ZRT 智锐通

EMA-7102

7” MXM 主板
USER’ Manual V1.0

USER'S MANUAL
用户手册

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⚠ 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		EMA-7102		
配置 Item	规格 Specification	描述 Describe		
处理器 Processor System	CPU	Intel 9th Coffee Lake-H I3/I5/I7 LGA1440		
	处理器 CPU	I7-9850H	I7-8850H	I5-8400H
	内核数 Core Number	6	6	4
	基本主频 Base Frequency	2.60GHz	2.60GHz	2.50GHz
	最高主频 Max. Speed	4.60GHz	4.30GHz	4.20GHz
	二级缓存 L2 Cache	12MB	9MB	8MB
	功耗 TDP (W)	45W	45W	45W
	芯片组 Chipset	Intel PCH QM370		
	BIOS	128Mb SPI FLASH		
内存 Memory	规格 Technology	DDR4 2133/2400/2666MHz		
	最大容量 Max. Capacity	64G		
	插槽 Socket	2 x SO-DIMM		
扩展插槽 Expansion Slot	M.2	1 x M.2 Key-M(2242 / 2280) for PCIe/SATA 1 x M.2 Key-B(2242 / 2260 / 2280) for SATA & 4G/5G 1 x M.2 Key-E(2230) for WIFI		
	SIM	1 x SIM		
	PCI-Express	1 x PCI-E 4x		
存储 Storage	SATA	1 x SATA3.0(7 Pins)		
串口 COM	插针 Header Pin	1 x RS232 (1 x 2.0mm_2*5Pin)		

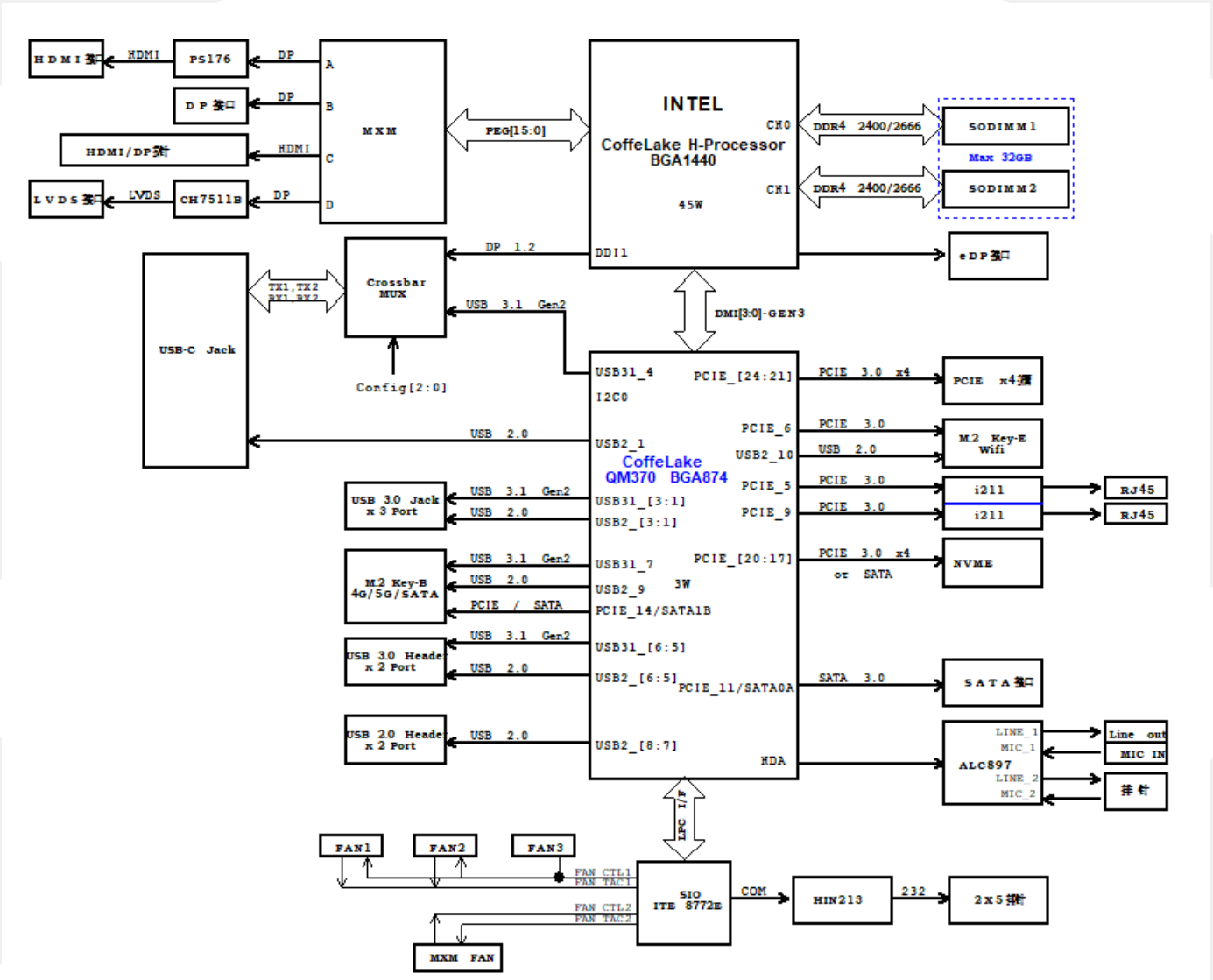
显示 Graphics	最多显示 Multiple Display	5 Ports
	I/O	1 x HDMI (From GPU DP_A DP to HDMI) 1 x DP (From GPU DP_B)
	插针 Header Pin	1 x eDP(From CPU) 1 x HDMI or DP(From GPU DP_C) 1 x LVDS(From GPU DP_D DP to LVDS)
	分辨率 Resolution	HDMI2.0:4096*2160@60Hz DP:7680*4096@60Hz eDP:4096*2304@60Hz LVDS: 1920*1080@60Hz
USB / Type-C	I/O	3 x USB3.1 1 x Type C (Support Display & USB3.0)
	插针 Header Pin	2 x USB3.1(1x2.0mm_2*10Pin) 2 x USB2.0(1x2.54mm_2*5Pin)
以太网 Ethernet	控制器 Controller	Intel® Ethernet Controller I211-AT
	I/O	2 x RJ45 10/100/1000M
音频 Audio	芯片 Chipset	Integrated High Definition Audio Stereo (ALC897)
	I/O	1 x Line Out 1 x MIC In
	插针 Header Pin	1 x Line Out 1 x MIC In
其它 Others	按钮 Button	1 x RV Button 1 x Reset Button
	LPC	1 x LPC
电源 Power Requirements	电源类型 Power Type	1 x DC In(4P In) 1 x ATX 2x2 4Pin
	电源电压 Input Voltage	12~24V
环境 Environment	工作温度 Operating Temperature	0~50℃
	存储温度 Storage Temperature	-20~70℃
	工作湿度 Operating Humidity	10~95%（non-condensing）
物理特性 Physical	尺寸 Dimensions	mITX (170*170mm)
	PCB 颜色 Color	Green

操作系统 OS	**Microsoft**	Windows 10 1809(RS5)/1607(RS1)
	Linux	Yocto YP3.1xLTS

1.2 驱动

Windows 10: https://pan.baidu.com/s/1Ul_-sNewDVr6LXl6OTXyRQ?pwd=trbv

1.3 功能框图



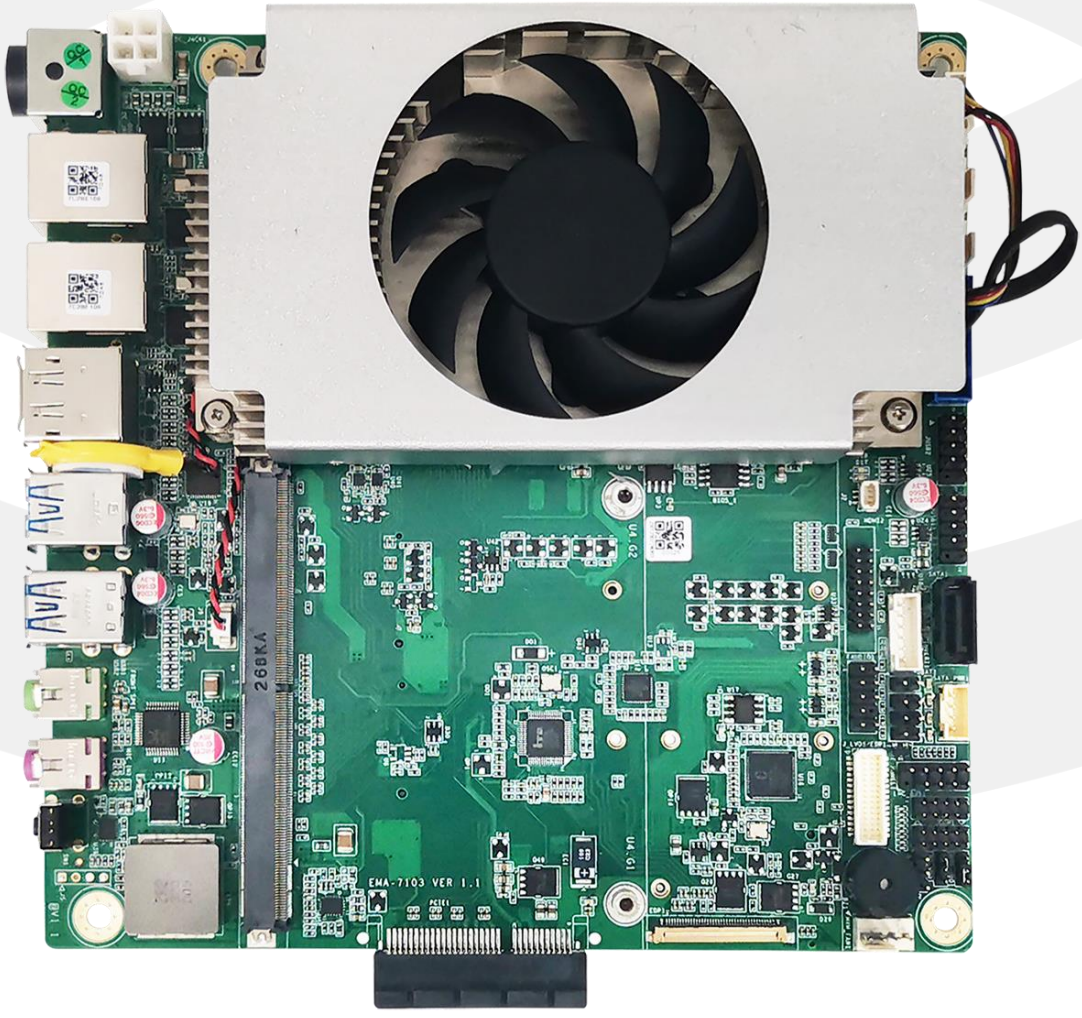
1.4 产品配件（选配）

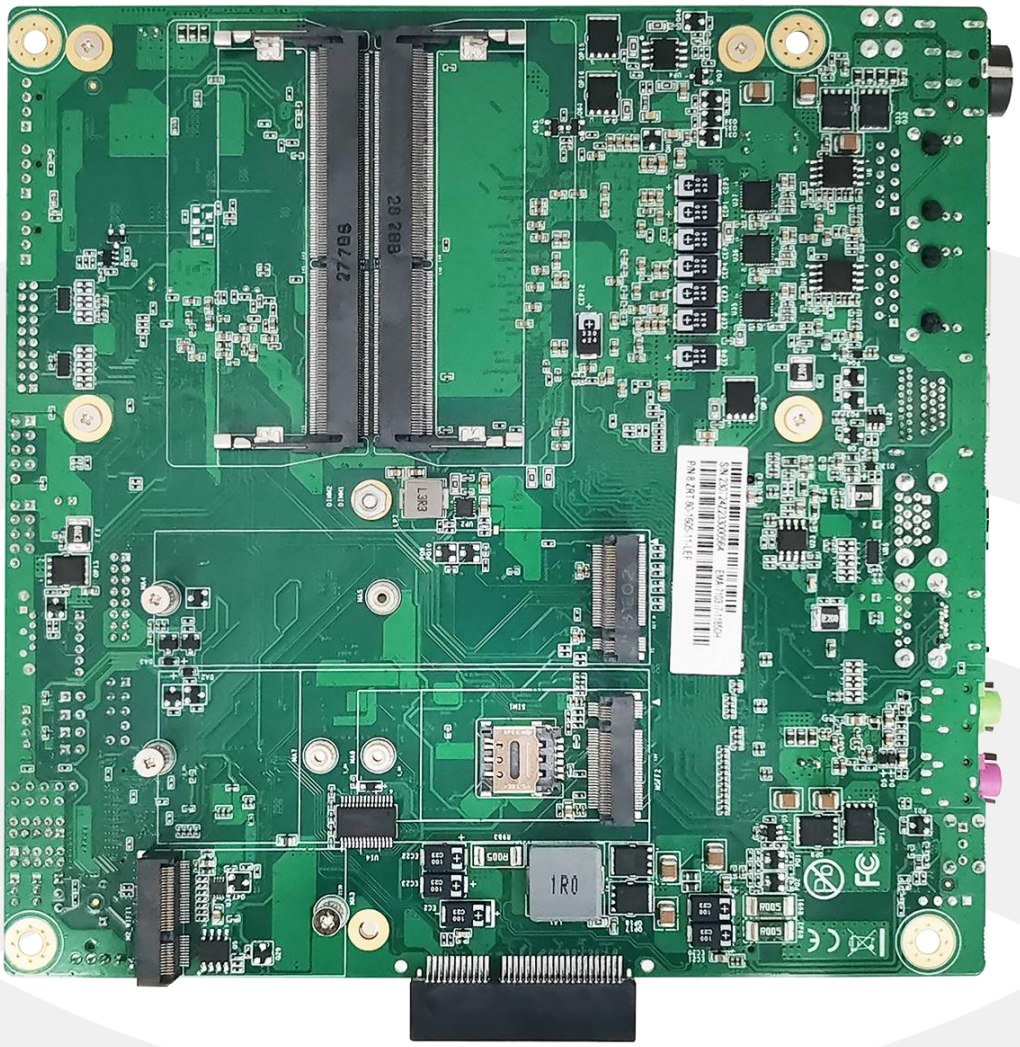
Model Name	Part Number	Specification
DP 转接线	1.ZRT.46-6502-00-A00	DP 转接线 长 300mm 黑色 2*8PIN 杜邦母头转标准 DP 母头
HDMI 转接线	1.ZRT.46-6500-00-A00	HDMI 公头线 杜邦 2 x 8PIN 转 HDMI 公头/黑色, L=300 MM 4K 高清引出连接线

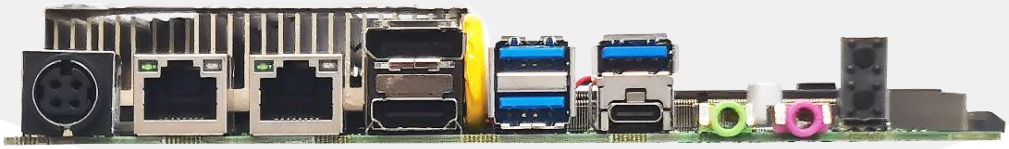
1.5 产品料号

Model Name	Part Number	Specification
EMA-7102 (i5-8400H)	8.ZRT.80-6477-01-LFF	EMA-7102-01/i5-8400H 标准 7 寸主板带 MXM 显卡接口 散热器-工包十入
EMA-7102 (i7-8850H)	8.ZRT.80-6477-02-LFF	EMA-7102-02/ i7-8850H 标准 7 寸主板带 MXM 显卡接口 散热器-工包十入
EMA-7102 (i7-9850H)	8.ZRT.80-6477-18-LEE	EMA-7102-05 /i7-9850H V1.1(主板无音频)/F80 RTX2060 95W/DDR4 16G*2/m.2 ssd 1T/一体散热器/包装/主板支架/HDMI 线/Win 光盘/PE 袋
	8.ZRT.80-6477-03-LFF	EMA-7102-03/i7-9850H 标准 7 寸主板带 MXM 显卡接口 散热器-工包十入
	8.ZRT.80-6477-12-LFF	EMA-7102-04 /i7-9850H/DDR4 16G/F92 RTX3060 12G+散热器/m.2 ssd 512G/电源适配器/电源线 套料包装
	8.ZRT.80-6477-11-LFF	新申请 EMA-7102-08/i7-9850H 标准 7 寸主板带 MXM 显卡接口 CPU 散热器（出货做-40 度测试筛选）工包十入

1.6 产品照片



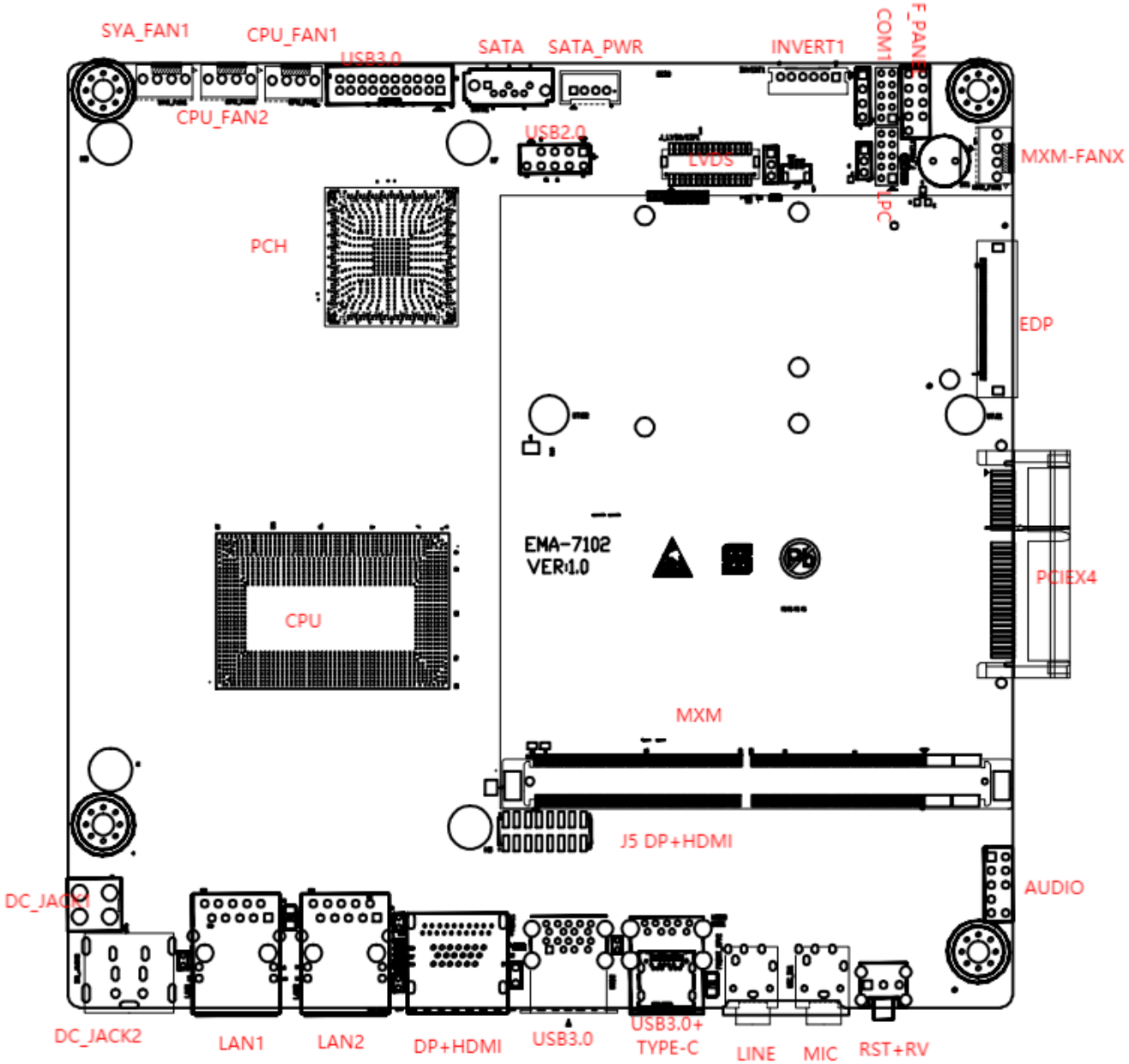




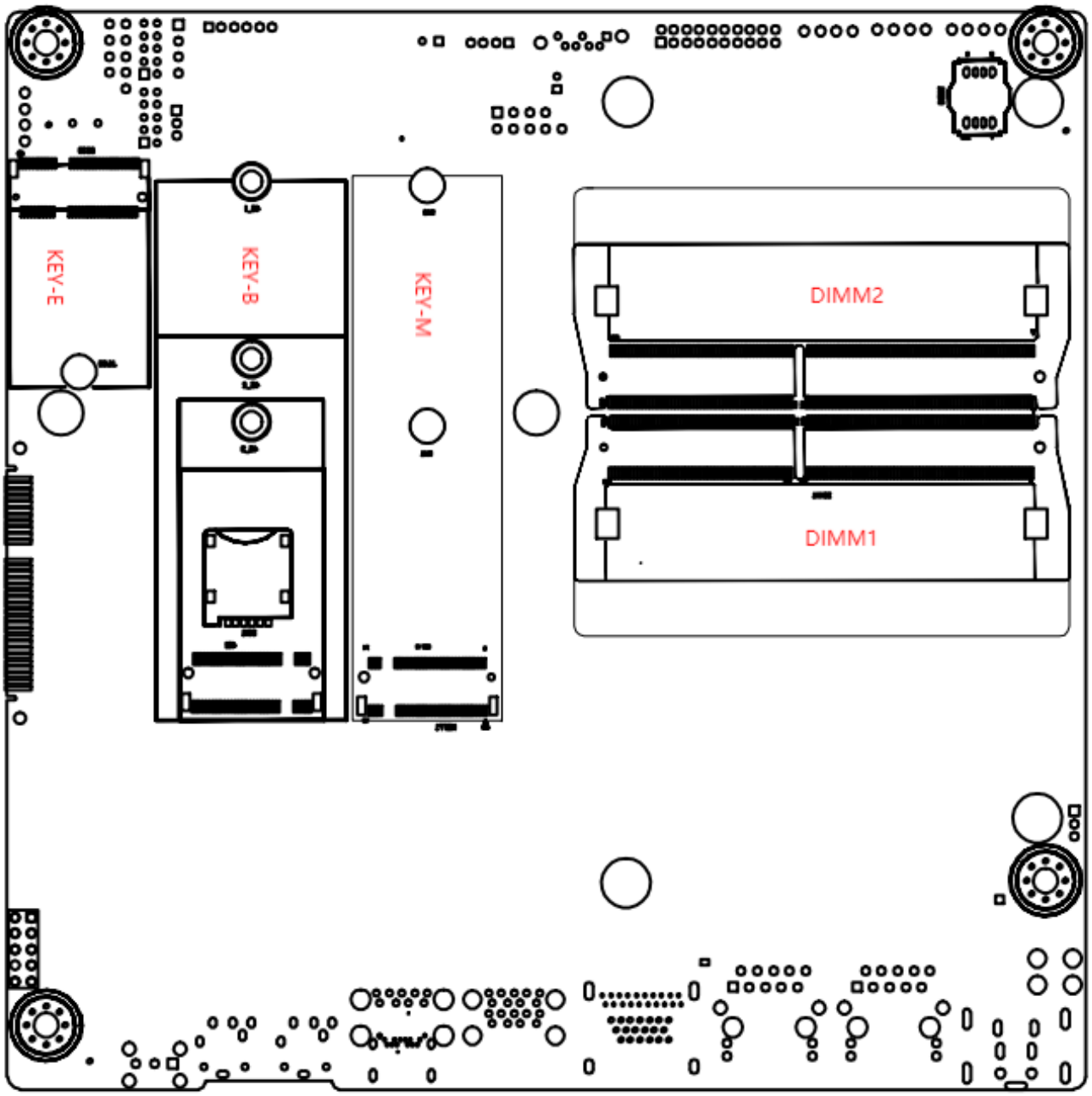
第二章 安装说明

2.1 接口/尺寸图

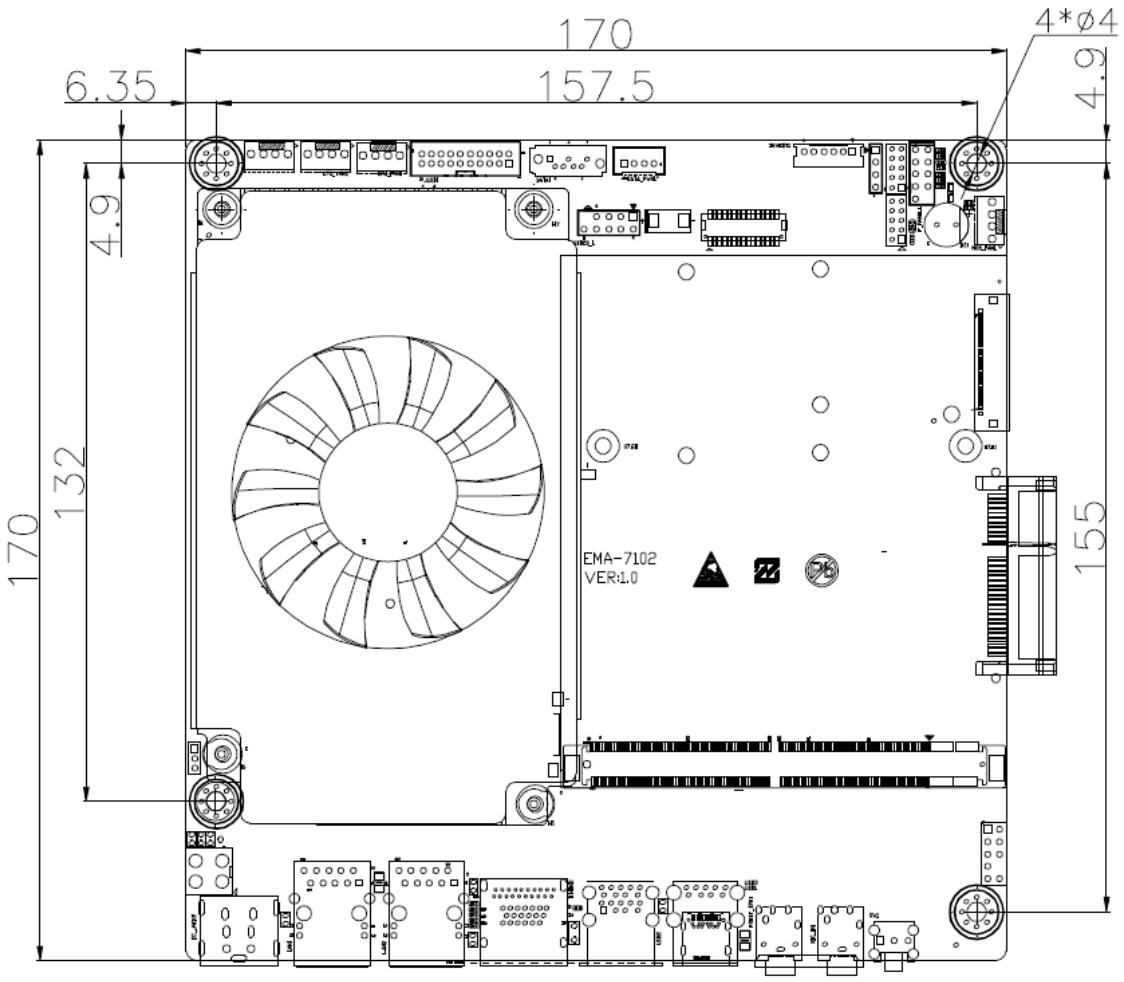
下图为主板的接口图。安装设备时，请对照此示意图并详细阅读下面的说明，安装组件过程中必须小心，对于有些部件，如果安装不正确，设备将不能正常工作。



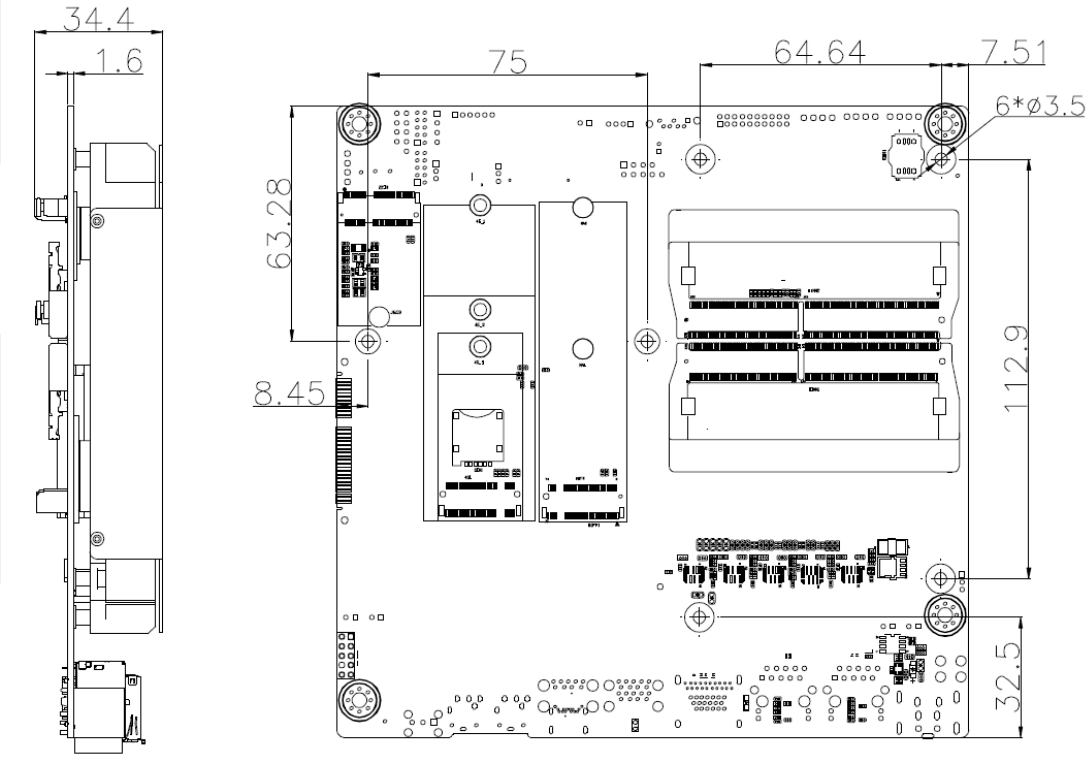
正面接口



反面接口



安装尺寸图（正面）



安装尺寸图（反面）

2.2 硬件安装

⚠注意：操作时，请戴上防静电手套，因为静电有可能会损坏部件。

本主板关键元器件都是集成电路，而这些元件很容易因为遭受静电的影响而损坏。因此，请在正式安装主板之前，请先做好以下的准备：

1. 拿主板时手握板边，尽可能不触及元器件和插头插座的引脚。
2. 接触集成路元件（如 CPU、RAM 等）时，最好戴上防静电手环/手套。
3. 在集成电路元件未按装前，需将元件放在防静电垫或防静电袋内。
4. 在确认电源的开关处于断开位置后，再插上电源插头。

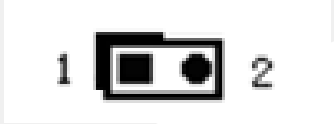
2.3 跳线功能设置

在进行硬件设备安装之前请按照您的需要对相应的跳线进行设置。

提示：如何识别跳线、接口的第 1 针脚，观察插头插座旁边的文字标记，会用“1”或加粗的线条或三角符号表示；看看背面的焊盘，方型焊盘为第 1 针脚；所有跳线的针脚 1 旁都有 1 个白色箭头。

2.3.1 清 CMOS 跳线设置

主板提供插针 J1 来清 CMOS，J1 插针定义如下：



设　置	功　能
1-2 短路	清除 CMOS 内容，所有 BIOS 设置恢复成出厂值
1-2 开路	正常工作状态(Default)

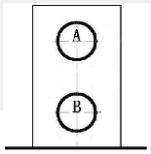
2.3.2 LVDS-PWR1 跳线设置

LVDS-PWR1，1x3pin，2.0mm，屏电压选择定义如下：

设　置	功　能
1-2 短路	+3.3V(Default)
2-3 短路	+5V

2.4 插针接口定义

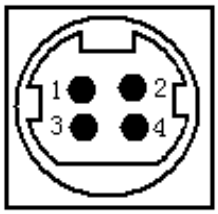
后 IO 按键，SW1 定义如下：



管 脚	信号名称
上层	一键还原按钮
下层	系统重启

备注：使用一键还原操作系统，需先按要求制作 Legacy 系统的备份。

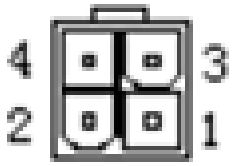
DC_JACK2，供电接口定义如下：



管 脚	信号名称
1	VCC
2	VCC
3	GND
4	GND

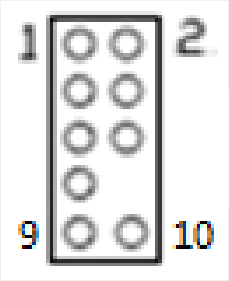
备注：DC_JACK1 和 DC_JACK2 为同一功能，同一时间仅需使用一个。
若接 MXM 显卡，推荐使用 19v/24V 供电，并保证电源功率及显卡散热良好。

DC_JACK1 供电接口，ATX 2*2 4pin 定义如下：



管 脚	信号名称
1	GND
2	GND
3	VCC
4	VCC

音频接口，2.54mm，2x5pin 定义如下：

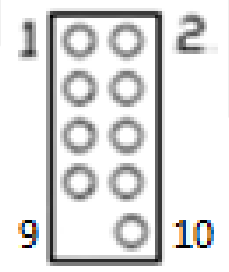


管 脚	信号名称	管 脚	信号名称
1	MIC L	2	GND
3	MIC R	4	PRESENCE
5	Line out R	6	MIC-JD
7	IO-SENSE	8	NC
9	Line out L	10	LINE-JD

SATA 电源接口，脚距 2.0mm，180 度带框插针定义如下：

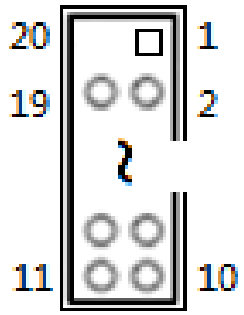
管 脚	信号名称
1	12V
2	GND
3	GND
4	5V

USB 2.0 接口，2.54mm 间距插针定义如下：



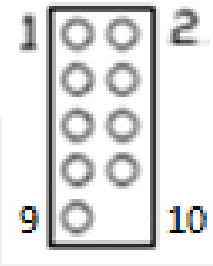
管 脚	信号名称	管 脚	信号名称
1	+5V	2	+5V
3	USB1_Data-	4	USB2_Data-
5	USB1_Data+	6	USB2_Data+
7	GND	8	GND
9	--	10	GND

USB 3.0 接口，2.0mm 间距插针，蓝色带框插针定义如下：



管 脚	信号名称	管 脚	信号名称
20	--	1	+5V
19	+5V	2	USB3_RX1-
18	USB3_RX2-	3	USB3_RX1+
17	USB3_RX2+	4	GND
16	GND	5	USB3_TX1-
15	USB3_TX2-	6	USB3_TX1+
14	USB3_TX2+	7	GND
13	GND	8	USB2_Data1-
12	USB2_Data2-	9	USB2_ Data1+
11	USB2_ Data2+	10	GND

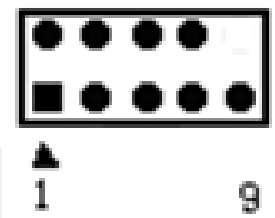
FPANEL，前面板状态接口，2.54mm 间距插针定义如下：



管 脚	信号名称	管 脚	信号名称
1	HDD LED+	2	PW LED+
3	HDD LED-	4	PW LED-
5	GND	6	PW Buttom
7	RESET	8	GND
9	BKL SW	10	--

注：BKL SW 为“一键熄屏”功能。

JCOM1，RS232 串口，2.0mm 间距 2*5 插针定义如下：

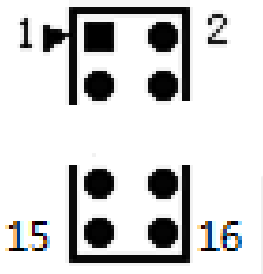


管 脚	信号名称
1	DCD#
2	RXD
3	TXD
4	DTR#
5	GND
6	DSR#
7	RTS#
8	CTS#
9	RI#

J5_PWR 显示选电定义如下：

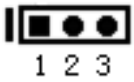
设 置	功 能
1-2 短路	HDMI +3.3V (Default)
2-3 短路	DP +5V

J5 HDMI&DP 插针，显示输出接口，2.0mm 间距 2*8pin 插针定义如下：



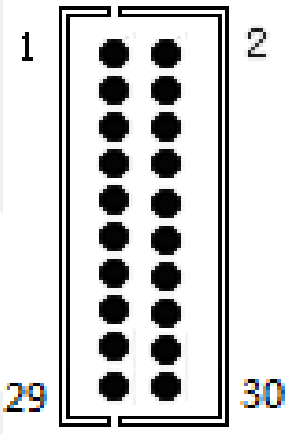
管 脚	信号名称	管 脚	信号名称
1	GPU_DP3_C_TXP2	2	GPU_DP3_C_TXP1
3	GPU_DP3_C_TXN2	4	GPU_DP3_C_TXN1
5	GND	6	GND
7	GPU_DP3_C_TXP0	8	GPU_DP3_CLKP
9	GPU_DP3_C_TXN0	10	GPU_DP3_CLKN
11	GND	12	DONGLE_DET
13	GPU_DP3_DDC_CLK	14	CN_PWR
15	GPU_DP3_DDC_DATA	16	GPU_DP3_HPD_C

EDP-PWR1，1x3pin，2.0mm 屏电压选择定义如下：



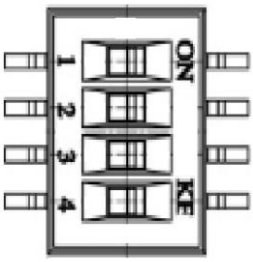
设 置	功 能
1-2 短路	+3.3V(Default)
2-3 短路	+5V

J_LVDS HEADER 2x15_1.0 定义如下：



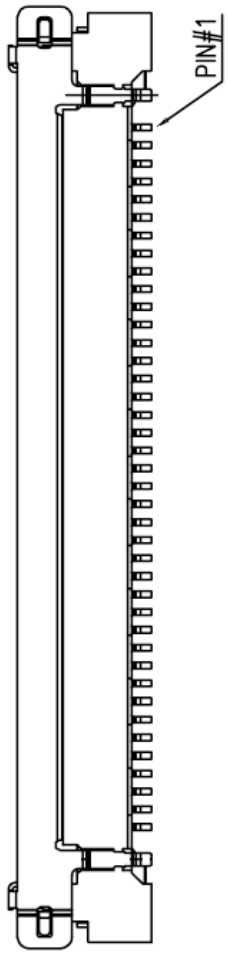
管 脚	信号名称	管 脚	信号名称
1	VDD	2	VDD
3	VDD	4	eDP_HPD_R
5	GND	6	GND
7	LVDS_TX_L0N	8	LVDS_TX_L0P
9	LVDS_TX_L1N	10	LVDS_TX_L1P
11	LVDS_TX_L2N	12	LVDS_TX_L2P
13	GND	14	GND
15	LVDS_TX_CLKLN	16	LVDS_TX_CLKLP
17	LVDS_TX_L3N	18	LVDS_TX_L3P
19	LVDS_TX_U0N	20	LVDS_TX_U0P
21	LVDS_TX_U1N	22	LVDS_TX_U1P
23	LVDS_TX_U2N	24	LVDS_TX_U2P
25	GND	26	GND
27	LVDS_TX_CLKUN	28	LVDS_TX_CLKUP
29	LVDS_TX_U3N	30	LVDS_TX_U3P

TYPE-C SW2 拨码设置定义如下：



开关/线材	SW2.1	SW2.2	SW2.3	SW2.4
TYPE-C=DP A 面	ON	OFF	ON	OFF
TYPE-C=DP B 面	ON	OFF	OFF	OFF
TYPE-C=USB A&B(Default)	OFF	ON	ON&OFF	ON

EDP 显示输出接口，0.5mm 间距 1*40pin 定义如下：



管 脚	信号名称	管 脚	信号名称
1	NC	21	VCC_EDP
2	GND	22	NC
3	EDP_TX3_DN	23	GND(VDD)
4	EDP_TX3_DP	24	GND(VDD)
5	GND	25	GND(VDD)
6	EDP_TX2_DN	26	GND(VDD)
7	EDP_TX2_DP	27	EDP_HPD_CN
8	GND	28	GND(BKL)
9	EDP_TX1_DN	29	GND(BKL)
10	EDP_TX1_DP	30	GND(BKL)
11	GND	31	GND(BKL)
12	EDP_TX0_DN	32	ENABKL
13	EDP_TX0_DP	33	PWM_OUT0
14	GND	34	NC
15	EDP_AUX_DP	35	NC
16	EDP_AUX_DN	36	Backlight_VCC
17	GND	37	Backlight_VCC
18	VCC_EDP	38	Backlight_VCC
19	VCC_EDP	39	Backlight_VCC
20	VCC_EDP	40	NC

备注：

1、插座参考型号：I-PEX,20455-040E-12、 THD,THD0510-40LV-GF 等。

2、需要 CPU 核显参与多显，开机进 bios setup 中设置（开机按 delete 键进入）:setup---chipset---system agent configuration---graphics configuration---primary display--选择 igfx。

第三章 BIOS 程序设置

AMI BIOS 刷新

BIOS 提供对硬件资源的底层驱动，是联系硬件和操作系统的桥梁。现在硬件和各种应用软件不断更新，当您的系统遇到问题时，例如系统不支持最新公布的 CPU 时，就需要升级您的 BIOS 了。

注意:

1. ***升级 BIOS 只在遇到问题，必要的时侯进行。***
2. ***升级 BIOS 请使用我们驱动光盘内所附的 BIOS 读写程序，或者在相关网站下载更新版本的程序。***
3. ***在升级过程中不要关闭电源或重新启动系统，以免造成您的 BIOS 资料将被损坏，系统也可能不能启动。***
4. ***为防止意外发生，请您先备份当前的 BIOS 资料。***

AMI BIOS 描述

开机时，BIOS 会对主板上的硬件进行自我诊断，设定硬件时序参数等工作，最后才将系统控制权交给操作系统。如何正确的设定 BIOS 参数对系统是否稳定的工作及系统是否工作在最佳状态至关重要。

进入 BIOS 参数设置

电脑开机，在完成自我诊断后，屏幕上会显示出如下信息：Del->SETUP，此时您点击一下 Del 键，则 BIOS 在完成 IDE 等设备的侦测后会自动转入 SETUP 设置画面。

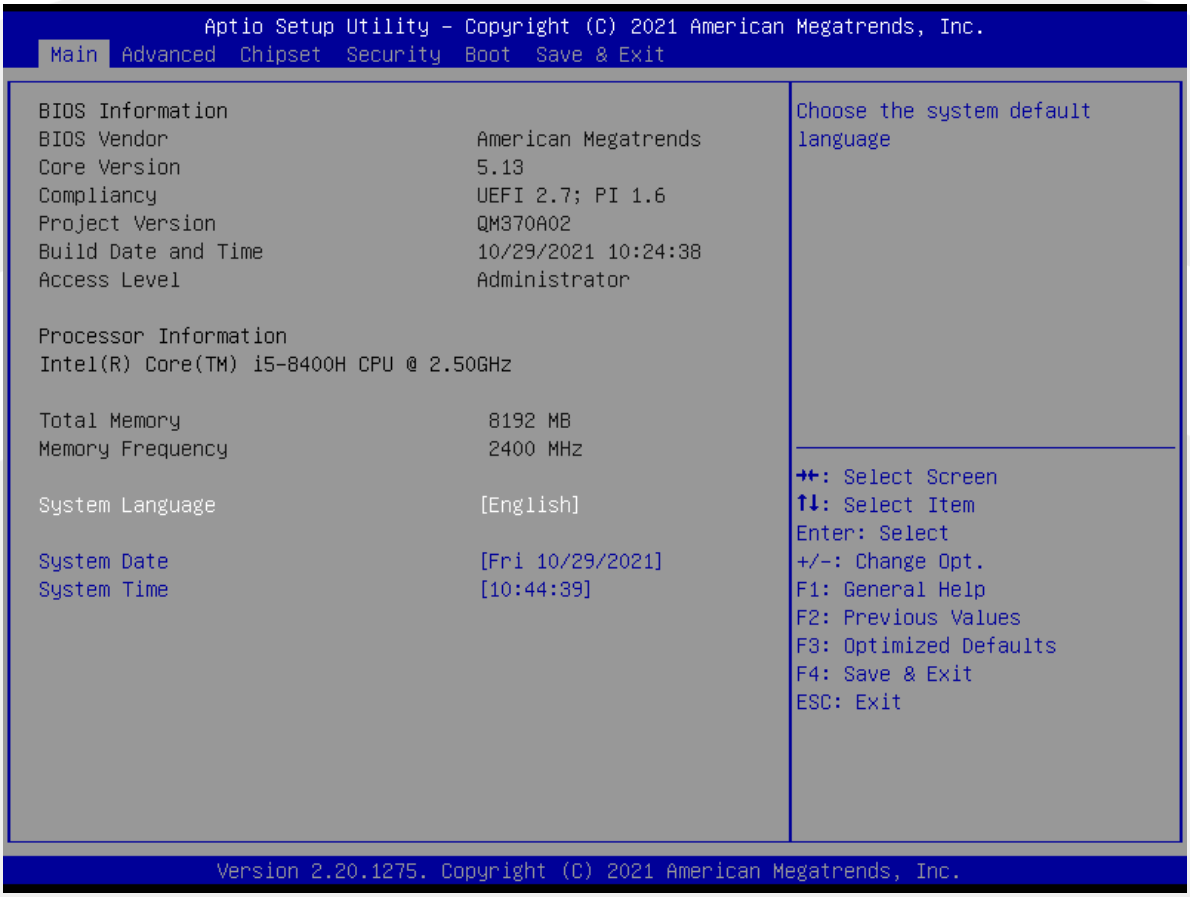
1. 打开系统电源或重新启动系统，显示器屏幕将出现自我测试的信息。
2. 当屏幕中间出现〝Press<Del>to enter setup〞提示时，按下<Del>键，就可以进入 BIOS 设定程序。
3. 以方向键移动至您要修改的选项，按下<Enter>键即可进入该选项的子画面。
4. 使用方向键及<Enter>键即可修改所选项目的值，按回车键选择 BIOS 选项并修改。
5. 任何时侯按下<Esc>键即可回到上一画面。

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.

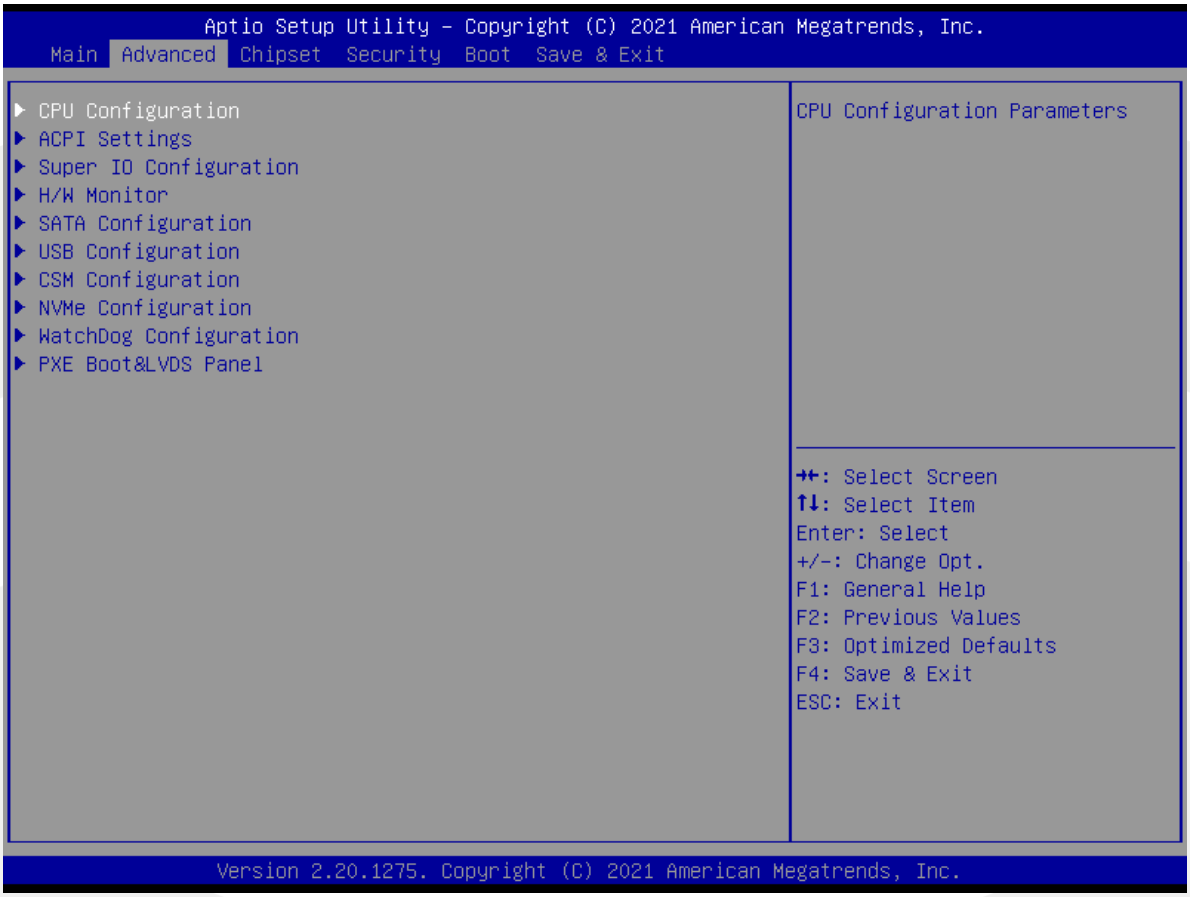


Setup Item	Options	Help Text	Comments
BIOS Information			
BIOS Vendor			Displays BIOS vendor.
Core Version			
Compliancy			
Project Version			Displays the current BIOS version: Format: AAAABBC **AAAAA = Project name** **BB = BIOS revision** **C = Customer number**
Build Date and Time			Displays the current BIOS build date.

Setup Item	Options	Help Text	Comments
Access Level			Displays password level that setup is running in: Administrator or User. With no passwords set, Administrator is the default mode.
Process Information			
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 Frequency			
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

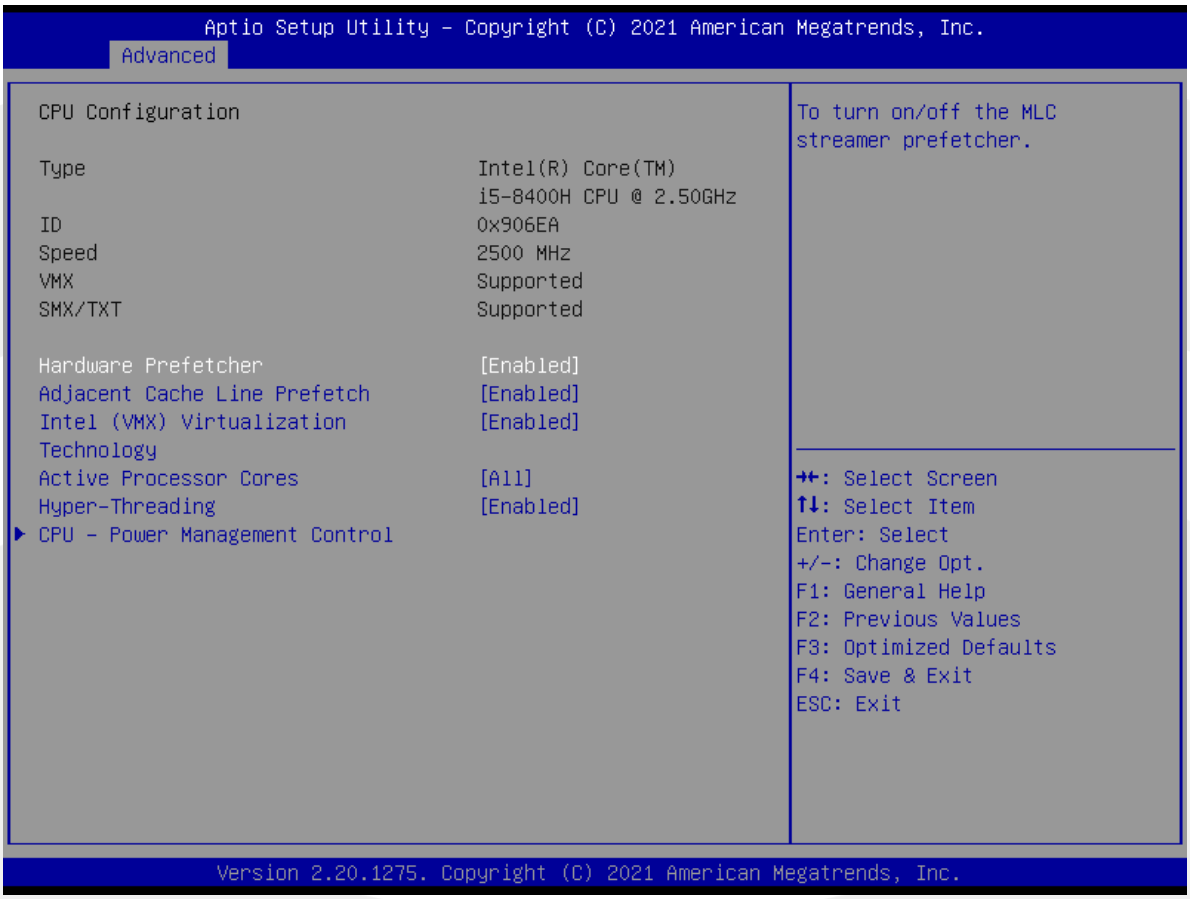
The Advanced screen provides an access point to configure several options. On this screen, the user selects the option that is to be configured.



Setup Item	Options	Help Text	Comments
CPU Configuration		CPU Configuration Parameters.	
ACPI Settings		System ACPI Parameters.	
Super IO Configuration		System Super IO chip Parameters.	
H/W Monitor		Monitor hardware stats.	
SATA Configuration		SATA Devices Configuration.	
USB Configuration		USB Configuration Parameters.	
CSM Configuration		CSM configuration: Enable/Disable, Option ROM execution settings, etc.	
NVMe Configuratioin		NVMe Device Options Settings.	
Watchdog configuration		Set System WatchDog Parameters.	
PXE Boot&LVDS Panel		Legacy PXE&LVDS Support Control.	

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***.

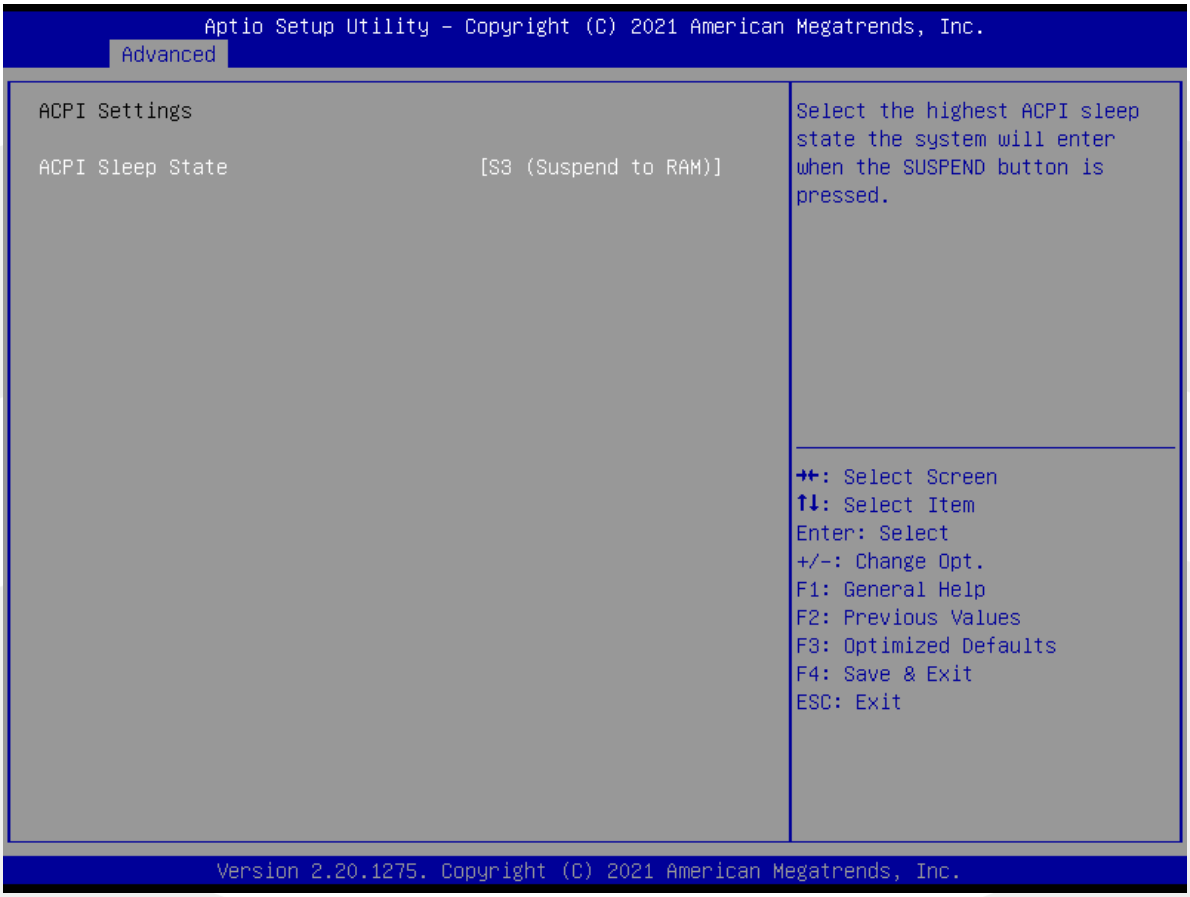


Setup Item	Options	Help Text	Comments
CPU Configuration			
Type			
ID			
Speed			
VMX			
SMX/TXT			
Hardware Prefetcher	Enabled Disabled	To turn on/off the MLC streamer prefetcher.	
Adjacent Cache Line Prefetch	Enabled Disabled	To turn on/off prefetching of adjacent cache lines.	
Intel(VMX) Virtualization Technology	Enabled Disabled	When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool technology.	
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.	
Intel® Speed Shift Technology	Enabled Disabled	Enable/Disable Intel® speed shift technology support.	
Turbo Mode	Enabled		
Tcc Activation Offset			

3.2.2 ACPI Settings Screen

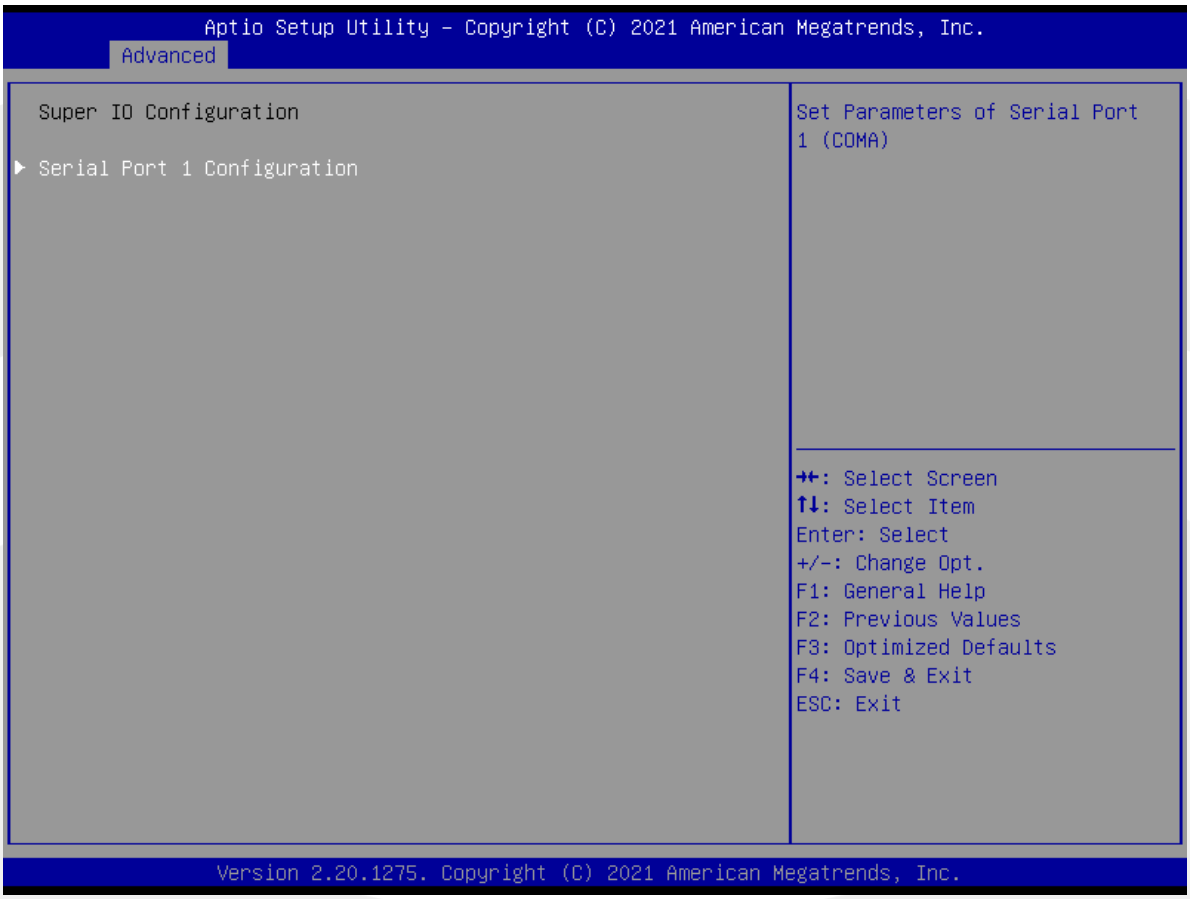
The ACPI Settings screen allows the user to set the system ACPI parameters. To access this screen from the Main screen, choose ***Advanced > ACPI Settings***.



Setup Item	Options	Help Text	Comments
ACPI Settings			
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.

3.2.3 Super IO Configuration

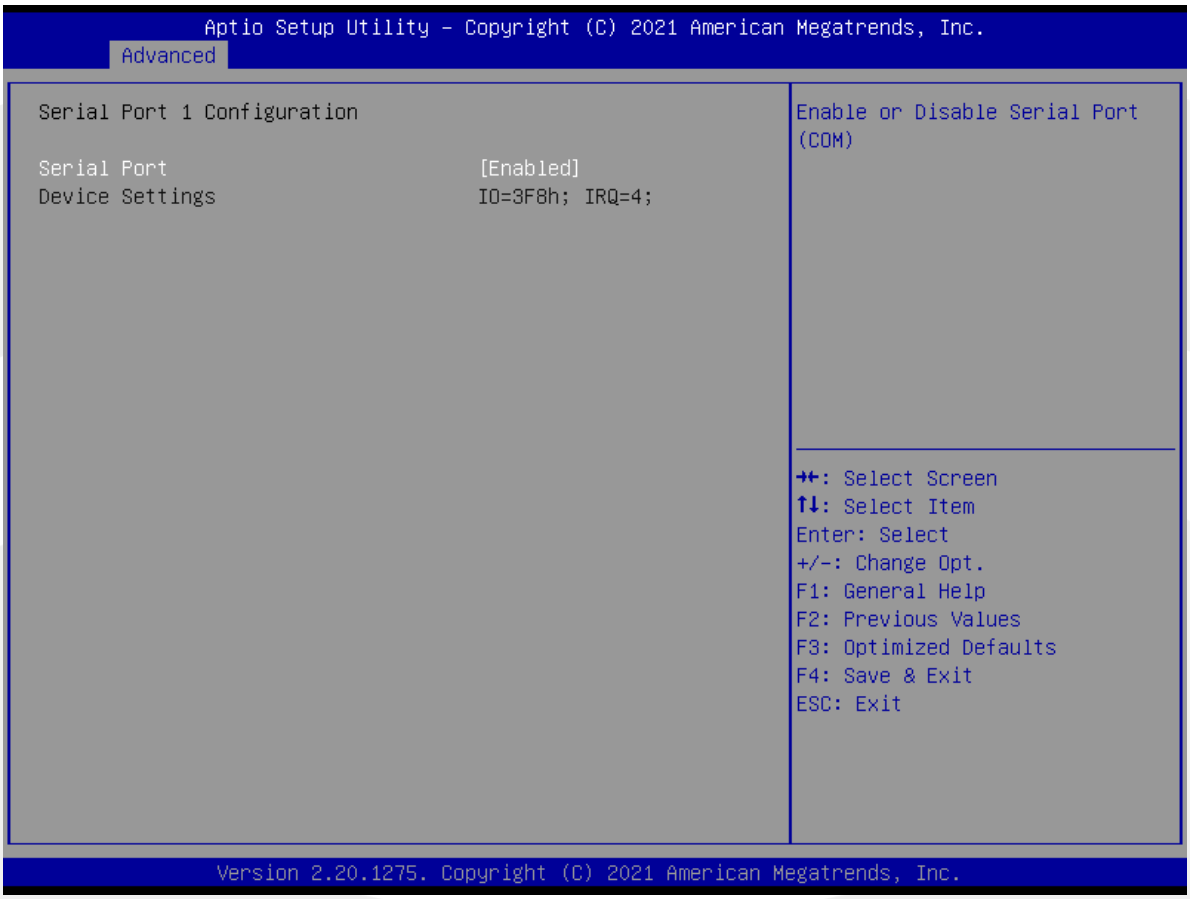
The Super IO Configuration screen allows the user to view the super IO information, and to enable or disable super IO options. To access this screen from the Advanced screen, choose ***Advanced > Super IO Configuration***.



Setup Item	Options	Help Text	Comments
Super IO Configuration			
Serial Port 1 Configuration			Set Parameters of Serial Port 1 (COM1).

3.2.3.1 Serial PortX Configuration

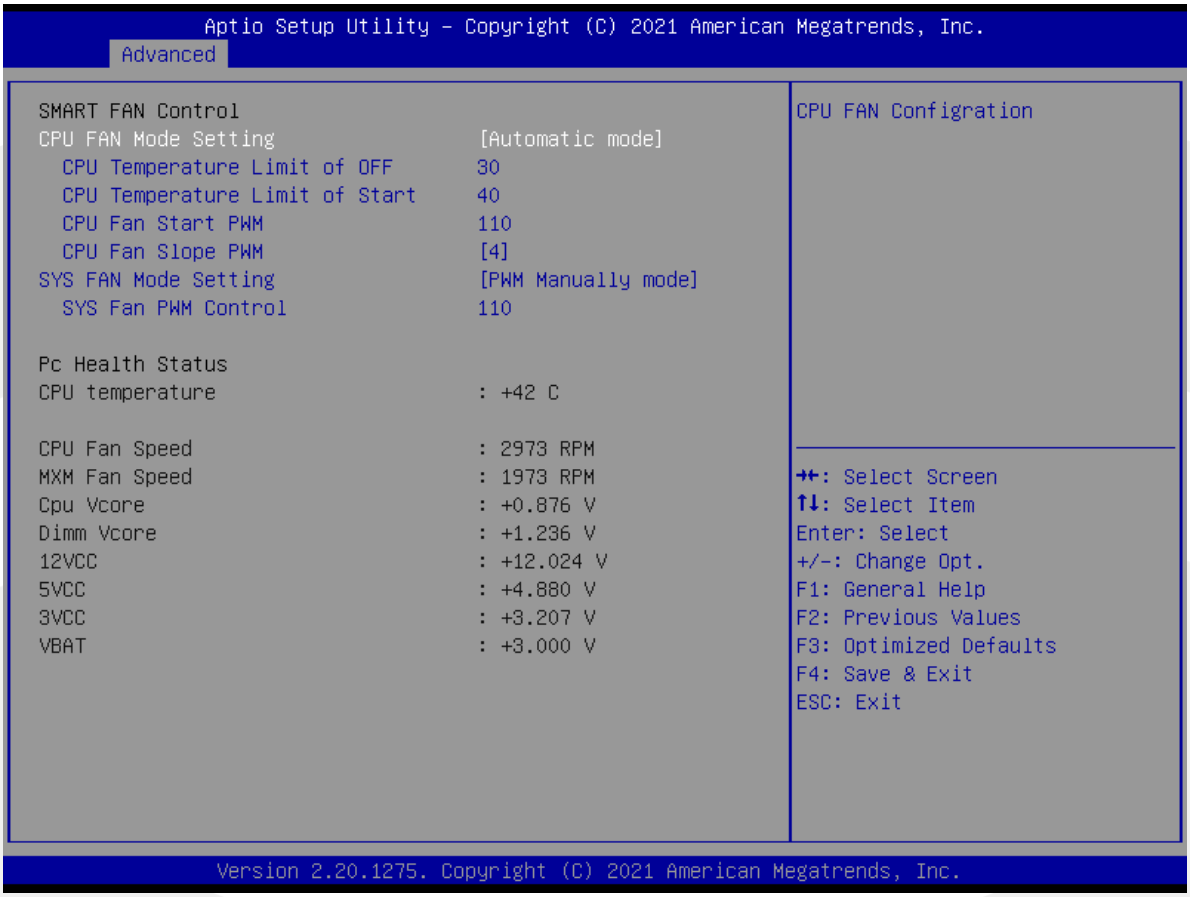
The Super IO Configuration screen allows the user to view the super IO information, and to enable or disable serial port options. To access this screen from the Advanced screen, choose ***Advanced-> Super IO Configuration->Serial PortX Configuration***.



Setup Item	Options	Help Text	Comments
Serial PortX Configuration			
Serial Port	Enabled Disabled	Enable or Disable Serial Port (COM).	
Change Settings	Auto IO=3F8h; IRQ=4 IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12 IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12 IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12 IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12	Select an optimal settings for Super IO Device.	

3.2.4 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***.

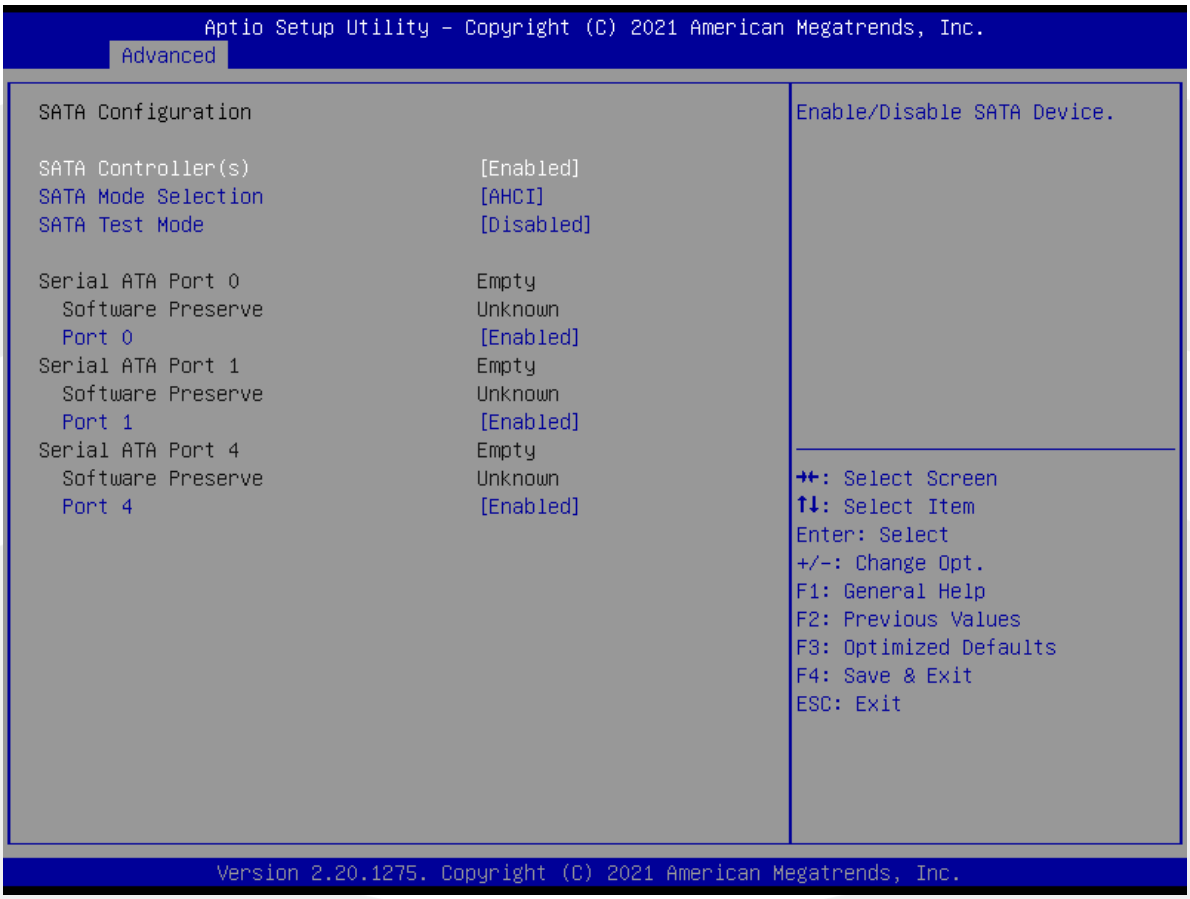


Setup Item	Options	Help Text	Comments
Hardware Monitor			
SMART FAN Control			
CPU Fan Mode Setting	Automatic mode Manual mode	CPU Fan control mode select.	When Manual mode selected, Manual PWM Setting shows to set FAN PWM Duty.
SYS Fan Mode Setting	Automatic mode Manual mode	SYS Fan control mode select.	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.

Setup Item	Options	Help Text	Comments
CPU Fan Speed			HW Information.
MXM Speed			
Cpu Vcore			
Dimm Vcore			
12VCC			
5VCC			
3VCC			
VBAT			

3.2.5 SATA Configuration

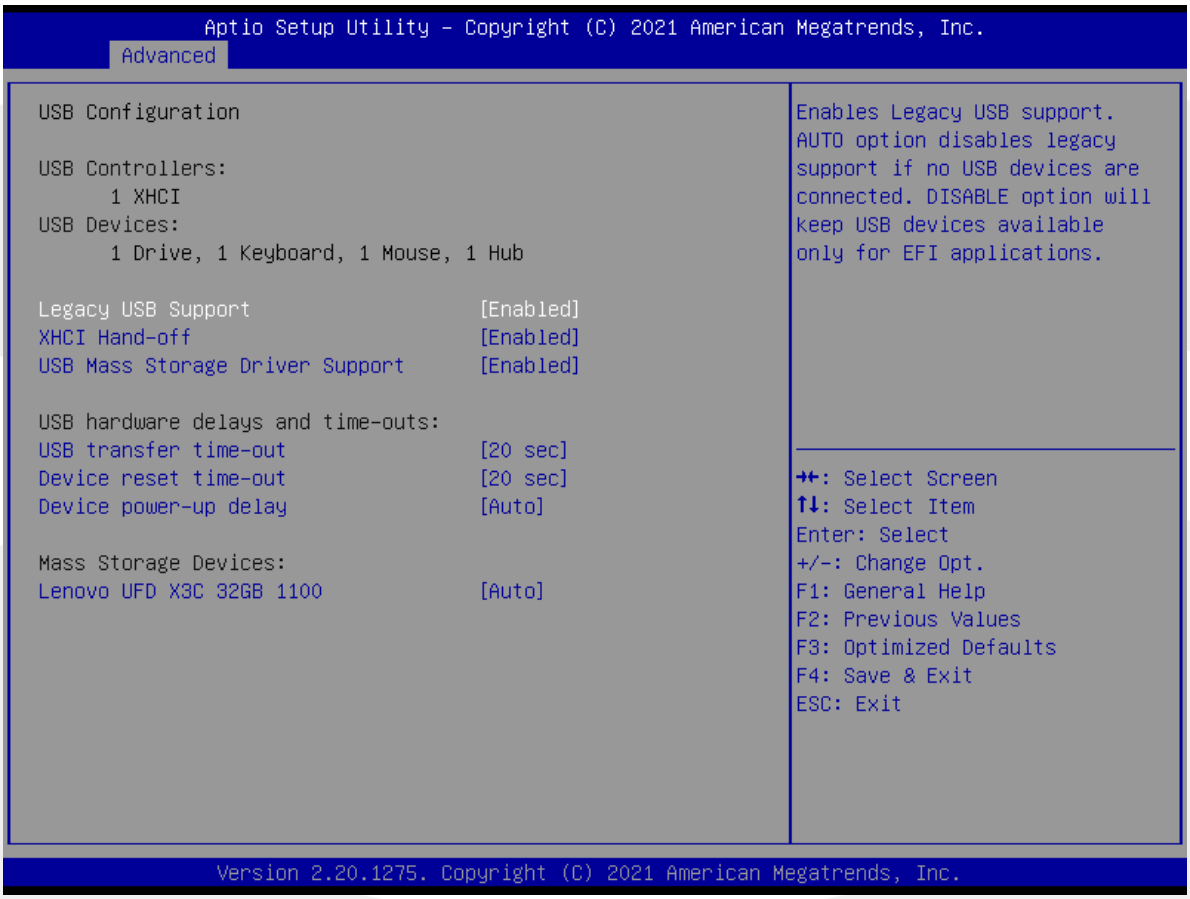
The SATA Configuration screen allows the user to view the SATA Controller information, and to enable or disable SATA Controller options. To access this screen from the Main screen, choose ***Advanced > SATA Configuration.***



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 Test Mode	Disabled		
Serial ATA Port 0			Show HDD information connected.
Serial ATA Port 1			
Serial ATA Port 4			

3.2.6 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***.

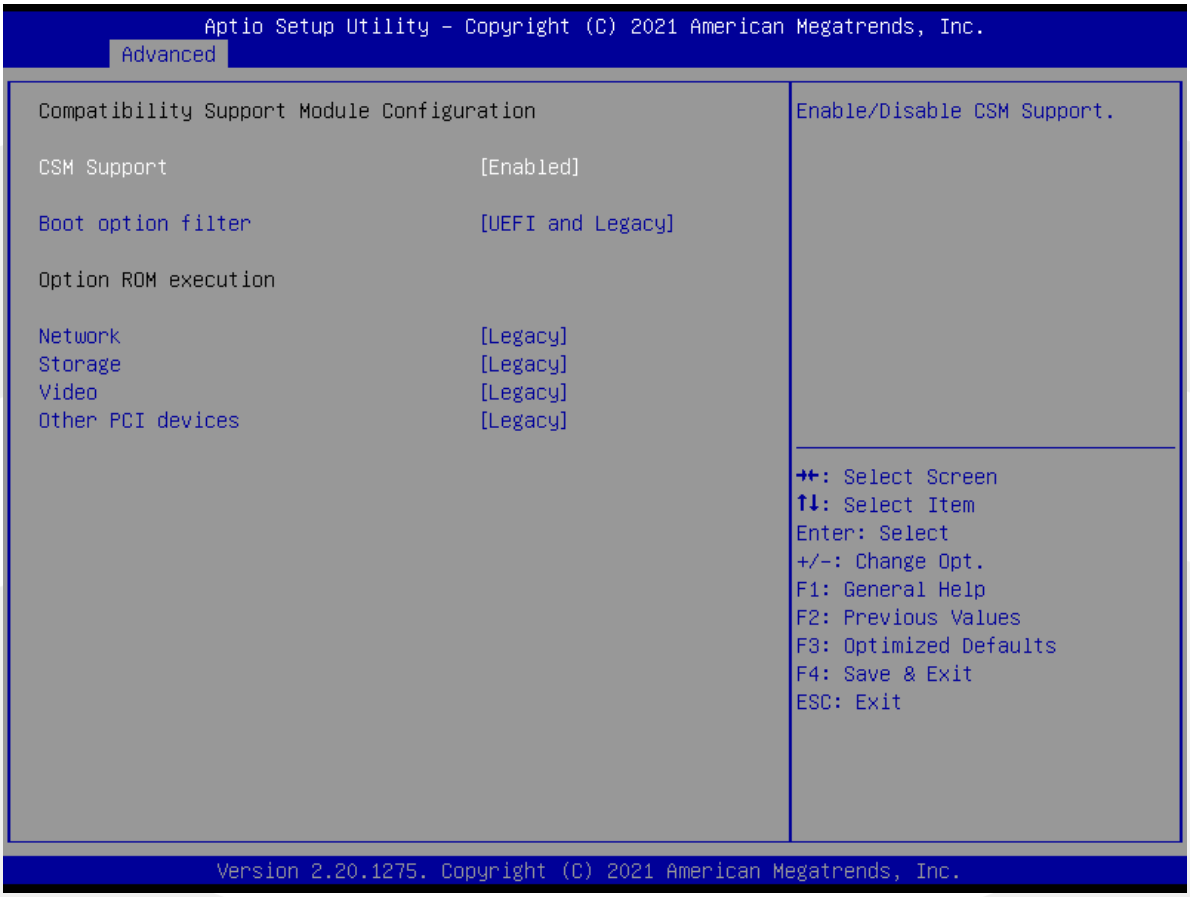


Setup Item	Options	Help Text	Comments
USB Configuration			
Legacy USB Support	Enabled Disabled	Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.	
XHCI Hand-off	Enabled Disabled	This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.	
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.	

3.2.7 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***.

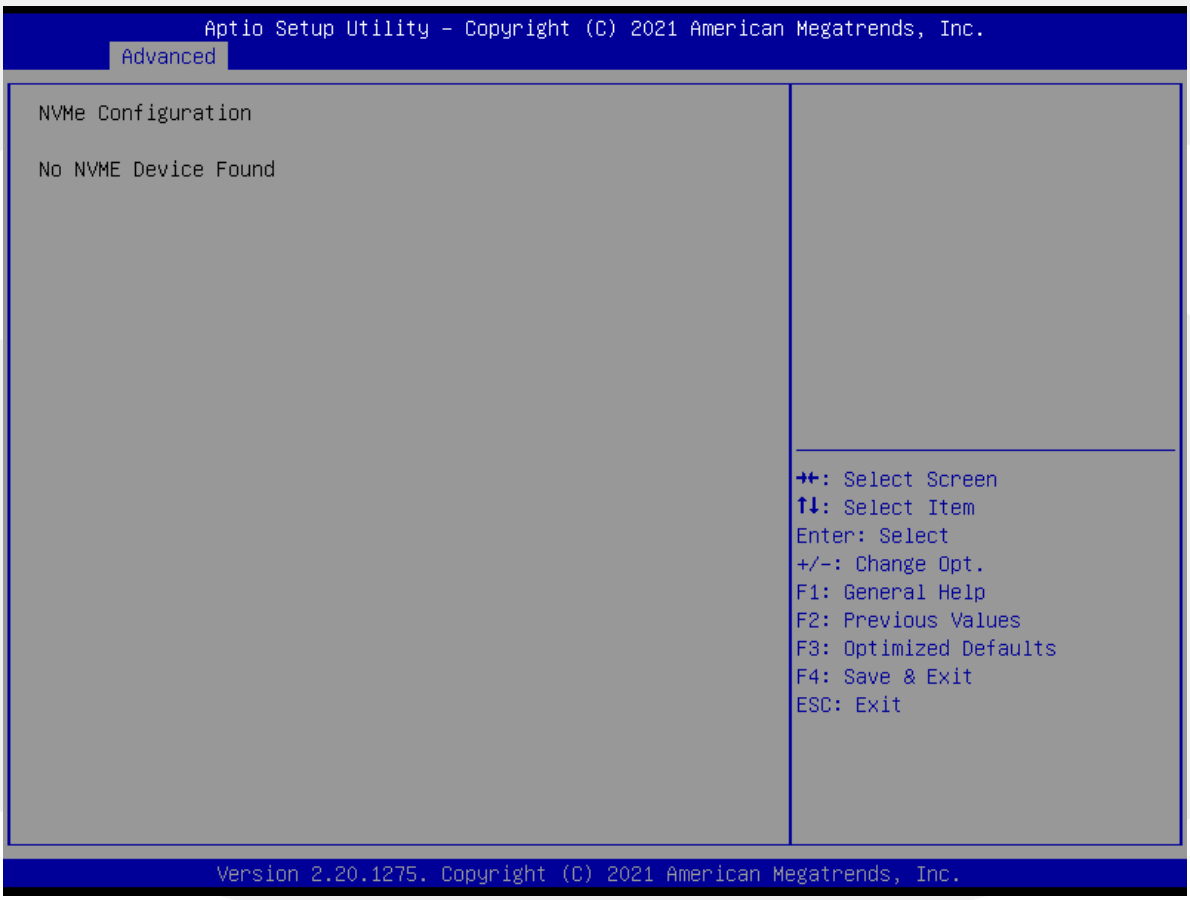


Setup Item	Options	Help Text	Comments
CSM Configuration			
CSM Support	Enabled Disabled	Enable / Disable CSM support.	
Boot option filter	UEFI and Legacy Legacy only UEFI only	This option control Legacy/UEFI ROMs priority.	
Option ROM execution			
Network	Legacy UEFI Do not lunch	Control the execution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

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

3.2.8 NVMe Configuration

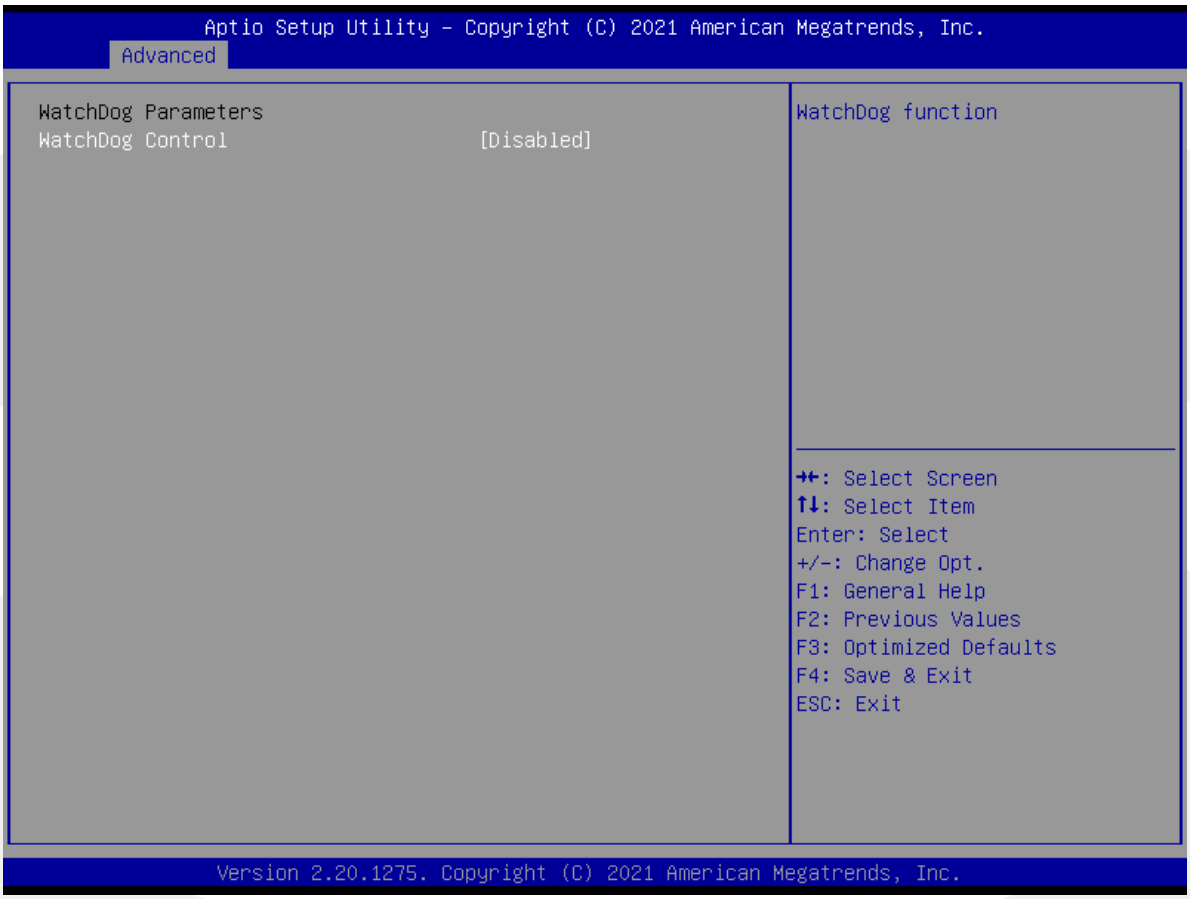
The NVMe Configuration screen allows the user to view the NVMe device information. To access this screen from the Main screen, choose ***Advanced > NVMe Configuration***.



Setup Item	Options	Help Text	Comments
NVMe Configuration			
Controller 0			Show NVMe device information connected.

3.2.9 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 Parameters			
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.

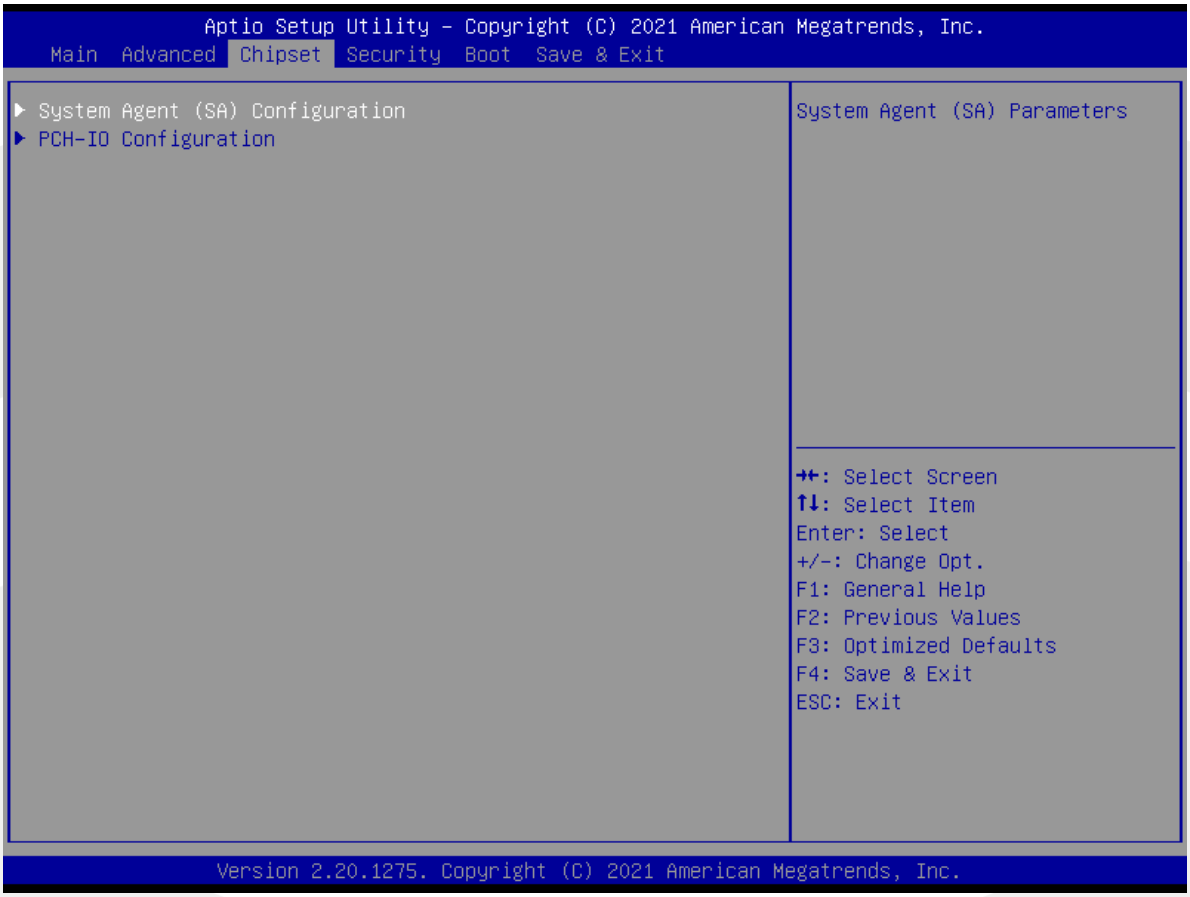
3.2.10 PXE Boot

The PXE Boot screen allows the user to Enable or Disable Boot Option for Legacy Network Devices. To access this screen from the Main screen, choose ***Advanced > PXE Boot***.

Setup Item	Options	Help Text	Comments
PXE Boot&LVDS Panel			
Launch LAN1 PXE OpROM	Disabled Enabled		Legacy PXE Support Control.
Launch LAN2 PXE OpROM	Disabled Enabled		Legacy PXE Support Control.
LVDS Control	Disabled Enabled		LVDS control.

3.3 Chipset Screen

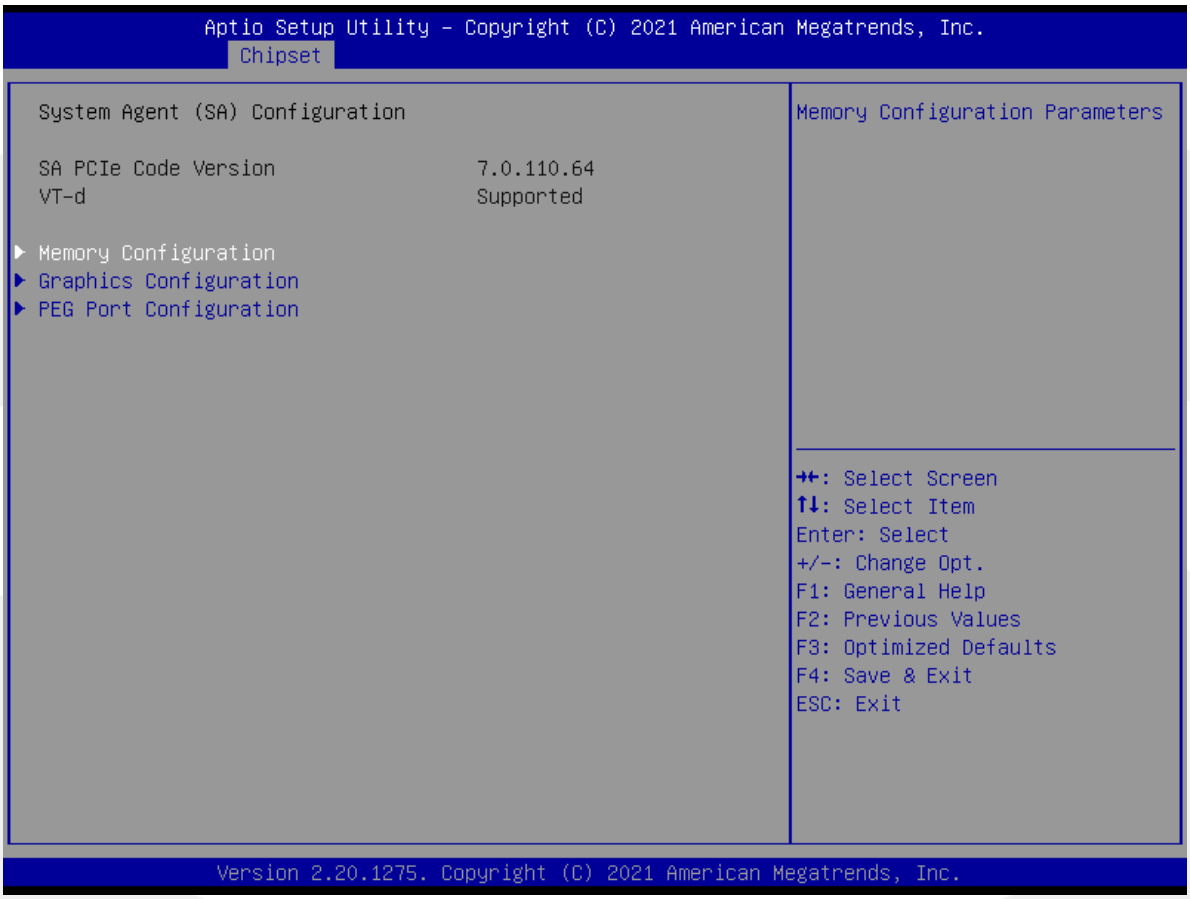
The Chipset screen provides an access point to configure SA Configuration and PCH-IO configuration. To access this screen from the Main screen, press the right arrow until the Chipset screen is chosen.

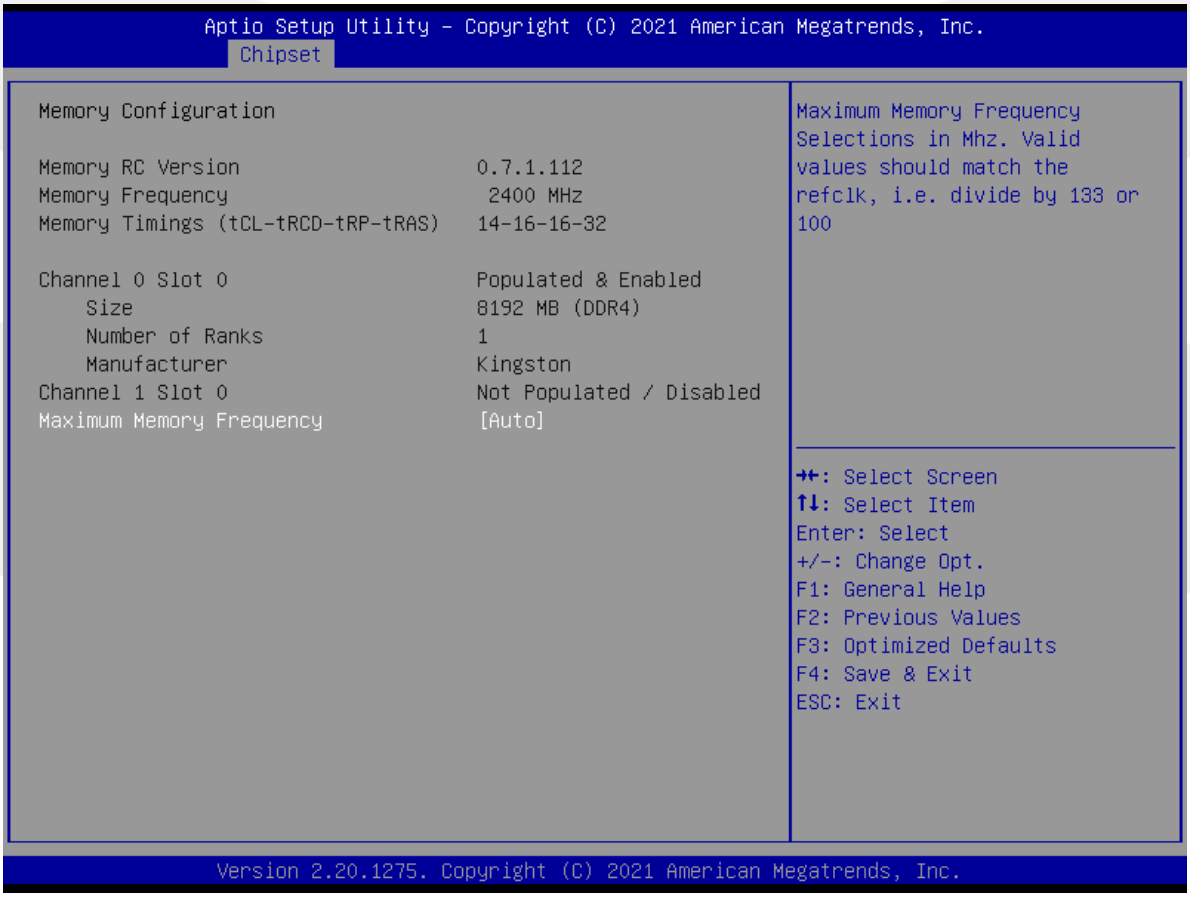


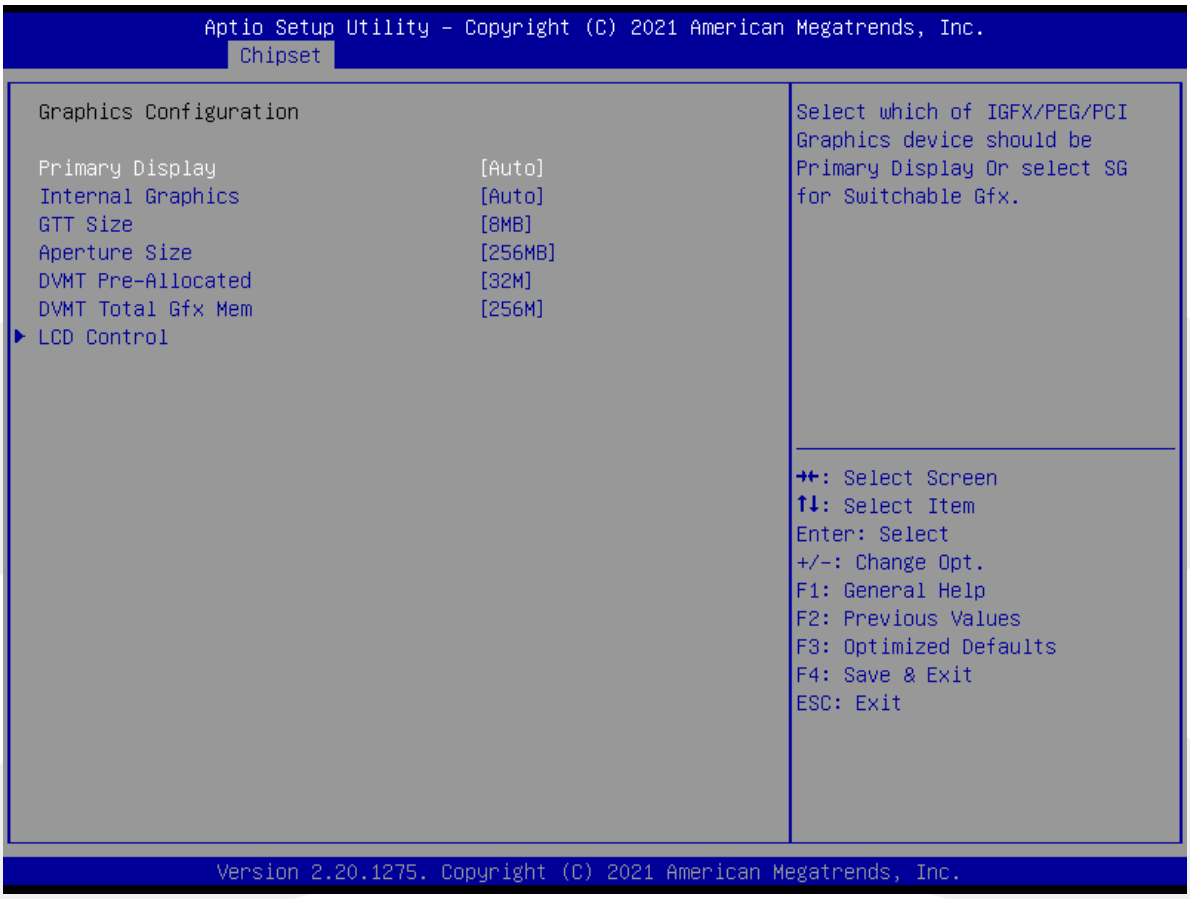
Setup Item	Options	Help Text	Comments
Chipset Screen			
System Agent (SA) Configuration		System Agent (SA) Parameters.	
PCH-IO Configuration		PCH Parameters.	

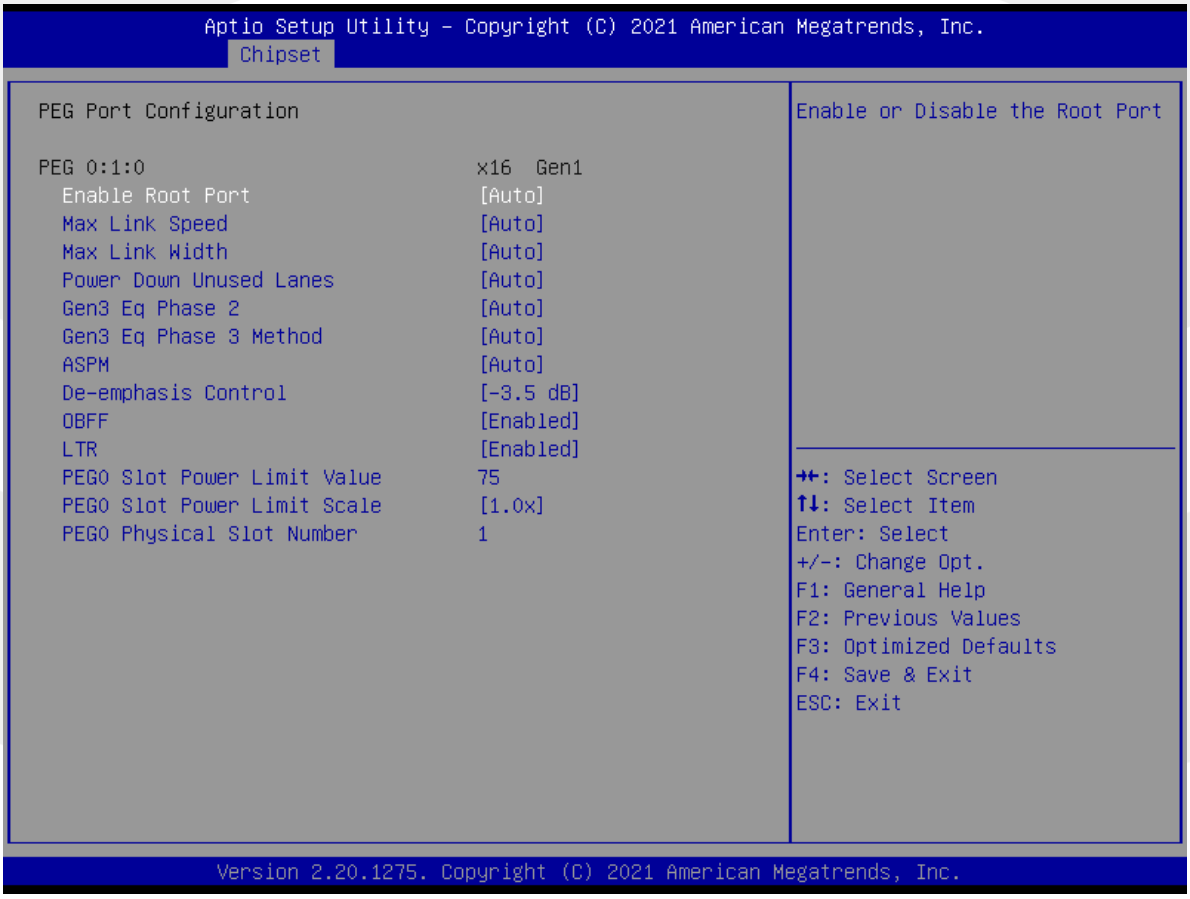
3.3.1 System Agent (SA) Configuration

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***.





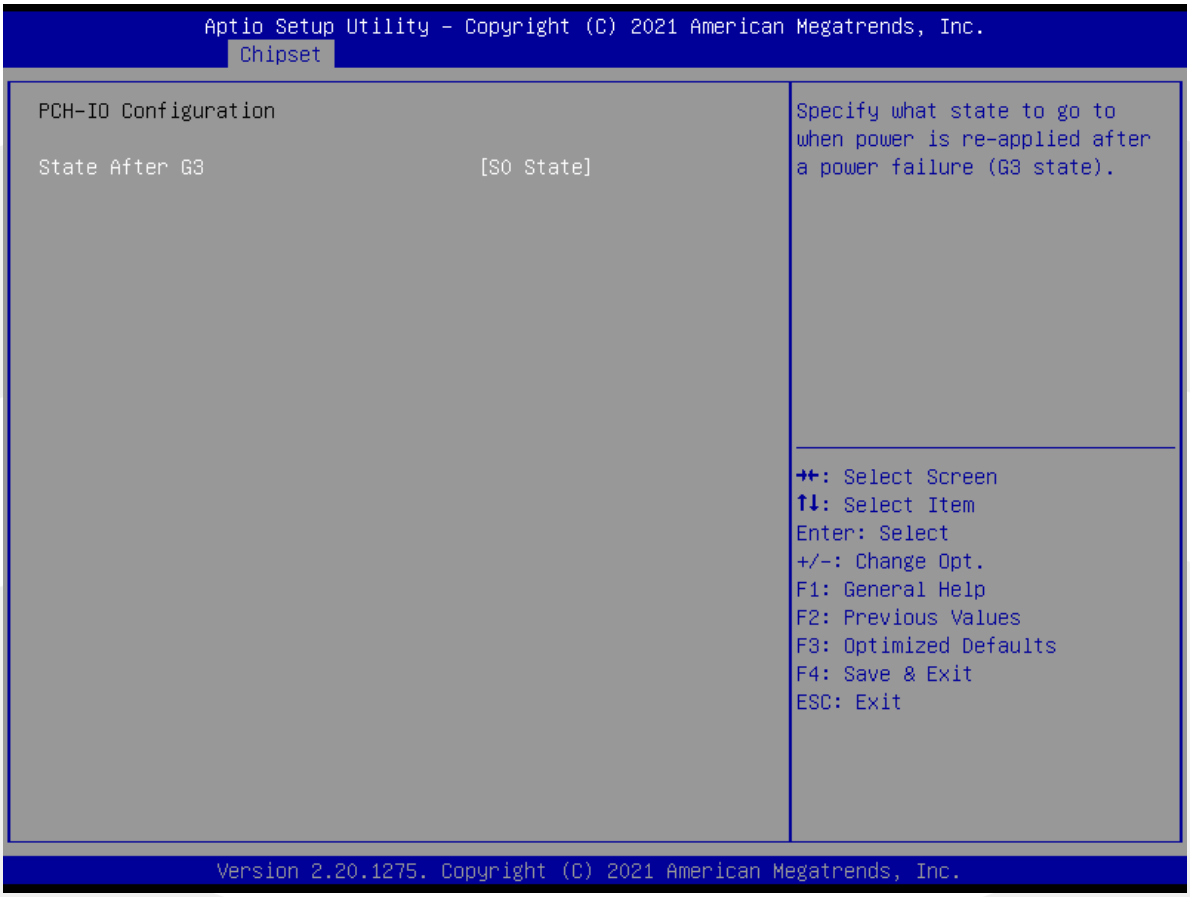

Aptio Setup Utility – Copyright (C) 2021 American Megatrends, Inc.
Chipset
Graphics Configuration
Primary Display [Auto]
Internal Graphics [Auto]
GTT Size [8MB]
Aperture Size [256MB]
DVMT Pre-Allocated [32M]
DVMT Total Gfx Mem [256M]
LCD Control
Select which of IGFX/PEG/PCI Graphics device should be Primary Display Or select SG for Switchable Gfx.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.20.1275. Copyright (C) 2021 American Megatrends, Inc.


Aptio Setup Utility – Copyright (C) 2021 American Megatrends, Inc.
Chipset
PEG Port Configuration
PEG 0:1:0 x16 Gen1
Enable Root Port [Auto]
Max Link Speed [Auto]
Max Link Width [Auto]
Power Down Unused Lanes [Auto]
Gen3 Eq Phase 2 [Auto]
Gen3 Eq Phase 3 Method [Auto]
ASPM [Auto]
De-emphasis Control [-3.5 dB]
OBFF [Enabled]
LTR [Enabled]
PEG0 Slot Power Limit Value 75
PEG0 Slot Power Limit Scale [1.0x]
PEG0 Physical Slot Number 1
Enable or Disable the 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 2.20.1275. Copyright (C) 2021 American Megatrends, Inc.

Setup Item	Options	Help Text	Comments
System Agent (SA) Configuration			
Memory Configuration			
Memory Information		Show Memory information.	Memory Information.
Graphics Configuration			
Primary Display	Auto		
Internal Graphics	Auto Disabled Enabled	Keep IGFX enabled based on the setup options.	Internal Graphics.
GTT Size	2MB 4MB 8MB	Select the GTT Size.	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.	Aperture Size.
DVMT Pre-Allocated	32M		
DVMT Total Gfx Mem	128M 256M MAX	Select DVMT5.0 Total Graphic Memory size used by the Internal Graphics Device.	DVMT Total Gfx Mem.
LCD Control			
PEG Port Configuration			

3.3.2 PCH-IO Configuration

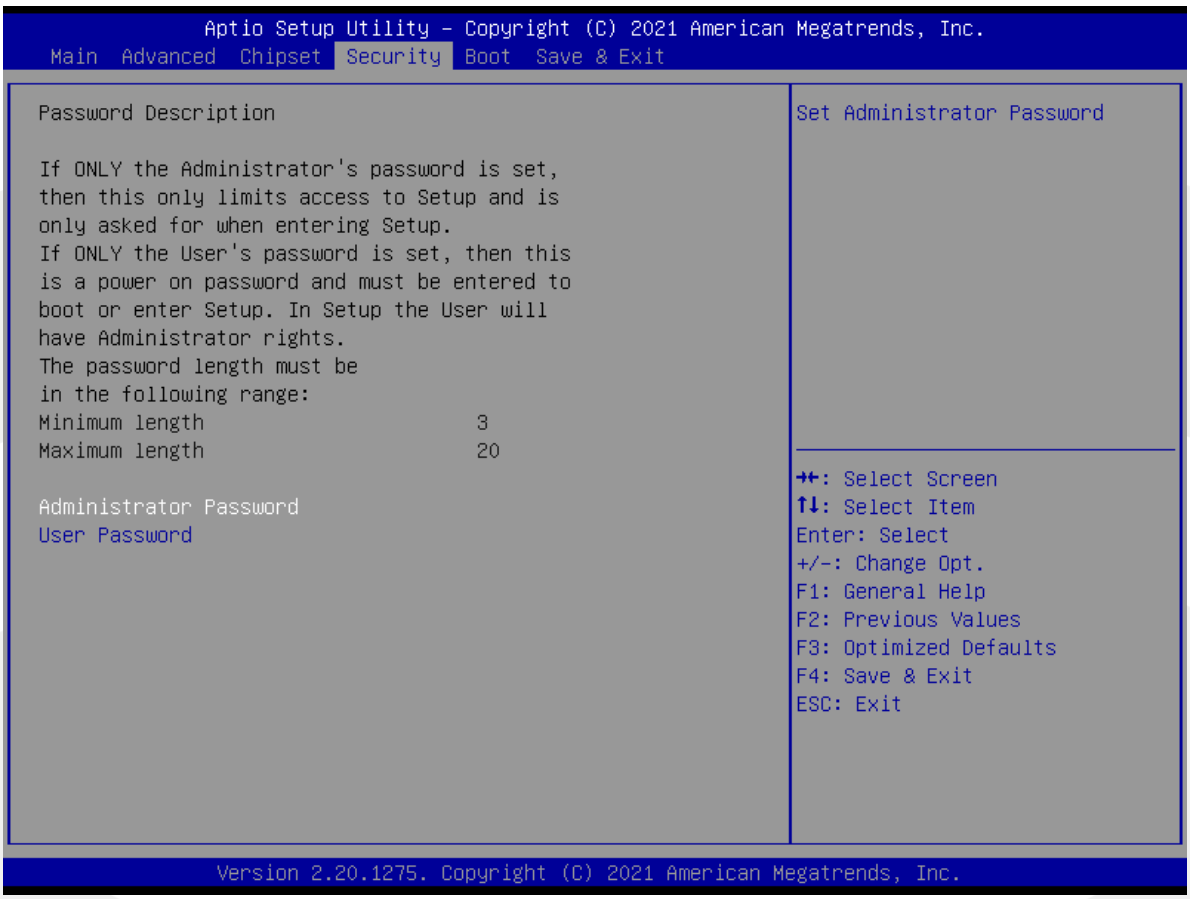
The South Bridge Screen allows user to set SB chipset configuration. To access this screen form the Main screen, choose ***Chipset> PCH-IO Configuration***.



Setup Item	Options	Help Text	Comments
PCH-IO Configuration			
State After G3	So State		

3.4 Security

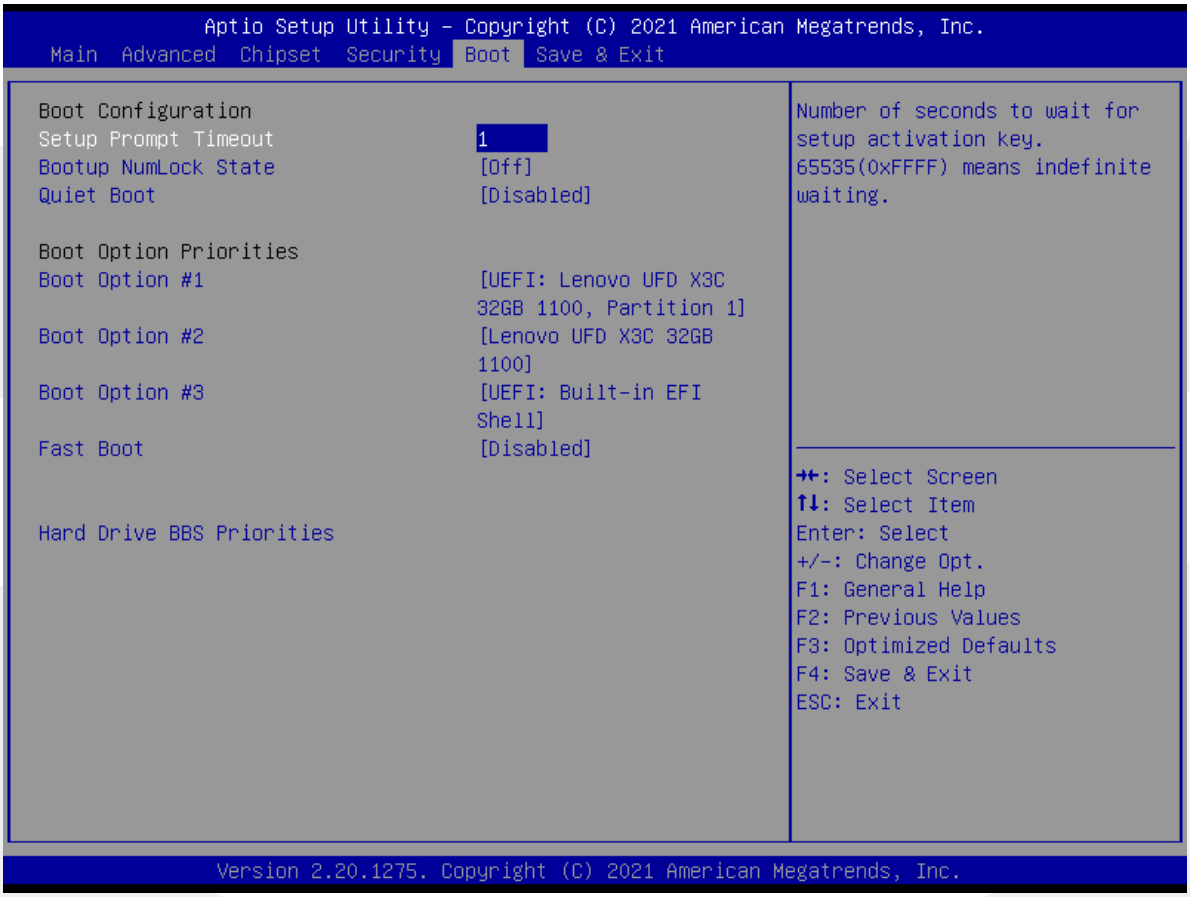
To access this screen form the Main screen, choose ***Security.***



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

3.5 Boot Screen

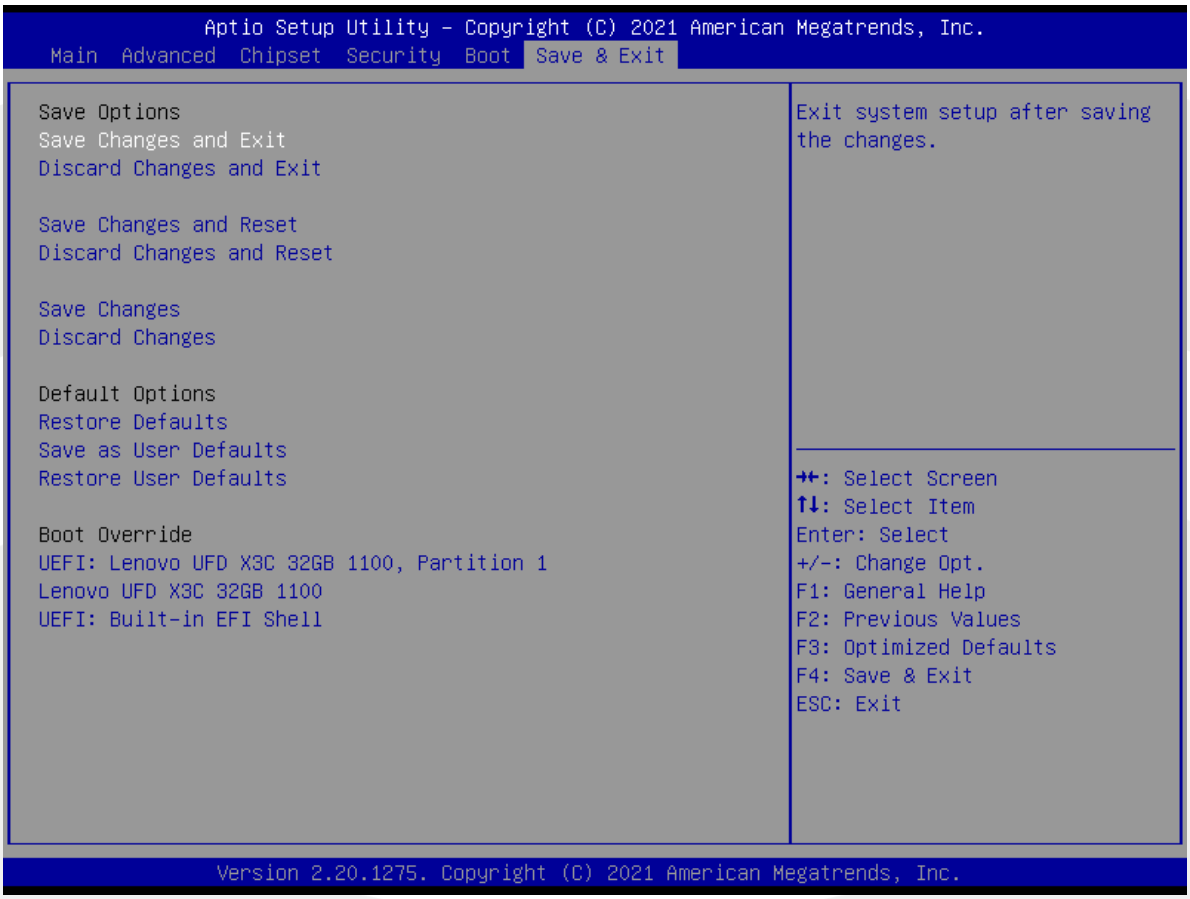
The Boot screen displays any bootable media encountered during POST, and allows the user to configure desired boot device. To access this screen from the Main screen, choose ***Boot***.



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.	
Fast Boot	Disabled		
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.	
Default 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			

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

第四章 故障问题排除

故障	排除
关闭来电自启	BIOS 下设置： BIOS—chipset—PCH-IO—S5 State
解决内置 HDMI 进系统黑屏与不支持热插拔	把内置 HDMI 与外置 HDMI 同时接上显示器，然后正常安装显卡驱动
LVDS 不开机	1、LVDS 有 3.3V 与 5V 跳线是正常。 2、7511 的方案不支持带 EDID 的屏，只支持 LVDS。 3、独显不支持 EDP，主板核显已经占用 EDP 资源。 4、一些小屏要求 LVDS 是双 6 的信号才行。（主板是双 8 设计）

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。

L2c

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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