.

Configure ISID
OUI-format ISID in 6 bytes, default value is derived from MAC address. Only last 3 bytes are configurable. Example: update 0ABBCCDDEEFF to OABBCCF07901 by input F07901.

Enable DHCP
Enable DHCP.
Disabled / Enabled

Initiator IP Address
Enter IP address in dotted-decimal notation.

Initiator Subnet Mask
Enter IP address in dotted-decimal notation.

Gateway
Enter IP address in dotted-decimal notation.

Target Name
The worldwide unique name of the target. Only iqn. format is accepted. Range is from 4 to 223
iqn. xxx

Target Address
Enter Target address in IPv4, IPv6 or URL format. You need to configure DNS server address in advance if input a URL string.

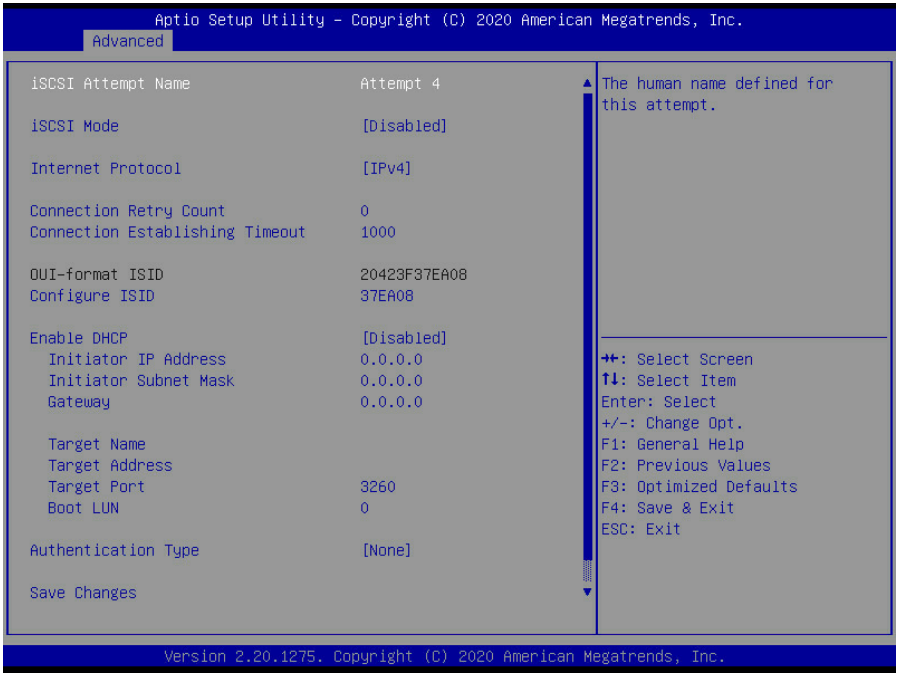
Target Port
Target Port.

Boot LUN
Hexadecimal representation of the LU number. Examples are:
4752-3A4F-6b7e-3F99, 6734-9-156f-127, 4186-9.

Authentication Type
Authentication method: CHAP, Kerberos, or None.
CHAP / **None**

Save Changes
Must reboot system manually for changes to take place.

5.3.15.3.2 MAC A0:42:3F:37:EA:08



iSCSI Mode
Disabled, Enabled, Enabled for MPIO.
Disabled / Enabled / Enabled for MPIO

Internet Protocol
Initiator IP address is system assigned in IP6 mode. In Autoconfigure mode, iSCSI driver will attempt to connect iSCSI target via IPv4 stack, if failed then attempt IPv6 stack.
IPv4 / IPv6 / Autoconfigure

Connection Retry Count
The minimum value is 0 and the maximum is 16. 0 means no retry.

Connection Establishing Timeout
The timeout value in milliseconds. The minimum value is 100 milliseconds and the maximum is 20 seconds.

Configure ISID
OUI-format ISID in 6 bytes, default value is derived from MAC address. Only last 3 bytes are configurable. Example: update 0ABBCCDDEEFF to OABBCCF07901 by input F07901.

Enable DHCP
Enable DHCP.
Disabled / Enabled

Initiator IP Address
Enter IP address in dotted-decimal notation.

Initiator Subnet Mask
Enter IP address in dotted-decimal notation.

Gateway
Enter IP address in dotted-decimal notation.

Target Name
The worldwide unique name of the target. Only iqn. format is accepted. Range is from 4 to 223
iqn. xxx

Target Address
Enter Target address in IPv4, IPv6 or URL format. You need to configure DNS server address in advance if input a URL string.

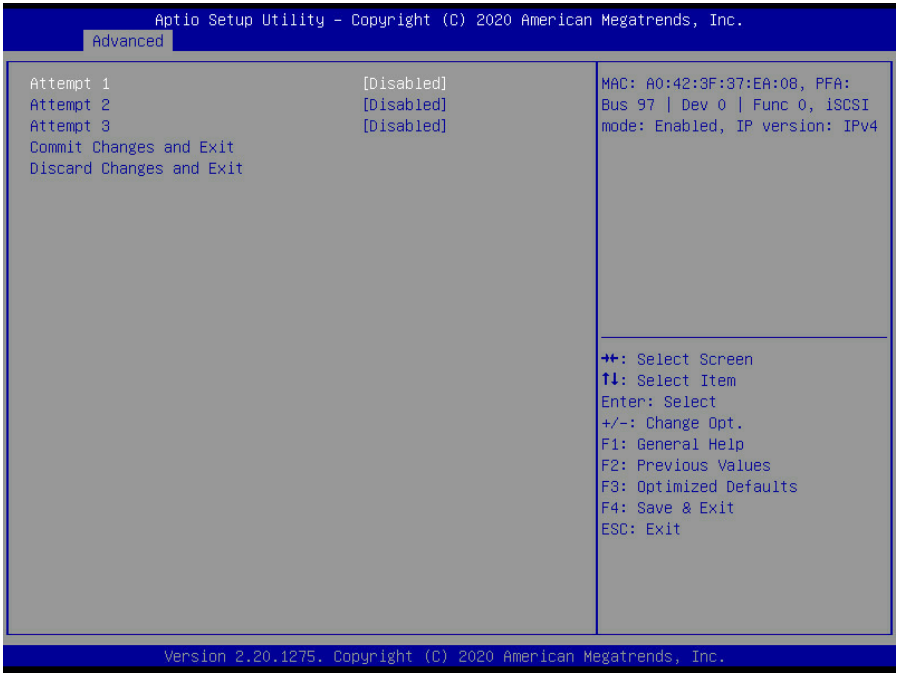
Target Port
Target Port.

Boot LUN
Hexadecimal representation of the LU number. Examples are:
4752-3A4F-6b7e-3F99, 6734-9-156f-127, 4186-9.

Authentication Type
Authentication method: CHAP, Kerberos, or None.
CHAP / **None**

Save Changes
Must reboot system manually for changes to take place.

5.3.15.4 Delete Attempts



Attempt 1
MAC: A0:42:3F:37:EA:08, PFA: Bus 97/ Dev 0 / Func 0, iSCSI mode: Enabled, IP version: IPv4.

Disabled / Enabled

Attempt 2
MAC: 36:02:0B:83:D7:63, PFA: Bus 35 / Dev 0 / Func 3, iSCSI mode: Disabled, IP version: IPv4.

Disabled / Enabled

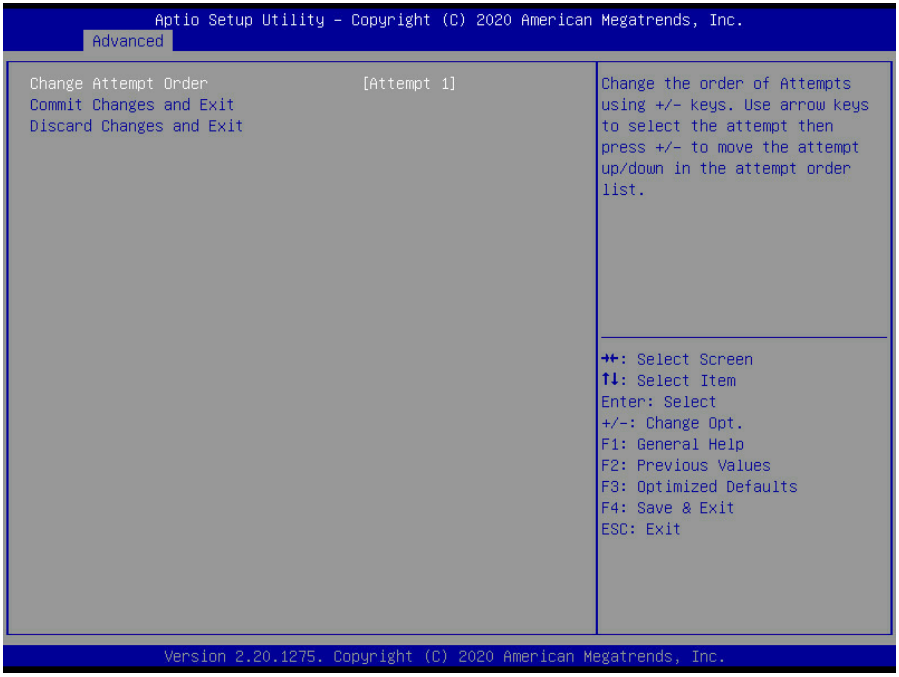
Attempt 3
MAC: 36:02:0B:83:D7:63, PFA: Bus 35 / Dev 0 / Func 3, iSCSI mode: Disabled, IP version: IPv4.

Disabled / Enabled

Commit Changes and Exit
Commit Changes and Exit.

Discard Changes and Exit
Discard Changes and Exit.

5.3.15.5 Change Attempt Order



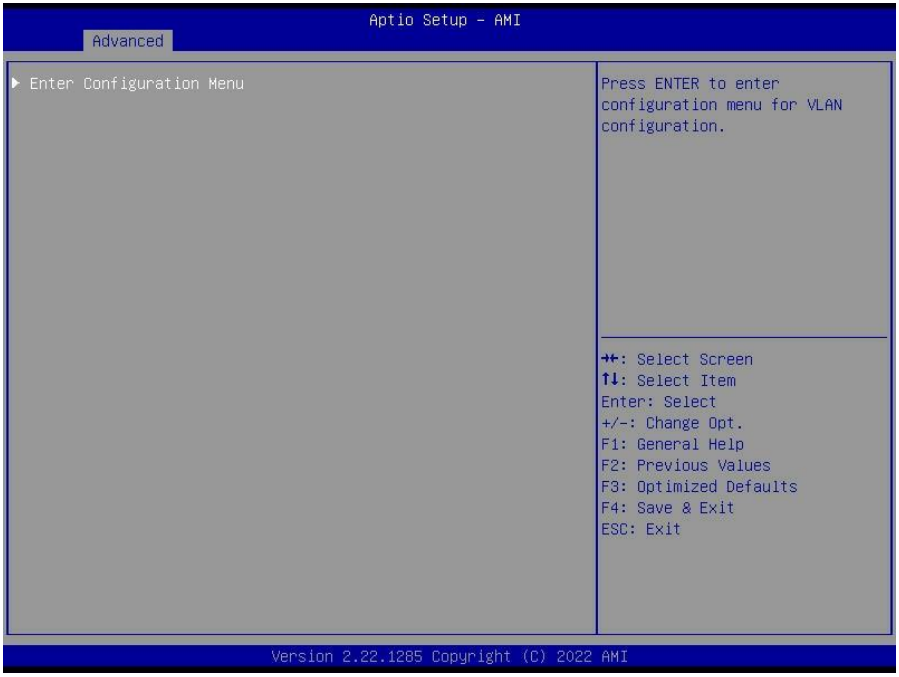
Change Attempt Order
Change the order of Attempts using +/- keys. Use arrow keys to select the attempt then press +/- to move the attempt up/down in the attempt order list.

Attempt 1 / Attempt 2 / Attempt 3

Commit Changes and Exit
Commit Changes and Exit.

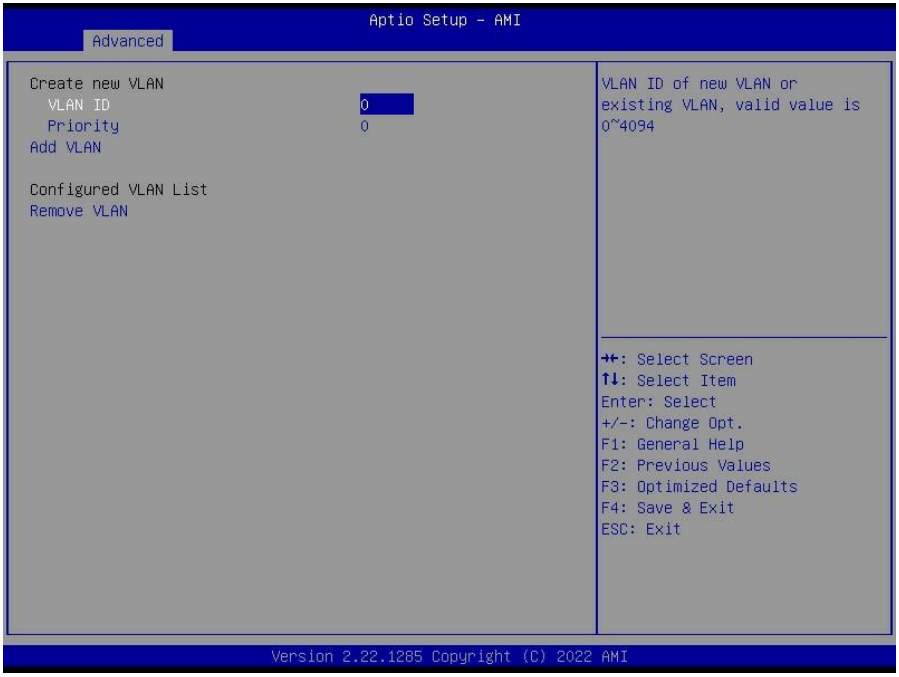
Discard Changes and Exit
Discard Changes and Exit.

5.3.16 VLAN Configuration



Enter Configuration
Press ENTER to enter configuration menu for VLAN configuration.

5.3.16.1 Enter Configuration



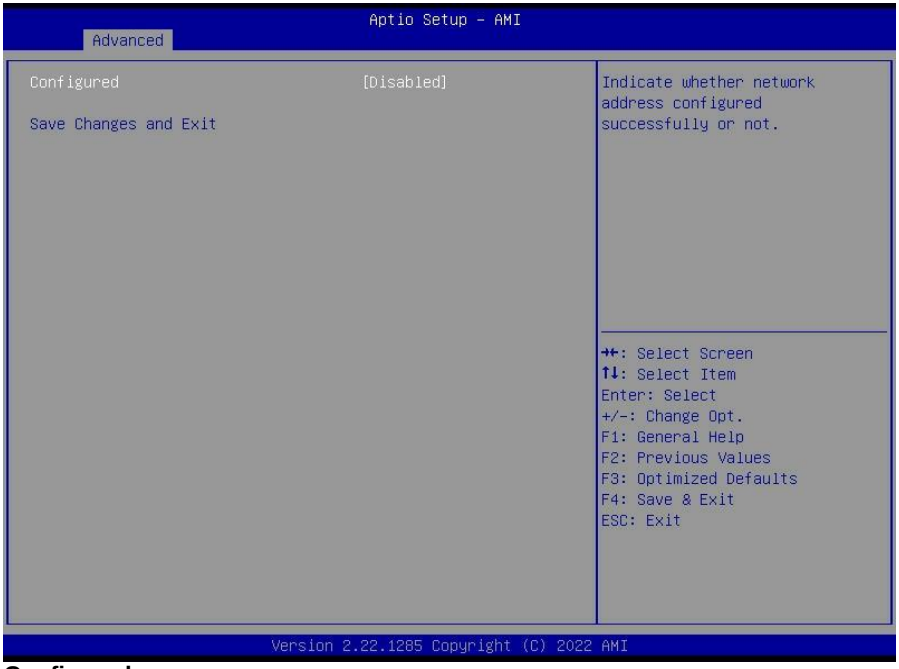
VLAN ID
VLAN ID of new VLAN or existing VLAN, valid value is 0~4094

Priority
802.1Q Priority, valid value is 0~7

Add VLAN
Create a new VLAN or update existing VLAN

Remove VLAN
Remove selected VLANs

5.3.17 MAC: 92044C4359EF-IPv4 Network Menu



Configured
Indicate whether network address configured successfully or not.
Disabled / Enabled
NOTE: When Configured was set to **Enabled,** the following items will be available to set up.

Enable DHCP
Indicate whether network address configured successfully or not.
Disabled / Enabled

Local IP Address
Enter IP address in dotted-decimal notation. Example: 162.168.10.12

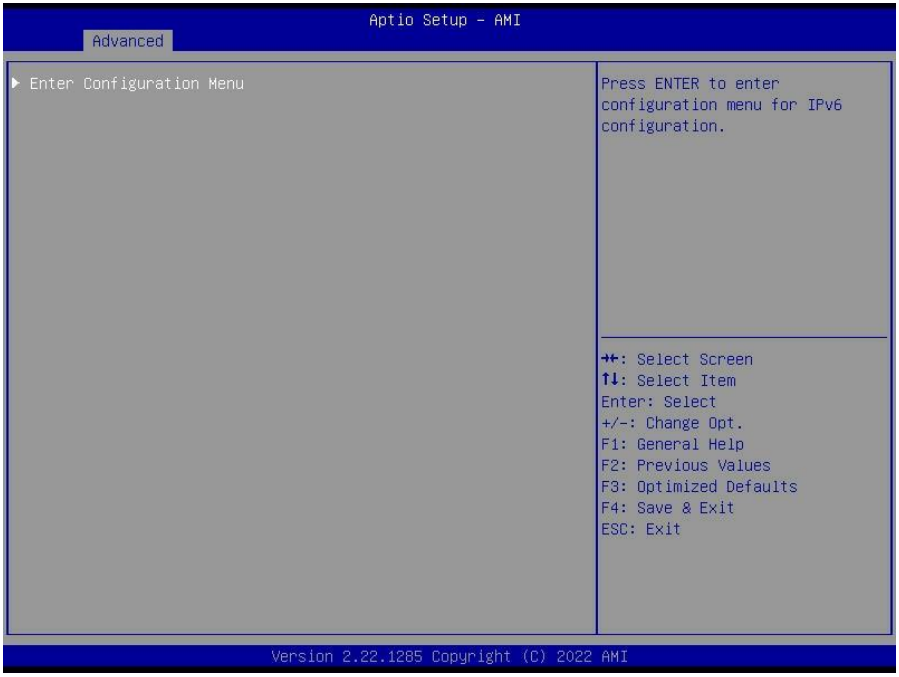
Local NetMask
Enter Netmask in dotted-decimal notation. Example:255.255.255.0

Local Gateway
Enter Gateway in dotted-decimal notation. Example:192.168.10.1

Local DNS Servers
Enter DNS Servers in dotted-decimal notation. Example:192.168.10.8
192.168.10.9

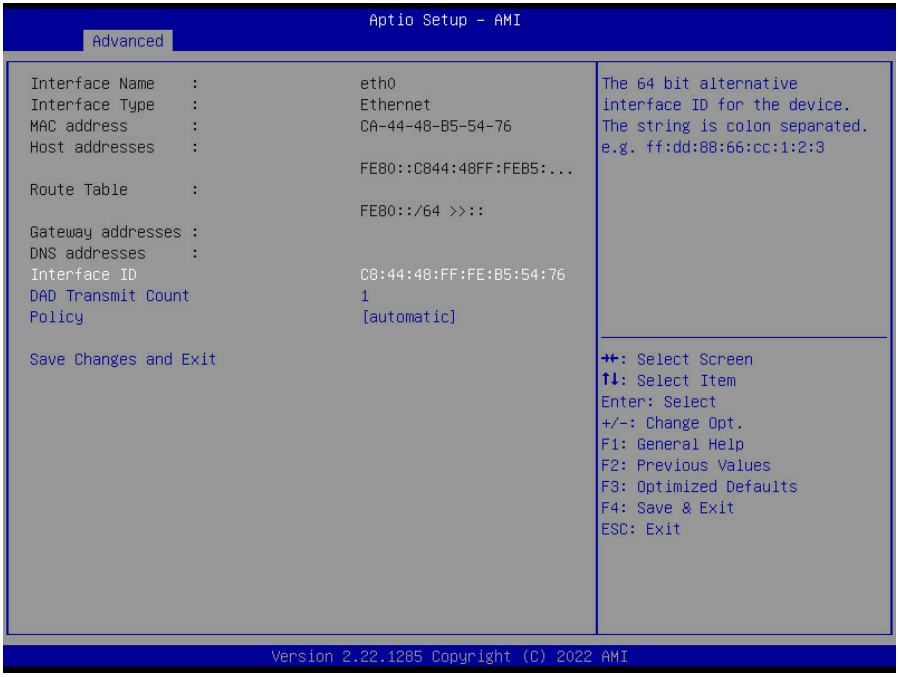
Save Changes and Exit
Save Changes and Exit

5.3.18 MAC: 92044C4359EF-IPv6 Network Menu



Enter Configuration Menu
Press ENTER to enter configuration menu for VLAN configuration.

5.3.18.1 Enter Configuration Menu



Interface ID
The 64 bit alternative interface ID for the device. The string is colon separated.
e.g. ff:dd:88:66:cc:1:2:3

DAD Transmit Count
The number of consecutive Neighhor Solicatation message sent while performing Duplicate Address Detection on a tentative address. A value of zero indicates that duplicate address detection is not performed.

Policy
Automatic or manual
Automatic / manual

Save Changes and Exit
Save changes for interface ID, DAD transmit count, policy, and data in advanced configuration.

5.4 CPU Configuration

CPU Configuration
CPU Configuration Parameters

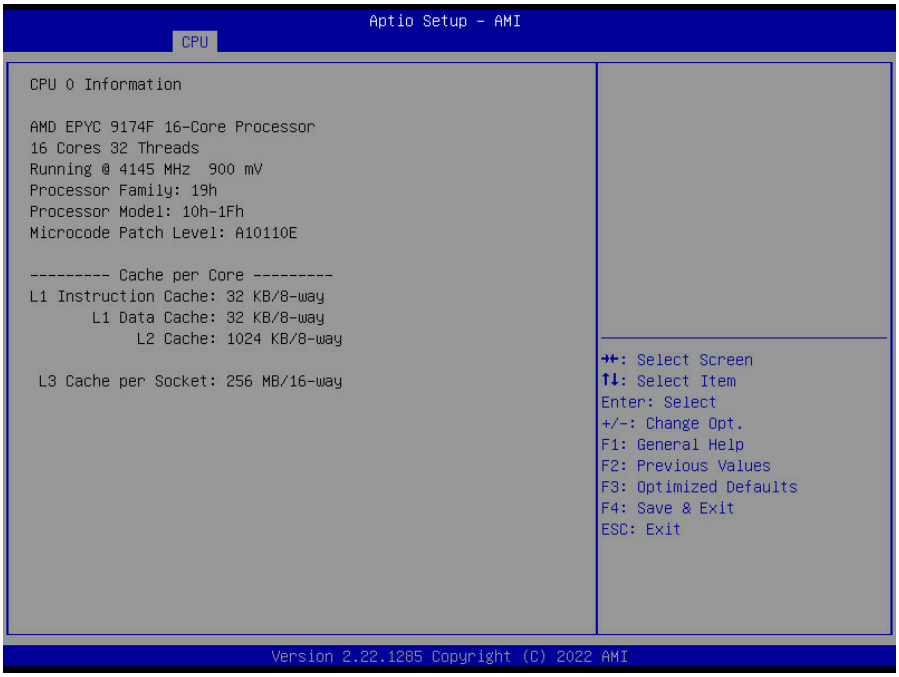
5.4.1 CPU Configuration Submenu

SVM Mode
Enable/disable CPU Virtualization
Enabled / Disabled

SMEE
Control secure memory encryption enable
Enabling both SMEE and SME-Mk is not supported. Results in #GP

CPU0 Information
View Information related to CPU0

5.4.1.1 CPU0 Information



5.5 Chipset Menu

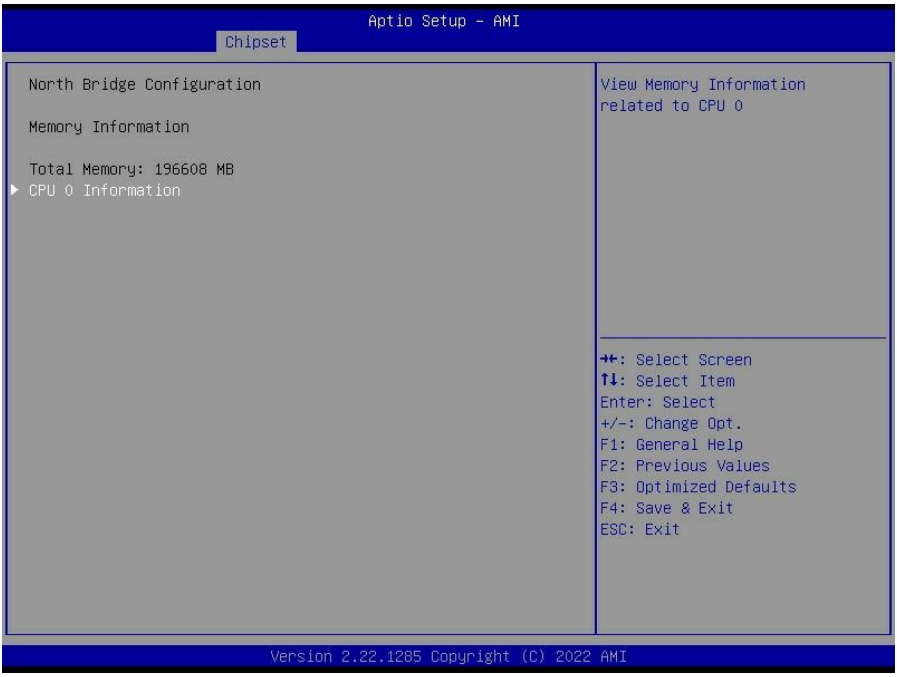
PCIe Compliance Mode
PCIe Link Compliance Mode Settings

North Bridge
North Bridge Parameters

AMD CBS
AMD CBS Setup Page

AMD PBS
AMD PBS Setup Page

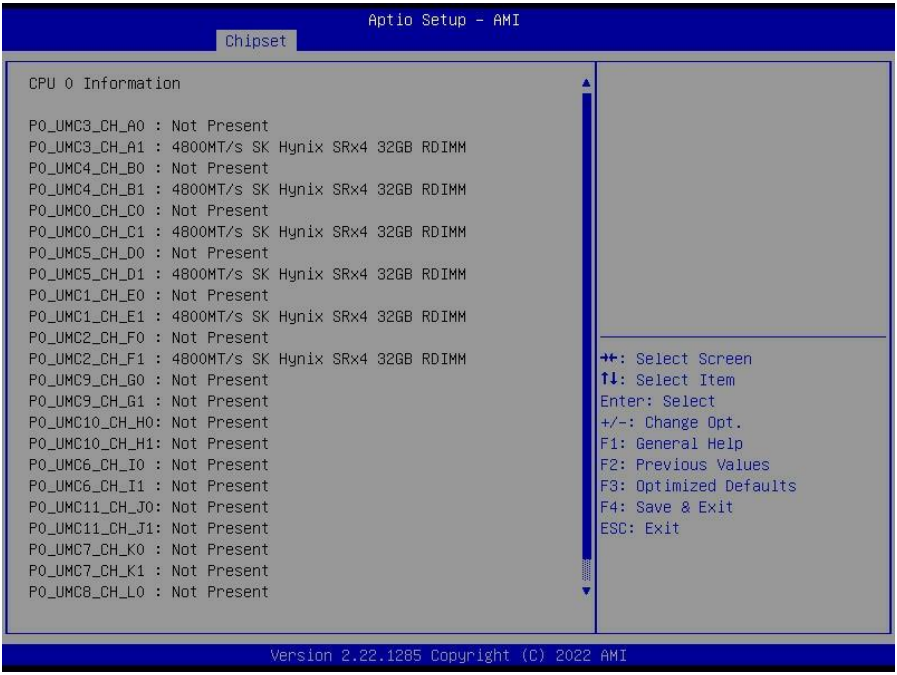
5.5.1 North Bridge Configuration



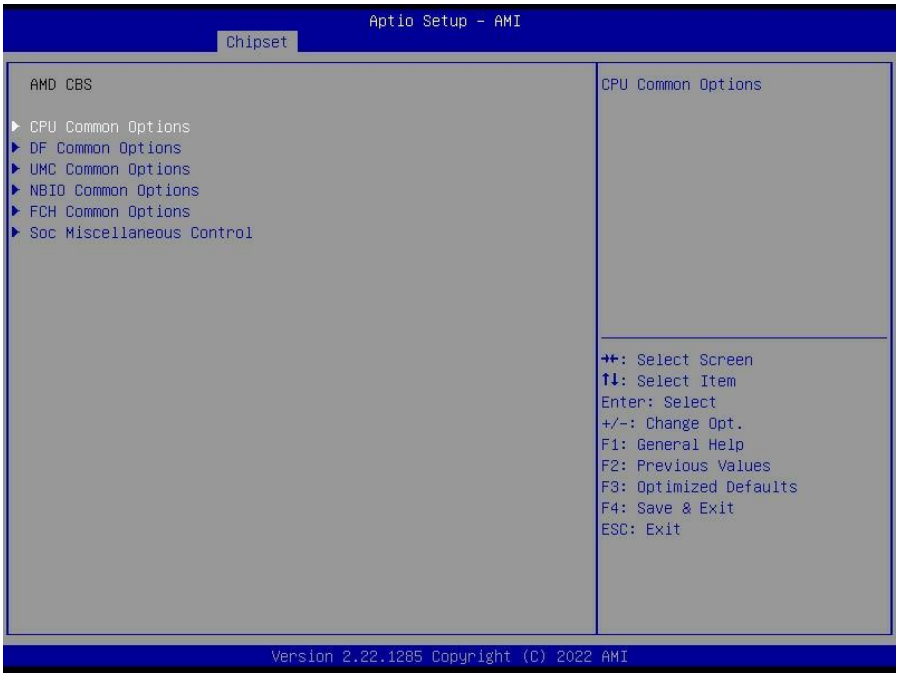
North Bridge Configuration
Memory Information
Total Memory： xxxxx MB

CPU 0 Information
View Memory Information related to CPU 0

5.5.1.1 CPU 0 Information



5.5.2 AMD CBS Menu



CPU Common Options
CPU Common Parameters

DF Common Options
DF Common Parameters

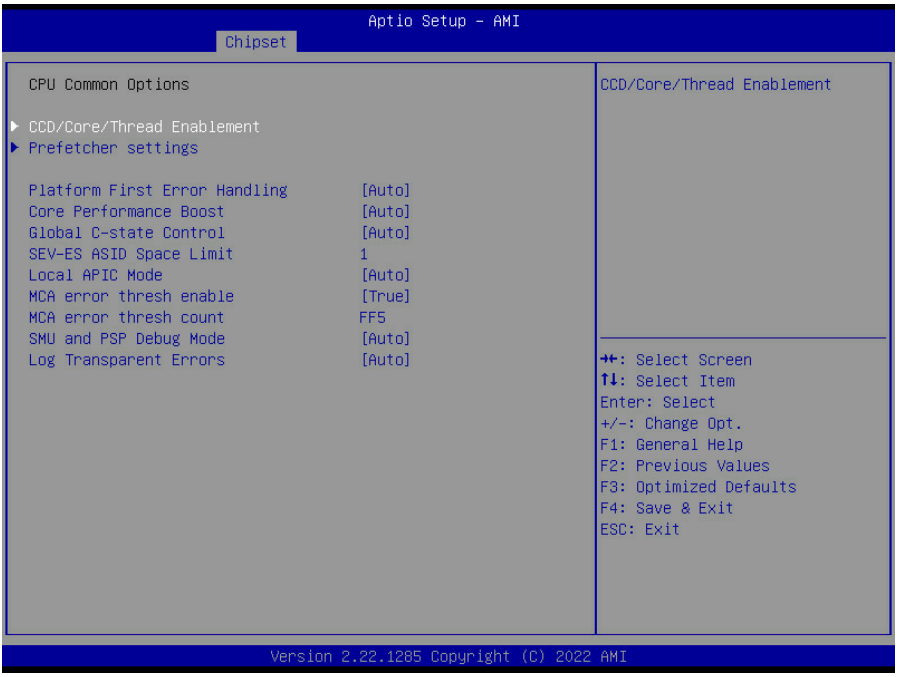
UMC Common Options
UMC Common Parameters

NBIO Common Options
NBIO Common Parameters

FCH Common Options
FCH Common Parameters

Soc Miscellaneous Control
Soc Miscellaneous Control parameters

5.5.2.1 CPU Common Options Submenu



CCD/Core/Thread Enablement
CCD/Core/Thread Enablement settings

Prefetcher settings
Prefetcher parameters

Platform First Error Handling
Enable/disable PFEH, cloak individual banks, and mask deferred error interrupts from each bank.

Enabled / Disabled / **Auto**

Core Performance Boost
Disable CPB

Disabled / **Auto**

Global C-state Control
Controls IO based C-state generation and DF C-states.

Disabled **/** Enabled **/ Auto**

SEV-ES ASIO Space Limit
SEV VMs using ASIDs below the SEV-ES ASID Space Limit must enable the SEV-ES feature. ASIDs from SEV-ES ASID Space Limit to (SEV ASID Count +1) can only be used with SEV VMs. If this field is set to (SEV ASID Count +1)， all ASIDs are forced to be SEV-ES ASIDs. Hence, the valid values for this field is 1 – (SEV ASID Count +1)

Local APIC Mode
Local APIC Mode
Compatibility / xAPIC **/** x2APIC **/ Auto**

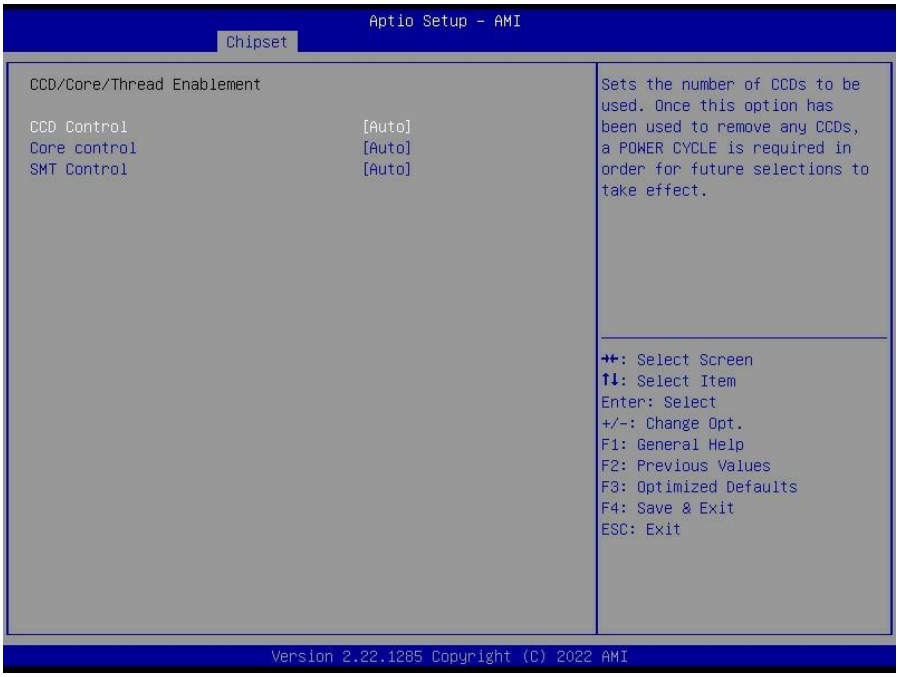
MCA error thresh enable
Enable MCA error thresholding
False / True / **Auto**

MCA error thresh count
Effective error threshold
Count = 0xFFF (4095) - <this value> (e.g the default value of 0xFF5 (4085) results in a threshold of 0xA (10)).
FF5

SMU and PSP Debug Mode
When this option is enabled, uncorrected errors detected by the PSP FW or SMU FW that should cause a cold reset, will hang and not reset the system.
Disabled / Enabled / **Auto**

Log Transparent Errors
Log transparent errors in MCA in addition ot debug registers.
Disabled / Enabled / **Auto**

5.5.2.1.1 CCD/Core/ Thread Enablement Submenu

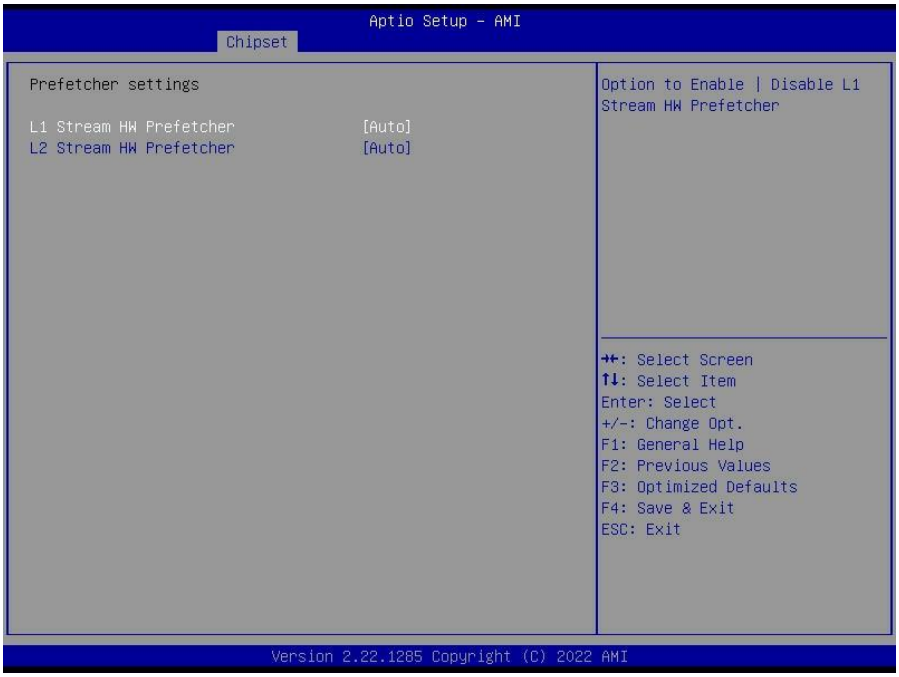


CCD Control
Sets the number of CCDs to be used. Once this option has been used to remove any CCDs, a POWER CYCLE is required in order for future selections to take effect.
Auto / 2 CCDs / 4 CCDs / 6 CCDs / 8 CCDs / 10 CCDs

Core control
Sets the number of Cores to be used. Once this option has been used to remove any Cores, a POWER CYCLE is required in order for future selections to take effect.
Auto / ONE (1 + 0) / TWO (2 + 0) / THREE (3 + 0) / FOUR (2 + 2) / FIVE (5 + 0) / SIX (6 + 0) / SEVEN (7 + 0)

SMT Control
Can be used to disable symmetric multithreading. To re-enable SMT, a POWER CYCLE is needed after selecting the 'Auto' option.
Disabled **/** Enabled **/ Auto**

5.5.2.1.2 Prefetcher Submenu



L1 Stream HW Prefetcher
Option to Enable | Disable L1 Stream HW Prefetcher
Disabled / Enabled / **Auto**

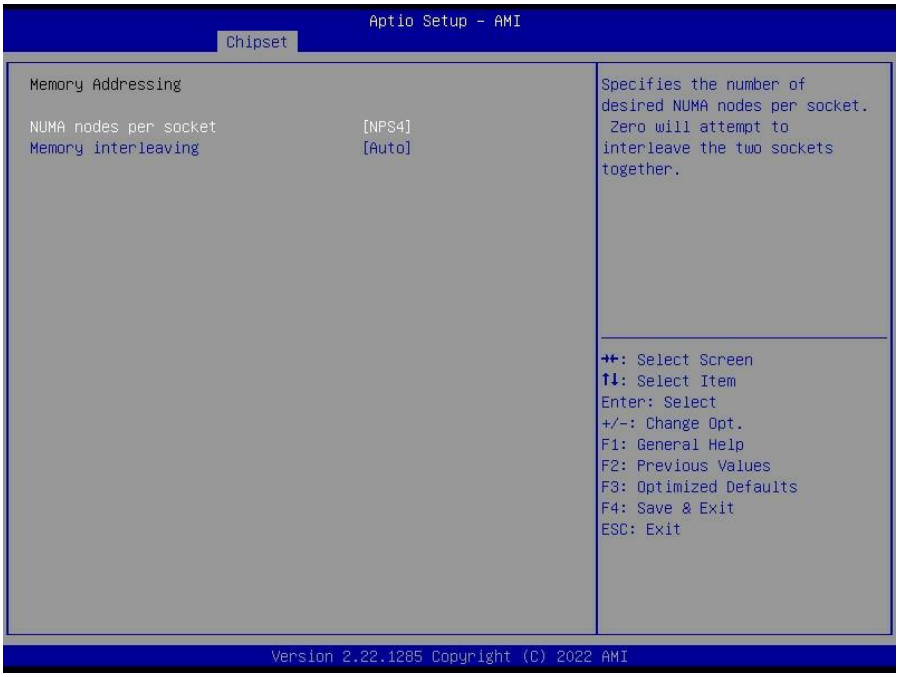
L2 Stream HW Prefetcher
Option to Enable | Disable L2 Stream HW Prefetcher
Disabled / Enabled / **Auto**

5.5.2.2 DF Common Options Submenu

PSP error injection support
Enable EINJ support

False / True

5.5.2.2.1 Memory Addressing Submenu



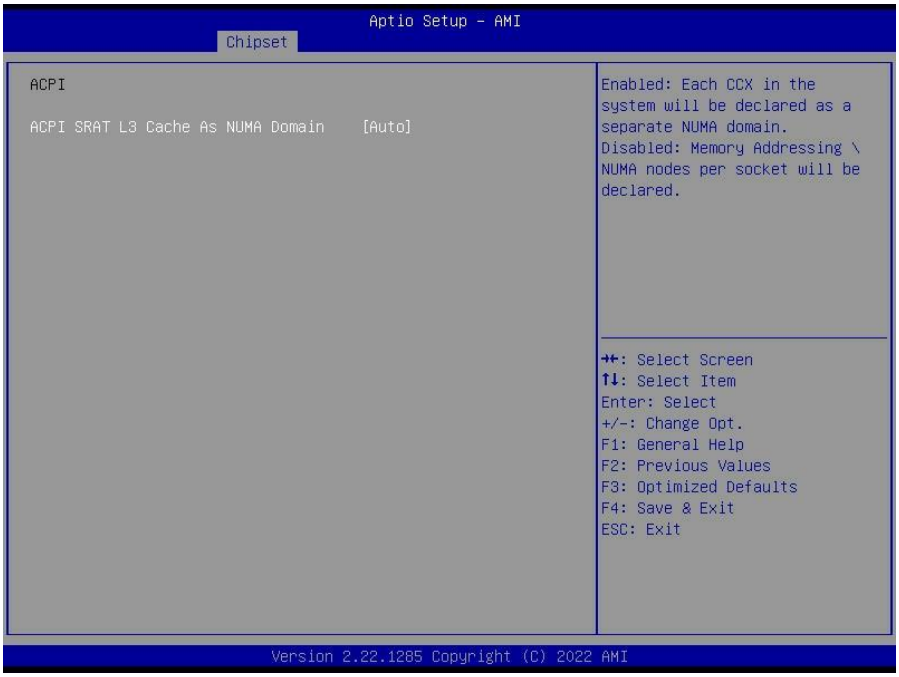
NUMA nodes per socket
Specifies the number of desired NUMA nodes per socket. Zero will attempt to interleave the two sockets together.

NPS0 / NPS1 / NPS2 / **NPS4**

Memory interleaving
Allows for disabling memory interleaving. Note that NUMA nodes per socket will be honored regardless of this setting.

Disabled / **Auto**

5.5.2.2.2 ACPI Submenu



ACPI SRAT L3 Cache As NUMA Domain
Enabled: Each CCX in the system will be declared as a separate NUMA domain.
Disabled: Memory Addressing \ NUMA nodes per socket will be declared.
Disabled / Enabled / **Auto**

5.5.3 UMC Common Options Submenu

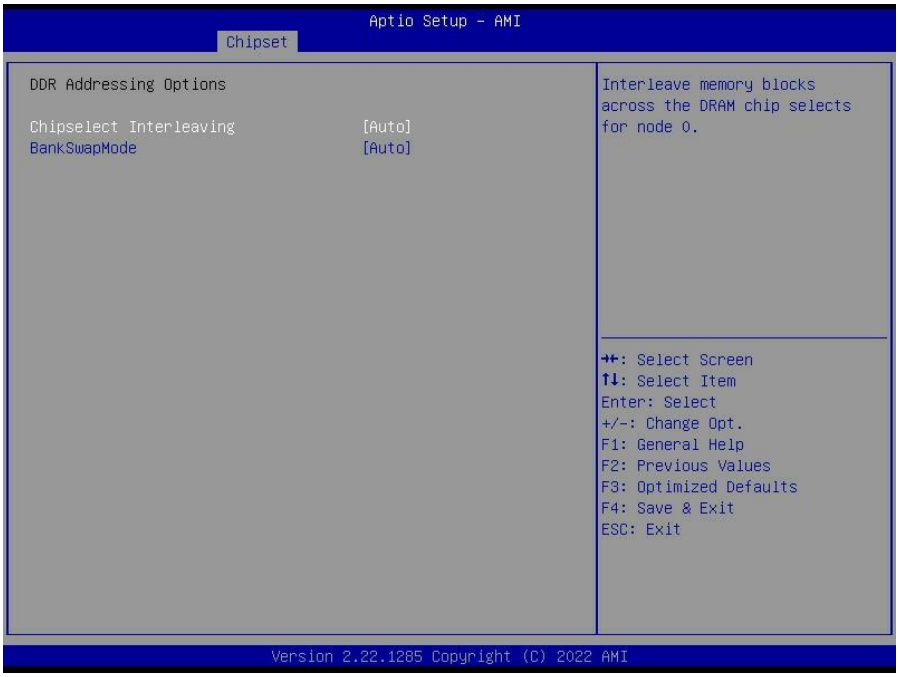
DDR Addressing Options
DDR addressing parameters

DDR Timing Configuration
DDT Timing parameters

DDR RAS
DDR RAS parameters

DDR Security
DDR Security parameters

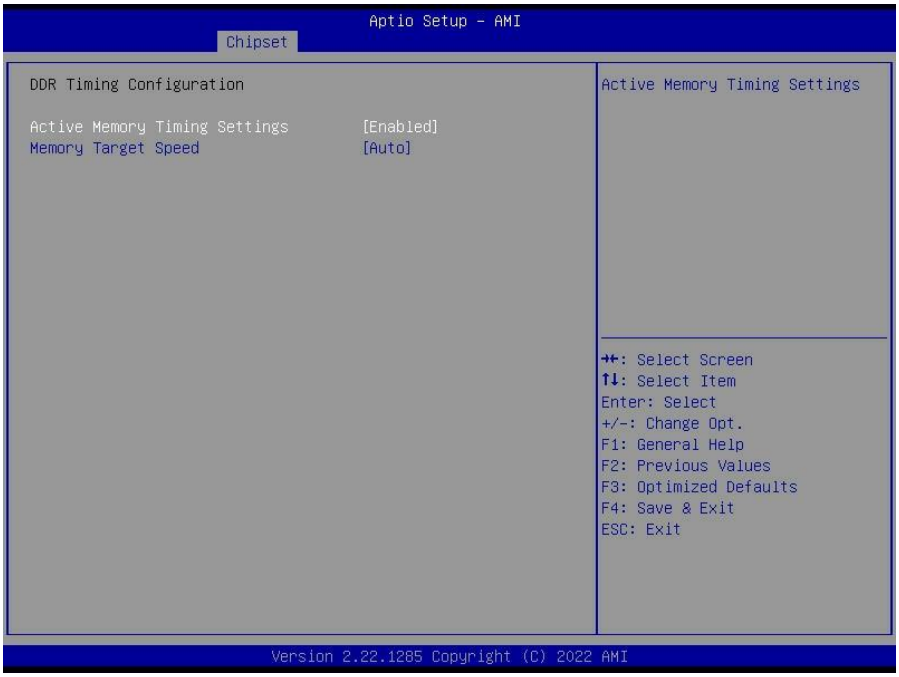
5.5.3.1 DDR Addressing Options Submenu



Chipselect Interleaving
Interleave memory blocks across the DRAM chip selects for node 0.
Disabled / **Auto**

BankSwapMode
BankSwapMode value: 0=Disabled, 1= SwapCPU
Auto / Disabled / Swap CPU

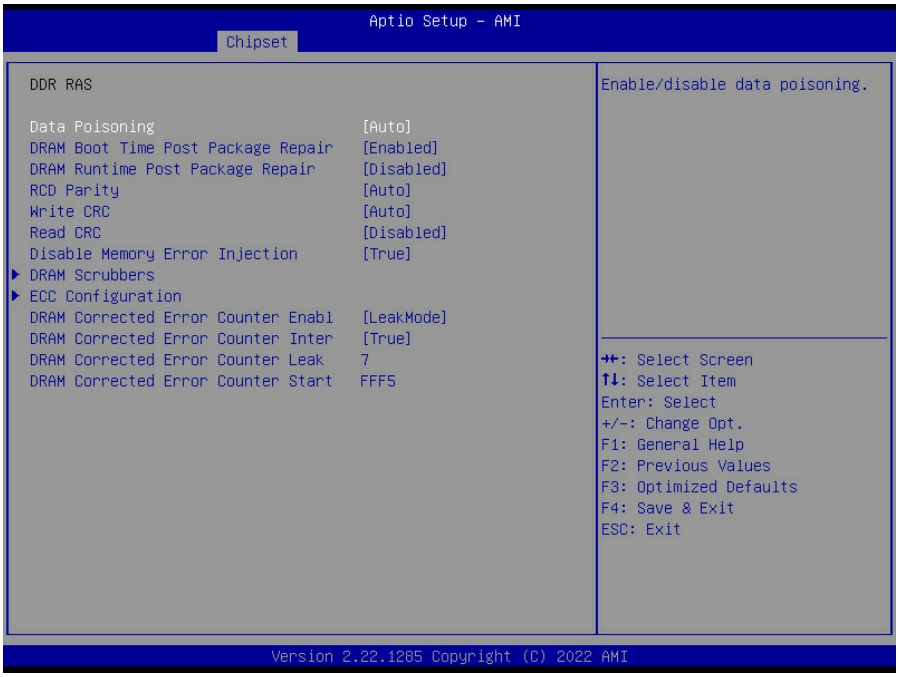
5.5.3.2 DRAM Time Configuration Submenu



Active Memory Timing Settings
Active Memory Timing Settings
Auto / Enabled

Memory Target Speed
Specifies the memory target speed in MT/s. The valid input is 3200, 3600, 4000,4400,4800,5200, 5600. Value in decimal.
Auto / DDR3200 / DDR3600 / DDR4000 / DDR4400 / DDR4800 / DDR5200 / DDR 5600

5.5.3.3 DDR RAS Submenu



Data Poisoning
Enable/disable data poisoning
Disabled / Enabled / **Auto**

DRAM Boot Time Post Package Repair
Enable or Disable DRAM Boot Time Post Package Repair.
Disabled / **Enabled**

DRAM Runtime Post Package Repair
Enable or Disable DRAM Run Time Post Package Repair.
Disabled / Enabled

RCD Parity
Enable RCD command and address parity.
Auto / Disabled / Enabled

Write CRC
Enable write CRC on DDR5 DRAM. Program to UMC:: RecCtrl.RecEn [1]
Auto / Disabled / Enabled

Read CRC
Enable/disable data poisoning.
Auto **/ Disabled /** Enabled

Disable Memory Error Injection
0=Enable. 1=Disable. Specifies UMC error injection configuration writes are disabled.
True: UMC:: CH:: MiscCfg[DisErrInj]=1
False / **True** / Auto

DRAM Scrubbers
DRAM Scrubbers

ECC Configuration
ECC Configuration

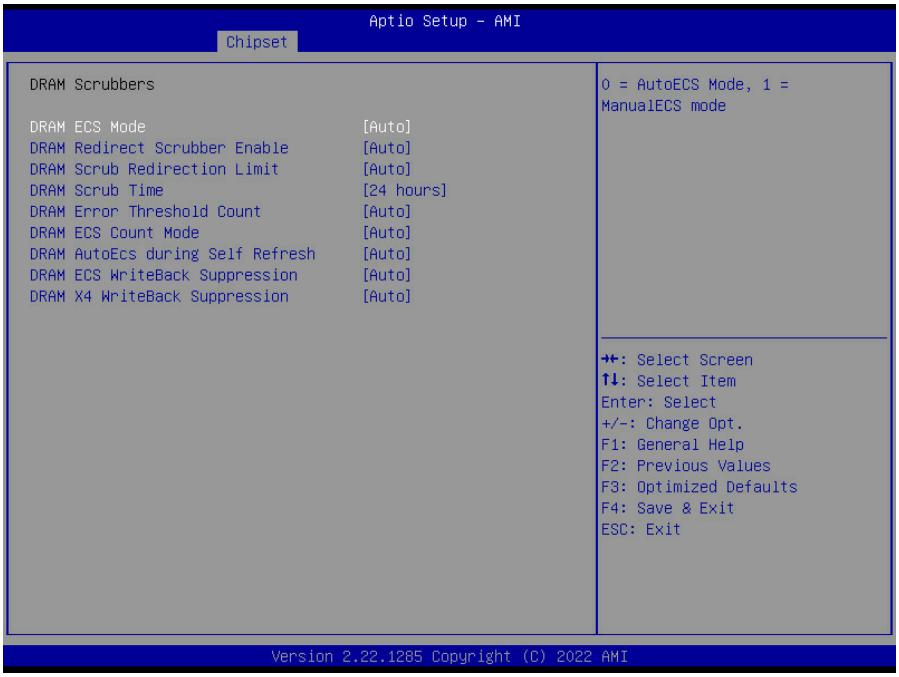
DRAM Corrected Error Counter Enable
Configure DRAM Corrected Error Counter function. Only meaningful when PcdAmdCcxCfgPFEHEnable is TRUE.
Disabled / NoleakMode / **LeakMode**

DRAM Corrected Error Counter Interleave
Enable SMI when DRAM Corrected Error Counter count exceeds the threshold value.
False / **True**

DRAM Corrected Error Counter Leak
Program Rate value for DRAM Corrected Error Counter function. Only meaning when PcdAmdDdrEccErrorCounterEnable is set to LeakMode (Value:0x00-0x1F).
7

DRAM Corrected Error Counter Start
Program starting count value for DRAM Corrected Error Counter function. Only meaningful when PcdAmdDdrEccErrorCounterEnable is not Disable(0x00 – 0xFFFF).
FFF5

5.5.3.3.1 DRAM Scrubbers Submenu



DRAM ECS Mode
0=AutoECS Mode, 1=ManualECS mode
AutoECS / ManualECS / **Auto** / DisableECS

DRAM Redirect Scrubber Enable
Enable/Disable Dram Redirect Scrubber
Disabled / Enabled **/ Auto**

DRAM Scrub Redirection Limit
Dram ECC Scrub Redirection Limit:0=8 scrubs, 1=4 scrubs, 2=2 scrubs, 3=1 scrub
8 Scrubs / 4 Scrubs / 2 Scrubs / 1Scrub / **Auto**

DRAM Scrub Time
Provide a value that is the number of hours to scrub memory.
Disabled / 1 hour / 4 hours / 6 hours / 8 hours / 12 hours / 16 hours / **24 hours** / 48 hours

DRAM Error Threshold Count
List of Values:0 = ETC_4, 1 = ETC_16, 2 = ETC_64, 3 = ETC_256 (default – Auto), 4 = ETC_1024, 5 = ETC_4096
ETC_4 / ETC_16 / ETC_64 / ETC_256 / ETC_1024 / ETC_4096 / **Auto**

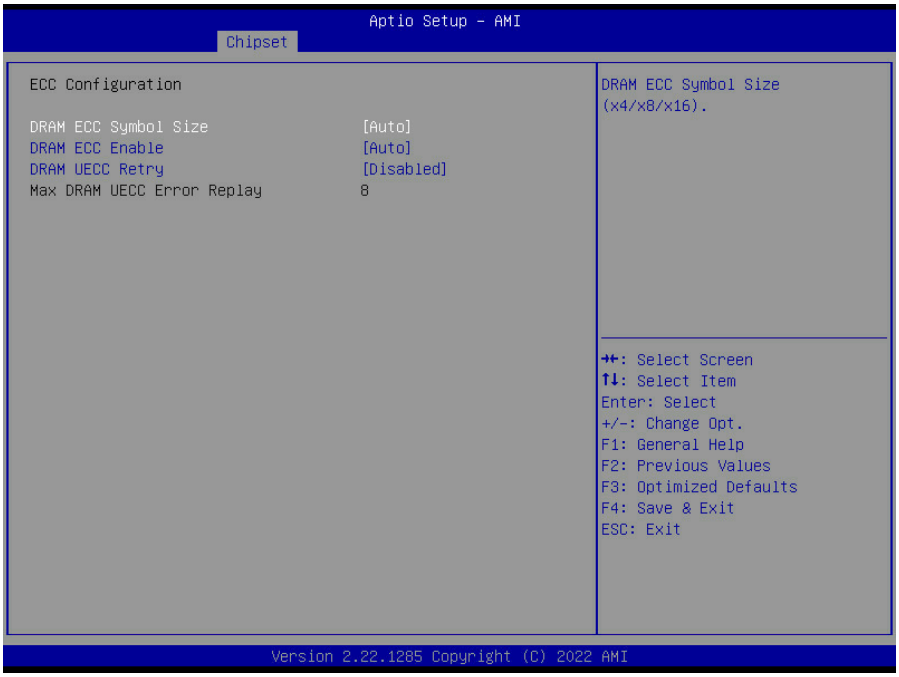
DRAM ECS Count Mode
0: RowCount Mode
1: CodeWord Mode
0xFF: Auto – ABL decides default as CodeWord Mode
Row Count Mode / Code Word Count Mode / **Auto**

DRAM AutoEcs during Self Refresh
0: AutoEcs Disabled
1: AutoEcs Enabled
0xFF: Auto – ABL choose AutoEcs Disabled
AutoEcs Disabled / AutoEcs Enabled / **Auto**

DRAM ECS WriteBack Suppression
To enable/Disable ECS error Correction Writeback suppression
0: ECS Writeback Suppression Enabled
0xFF: Auto – ABL chooses Writeback Suppression to be Enabled by default
Disable / Enable / **Auto**

DRAM X4 WriteBack Suppression
To enable/Disable X4 device Error Correction Writeback suppression
0: X4 Writeback Suppression Disabled
1: X4 Writeback Suppression Enabled
0xFF: Auto
Disable / Enable / **Auto**

5.5.3.3.1 ECC Configuration Submenu

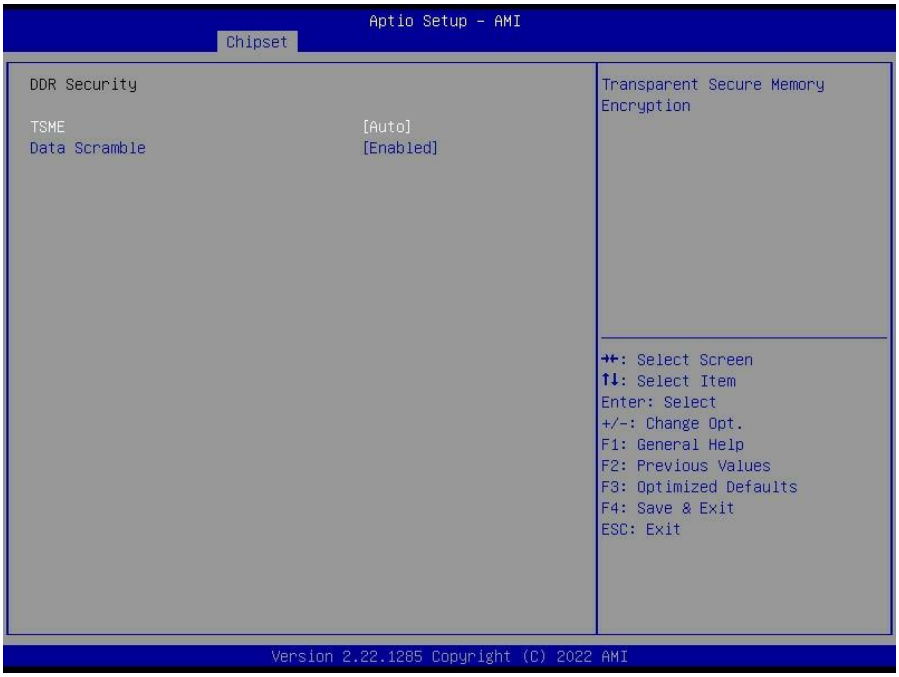


DRAM ECC Symbols Size
DRAM ECC Symbol Size (x4/x8/x16)
x4 / x16 / **Auto**

DRAM ECC Enable
Use this option to enable / disable DRAM ECC. Auto will set ECC to enable.
Disabled / Enabled / **Auto**

DRAM UECC Retry
DRAM UECC Retry. Program to UMC:: RecCtrl.RecEn[2]
Disabled / Enabled / Auto

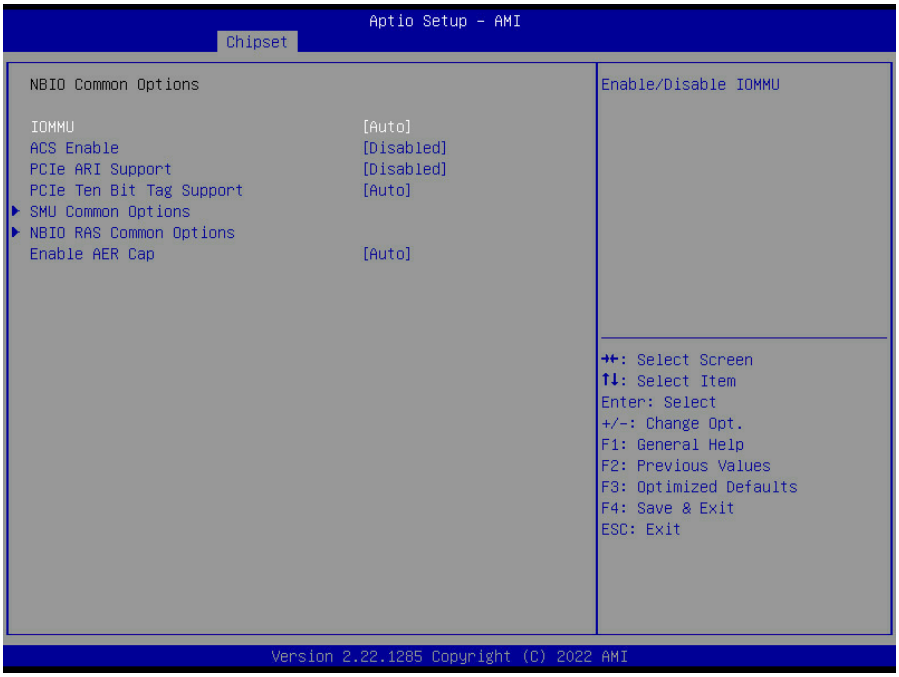
5.5.3.4 DDR Security Submenu



TSME
Transparent Secure Memory Encryption
Auto / Disabled / Enabled

Data Scramble
Data scrambling
Enabled / Disabled

5.5.4 NBIO Common Options Submenu



IOMMU
Enable/Disable IOMMU
Disabled / Enabled / **Auto**

ACS Enable
AER must be enabled for ACS enable to work
Enabled / **Disabled** / Auto

PCIe ARI Support
Enables Alternative Routing-IO Interpretation
Enabled / **Disabled** / Auto

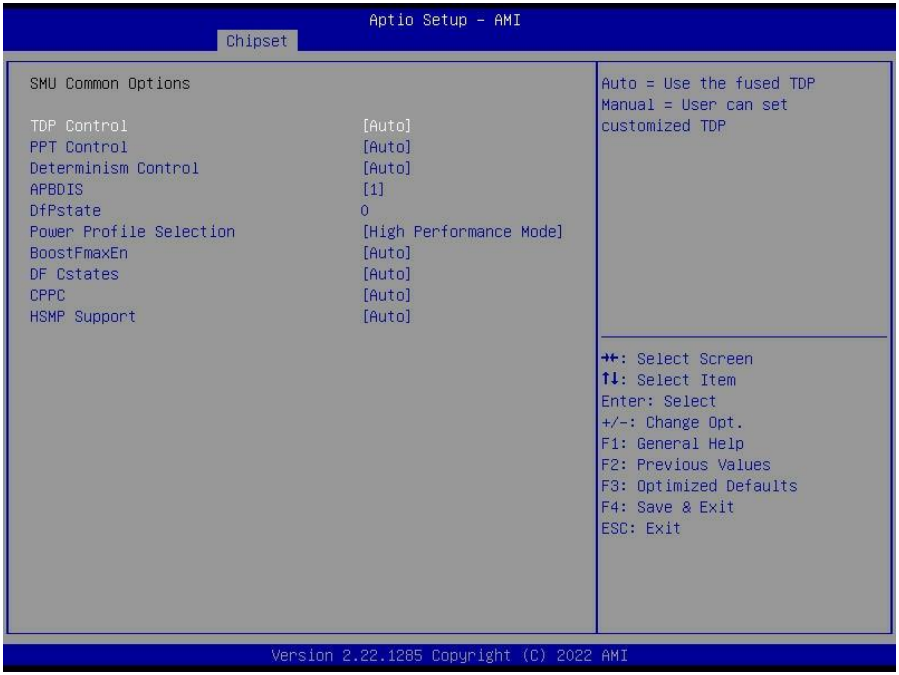
PCIe Ten Bit Tag Support
Enables PCIe ten bit tags for supported devices. Auto = Disable
Enabled / Disabled / **Auto**

SMU Common Options

NBIO RAS Common Options

Enable AER Cap
Enables Advanced Error Reporting Capability
Enabled / Disabled / **Auto**

5.5.4.1 SMU Common Options Submenu



TDP Control
Auto = Use the fused TDP
Manual = User can set customized TDP
Manual / **Auto**

PPT Control
Auto = Use the fused PPT
Manual = User can set customized PPT
Manual / **Auto**

Determinism Control
Auto = Use the fused Determinism
Manual = User can set customized Determinism
Manual / **Auto**

APBDIS
Algorithm Performance Boost Disable
0 / 1 / **Auto**

DF Pstate
DfPstate index to set when APBDIS=1 [0-4]
0

Power Profile Selection
[0= High Performance Mode (DEFAULT);
1= Efficiency Mode;
2= Maximum IO Performance]
High Performance Mode / Efficiency Mode / Maximum IO Performance

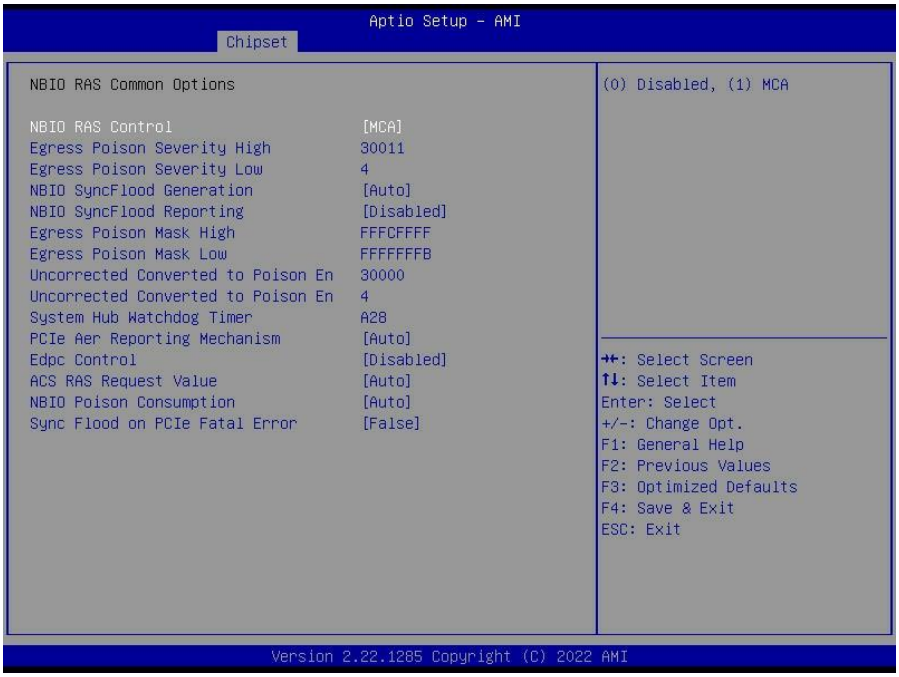
BoostFmaxEn
Auto = Use the default Fmax
Manual = User can set the boost Fmax
Manual / **Auto**

DF Cstates
Enable or Disable Data Fabric to go to a low-power state when the processor has entered Cx states
Disabled / Enabled / **Auto**

CPPC
Enable = Enable the feature :
Disable = Disable the feature
Disabled / Enabled / **Auto**

HSMP Support
Select HSMP support enable or disable
Disabled / Enabled / **Auto**

5.5.4.2 NBIO RAS Common Options Submenu



NBIO RAS Control
(0) Disabled, (1) MCA
Disabled / **MCA** / Auto

Egress Poison Severity High
Each bit set to 1 enables HIGH severity on the associated IOHC egress port. A bit of 0 indicates LOW severity.
30011

Egress Poison Severity Low
Each bit set to 1 enables HIGH severity on the associated IOHC egress port. A bit of 0 indicates LOW severity.
4

NBIO SyncFlood Generation
This value may be used to mask SyncFlood caused by NBIO RAS options. When set to TRUE syncFlood from NBIO is masked. When set to FALSE NBIO is capable of generating SyncFlood.
Disabled / Enabled / **Auto**

NBIO SyncFlood Reporting
This value may be used to enable SyncFlood reporting to APML. When set to TRUE SyncFlood will be reported to APML. When set to FALSE that reporting well be disabled.

Enabled / **Disabled** / Auto

Egress Poison Mask High
These set the enable mask for masking of errors logged in EGRESS_ POISN_ STATUS. For each bit set to 1. Errors are masked. For each bit set to 0, errors trigger response actions.

FFFCFFFF

Egress Poison Mask Low
These set the enable mask for masking of errors logged in EGRESS_ POISN_ STATUS. For each bit set to 1, Errors are masked. For each bit set to 0, errors trigger response actions.

FFFFFFFB

Uncorrected Converted to Poison Enable
These set the enable mask for masking of uncorrectable parity errors on internal arrays. For each bit set to 1, a system fatal error event is triggered for UCP errors on arrays associated with that egress port. For each bit set to 0, errors are masked.

30000

Uncorrected Converted to Poison Enable
These set the enable mask for masking of uncorrectable parity errors on internal arrays. For each bit set to 1, a system fatal error event is triggered for UCP errors on arrays associated with that egress port. For each bit set to 0, errors are masked.

4

System Hub Watchdog Timer
This value specifies the timer interval of the SYSHUB Watchdog timer in miliseconds

2600

PCIe Aer Reporting Mechanism
This value selects the method of reporting AER errors from PCI Express. A value of 1 allows OS First handling of the errors through generation of a system control interrupt (SCI). A value of 2 provides for Firmware First handling of errors through generation of a system management interrupt (SMI).

Firmware First / Firmware First but allow OS First / OS First / **Auto**

Edpc Control
(0) Disabled; (1) Enabled; (3) Auto

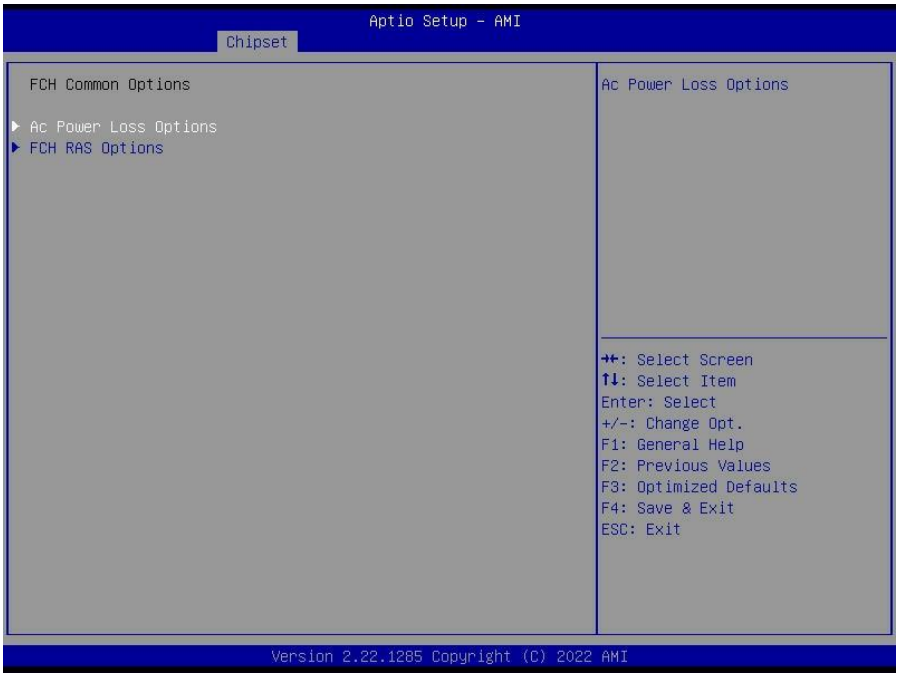
Enabled / **Disabled** / Auto

ACS RAS Request Value
No help string
Direct Request Access Enabled / Request Blocking Enabled / Request Redirect Enabled / **Auto**

NBIO Poison Consumption
Enabled / Disabled / **Auto**

Sync Flood on PCIe Fatal Error
When ‘ Sync Flood on PCIe Fatal Error’ is True, PcdAmdPcieSyncFloodOnFatal should be set to True. When ‘Sync Flood on PCIe Fatal Error’ is False, PcdAmdPcieSyncFloodOnFatal should be set to False. When ‘Sync Flood on PCIe Fatal Error’ is Auto. PcdAmdPcieSyncFloodOnFatal
Auto / True / **False**

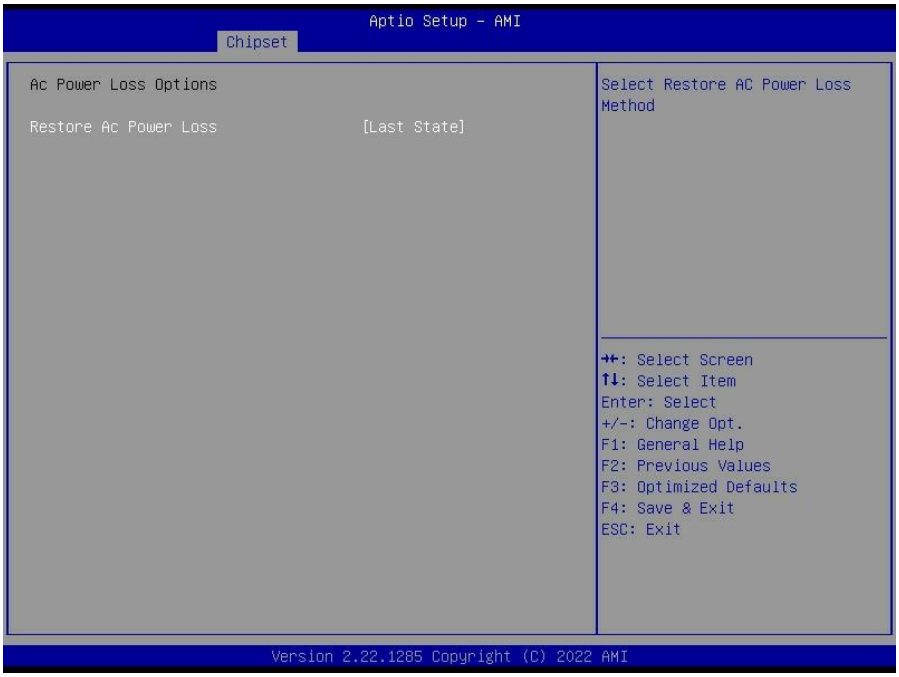
5.5.5 FCH Common Options Submenu



Ac Power Loss Options

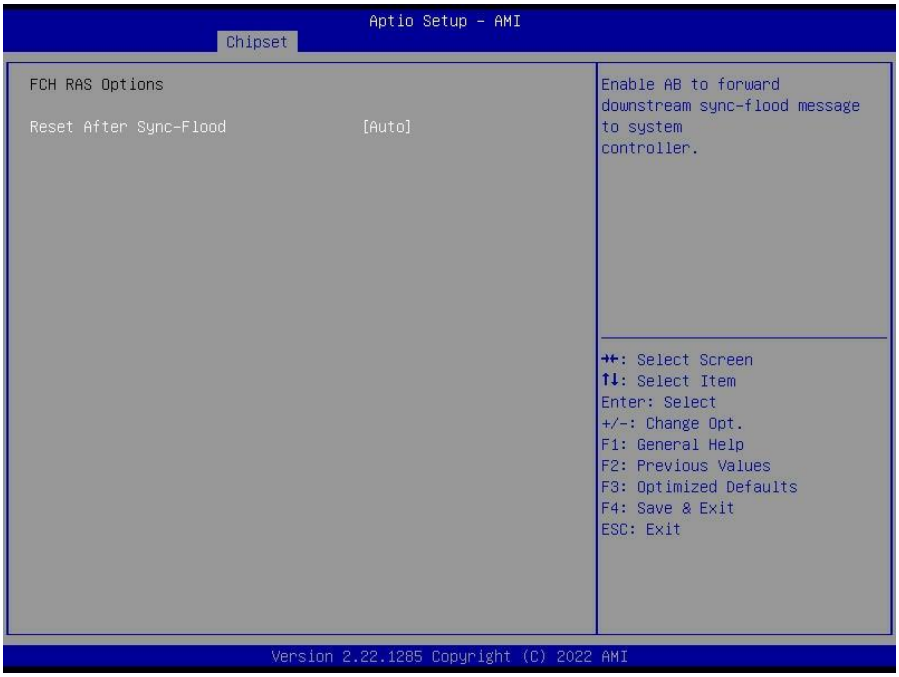
FCH RAS Options

5.5.5.1 AC Power LOSS Options Submenu



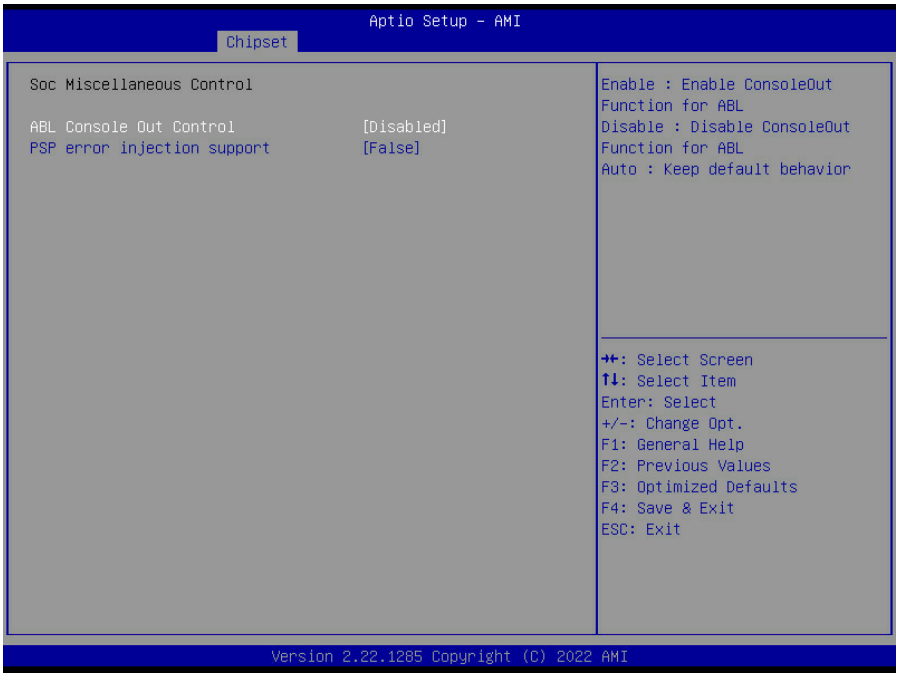
Restore Ac Power Loss
Select Restore AC Power Loss Method
Power Off / Power On / **Last State**

5.5.5.2 FCH RAS Options Submenu



Reset after sync flood
Enable AB to forward downstream sync-flood message to system controller.
Disabled / Enabled / **Auto**

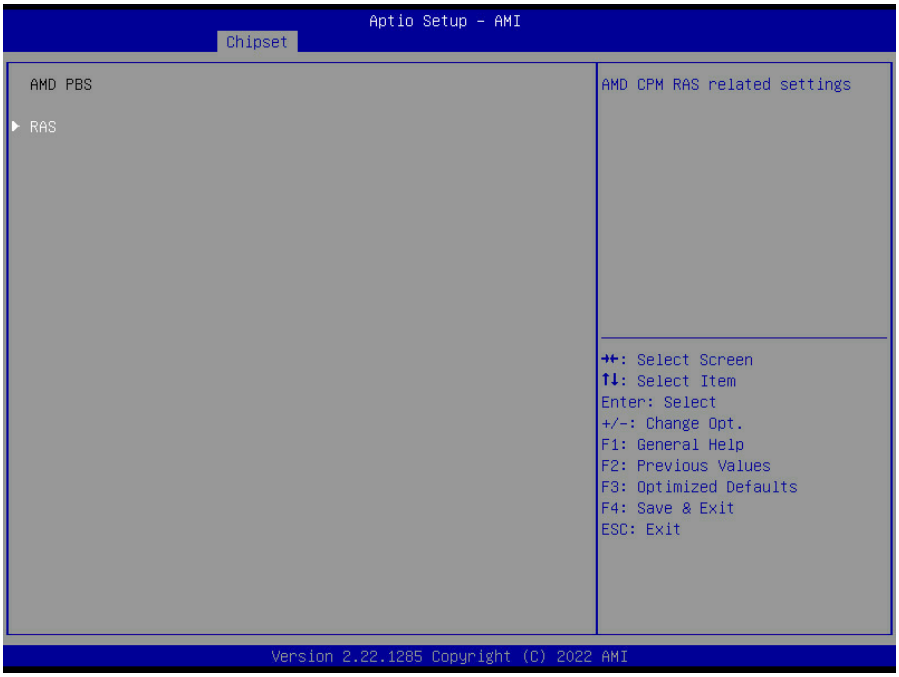
5.5.6 Soc Miscellaneous Control Submenu



ABL Console Out Control
Enable: Enable ConsoleOut Function for ABL
Disable: Disable ConsoleOut Function for ABL
Auto: Keep default behavior
Disabled / Enabled / **Auto**

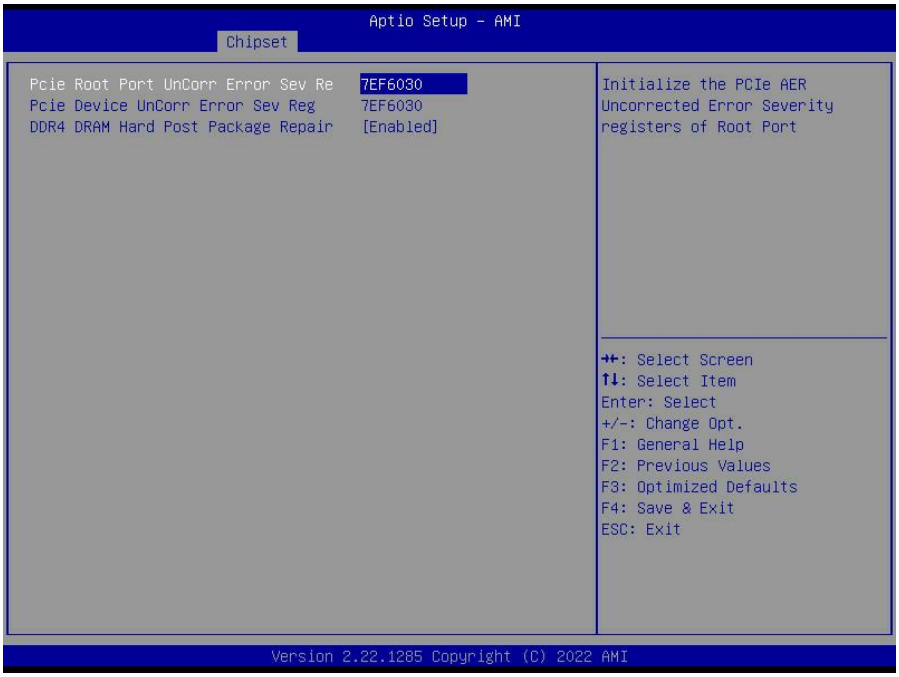
PSP error injection support
Enable EINJ support
False / True

5.5.7 AMD PBS Submenu



RAS
AMD CPM RAS related settings

5.5.8 RAS Submenu

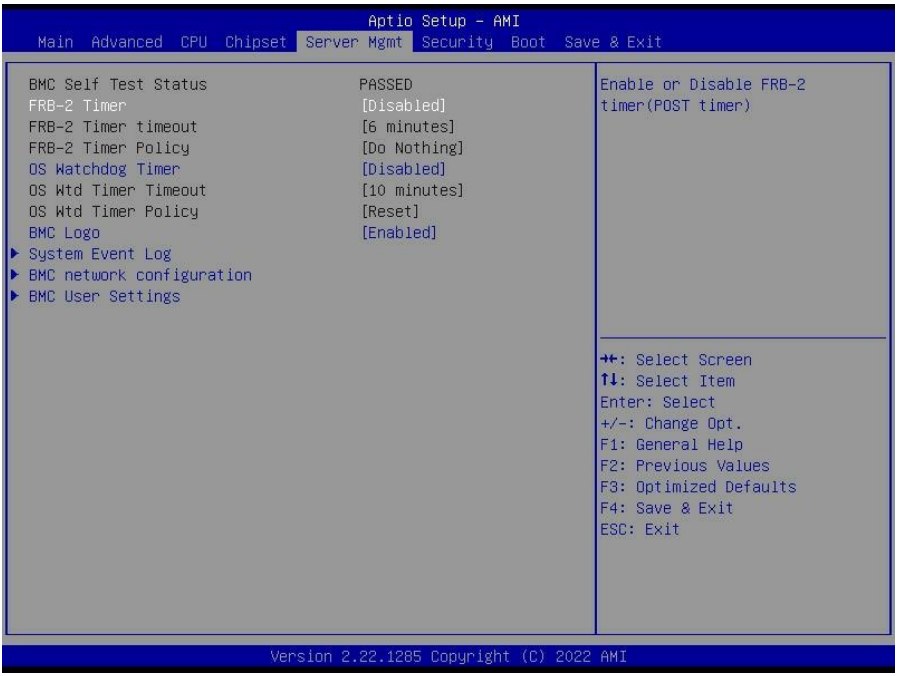


Pcie Root Port UnCorr Error Sev Re
Initialize the PCIe AER Uncorrected Error Severity registers of Root Port
7EF6030

Pcie Device UnCorr Error Sev Reg
Initialize the PCIe AER Uncorrected Error Severity registers of PCIe Device
7EF6030

DDR4 DRAM Hard Post Package Repair
This feature allows spare DRAM rows to replace malfunctioning rows via an in-field repair mechanism
Disabled / **Enabled**

5.6 Server Management



FRB-2 Timer
Enable or Disable FRB-2 timer (POST timer)
Disabled / Enabled
NOTE: When [FRB-2 Timer] is set to **[Enabled],** the following items will be available.

FRB-2 Timer timeout
Enter value Between 3 to 6 min for FRB-2 Timer Expiration value
3 minutes **/** 4 minutes **/** 5 minutes **/ 6 minutes** / 12 minutes

FBR-2 Timer Policy
Configure how the system should respond if the FRB-2 Timer expires. Not available if FRB-2 Timer is disabled.
Do Nothing / Reset **/** Power Down **/** Power Cycle

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.
Disabled / Enabled

NOTE: When [OS Watchdog Timer] is set to **[Enabled],** the following items will be available.

OS Wtd Timer Timeout
Configure the length of the OS Boot Watchdog Timer. Not available if OS Boot Watchdog Timer is disabled.

5 minutes **/ 10 minutes / 1**5 minutes **/** 20 minutes

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.

Do Nothing / Reset **/** Power Down **/** Power Cycle

BMC Logo
Enable or Disable BMC logo

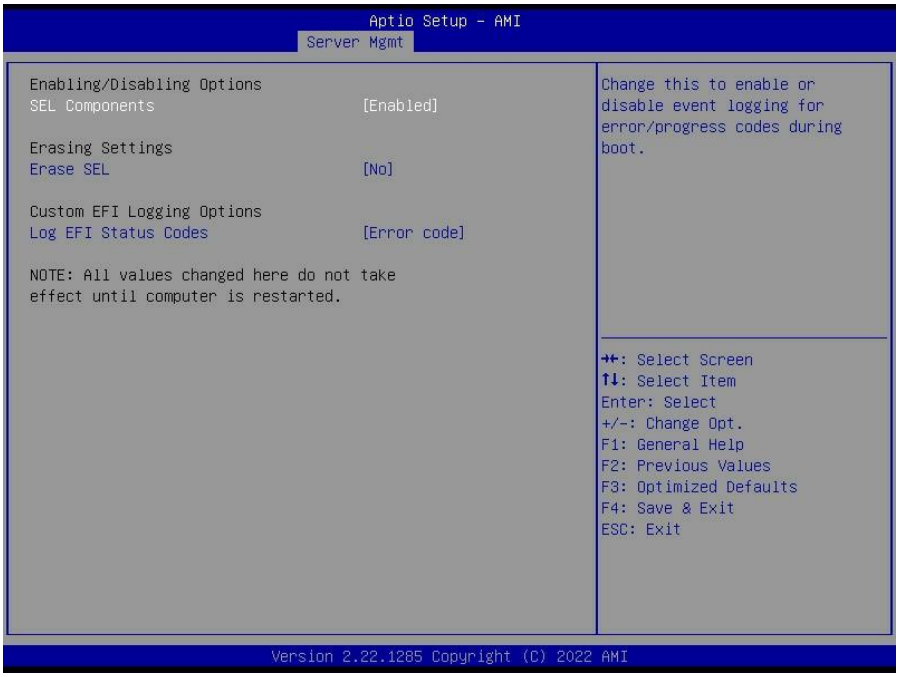
Disabled / **Enabled**

System Event Log
Press<Enter> to change the SEL event log configuration.

BMC network configuration
Configure BMC network parameters

BMC User Settings
Press<Enter> to Add. Delete and Set Privilege level for users.

5.6.1 System Event Log Submenu

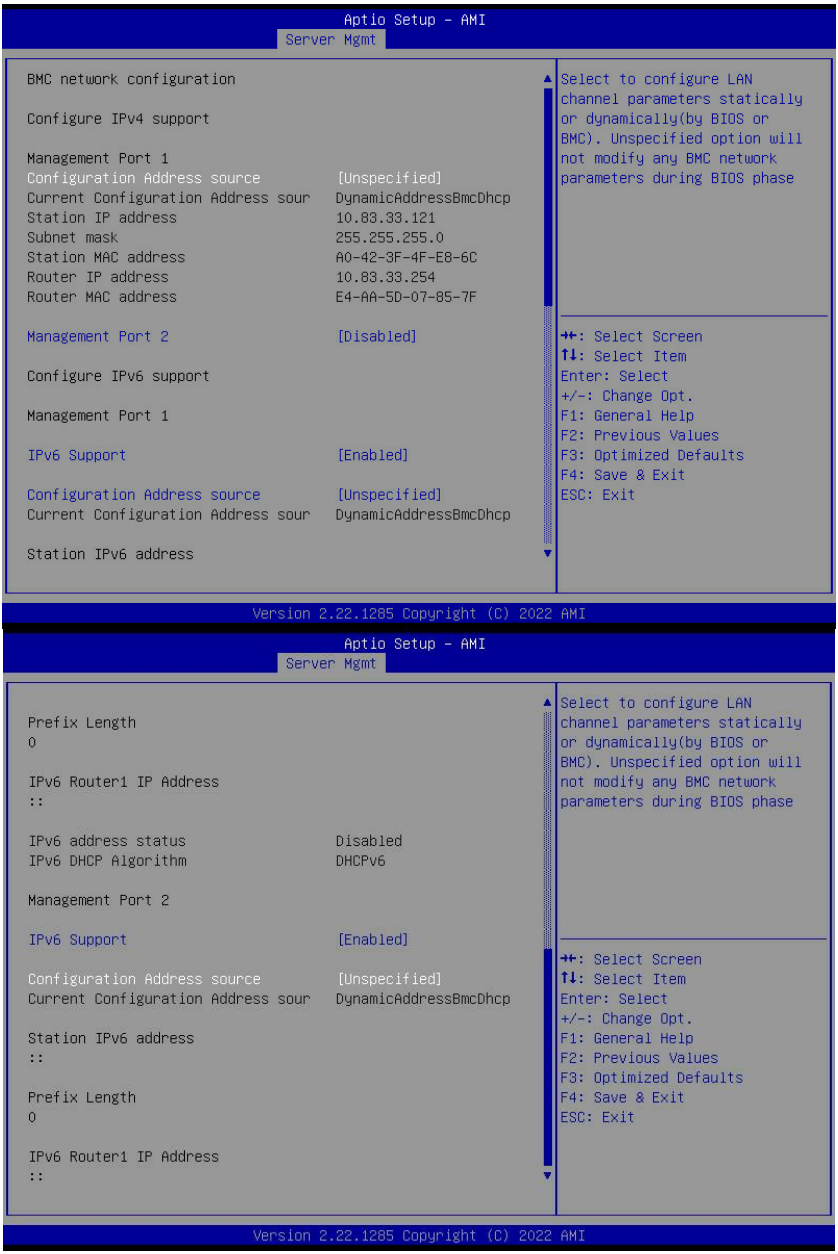


SEL Components
Change this to enable or disable event logging for error/progress codes during boot.
Enabled / Disabled

Erase SEL
Choose options for erasing SEL.
No / Yes, on next reset / Yes, on every reset

Log EFI Status Codes
Disable the logging of EFI Status Codes or log only error code or only progress code or both.
Both **/** Disabled / **Error Code** / Progress Code

5.6.2 BMC Network Configuration Submenu



Configure IPV4 support
Management Port 1
Configuration Address Source
Select the configure LAN channel parameters statically or dynamically (by BIOS or BMC). Unspecified option will not modify any BMC network parameters during BIOS phase.

Unspecified / Static / DynamicBmcDhcp / DynamicBmcNonDhcp

Management Port 2
Enable/Disable BMC Share NIC

Disabled / Enabled

NOTE: When Management Port 2 is set to **Enabled,** the following items will be available to set up.

Configuration Address Source
Select the configure LAN channel parameters statically or dynamically (by BIOS or BMC). Unspecified option will not modify any BMC network parameters during BIOS phase.

Unspecified / Static / DynamicBmcDhcp / DynamicBmcNonDhcp

Configure IPV6 support
Management Port 1
IPV6 Support
Enable or Disable LAN1 IPV6 Support

Disabled / Enabled

Management Port 2
IPV6 Support
Enable or Disable LAN2 IPV6 Support

Disabled / Enabled

NOTE: When Management Port 2 is set to **Enabled,** the following items will be available to set up.

Configuration Address Source
Select the configure LAN channel parameters statically or dynamically (by BIOS or BMC). Unspecified option will not modify any BMC network parameters during BIOS phase.

Unspecified / Static / DynamicBmcDhcp / DynamicBmcNonDhcp

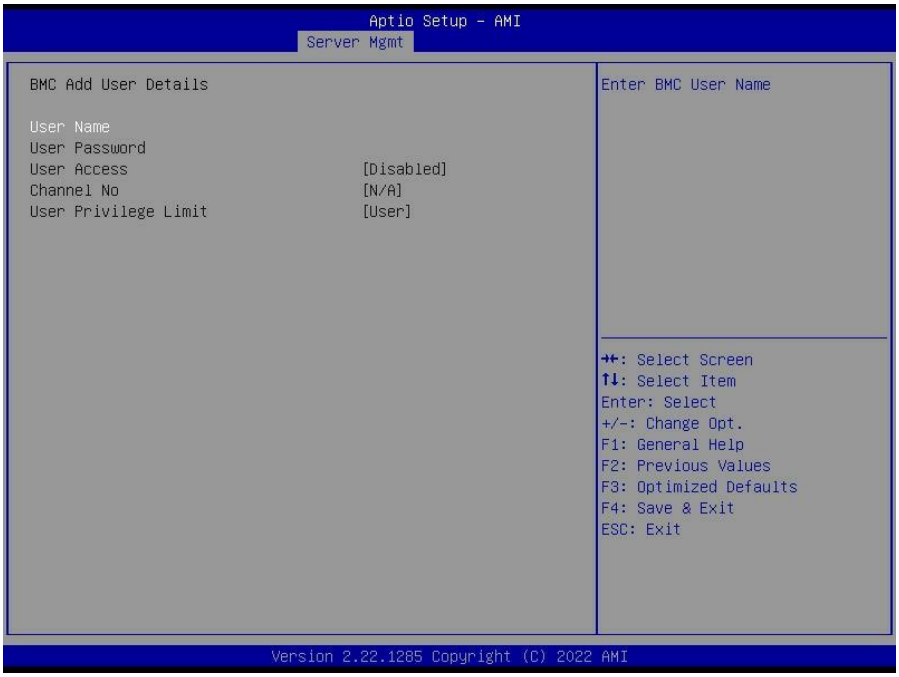
5.6.3 BMC User Configuration Submenu

Add User
Press <Enter> to Add a User.

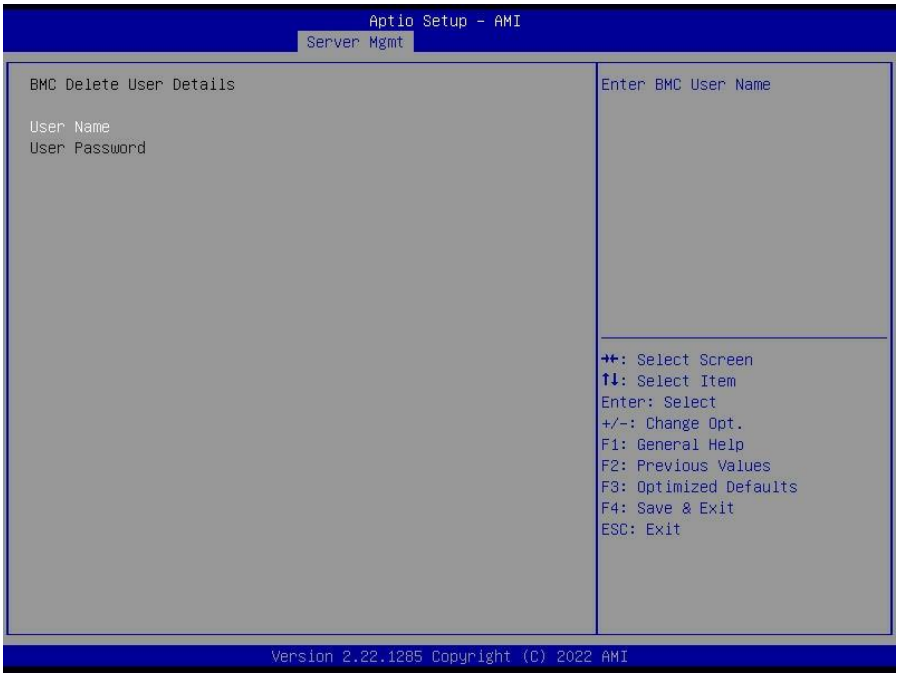
Delete User
Press<Enter> to Delete a User.

Change User Settings
Press<Enter> to Change User Settings.

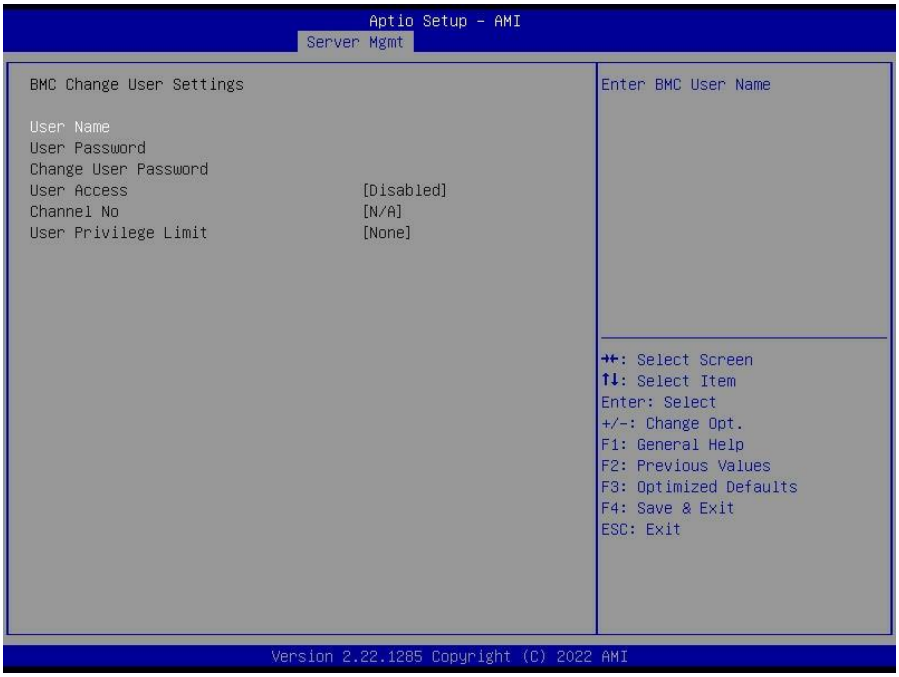
5.6.3.1 BMC User Configuration Submenu



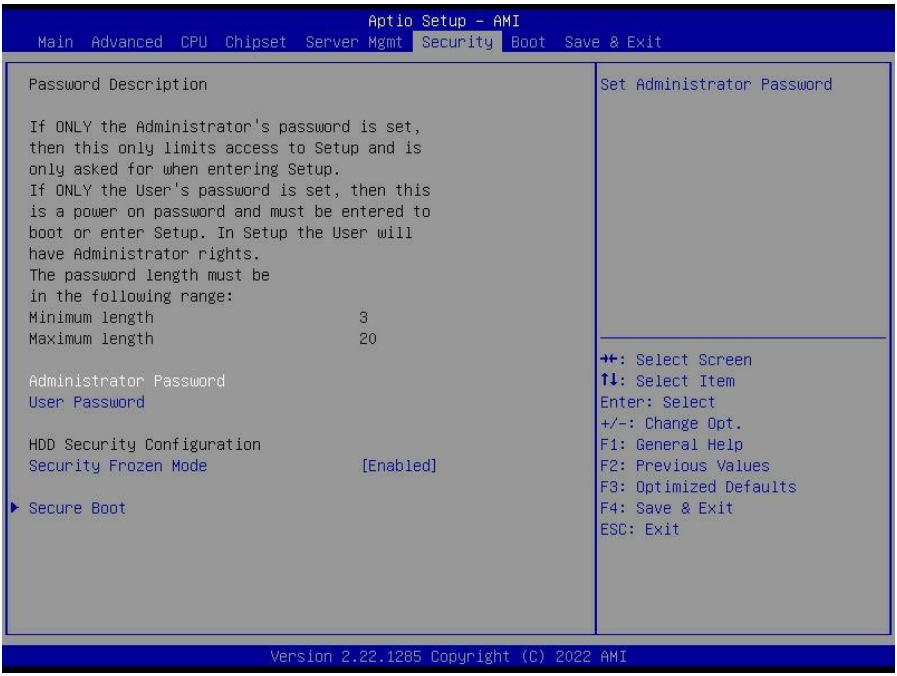
5.6.3.2 Delete User Configuration Submenu



5.6.3.3 Change User Configuration Submenu



5.7 Security



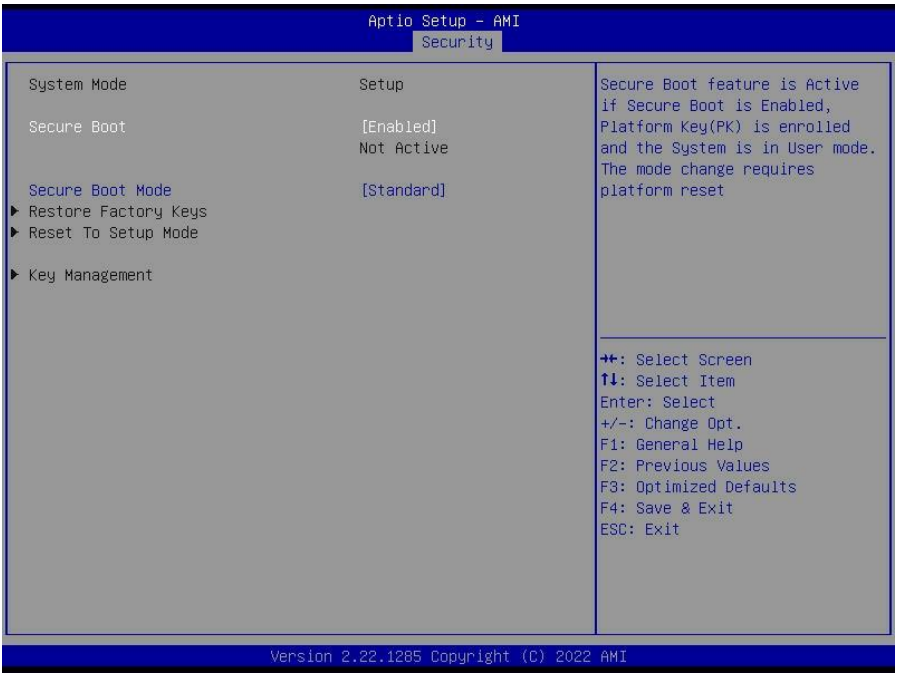
Administrator Password
Set Administrator Password.

User Password
Set User Password.

Security Frozen Mode
Enable or disable HDD security freeze lock.
Disable to support secure erase function.
Disabled / **Enabled**

Secure Boot
Customizable Secure Boot settings

5.7.1 Secure Boot Configuration Submenu



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
System mode is User/Deployed, and CSM function is disabled
Enabled / Disabled

Secure Boot Mode
Secure Boot mode selector. 'Custom' mode enables users to change Image execution policy and manage secure boot keys.
Standard / **Custom**

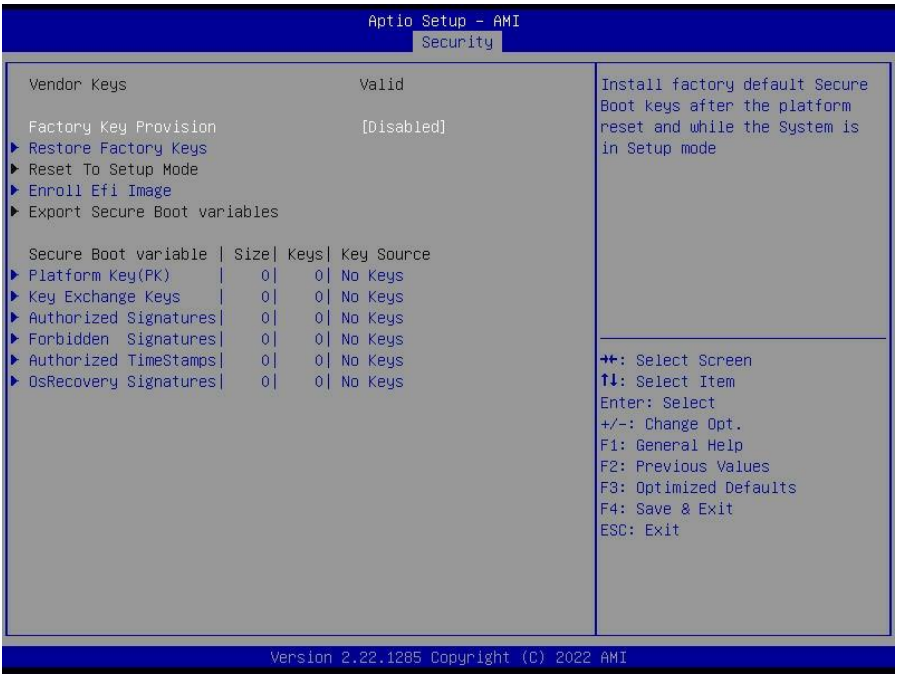
NOTE: When **Secure Boot Mode** was set to **[Custom],** the following items will be available to set up.

Restore Factory Keys
Force System to User Mode. Install factory default Secure Boot key databases

Reset To Setup Mode
Delete all Secure Boot Key databases from NVRAM

Key Management
Enables expert users to modify Secure Boot Policy variables without full authentication

5.7.2 Key Management



Factory Keys Provision
Install factory default Secure Boot Keys after the platform reset and while the System is in Setup Mode.
Enabled / **Disabled**

Restore Factory Keys
Force System to User Mode. Install Factory Default Secure Boot key databases.

Reset To Setup Mode
Delete all Secure Boot Key database from NVRAM

Enroll Efi Image
Allow the image to run in Secure Boot mode. Enroll SHA256 hash certificate of a PE image into Authorized Signature Database (db)

Export Secure Boot variables
Copy NVRAM content of Secure Boot variables to files in a root folder on a file system device

Platform Key (PK)
Enroll Factory Defaults or load certificates from a file:
1. Public Key Certificate in:
a) EFI_SIGNATURE_LIST
b) EFI_CERT_X509 (DER encoded)
c) EFI_CERT_RSA2048 (bin)
d) EFI_CERT_SHA256,384,512
2. Authenticated UEFI Variable
3. EFI PE/COFF Image(SHA256)
Key Source:
Default, External, Mixed, Test
Set New

Key Exchange Keys
Enroll Factory Defaults or load certificates from a file:
1. Public Key Certificate in:
a) EFI_SIGNATURE_LIST
b) EFI_CERT_X509 (DER encoded)
c) EFI_CERT_RSA2048 (bin)
d) EFI_CERT_SHA256,384,512
2. Authenticated UEFI Variable
3. EFI PE/COFF Image(SHA256)
Key Source:
Default, External, Mixed, Test

Authorized Signatures
Enroll Factory Defaults or load certificates from a file:
1. Public Key Certificate in:
a) EFI_SIGNATURE_LIST
b) EFI_CERT_X509 (DER encoded)
c) EFI_CERT_RSA2048 (bin)
d) EFI_CERT_SHAXXX
2. Authenticated UEFI Variable
3. EFI PE/COFF Image(SHA256)
Key Source:
Default, External, Mixed

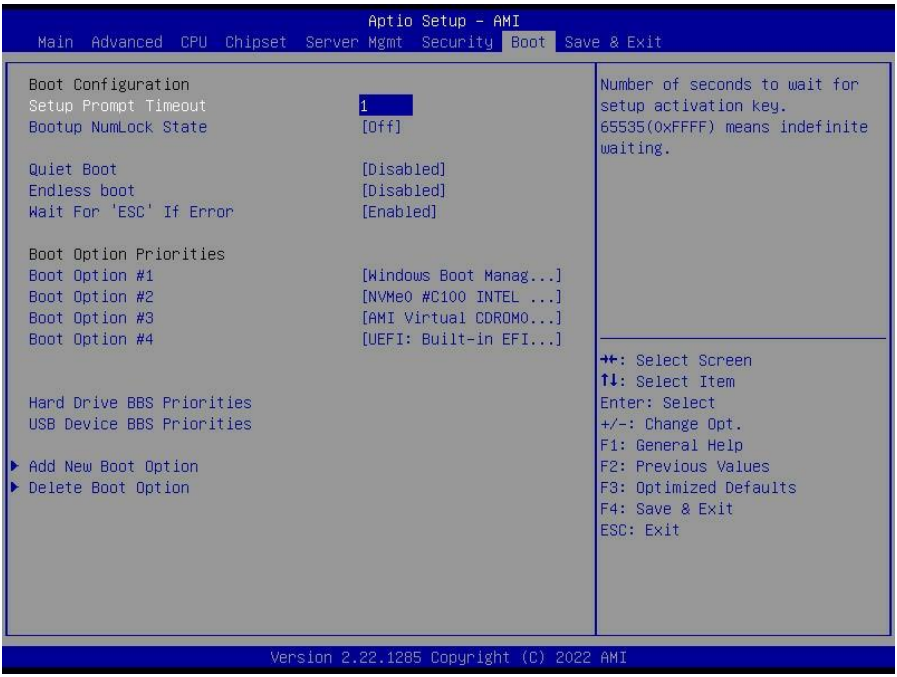
Forbidden Signatures
Enroll Factory Defaults or load certificates from a file:
1. Public Key Certificate in:
a) EFI_SIGNATURE_LIST
b) EFI_CERT_X509 (DER)
c) EFI_CERT_RSA2048 (bin)

d) EFI_CERT_SHAXXX
2. Authenticated UEFI Variable
3. EFI PE/COFF Image(SHA256)
Key Source:
Default, External, Mixed

Authorized TimeStamps
Enroll Factory Defaults or load certificates from a file:
1. Public Key Certificate in:
a) EFI_SIGNATURE_LIST
b) EFI_CERT_X509 (DER encoded)
c) EFI_CERT_RSA2048 (bin)
d) EFI_CERT_SHAXXX
2. Authenticated UEFI Variable
3. EFI PE/COFF Image(SHA256)
Key Source:
Default, External, Mixed

OsRecovery Signatures
Enroll Factory Defaults or load certificates from a file:
1. Public Key Certificate in:
a) EFI_SIGNATURE_LIST
b) EFI_CERT_X509 (DER encoded)
c) EFI_CERT_RSA2048 (bin)
d) EFI_CERT_SHAXXX
2. Authenticated UEFI Variable
3. EFI PE/COFF Image(SHA256)
Key Source:
Default, External, Mixed

5.8 Boot



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.
Off / On

Quiet Boot
Enable or disable Quiet Boot option.
Disabled / Enabled

Endless Boot
Enabled or Disabled Endless boot
Disabled / Enabled

Wait for "ESC" if Error
Enabled or Disabled Wait ESC key Function. When chassis intrusion, CMOS Clear or BMC not Response.
Disabled **/ Enabled**

Boot Option Priorities
Boot Option #1#2#3#4
Sets the system boot order.
Device Name / Disabled

Hard Drive BBS Priorities
Set the order of the legacy devices in this group

USB Device BBS Priorities
Set the order of the legacy devices in this group

Add New Boot Option
Add a new EFI boot option to the boot order

Delete Boot Option
Remove an EFI boot option from the boot order

5.8.1 Add Boot Option Configuration

Add boot option
Create new boot option

Path for boot option
Enter the path to the boot option in the format
Fs0:\path\ filename.efi

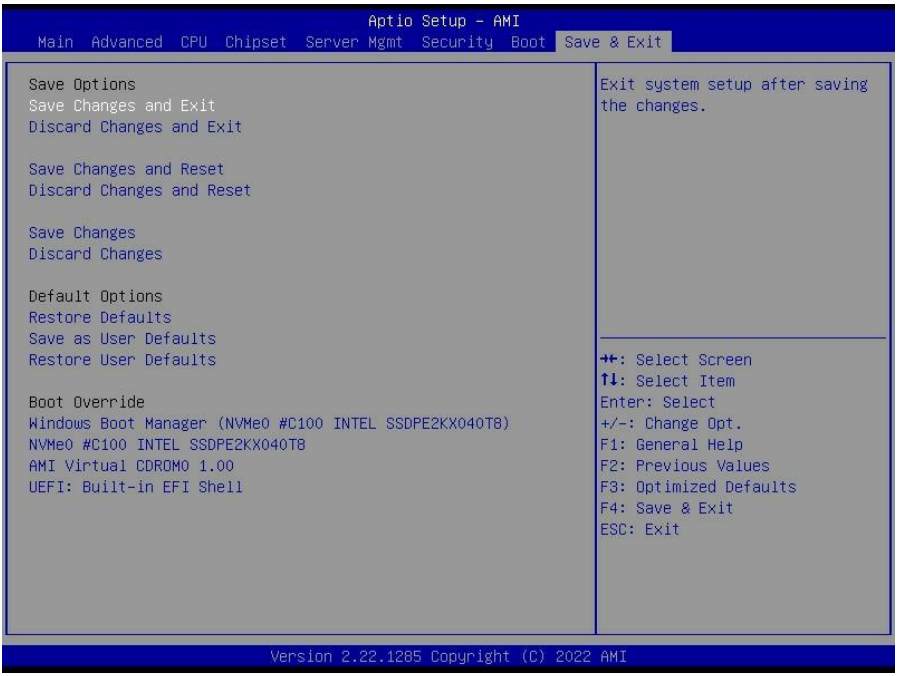
Create
Creates the newly formed boot option

5.8.2 Delete Boot Option Configuration

Delete Boot Option
Remove an EFI boot option from the boot order.

Device Name / Select one to Delete

5.9 Save & Exit



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.

Boot Override
Device Name

Chapter 6: Diagnostics

NOTE: if you experience problems with setting up your system, always check the following things in the following order:

Memory, Video, CPU

By checking these items, you will most likely find out what the problem might have been when setting up your system. For more information on troubleshooting, check the TYAN website at http://www.tyan.com.

6.1 Flash Utility

Every BIOS file is unique for the motherboard it was designed for. For Flash Utilities, BIOS downloads, and information on how to properly use the Flash Utility with your motherboard, please check the TYAN web site at http://www.tyan.com

NOTE: Please be aware that by flashing your BIOS, you agree that in the event of a BIOS flash failure, you must contact your dealer for a replacement BIOS. There are no exceptions. TYAN does not have a policy for replacing BIOS chips directly with end users. In no event will TYAN be held responsible for damages done by the end user.

6.2 AMIBIOS Post Code (Aptio)

The POST code checkpoints are the largest set of checkpoints during the BIOS pre-boot process. The following table describes the type of checkpoints that may occur during the POST portion of the BIOS:

Checkpoint Ranges

Status Code Range	Description
0x01 – 0x0B	SEC execution
0x0C – 0x0F	Sec errors
0x10 – 0x2F	PEI execution up to and including memory detection
0x30 – 0x4F	PEI execution after memory detection
0x50 – 0x5F	PEI errors
0x60 – 0x8F	DXE execution up to BDS
0x90 – 0xCF	BDS execution
0xD0 – 0xDF	DXE errors
0xE0 – 0xE8	S3 Resume (PEI)
0xE9 – 0xEF	S3 Resume errors (PEI)
0xF0 – 0xF8	Recovery (PEI)
0xF9 – 0xFF	Recovery errors (PEI)

Standard Checkpoints

SEC Phase

Status Code	Description
0x00	Note used
Progress Codes	
0x01	Power on. Reset type detection (soft/hard).
0x02	AP initialization before microcode loading
0x03	North Bridge initialization before microcode loading
0x04	South Bridge initialization before microcode loading
0x05	OEM initialization before microcode loading
0x06	Microcode loading
0x07	AP initialization after microcode loading
0x08	North Bridge initialization after microcode loading
0x09	South Bridge initialization after microcode loading
0x0A	OEM initialization after microcode loading
0x0B	Cache initialization

SEC Error Codes	
0x0C – 0x0D	Reserved for future AMI SEC error codes
0x0E	Microcode not found
0x0F	Microcode not found

SEC Phase

None

PEI Phase

Status Code	Description
Progress Codes	
0x10	PCI Core is started
0x11	Pre-memory CPU initialization is started
0x12	Pre-memory CPU initialization (CPU module specific)
0x13	Pre-memory CPU initialization (CPU module specific)
0x14	Pre-memory CPU initialization (CPU module specific)
0x15	Pre-memory North Bridge initialization is started
0x16	Pre-Memory North Bridge initialization (North Bridge module specific)
0x17	Pre-memory North Bridge initialization (North Bridge module specific)
0x18	Pre-Memory North Bridge initialization (North Bridge module specific)
0x19	Pre-memory South Bridge initialization is started
0x1A	Pre-Memory South Bridge initialization (South Bridge module specific)
0x1B	Pre-memory South Bridge initialization (South Bridge module specific)
0x1C	Pre-Memory South Bridge initialization (South Bridge module specific)
0x1D – 0x2A	OEM pre-memory initialization codes
0x2B	Memory initialization. Serial Presence Detect (SPD) data reading
0x2C	Memory initialization. Memory presence detection
0x2D	Memory initialization. Programming memory timing information
0x2E	Memory initialization. Configuring memory
0x2F	Memory initialization (other)
0x30	Reserved for ASL (see ASL Status Codes section below)
0x31	Memory Installed
0x32	CPU post-memory initialization is started.

Status Code	Description
0x33	CPU post-memory initialization. Cache initialization
0x34	CPU post-memory initialization. Application Processor(s) (AP) initialization
0x35	CPU post-memory initialization. Boot Strap Processor (BSP) selection
0x36	CPU post-memory initialization. System Management Mode (SMM) initialization
0x37	Post-Memory North Bridge initialization is started.
0x38	Post-Memory North Bridge initialization (North Bridge module specific)
0x39	Post-Memory North Bridge initialization (North Bridge module specific)
0x3A	Post-Memory North Bridge initialization (North Bridge module specific)
0x3B	Post-Memory South Bridge initialization is started
0x3C	Post-Memory South Bridge initialization (South Bridge module specific)
0x3D	Post-Memory South Bridge initialization (South Bridge module specific)
0x3E	Post-Memory South Bridge initialization (South Bridge module specific)
0x3F – 0x4E	OEM post memory initialization codes
0x4F	DXE PIL is started
PCI Error Codes	
0x50	Memory initialization error. Invalid memory type or incompatible memory speed
0x51	Memory initialization error. SPD reading has failed.
0x52	Memory initialization error. Invalid memory size or memory modules do not match.
0x53	Memory initialization error. No usable memory detected
0x54	Unspecified memory initialization error
0x55	Memory not installed
0x56	Invalid CPU type or speed
0x57	CPU mismatch
0x58	CPU self test failed or possible CPU cache error
0x59	CPU microcode is not found or microcode update is failed.
0x5A	Internal CPU error
0x5B	Reset PPI is not available.
0x5C – 0x5F	Reserved for future AMI error codes
S3 Resume Progress Codes	
0xE0	S3 Resume is started (S3 Resume PPI is called by the DXE IPL).

Status Code	Description
0xE1	S3 Boot Script execution
0xE2	Video repost
0xE3	OS S3 wake vector call
0xE4 – 0xE7	Reserved for future AMI progress codes
S3 Resume Error Codes	
0xE8	S3 Resume failed
0xE9	S3 Resume PPI not found
0xEA	S3 Resume Boot Script error
0xEB	S3 OS wake error
0xEC – 0xEF	Reserved for future AMI error codes
Recovery Progress Codes	
0xF0	Recovery condition triggered by firmware (Auto recovery)
0xF1	Recovery condition triggered by user (forced recovery)
0xF2	Recovery process started
0xF3	Recovery firmware image is found.
0xF4	Recovery firmware image is loaded.
0xF5 – 0xF7	Reserved for future AMI progress codes
Recovery Error Codes	
0xF8	Recovery PPI is not available.
0xF9	Recovery capsule is not found.
0xFA	Invalid recovery capsule
0xFB – 0xFF	Reserved for future AMI error codes

PEI Beep Codes

# of Beeps	Description
Progress Codes	
1	Memory not installed
1	Memory was installed twice (installPEIMemory routine in PEI Core called twice).
2	Recovery started
3	DXEIPL 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 Phase

Status Code	Description
0x60	DXE Core is started.
0x61	NVRAM initialization
0x62	Installation of the South Bridge Runtime Services
0x63	CPU DXE initialization is started.
0x64	CPU DXE initialization (CPU module specific)
0x65	CPU DXE initialization (CPU module specific)
0x66	CPU DXE initialization (CPU module specific)
0x67	CPU DXE initialization (CPU module specific)
0x68	PCI host bridge initialization
0x69	North Bridge DXE initialization is started.
0x6A	North Bridge DXE SMM initialization is started.
0x6B	North Bridge DXE initialization (North Bridge module specific)
0x6C	North Bridge DXE initialization (North Bridge module specific)
0x6D	North Bridge DXE initialization (North Bridge module specific)
0x6E	North Bridge DXE initialization (North Bridge module specific)
0x6F	North Bridge DXE initialization (North Bridge module specific)
0x70	South Bridge DXE initialization is started.
0x71	South Bridge DXE SMM initialization is started.
0x72	South Bridge devices initialization
0x73	South Bridge DXE initialization (South Bridge module specific)
0x74	South Bridge DXE initialization (South Bridge module specific)
0x75	South Bridge DXE initialization (South Bridge module specific)
0x76	South Bridge DXE initialization (South Bridge module specific)
0x77	South Bridge DXE initialization (South Bridge module specific)
0x78	ACPI module initialization
0x79	CSM initialization
0x7A – 0x7F	Reserved for future AMI DXE codes
0x80 – 0x8F	OEM DXE initialization codes
0x90	Boot Device Selection (BDS) phase is started
0x91	Driver connecting is started
0x92	PCI Bus initialization is started
0x93	PCI Bus Hot Plug Controller initialization
0x94	PCI Bus Enumeration
0x95	PCI BUS Request Resources

Status Code	Description
0x96	PCI Bus Assign Resources
0x97	Console output devices connect
0x98	Console Input devices connect
0x99	Super IO initialization
0x9A	USB initialization is started.
0x9B	USB Reset
0x9C	USB Detect
0x9D	USB Enable
0x9E -0x9F	Reserved for future AMI codes
0xA0	IDE initialization is started
0xA1	IDE Reset
0xA2	IDE Detect
0xA3	IDE Enable
0xA4	SCSI initialization is started.
0xA5	SCSI Reset
0xA6	SCSI Detect
0xA7	SCSI Enable
0xA8	Setup Verifying Password
0xA9	Start of Setup
0xAA	Reserved for ASL (see ASL Status Codes section below)
0xAB	Setup Input Wait
0xAC	Reserved for ASL (see ASL Status Codes section below)
0xAD	Ready To Boot event
0xAE	Legacy Boot event
0xAF	Exit Boot Services event
0xB0	Runtime Set Virtual Address MAP Begin
0xB1	Runtime Set Virtual Address MAP End
0xB2	Legacy Option ROM initialization
0xB3	System Reset
0xB4	USB hot plug
0xB5	PCI bus hot plug
0xB6	Clean-up of NVRAM
0xB7	Configuration Reset (reset of NVRAM settings)
0xB8 – 0xBF	Reserved for future AMI codes
0xC0 – 0xCF	OEM BDS initialization codes

Status Code	Description
DXE Error Codes	
0xD0	CPU initialization error
0xD1	North Bridge initialization error
0xD2	South Bridge initialization error
0xD3	Some of the Architectural Protocols are not available
0xD4	PCI resource allocation error. Out of Resources
0xD5	No Space for Legacy Option ROM
0xD6	No Console Output Devices are found.
0xD7	No Console Input Devices are found.
0xD8	Invalid password
0xD9	Error loading Boot Option (LoadImage returned error)
0xDA	Boot Option is failed (StartImage returned error).
0xDB	Flash update is failed.
0xDC	Reset protocol is not available.

DXE Beep Codes

# of Beeps	Description
1	Invalid password
4	Some of the Architectural Protocols are not available.
5	No Console Output Devices are found.
5	No Console Input Devices are found.
6	Flash update is failed.
7	Reset protocol is not available.
8	Platform PCI resource requirements cannot be met.

ACPI/ASL Checkpoints

Status Code	Description
0x01	System is entering S1 sleep state.
0x02	System is entering S2 sleep state.
0x03	System is entering S3 sleep state.
0x04	System is entering S4 sleep state.
0x05	System is entering S5 sleep state.
0x10	System is waking up from the S1 sleep state.
0x20	System is waking up from the S2 sleep state.
0x30	System is waking up from the S3 sleep state.

Status Code	Description
0x40	System is waking up from the S4 sleep state.
0xAC	System has transitioned into ACPI mode. Interrupt controller is in APIC mode.
0xAA	System has transitioned into ACPI mode. Interrupt controller is in APIC mode.

NOTE

Appendix I: Cable Connection Tables

1. MCIO Cable

B7136T70AV12E8HR & B7136T70AV12E8HR-2T SKU

Front Backplane (BP) Board to S8056GM2NE-2T-B/MB			
Cable	**HDD BP 1 M1322T70A-BPE-8**	**Connect to**	**S8056GM2NE-2T-B/MB**
MCIO 8I To SlimSAS 8I	MCIO1	→	P2305-4E-SlimSAS1
MCIO 8I To SlimSAS 8I	MCIO2	→	P2305-4E-SlimSAS2
MCIO 8I To MCIO 8I	MCIO3	→	CN4
MCIO 8I To MCIO 8I	MCIO4	→	CN3
HDR 7P Cable	HDR_1	→	HDR_1

Front Backplane (BP) Board to S8056GM2NE-2T-B/MB			
Cable	**HDD BP 2 M1322T70A-BPE-8**	**Connect to**	**S8056GM2NE-2T-B/MB**
MCIO 8I To MCIO 8I	MCIO1	→	CN6
MCIO 8I To MCIO 8I	MCIO2	→	CN5
MCIO 8I To MCIO 8I	MCIO3	→	CN10
MCIO 8I To MCIO 8I	MCIO4	→	CN9
HDR 7P Cable	HDR_1	→	HDR_2

Front Backplane (BP) Board to S8056GM2NE-2T-B/MB			
Cable	**HDD BP 3 M1322T70A-BPE-8**	**Connect to**	**S8056GM2NE-2T-B/MB**
MCIO 8I To MCIO 8I	MCIO1	→	CN8
MCIO 8I To MCIO 8I	MCIO2	→	CN7
MCIO 8I To SlimSAS 8I	MCIO3	→	P2305-4E-SlimSAS1
MCIO 8I To SlimSAS 8I	MCIO4	→	P2305-4E-SlimSAS2
HDR 7P Cable	HDR_1	→	HDR_3

Rear Backplane (BP) Board to S8056GM2NE-2T-B/MB			
Cable	**HDD BP M1318T65-BP12E-2**	**Connect to**	**S8056GM2NE-2T-B/MB**
MCIO 8I To MCIO 8I	MCIO1	→	CN1
HDR 7P Cable	HDR_1	→	HDR_4

2. System FAN cable

FAN	Connect to	HDD BP 1 M1322T70A-BPE-8
FAN3	→	FAN1
FAN4	→	FAN2

FAN	Connect to	HDD BP 3 M1322T70A-BPE-8
FAN2	→	FAN2

3. Front Panel USB Cable

Front Panel M1717T65-USB	Connect to	S8056GM2NE-2T-B/MB
J3	→	USB3_FPIO1

4. Front Panel Control Cable

Front Panel M1718T65-FPB	Connect to	S8056GM2NE-2T-B/MB
J4	→	FPIO_2

5. FAN Ctrl Cable

HDD BP M1322T70A-BPE-8	Connect to	S8056GM2NE-2T-B/MB
J3	→	FAN_HD1
J3	→	
J3	→	

6. Power Supply Cables

M7126T65-PDB	Connect to	HDD BP M1322T70A-BPE-8
PW2	→	PW1
	→	PW1
	→	PW1

7. Power Supply Cables

M7126T65-PDB	Connect to	S8056GM2NE-2T-B/MB
PW6	→	PW3
PW3		PW2
PWR1		PW1
PSMI	→	PSMI_HD1

8. Power Supply Cables

M7126T65-PDB	Connect to	HDD BP M1318T65-BP12E-2
PW8	→	PW1

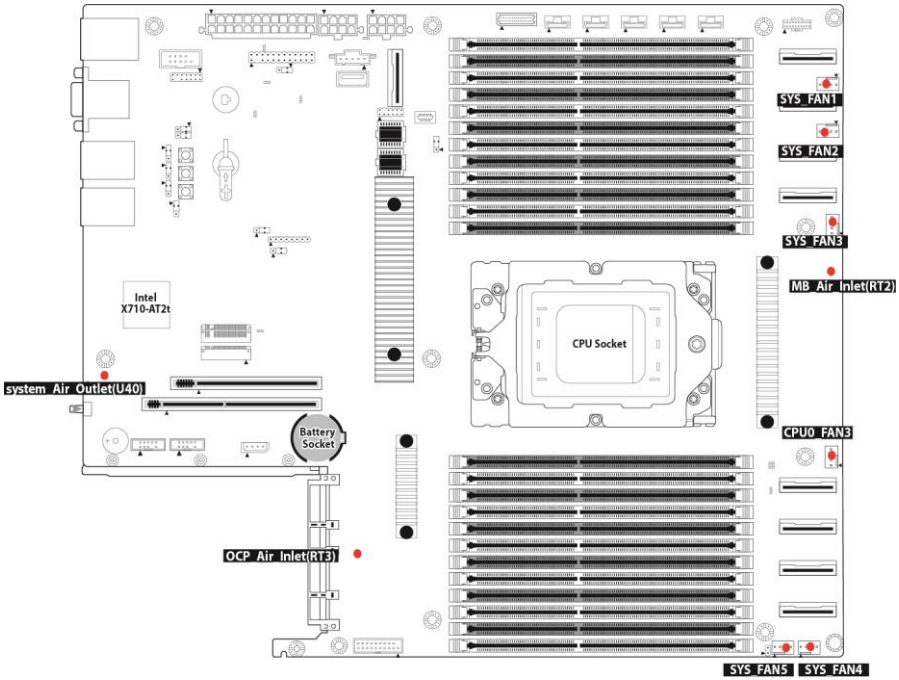
9. SWITCH CABLE

Chassis	Connect to	S8056GM2NE-2T-B/MB
Chassis	→	J66

Appendix II: Fan and Temp Sensors

This section aims to help readers identify the locations of some specific FAN and Temp Sensors on the motherboard. A table of BIOS Temp sensor name explanation is also included for readers' reference.

Figure 1: Sensor Location

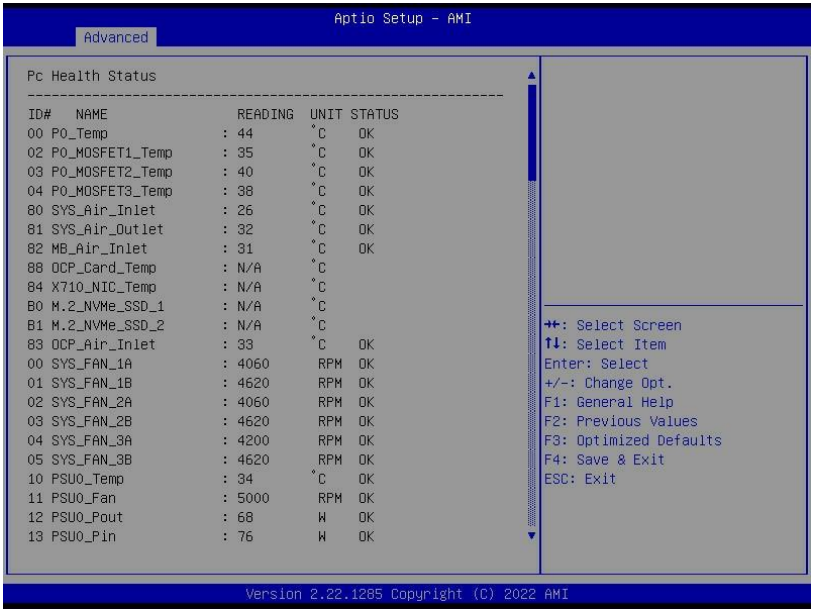


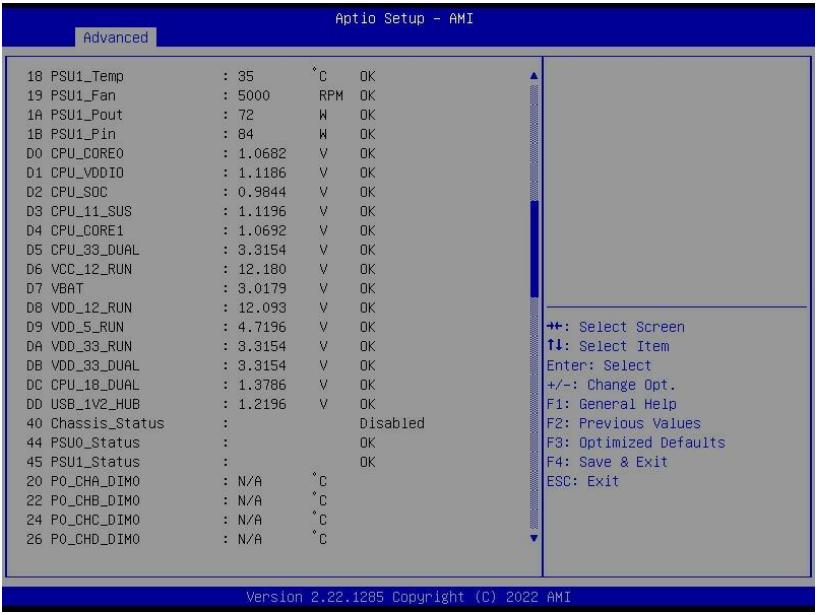
NOTE: The red spot indicates the sensor.

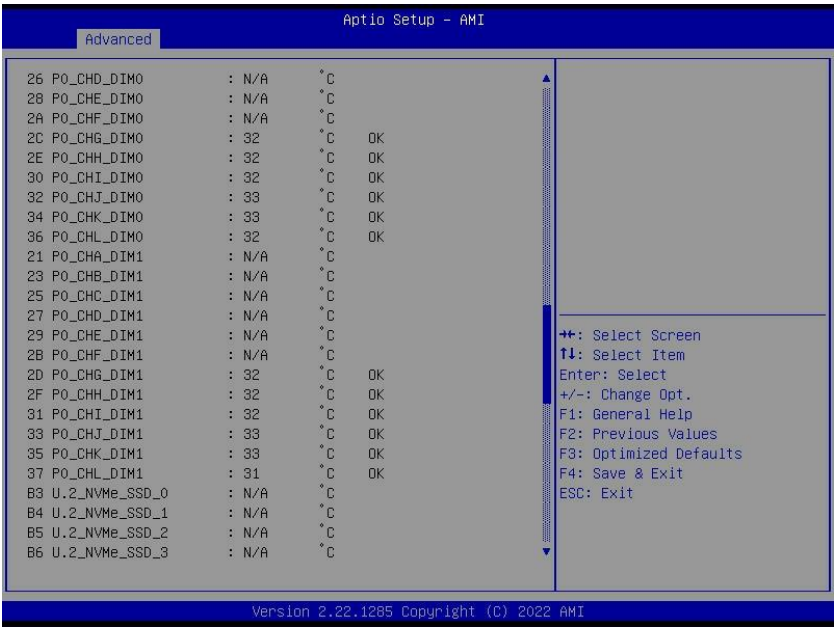
Fan and Temp Sensor Location:

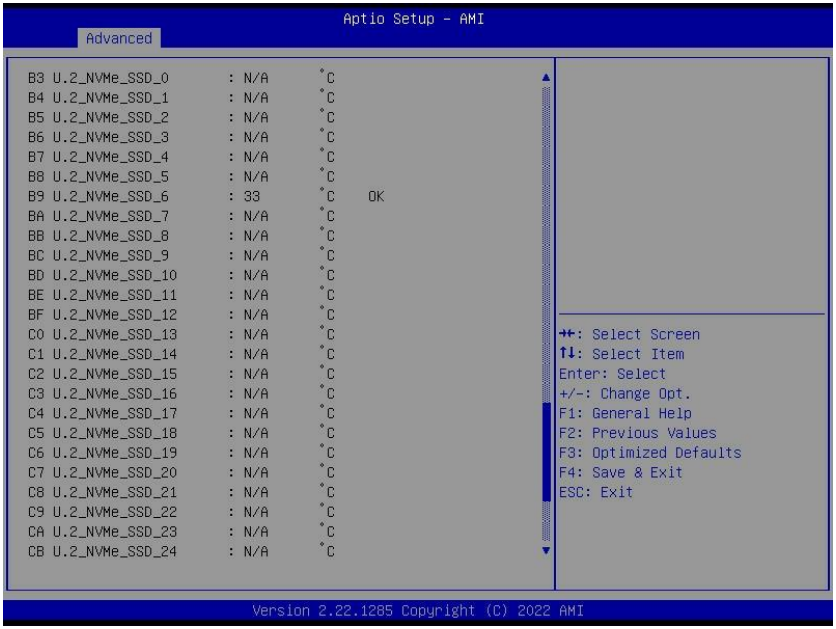
1. Fan Sensor: It is located in the third pin of the fan connector, which detects the fan speed (rpm)
2. Temp Sensor: SYS_Air_Outlet(U40) , MB_Air_Inlet(RT2) and OCP_Air_Inlet (RT3) etc. They detect the system temperature around.
   NOTE: The system temperature is measured in a scale defined by **AMD**, not in Fahrenheit or Celsius.

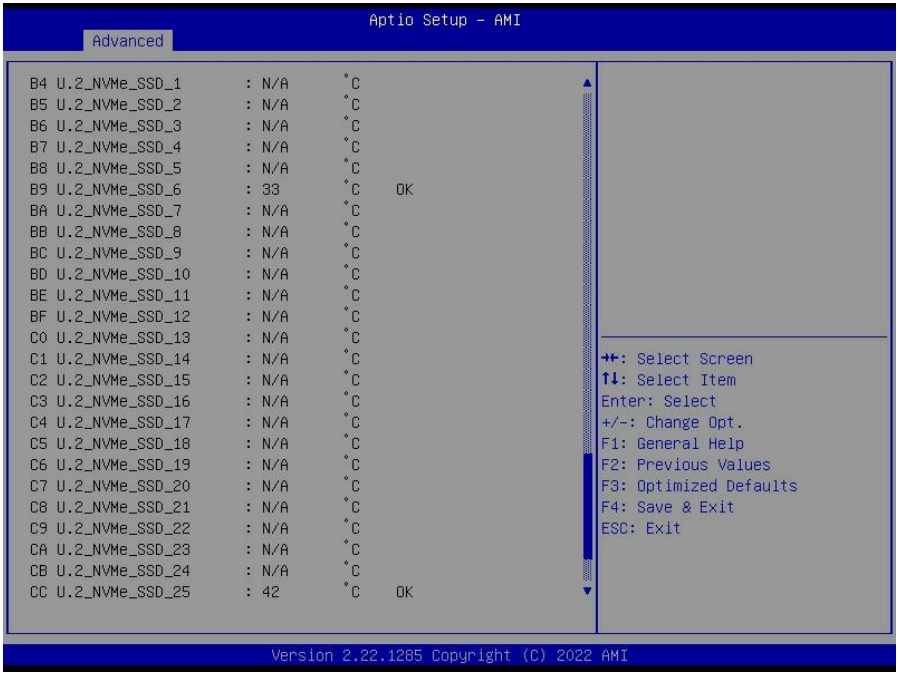
BIOS Temp Sensor Name Explanation:






Aptio Setup - AMI
Advanced
26 P0_CHD_DIM0 : N/A °C
28 P0_CHE_DIM0 : N/A °C
2A P0_CHF_DIM0 : N/A °C
2C P0_CHG_DIM0 : 32 °C OK
2E P0_CHH_DIM0 : 32 °C OK
30 P0_CHI_DIM0 : 32 °C OK
32 P0_CHJ_DIM0 : 33 °C OK
34 P0_CHK_DIM0 : 33 °C OK
36 P0_CHL_DIM0 : 32 °C OK
21 P0_CHA_DIM1 : N/A °C
23 P0_CHB_DIM1 : N/A °C
25 P0_CHC_DIM1 : N/A °C
27 P0_CHD_DIM1 : N/A °C
29 P0_CHE_DIM1 : N/A °C
2B P0_CHF_DIM1 : N/A °C
2D P0_CHG_DIM1 : 32 °C OK
2F P0_CHH_DIM1 : 32 °C OK
31 P0_CHI_DIM1 : 32 °C OK
33 P0_CHJ_DIM1 : 33 °C OK
35 P0_CHK_DIM1 : 33 °C OK
37 P0_CHL_DIM1 : 31 °C OK
B3 U.2_NVMe_SSD_0 : N/A °C
B4 U.2_NVMe_SSD_1 : N/A °C
B5 U.2_NVMe_SSD_2 : N/A °C
B6 U.2_NVMe_SSD_3 : N/A °C
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.22.1285 Copyright (C) 2022 AMI


Aptio Setup - AMI
Advanced
B3 U.2_NVMe_SSD_0 : N/A °C
B4 U.2_NVMe_SSD_1 : N/A °C
B5 U.2_NVMe_SSD_2 : N/A °C
B6 U.2_NVMe_SSD_3 : N/A °C
B7 U.2_NVMe_SSD_4 : N/A °C
B8 U.2_NVMe_SSD_5 : N/A °C
B9 U.2_NVMe_SSD_6 : 33 °C OK
BA U.2_NVMe_SSD_7 : N/A °C
BB U.2_NVMe_SSD_8 : N/A °C
BC U.2_NVMe_SSD_9 : N/A °C
BD U.2_NVMe_SSD_10 : N/A °C
BE U.2_NVMe_SSD_11 : N/A °C
BF U.2_NVMe_SSD_12 : N/A °C
C0 U.2_NVMe_SSD_13 : N/A °C
C1 U.2_NVMe_SSD_14 : N/A °C
C2 U.2_NVMe_SSD_15 : N/A °C
C3 U.2_NVMe_SSD_16 : N/A °C
C4 U.2_NVMe_SSD_17 : N/A °C
C5 U.2_NVMe_SSD_18 : N/A °C
C6 U.2_NVMe_SSD_19 : N/A °C
C7 U.2_NVMe_SSD_20 : N/A °C
C8 U.2_NVMe_SSD_21 : N/A °C
C9 U.2_NVMe_SSD_22 : N/A °C
CA U.2_NVMe_SSD_23 : N/A °C
CB U.2_NVMe_SSD_24 : N/A °C
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.22.1285 Copyright (C) 2022 AMI



BIOS Temp Sensor	Name Explanation
P0_Temp	CPU0 Temperature
CPU1_Temp	CPU1 Temperature
SYS_Air_Inlet	Temperature of the System Air Inlet Area
SYS_Air_Outlet	Temperature of the System Air Outlet Area
MB_Air_Inet	Temperature of the M/B Air Inlet Area
OCP_Air_Inlet	Temperature of the OCP_Air_Inlet Area
OCP_Card_Temp	Temperature of the OCP_Card_Area
M.2_NVMe_SSD_1	Max Temperature of M.2_NVMe_SSD_1
M.2_NVMe_SSD_2	Max Temperature of M.2_NVMe_SSD_2
SYS_FAN_1A	Fan Speed of SYS_FAN_1A
SYS_FAN_1B	Fan Speed of SYS_FAN_1B
SYS_FAN_2A	Fan Speed of SYS_FAN_2A
SYS_FAN_2B	Fan Speed of SYS_FAN_2B

SYS_FAN_3A	Fan Speed of SYS_FAN_3A
SYS_FAN_3B	Fan Speed of SYS_FAN_3B
PSU0_Temp	Temperature of PSU0
PSU0_FAN	Fan Speed of PSU0
PSU1_Temp	Temperature of PSU1
PSU1_FAN	Fan Speed of PSU1
P0_CHA_DIM0	Temperature of CPU0 DIMM Channel A0
P0_CHB_DIM0	Temperature of CPU0 DIMM Channel B0
P0_CHC_DIM0	Temperature of CPU0 DIMM Channel C0
P0_CHD_DIM0	Temperature of CPU0 DIMM Channel D0
P0_CHE_DIM0	Temperature of CPU0 DIMM Channel E0
P0_CHF_DIM0	Temperature of CPU0 DIMM Channel F0
P0_CHG_DIM0	Temperature of CPU0 DIMM Channel G0
P0_CHH_DIM0	Temperature of CPU0 DIMM Channel H0
P0_CHI_DIM0	Temperature of CPU0 DIMM Channel I0
P0_CHJ_DIM0	Temperature of CPU0 DIMM Channel J0
P0_CHK_DIM0	Temperature of CPU0 DIMM Channel K0
P0_CHL_DIM0	Temperature of CPU0 DIMM Channel L0
P0_CHA_DIM1	Temperature of CPU0 DIMM Channel A1
P0_CHB_DIM1	Temperature of CPU0 DIMM Channel B1
P0_CHC_DIM1	Temperature of CPU0 DIMM Channel C1
P0_CHD_DIM1	Temperature of CPU0 DIMM Channel D1
P0_CHE_DIM1	Temperature of CPU0 DIMM Channel E1
P0_CHF_DIM1	Temperature of CPU0 DIMM Channel F1
P0_CHG_DIM1	Temperature of CPU0 DIMM Channel G1
P0_CHH_DIM1	Temperature of CPU0 DIMM Channel H1
P0_CHI_DIM1	Temperature of CPU0 DIMM Channel I1
P0_CHJ_DIM1	Temperature of CPU0 DIMM Channel J1
P0_CHK_DIM1	Temperature of CPU0 DIMM Channel K1
P0_CHL_DIM1	Temperature of CPU0 DIMM Channel L1
U.2_NVME_SSD_0	Temperature of NVME_SSD_0
U.2_NVME_SSD_1	Temperature of NVME_SSD_1
U.2_NVME_SSD_2	Temperature of NVME_SSD_2
U.2_NVME_SSD_3	Temperature of NVME_SSD_3
U.2_NVME_SSD_4	Temperature of NVME_SSD_4
U.2_NVME_SSD_5	Temperature of NVME_SSD_5
U.2_NVME_SSD_6	Temperature of NVME_SSD_6
U.2_NVME_SSD_7	Temperature of NVME_SSD_7
U.2_NVME_SSD_8	Temperature of NVME_SSD_8
U.2_NVME_SSD_9	Temperature of NVME_SSD_9
U.2_NVME_SSD_10	Temperature of NVME_SSD_10
U.2_NVME_SSD_11	Temperature of NVME_SSD_11
U.2_NVME_SSD_12	Temperature of NVME_SSD_12

U.2_NVME_SSD_13	Temperature of NVME_SSD_13
U.2_NVME_SSD_14	Temperature of NVME_SSD_14
U.2_NVME_SSD_15	Temperature of NVME_SSD_15
U.2_NVME_SSD_16	Temperature of NVME_SSD_16
U.2_NVME_SSD_17	Temperature of NVME_SSD_17
U.2_NVME_SSD_18	Temperature of NVME_SSD_18
U.2_NVME_SSD_19	Temperature of NVME_SSD_19
U.2_NVME_SSD_20	Temperature of NVME_SSD_20
U.2_NVME_SSD_21	Temperature of NVME_SSD_21
U.2_NVME_SSD_22	Temperature of NVME_SSD_22
U.2_NVME_SSD_23	Temperature of NVME_SSD_23
U.2_NVME_SSD_24	Temperature of NVME_SSD_24
U.2_NVME_SSD_25	Temperature of NVME_SSD_25

Appendix III: How to recover UEFI BIOS

Important Notes:

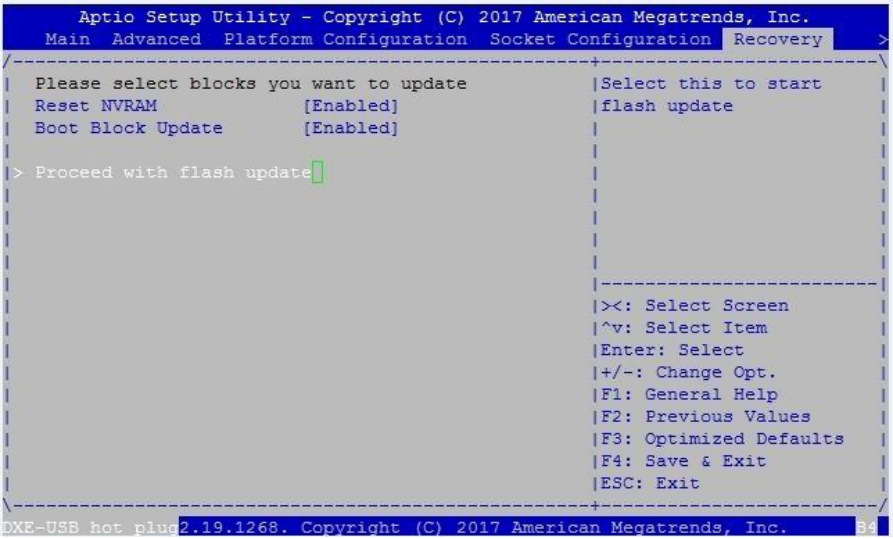
The emergency UEFI BIOS Recovery process is only used to rescue a system with a failed or corrupted BIOS image that fails to boot to an OS. It is not intended to be used as a general purpose BIOS flashing procedure and should not be used as such. Please do not shutdown or reset the system while the BIOS recovery process is underway or there is risk of damage to the UEFI recovery bootloader that would prevent the recovery process itself from working. In no event shall Tyan be liable for direct, indirect, incidental, special or consequential damages arising from the BIOS update or recovery.

The BIOS Recovery file is named xxxx.cap, where the 'xxxx' portion is the motherboard model number. Examples: 5630.cap, 7106.cap, 7109.cap, etc. Please make sure that you are using the correct BIOS Recovery file from Tyan's web site.

BIOS Recovery Process

1. Place the recovery BIOS file (xxxx.cap) in the root directory of a USB disk.
2. Ensure that the system is powered off.
3. Insert the USB disk to any USB port on the motherboard or chassis.
4. Power the system on while pressing “Ctrl” and “Home” simultaneously on the keyboard. Continue to hold these keys down until the following Tyan screen is displayed on the monitor:

5. The system will boot to BIOS setup. A new menu item will appear at the far right of the screen. Scroll to the 'Recovery' tab, move the curser to “Proceed with flash update” and press the "Enter" key on the keyboard to start the BIOS recovery process.



6. IMPORTANT: Do not power off or reboot the server during the BIOS recovery process. This can damage the BIOS recovery bootloader and prevent it from loading a subsequent time.
7. Wait for the BIOS recovery procedure to complete. Completion is signified with the message “Flash update completed. Press any key to reset the system” displayed on screen.
8. Remove the USB disk and reboot.

If your system does not have video output or the POST code halts at “FF” on the right-lower portion of the screen, please contact Tyan representatives for RMA service.

Appendix IV: FRU Parts Table

TS70A-B8056 FRU Parts				
Item	**Model Number**	**Part Number**	**Picture**	**Description**
Power Supply	FRU-PS-0410	471100000518		POWER SUPPLY,1600 W,CHICONY, R18-1K6P1WA,
CPU Heatsink	FRU-TH-0480	343B02100002		HEATSINK 2U 400W
FAN module	FRU-TS-0330	336210000066		FAN,R80W12BS2M9-57T09 ,80*80*56mm,8 PIN (2*4), WIRE L=80MM
Riser card	FRU-RC-1390	5411B0090006		M7136T70-R24-2F, R02
Riser card	FRU-RC-1400	5411B0100012		M7136T70-L28-1F, R02
Re-timer card	FRU-PC-0010	5411T6360006		TF-Low-profile PCI-E bifurcation card;SBU,P2305-4E,R02
rack mount FRU kit	FRU-AS-0250	452B01000001		SLIDE RAIL,A5612750UPZZ0M3,KINGSLIDE
CPU Air duct	FRU-TA-0320	344B00300002		AIR DUCT;SBU,PC,FOR 3.5",FOR 2U,NCT
Cable	FRU-CS-2230	422B00300017		MCIO 8i 74P TO MCIO 8i 74P Reversed Signal 550mm,
	FRU-CS-2240	422B00300013		MCIO 8i 74P TO MCIO 8i 74P 300mm,
	FRU-CS-2040	422B00300010		MCIO 8i 74P TO MCIO 8i 74P 500mm,
	FRU-CS-2250	422B00300009		MCIO 8i 74P TO MCIO 8i 74P 400mm,
	FRU-CS-2270	422B00300016		SlimSAS 8i 74P TO MCIO 8i 74P 750mm,
	FRU-CS-2280	422B00300003		SlimSAS 8i 74P TO MCIO 8i 74P 500mm,
	FRU-CS-0330	332810000514		A/C Power Cord, L=1800mm, US type
	FRU-CS-1090	332810000281		A/C Power Cord, L=1830mm, EU type

NOTE

Appendix V: Technical Support

If a problem arises with your system, you should first turn to your dealer for direct support. Your system has most likely been configured or designed by them and they should have the best idea of what hardware and software your system contains. Hence, they should be of the most assistance for you. Furthermore, if you purchased your system from a dealer near you, take the system to them directly to have it serviced instead of attempting to do so yourself (which can have expensive consequence).

If these options are not available for you then MITAC COMPUTING TECHNOLOGY CORPORATION can help. Besides designing innovative and quality products for over a decade, MITAC has continuously offered customers service beyond their expectations. TYAN's website (http://www.tyan.com) provides easy-to-access resources such as in-depth Linux Online Support sections with downloadable Linux drivers and comprehensive compatibility reports for chassis, memory and much more. With all these convenient resources just a few keystrokes away, users can easily find their latest software and operating system components to keep their systems running as powerful and productive as possible. MITAC also ranks high for its commitment to fast and friendly customer support through email. By offering plenty of options for users, MITAC serves multiple market segments with the industry's most competitive services to support them.

https://www.tyan.com/SupportCenter

Please feel free to contact us directly for this service at tech-support@tyan.com

Help Resources:

1. See the TYAN's website for FAQ's, bulletins, driver updates, and other information: http://www.tyan.com
2. Contact your dealer for help before calling TYAN.
3. Check the TYAN user group: alt.comp.periphs.mainboard.TYAN

Returning Merchandise for Service

During the warranty period, contact your distributor or system vendor FIRST for any product problems. This warranty only covers normal customer use and does not cover damages incurred during shipping or failure due to the alteration, misuse, abuse, or improper maintenance of products.

Note:
A receipt or copy of your invoice marked with the date of purchase is required before any warranty service can be rendered. You may obtain service by calling the manufacturer for a Return Merchandise Authorization (RMA) number. The RMA number should be prominently displayed on the outside of the shipping carton and the package should be mailed prepaid.
TYAN will pay to have the board shipped back to you.

TYAN® TS70A-B8056 Service Engineer's Manual V1.0j

Document No.: D2571 - 100