

QM9400L QM9500L V1.4

User Manual

Updated on March 15, 2021

Ordering Information:

Model	Intel CPU	RJ45 LAN	RS232 COM	USB	Memory	DC Power
QM9400L	Haswell U series 4th generation Core i3,i5,i7 CPU	1	2	8	1*NB DDR3 Max. 8GB RAM	+12V
QM9500L	Broadwell U series 5th generation Core i3,i5,i7 CPU					



Notice:

- (1) When the motherboard has Core i3 CPU,the SATA1 interface does not work(No signal).
When the motherboard has Core i5/i7 CPU,the SATA1,SATA2 interfaces work(Have signals).
- (2) By default,the Mini PCIE slot has PCIE signal, has no USB,SATA signals.
In other words,the motherboard doesn't support Bluetooth/3G/4G/GPS module.If you need USB signal for these modules,please tell us to change in advance.Please note,after changing,the PCIE and USB signals coexist,but the 1st,3rd,5th,7th pins of the F_USB3 have no signals.
- (3) By default,the MSATA slot has SATA signal,has no USB,PCIE signals.
If you need USB signal in MSATA slot,please tell us in advance.Please note,after changing,the SATA and USB signals coexist,but the 2nd,4th,6th,8th,10th pins of the F_USB3 have no signals.
If you need PCIE signal in MSATA slot,please tell us in advance.Please note,after changing,the MSATA slot has no SATA signal.
- (4) By default,the USB interfaces and pins have A power.
 - ◆ A power: After turning off the motherboard, the USB pins/interfaces are still with electricity.
 - ◆ S power: After turning off the motherboard, the USB pins/interfaces have no electricity.
 If you need the S power,please tell us to change in advance.
- (5) The COM1,COM2 pins support RS232 signal,don not support RS422/RS485.
- (6) The 9th pin of COM1/COM2 supports optional 0V , 5V ,12V by JCOM1/JCOM2 jumper setting.
- (7) The motherboard supports 1*Gigabit Ethernet port,does not support 2*LAN.By default,the motherboard hasn't POE port.If you need POE (1V) port,please tell us to change in advance.
- (8) If you need EDP pin,please purchase QM9400E,QM9500E motherboards.
- (9) Changing the motherboard signal (protocol) will affect the number of USB.
- (10) Please use the correct voltage. Excessive voltage will burn the motherboard.
- (11) Please use enough current.If the current is insufficient, it will not work, and even cause crashes, restarts, blue screens and other problems.

(12) Provide CE, CCC, ISO 9001: 2015, MSDS,China certificate for energy conservation product certificates.

(13) All product specifications are subject to change without notice.

The following CPU information is for reference only, please consult us for compatibility.

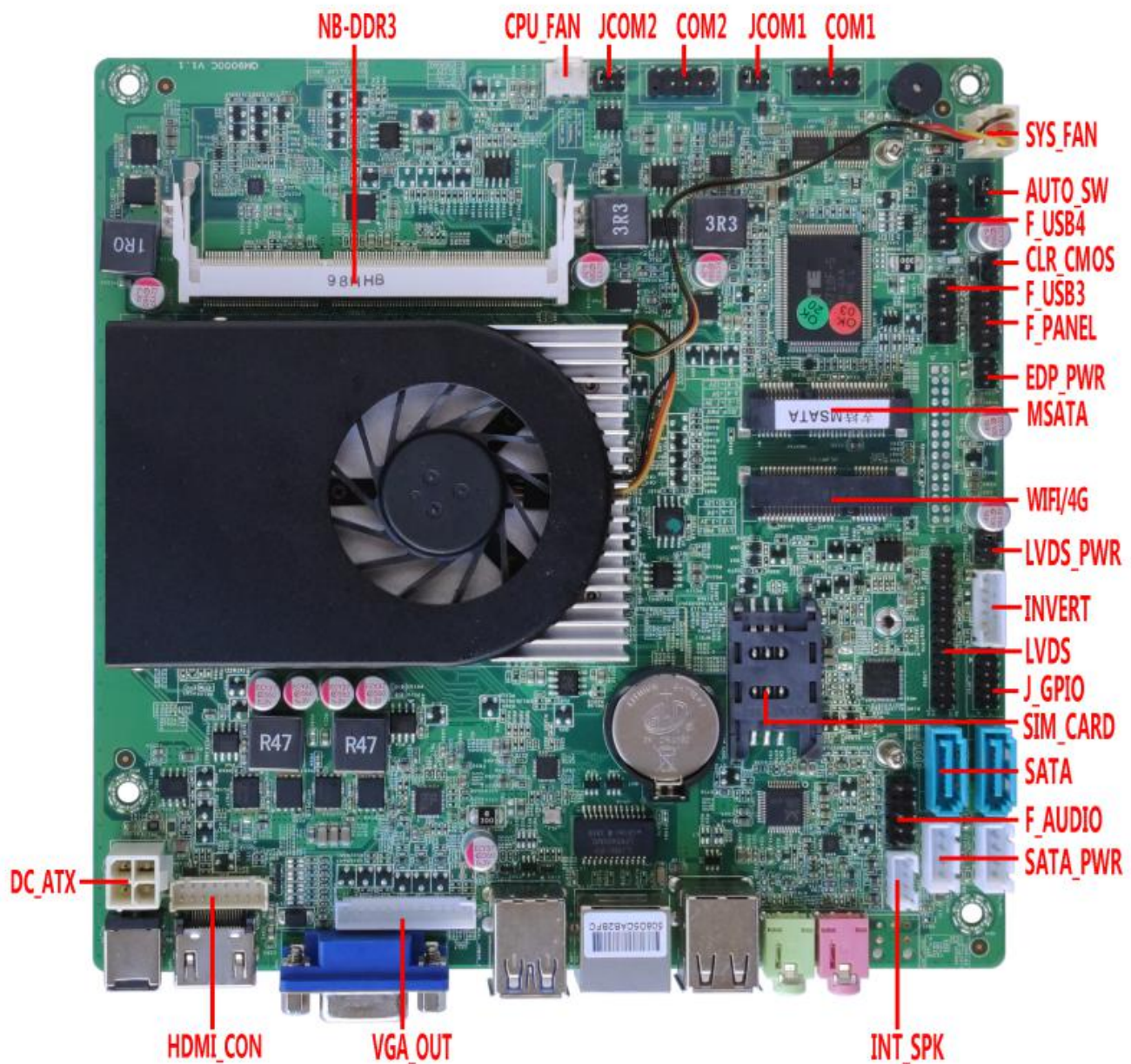
QM9400L,QM9500L motherboards support Intel 4th,5th generation processor(FCBGA1168):					
CPU Model	Intel CPU	Base Frequency (GHz)	Max Turbo Frequency (GHz)	TDP (W)	CPU Graphics
QM9400L motherboard supports 4th generation processor(Dual Cores):					
i3-4005U	Core i3	1.7	/	15	Intel HD Graphics 4400
i3-4010U		1.7	/	15	Intel HD Graphics 4400
i3-4025U		1.9	/	15	Intel HD Graphics 4400
i3-4030U		1.9	/	15	Intel HD Graphics 4400
i3-4100U		1.8	/	15	Intel HD Graphics 4400
i5-4200U	Core i5	1.6	2.6	15	Intel HD Graphics 4400
i5-4210U		1.7	2.7	15	Intel HD Graphics 4400
i5-4250U		1.3	2.6	15	Intel HD Graphics 5000
i5-4278U		2.6	3.1	28	Intel Iris Graphics 5100
i5-4300U		1.9	2.9	15	Intel HD Graphics 4400
i5-4308U		2.8	3.3	28	Intel Iris Graphics 5100
i5-4310U		2.0	3.0	15	Intel HD Graphics 4400
i7-4500U		Core i7	1.8	3.0	15
i7-4510U	2.0		3.1	15	Intel HD Graphics 4400
i7-4550U	1.5		3.0	15	Intel HD Graphics 5000
i7-4558U	2.8		3.3	28	Intel Iris Graphics 5100
i7-4578U	3.0		3.5	28	Intel Iris Graphics 5100
i7-4600U	2.1		3.3	15	Intel HD Graphics 4400
i7-4650U	1.7		3.3	15	Intel HD Graphics 5000
QM9500L motherboard supports 5th generation processor(Dual Cores):					
i3-5005U	Core i3	2.0	/	15	Intel HD Graphics 5500
i3-5010U		2.1	/	15	Intel HD Graphics 5500
i3-5015U		2.1	/	15	Intel HD Graphics 5500
i3-5020U		2.2	/	15	Intel HD Graphics 5500
i5-5200U	Core i5	2.2	2.7	15	Intel HD Graphics 5500
i5-5250U		1.6	2.7	15	Intel HD Graphics 6000
i5-5257U		2.7	3.1	28	Intel Iris Graphics 6100
i5-5287U		2.9	3.3	28	Intel Iris Graphics 6100
i5-5300U		2.3	2.9	15	Intel HD Graphics 5500
i5-5350U		1.8	2.9	15	Intel HD Graphics 6000
i7-5500U		Core i7	2.4	3.0	15
i7-5550U	2.0		3.0	15	Intel HD Graphics 6000
i7-5557U	3.1		3.4	28	Intel Iris Graphics 6100
i7-5600U	2.6		3.2	15	Intel HD Graphics 5500
i7-5650U	2.2		3.1	15	Intel HD Graphics 6000

Chapter One Motherboard specifications

Form Factor	Thin Mini-itx	
Physical Dimension	170*170*18mm(L*W*H)	
Processor	QM9400L motherboard supports 4th Generation Intel® Core™ i3 i5 i7 Processors: i3-4005U,i5-4200U,i7-4500U,etc.	
	QM9500L motherboard supports 5th Generation Intel® Core™ i3 i5 i7 Processors: i3-5005U,i5-5200U,i7-5500U,etc.	
Chipset	Haswell-U,Broadwell-U express Chipset.	
Memory	1*NB-DDR3 SODIMM 1600MHz 1.35V Memory slot,up to 8GB RAM.	
Power Supply	1*DC_IN port; 1*4PIN DC_ATX port.	
	Support DC 12V;DC port: 5.5*2.5MM; When using CPU with 15W TDP, 12V 5A and above power adapters are recommended; When using CPU with 28W TDP,12V 7A and above power adapters are recommended.	
Processor Graphics	Integrated Intel HD Graphics in CPU.	
Multiple Display	Support single display,dual/triple display copy,dual/triple display expansion,single display under DOS;	
Display Port	1*VGA DB15 interface	Support Max. resolution 1920 * 1200@60Hz
	1*VGA_OUT pin	Support Max. resolution 1920 * 1200@60Hz (12Pin,1*12Pin,2.0mm)
	1*HDMI 1.4 interface	Support resolution 4096/3840 * 2160@24/30Hz
	1*HDMI_CON pin	Support resolution 4096/3840 * 2160@24/30Hz (16Pin,2*8Pin,2.0mm)
	1*LVDS pin	Support resolution 1920 * 1080@60Hz (30Pin,2*15Pin,2.0mm)
	1*INVERT pin	LVDS backlight switch control pin (6Pin,1*6Pin,2.0mm)
	1*LVDS_PWR pin	LVDS working voltage control pin (6Pin,2*3Pin,2.0mm)
Ethernet	1*RJ45 LAN interface	RTL8111H Gigabit NIC chip. Support Wake-on-LAN and PXE diskless boot function.
Expansion	1*Mini PCIE interface	Support optional WIFI/Bluetooth/3G/4G/GPS module
Storage	Support maximum transmission speed 6.0Gbps.	
	1*SATA1 interface	Support 2.5-inch SATA3.0 SSD/HDD
	1*SATA2 interface	Support 2.5-inch SATA3.0 SSD/HDD
	1*MSATA interface	Support Mini SATA3.0 SSD(MSATA)
	1*SATA_PWR1 pin	It is hard disk power supply pin and can take the 5V,12V. (4Pin,1*4Pin,2.54mm)
	1*SATA_PWR2 pin	It is hard disk power supply pin and can take the 5V,12V. (4Pin,1*4Pin,2.54mm)
HD Audio	Integrated Realtek ALC662 HD digital audio decoder,6-channel high-fidelity audio controller.	
	1*LINE_OUT interface	Support Audio output(Green color)
	1*MIC_IN interface	Support Microphone input(Red color)
	1*INT_SPK pin	This amplifier pin supports 8Ω 5W speaker dual channel output. (4Pin,1*4Pin,2.0mm)
	1*F_AUDIO pin	Standard Audio pin (9Pin,2*5Pin,2.54mm)
Serial Port	2*COM pins	Only support RS232 (9Pin,2*5Pin,2.54mm)
	1*JCOM1 pin	Control the 9th pin of the COM1 to support optional 0V/5V/12V. (6Pin,2*3Pin,2.0mm)
	1*JCOM2 pin	Control the 9th pin of the COM2 to support optional 0V/5V/12V. (6Pin,2*3Pin,2.0mm)
USB	2*USB3.0 interfaces	Rear standard USB3.0 interface
	2*USB2.0 interfaces	Rear standard USB2.0 interface
	1*F_USB3 pin	Front USB2.0 pin; One group has 2*USB2.0 (9Pin,2*5Pin,2.54mm)
	1*F_USB4 pin	Front USB2.0 pin; One group has 2*USB2.0 (9Pin,2*5Pin,2.54mm)

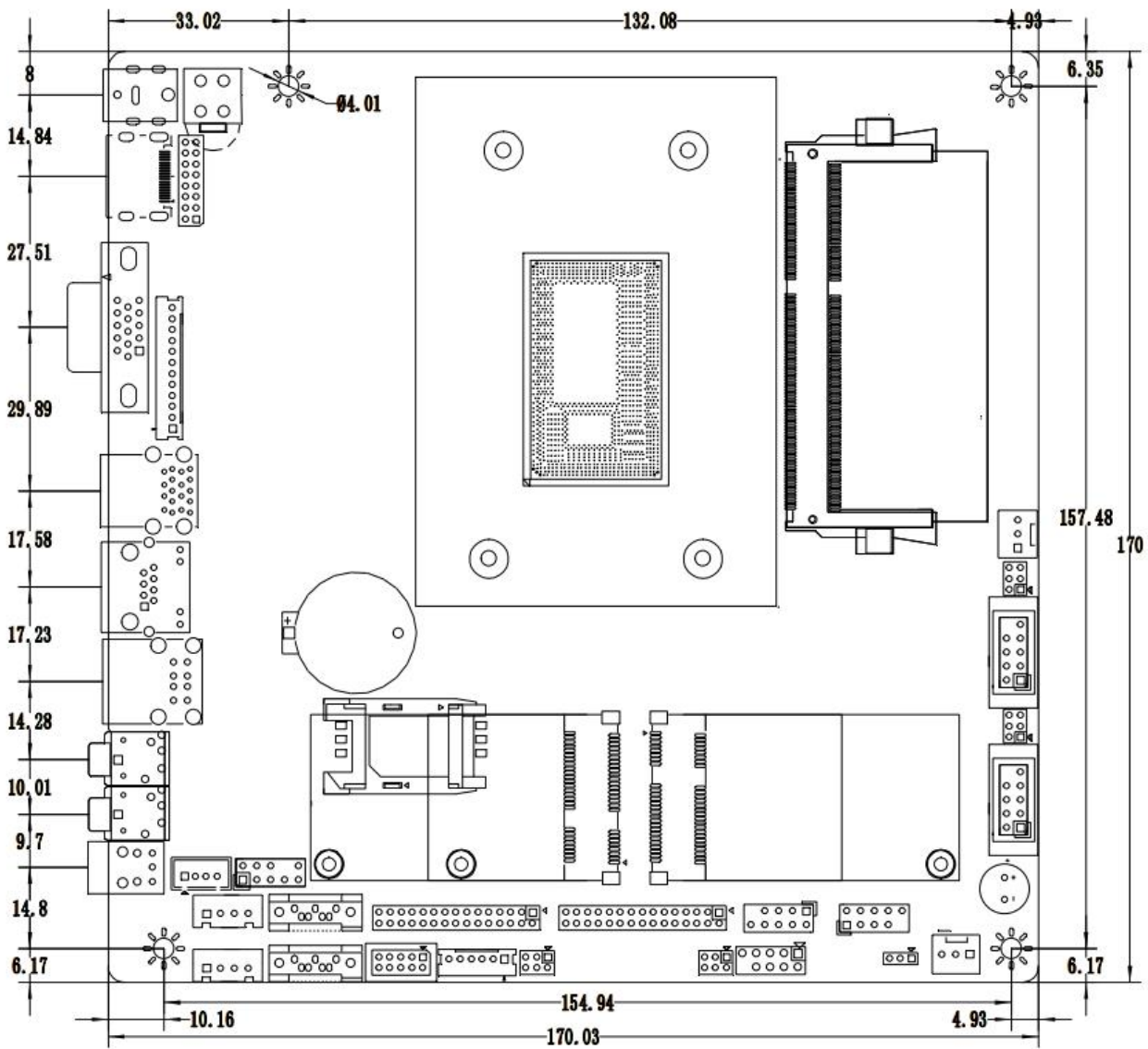
Switch	1*F_PANEL pin	Switch, power supply light, hard disk light, restart pin. (9Pin,2*5Pin,2.54mm)
	1*AUTO_SW pin	This pin can set the"Power On"function. (3Pin,1*3Pin,2.0mm)
Other I/O	1*SIM_CARD slot	Support SIM card. A SIM card is required when using 3G/4G function.
	1*CLR_CMOS pin	Motherboard clears,discharges pin. (2Pin,1*2Pin,2.54mm)
	1*SYS_FAN pin	It is full speed,but does not support temperature control. (3Pin,1*3Pin,2.54mm)
	1*CPU_FAN pin	Support temperature control. (3Pin,1*3Pin,2.54mm)
	1*J_GPIO pin	Standard GPIO pin (10Pin,2*5Pin,2.0mm)
	Operating Environment	Operating temperature:-20°C~60°C; Working humidity:5%~95% Relative humidity, no condensation.
BIOS	AMI BIOS;Support power on,timing switch,remote switch,intelligently identify devices.	
Watch Dog	Watch Dog programming supports hardware reset function (256 levels, 0~255 seconds).	
Operating System	Support Windows 10,Windows 8,Windows 7,Linux,etc.	

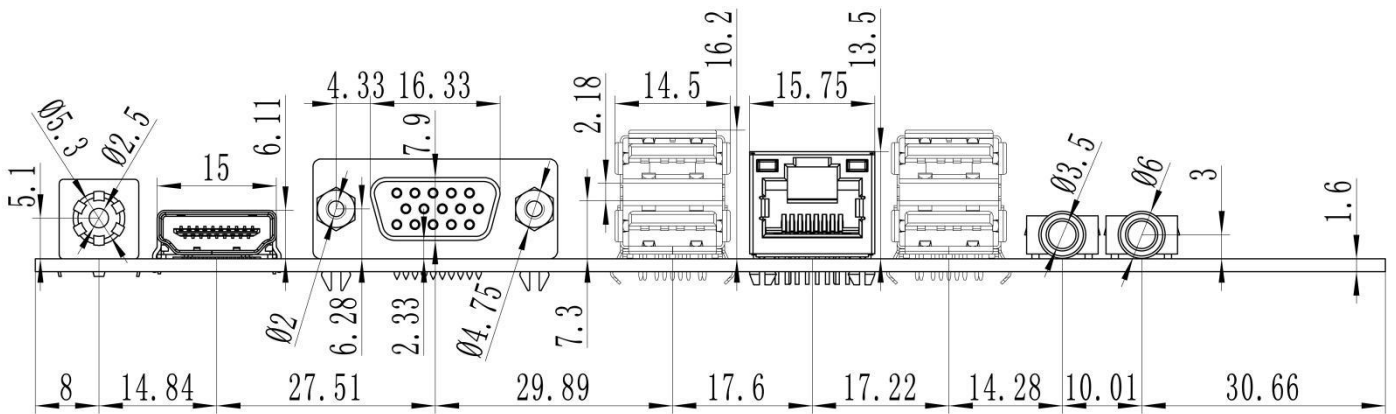
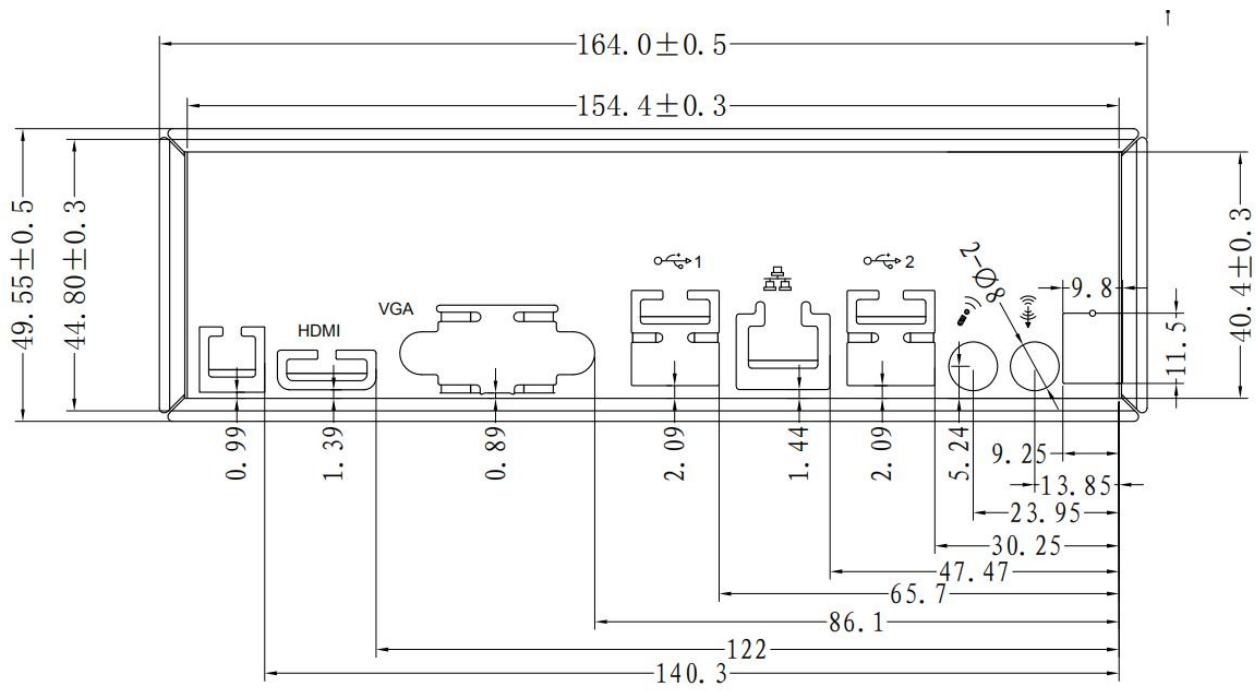
1.1 The motherboard Pictures:





1.2 The motherboard drawing:







Chapter Two The motherboard pin definition and description

2.0 The 1st pin identification methods:

(1) Method 1: Look at the silkscreen mark next to the front pin of the motherboard.

Will be represented by a triangle symbol  or a bold line  or "1";


(2) Method 2: Look at the back pad of the motherboard. The square pad  is the first pin;

Please pay attention to distinguish the 1st pin when plugging in the device and the cable, otherwise the motherboard and device will be damaged.

2.1 VGA pin definition:

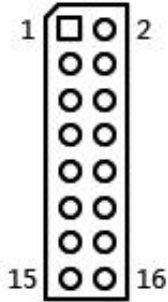
Position symbol: VGA_OUT (1*12Pin,2.0mm)			
pin	definition	pin	definition
1	GND	2	VSYNC
3	HSYNC	4	GND
5	RED	6	GND
7	GRN	8	GND
9	BLUE	10	GND
11	DDC_DATA	12	DDC_CLK


Pin position symbol drawing:



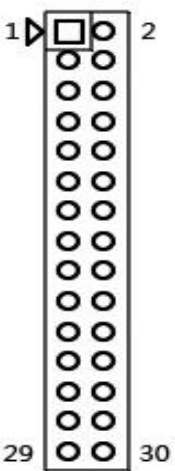
 **Notice:** The VGA_OUT pin signal is the same signal as the rear VGA port, and only support dual display copy.


2.2 HDMI pin definition:

Position symbol: HDMI_CON (2*8Pin,2.0mm)				Pin position symbol drawing:
pin	definition	pin	definition	
1	HDMI_TXD2P	2	HDMI_TXD1P	
3	HDMI_TXD2N	4	HDMI_TXD1N	
5	GND	6	GND	
7	HDMI_TXD0P	8	HDMI_TXC0P	
9	HDMI_TXD0N	10	HDMI_TXC0N	
11	GND	12	HDMI_5V	
13	HDMI_CLK	14	HDMI_5V	
15	HDMI_DATA	16	HDMI_HPD	

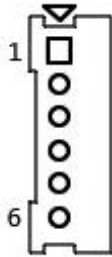
 **Notice:** When inserting the HDMI cable, the first pin of the HDMI cable must correspond to the first pin of the HDMI_CON pin on motherboard. If the plug is reversed or inserted incorrectly, the screen will not be displayed.

2.3 LVDS pindefinition:

Position symbol: LVDS (2*15Pin,2.0mm)				Pin position symbol drawing:
pin	definition	pin	definition	
1	VCC	2	VCC	
3	VCC	4	GND	
5	GND	6	GND	
7	ADO0-	8	ADO0+	
9	ADO1-	10	ADO1+	
11	ADO2-	12	ADO2+	
13	GND	14	GND	
15	ACLK-	16	ACLK+	
17	ADO3-	18	ADO3+	
19	BDO0-	20	BDO0+	
21	BDO1-	22	BDO1+	
23	BDO2-	24	BDO2+	
25	GND	26	GND	
27	BCLK-	28	BCLK+	
29	BDO3-	30	BDO3+	

 **Notice:** When inserting the LVDS cable, the first pin of the LVDS cable must correspond to the first pin of the LVDS pin on the motherboard. If the plug is reversed or inserted incorrectly, there is a danger of burning the screen and burning the motherboard!

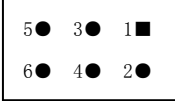
2.3.1 Backlight power supply definition:


Position symbol: INVERT (1*6Pin,2.0mm)		Pin position symbol drawing:
pin	definition	
1	+12V	
2	+12V	
3	ON/OFF(Backlight switch)	
4	ADJ(Backlight brightness adjustment)	
5	GND	
6	GND	

2.3.2 EDP working voltage:

Note:This motherboard does not support EDP pin.

If you need EDP pin,please purchase QM9400E,QM9500E models.

Position symbol: EDP_PWR (2*3Pin,2.0mm)		Pin position symbol drawing:
pin	definition	
1-2 short circuit	+3.3V	
3-4 short circuit	+5V	
5-6 short circuit	+12V	

 **Notice:** Screens of different sizes require different operating voltages. The motherboard provides three screen operating voltages of 3.3V, 5V and 12V. Please set the corresponding value of "EDP_PWR" according to the working voltage required by the screen, otherwise there will be danger of burning the screen and burning the motherboard!

2.4 J_GPIO pindefinition:

Position symbol: J_GPIO (2*5Pin,2.0mm)				Pin position symbol drawing:
pin	definition	pin	definition	
1	GND	2	+5V	
3	GPIO_IN0	4	GPIO_OUT0	
5	GPIO_IN1	6	GPIO_OUT1	
7	GPIO_IN2	8	GPIO_OUT2	
9	GPIO_IN3	10	GPIO_OUT3	

2.5 USB pindefinition:

Position symbol: F_USB3 F_USB4 (2*5Pin,2.54mm)				Pin position symbol drawing:
pin	definition	pin	definition	
1	VCC+5V	2	VCC+5V	
3	DATA0-	4	DATA1-	
5	DATA0+	6	DATA1+	
7	GND	8	GND	
9	NC	10	GND	

2.6 Audio interface and pin definition:

Position symbol: F_AUDIO (2*5Pin,2.54mm)				Pin position symbol drawing:
pin	definition	pin	definition	
1	MIC-L	2	GND	
3	MIC-R	4	NC	
5	LINE OUT-R	6	MIC_JD	
7	FAUDIO_JD	8	NC	
9	LINE OUT-L	10	LINE_JD	

2.7 Speaker(Power Amplifier) pindefinition:

Position symbol: INT_SPK (1*4Pin,2.0mm)		Pin position symbol drawing:
pin	definition	
1	L+	
2	L-	
3	R-	
4	R+	

2.8 Serial port(COM) function and pin definition:

The COM1,COM2 pins support RS232 signal,don not support RS422/RS485.

The 9th pin of COM1/COM2 supports output optional +5V or +12V through JCOM1/JCOM2 jumper setting.

Position symbol: JCOM1 (2*3Pin,2.0mm)		Pin position symbol drawing:
pin	The 9th pin of COM1 is with electricity	
1-2 short circuit	+5V	
3-4 short circuit	+12V	
5-6 short circuit	Without electricity	

Position symbol: JCOM2 (2*3Pin,2.0mm)		Pin position symbol drawing:
pin	The 9th pin of COM2 is with electricity	
1-2 short circuit	+5V	
3-4 short circuit	+12V	
5-6 short circuit	Without electricity	

COM1,COM2 definition:

Position symbol: COM1 COM2 (2*5Pin,2.54mm)				Pin position symbol drawing:
pin	definition	pin	definition	
1	DCD	2	RXD	
3	TXD	4	DTR	
5	GND	6	DSR	
7	RTS	8	CTS	
9	RI	10	NC	

2.9 Power supply and switch pin definition:

The motherboard provides a standard 5.5*2.5mm DC port (DC_IN),1*4PIN ATX power supply interface.

DC_ATX definition:

Position symbol: DC_ATX (2*2Pin)		Pin position symbol drawing:
pin	definition	
1	GND	
2	GND	
3	+12V	
4	+12V	

Switch pin definition:

Position symbol: F_PANEL (2*5Pin,2.54mm)				Pin position symbol drawing:
pin	definition	pin	definition	
1	HDLED+	2	PWRLED+	
3	HDLED-	4	GND	
5	RST	6	P_SW IN	
7	GND	8	GND	
9	GND	10	NC	

(1)Hard disk LED indicator light:

The 1st and 3rd pins are HDDLED. The 1st pin is the positive side of the LED.When the hard disk is being read or written, the indicator light will flash, indicating that the hard disk is running.

(2)Power supply LED indicator light:

The 2nd and 4th pins are Power LED. The 2nd pin is the positive side of the LED.When the motherboard is powered on, the power indicator light is on.When the motherboard is powered off, the power indicator light is off.

(3)Restart button:

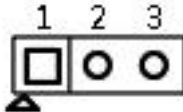
The 5th,7th pins are Restart Button.When the system fails and cannot continue to work, the Restart can restart the system.

(4)Power supply switch control:

The 6th, 8th pins are power supply button.Using these two pins to connect to the bounce switch on the front panel of the chassis to turn on or off the computer.

2.10 Power On(AUTO_SW pin)

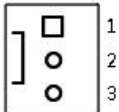
The motherboard provides" AUTO_SW"jumper to control "power on"function.

Position symbol: AUTO_SW (1*3Pin,2.0mm)		Pin position symbol drawing:
Setting	Function	
1-2 short circuit	NORMAL(Turn off "power on" function)	
2-3 short circuit	PWR_ON(Turn on "power on" function)	



Notice: Set the "Power On" function through" AUTO_SW"pin or BIOS.You can choose one of two setup methods,but not both.The two setup methods cannot be performed at the same time,otherwise they will conflict.

2.11 Fan interface definition:

Position symbol: FAN1/FAN2 (1*3Pin,2.54mm)		Pin position symbol drawing:
pin	definition	
1	GND	
2	+12V	
3	TAC(Fan speed detection)	

2.12 Hard disk interface and definition:

The motherboard provides:

1*MSATA slot(SATA protocol);

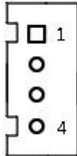
2*SATA3.0 hard disk interfaces;


2*4Pin hard disk power supply voltage interfaces.

SATA1 SATA2 definition:

Position symbol: SATA1 SATA2	
pin	definition
1	GND
2	SATA_TXP
3	SATA_TXN
4	GND
5	SATA_RXN
6	SATA_RXP
7	GND

SATA_PWR1 SATA_PWR2 definition:

Position symbol: SATA_PWR1 SATA_PWR2 (1*4Pin,2.54mm)		Pin position symbol drawing:
pin	definition	
1	12V	
2	GND	
3	GND	
4	5V	

 **Notice:** The first pin of the "SATA_PWR" hard disk power supply interface is 12V output, and the fourth pin is 5V output. When using, you must use the customized power cord from our company to avoid burning the hard disk.

2.13 Motherboard discharges,clears and battery:

The"CMOS" is powered by the button battery on the motherboard.

Clearing the"CMOS" will cause the previous BIOS settings to be cleared and restore the original factory setting.

Clearing CMOS procedures:

Method 1:

- (1) Turn off the motherboard and disconnect the power.
- (2) Use metal conductors to briefly connect the pin1, pin2 of "CLR_CMOS" for 5~6 seconds.
- (3) When booting up, press "Delete" to enter the BIOS.
- (4) After entering the BIOS, press "F9" , "Enter" to reload the optimal default value.
- (5) Press the "F10" to save and exit the setting.

Method 2:

When the motherboard is powered off, plug and pull the button battery to achieve the motherboard clear function. Remove the button battery, and then re-install the button battery after 10 seconds. Please pay attention to the positive and negative of the battery.

CMOS pin definition:

Position symbol: CLR_CMOS (1*2Pin,2.54mm)	
pin	Function
1-2 short circuit	Clear CMOS content, BIOS will restore factory settings.



Notice: Please do not clear the"CMOS" when the motherboard is running or charging, so as not to damage the motherboard.

Button battery specification: **3V CR2032**



Notice:

- (1) Please make sure the battery is facing up.
- (2) Please make sure the battery voltage is enough 2.8V~3V.
- (3) Please must use the same model or the manufacturer recommend the same type of battery.
- (4) If the battery is not replaced correctly, there is a danger of explosion!

Chapter Three BIOS Setup

BIOS hot key	Function
When starting, press the "Delete" button	Enter "BIOS"
When starting, press the "F11" button	Select "Setup", or select enter "BIOS".
← →	Select Screen (Move the left and right arrows to select an entry).
↑ ↓	Select Item (Move the up and down arrows to select an entry).
Enter	Select (Select item and enter the submenu).
+/-	Change Opt. (Change selections, add or subtract values).
F1	General help (Show related help content).
F9	Optimized Defaults (Go back to the vendor's default settings).
F10	Save & Exit
Esc	Exit

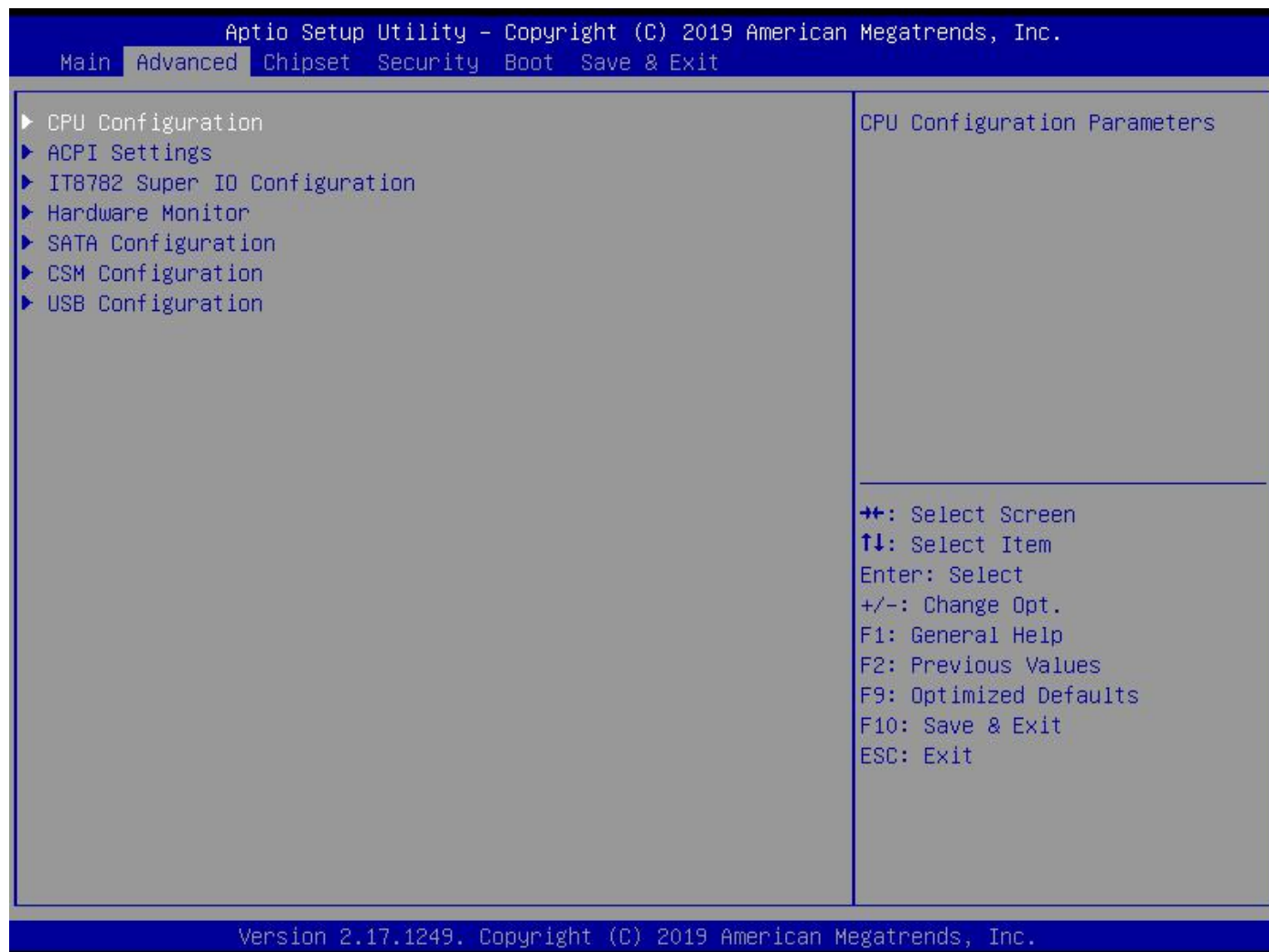
3.0 How to enter the BIOS?

- ◆ Method 1 : After starting, press "Delete" continuously to enter the BIOS directly.
- ◆ Method 2 : Press "F11" continuously after booting, then select "Enter Setup" to enter the BIOS.

3.1 Main Menu(BIOS information):

- (1) **Model: Project name**
- (2) **BIOS Ver: BIOS Version1.0**
- (3) **Build Date and Time: 09/20/2019 17:03:38**
- (4) **Processor Information:**
- (5) **Total Memory:**
- (6) **System Date: The format is Week Month/Day/Year**
- (7) **System Time: The format is Hour/Minute/Second**

3.2 Advanced:



- (1) **CPU Configuration:** CPU parameter information and common setting options
- (2) **ACPI Settings:** Advanced configuration and power supply management interface setting.
- (3) **IT8782 Super IO Configuration:**
- (4) **Hardware Monitor:**
- (5) **SATA Configuration:**
- (6) **CSM Configuration:**
- (7) **USB Configuration :**USB information and control options.

3.2.1 CPU Configuration:

Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.

Advanced

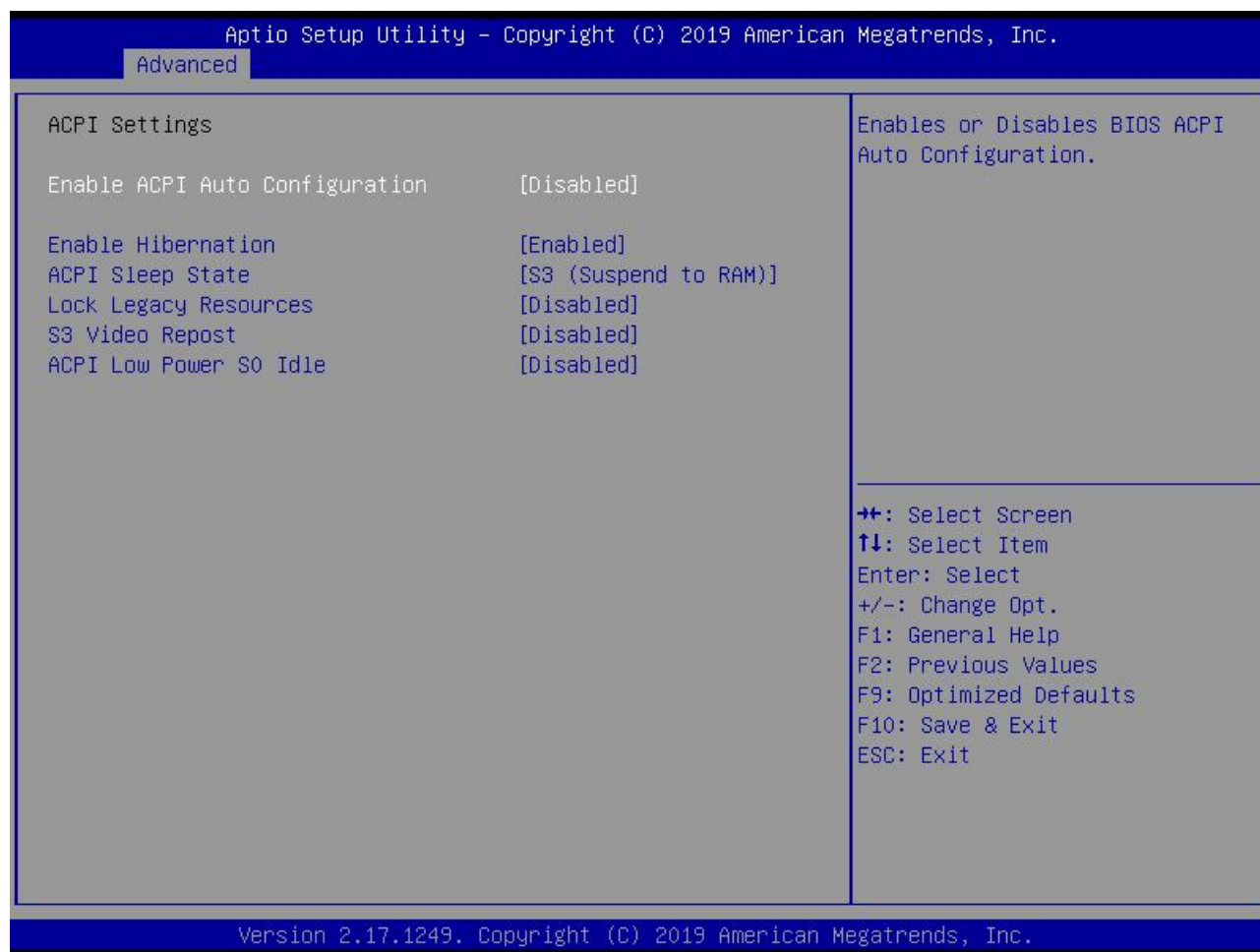
CPU Configuration		▲ Enabled for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and Disabled for other OS (OS not optimized for Hyper-Threading Technology). When Disabled only one thread per enabled core is enabled.
Intel(R) Core(TM) i3-4005U CPU @ 1.70GHz		
CPU Signature	40651	◆◆: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit
Microcode Patch	1c	
Max CPU Speed	1700 MHz	
Min CPU Speed	800 MHz	
CPU Speed	1700 MHz	
Processor Cores	2	
Intel HT Technology	Supported	
Intel VT-x Technology	Supported	
Intel SMX Technology	Not Supported	
64-bit	Supported	
EIST Technology	Supported	
CPU C3 state	Supported	
CPU C6 state	Supported	
CPU C7 state	Supported	
L1 Data Cache	32 kB x 2	
L1 Code Cache	32 kB x 2	
L2 Cache	256 kB x 2	
L3 Cache	3 MB	
L4 Cache	Not Present	
Hyper-threading	[Enabled]	

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The read-only item contains the details of the CPU.

It specifically includes information such as CPU manufacturer, model, frequency, level 1 cache capacity, and level 2 cache capacity, etc.

3.2.2 ACPI Settings(C-state Settings): C-State : Disabled



(1) Enable ACPI Auto Configuration:

This item is ACPI automatically configured. It can "Enabled" or "Disabled" the ACPI auto configuration of the BIOS. By default, the motherboard is set to "Disabled".

(2) Enable Hibernation:

This item is hibernation support. It can "Enabled" or "Disabled" the system hibernation function (In OS/S4 sleep state). However, this option does not work in some operating systems. By default, the motherboard is set to "Enabled".

(3) ACPI Sleep State:

This item is used to select the power saving mode when the system sleeps. The mode is different, the system power consumption will be different.

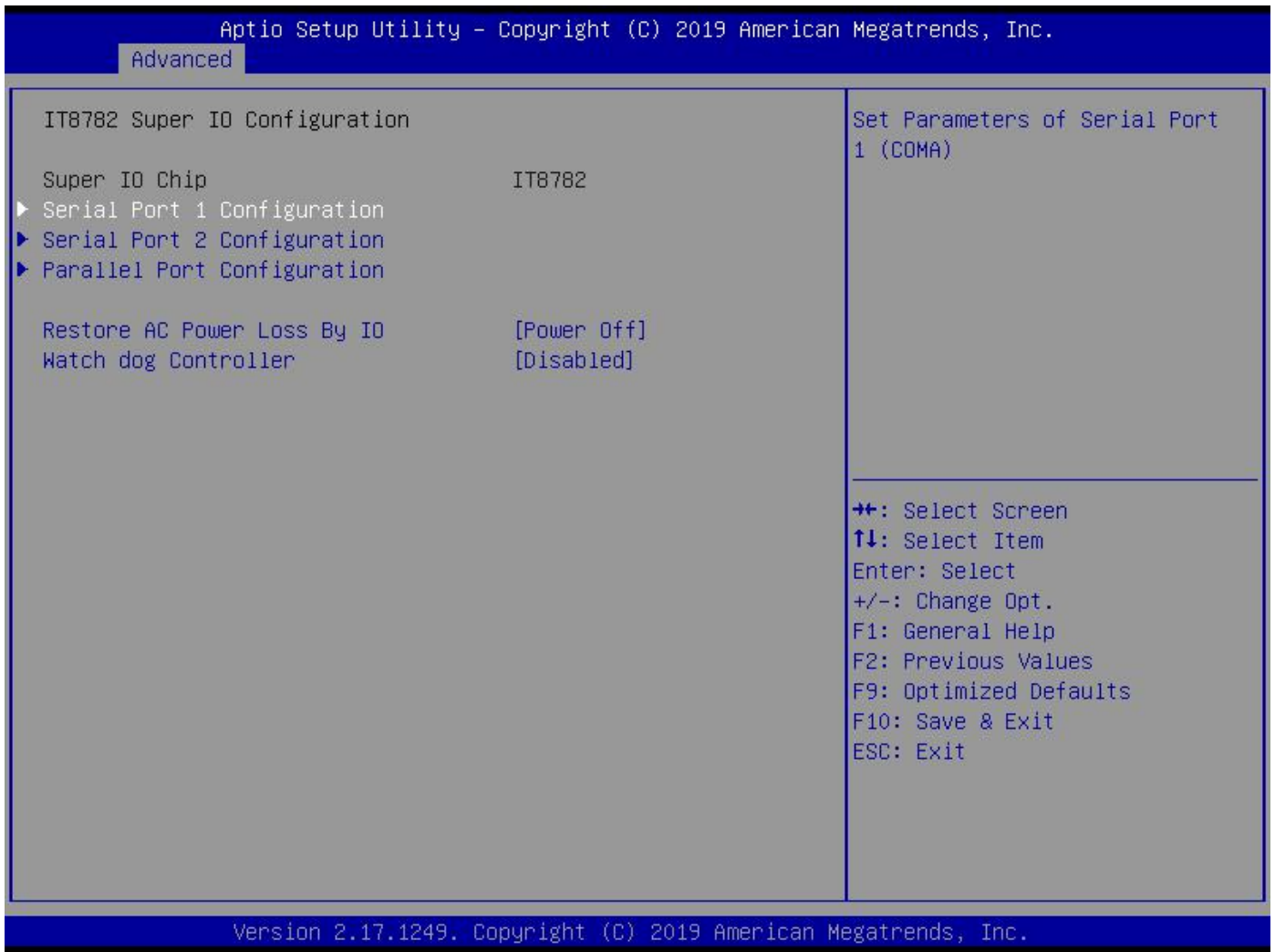
- ◆ Suspend Disabled: Turn off sleep mode.
- ◆ S1 (CPU Stop Clock): The CPU stops working, but the other devices are still powered normally.
- ◆ S3 (Suspend to Ram): Suspend to memory.

(4) Lock Legacy Resources: It can "Enabled" or "Disabled" legacy resources lock.

(5) S3 Video Repost: When S3 wakes up, the display is initialized. When waking up S3/STR sleep mode, turn on the VGA BIOS POST function

(6) ACPI Low Power So Idle: When there is no load under the system, reduce power consumption and save power. By default, the motherboard is set to "Disabled".

3.2.3 IT8782 Super IO Configuration:



- (1) **Serial Port 1 Configuration:** It is COM1 configuration information and settings.
- (2) **Serial Port 2 Configuration:** It is COM2 configuration information and settings.
- (3) **Watch dog Controller:** This is the watch dog setting.

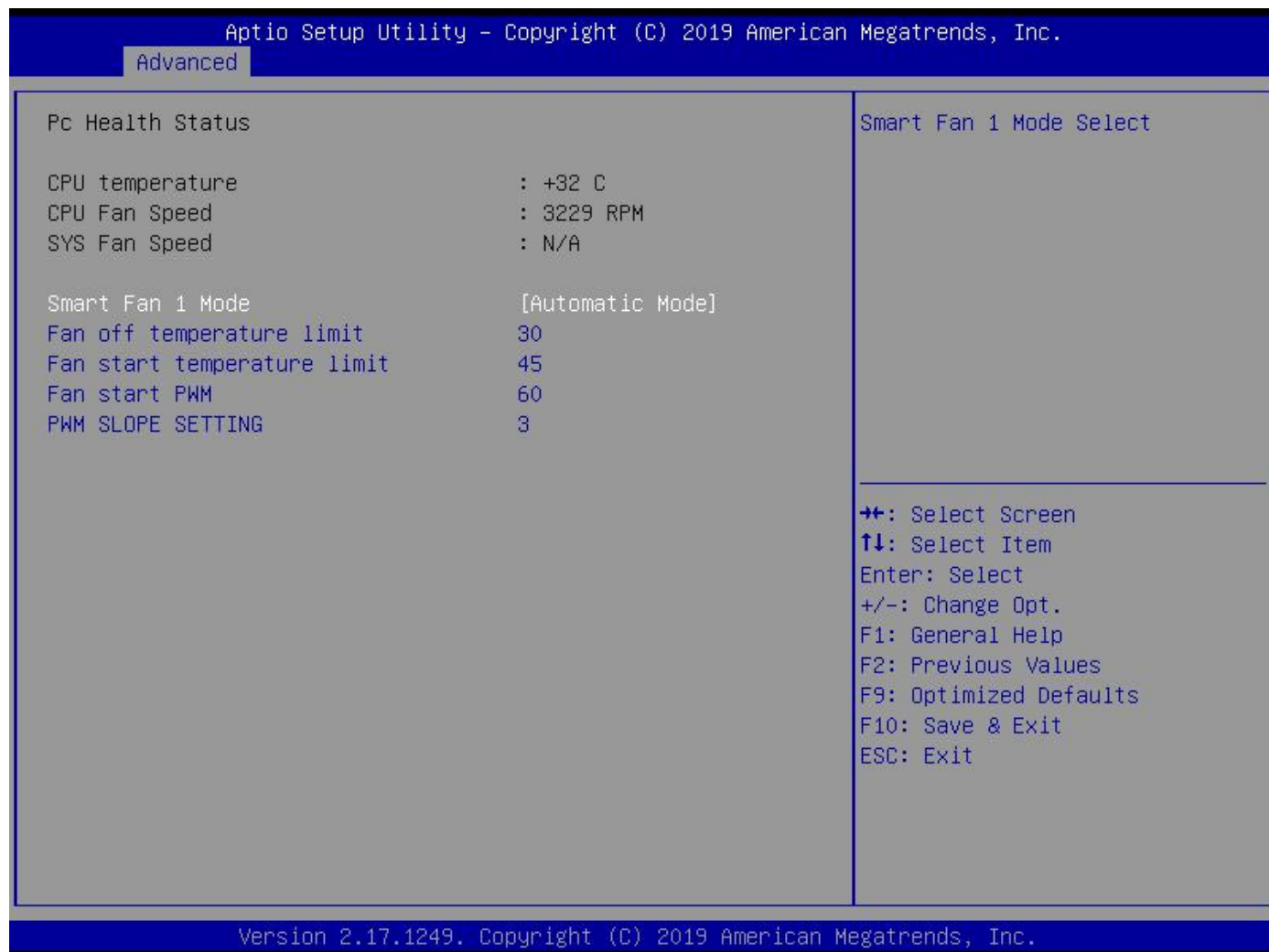
3.2.4 Power On (BIOS)

Restore AC Power Loss By IO: It is the "Power on", "Power off" switch in BIOS.

- ◆ **Power Off:** After the motherboard is powered, it won't automatically boot and you need to boot it manually.
- ◆ **Power On:** After the motherboard is powered, it will automatically boot and you don't need to boot it manually.

By default, the motherboard is set to "Power Off".

3.2.5 Hardware Monitor:



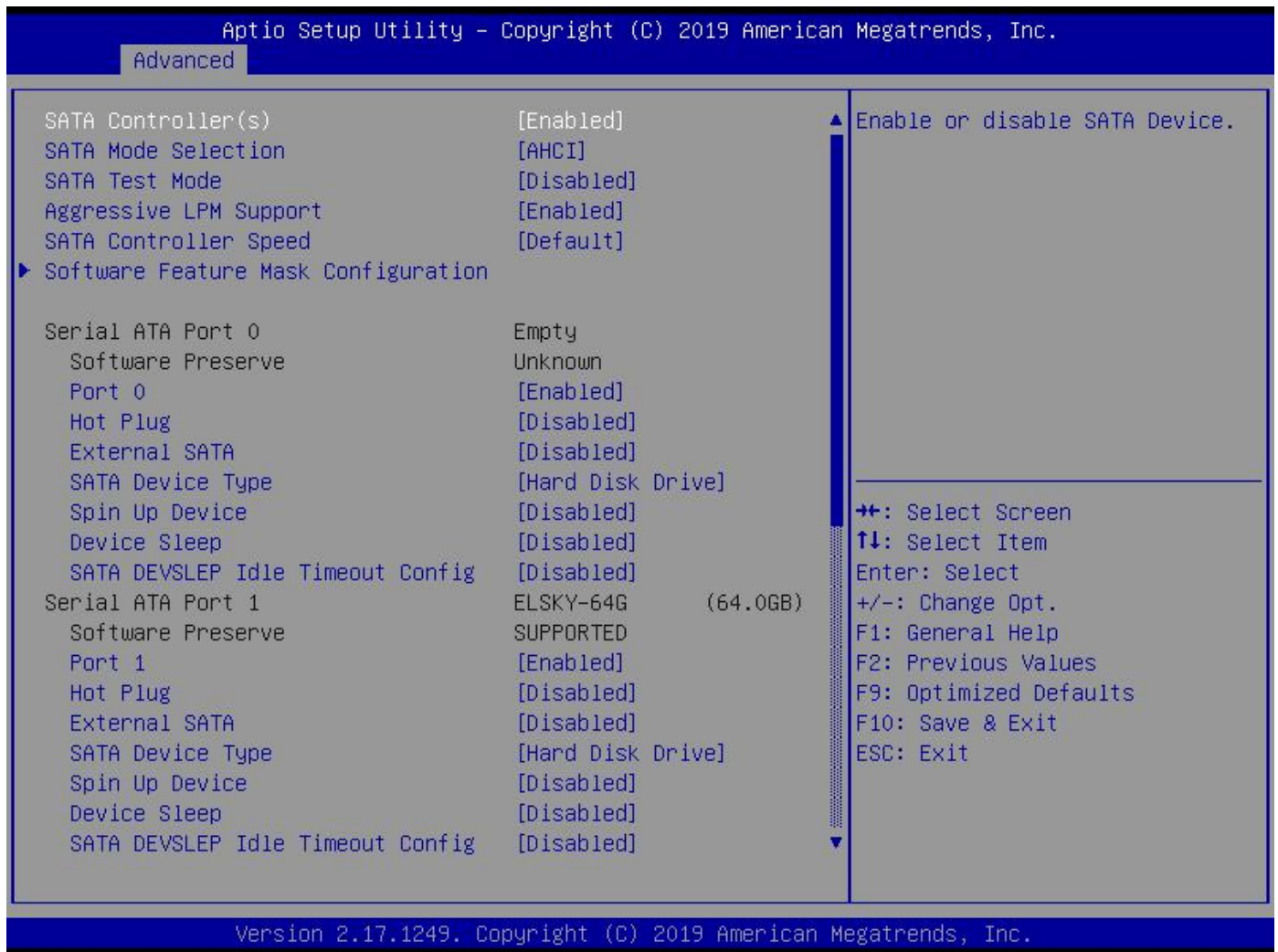
It contains CPU temperature and fan speed monitoring.

Smart Fan 1 Mode: It is the CPU fan mode settings.

Its options:

- ◆ Full on Mode: The fan runs under full load, hasn't temperature control function;
- ◆ Automatic Mode: The fan has temperature control function;
- ◆ Manual Mode: Manual control

3.2.6 SATA Configuration:



- (1) **SATA Controller:**
- (2) **SATA Mode Selection:**
- (3) **SATA Test Mode:**
- (4) **Aggressive LPM Support:**
- (5) **SATA Controller Speed:**
- (6) **Software Feature Mask Configuration:**

3.2.7 CSM Configuration:

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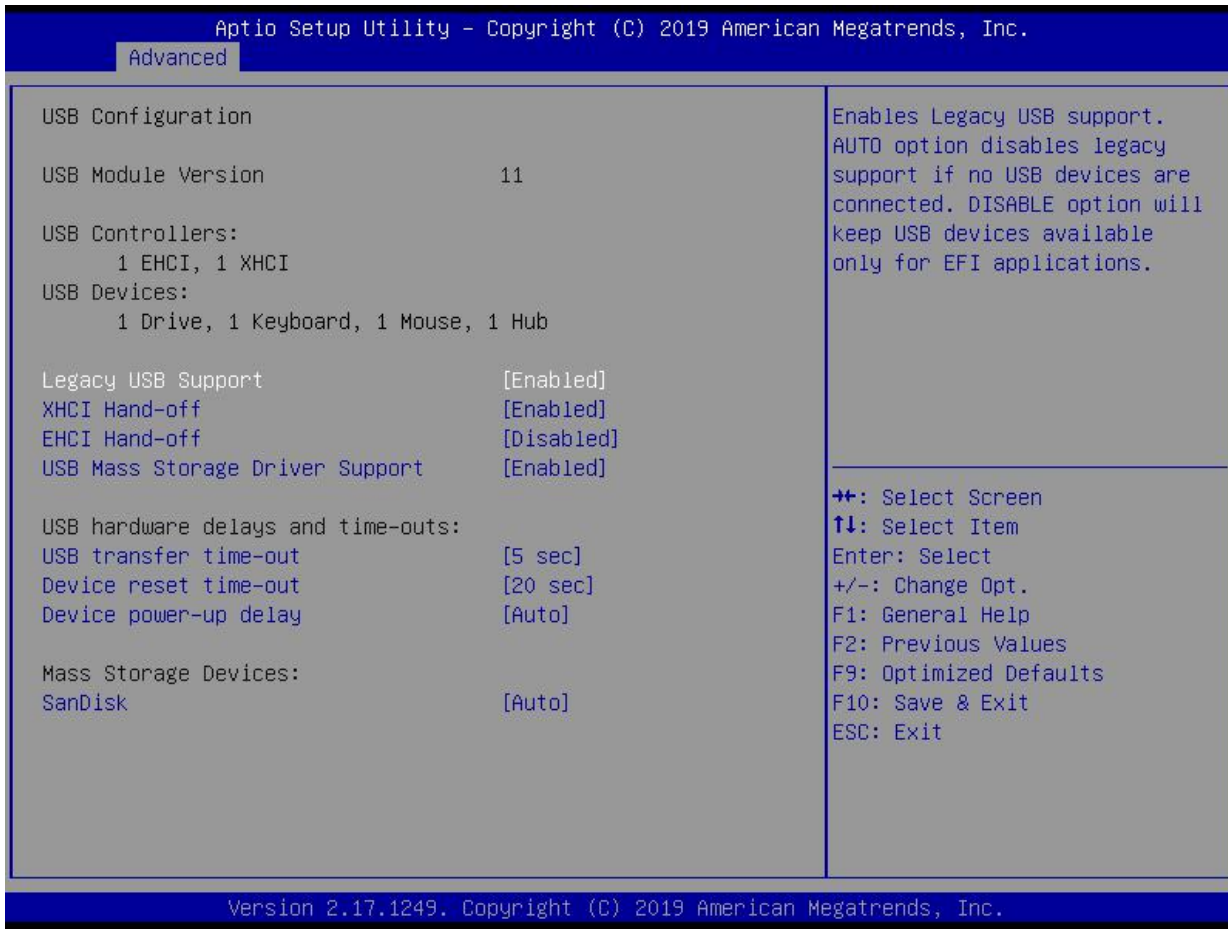
Advanced

Compatibility Support Module Configuration		Enable/Disable CSM Support.
CSM Support	[Enabled]	
CSM16 Module Version	07.77	
GateA20 Active	[Upon Request]	
Option ROM Messages	[Force BIOS]	
Boot option filter	[UEFI and Legacy]	
Option ROM execution		
Lan PXE ROM	[Do not launch]	←+: Select Screen
Storage	[Legacy]	↑↓: Select Item
Video	[Legacy]	Enter: Select
Other PCI devices	[UEFI]	+/-: Change Opt.
		F1: General Help
		F2: Previous Values
		F9: Optimized Defaults
		F10: Save & Exit
		ESC: Exit

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Lan PXE ROM: This is diskless boot(Network PXE setting).

3.2.8 USB Configuration:



(1) Legacy USB Support:

This item is used for the settings of the old USB. If you need to support USB device, U disk, USB keyboard under DOS, please set this item to "Enabled" or "Auto", otherwise select "Disabled".

(2) XHCI Hand-off:

Whether to enable the USB XHCI transport protocol.

(3) EHCI Hand-off:

This option is used to determine whether to cut the USB hub into USB2.0 mode before entering the OS. By default, the motherboard is set to "Disable".

(4) USB Mass Storage Driver Support:

This is a switch that supports USB mass storage devices.

(5) USB Transfer time-out:

Set the time-out of the control, batch, and interrupt transmission. By default, the time is set to "5 sec".

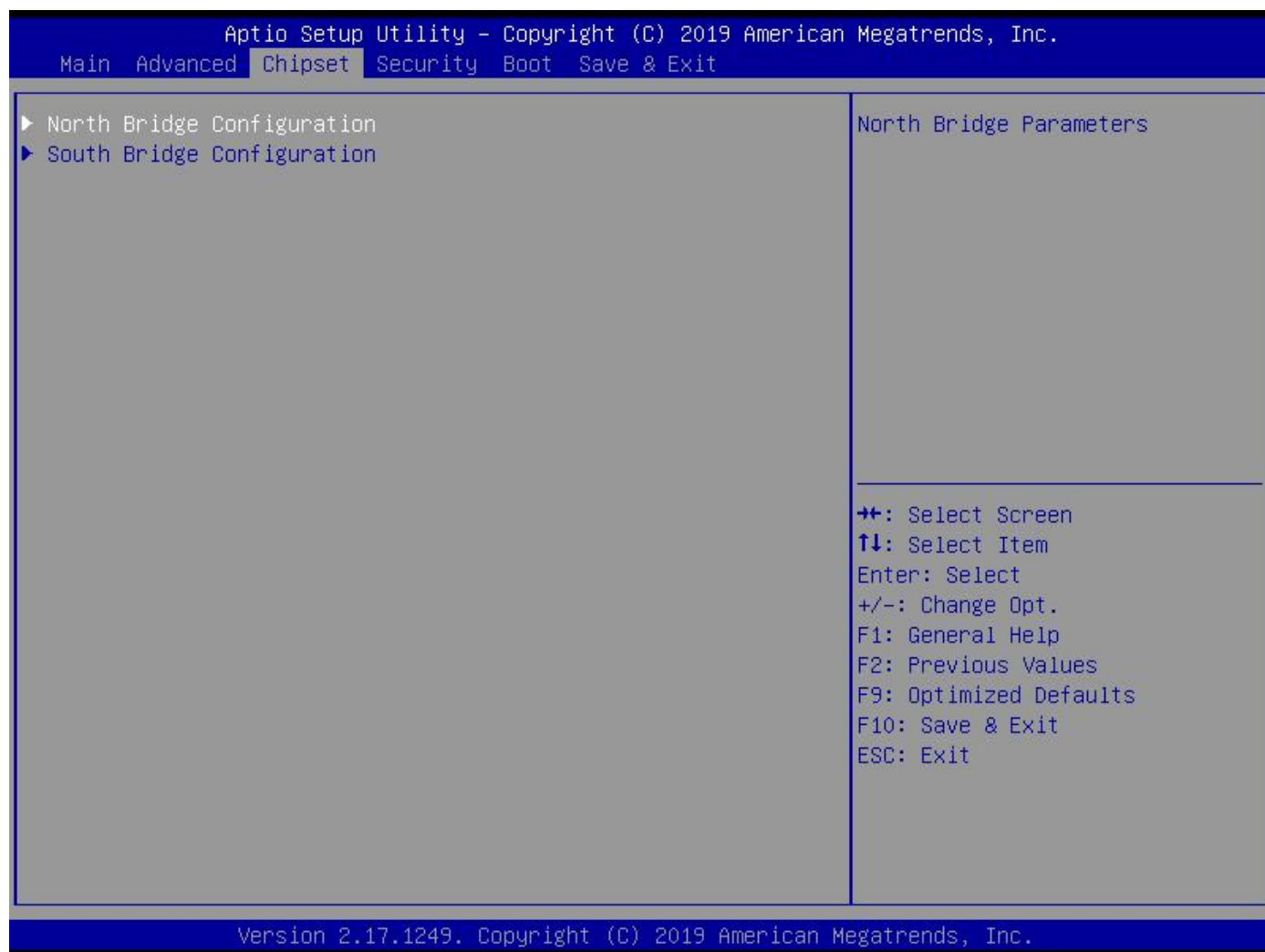
(6) Device reset time-out:

Set the time-out of the large-capacity USB disk boot command. By default, the time is set to "20 sec".

(7) Device Power-up delay:

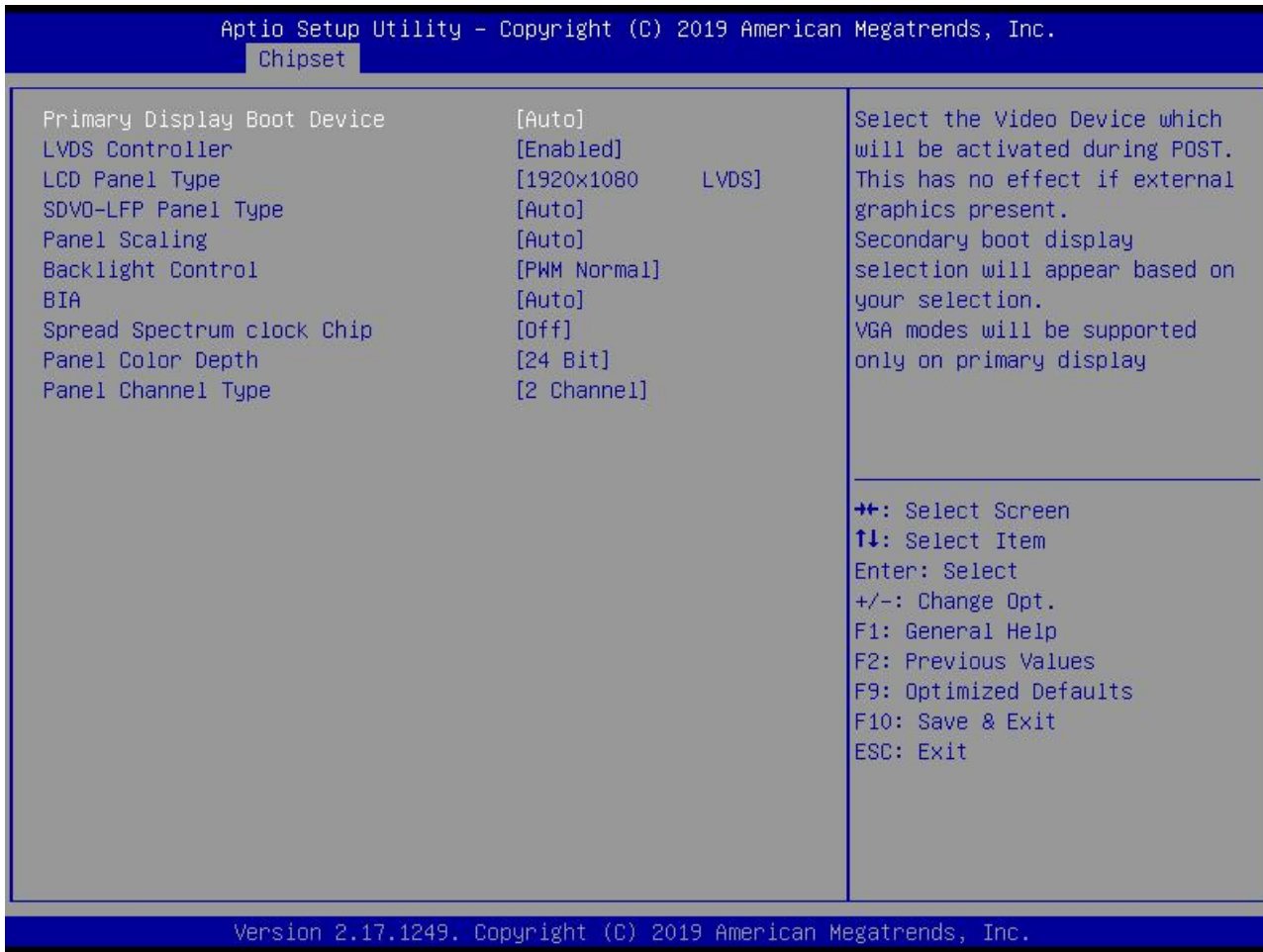
Set the maximum delay time that the USB device reports to the primary controller.

3.3 Chipset:



- ◆ **North Bridge Configuration:** It includes video memory, display device options, etc.
- ◆ **South Bridge Configuration:** It includes PCI-E, USB, hard disk, PXE options, etc.

3.3.1 North Bridge Configuration:



(1) **Primary Display Boot Device:**This is the guide of the first display device. The "Auto" is automatically recognized. You can also set it to VGA/HDMI/LVDS.

(2) **LVDS Controller:**This is the LVDS switch. The "Disabled" is turn off; The "Enabled" is turn on.

(3) **LCD Panel Type:** This is an option of the LVDS resolution. It only works for LVDS.

(4) **SDVO-LFP Panel Type:**

(5) **Panel Scaling:**

(6) **Backlight Control:**

This is the backlight control option.

- ◆ The "PWM-Inverted" is the inverse duty cycle.
- ◆ The "PWM-Normal" is the normal duty cycle.

(7) **BIA:**

(8) **Spread Spectrum Clock Chip:**

(9) **Panel Color Depth:** It has 18 bit and 24 bit options (According to the corresponding number of bits on the screen).

(10) **Panel Channel Type:** LVDS channel setting (choose "2 Channel" or "1 Channel" according to the screen)

3.3.2 LVDS Resolution List:

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Chipset

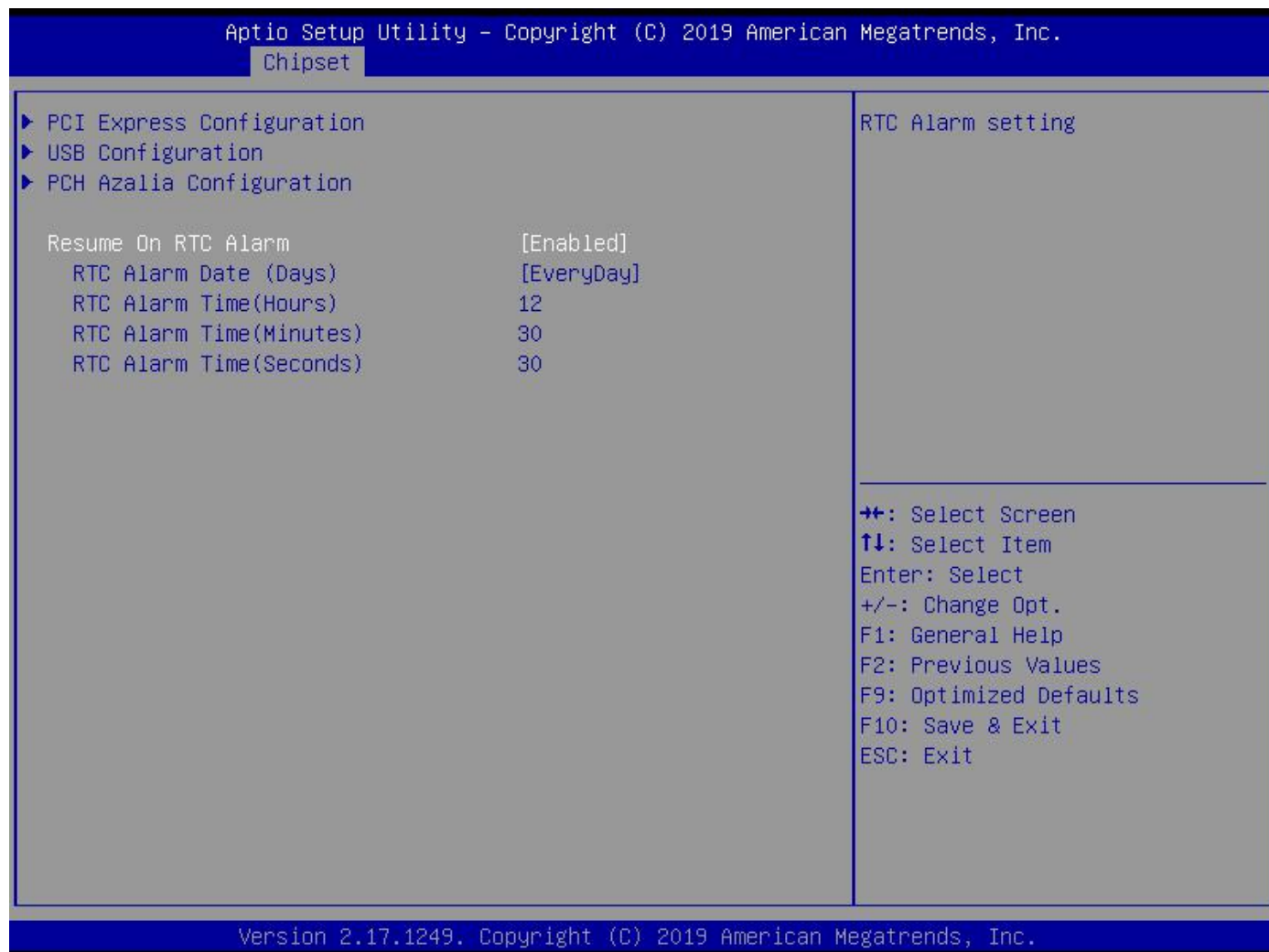
Primary Display Boot Device	[Auto]	
LVDS Controller	[Enabled]	
LCD Panel Type	[1920x1080	LVDS]
SDVO-LFP Panel Type		
Panel Scaling	Auto	
Backlight Control	640x480	LVDS
BIA	800x600	LVDS
Spread Spectrum clock Chip	1024x768	LVDS1
Panel Color Depth	1280x1024	LVDS
Panel Channel Type	1400x1050(RB)	LVDS1
	1400x1050	LVDS2
	1600x1200	LVDS
	1366x768	LVDS
	1680x1050	LVDS
	1920x1200	LVDS
	1440x900	LVDS
	1600x900	LVDS
	1024x768	LVDS2
	1280x800	LVDS
	1920x1080	LVDS
	2048x1536	LVDS

Select LCD panel used by Internal Graphics Device by selecting the appropriate setup item.

←→: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit

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3.3.3 South Bridge Configuration:



- (1) PCI Express Configuration: This is PCIE setting.
- (2) USB configuration: This is USB setting
- (3) PCH Azalia Configuration: This is PCH Sound card setting

3.3.4 Resume On RTC Alarm

Resume On RTC Alarm: It is timed booting setting(Automatically start operating system in fixed time).
The "Disabled" is turn off; The "Enabled" is turn on

- ◆ RTC Alarm Date(Days)
- ◆ RTC Alarm Time(Hours)
- ◆ RTC Alarm Time(Minutes)
- ◆ RTC Alarm Time(Seconds)

3.4 Security(Password Settings)

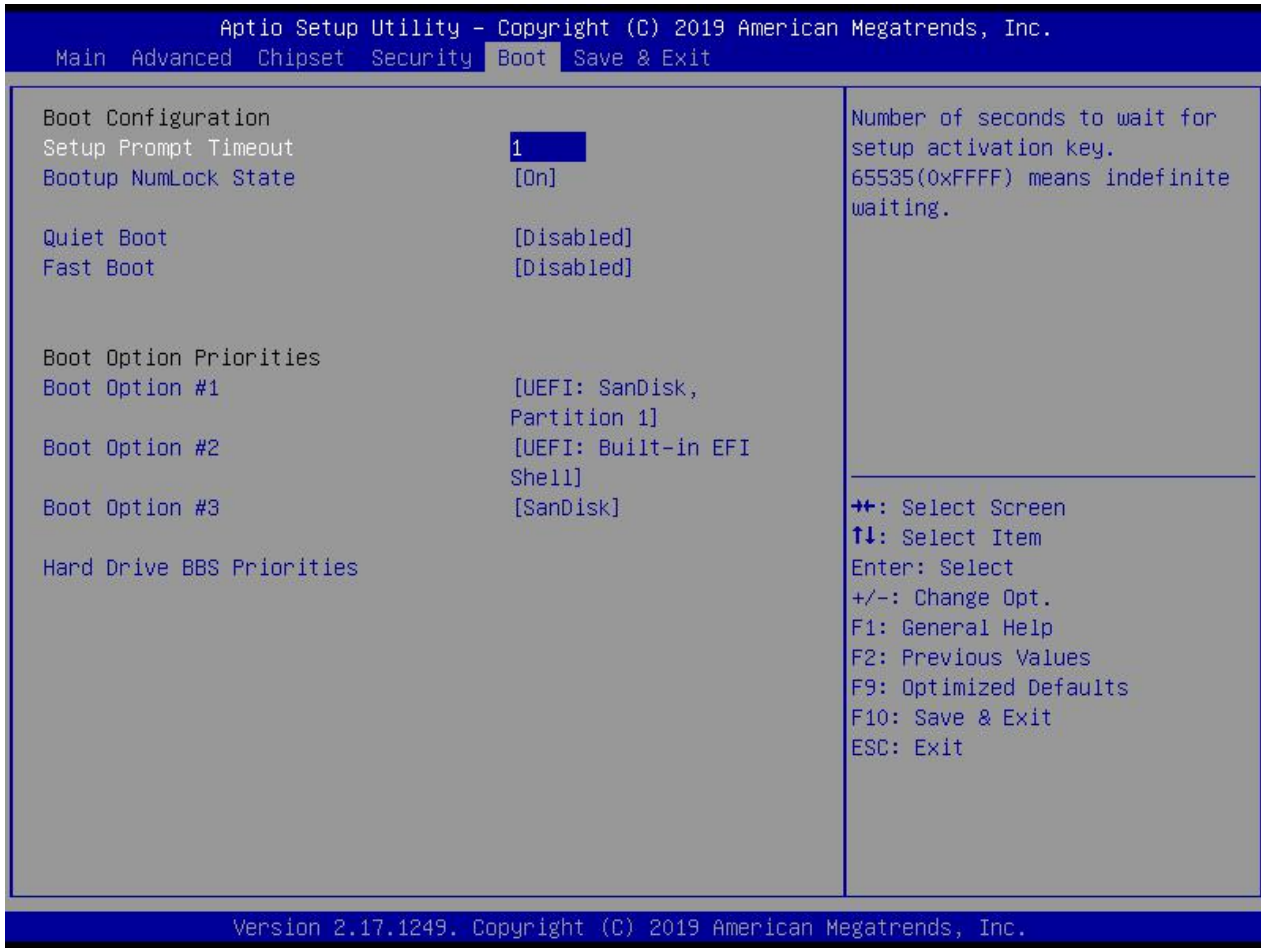
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Main Advanced Chipset **Security** Boot Save & Exit

<p>Password Description</p> <p>If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup. If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights. The password length must be in the following range:</p> <table><tr><td>Minimum length</td><td>3</td></tr><tr><td>Maximum length</td><td>20</td></tr></table> <p>Administrator Password User Password</p>	Minimum length	3	Maximum length	20	<p>Set Administrator Password</p> <hr/> <p>←→: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F9: Optimized Defaults F10: Save & Exit ESC: Exit</p>
Minimum length	3				
Maximum length	20				

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- ◆ **Administrator Password: It is used to set the superuser password.**
- ◆ **User Password: It is used to set the normal user password.**

3.5 Boot



(1) **Setup Prompt Timeout:** Set the screen prompt time to wait when starting up. If you do not press the "Setup" hot key within the set time, it will continue to start. By default, the motherboard is set to "1".

(2) **Bootup NumLock State:**

Activate the numeric lock function of the keypad after the system is powered up to the DOS system.

Its options:

- ◆ "On": Digital lock is on when the system starts up.
- ◆ "Off": The keypad is in cursor control when the system starts up.

By default, the motherboard is set to "On".

(3) **Quiet Boot:** This item is display switch of the customized LOGO in starting operating system screen.

The "Disabled" is turn off; The "Enabled" is turn on.

(4) **Fast Boot:** The "Disabled" is turn off; The "Enabled" is turn on.

(5) **Boot Option Priorities:**

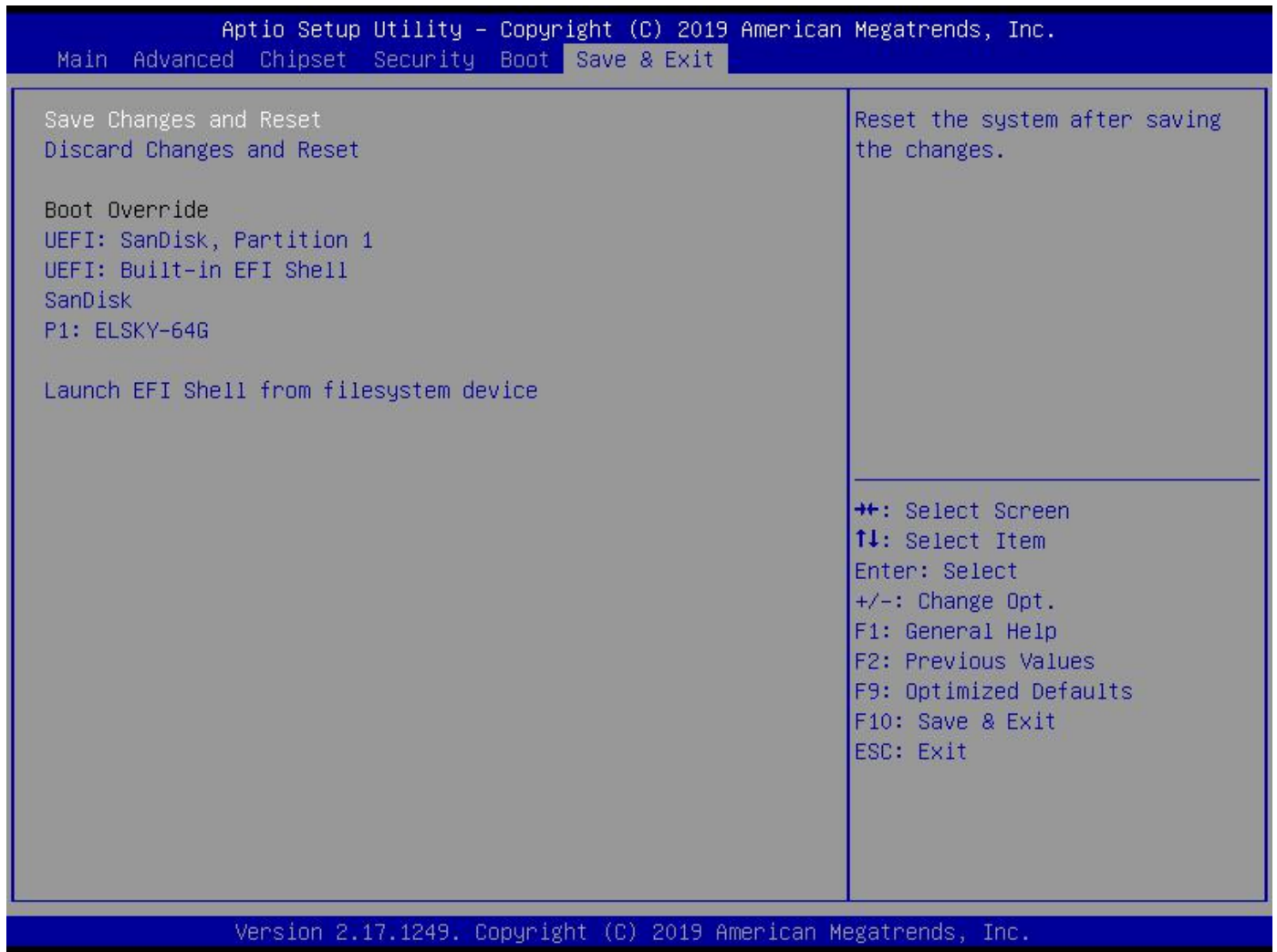
The system will detect the device in the set order. Find a device that can be booted and it will boot from this device. The "Boot Option #1" is the priority boot device.

Warm reminder: If you cannot boot the motherboard, please set the "Boot Option #1" as a hard disk (With operating system).

(6) **Hard Drive BBS Priorities:**

This is the priority setting for hard disk boot. Notice: This option only appears if a hard disk is installed.

3.6 Save & Exit



(1) **Save Changes and Reset:** Save,exit the BIOS settings,then restart the motherboard.

(2) **Discard Changes and Reset:** Give up your changes and exit the setting,then restart the motherboard.

(3) **Boot Override:** This option is used to select the specified boot device.The boot devices are a SATA hard disk, a USB flash drive, an EFI Shell, a PXE, etc.It will boot directly,does not need to save&exit.

Other methods: When booting, press"F11"to directly select the specified device to boot.

Chapter Four Analysis and Solution of Common Faults

Common Faults	Solutions
The computer does not boot after the power is connected	<ol style="list-style-type: none"> 1. Please confirm that the power cable is connected properly. 2. Please confirm whether the power adapter meets the power supply requirements of the motherboard. 3. Please re-plug the memory. 4. Please replace the memory. 5. Please follow the steps in the motherboard manual to clear the motherboard CMOS. 6. Please confirm if there is an external card. After taking the external card, whether the computer start normally.
After booting, VGA does not display	<ol style="list-style-type: none"> 1. Please check if the monitor is turned on. 2. Please check the power cord is properly connected to the monitor and system unit. 3. Please check the monitor cable is properly connected to the system unit and monitor. 4. Please check if the display brightness control is set to dark. Brightness can be increased by the brightness control. To get more detailed information, please refer to the monitor instruction. 5. When the display is in "Power Save" mode, please press any key on the keyboard to display the screen.
Unable to save BIOS setting	<ol style="list-style-type: none"> 1. Please confirm whether the CMOS battery voltage is lower than 2.8V. If it is lower than 2.8V, please replace the battery, then reset the BIOS and save it. 2. The BIOS settings are incorrect. Adjust the time and date in the BIOS according to the button (DEL) indicated on the startup screen.
Prompt that a bootable device could not be found	<ol style="list-style-type: none"> 1. Please confirm whether the hard disk power cable and hard disk data cable are connected properly. 2. Please confirm whether the hard disk is physically damaged. 3. Please confirm that the operating system is installed properly on the hard disk.
During the process of entering the system, the computer appears blue screen or crashes	<ol style="list-style-type: none"> 1. Please confirm whether the memory and external card are loose. 2. Please try to remove the newly installed hardware or uninstall the driver or software. 3. Please try to replace the memory. 4. Please try to enter the BIOS to change the hard disk mode.
Entering the operating system is slow	<ol style="list-style-type: none"> 1. Please try to use a third-party software to check if the hard drive has bad track. 2. Please confirm whether there is too little space for operating system in the hard disk partition. 3. Please check if the CPU cooling fan is rotating normally.
Operating system automatically restarts	<ol style="list-style-type: none"> 1. Please check if the CPU cooling fan is rotating normally. 2. Please confirm if you accidentally press the reset button of the industrial mini computer. 3. Please use anti-virus software to confirm whether the system is infected with a virus. 4. Please confirm whether the memory and external card are loose. 5. Please confirm whether the power supply carrying capacity is sufficient. Please try to replace the power supply. 6. Please try to replace the memory.
Unable to detect USB device	<ol style="list-style-type: none"> 1. Please confirm if the USB device needs to be powered separately. 2. Please confirm if the USB interface is in imperfect contact. 3. Please confirm if the USB controller is turned on in the BIOS Setup.
LVDS screen does not display	<ol style="list-style-type: none"> 1. Connect VGA, start the computer, enter the BIOS to confirm whether the LVDS switch is turned on. Whether the resolution is adjusted to the corresponding demand. 2. Please confirm whether "LVDS_PWR" is adjusted to the corresponding working voltage.

	<p>3. Please check if the backlight power ON/OFF pin is plugged in and has voltage.</p> <p>4. Please confirm if the monitor cable is plugged in correctly.</p> <p>Please confirm whether the monitor is working properly.</p>
<p>The LVDS screen appears blurred or image tail</p>	<p>1. Please try to enter the BIOS to set the corresponding number of bits for the screen (the number of bits: 18bit or 24bit).</p> <p>2. Please confirm whether the screen cable is damaged.</p> <p>3. Please confirm whether the monitor is working properly.</p> <p>4. Please try to exchange the cable order of the screen.</p> <p>5. Please try to replace the memory.</p>