SC500M - Embedded Panel PCs

Intel® Celeron® J1900

1 Product Introduction

The SC500M-SC15 is a 10.1-inch TFT 1280x800 LCD touch tablet with Intel low power embedded J1900 processor, 4GB DDR3 memory, dual display, dual SSD storage, wide voltage 9-36V input, compact, fan free, high computing performance. Front panel protection grade IP65, die-cast aluminum alloy body and full plane 5-wire resistance touch screen, waterproof and dustproof function, suitable for harsh industrial environment.

Technical Innovation

One-key restore system
Bositeng "One-key Restore System" is a simple and easy-to-use application that can help you back up and restore the computer's system partition (C partition) data; it runs without entering the Windows operating system. For specific technical implementation details, please contact your supplier for technical support.

Remote switch button interface
The hardware switch interface, in the case that the operator is far away from the machine and it is inconvenient to switch the machine, it is left to the customer to place the power switch of the machine in a place that is convenient for operation.
A configurable interface
Two 9-pin RS232 serial port headers, one 8-bit GPIO interface header, and one VGA interface header are integrated on the motherboard. These interfaces can be connected to the IO board according to the actual needs of customers.

Integrated amplifier and two 1W 8Ω speakers
The onboard HDA audio controller and stereo power amplifier output can be used to output voice and alarm signals.

Contact

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1.2 Specification

	SC101-J1900 -RBE	SC101-J1900 -PIE	SC15-J1900 -RBE	SC121-J1900 -PBE	SC121-J1900 -RBE	SC15-J1900 -PBE
Size	10.1”	10.1”	12.1”	12.1”	15”	15”
	TFT LCD	TFT LCD	TFT LCD	TFT LCD	TFT LCD	TFT LCD
Relusotion	1280x800(1024x600 optional)	1280x800(1024x600 optional)	1024 x 768	1024 x 768	1024 x 768	1024 x 768

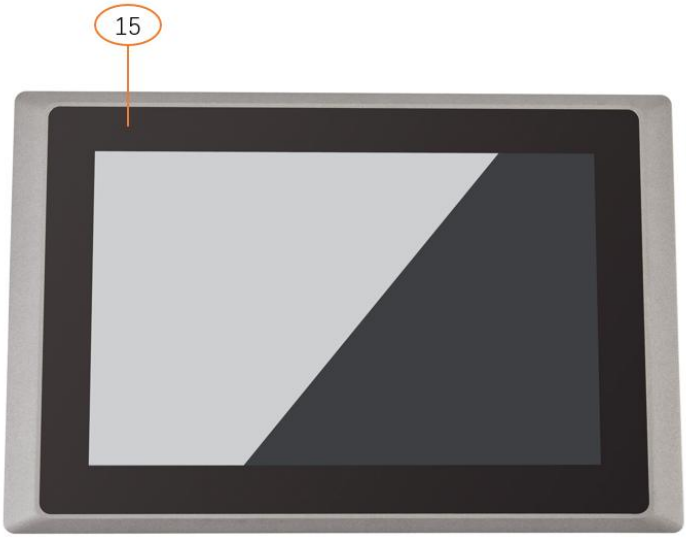
Brightness	400	500	500	500	300	300
Color	16.2M	16.2M/262k	16.7M/262k	16.7M/262k	16.7M	16.7M
Viewing	-85~85° (H), -85~85° (V)	-85~85° (H), -85~85° (V)	-89~89° (H), -89~89° (V)	-89~89° (H), -89~89° (V)	-85~85° (H), -85~85° (V)	-85~85° (H), -85~85° (V)
ELED Life	30,000	50,000	30,000	30,000	45,000	45,000
	5 wire Resistive touch	PCAP touch	5 wire Resistive touch	PCAP touch	5 wire Resistive touch	PCAP touch
Transparency	≥76%	≥76%	≥76%	≥76%	≥76%	≥76%
Working Life	10,000,000 times click at least	10,000,000 times click at least	10,000,000 times click at least	10,000,000 times click at least	10,000,000 times click at least	10,000,000 times click at least
Dimension	289.5 x 192.4 x 48.3mm	289.5 x 192.4 x 48.3mm	318.8 x245 x56.5mm	318.8 x245 x56.5mm	376.1 x 285.3 x 58.7mm	376.1 x 285.3 x 58.7mm
Weight	2.6kg	2.6kg	2.8kg	2.8kg	4.1kg	4.1kg
power consumption	18W	18W	20W	20W	22W	22W

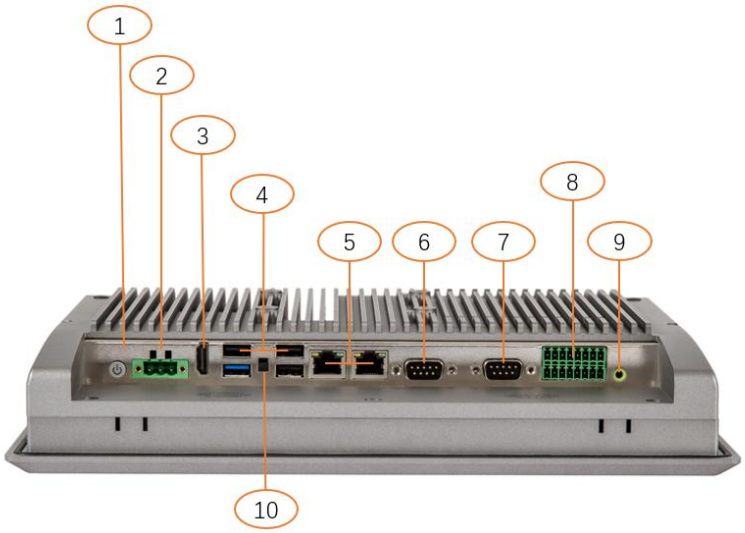
System	
CPU	Intel® Celeron J1900 2.0GHz,up to 2.42GHz
RAM	DDR3 4GB
I/O	1 x 3 pin 5.0mm Phoenix connector 3 x USB2.01, 1 x USB3.01, built in 1xUSB2.0 Dongle interface 2 x 3-wire COM3&COM4 RS-232/485 Green Phoenix connector 2 x 3-wire COM5&COM6 RS-232 Phoenix 2 x DB-9 COM1&COM2,RS-232/422/485 1 x HDMI 1 x AT/ATX 1 x Audio Line-out 1 x 14bit GPIO (Optional) 1 x Phoenix terminal Remote switch port 2 x 8Ω 1W Power amplifier output (optional)
Store	1 x mSATA 1 x SATA(2.5 inch)
expansion slot	1 x Mini-PCIE Full card, onboard SIM card slot, support 3G/4G module 1 x Mini-PCIE Half card, support WIFI bluetooth
Support system	Windows 7/8.1/10, WES7, WEC7, Android, Linux
Power	
Power input	9 ~ 36 VDC
Material	
Front	aluminium alloy
Back	aluminium alloy
IP Grade	Front IP65
Operating Environment	
Operationg Tem.	-20℃ to 60℃

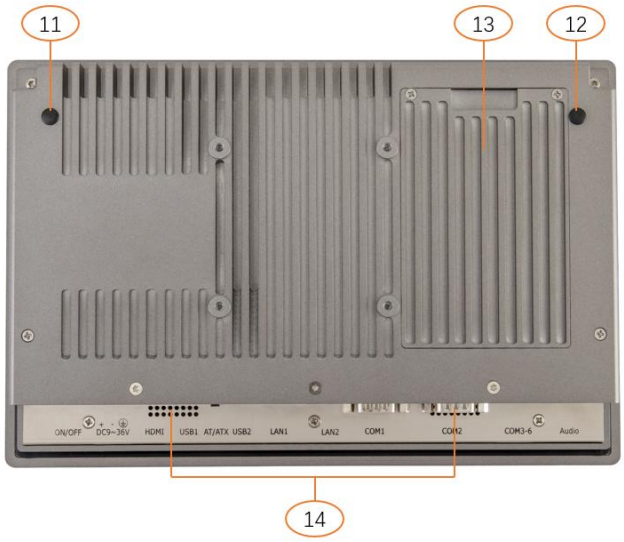
Store Tem.	-30℃ to +70℃
Store humidity	10~90% @30 ℃, No condensation
Certification	
Regular	CE, CCC
EMC	CE, FCC, CCC Class A

1.4 Interface

Provides a variety of I/O interfaces, including one I/O interface that can be flexibly configured.





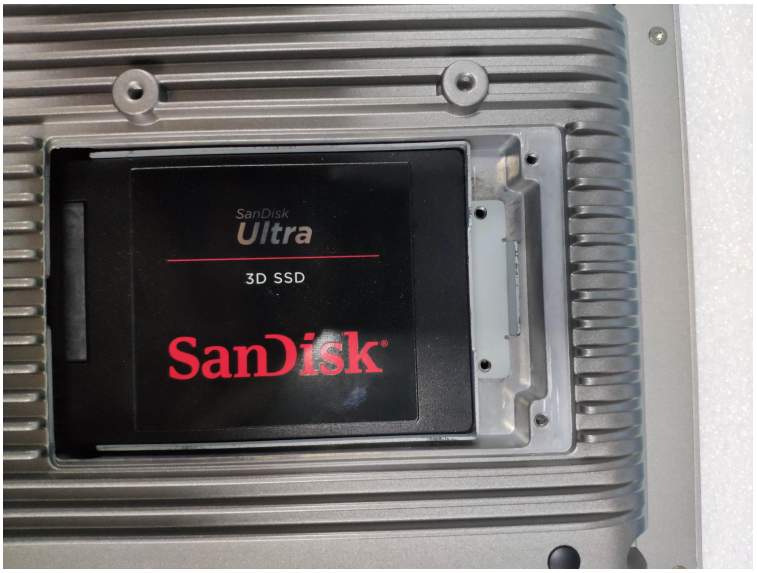


Number	function
1	DC ON/OFF
2	Power connector
3	HDMI
4	USB2.0/3.0 x4
5	Intel I211 Gigabit Ethernet interface X2
6	COM1 RS232/422/485
7	COM2 RS232/422/485 Or GPIOX14(Optional)
8	COM3456 COM3,COM4 RS232/485 COM5,COM6 RS232
9	Audio output interface
10	AT/ATX selector switch
11	WIFI,3G,4G antenna interface
12	WIFI,3G,4G antenna interface
13	SSD hard disk interface
14	Power amplifier output horn 1W 8Ω（Optional）
15	Power LED

2 Installation methods

2.1 Install Hard disk

The system has two built-in hard disk ports. One 7+15 Pin port is used for connecting 2.5-inch hard disks and the other is used for connecting mSATA disks. A hard disk bracket is designed on the fuselage to facilitate the disassembly and installation of hard disks.



2.5 inch hard disk mSATA

Step1 Use a Phillips screwdriver to remove the two screws that secure the hard disk bracket

Step2 Open the hard disk bracket, you will see two built-in SSD interfaces. Considering the user's demand for dual SSDS, we choose high SATA Slim connector and low mSATA connector in the design, so that the combination of one high and one low can avoid the conflict when using dual SSDS.

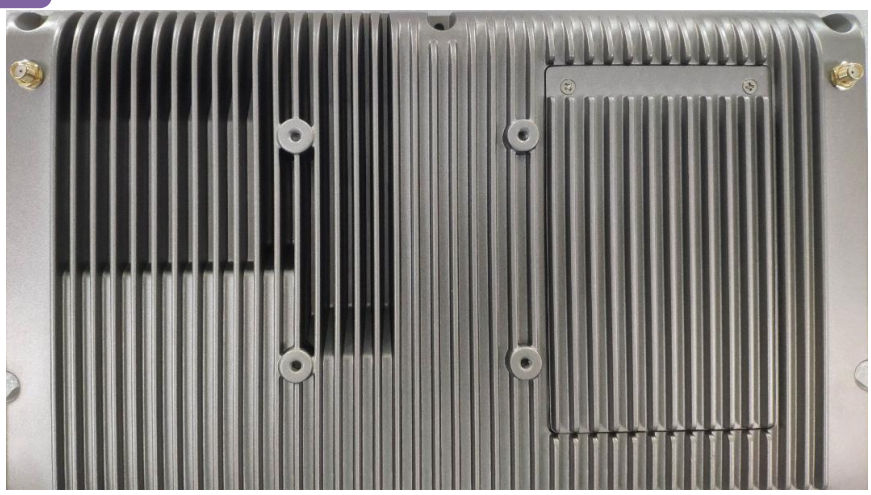
Step3 MSATA Insert the mSATA connector into the mSATA connector and fasten the screws

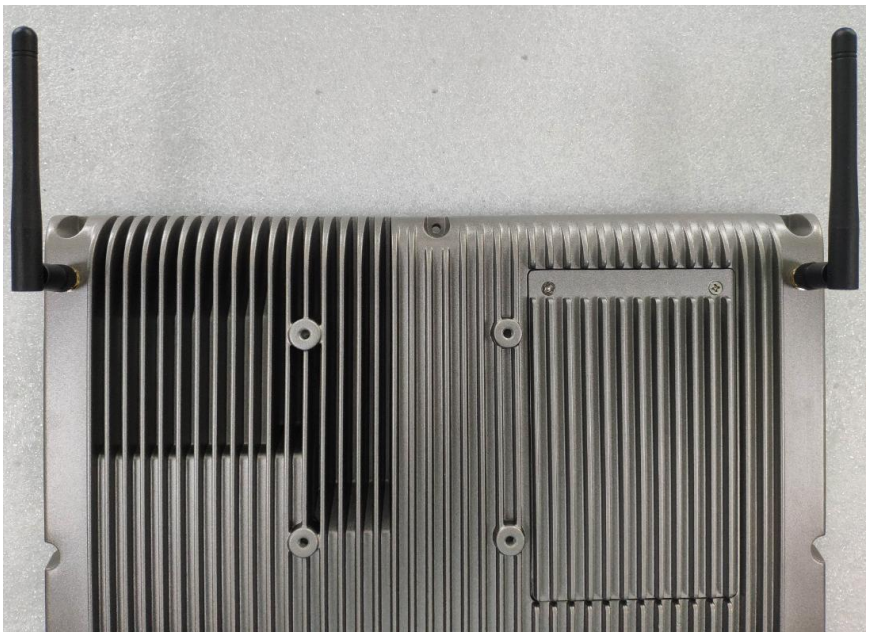
Step4 Insert the SATA Slim into the SATA connector and screw it

2.2 InstallWifi 4G

Step1 Open the hard disk cover, use the complimentary pan head cross screw M2*4, fix the corresponding wifi and 4G modules, and connect the antenna head.

Step2 ew on the antenna



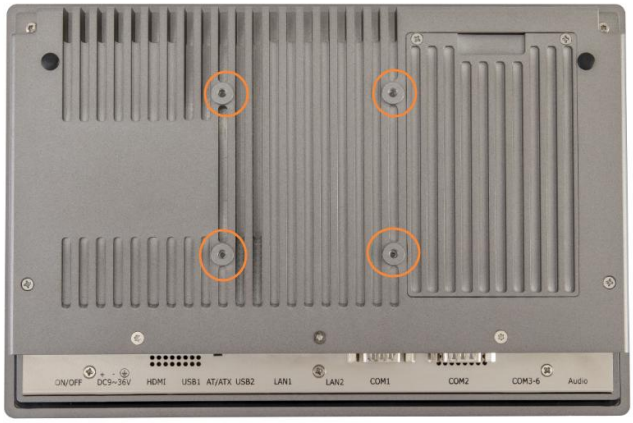


PS:mSATA hard disk，Wifi and antenna are optional components.

2.2Installation and fixing of machine

The panel is recessed, and there are 6 bow grooves around the machine, which are used to hold the body in place when the panel is recessed.

VESA75 installation, in the back of the machine, designed a standard VESA75 mounting hole position, using this way of installation requires a VESA75 bracket



3 IO port

3.1 COM

A maximum of six serial ports are supported. The following is the list of working modes supported by each serial port:

com / Mode	COM1	COM2	COM3	COM4	COM5	COM6
RS232	Support	Support	Support	Support	Support	Support

RS485	Support	Support	Support	Support	nonsupport	nonsupport
RS422	Support	Support	nonsupport	nonsupport	nonsupport	nonsupport

Notice:

COM3 and COM4 are 5-wire serial ports (TXD / RXD /GND/DCD);

COM5 and COM6 are 3-wire serial ports (TXD / RXD /GND)

By default, the factory settings of COM1~6 are RS232 mode;

There is a COM interface and a 14-bit GPIO interface on the motherboard. These interfaces can be connected to the IO board according to the actual needs of the customer. See the position of the COM2 interface in the icon number 7 above.

The pin definitions corresponding to different interface types are as follows:

COM1, COM2 pin signal definition

COM1,COM2 Pin signal definition

	DB9 Pin Name								
Mode	Pin1	Pin2	Pin3	Pin4	Pin5	Pin6	Pin7	Pin8	Pin9
RS485	DATA +	DATA -							
RS422	TX+	TX-	RX+	RX-					
RS232	DCD#	RXD	TXD	DTR#	GND	DSR#	RTS#	CTS#	RI#

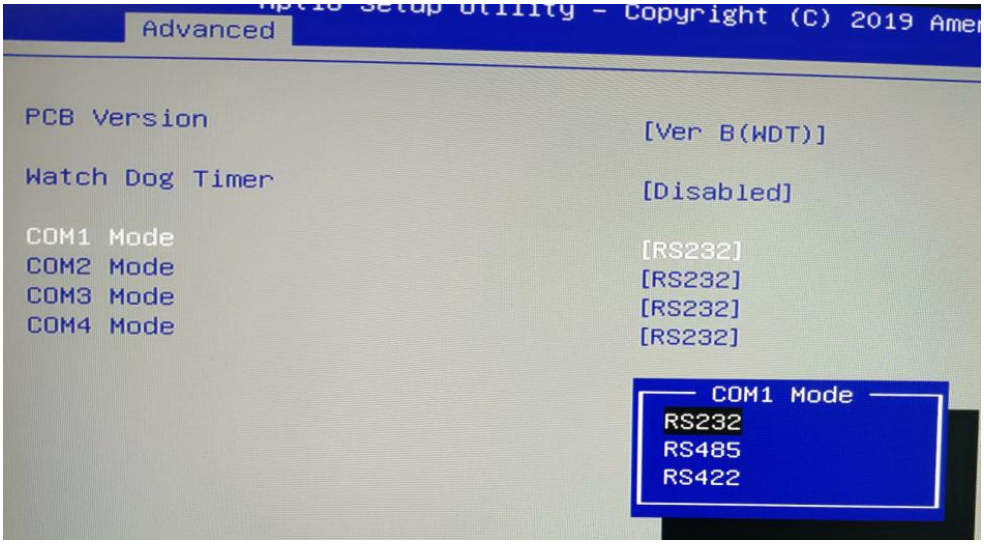
COM3456 Pin signal definition

PIN	Signal	note	PIN	COM4	note
1	DCD3_485DN3	COM3	2	DCD4_485DN4	COM4
3	SOUT3		4	SOUT4	
5	SIN3_485DP3		6	SIN4_485DP4	
7	GND		8	GND	
9	SOUT5	COM5	10	SOUT6_CN	COM6
11	SIN5		12	SIN6_CN	
13	GND		14	GND	
15	FP_PWRBTN_N	Remote switch	16	GND	

Set the working mode of COM1,2,3,4

Step1 Power on the machine, press the Delete key when booting, enter the BIOS setup interface, and navigate to the following path:

Advanced-SIO MISC Configuration-COM1 MODE select RS232/422/485 option;

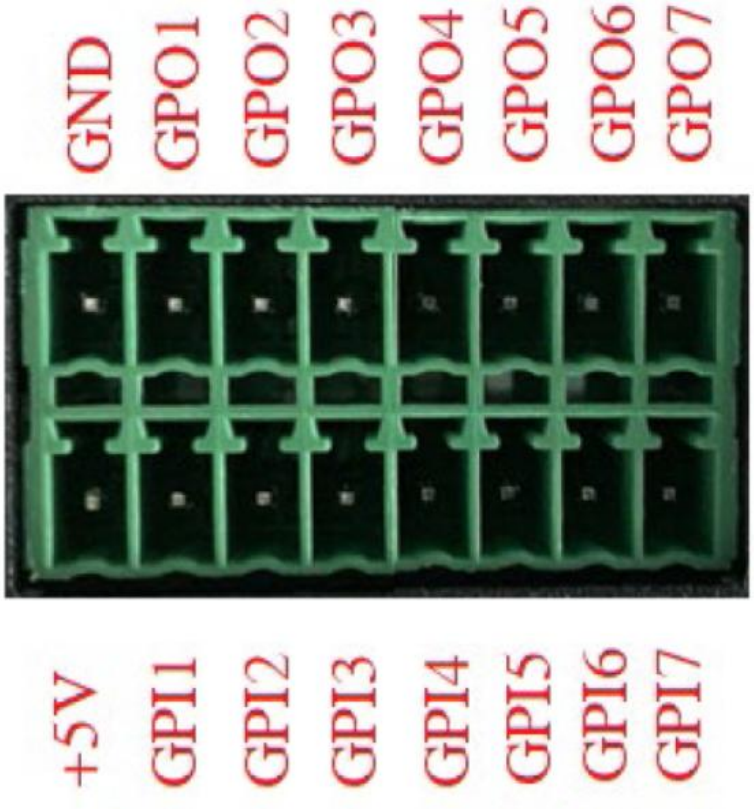


Step2 After setting the BIOS options, press F10 and select [YES] in the pop-up dialog box to save the settings and exit.

3.2 GPIO

COM2 and GPIO1 of the motherboard share the same interface. When the GPIO model is selected.

The PIN of GPIO1 is defined as follows



Address allocation, Base Address=0x500h

PIN	Signal	IO address	Initial	Direction	Output driving capability
1	+5V	-	-	-	-
3	GPI1	0xA06.bit0	+5V	Input	
5	GPI2	0xA06.bit1	+5V	Input	
7	GPI3	0xA06.bit2	+5V	Input	
9	GPI4	0xA06.bit3	+5V	Input	
11	GPI5	0xA06.bit4	+5V	Input	
13	GPI6	0xA06.bit5	+5V	Input	
15	GPI7	0xA06.bit6	+5V	Input	
2	GND	-	-	-	-
4	GPO1	0xA07.bit4	0V	Output	35mA
6	GPO2	0xA07.bit5	0V	Output	35mA
8	GPO3	0xA07.bit6	0V	Output	35mA
10	GPO4	0xA07.bit7	0V	Output	35mA
12	GPO5	0xA04.bit6	0V	Output	35mA
14	GPO6	0xA04.bit7	0V	Output	35mA
16	GPO7	0xA03.bit0	0V	Output	35mA

GPIO Port access

Access to the output port:

Use the function outportb() to directly output a byte of data to the specified port. To make the corresponding GPO port output low level, write 0 to the corresponding port. For example, the following example is to make GPO1 output low level:

```
TEMP=inportb(0x50c); first read in the content of port 0x50c
TEMP=TEMP&0xfe; Set bit0 of port 0x50c to 0
outportb(0x50c,TEMP); write data to the port
```

To make the corresponding GPO port output high level, write 1 to the corresponding port. For example, the following example is to make GPO1 output high level:

```
TEMP=inportb(0x50c); first read in the content of port 0x50c
TEMP=TEMP|0x01; Set bit0 of port 0x50c to 1
outportb(0x50c,TEMP); write data to the port
```

Access to input port:

Use the function inportb() to read a byte from the port, and then check the table above and take the corresponding bit.

4 BIOS Function Introduction

4.1 Introduction to UEFI

UEFI (Unified Extensible Firmware Interface: Standard Extensible Firmware Interface) is a new generation of

computer firmware used to replace the traditional BIOS. UEFI firmware is stored in the flash memory of the motherboard. The main functions include: initializing system hardware, setting the working status of each system component, adjusting the working parameters of each system component, diagnosing the function of each system component and reporting faults, and providing hardware to the upper software system Operate the control interface, boot the operating system, etc. UEFI provides users with a menu-style man-machine interface, which is convenient for users to configure various system parameter settings, control power management modes, and adjust the resource allocation of system equipment. Correctly setting the parameters of UEFI can make the system work stably and reliably, and at the same time can improve the overall performance of the system. Inappropriate or even wrong UEFI parameter settings will greatly reduce the performance of the system, make the system work unstable, or even fail to work normally.

4.2 UEFI parameter settings

Whenever the system is powered on and turned on normally, you can see the message prompting to enter the UEFI setup program. At this time (invalid at other times), press the key specified by the prompt message (usually the <Del> key or <F2> key) to enter the UEFI setup program. All setting values (except date and time) modified by UEFI setting program are saved in the flash memory of the system. Even if the power is cut off or the motherboard battery is unplugged, the content will not be lost; while the date and time are
Stored in the system's CMOS memory, the CMOS memory is powered by a battery, and its content will not be lost even if the external power supply is cut off, unless the operation of clearing the CMOS content is performed.
Notice! The setting of UEFI directly affects the performance of the computer. Setting the wrong parameters will cause damage to the computer, or even failure to boot. Please use the built-in UEFI default values to restore the normal operation of the system. As our company is constantly developing and updating UEFI, its setting interface will be slightly different. The following screen is for your reference, and it may not be exactly the same as the UEFI setting program you are currently using.

4.3 UEFI basic function settings

When the SETUP program is started, you can see the main screen as follows:

4.3.1 Main

System Date

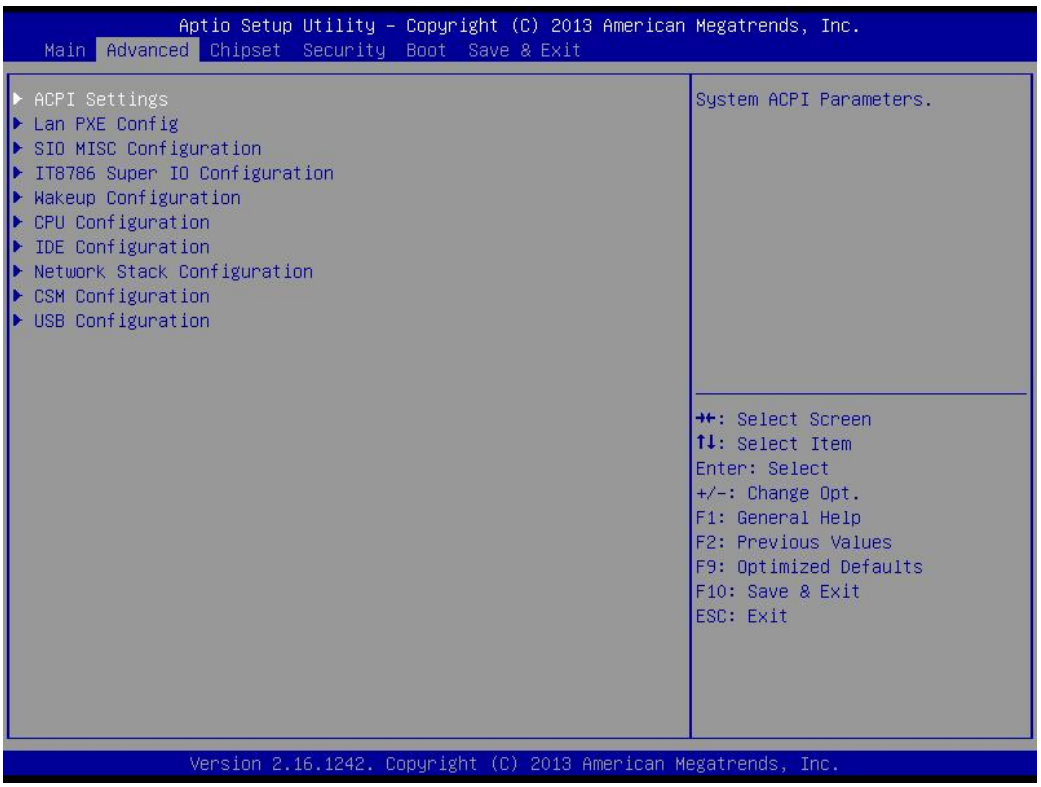
Select this option and use <+> / <-> to set the current date. It is expressed in the format of month/day/year. The reasonable range of each item is: Month/month (1-12), Date/day (01-31), Year/year (up to 2099), Week/week (Mon.～Sun.).

System Time

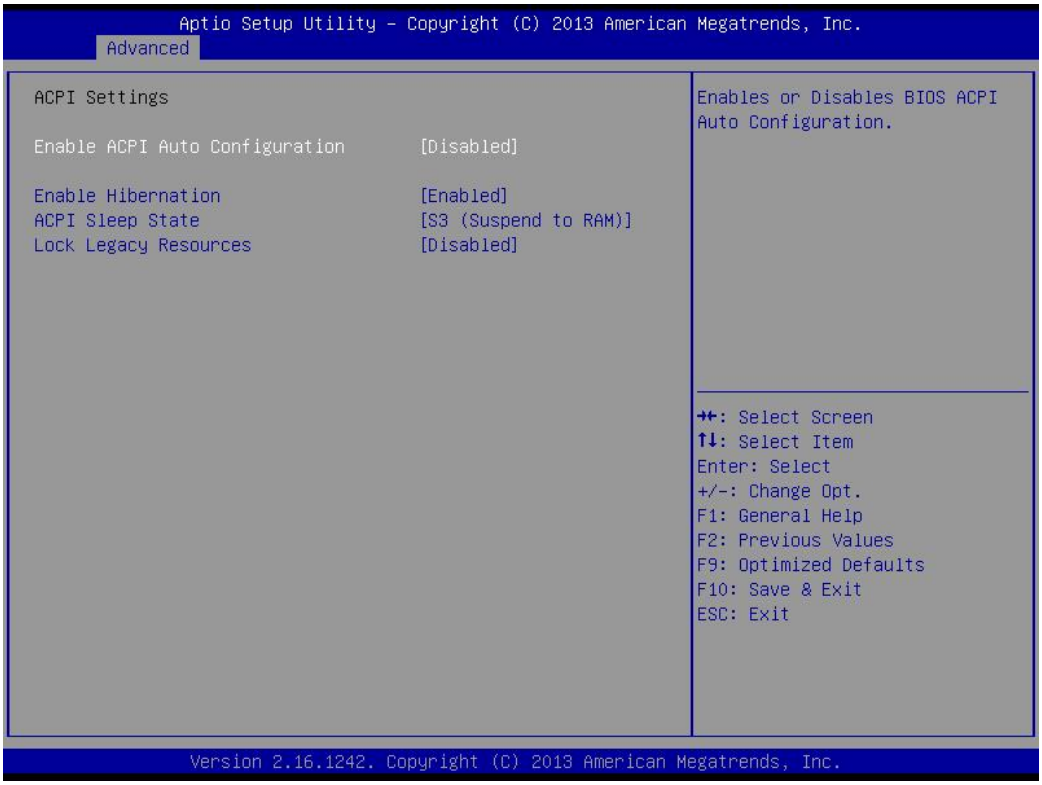
Select this option and use <+> / <-> to set the current time. It is expressed in the format of hour/minute/second. The reasonable range of each item is: Hour/Hour (00-23), Minute/Minute (00-59), Second/Second (00-59).

PS: The RTC time of the 6, 7, and 8 generation Core Duo will be adjusted according to the OS.

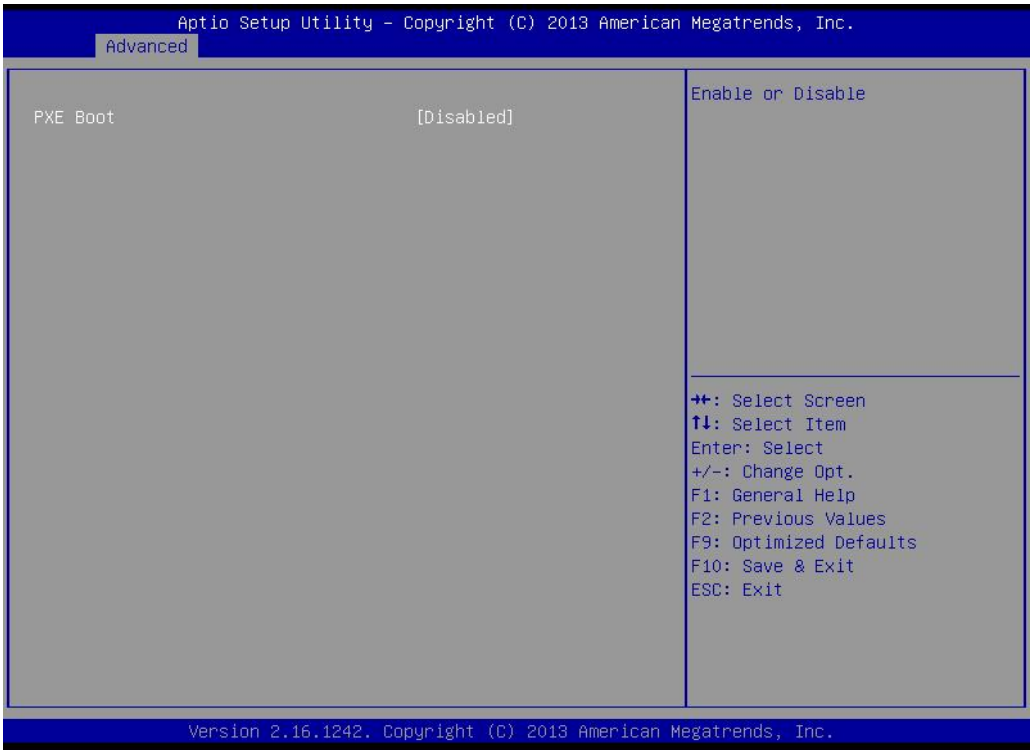
Advanced



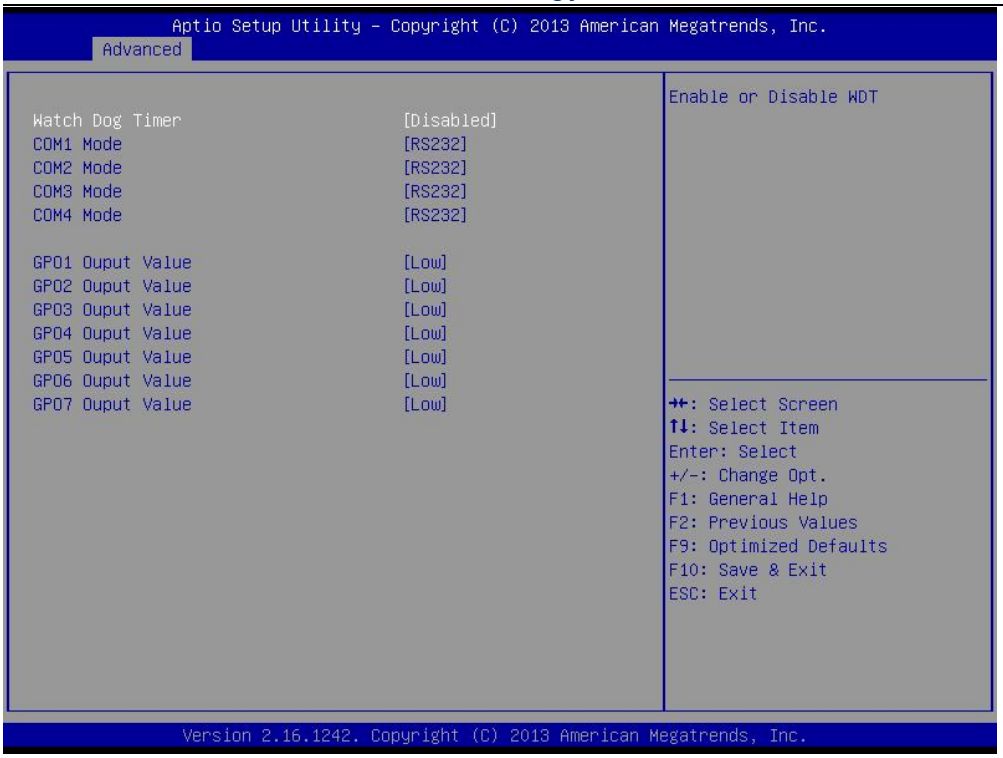
ACPI Settings



Lan PXE Configuration



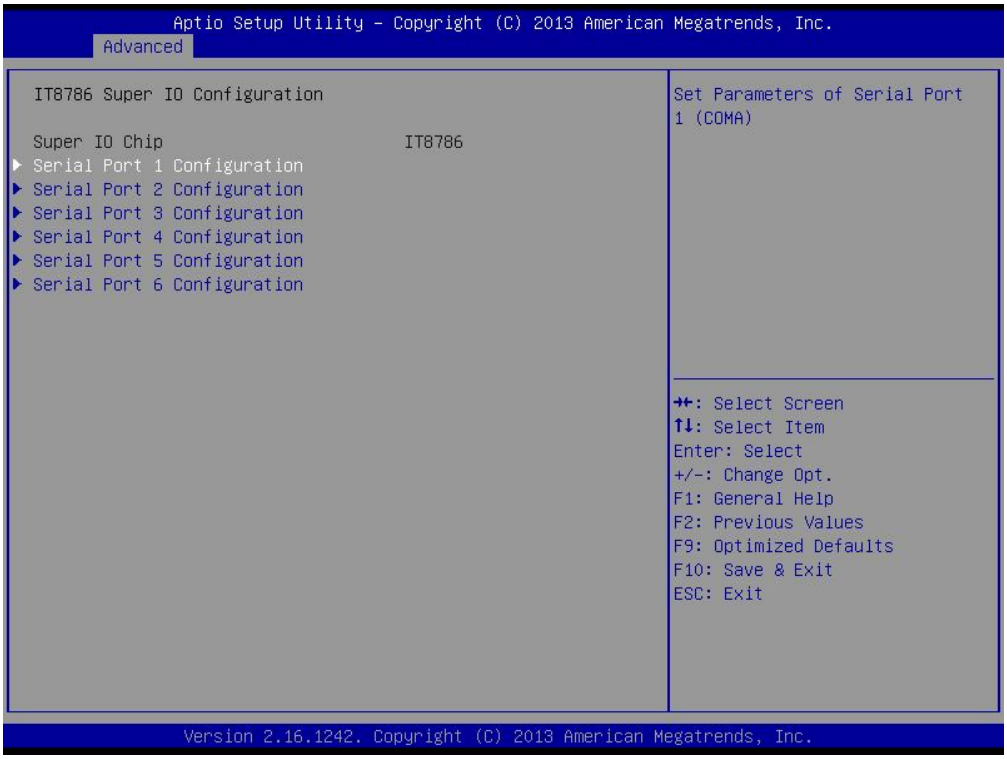
SIO MISC Configuration



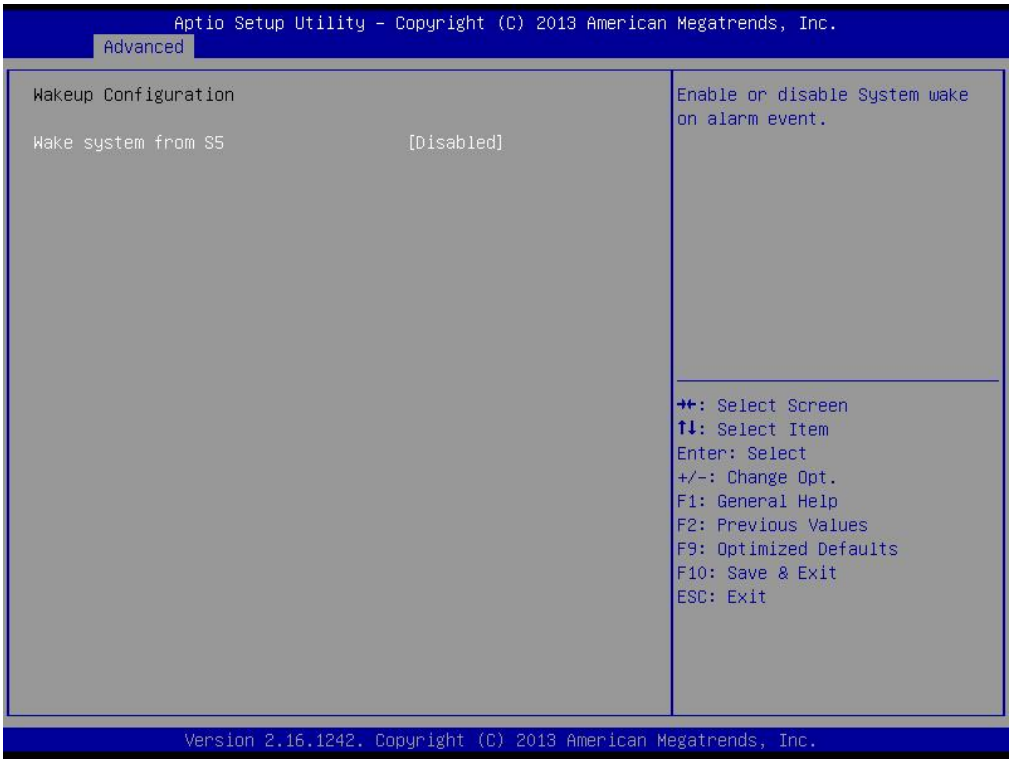
Watch Dog Timer

If this parameter is set to Enable, you can set minutes (seconds).

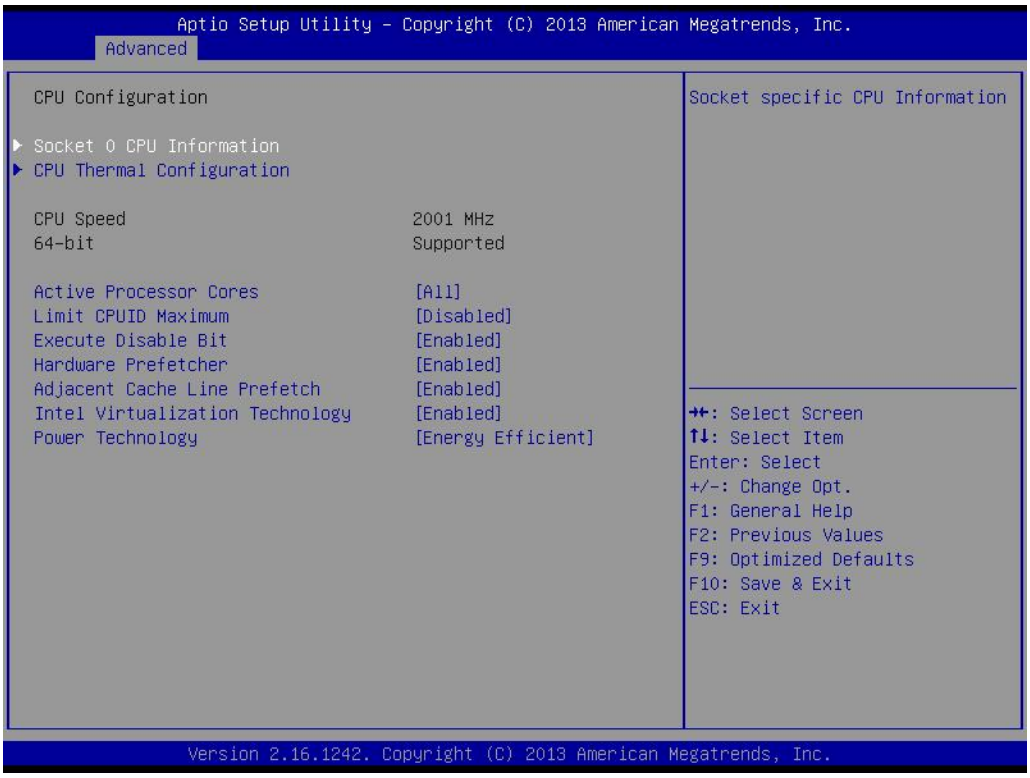
IT8786 Super IO Configuration



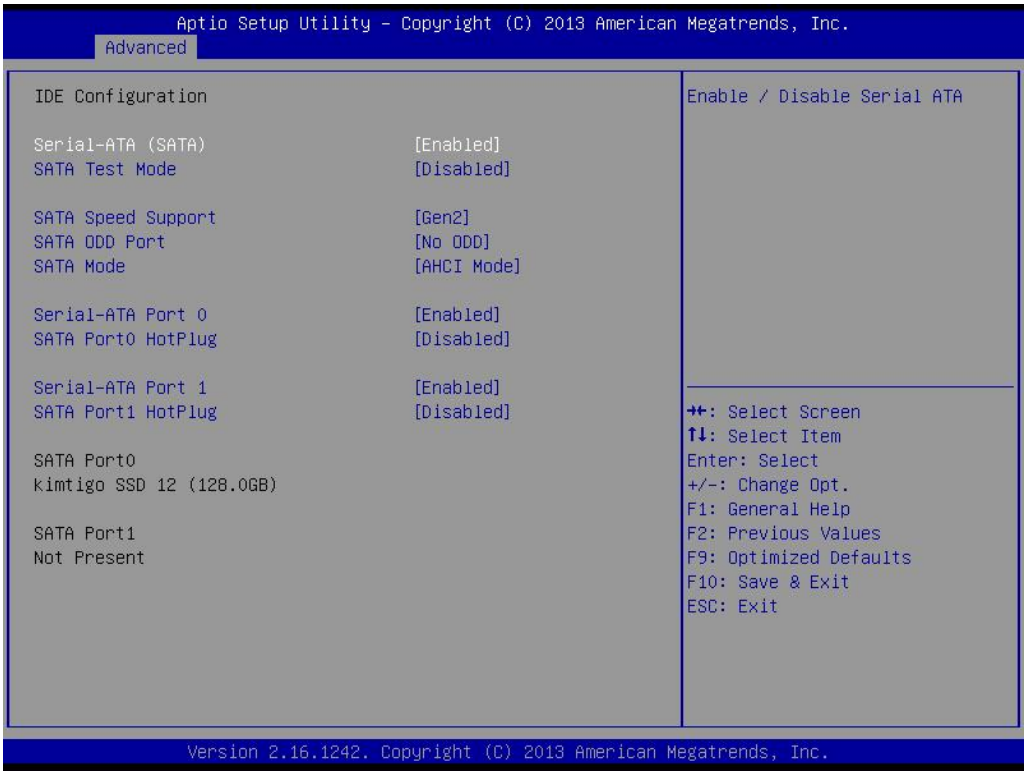
Wake up Configuration



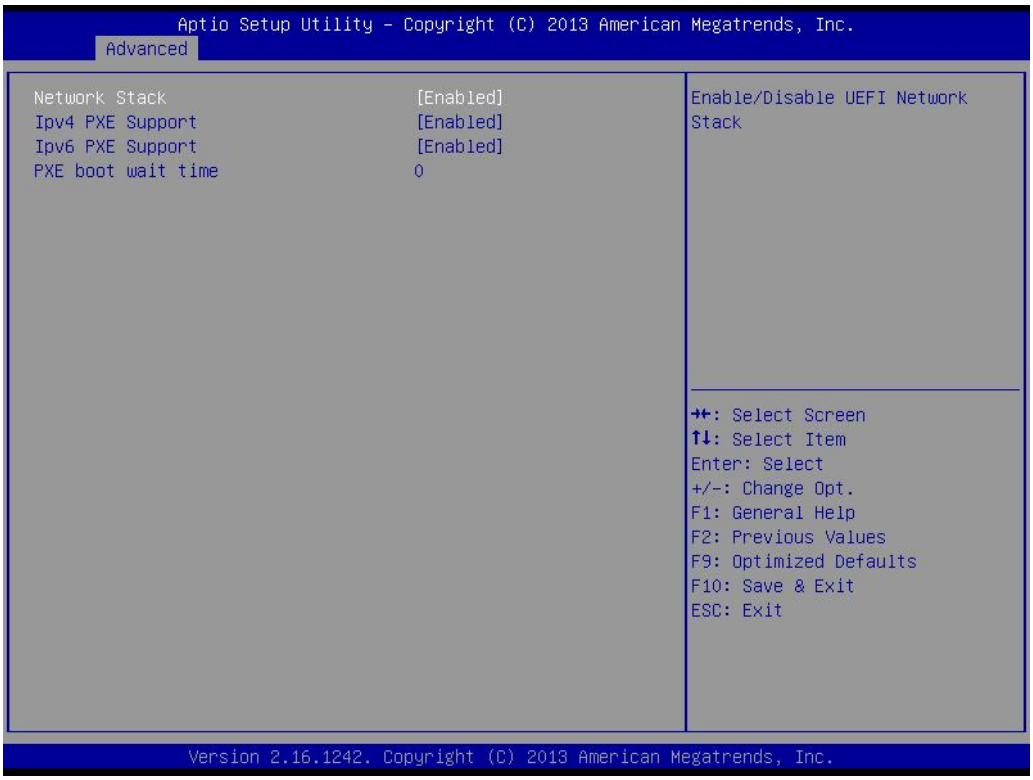
CPU Configuration



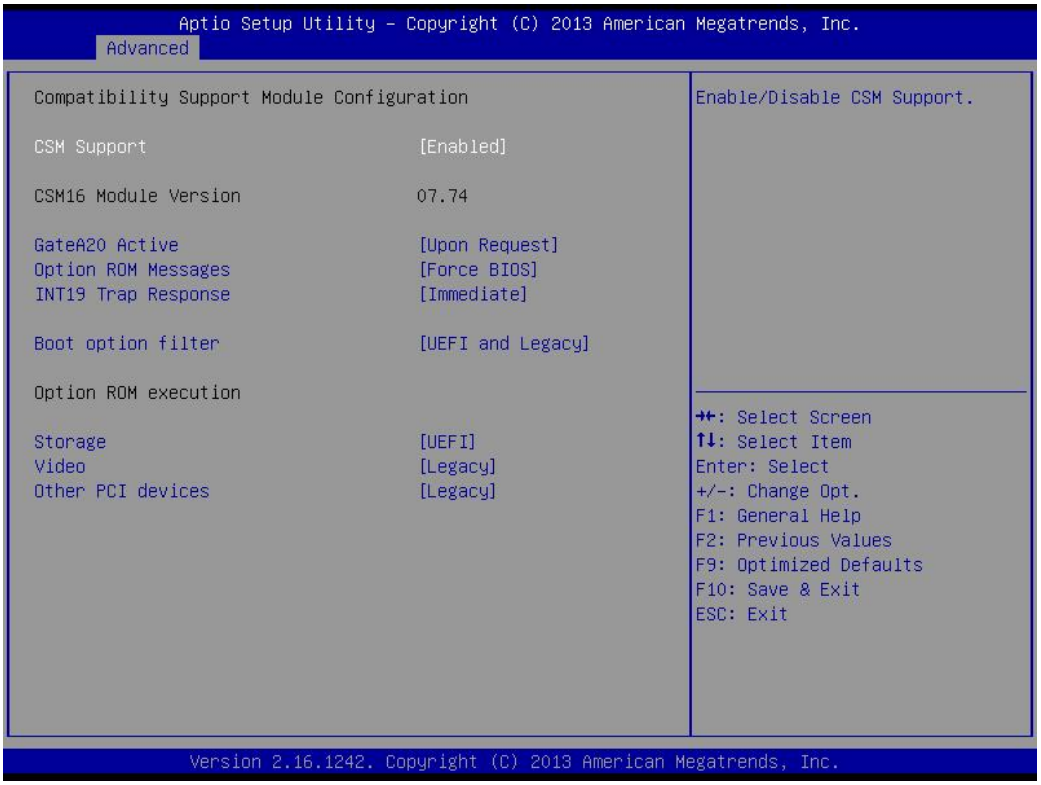
IDE Configuration



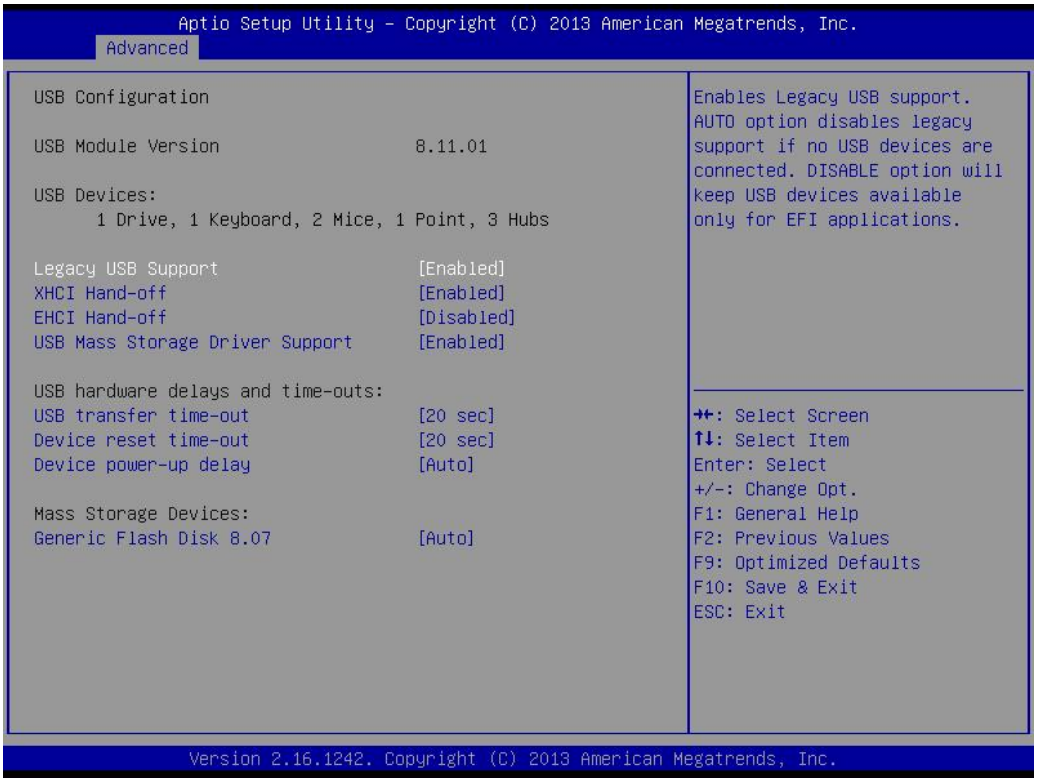
Network Stack Configuration



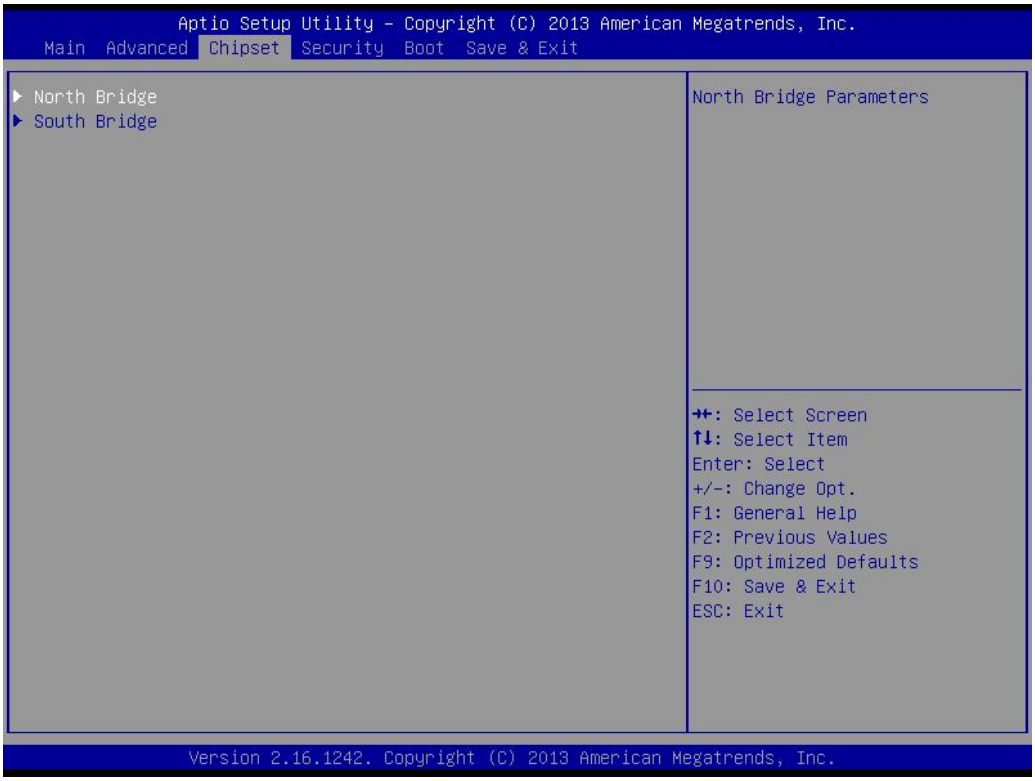
CSM Configuration



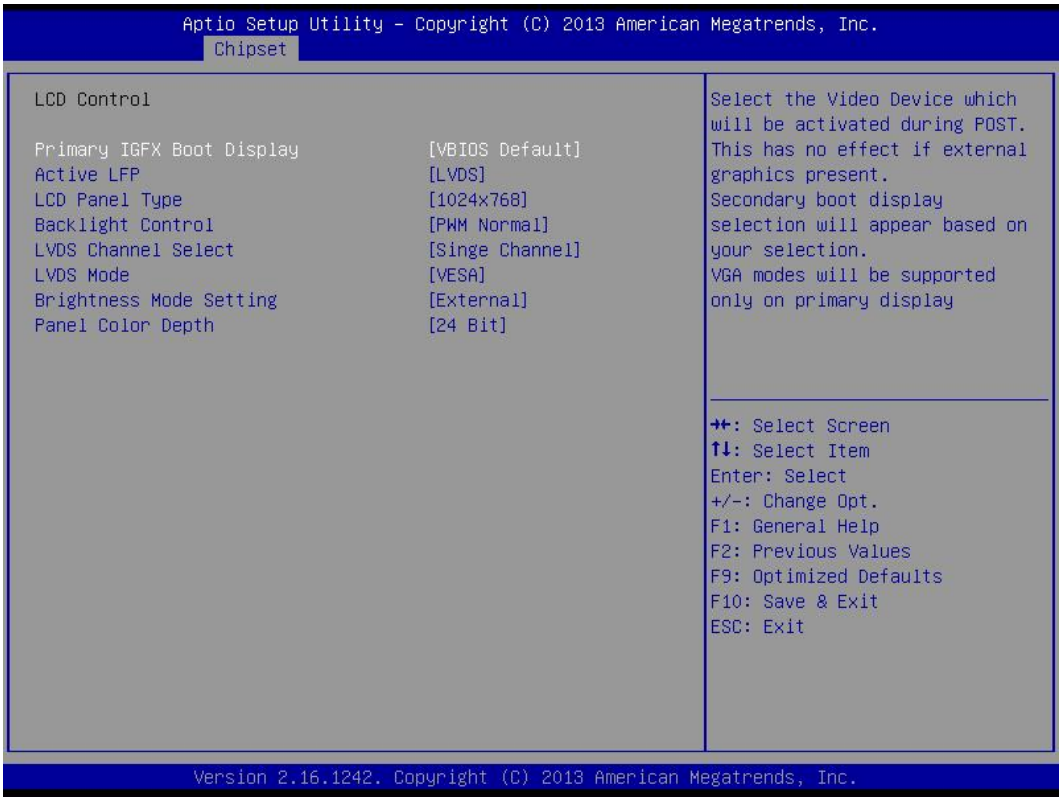
USB Configuration



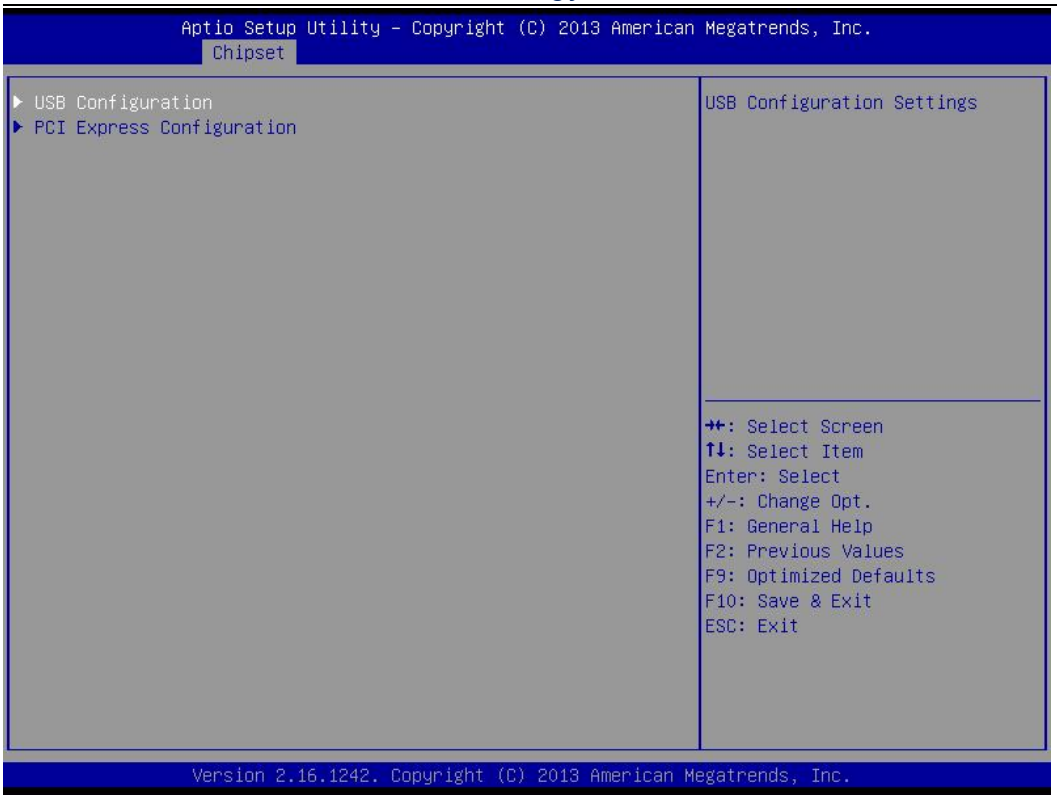
4.3.2 Chipset



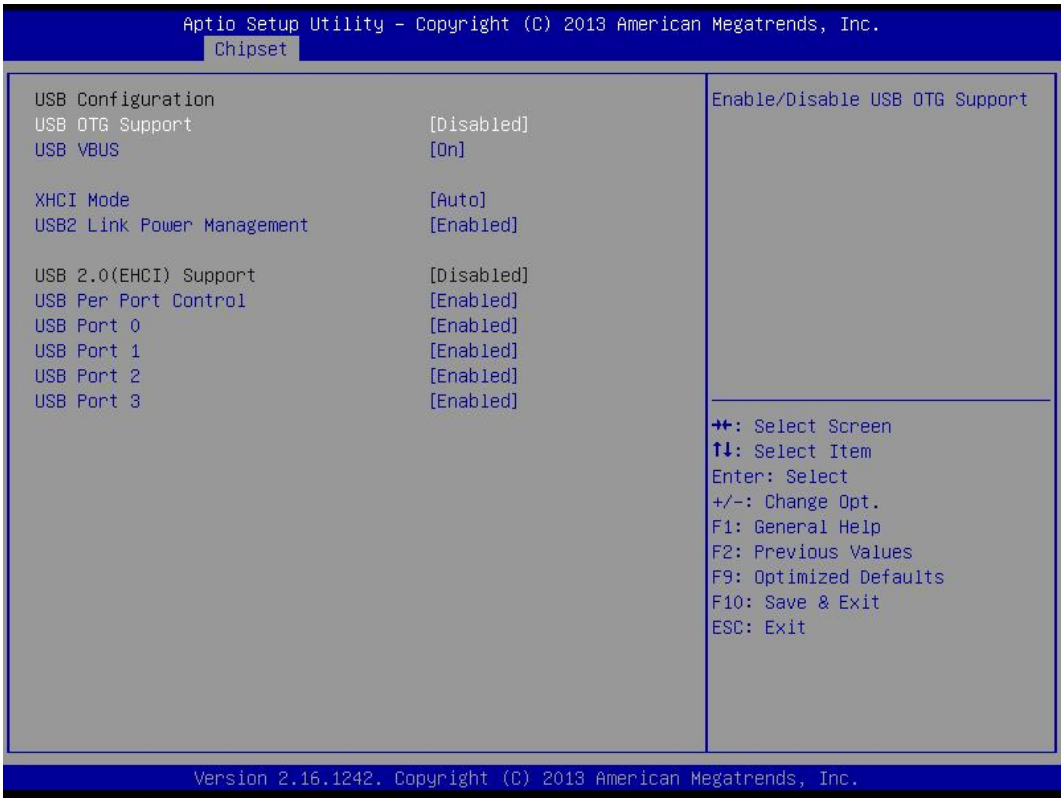
North Bridge



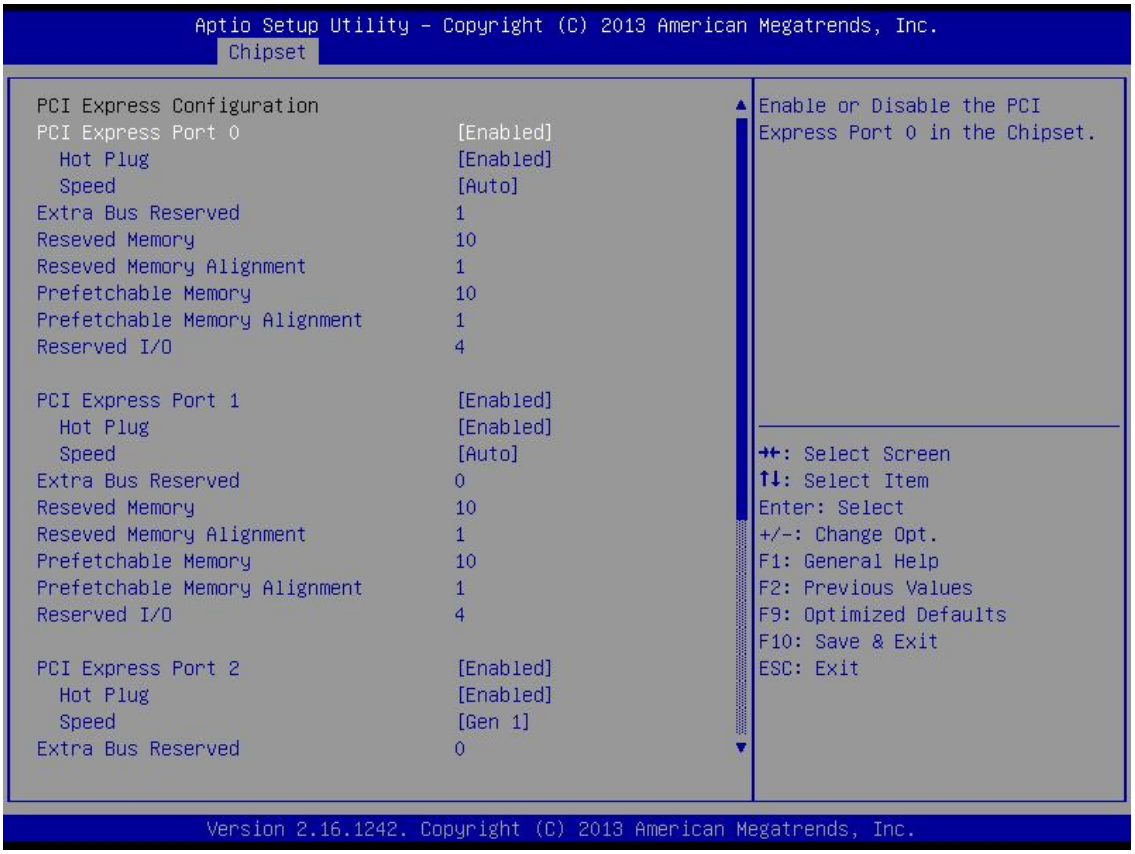
South Bridge



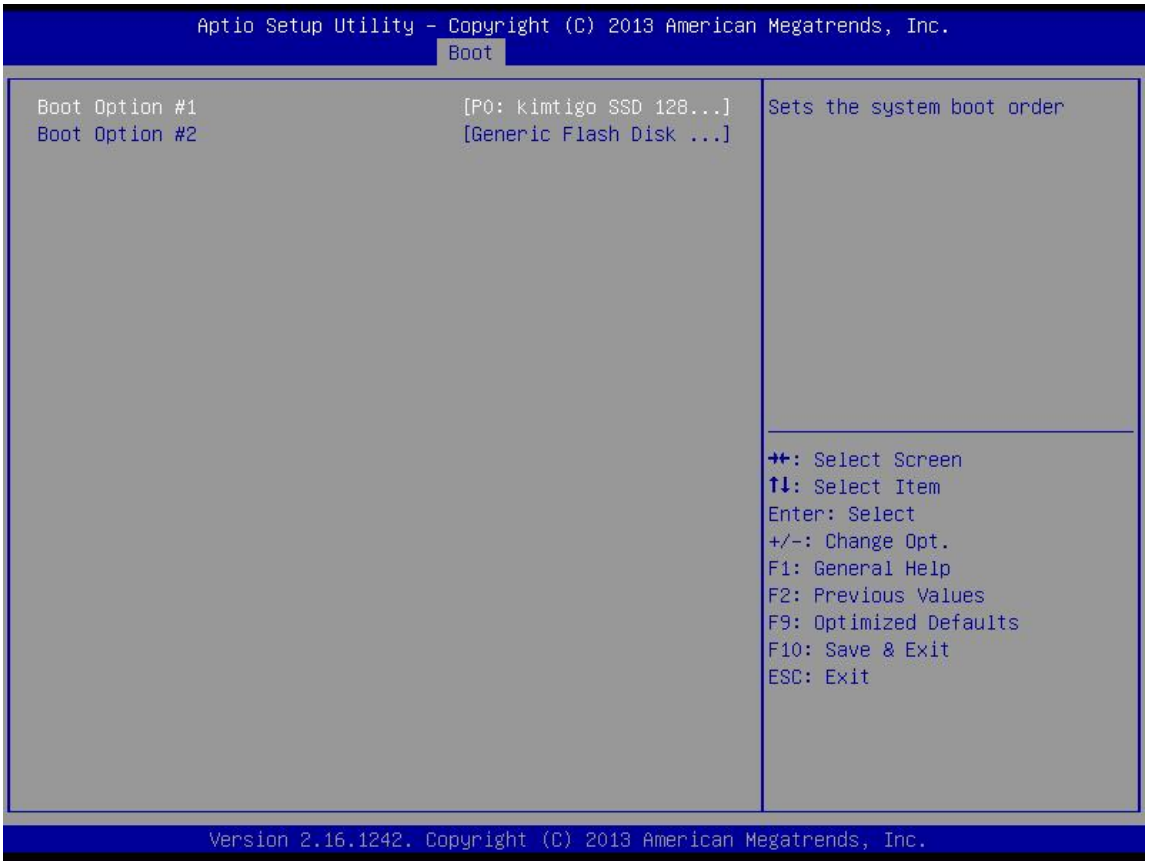
USB Configuration



PCI Express Configuration



4.3.3 BOOT



Save Changes and Reset

This is used to save the changes and restart (F10).

Discard Changes and Reset

This is used to discard the changes and restart.