



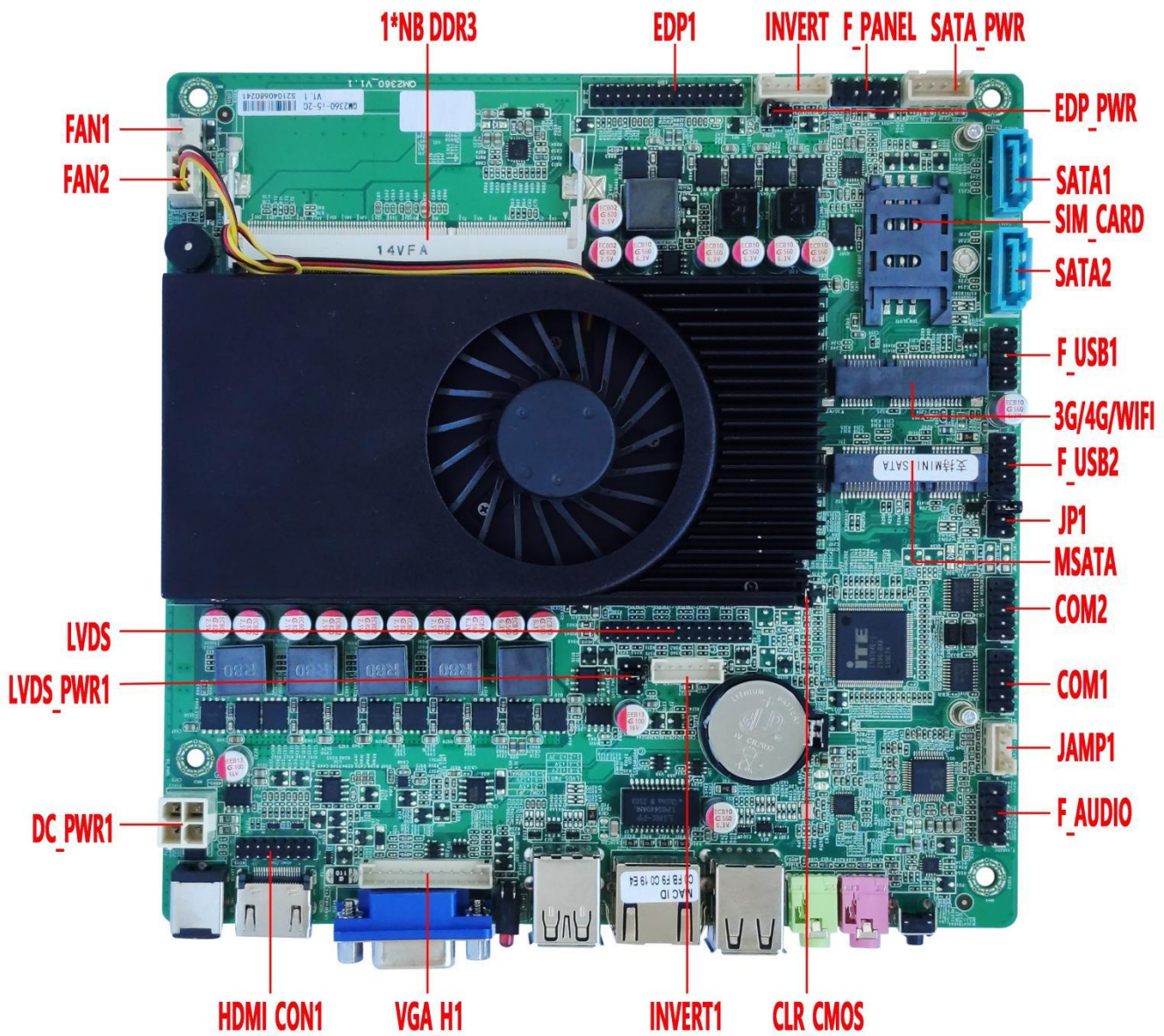
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ELSKY QM2360 V1.1 User Manual

Update on July 20,2021

Motherboard Pictures:





Ordering Information:

Model	Intel CPU	RJ45 LAN	COM	USB	Hard Disk	Memory	DC Power
QM2360	Support 2nd generation,3rd generation CPU	1	2	8	1*MSATA 2*SATA	1*NB-DDR3 8GB MAX	+12V



Important notice:

(1) HDMI,VGA,EDP1,LVDS/EDP2 support single display,dual display copy/expansion,single display under DOS.

(2) The LVDS,EDP2 pins cannot exist at the same time.By default,the motherboard supports LVDS,does not support EDP2. If you need EDP2,please inform us in advance.

(3) Option alone LVDS,but the motherboard does not support LVDS+EDP1.

(4) Option alone EDP1 or EDP1+EDP2;

(5) The EDP2 cannot be used alone.Option EDP1+EDP2.

(6) USB3.0 description:

◆ When the motherboard has Intel 6 series/NM70/HM75 chipset ,the blue USB interfaces are USB2.0,no USB3.0.

8*USB2.0: Intel 2nd generation i3 i5 i7 /3rd generation i3 CPU+ Intel 6 series/NM70/HM75 chipset.

◆ When the motherboard has Intel 7 series chipset(Except NM70/HM75),the blue USB interfaces are USB3.0.

6*USB2.0+2*USB3.0: Intel 3rd generation Core i5/i7 CPU+Intel 7 series chipset(Except NM70/HM75).

Intel Chipset series	Chipset Model	Intel CPU	USB2.0	USB3.0
6	HM65	◆ Sandy Bridge:2nd generation Core i3 i5 i7 CPU	8	0
	HM67			
	QM67			
7	NM70	◆ Ivy Bridge:3rd generation Core i3 CPU	6	2
	HM75			
	HM70	Ivy Bridge: 3rd generation Core i5 i7 CPU		
	HM76			
	HM77			
	QM77			

(7) By default,the MSATA slot supports SATA signal,does not support USB,PCIE signals.

◆ **If you need USB signal in MSATA slot,please inform us in advance.Please note,after changing,the SATA and USB signals coexist,but the 1st,3rd,5th,7th pins of the F_USB2 have no signals.**

◆ **If you need PCIE signal in MSATA slot,please inform us in advance.Please note that the SATA signal will not exist after changing.**

(8) By default,the Mini PCIE slot supports PCIE signal,does not support USB,SATA signals.

If you need USB signal in Mini PCIE slot,please inform us in advance.Please note,after changing,the PCIE and USB signals coexist,but the 2nd,4th,6th,8th,10th pins of the F_USB2 have no signals.

(9) The motherboard supports optional Realtek sound card,USB sound card.

If the motherboard supports USB sound card, the 1st,3rd,5th,7th pins of the F_USB1 have no signals,the motherboard only has 6*USB.

(10) By default,the motherboard supports 8*USB.

Changing the motherboard signal (protocol) will affect the number of USB.

◆ **If the motherboard supports 4G/GPS/Bluetooth module, there are 7*USB.**

◆ **If the motherboard supports USB sound card, there are 6*USB.**

If you need 4G/GPS/Bluetooth signal,USB sound card, please inform us in advance.

(11)

◆ **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.**

By default,the USB interfaces have S power,cannot choose A power.

By default,the built-in USB pins have S power,option A power.If you need A power,please inform us in advance.

(12) The motherboard supports 2*RS232 COM pins.

The 9th pin of COM2 supports output optional 0V,5V,12V by JP1 jumper pin setting.

(13) The motherboard only supports 1*LAN port.Not Support 2*LAN,POE.

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

The QM2360 motherboard supports Intel Sandy Bridge,Ivy Bridge processors:

FCBGA1023 Socket

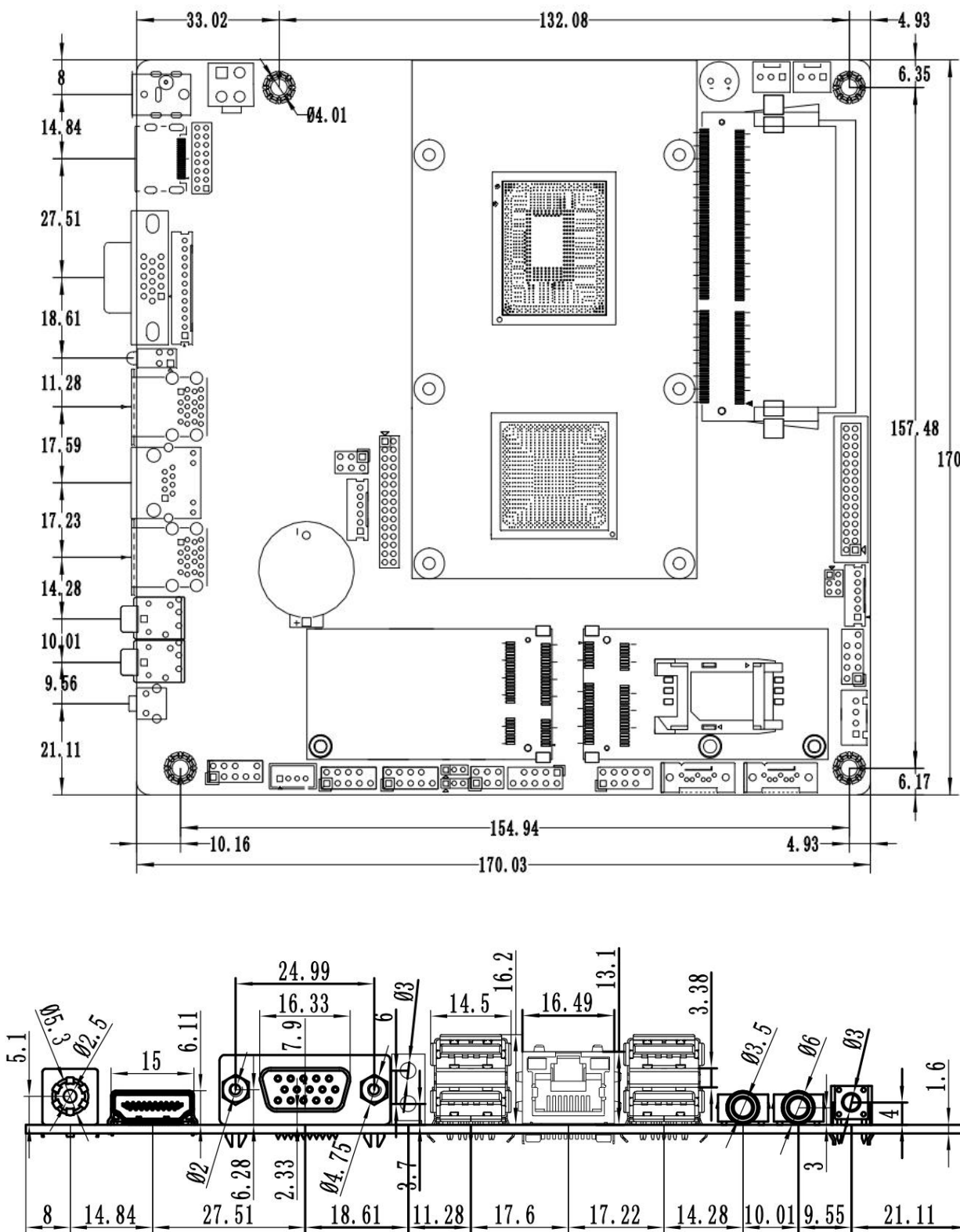
Product Collection	CPU Model	Cores	Base Frequency GHz	Turbo Frequency GHz	TDP (W)
Celeron	1007U	2	1.5	/	17
	1037U		1.8	/	
	2117U		1.8	/	
Core	I3-3217U		1.8	/	
	I3-3227U		1.9	/	
	I5-3317U		1.7	2.6	
	I5-3337U		1.8	2.7	
	I5-3427U		1.8	2.8	
	I5-3437U		1.9	2.9	
	I7-3517U		1.9	3.0	
	I7-3537U		2.0	3.1	
	I7-3667U		2.0	3.2	
	I7-3687U		2.1	3.3	
	I3-2310M	2.1	/	35	
	I3-2330M	2.2	/		
	I3-2350M	2.3	/		
	I3-2370M	2.4	/		
	I5-2410M	2.3	2.9		
	I5-2430M	2.4	3.0		
	I5-2520M	2.5	3.2		
	I5-2540M	2.6	3.3		
	I7-2620M	2.7	3.4		
	I7-2640M	2.8	3.5		
	I3-3110M	2.4	/		
	I3-3120M	2.5	/		
	I3-3130M	2.6	/		
	I5-3210M	2.5	3.1		
	I5-3230M	2.6	3.2		
	I5-3320M	2.6	3.3		
	I5-3340M	2.7	3.4		
I5-3360M	2.8	3.5			
I5-3380M	2.9	3.6			
I7-3520M	2.9	3.6			
I7-3540M	3.0	3.7			

Chapter One Motherboard specifications

Form Factor	Thin Mini-itx	
Physical Dimension	170*170*25mm(L*W*H)	
CPU	Support Intel Sandy Bridge,Ivy Bridge, Celeron, Pentium,Core i3 i5 i7 processors	
Chipset	Intel 6 series chipset: HM65,HM67,QM67,etc; Intel 7 series chipset: HM70,HM76,HM77,NM70,QM77,etc.	
Power Supply	1*DC_IN	DC port size:5.5*2.5MM; Support DC12V ◆ CPU TDP:17W When the motherboard has a U-series CPU, its full load power consumption is about 35W. It is recommended to use a 12V 5A and above power adapter.
	1*DC_PWR	◆ CPU TDP:35W When the motherboard has a M-series CPU, its full load power consumption is about 60W. It is recommended to use a 12V 7A and above power adapter.
Memory	1*DIMM slot	NB-DDR3 1600MHz Memory slot,up to 8GB RAM.
Ethernet	1*RJ45 LAN interface	Option 1: Realtek 8111H 1000Mbps LAN chip; Option 2: Realtek 8106E 100Mbps LAN chip; Support Wake on LAN,PXE function.
	1*MINI_PCIE interface	Support WIFI module;Option 3G/4G/Bluetooth&WiFi module.
Display Function	Graphics	Integrated Intel HD Graphics 3000/4000 in CPU; Support single display,dual display copy/expansion,single display under DOS.
	1*VGA DB15 interface	Support resolution 1920*1080@60Hz
	1*VGA_H pin	Support resolution 1920*1080@60Hz (12Pin,1*12Pin,2.0mm)
	1*HDMI 1.4 interface	Support resolution 1920*1080@60Hz
	1*HDMI_CON pin	Support resolution 1920*1080@60Hz (16Pin,2*8Pin,2.0mm)
	1*EDP1 pin	Support resolution 1920*1080@60Hz (30Pin,2*15Pin,2.0mm)
	1*EDP1_PWR pin	EDP1 voltage control pin (6Pin,2*3Pin,2.0mm)
	1*INVERT2 pin	EDP1 backlight control pin (6Pin,1*6Pin,2.0mm)
	1*LVDS/EDP2 pin	Support resolution 1920*1080@60Hz (30Pin,2*15Pin,2.0mm)
USB Function	1*LVDS_PWR1 pin	LVDS/EDP2 voltage control pin (6Pin,2*3Pin,2.54mm)
	1*INVERT1 pin	LVDS/EDP2 backlight control pin (6Pin,1*6Pin,2.0mm)
	2*USB3.0 interfaces	Rear standard USB3.0 interface ◆ When the motherboard has Intel 6 series/NM70/HM75 chipset ,the blue USB interfaces are USB2.0,no USB3.0; ◆ When the motherboard has Intel 7 series chipset(Except NM70/HM75),the blue USB interfaces are USB3.0.
	2*USB2.0 interfaces	Rear standard USB2.0 interface

	1*F_USB1 pin	Front USB2.0 pin;One group has 2*USB2.0 (9Pin,2*5Pin,2.54mm)
	1*F_USB2 pin	Front USB2.0 pin;One group has 2*USB2.0 (9Pin,2*5Pin,2.54mm)
Sound Function	Option 1: Integrated Realtek ALC660/662/892 HD digital audio decoder; Option 2: Integrated CJC6811A USB Digital audio controller.	
	1*LIN_OUT interface	Support Audio output
	1*MIC_IN interface	Support Microphone input
	1*JAMP pin	This is the amplifier pin. It supports 8 Ω 5W speaker. (4Pin,1*4Pin,2.0mm)
	1*F_AUDIO pin	Standard Audio pin (9Pin,2*5Pin,2.54mm)
Hard Disk	1*MSATA interface	Standard Mini SATA2.0 interface(MSATA2.0)
	1*SATA1 interface	Standard SATA3.0 interface
	1*SATA2 interface	Standard SATA2.0 interface
	1*SATA_PWR pin	It is hard disk power supply pin and can take the 5V,12V electricity. (4Pin,1*4Pin,2.54mm)
Switch	1*F_PANEL pin	Switch, power supply light, hard disk light, restart pin. (9Pin,2*5Pin,2.54mm)
Serial Port	2*COM pins	Support standard RS232; (9Pin,2*5Pin,2.54mm) Not support RS485.
	1*JP1 pin	Control the 9th pin of the COM2 to choose optional 0V/5V/12V; (6Pin,2*3Pin,2.0mm)
Other I/O	1*SIM_SLOTA slot	Support SIM card. A SIM card is required when using 3G/4G function.
	1*CLR_CMOS pin	Motherboard discharges,clears pin. (3Pin,1*3Pin,2.54mm)
	2*FAN pins	Fan pin; Does not support temperature control. (3Pin,1*3Pin,2.54mm)
	1*GHOST button	One-key recovery system(Ghost) button
	1*PWR_LED	Power LED(Green); After starting, the LED keeps on.
	1*HDD_LED	Hard Disk LED(Red); After connecting the hard disk, starting, the LED flashing.
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,Windows XP,Linux,etc.	



1.1 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_H (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_H pin signal is the same signal as the rear VGA port,and only support dual display copy,display brightness will decrease.

2.2 HDMI pin definition:

Position symbol: HDMI_CON (2*15Pin,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 pin definition:

Notice: LVDS and EDP2 use this pin together.

By default, this pin is LVDS. Option EDP2.

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 motherboard. If the port is reversed or inserted incorrectly, there is a danger of burning the screen and burning the motherboard!

2.3.1 Backlight power supply definition:

Notice: LVDS and EDP2 use this pin together.

Position symbol: INVERT1 (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 Screen working voltage:

Notice: LVDS and EDP2 use this pin together.

Position symbol: LVDS_PWR (2*3Pin,2.54mm)		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 "LVDS_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 EDP1 pin definition:

Position symbol: EDP1 (2*15Pin,2.0mm)				pin position symbol drawing:
pin	definition	pin	definition	
1	3.3V	2	3.3V	
3	VCC	4	VCC	
5	VCC	6	VCC	
7	GND	8	GND	
9	TXP0	10	TXN0	
11	GND	12	GND	
13	TXP1	14	TXN1	
15	GND	16	GND	
17	TXP2	18	TXN2	
19	GND	20	GND	
21	TXP3	22	TXN3	
23	GND	24	GND	
25	AUXP0	26	AUXN0	
27	GND	28	GND	
29	GND	30	HPD_R	

⚠ Notice: When inserting the EDP1 cable, the first pin of the EDP1 cable must correspond to the first pin of the EDP1 pin on motherboard. If the port is reversed or inserted incorrectly, there is a danger of burning the screen and burning the motherboard!

2.4.1 EDP1 Backlight power supply definition:

Notice: Only works on EDP1

Position symbol: INVERT2 (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	

2.4.2 EDP1 Screen working voltage:

Notice: Only works on EDP1

Position symbol: EDP1_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 "EDP1_PWR" according to the working voltage required by the screen, otherwise there will be danger of burning the screen and burning the motherboard!

2.5 EDP2 pin definition:

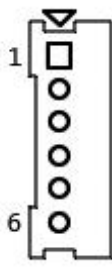
Notice: LVDS and EDP2 use this pin together.

Position symbol: LVDS/EDP2 (2*15Pin,2.0mm)				pin position symbol drawing:
pin	definition	pin	definition	
1	VCC	2	VCC	
3	VCC	4	HPD	
5	GND	6	GND	
7	TX0N	8	TX0P	
9	TX1N	10	TX1P	
11	NC	12	NC	
13	GND	14	GND	
15	AUX-	16	AUX+	
17	GND-	18	GND	
19	TX2N	20	TX2P	
There is no signal from 21Pin~30Pin.				

⚠ Notice: When inserting the EDP2 cable, the first pin of the EDP2 cable must correspond to the first pin of the EDP2 pin on motherboard. If the port is reversed or inserted incorrectly, there is a danger of burning the screen and burning the motherboard!

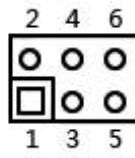
2.5.1 EDP2 Backlight power supply definition:

Notice: LVDS and EDP2 use this pin together.

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	

2.5.2 EDP2 Screen working voltage:

Notice: LVDS and EDP2 use this pin together.

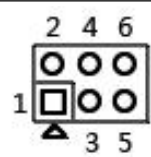
Position symbol: LVDS_PWR2 (2*3Pin,2.0mm)		pin position symbol drawing:
pin	definition	
1-2 short circuit	+3.3V	
3-4 short circuit	+5V	
5-6 short circuit	+12V	

⚠️ 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 "LVDS_PWR2" according to the working voltage required by the screen, otherwise there will be danger of burning the screen and burning the motherboard!

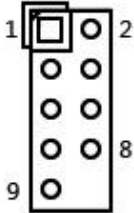
2.6 Serial port(COM) function and pin definition:

The COM pins only support RS232.

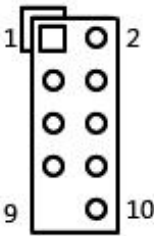
The 9th pin of the COM2 can set the JP1 jumper pin to output +5V or +12V voltage.

Position symbol: JP1 (2*3Pin,2.54mm)		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	

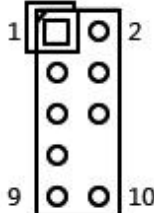
2.6.1 COM1 COM2 pin definition:

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	

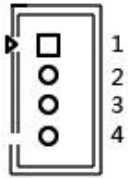
2.7 USB pin definition:

Position symbol: F_USB1/2 (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	

2.8 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	RET_R	
7	SENSE	8	NC	
9	LINE OUT-L	10	RET_L	

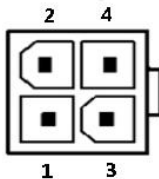
2.9 Speaker(Power Amplifier) pin definition:

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

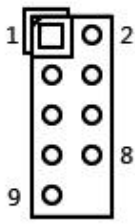
2.10 Power supply and switch pin definition:

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

4PIN ATX definition:

Position symbol: DC_PWR1 (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+	Hard Disk LED	2		PWRLED+	Power LED
3	HDLED-		4		GND	
5	GND	Restart	6		GND	Switch
7	RST		8		P_SW IN	
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.

2.11 Hard Disk interface and definition:

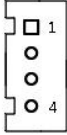
The motherboard provides:

- ◆ 1*MSATA2.0 slot(SATA protocol);
- ◆ 1*SATA3.0 hard disk interface;
- ◆ 1*SATA2.0 hard disk interface;
- ◆ 1*4Pin hard disk power supply voltage interface.

SATA1 SATA2 definition:

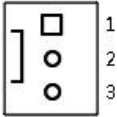
Position symbol: SATA1 SATA2	
pin	definition
1	GND
2	SATA_TXP
3	SATA_TXN
4	GND
5	SATA_RXN
6	SATA_RXP
7	GND

SATA_PWR1 definition:

Position symbol: SATA_PWR1 (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_PWR1" 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.

2.12 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)	

2.13 Motherboard discharges,clears and its 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:

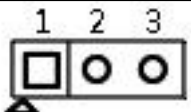
- (1) Turn off the motherboard and disconnect the power.
- (2) Use metal conductors to briefly connect the pin2,pin3 of "CLR_CMOS" for 5~6 seconds,then return to pin1 to pin2.
- (3) When booting up, press "Delete" to enter the BIOS.
- (4) After entering the BIOS, press "F9" ,"Enter" to reload the optimal 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*3Pin,2.0mm)		pin position symbol drawing:
pin	Function	
1-2 short circuit	Boot normally(Default)	
2-3 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 pin definition:

Button battery specification: 3V CR2032

Position symbol: BAT (1*2Pin)	
pin	definition
1	Positive pole
2	Negative pole

Notice:

- ◆ Please make sure that the positive and negative poles of the battery correspond to the pins of the motherboard.
- ◆ Please make sure the battery is facing up.
- ◆ Please make sure the battery voltage is enough 2.8V~3V.
- ◆ Please must use the same model or the manufacturer recommend the same type of battery.
- ◆ If the battery is not replaced correctly, there is a danger of explosion!

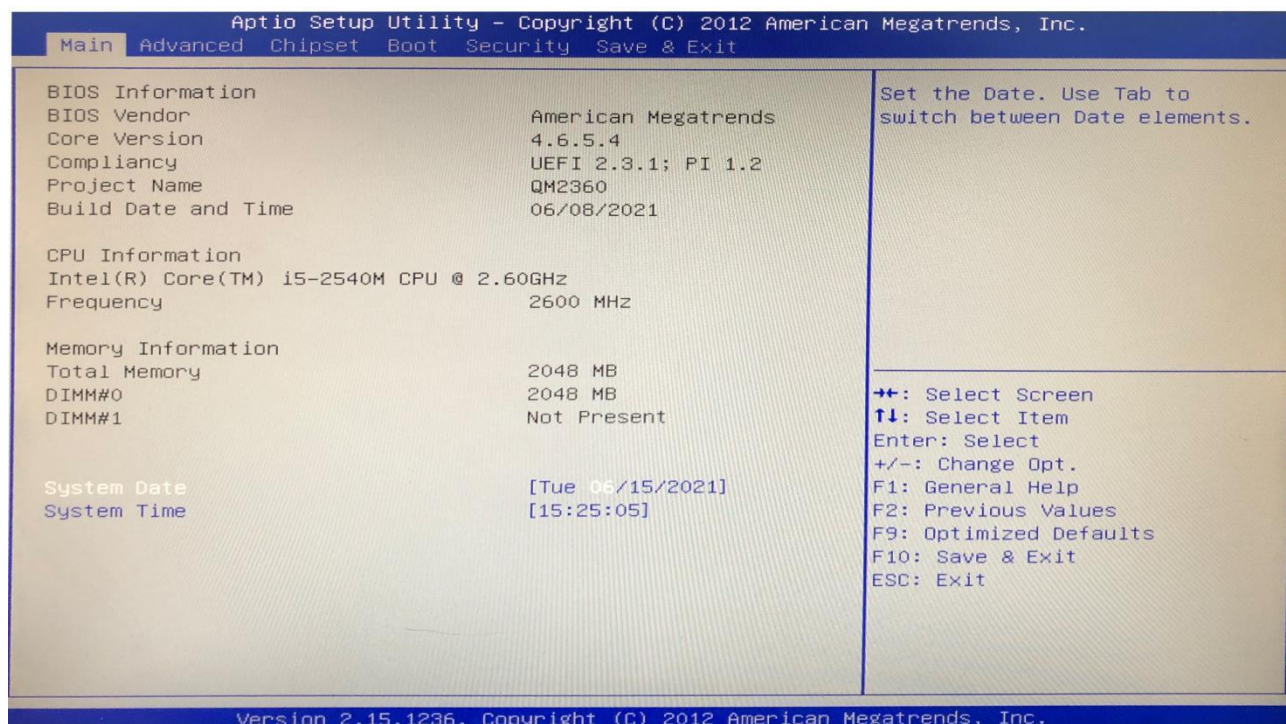
Chapter Three BIOS Setup

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?

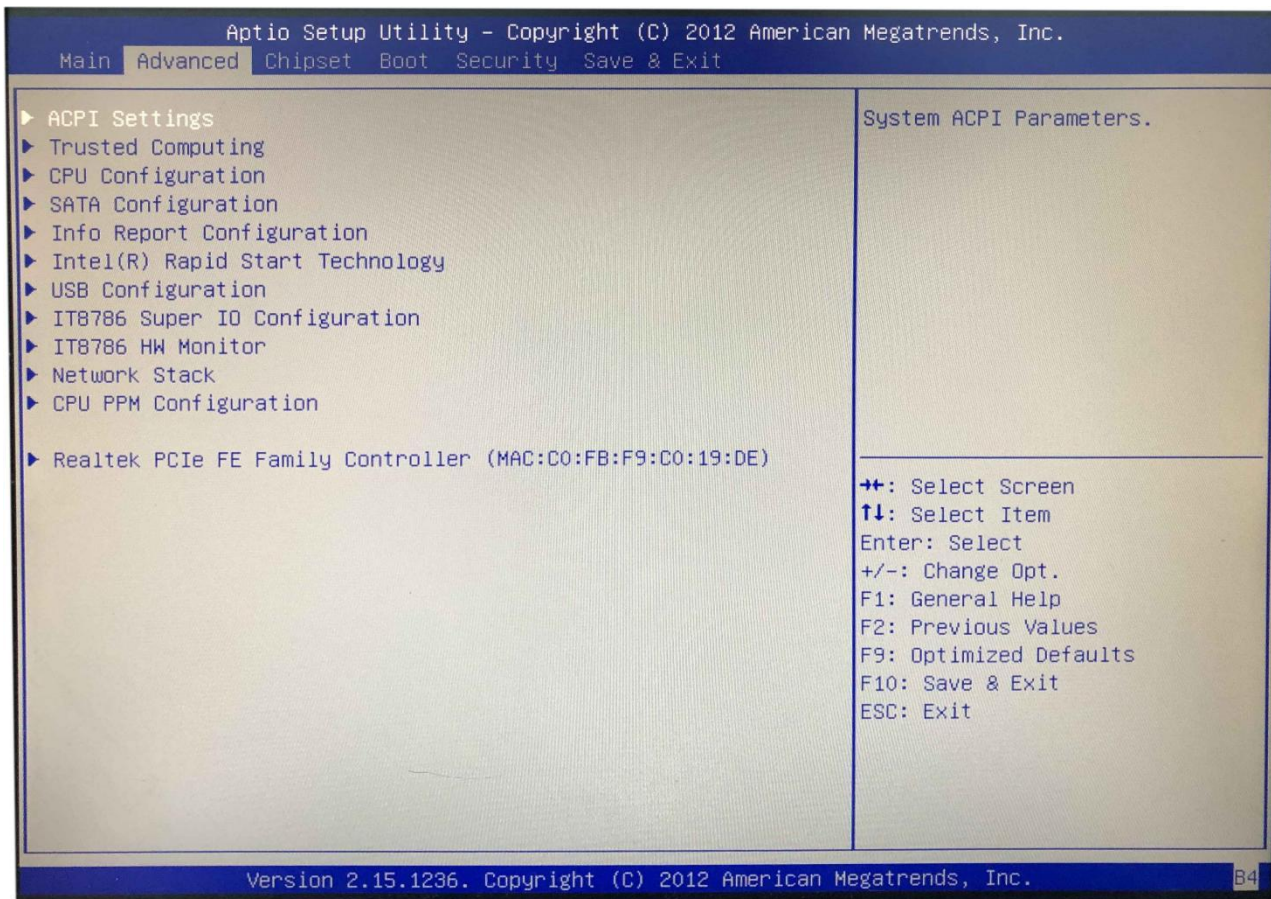
- ◆ Method 1 : After starting, press "Delete" continuously to enter the BIOS directly.
- ◆ Method 2 : Press "F11" continuously after booting, then select "Enter Setup" to enter the BIOS.

3.1 Main:



- (1) BIOS Vendor: American Megatrends
- (2) Core Version: 4.6.5.4
- (3) Build Date and Time: 06/08/2021
- (4) CPU Information:
- (5) Memory Information:
- (6) System Date: Week Month/Day/Year
- (7) System Time: Hour/Minute/Second

3.2 Advanced:



(1) **ACPI Settings:** Advanced configuration and power supply management interface setting.

(2) **Trusted Computing:**

(3) **CPU Configuration:** CPU parameter information and common setting options.

(4) **SATA Configuration:** Hard disk mode settings and hard disk information.

(5) **Info Report Configuration:**

(6) **Intel(R) Rapid Start Technology:**

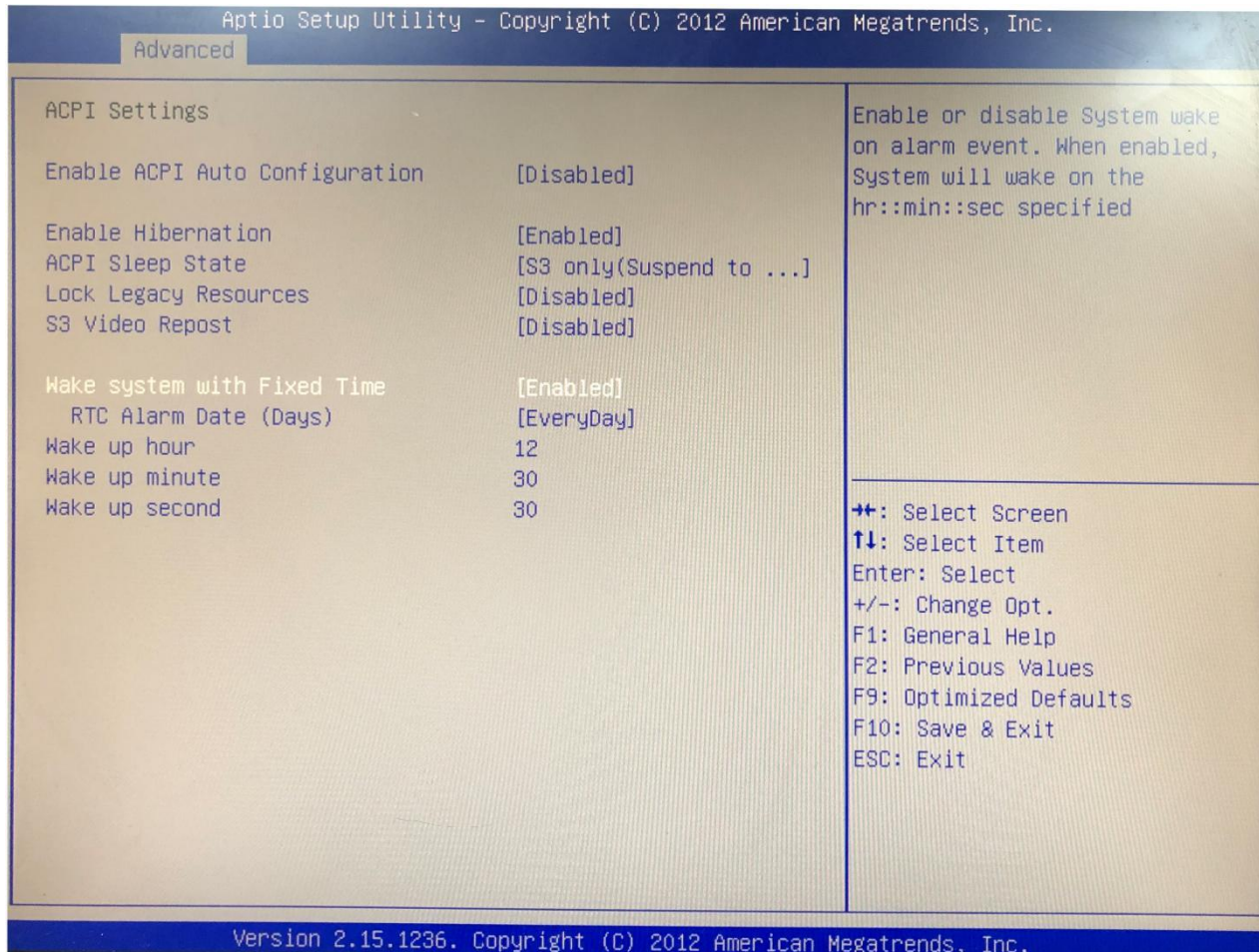
(7) **USB Configuration:**

(8) **IT8786 Super IO Configuration:** If the motherboard does not have COM pin, this option is not available.

(9) **IT8786 HW Monitor:** This is the IT8786 hardware monitor and it monitors PC Health Status.

(10) **CPU PPM Configuration:** CPU power supply management configuration.

3.2.1 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 the S3/STR sleep mode is awakened,BIOS POST function of the VGA is turned on as well.By default, the motherboard is set to "Disabled" .

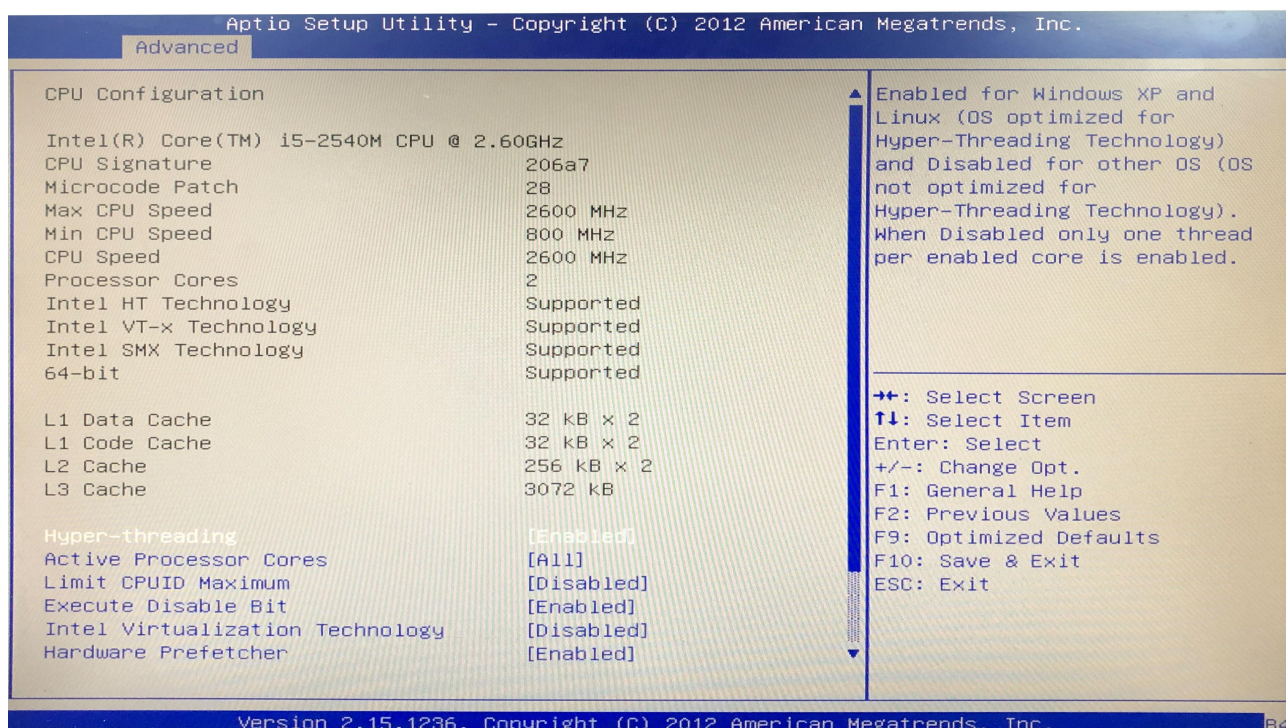
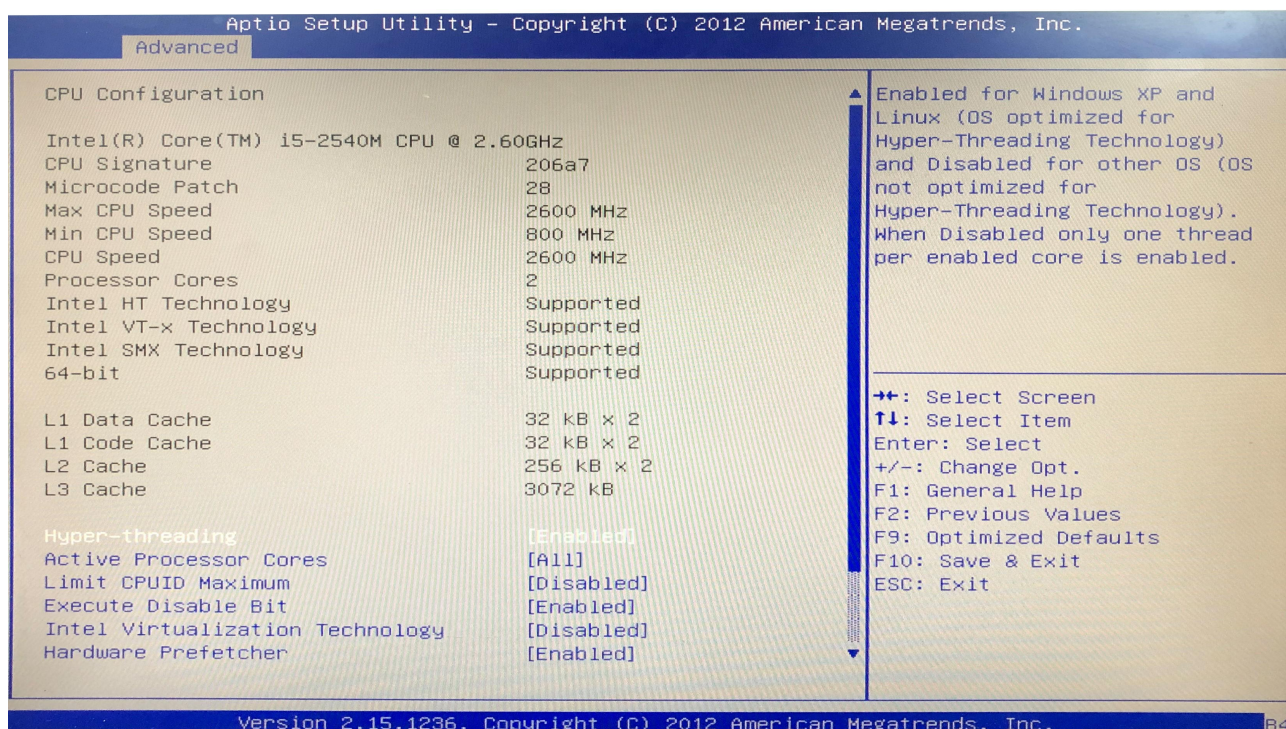
3.2.2 Wake system with Fixed Time

Wake system with Fixed Time: 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):
- ◆ Wake up hour:
- ◆ Wake up minute:
- ◆ Wake up second:

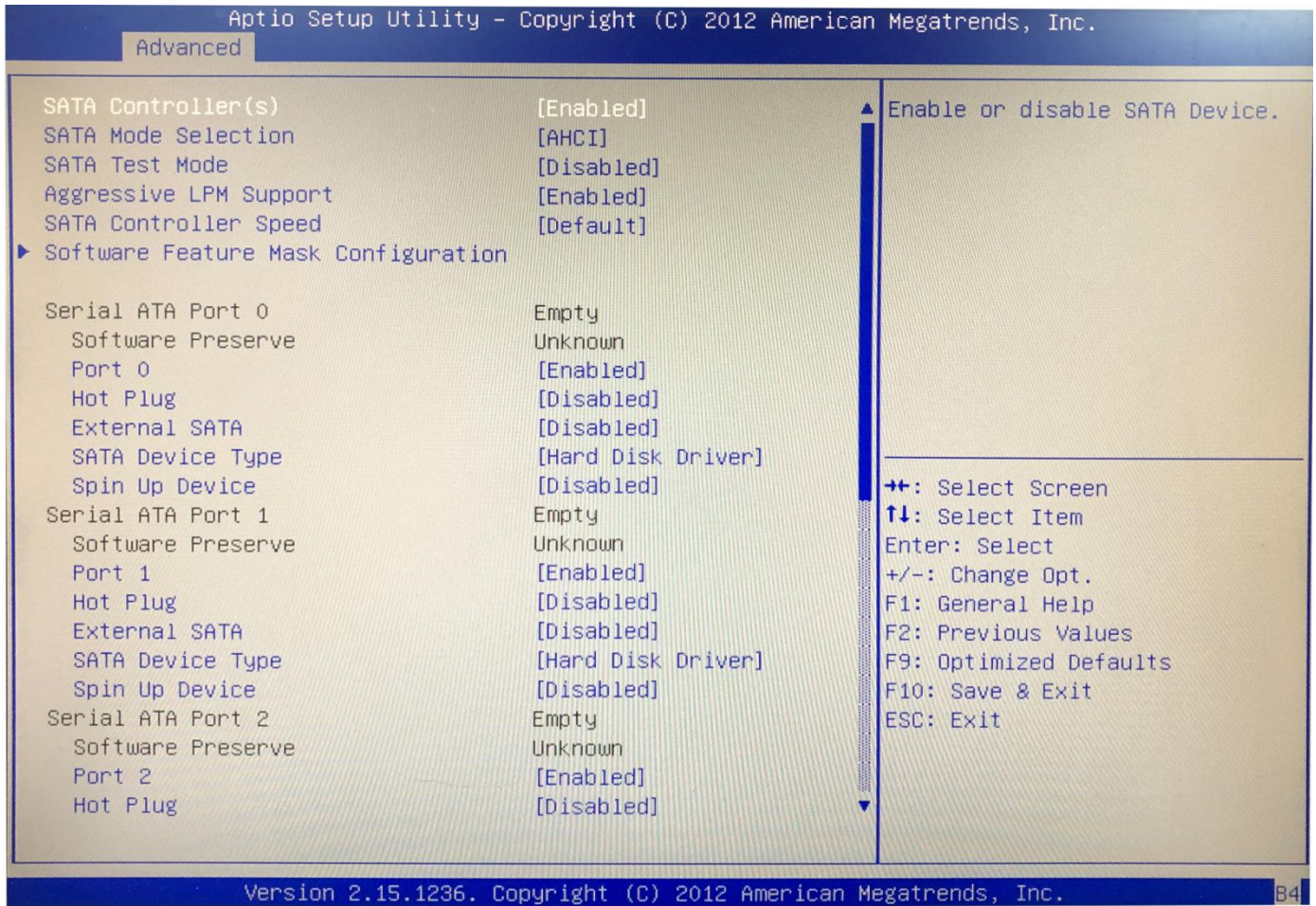
3.2.3 CPU Configuration:



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

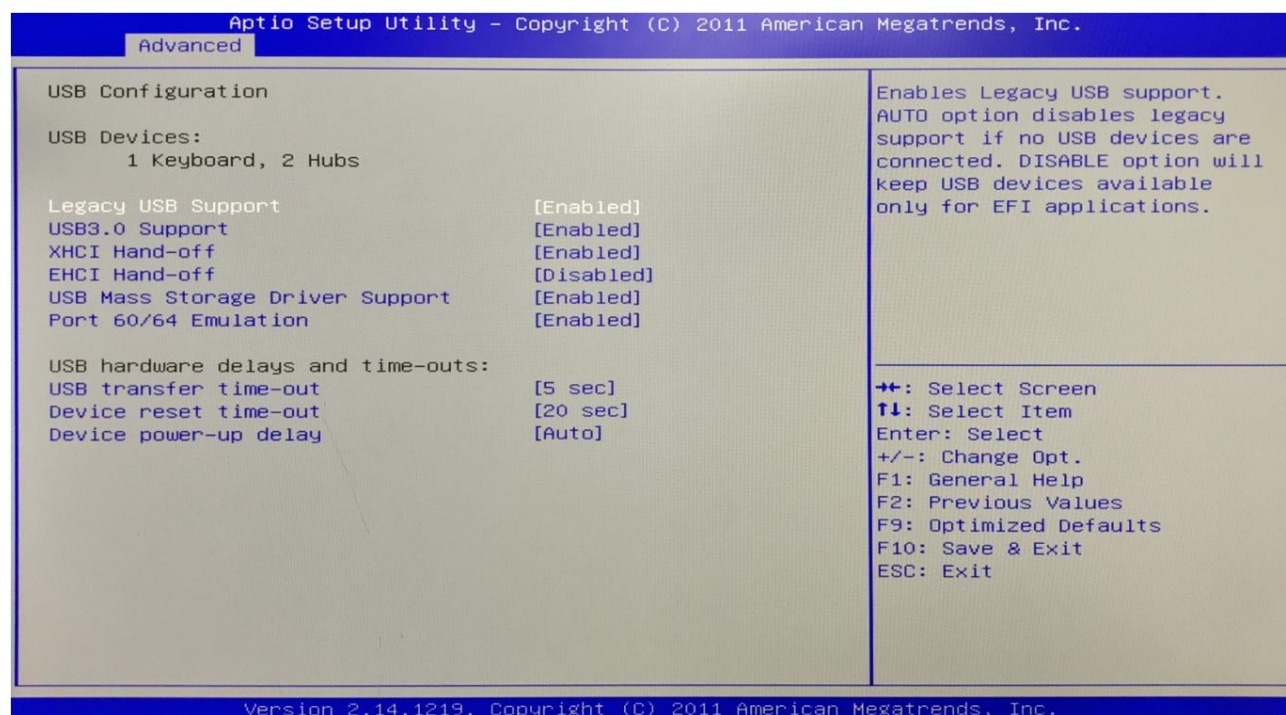
It specifically includes information such as CPU manufacturer, model, frequency, level 1 cache capacity, and level 2 cache capacity,etc.

3.2.4 SATA Configuration(Hard Disk Configuration)



- (1) **SATA Controller:**
- (2) **SATA Mode Selection: AHCI or IDE**
- (3) **SATA Test Mode:**
- (4) **IDE Legacy / Native Mode Selection:**

3.2.5 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 switch the USB hub into USB2.0 mode before entering the OS.

(4) USB Mass Storage Driver Support:

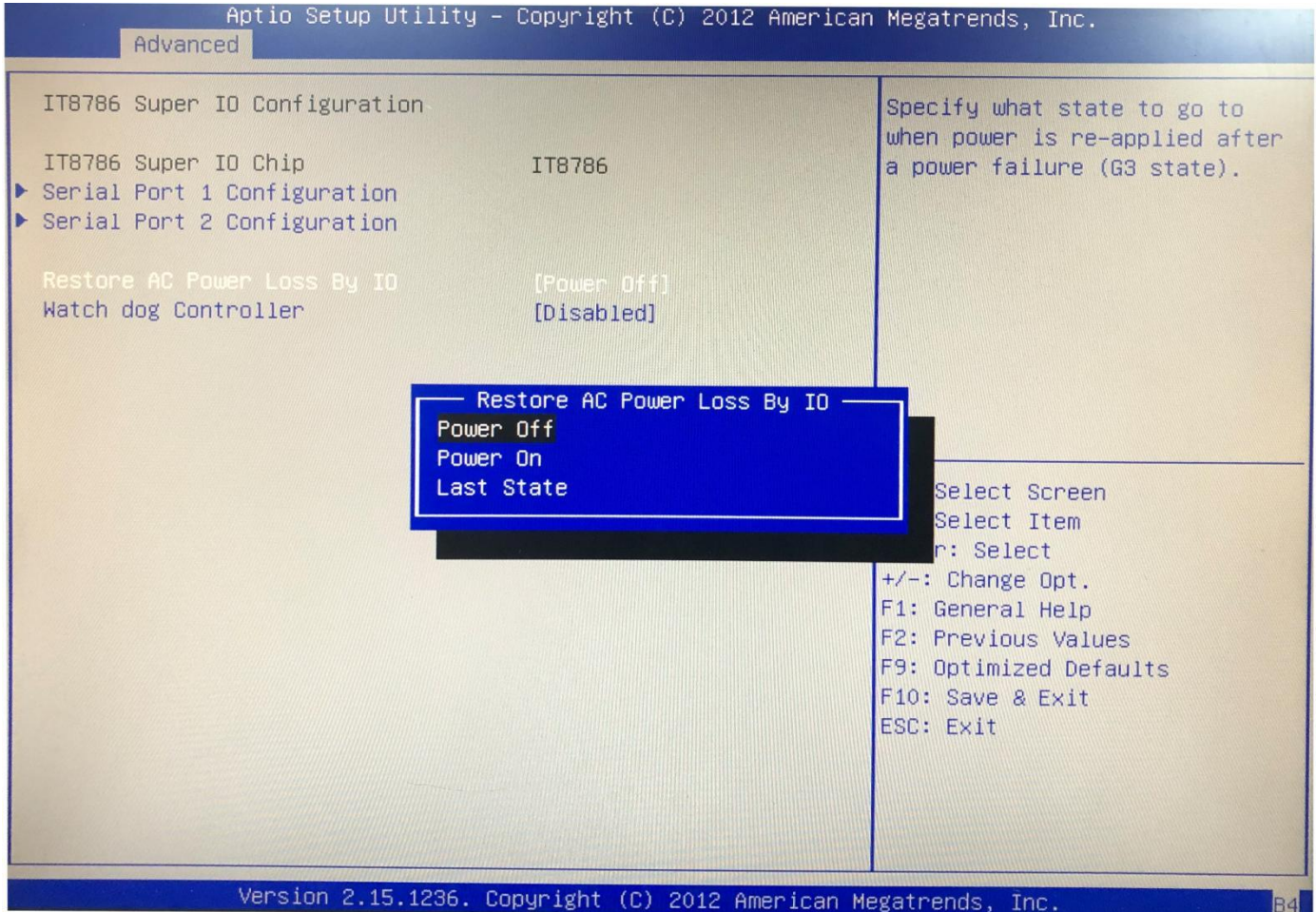
(5) USB Transfer time-out: Set the time-out of the control, batch, and interrupt transmission. By default, the time is set to"5 sec".

(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.

3.2.6 Super IO Configuration:

Notice:If the motherboard does not have COM pin,this option is not available.



- (1) Serial Port 1 Configuration: COM1
- (2) Serial Port 2 Configuration: COM2
- (3) Watch dog Controller:

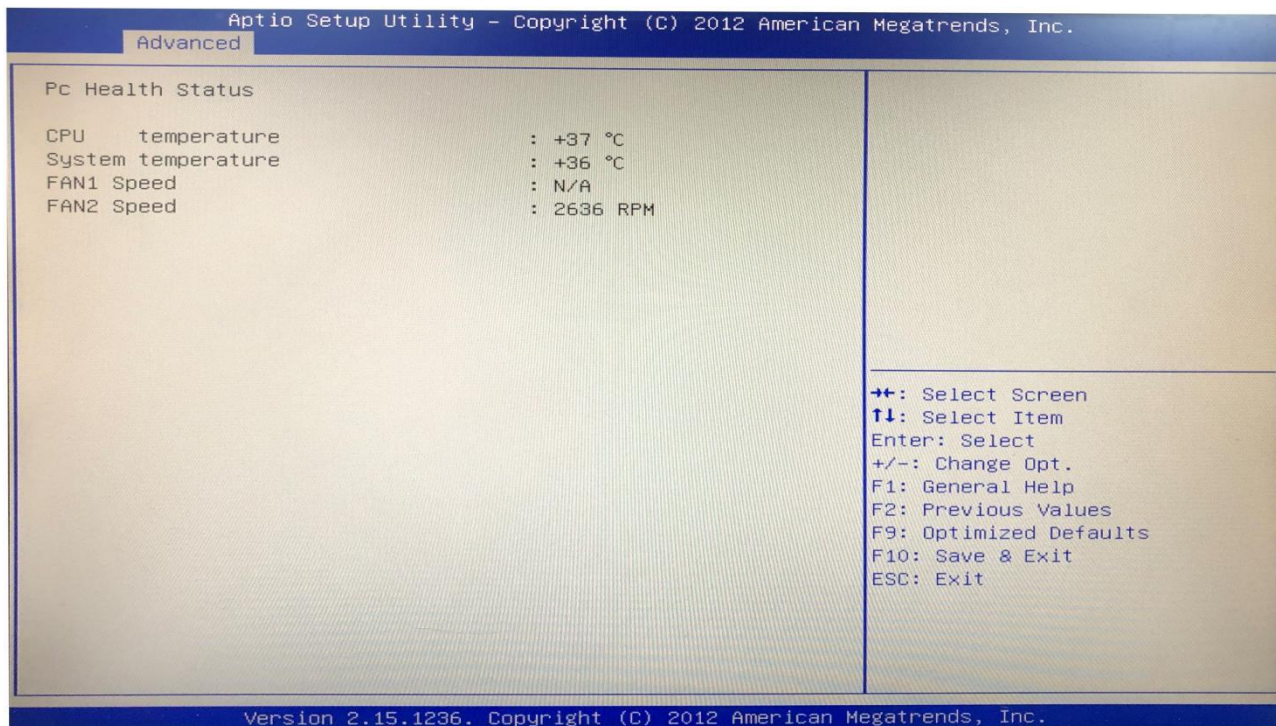
3.2.7 Power On by BIOS setting

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".

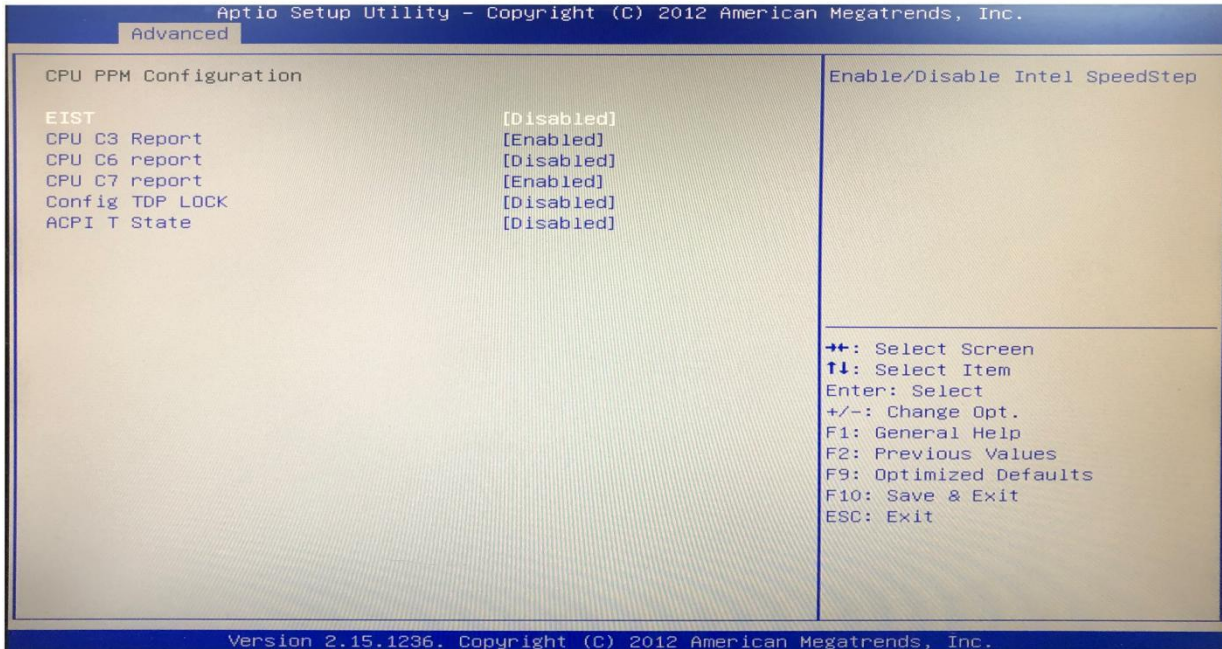
3.2.8 IT8786 Hardware Monitor



Monitor PC Health Status:

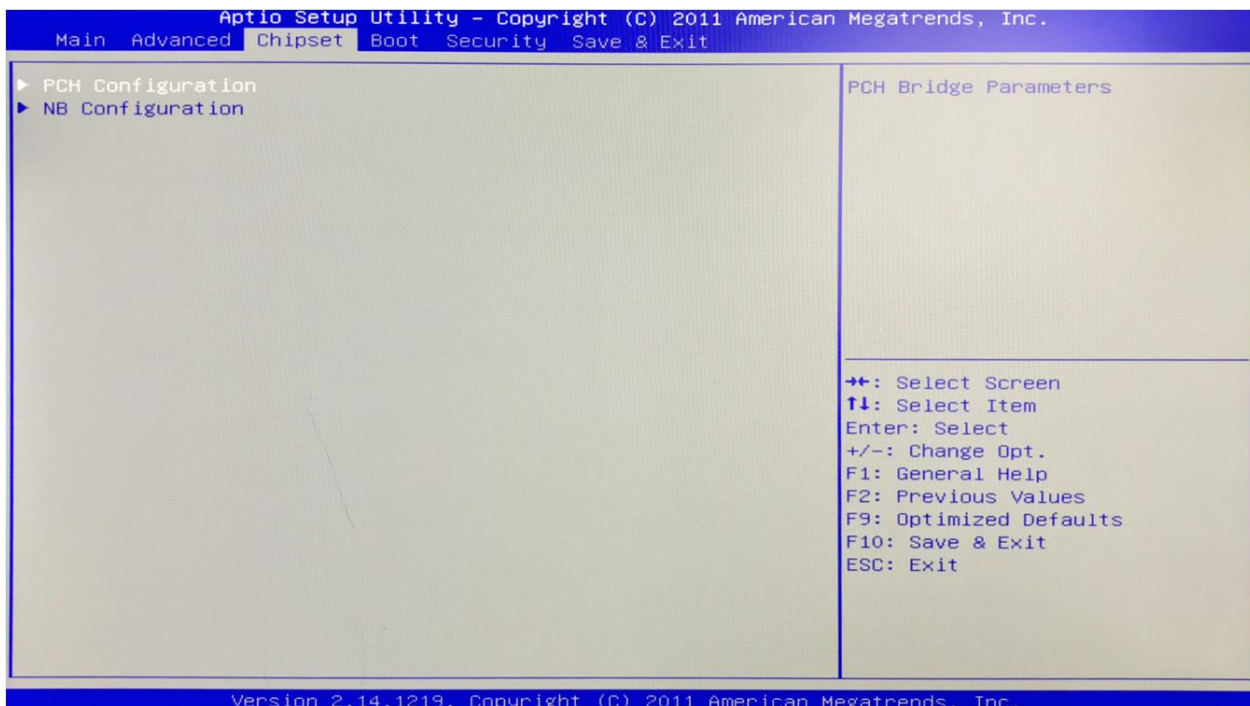
- (1) CPU temperature
- (2) System temperature
- (3) FAN1 speed
- (4) FAN2 speed

3.2.9 CPU power supply management configuration



EIST: This is an intelligent frequency reduction technology. The motherboard is "Disabled" by default. It supports CPU Turbo Frequency after "Enabled" .

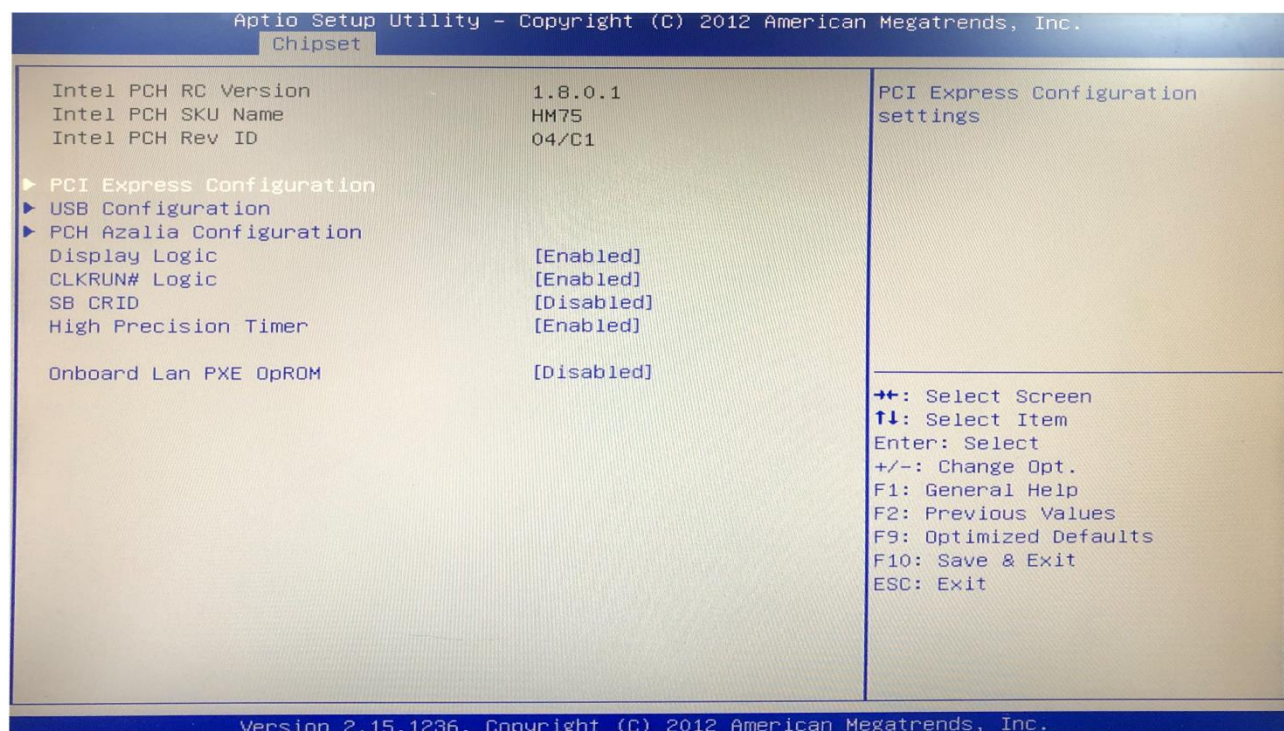
3.3 Chipset:



PCH Configuration: It is South Bridge Configuration. It includes PCI-E,USB,PXE options.

NB Configuration: It is North Bridge Configuration. It includes video memory,display device options.

3.3.1 PCH Configuration(South Bridge)



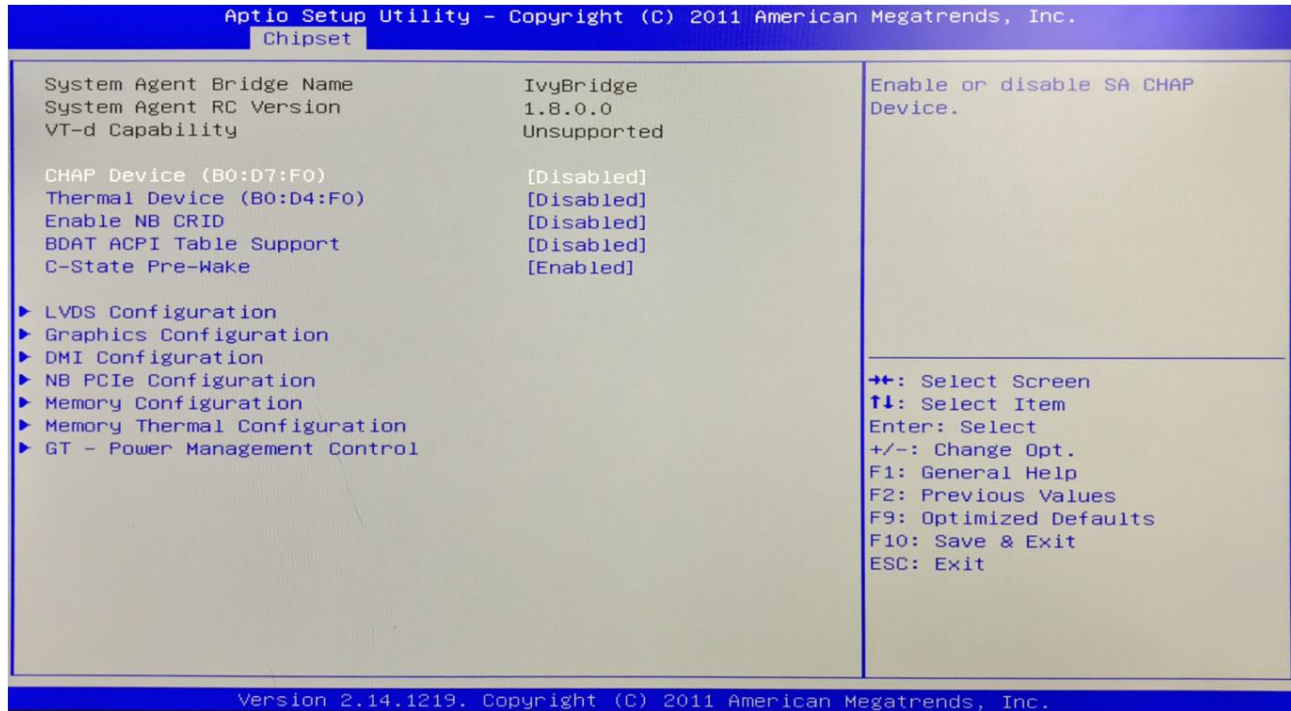
(1) PCI Express Configuration:

(2) USB configuration:

(3) PCH Azalia Configuration: This item is South Bridge Sound card setting.

(4) Onboard Lan PXE OpROM: This item is the network PXE switch(Diskless boot).The "Disabled" is turn off; The "Enabled" is turn on.

3.3.2 NB Configuration(North Bridge)



(1) LVDS Configuration:

(2) Graphics Configuration:

(3) DMI Configuration:

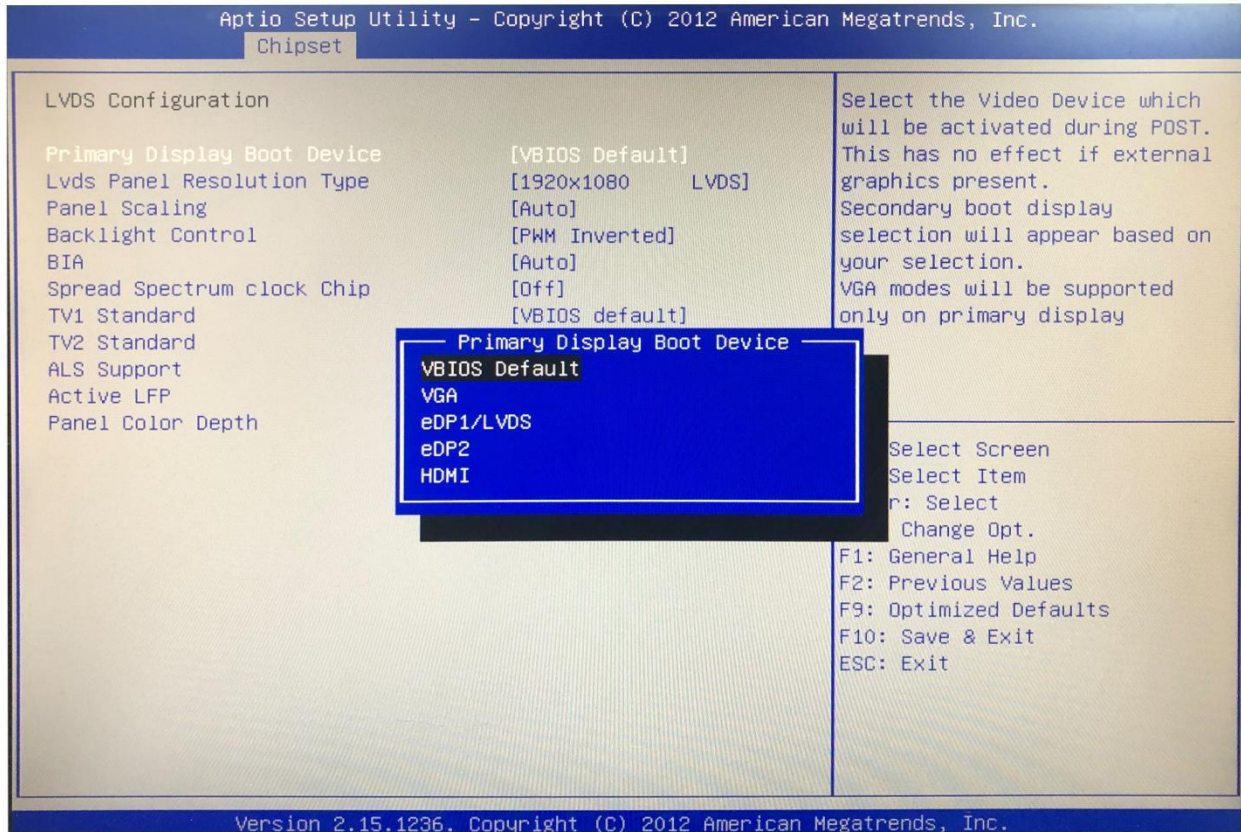
(4) NB PCIE Configuration: North Bridge PCIE Configuration

(5) Memory Configuration:

(6) Memory Thermal Configuration:

(7) GT-Power Management Control:

3.3.3 LVDS Configuration:



(1) Primary Display Boot Device:

This is the guide of the first display device. The "VBIOS Default" is automatically recognized. You can also set it to VGA / EDP1/LVDS /EDP2/ HDMI.

If the primary display boot device is VGA / EDP1/LVDS /EDP2/ HDMI, the secondary display boot Device will be added. Please select the corresponding device.

(2) LVDS Panel Resolution Type:

This is an option of the LVDS resolution. It only works for LVDS.

(3) Panel Scaling:

(4) Backlight Control:

This is the backlight control option.

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

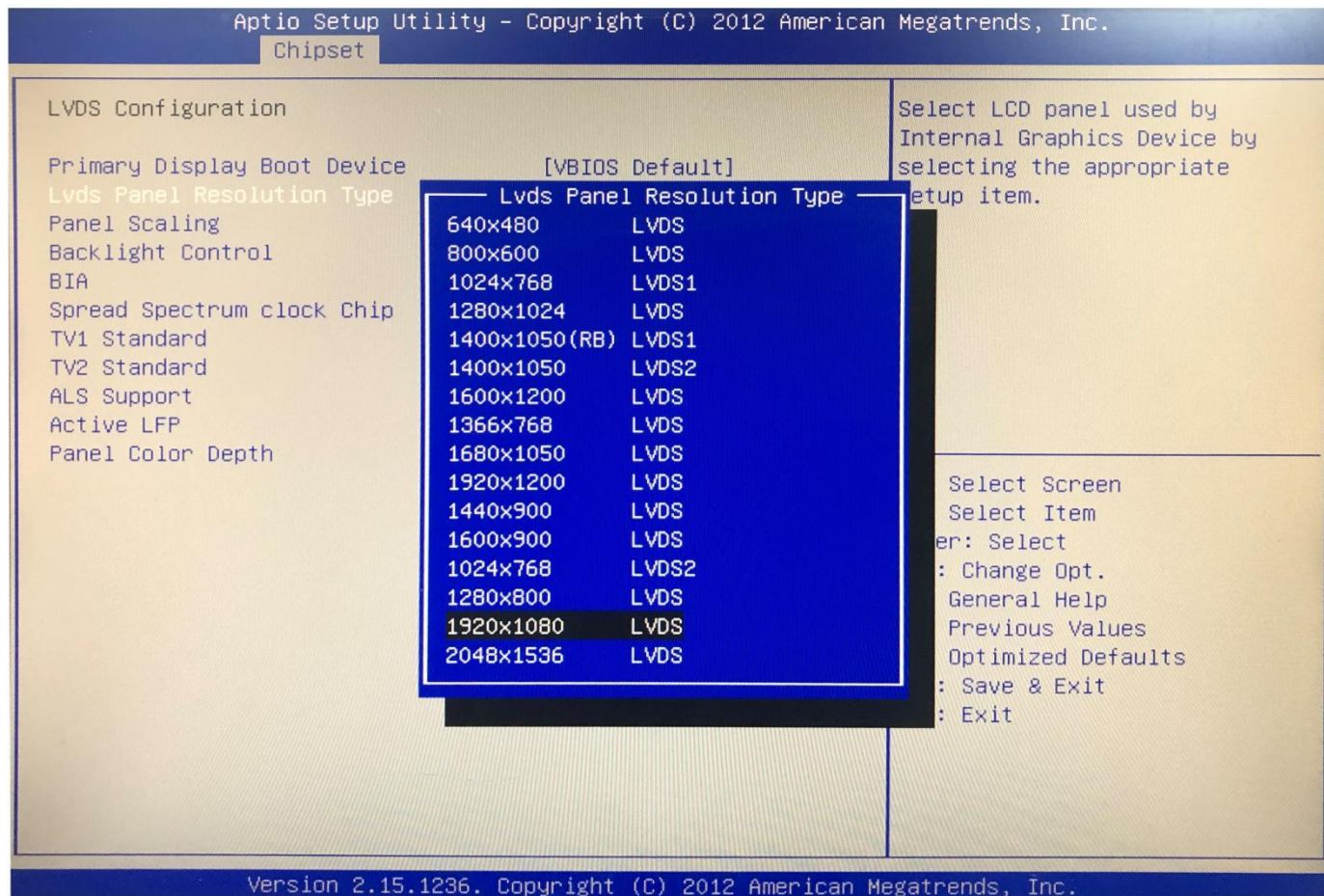
(5) Active LFP:

It is LVDS switch. The "Disabled" is turn off; The "Enabled" is turn on.

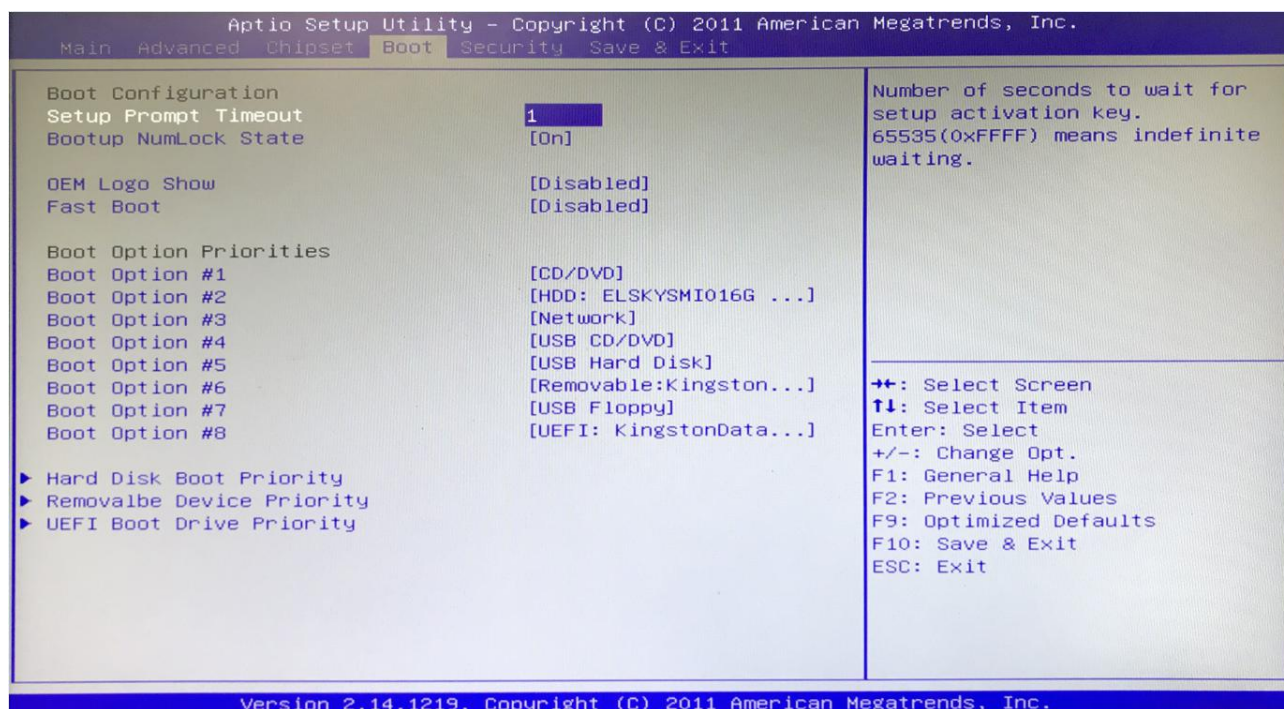
(6) Panel Color Depth:

It has 18 bit and 24 bit options (According to the corresponding number of bits on the screen).

3.3.4 LVDS Resolution List:



3.4 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" .

Warm reminder:If the computer's configuration is very advanced and starts is fast.And you want to see your customized logo on screen. You can set larger value in Setup Prompt Timeout,the logo will disappear more slowly,the computer will delay loading the system. Recommend: "Setup Prompt Timeout : 3" .

(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) OEM Logo Show:

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.

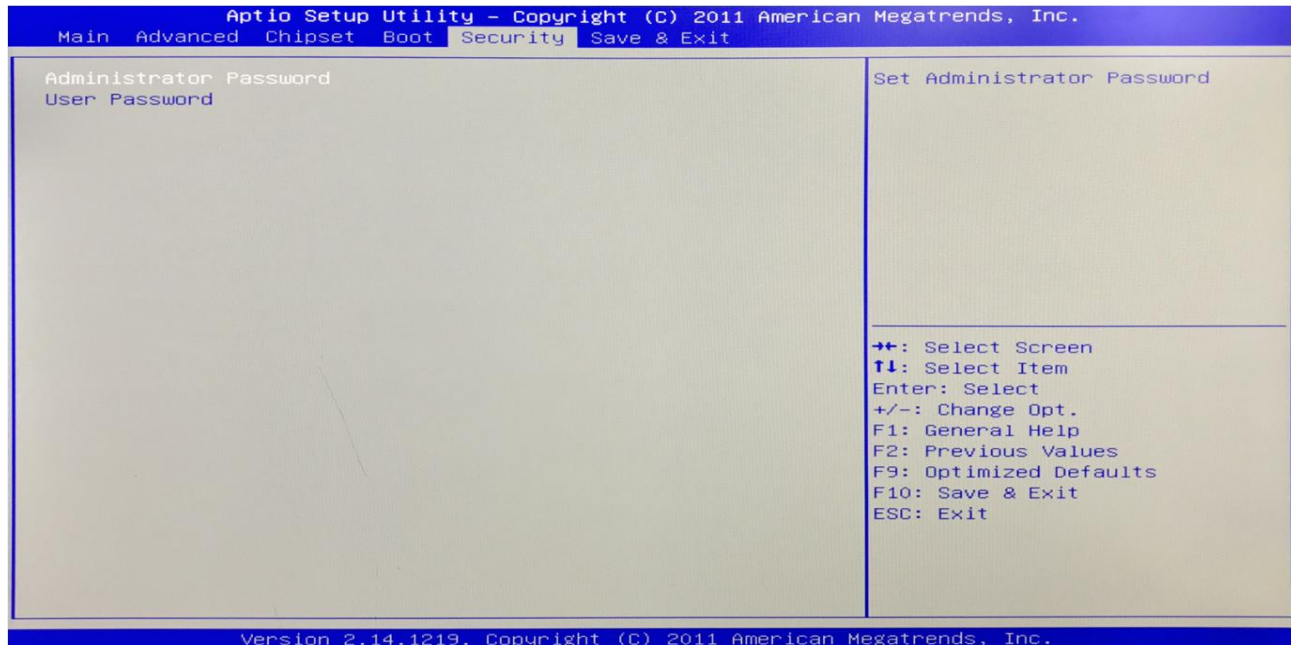
(5) **Boot Option Priorities:** The system will detect the device in the set order. Find a device that can be booted and it will boot from this device.The "Boot Option #1" is the priority boot device.

(6) **Hard Disk Boot Priority:** It is used for hard disk(SSD).

(7) **Removalbe Device Priority:** This is the mobile device boot priority setting(e.g. USB flash disk).

(8) **UEFI Boot Drive Priority:** It can also be used in Ubuntu system.

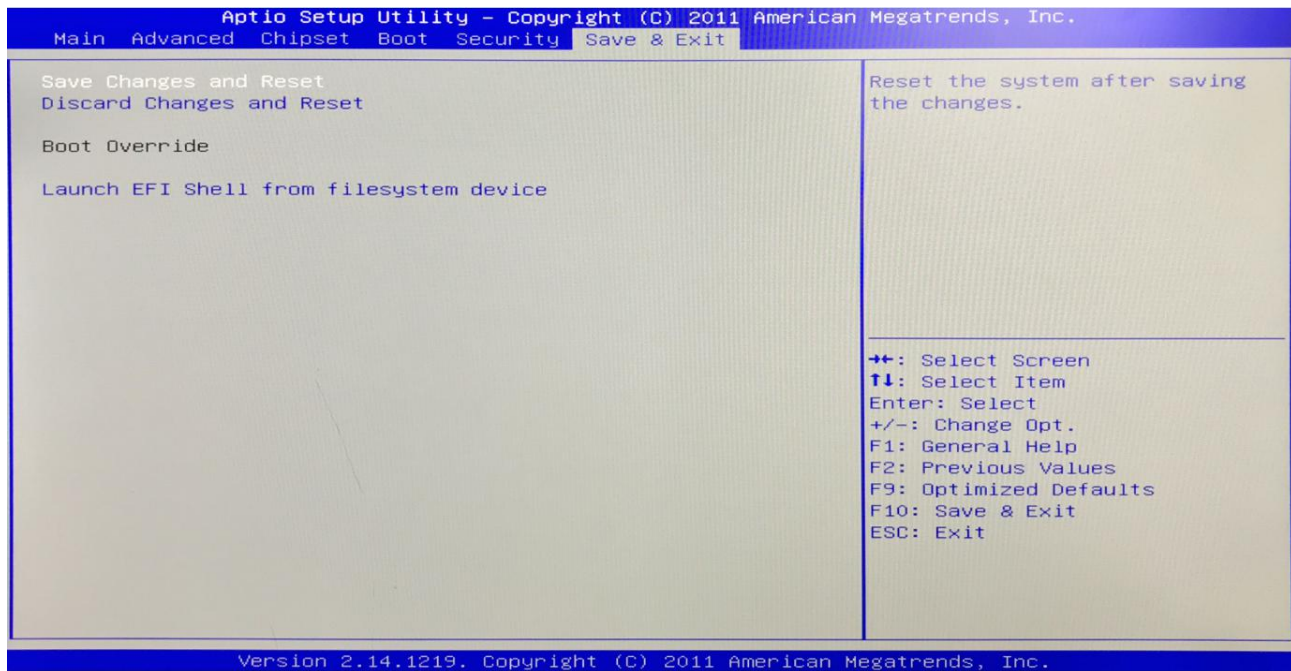
3.5 Security(Password Settings)



Administrator Password: It is used to set the superuser password.

User Password: It is used to set the normal user password.

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 SATA hard disk,USB flash disk,EFI Shell,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>