ZRT 智锐通

ZMB-M702

边缘整机

USER Manual V10

USER MANUAL

用户手册

Shenzhen ZRT Technology Co., Ltd
深圳智锐通科技有限公司

www.zrt-tech.com

声明

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⚠ **本产品为工业用途专用计算设备，非日常办公或个人娱乐用途，不属于《微型计算机商品强制认证目录》范围内的个人 PC。**

⚠ 安全须知

1	产品使用前， 务必仔细阅读产品说明书。
2	对未准备安装的板卡， 应将其保存在防静保护袋中。
3	在从包装袋中拿板卡前， 应将手先置于接地金属物体上一会儿， 以释放身体及手中的静电。
4	在拿板卡时， 需佩带静电保护手套， 并且应该养成只触及其边缘部份的习惯。
5	主板与电源连接时， 请确认电源电压。
6	为避免人本被电击或产品被损坏， 在每次对主板、板卡进行拔插或生新配置时须先关闭交流电源或将交流电源线从电源插座中拔掉。
7	在对板卡进行搬动前， 先将交流电源线从电源插座中拔掉。
8	当您需连接或拔除任何设备前， 须确定所有的电源线事先已被拔掉。
9	为避免频繁开关机对产品造成不必要的损伤,关机后,应至少等待30秒后再开机。
10	设备在使用过程时出现异常情况， 请找专业人员处理。

目录

第一章 产品介绍

1.1 产品规格

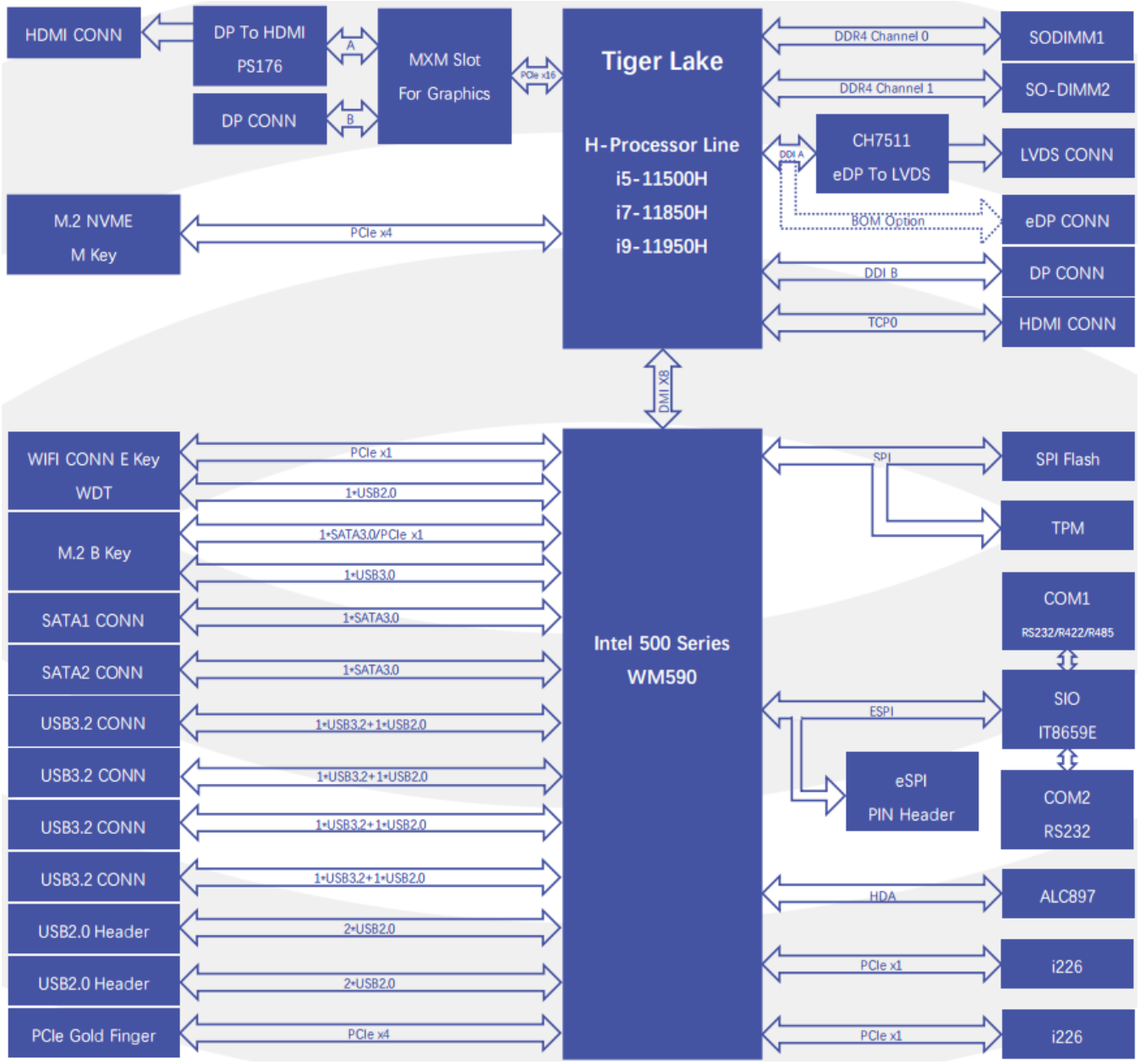
Model		ZMB-M702		
配置 Item	规格 Specification	描述 Describe		
处理器 Processor System	CPU	Intel Tiger Lake-H i5/i7/i9 FCBGA1787		
	处理器 CPU	i5-11500H	i7-11850H	i9-11950H
	内核数 Core Number	6	8	8
	基准主频 Base Frequency	2.4/2.9GHz	2.1/2.5GHz	2.1/2.6GHz
	P-core 最高主频 Max. Speed	4.60GHz	4.80GHz	5.00GHz
	二级缓存 L2 Cache	12MB	24MB	24MB
	功耗 TDP (W)	35/45W	35/45W	35/45W
	芯片组 Chipset	Intel PCH WM590/QM580		
	BIOS	128Mb SPI FLASH		
内存 Memory	规格 Technology	DDR4 3200MHz Non-ECC		
	最大容量 Max. Capacity	64G		
	插槽 Socket	2*SO-DIMM		
扩展插槽 Expansion Slot	M.2	1*M.2 Key-M(2242/2280) for PCIe x4 1*M.2 Key-B(3042/3052) for PCIe x1&SATA&4G/5G 1*M.2 Key-E(2230) for WIFI		
	SIM	1*SIM		
	PCI-Express	1*PCIe x4		
	MXM 3.1	FA4 4060M		
存储 Storage	SATA	2*SATA3.0(7 Pins)		
以太网	控制器 Controller	Integrated 10/100/1000M/2.5G Adaption (Intel® Ethernet Controller i225-V)		

Ethernet	**后面板** **Rear I/O**	2*千兆网口 1*万兆网口(Option)
USB	**前面板** **Front I/O**	2*USB2.0
	后面板 **Rear I/O**	4*USB3.2 2*USB2.0
串口 **COM**	**后面板** **Rear I/O**	2*RS232 DB9
显示 **Graphics**	**最多显示** **Multiple Display**	4Ports
	后面板 **Rear I/O**	1*HDMI(From GPU DP_A DP to HDMI) 1*HDMI(From CPU) 1*DP++(From GPU DP_B) 1*DP(From CPU)
	分辨率 **Resolution**	HDMI2.0:4096*2160@60Hz DP:7680*4096@60Hz
音频 **Audio**	**芯片** **Chipset**	Integrated High Definition Audio Stereo(ALC897)
	后面板 **Rear I/O**	Audio(MIC+耳机,4 段式 3.5mm)
其它 **Others**	**远程开关** **Remote Power Switch**	1*Phoenix Port(2P In)
电源 **Power Requirements**	**电源类型** **Power Type**	1*DC In(4P In)
	电源电压 **Input Voltage**	18~26V
环境 **Environment**	**工作温度** **Operating Temperature**	0~50℃ at 0.7m/s air flow
	存储温度 **Storage Temperature**	-20~70℃
	工作湿度 **Operating Humidity**	20~95%RH(non-condensing)
	存储湿度 **Storage Humidity**	10~95%(non-condensing)
物理特性 **Physical**	**尺寸** **Dimensions**	220*180*60mm
	颜色 **Color**	Silver
操作系统 **OS**	**Windows**	Windows 10 LTSC (1809/21H2)
	Linux	Red Hat 8.4 Ubuntu 20.04 Yocto 4.0xLTS

1.2 驱动

Windows 10: https://pan.baidu.com/s/1KTXtCRqviNz-Q4LPpbMxYA?pwd=9lmb

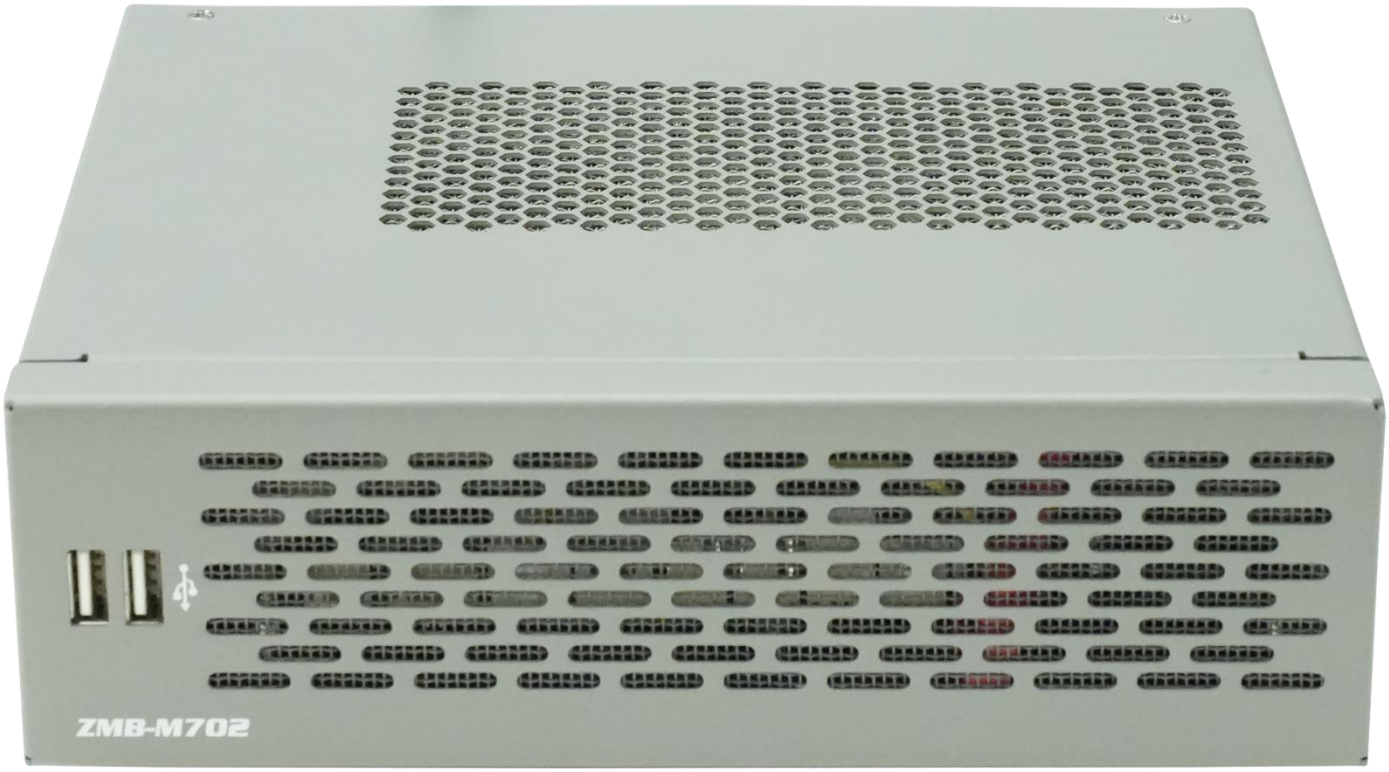
1.3 设计原理框图

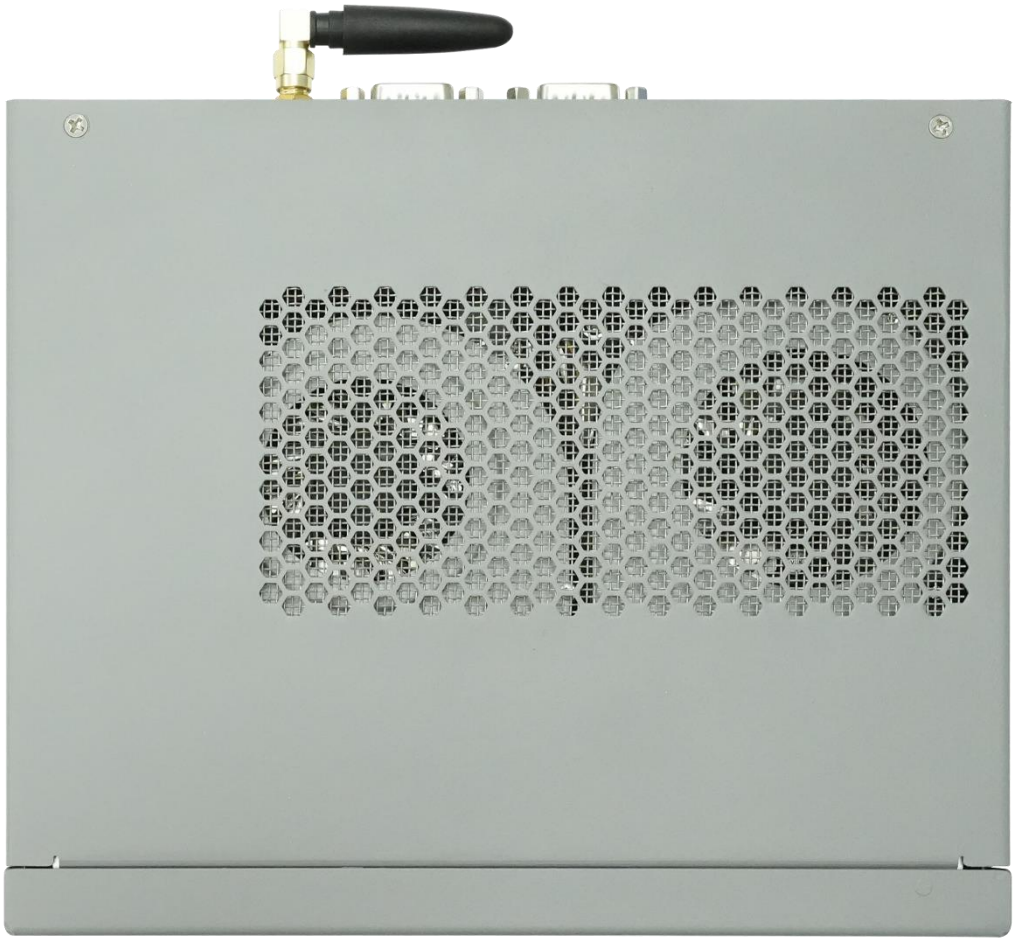


1.4 产品料号

Model	Part Number	Specification
ZMB-M702	8.ZRT.80-1658-11-LEE	ZMB-M702-01 整机,EMA-7112_V1.0,i5-11500H,DDR4 16GB,2TB 2.5 寸 SATA SSD,RTX4060m,散热器,4 个 USB3.0+4 个 USB2.0,1 个万兆网口,2 个 COM,WIFI,300W 非医规适配器,包装,Win 10 企业版 2021 LTSC 系统
	8.ZRT.80-1658-10-LEE	ZMB-M702-02 整机,EMA-7112 V1.0,i5-11500H,DDR4 32GB,2TB 2.5 寸 SATA SSD,RTX4060m ,散热器,4 个 USB3.0+4 个 USB2.0,1 个万兆网口,2 个 COM,WIFI,300W 非医规适配器,包装,,Win 10 企业版 2021 LTSC 系统

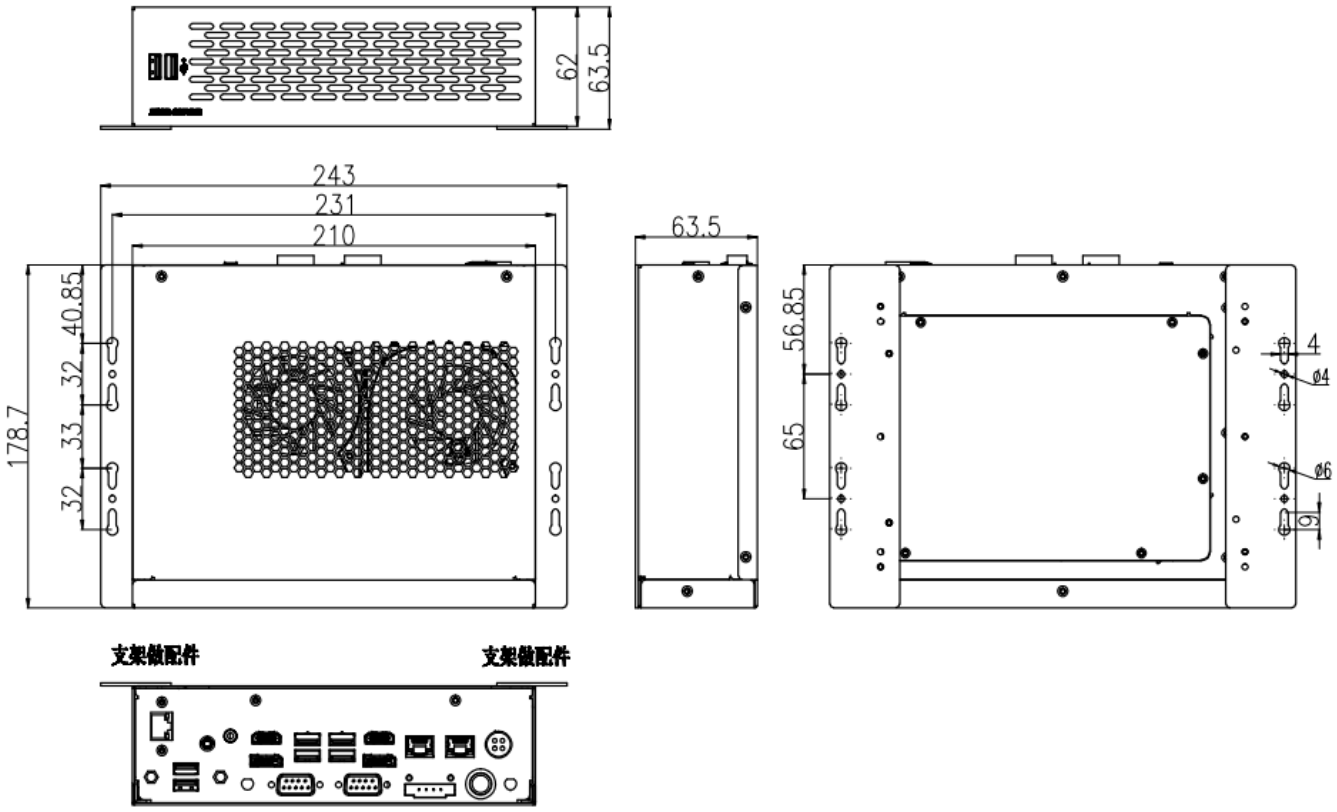
1.5 产品照片

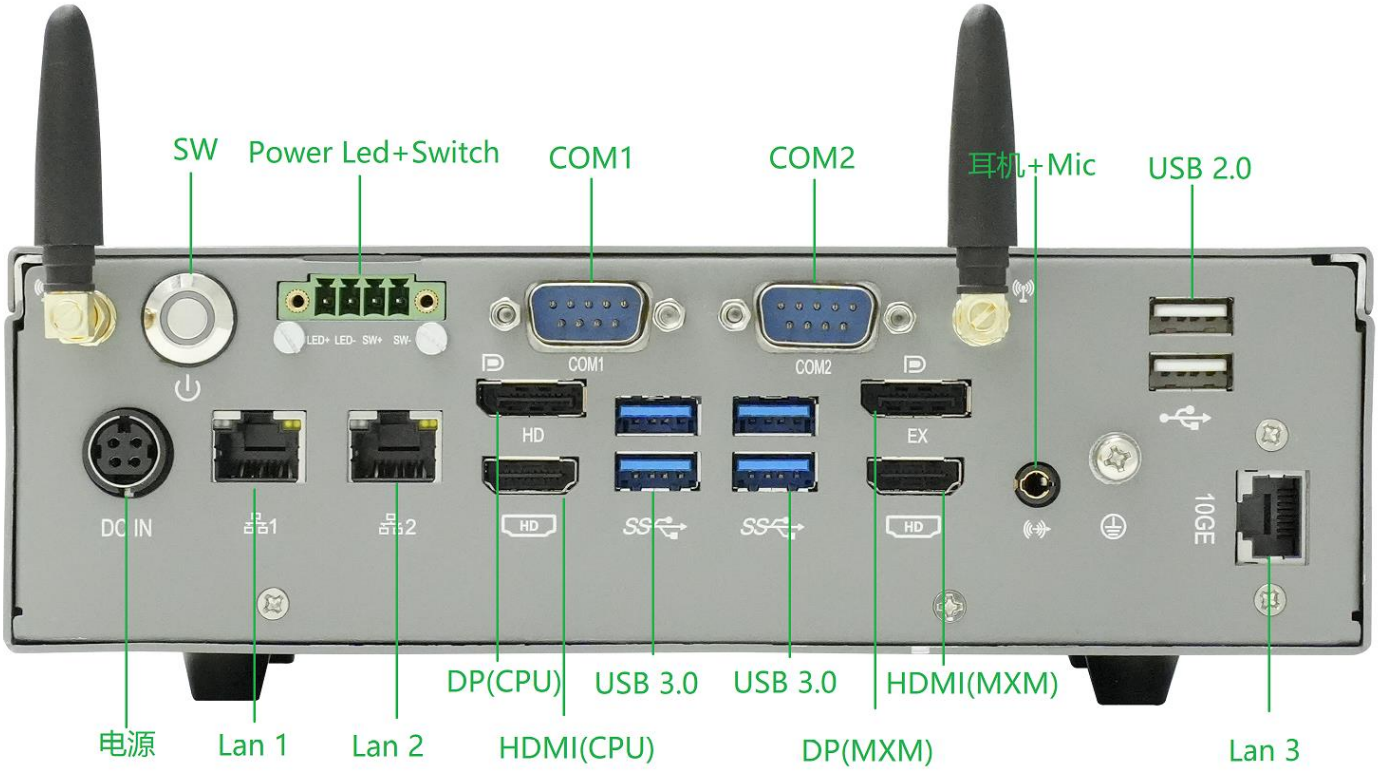


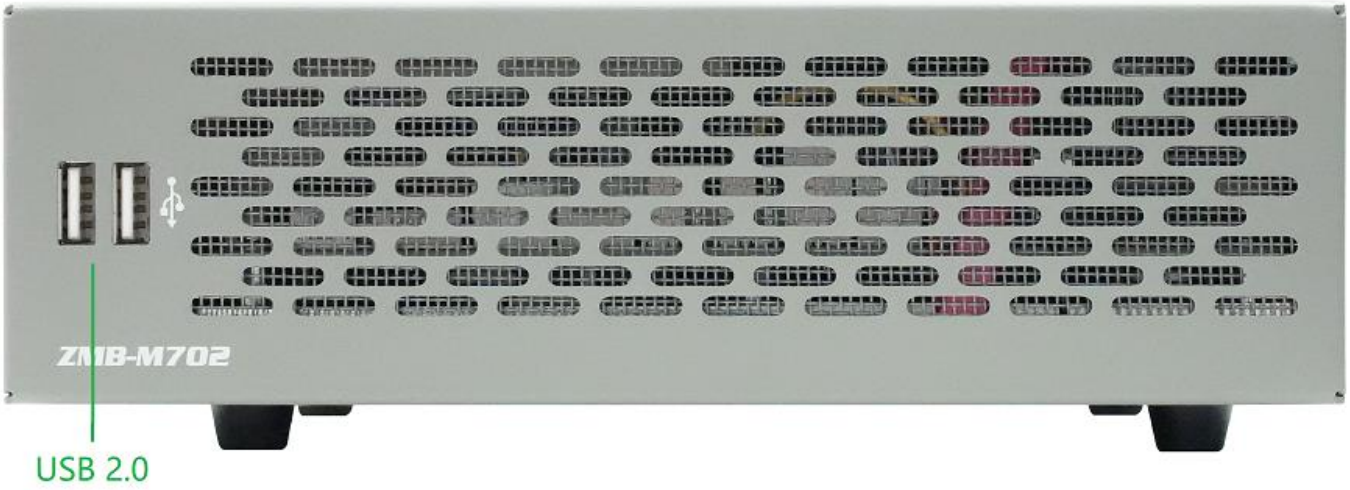


第二章 安装说明

2.1 接口/尺寸图

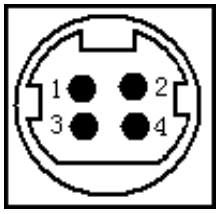






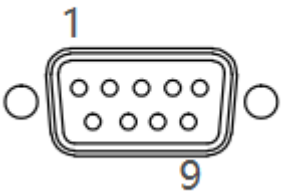
2.2 插针接口定义

DC_JACK2：供电接口 1，DC 端子



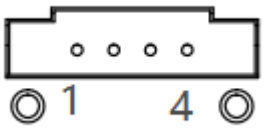
管 脚	信号名称
1	VCC
2	VCC
3	GND
4	GND

COM1/2：标准DB9座子，其中COM1支持RS232/RS422/RS485---BIOS下选择，COM2仅支持RS232模式



管脚	信号名称		
	RS-232	RS-422	RS-485
1	DCD#	TXD-	DATA-
2	RXD	TXD+	DATA+
3	TXD	RXD+	NC
4	DTR#	RXD-	NC
5	GND	GND	GND
6	DSR#	NC	NC
7	RTS#	NC	NC
8	CTS#	NC	NC
9	RI#	NC	NC
10	NA	NA	NA

凤凰端子：4pin 3.81mm间距母头插座（配件包含公头插座），支持外接Led和SW，



管脚	信号名称
1	LED+
2	LED-
3	SW+
4	SW-

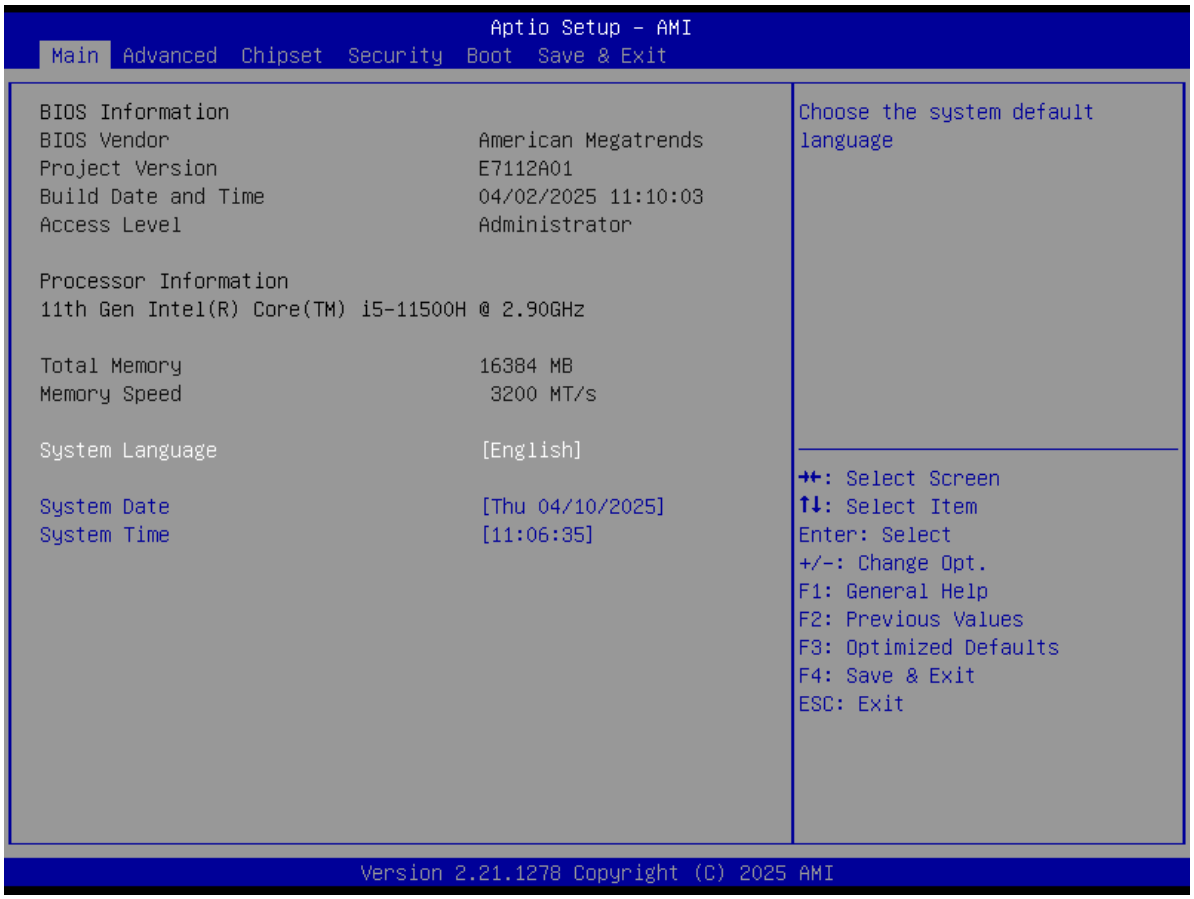
第三章　BIOS 设置说明

Setup Utility User Interface

This document describes BIOS Setup Utility user interface.

3.1 Main Screen

The Main screen is the first screen that is displayed when the BIOS Setup is entered.

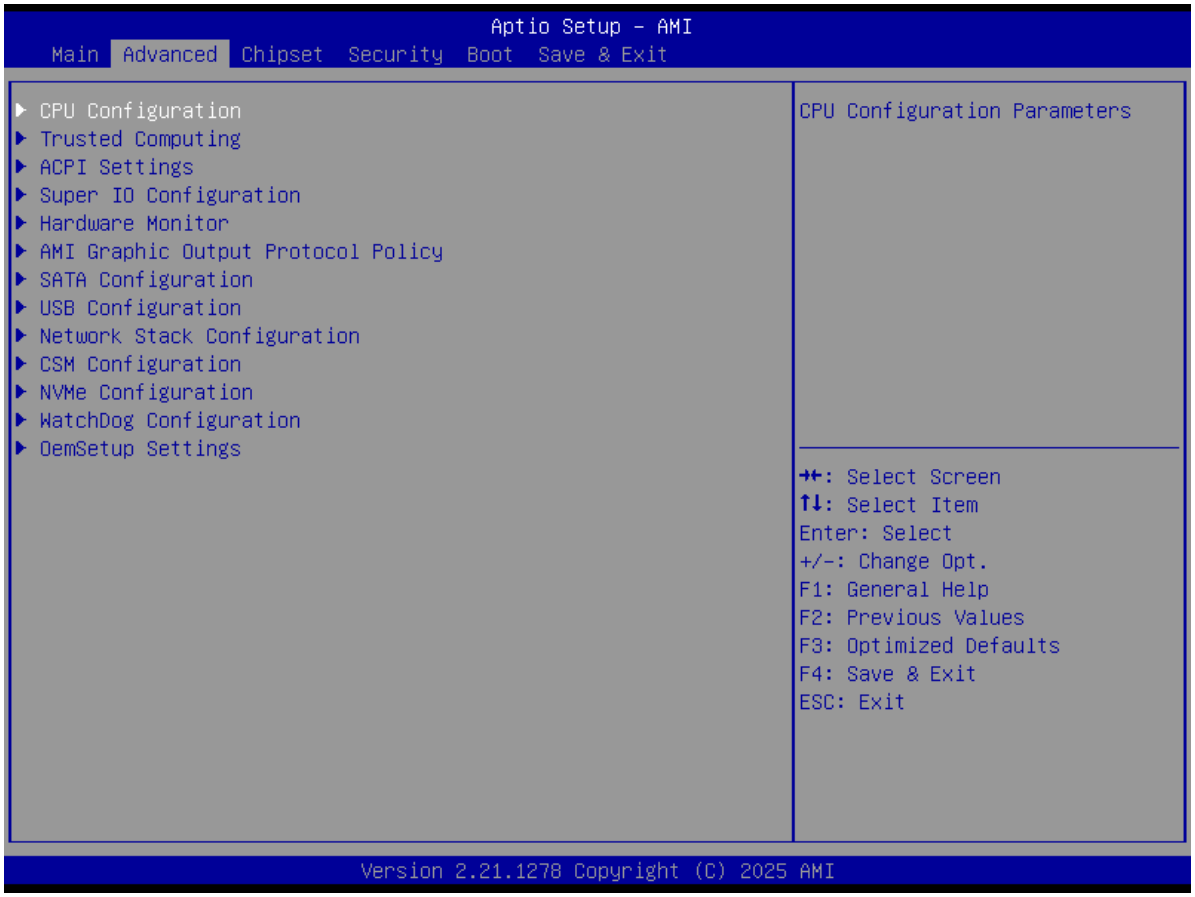


Setup Item	Options	Help Text	Comments
BIOS Information			
BIOS Vendor			Displays BIOS vendor.
Project Version			Displays the current BIOS version: Format: AAAABCC **AAAAA = Project name** **B = Customer number** **CC = BIOS revision**
Build Date and Time			Displays the current BIOS build date.
Access Level			Displays password level that setup is running in: Administrator or User. With no passwords set, Administrator is the default mode.
Process Information			

Setup Item	Options	Help Text	Comments
CPU XXXXX			Displays the CPU BrandString installed in the system.
Memory Information			
Total Memory			Displays the total physical memory installed in the system, MB Unit.
Memory Speed			
System Language	English	Choose the system default language.	
System Date	[Day of week MM/DD/YYYY]	Set and display the Date..	
System Time	[HH:MM:SS]	Set and display the Time.	

3.2 Advanced Screen

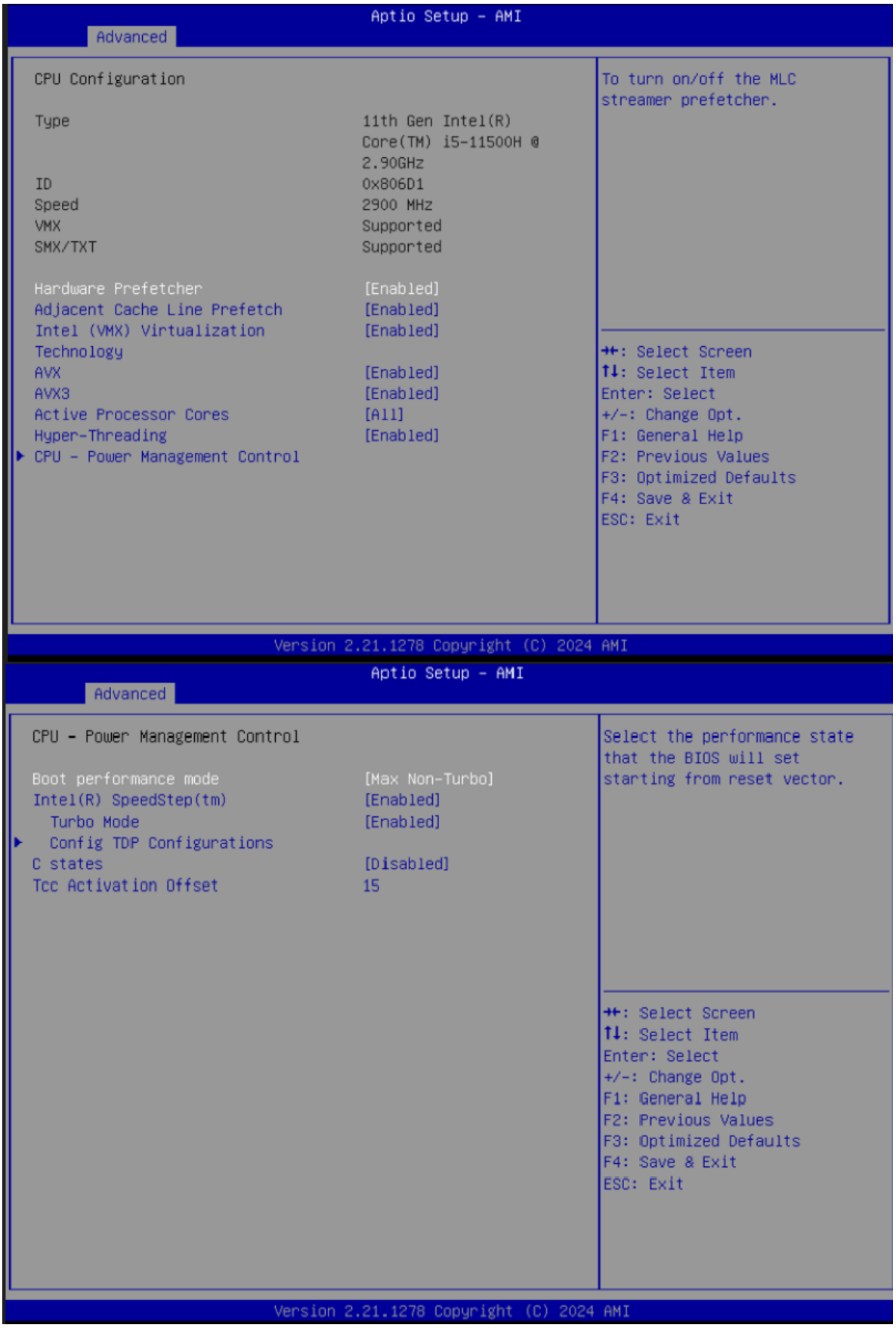
The Advanced screen provides an access point to configure several options. On this screen, the user selects the option that is to be configured.



Setup Item	Options	Help Text	Comments
CPU Configuration		CPU Configuration Parameters.	
Trusted Computing		Trusted Computing Settings.	
ACPI Settings		System ACPI Parameters.	
Super IO Configuration		System Super IO chip Parameters.	
Hardware Monitor		Monitor hardware stats.	
AMI Graphic Output Protocol Policy			
SATA Configuration		SATA Devices Configuration.	
USB Configuration		USB Configuration Parameters.	
Network Stack configuration		Enable/Disable UEFI Network Stack.	
CSM Configuration		CSM configuration: Enable/Disable, Option ROM execution settings, etc.	
NVMe Configuration		NVMe Device Options Settings.	
Watchdog Configuration		Set System WatchDog Parameters.	
OemSetup Settings		OemSetup Parameters.	

3.2.1 CPU Configuration Screen

The CPU Configuration screen allows the user to view the processor information, and to enable or disable processor options. To access this screen from the Main screen, choose **Advanced > CPU Configuration**.

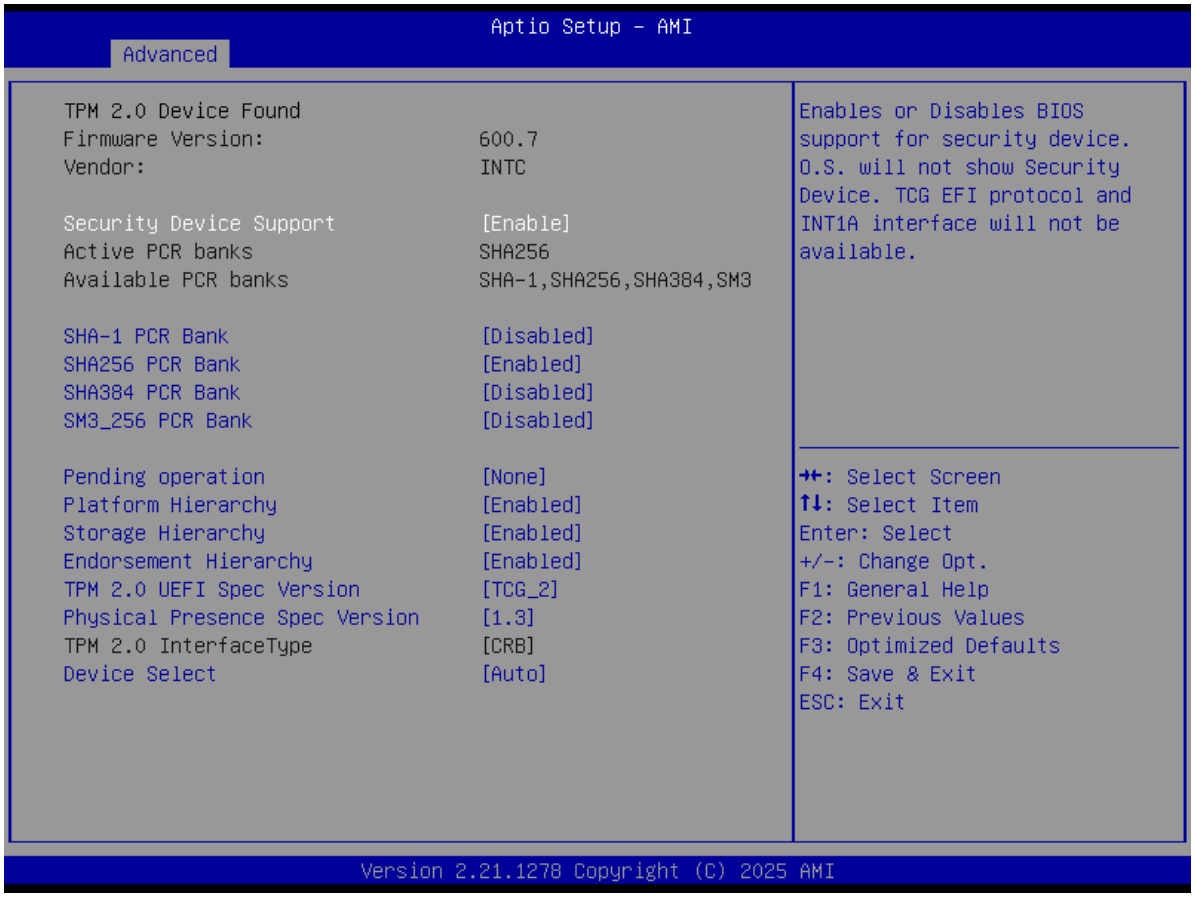


Setup Item	Options	Help Text	Comments
CPU Configuration			
Type			
ID			
Speed			
VMX			
SMX/TXT			
Hardware Prefetcher	Enabled Disabled	To turn on/off the MLC streamer prefetcher.	
Adjacent Cache line Prefetch	Enabled Disabled	To turn on/off prefetching of adjacent cache lines.	
Intel(VMX) Technology	Enabled Disabled	When enabled, a VMM can utilize the additional hardware capabilities provided by vanderpool technology.	
AVX	Enabled		
AVX3	Enabled		
Active Processer Cores	All 1 2 3 …	Number of cores to enable in each processor package.	
Hyper-Threading	Enabled		

Setup Item	Options	Help Text	Comments
CPU - Power Management Control			
Boot performance mode	Max Non-Turbo Max battery Turbo Performance	Select the performance state that the BIOS will set starting from reset vector.	
Intel® SpeedStep™	Enabled Disabled	Allows more than two frequency ranges to be supported.	
Turbo Mode	Enabled Disabled	Enabled/Disabled processor Turbo Mode.	
Config TDP configurations			
C states	Disabled		
Tcc Activation Offset	15		

3.2.2 Trusted Computing

The screen allows the user to set the Trusted Computing(TPM)parameters. To access this screen from the Main screen, choose **Advanced > Trusted Computing**.



3.2.3 ACPI Settings Screen

The ACPI Settings screen allows the user to set the system ACPI parameters. To access this screen from the Main screen, choose **Advanced > ACPI Settings**.

Setup Item	Options	Help Text	Comments
ACPI Settings			
Enable Hibernation	Enabled		
ACPI Sleep State	Suspend Disabled S3 (Suspend to RAM)	Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.	Sleep supported optionally.

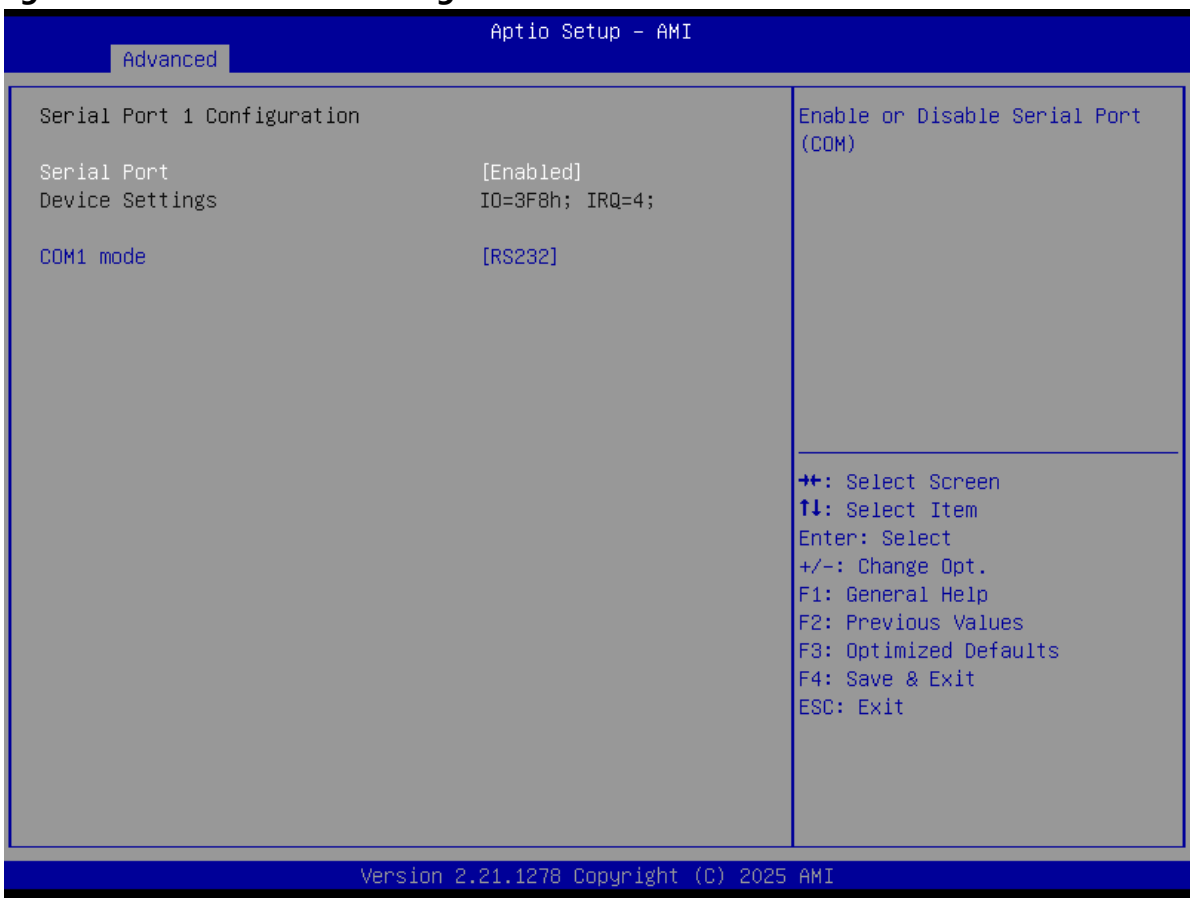
3.2.4 Super IO Configuration

The Super IO Configuration screen allows the user to view the super IO information, and to enable or disable super IO options. To access this screen from the Advanced screen, choose **Advanced > Super IO Configuration.**

Setup Item	Options	Help Text	Comments
Super IO Configuration			
Serial Port 1 Configuration			Set Parameters of Serial Port 1(COMA).
Serial Port 2 Configuration			Set Parameters of Serial Port 1(COMB).

3.2.4.1 Serial PortX Configuration

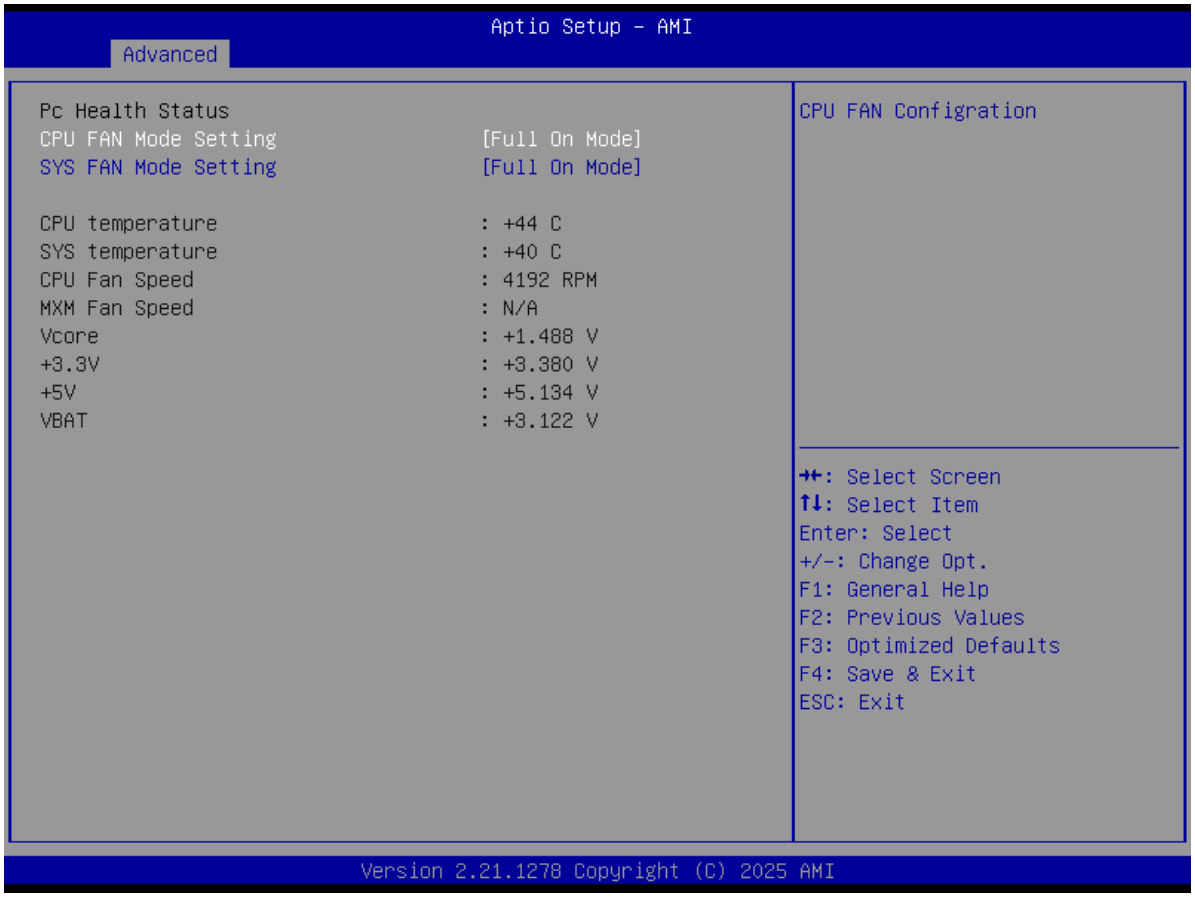
The Super IO Configuration screen allows the user to view the super IO information, and to enable or disable serial port options. To access this screen from the Advanced screen, choose **Advanced-> Super IO Configuration->Serial PortX Configuration**.



Setup Item	Options	Help Text	Comments
Serial PortX Configuration			
Serial Port	Enabled/Disabled	Enabled or Disabled Serial Port(COM).	
Device Settings			
COMx mode	RS232 RS422 RS485	COMx mode configuration.	

3.2.5 Hardware Monitor

The hardware monitor screen allows the user to view the hardware information. To access this screen from the Advanced screen, choose **Advanced-> Hardware Monitor**.

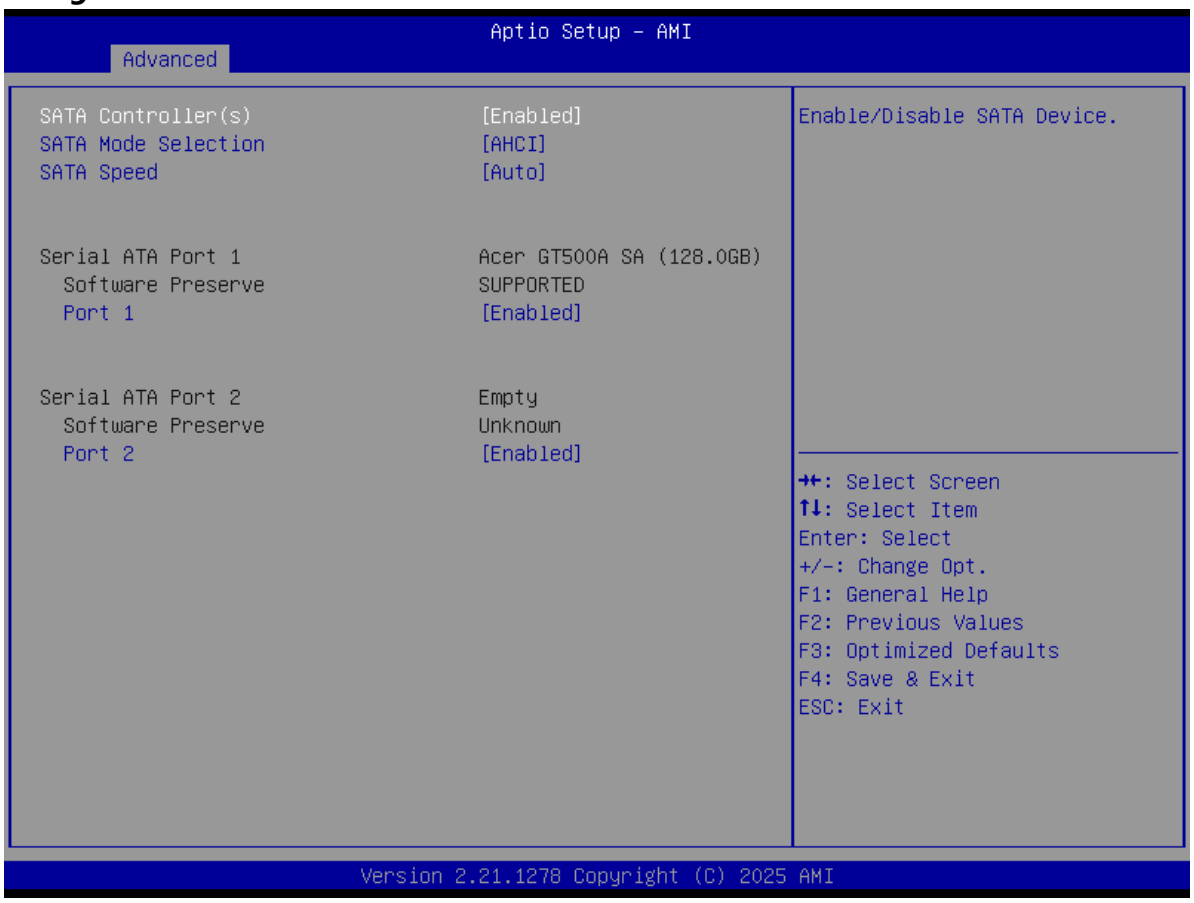


Setup Item	Options	Help Text	Comments
SMART FAN Control			
CPU FAN Mode Setting	Full On mode Automatic mode Manual mode	Fan control mode select.	When Manual mode selected, Manual PWM Setting shows to set FAN PWM Duty.
SYS FAN Mode Setting	Full On mode Automatic mode Manual mode	Fan control mode select.	When Manual mode selected, Manual PWM Setting shows to set FAN PWM Duty.
PC Health Status			
CPU temperature		Shows Current CPU temperature.	NOTE1:Sometimes not the actual temperature value, just indicates temperature tolerance limitation.
SYS temperature		Shows Current SYS temperature.	
CPU FAN Speed			HW Information.
MXM FAN Speed			
Vcore			
+3.3V			

Setup Item	Options	Help Text	Comments
+5V			
VBAT			

3.2.6 SATA Configuration

The SATA Configuration screen allows the user to view the SATA Controller information, and to enable or disable SATA Controller options. To access this screen from the Main screen, choose **Advanced > SATA Configuration**.

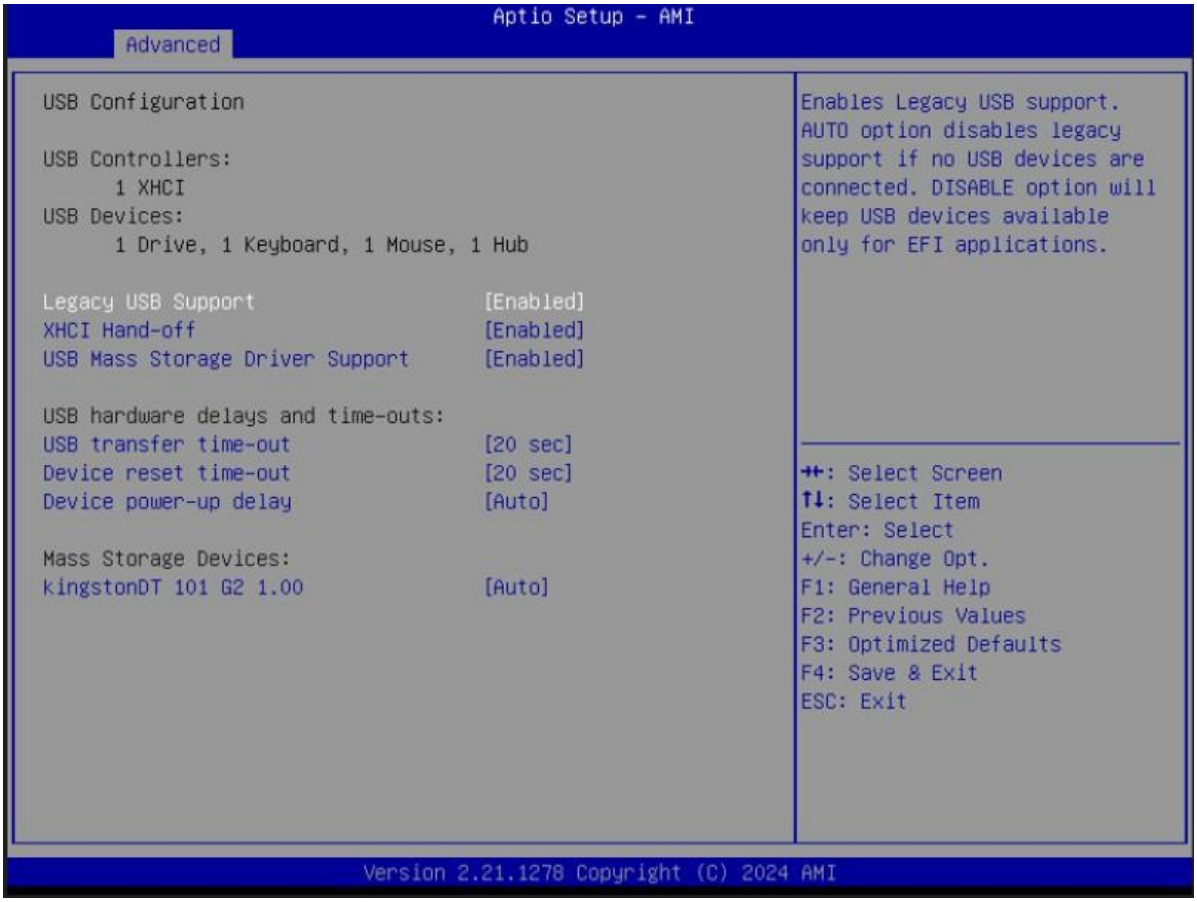


Setup Item	Options	Help Text	Comments
SATA Configuration			
SATA Controller(s)	Enabled Disabled	Enable/Disable SATA Device.	
SATA Mode Selection	AHCI Mode	Select AHCI.	
SATA Speed	Auto Gen1 Gen2 Gen3	Configure SATA Speed.	SATA Speed.
Serial ATA Port 1			Show HDD information connected.
Serial ATA Port 2			

Note: If SATA or PCIe RAID groups are configured separately, contact technical support.

3.2.7 USB Configuration

The USB Configuration screen allows the user to view the USB Configuration information, and to enable or disable options. To access this screen from the Main screen, choose **Advanced > USB Configuration**.



Setup Item	Options	Help Text	Comments
USB Configuration			
Legacy USB Support	Enabled Disabled	Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.	Legacy USB Support
XHCI Hand-off	Enabled Disabled	This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.	XHCI Hand-off
USB Mass Storage Driver Support	Enabled Disabled	Enable/Disable USB Mass Storage Driver Support.	
USB hardware delays and time-outs:			
USB transfer time-out	1 sec 5 sec 10 sec 20 sec	The time-out value for Control, Bulk, and Interrupt transfers.	

Setup Item	Options	Help Text	Comments
Device reset time-out	1 sec 5 sec 10 sec 20 sec	USB mass storage device Start Unit command time-out.	
Device power-up delay	Auto Manual	Maximum time the device will take before it properly reports itself to the Host Controller. ' auto' uses default value: for a Root port it is 100ms,for a Hub port the delay is taken from Hub descriptor.	

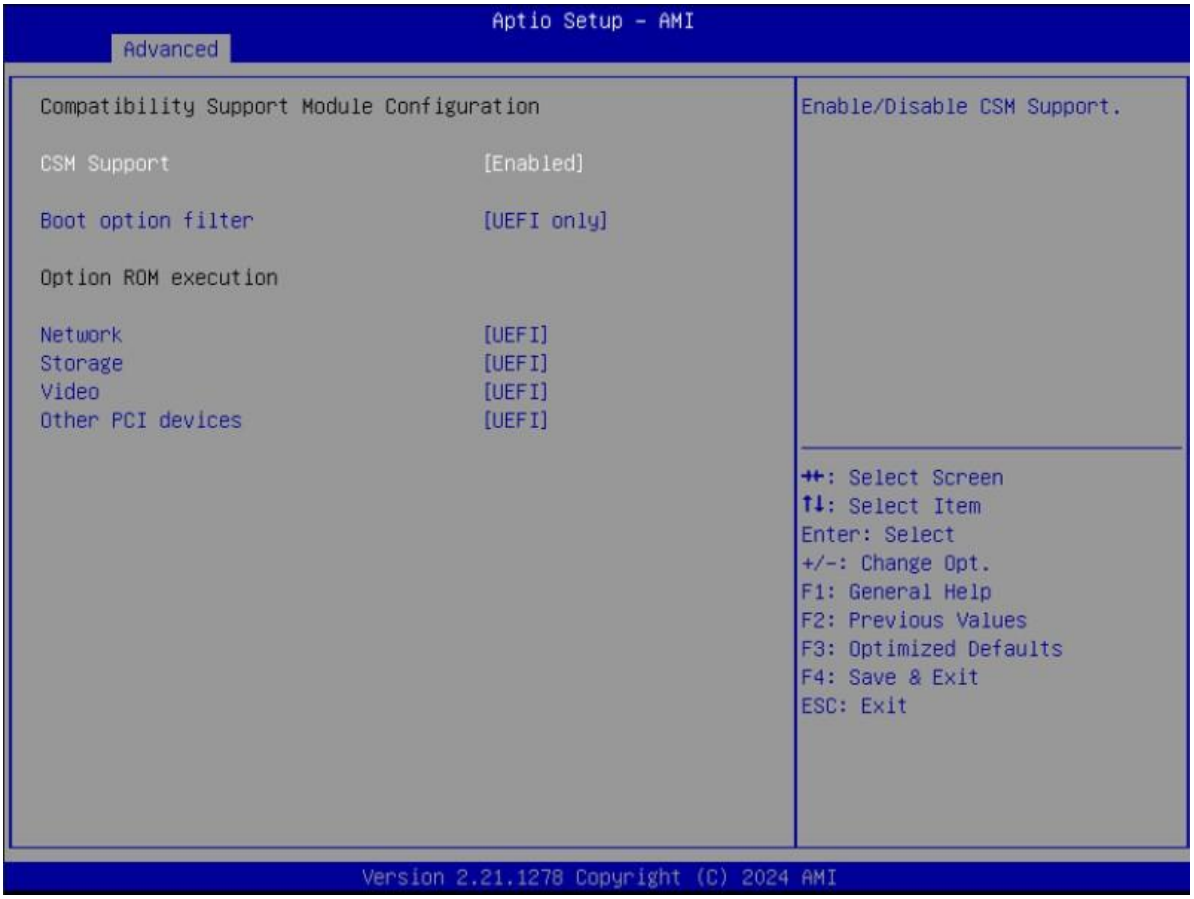
3.2.8 Network Stack Configuration

To access this screen from the Main screen, choose **Advanced > Network Stack Configuration**.

Setup Item	Options	Help Text	Comments
Network Stack Configuration			
Network Stack	Disabled Enabled		Enable/Disable UEFI Network Stack
IPv4 PXE Support	Disabled Enabled		Enable/Disable IPv4 PXE boot support
IPv4 HTTP Support	Disabled Enabled		Enable/Disable IPv4 HTTP boot support.
IPv6 PXE Support	Disabled Enabled		Enable/Disable IPv6 PXE boot support
IPv6 HTTP Support	Disabled Enabled		Enable/Disable IPv6 HTTP boot support.
PXE boot wait time	0		
Media detect count	1		

3.2.9 CSM Configuration

The CSM Configuration screen allows the user to view the CSM information, and to enable or disable CSM options. To access this screen from the Main screen, choose **Advanced > CSM Configuration**.

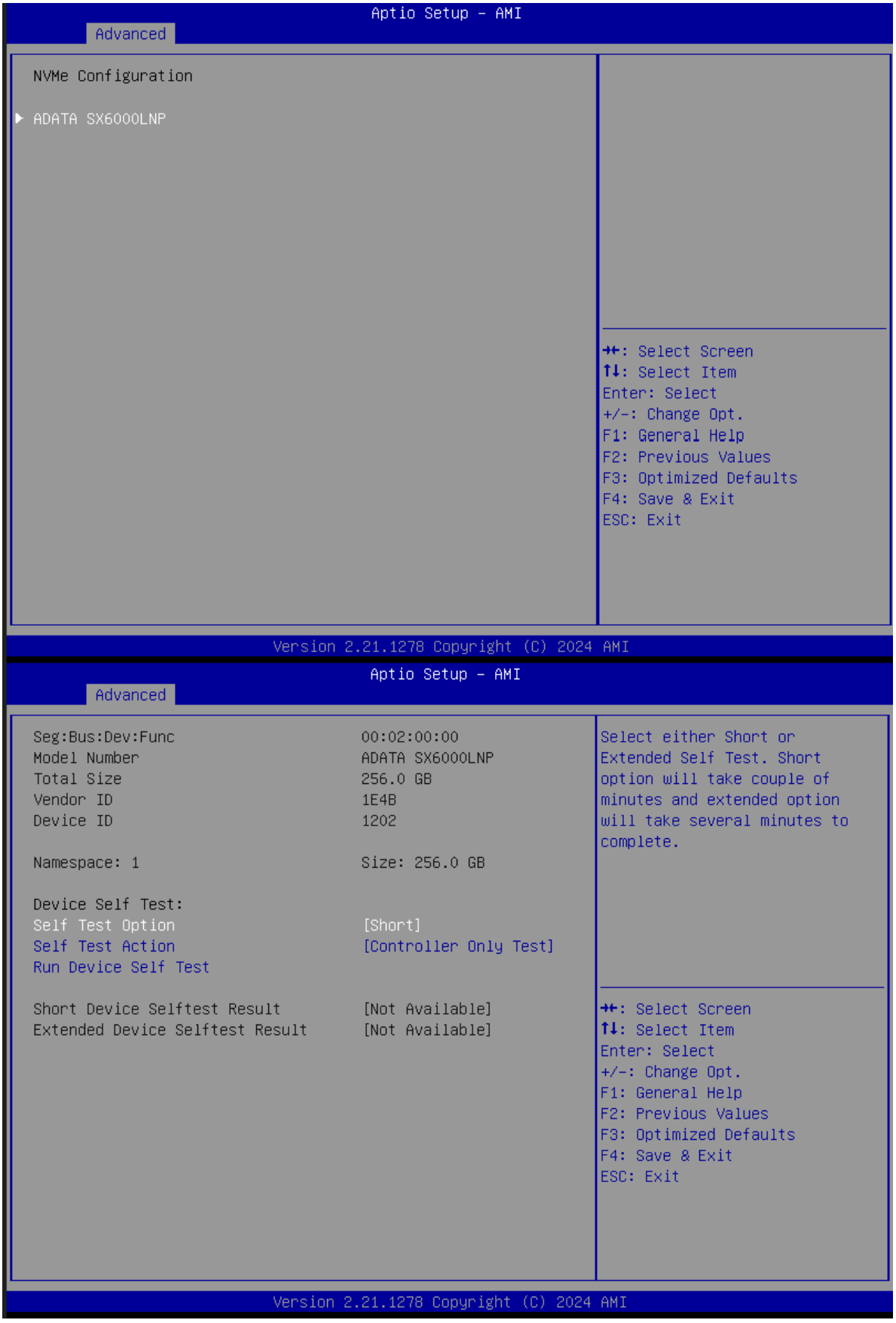


Setup Item	Options	Help Text	Comments
CSM Configuration			
CSM Support	Enabled Disabled	Enable/Disable CSM support.	CSM Support.
Boot option filter	UEFI and Legacy Legacy only UEFI only	This option control Legacy/UEFI ROMs priority.	Boot option filter.
Option ROM execution			
Network	Legacy UEFI Do not launch	Control the execution of UEFI and Legacy PXE OpROM.	Network.
Storage	Legacy UEFI Do not launch	Control the execution of UEFI and Legacy Storage OpROM.	Storage.
Video	Legacy UEFI Do not launch	Control the execution of UEFI and Legacy video OpROM.	Video.

Setup Item	Options	Help Text	Comments
Other PCI devices	Legacy UEFI Do not launch	Determines OpROM execution policy for devices other than Network, Storage or video.	Other PCI devices.

3.2.10 NVMe Configuration

The NVMe Configuration screen allows the user to view the NVMe Device information. To access this screen from the Main screen, choose **Advanced > NVMe Configuration**.



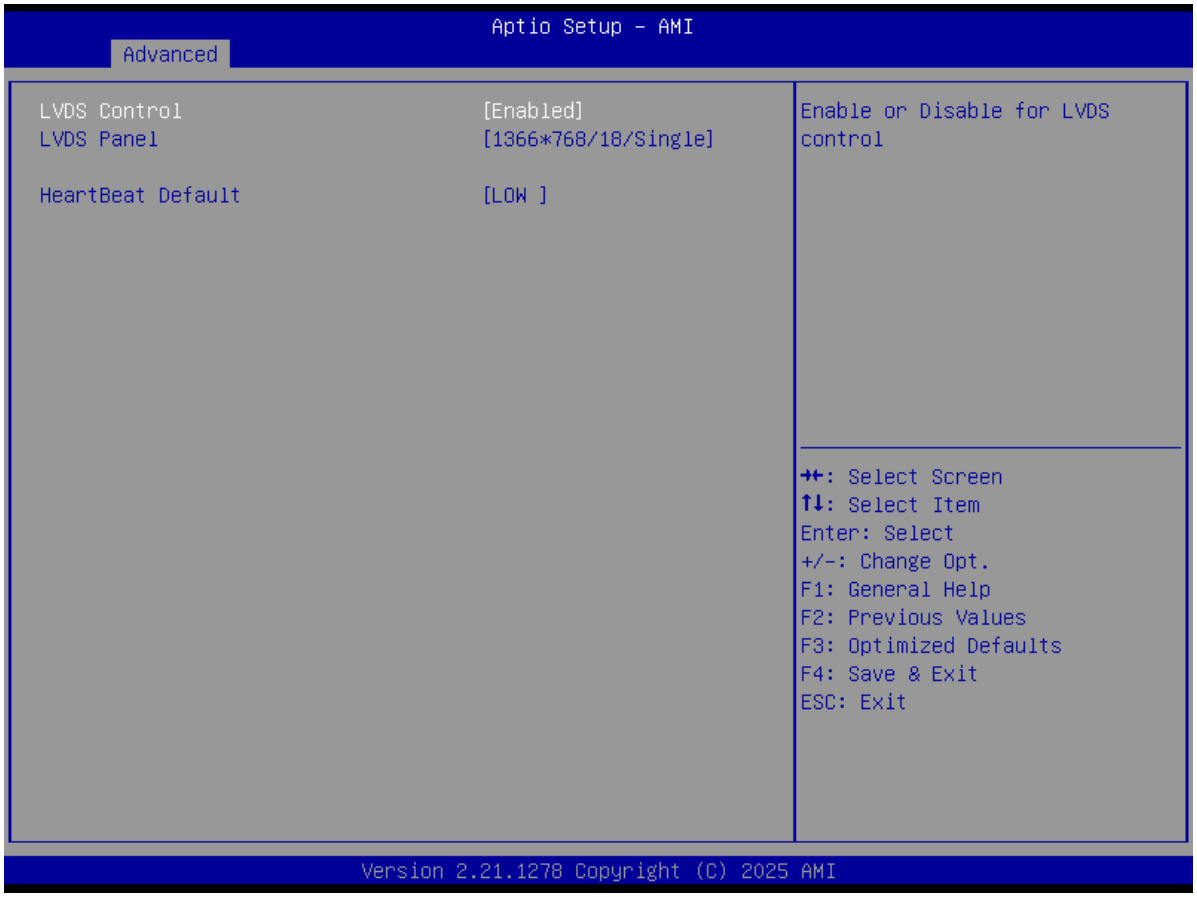
3.2.11 Watchdog Configuration

The Watchdog Configuration screen allows the user to Set System WatchDog Parameters. To access this screen from the Main screen, choose **Advanced > Watchdog Configuration**.

Setup Item	Options	Help Text	Comments
Watchdog Configuration			
WatchDog Control	Disabled Enabled		WatchDog function.
WatchDog Count Mode	Minute Second		WatchDog Count Mode Selection.
WatchDog TimeOut Value	1		Fill WatchDog TimeOut(0~255),0 means function disabled.

3.2.12 OemSetup Settings

To access this screen from the Main screen, choose **Advanced > OemSetup Settings**.



Setup Item	Options	Help Text	Comments
OemSetup Settings			
LVDS Control	Disabled Enabled		Enable or Disable for LVDS control. (Only Support LVDS bom)
LVDS Panel	1366*768/18/Single		WatchDog Count Mode Selection.
HeartBeat Default	LOW High	HeartBeat Default value, as high, low.	

3.3 Chipset Screen

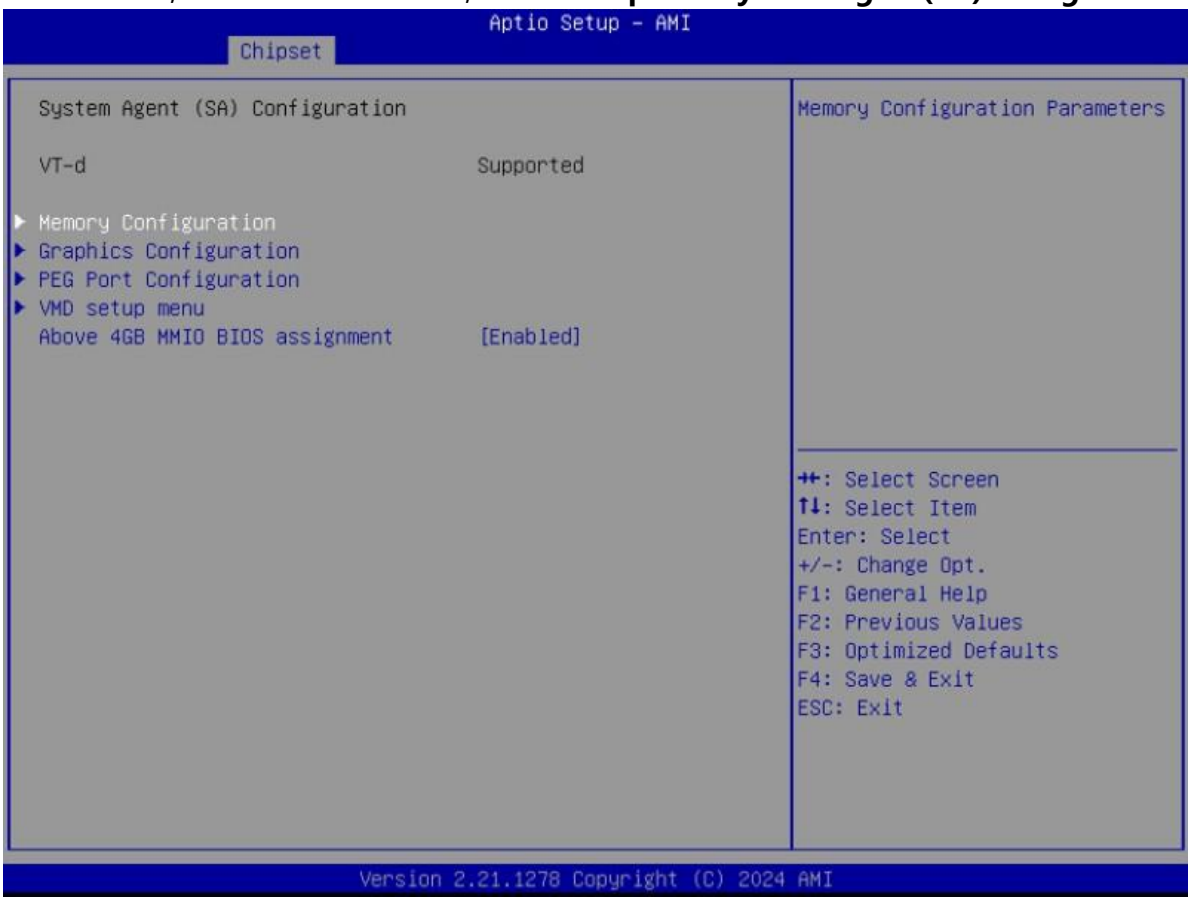
The Chipset screen provides an access point to configure SA Configuration and PCH-IO configuration. To access this screen from the Main screen, press the right arrow until the Chipset screen is chosen.

Setup Item	Options	Help Text	Comments
Chipset Screen			
System Agent(SA) Configuration		System Agent(SA) Parameters.	
PCH-IO Configuration		PCH Parameters.	

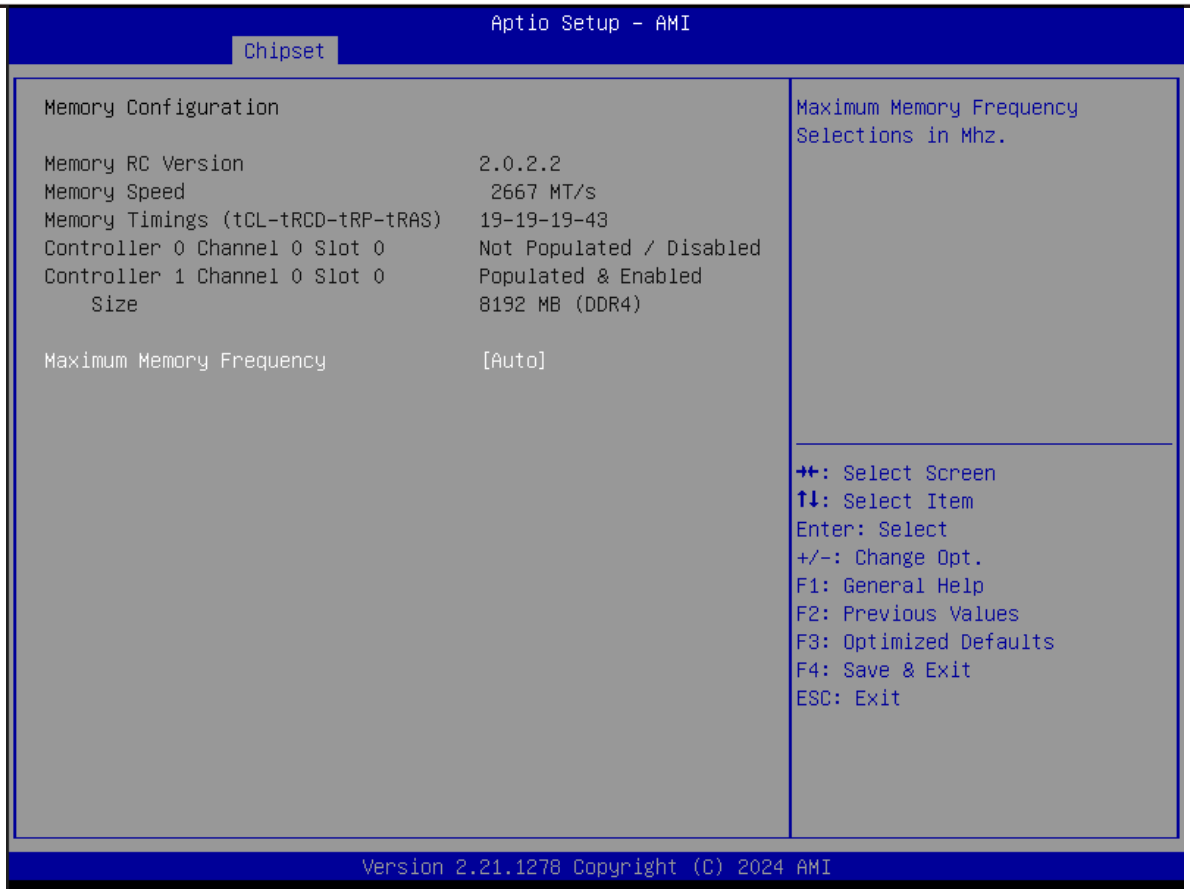
3.3.1 System Agent(SA)Configuration

The North Bridge Screen allows user to set NB chipset configuration.

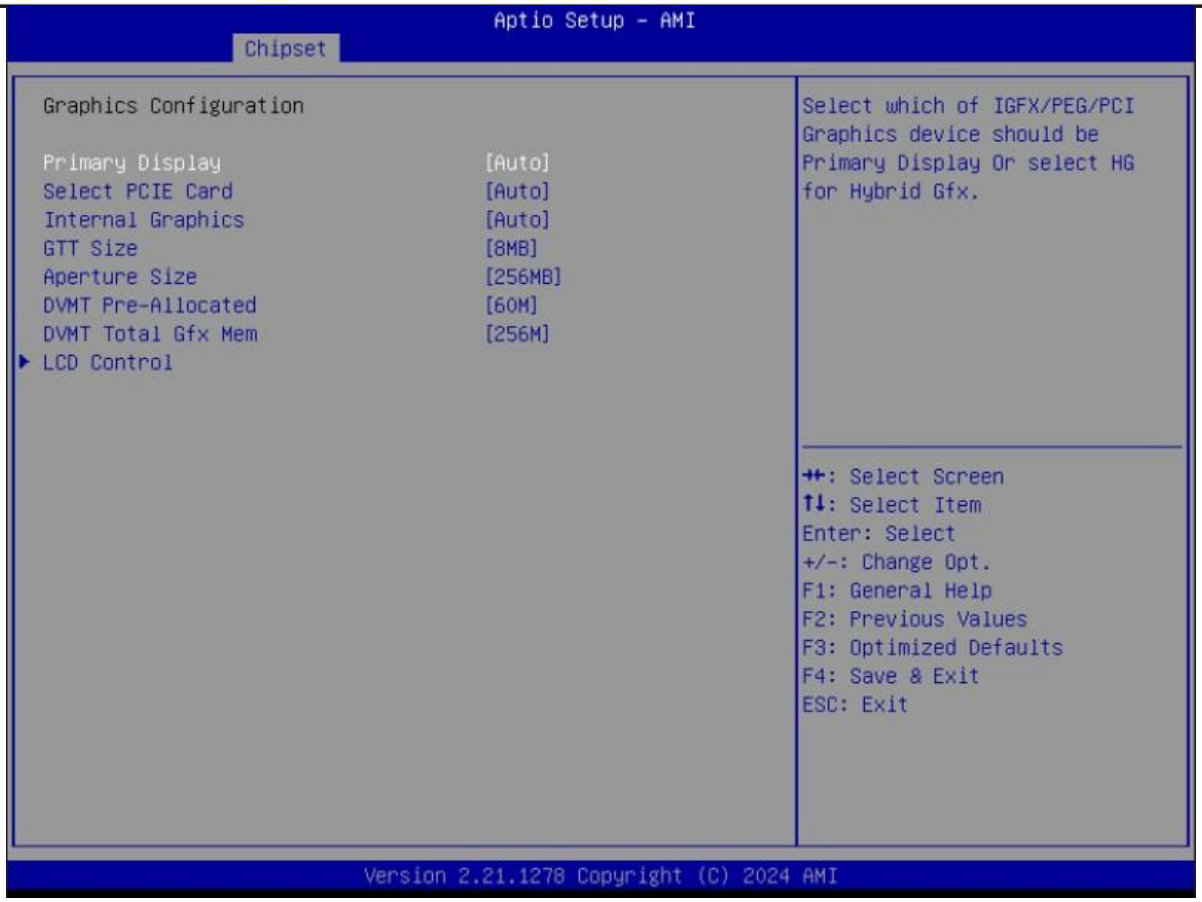
To access this screen, form the Main screen, choose **Chipset> System Agent(SA)Configuration**.



Setup Item	Options	Help Text	Comments
System Agent(SA)Configuration			
Memory Configuration		Show Memory information.	
Graphics Configuration		Graphics Configuration.	
PEG Port Configuration		PEG Port Options.	
VMD setup menu			
Above 4GB MMIO BIOS assignment	Disabled Enabled	Enable/Disable above 4GB MemoryMappedIO BIOS assignment.	

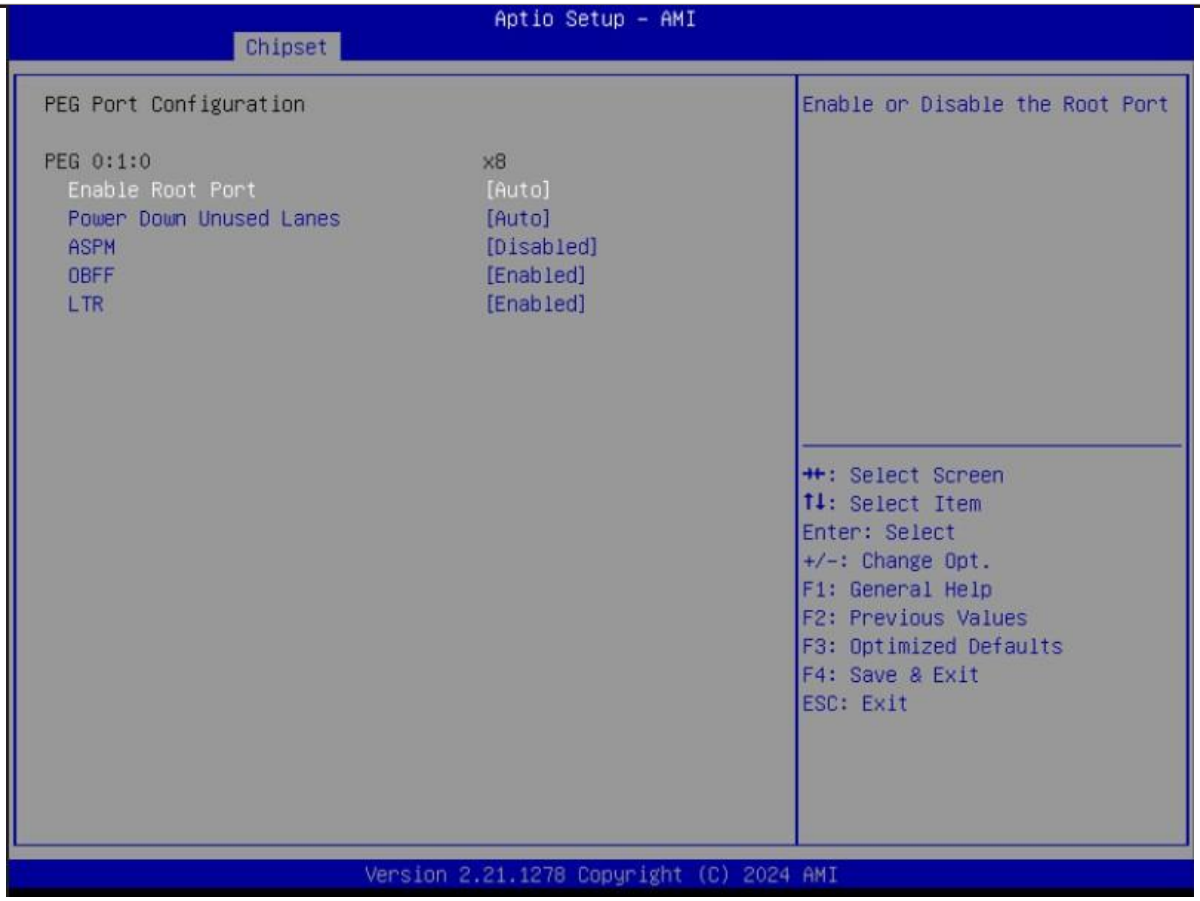


Setup Item	Options	Help Text	Comments
Memory Configuration			
Maximum Memory Frequency	Auto	Maximum Memory Frequency Selections in Mhz.	



Setup Item	Options	Help Text	Comments
Graphics Configuration			
Primary Display	Auto IGFX PEG Slot PCH PCI	Select which of IGFX/PEG/PCI Graphics device should be Primary Display Or select HG for Hybrid Gfx.	
Select PCIE Card	Auto Elk Creak 4 PEG Eval	Select the card used on the platform" Auto: Skip GPIO based Power Enable to dGPU Elk Creek 4: DGPU Power Enable = ActiveLow PEG Eval: DGPU Power Enable = ActiveHigh".	
Internal Graphics	Auto Disabled Enabled	Keep IGFX enabled based on the setup options.	
GTT Size	2MB 4MB 8MB	Select the GTT Size.	
Aperture Size	128MB 256MB 512MB 1024MB 2048MB	Select the Aperture Size. Note: Above 4GB MMIO BIOS assignment is automatically enabled when selecting 2048MB aperture. To use this feature, please disable CSM Support.	

Setup Item	Options	Help Text	Comments
DVMT Pre-Allocated			
DVMT Total Gfx Mem	128M 256M MAX	Select DVMT5.0 Total Graphic Memory size used by the Internal Graphics Device.	
LCD Control			

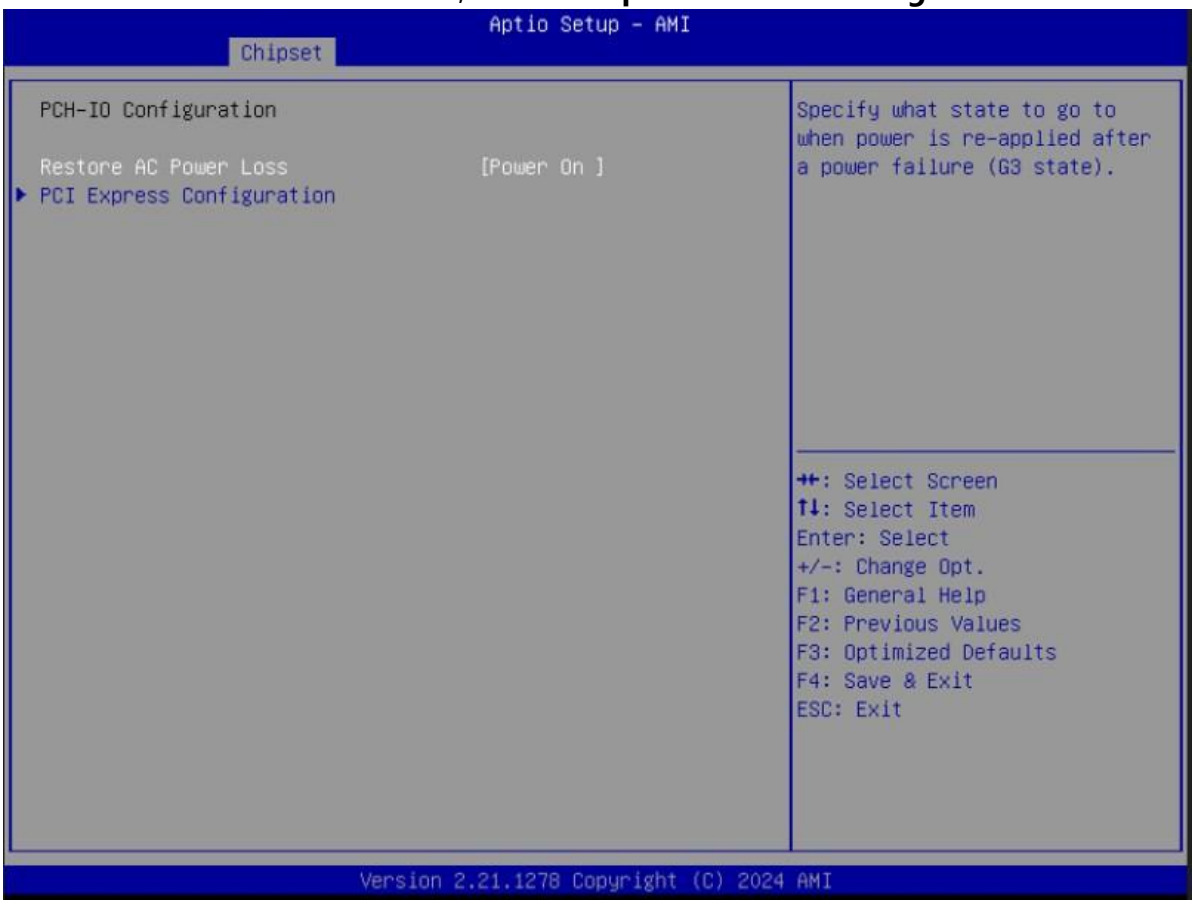


Setup Item	Options	Help Text	Comments
PEG Port Configuration			
PEG 0:1:0			
Enable Root Port	Auto Disabled Enabled	Enable or Disable the Root Port.	
Power Down Unused Lanes	Auto Disabled	Power Down Unused Lanes.	
ASPM	Disabled Enabled	Control ASPM support for the PEG 0.	
OBFF	Disabled Enabled	CPU PEG0(0,1,0) OBFF Enable/Disable.	
LTR	Enabled		

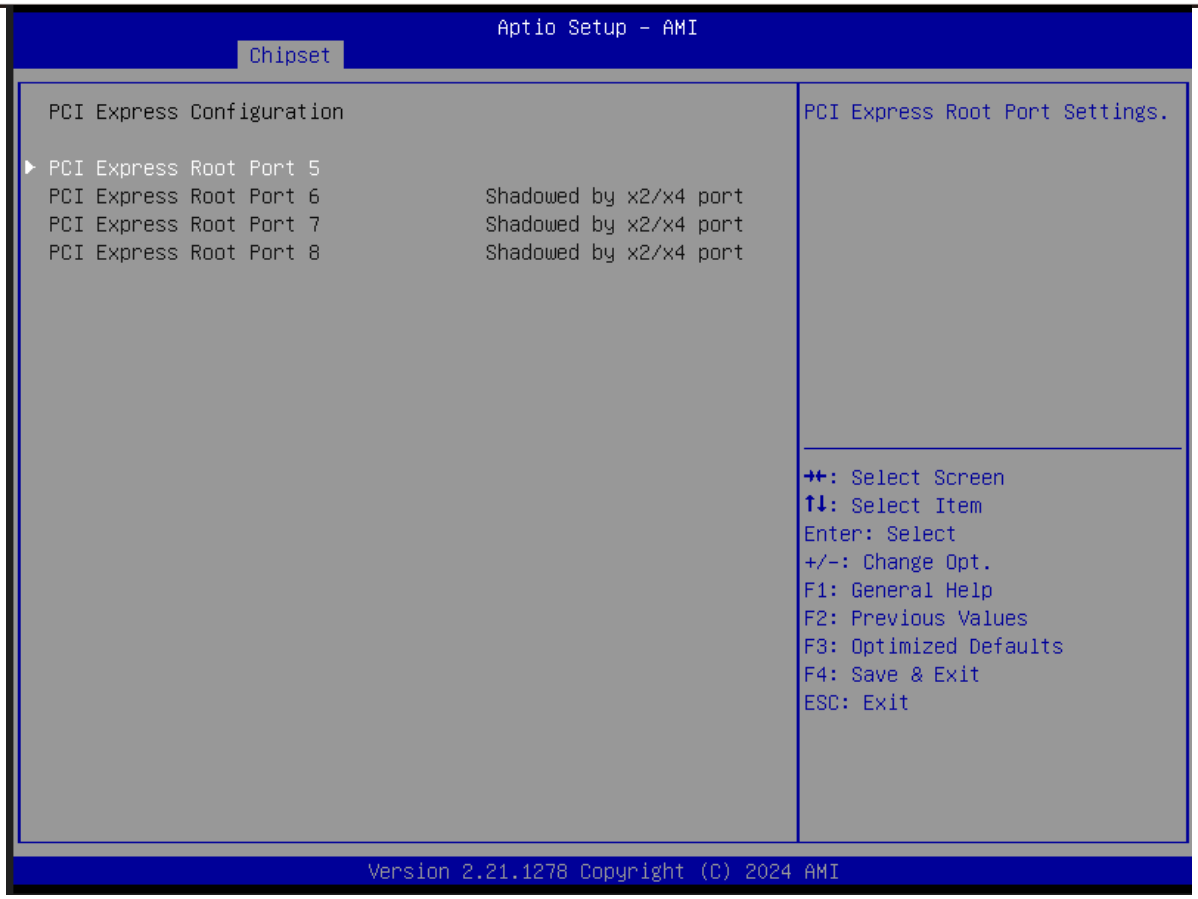
3.3.2 PCH-IO Configuration

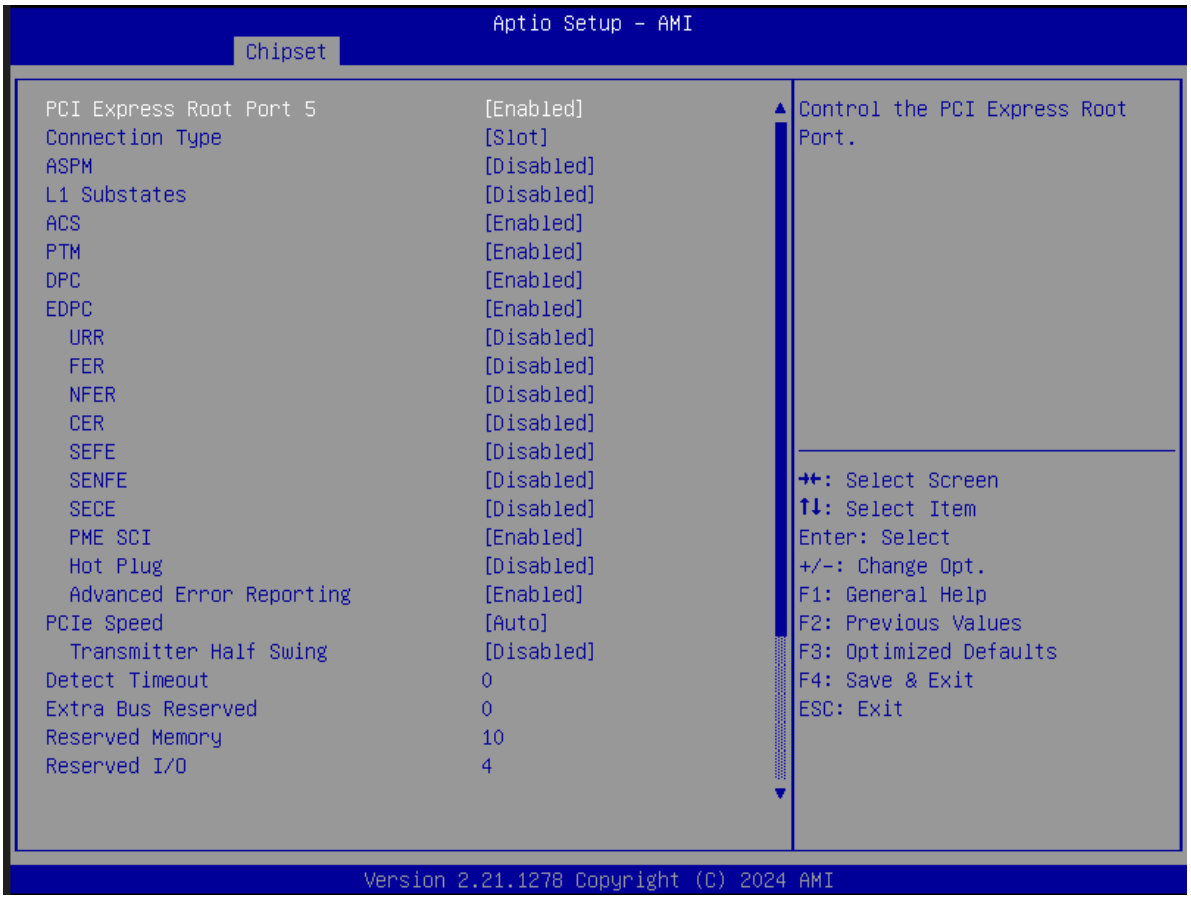
The South Bridge Screen allows user to set SB chipset configuration.

To access this screen form the Main screen, choose **Chipset> PCH-IO Configuration**.



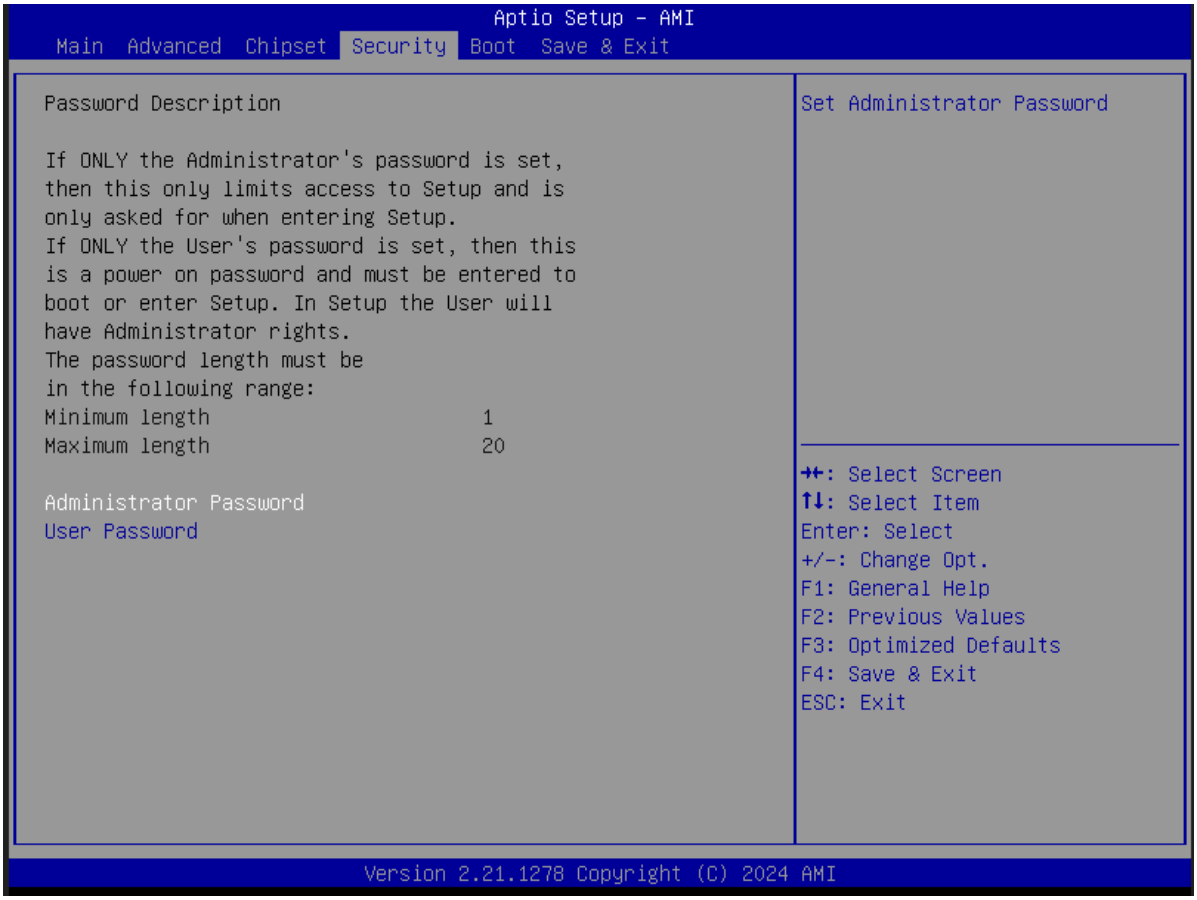
Setup Item	Options	Help Text	Comments
PCH-IO Configuration			
Restore AC Power Loss	Power on Power off	Select AC power state when power is re-applied after a power failure.	
PCI Express Configuration			
PCI Express Root Port 5			


Aptio Setup – AMI
Chipset
PCI Express Configuration
PCI Express Root Port 5
PCI Express Root Port 6 Shadowed by x2/x4 port
PCI Express Root Port 7 Shadowed by x2/x4 port
PCI Express Root Port 8 Shadowed by x2/x4 port
PCI Express Root Port Settings.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.21.1278 Copyright (C) 2024 AMI


Aptio Setup – AMI
Chipset
PCI Express Root Port 5 [Enabled]
Connection Type [Slot]
ASPM [Disabled]
L1 Substates [Disabled]
ACS [Enabled]
PTM [Enabled]
DPC [Enabled]
EDPC [Enabled]
URR [Disabled]
FER [Disabled]
NFER [Disabled]
CER [Disabled]
SEFE [Disabled]
SENFE [Disabled]
SECE [Disabled]
PME SCI [Enabled]
Hot Plug [Disabled]
Advanced Error Reporting [Enabled]
PCIe Speed [Auto]
Transmitter Half Swing [Disabled]
Detect Timeout 0
Extra Bus Reserved 0
Reserved Memory 10
Reserved I/O 4
Control the PCI Express Root Port.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.21.1278 Copyright (C) 2024 AMI

3.4 Security

To access this screen form the Main screen, choose **Security**.

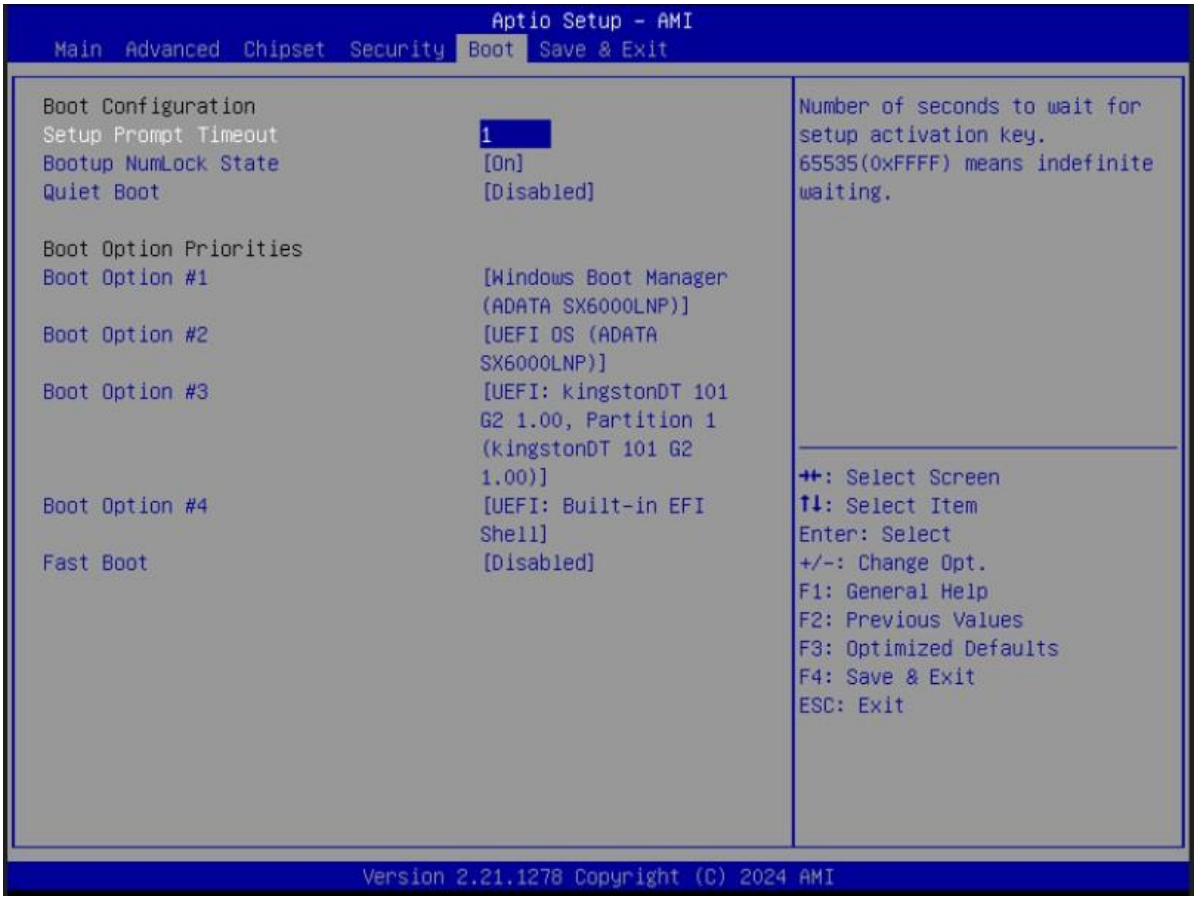


Setup Item	Options	Help Text	Comments
Security			
Administrator Password		Set Administrator Password	
User Password		Set User Password	

3.5 Boot Screen

The Boot screen displays any bootable media encountered during POST, and allows the user to configure desired boot device.

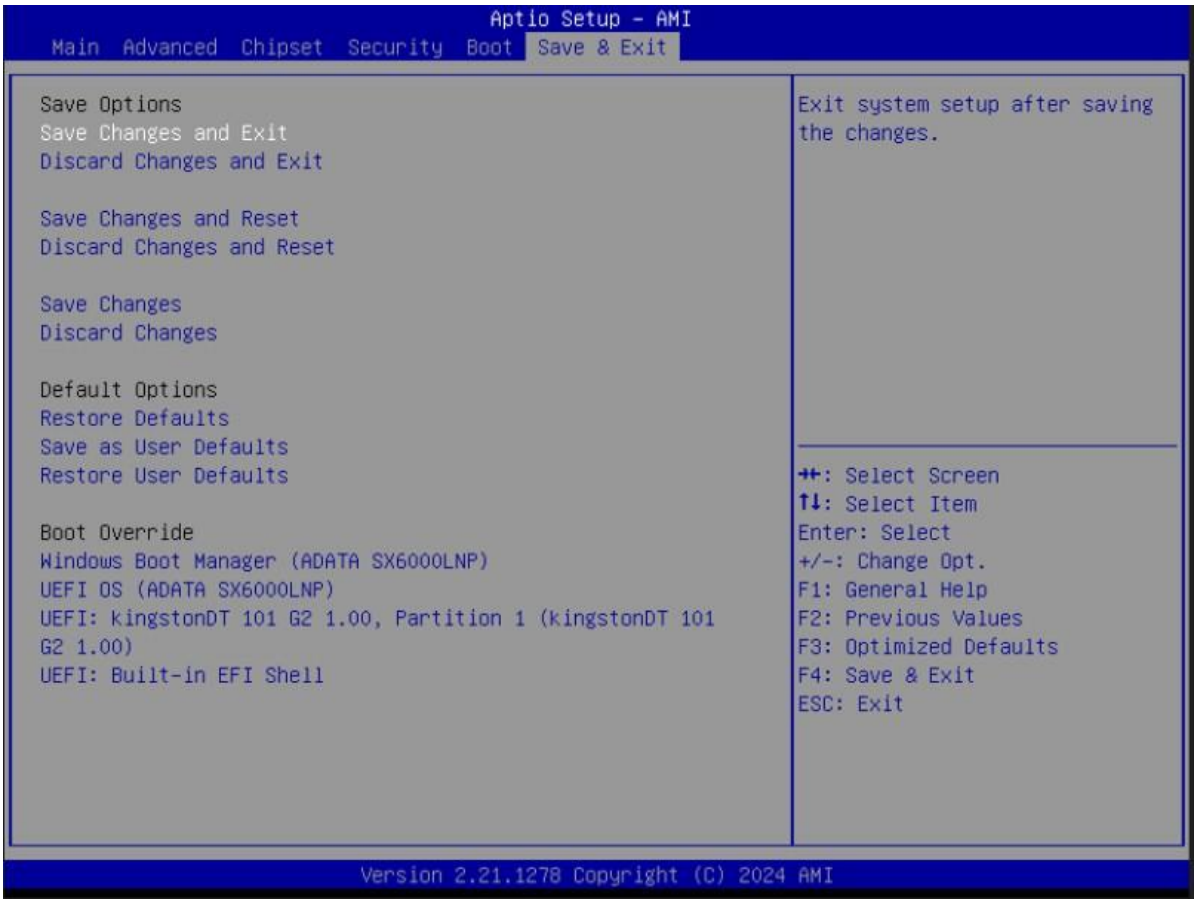
To access this screen from the Main screen, choose **Boot.**



Setup Item	Options	Help Text	Comments
Boot Configuration			
Setup Prompt Timeout	1~65535	Number of seconds to wait for setup activation key.65535(0xFFFF) means indefinite waiting.	
Bootup NumLock State	On off	Select the keyboard Number state.	
Quiet Boot	Disabled Enabled	Enables or disables Quiet Boot option.	
Boot Option Priorities			
Boot Option #1		Sets the system boot order.	Note：Showed When boot devices existed.
Boot Option #2		Sets the system boot order.	
Boot Option #3		Sets the system boot order.	
Hard Drive BBS Priorities		Set the order of the legacy devices in this group.	Set boot order in each group of the same kind, such as HDD, network.

3.6 Save & Exit Screen

The Save & Exit screen allows the user to choose whether to save or discard the configuration changes made on the other screens. It also allows the user to restore the server to the factory defaults or to save or restore them to set of user-defined default values.



Setup Item	Options	Help Text	Comments
Save & Exit Screen			
Save Changes and Exit		Exit system setup after saving the changes.	User is prompted for confirmation only if any of the setup fields were modified.
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 and changes.	
Save Changes		Save Changes done so far to any of the setup options.	
Discard Changes		Discard Changes done so far to any or the setup options.	
Default Options			
Restore Defaults		Restore/Load Default values for all the setup options.	

Setup Item	Options	Help Text	Comments
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			
Shows the Device can boot.			Note：Showed When boot devices existed.

第四章 故障问题排除

故障	排除
硬盘启动项设置	1、开机时按DEL 进 BIOS 设置选Advanced。 2、选 CSM Configuration 回车。 3、选 CSM Support 打开 Enabled。 4、选 Boot option filter 回车。 5、UEFl and Legacy 是两种不同的系统引导方式，可以实现网络启动，UEFI 只支持 64 位操作系统。 6、Legacy only Legacy 启动是 BIOS 之前的启动方式，不能实现网络启动。但它可以引导 32 位操作系统，也可以引导 64 位操作系统。
设置来电开机	开机时按 DEL 进 BIOS 设置 Chipset→PCH-Io Configuration 回车。 1）AC Power loss 将 Power off→Power ON 上电开机。 2）State After G3 选 S5 State S0 State 上电开机。
A. 开机时核显可以正常显示，但独显不显示 B. 拼接设置	开机时按 DEL 进 BIOS 设置选 Chipset。 1、选 System Agent(SA) Configuration 回车。 2、选 Graphics Configuration 回车。 3、选 Primary Display 回车。 3.1) Auto 独显。 3.2) IGFX 核显。(做分屏拼接选IGFX 模式）

附录

附一：术语表

ACPI

高级配置和电源管理。ACPI 规范允许操作系统控制计算机及其附加设备的大部份电能。

BIOS

基本输入/输出系统。是在 PC 中包含所有的输入/输出控制代码界面的软件。它在系统启动时进行硬件检测，开始操作系统的运作，在操作系统和硬件之间提供一个界面。BIOS 是存储在一个只读存储器芯片内。

BUS

总线。在计算机系统中，不同部件之间交换数据的通道，是一组硬件线路。我们所指的 BUS 通常是 CPU 和主内存元件内部的局部线路。

Chipset

芯片组。是为执行一个或多个相关功能而设计的集成芯片。我们指的是由南桥和北桥组成的系统级芯片组，他决定了主板的架构和主要功能。

CMOS

互补金属-氧化物半导体。是一种被广泛应用的半导体类型。它具有高速、低功耗的特点。我们指的 CMOS 是在主板上的 CMOS RAM 中预留的一部份空间，用来保存日期、时间、系统信息和系统参数设定信息等。

COM

串口。一种通用的串行通信接口，一般采用标准 DB9 公头接口连接方式。

DIMM

双列直插式内存模块。是一个带有内存芯片组的小电路板。提供 64bit 的内存总线宽度。

DRAM

动态随机存取存储器。是一个普通计算机的通用内存类型。通常用一个晶体管和一个电容来存储一个位。随着技术的发展，DRAM 的类型和规格已经在计算机应用中变得越来越多样化。例如现在常用的就有 SDRAM、DDR SDRAM和 RDRAM。

i2c

Inter-Integrated Circuit 总线是一种由 PHILIPS 公司开发的两线式串行总线，用于连接微控制器及其外围设备。

LAN

局域网络接口。一个小区域内相互关联的计算机组成的一个计算机网络，一般是在一个企事业单位或一栋建筑物。局域网一般由服务器、工作站、一些通信链接组成，一个终端可以通过电线访问数据和设备的任何地方，许多用户可以共享昂贵的设备和资源。

LED

发光二极管，一种半导体设备，当电流流过时它会被点亮，通常用来把信息非常直观的表示出来，例如表示电源已经导通或硬盘驱动器正在工作等。

PnP

即插即用。允许 PC 对外接设备进行自动配置，不用用户手动操作系统就可以自己工作的一种规格。为实现这个特点，BIOS 支持 PnP 和一个 PnP 扩展卡都是必需的。

POST

上电自检。在启动系统期间，BIOS 会对系统执行一个连续的检测操作，包括检测RAM，键盘，硬盘驱动器等，看它们是否正确连接和是否正常工作。

PS/2

由 IBM 发展的一种键盘和鼠标连接的接口规范。PS/2 是一个仅有 6PIN 的 DIN 接口，也可以用以连接其他的设备，比如调制解调器。

USB

通用串行总线。一种适合低速外围设备的硬件接口，一般用来连接键盘、鼠标等。一台 PC 最多可以连接 127 个 USB 设备，提供一个 12Mbit/s 的传输带宽；USB 支持热插拔和多数据流功能即在系统工作时可以插入USB 设备，系统可以自动识别并让插入的设备正常。

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