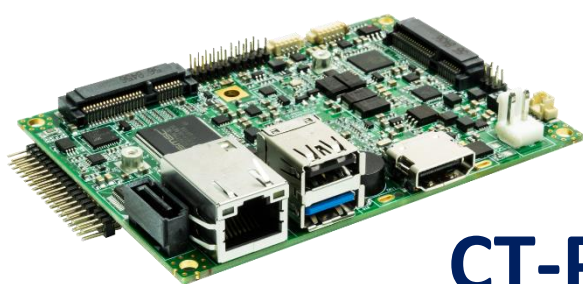


USER'S MANUAL



CT-PBT01 Series

PICO-ITX SBC

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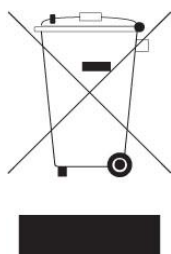
Safety Information

Electrical Safety

- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.
- Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged.
- Seek professional assistance before using an adapter or extension cord. These devices could interrupt the grounding circuit.
- Make sure that your power supply is set to the correct voltage in your area. If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.

Operation Safety

- Before installing the motherboard and adding devices on it, carefully read all the manuals that came with the package.
- Before using the product, make sure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet.
- Place the product on a stable surface.
- If you encounter technical problems with the product, contact a qualified service technician or your retailer.



The symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. Check local regulations for disposal of electronic products.

Safety Declaration

This device complies with the requirements in Part 15 of the FCC rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

About this guide

This user guide contains the information you need when installing and configuring the motherboard.

How this guide is organized

This manual contains the following parts:

● Chapter 1: Product introduction

This chapter describes the features of the motherboard and the new technology it supports. This chapter also lists the hardware setup procedures that you have to perform when installing system components. It includes description of the jumpers and connectors on the motherboard.

● Chapter 2: BIOS setup

This chapter tells how to change system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided.

Where to find more information

Refer to the following sources for additional information and for product and software updates.

1. Technical Support

If a problem arises with your system and no solution can be obtained from the user's manual, please contact your place of purchase or local distributor.

2. Optional documentation

Your product package may include optional documentation, such as warranty flyers, that may have been added by your dealer. These documents are not part of the standard package.

Conventions used in this guide

To make sure that you perform certain tasks properly, take note of the following symbols used throughout this manual.



WARNING

This indication alerts operators to an operation that, if not strictly observed, may result in severe injury.



CAUTION

This indication alerts operators to an operation that, if not strictly observed, may result in safety hazards to personnel or damage to equipment.



NOTE

This indication provides additional information to complete a task easily.

Packing List

Before you begin installing your single board, please make sure that the following materials have been shipped:

Item	Description	Q'ty
1	CT-PBT01 PICO-ITX SBC	1
2	Heat Sink	1
3	Audio Cable 20cm	1
4	COM Cable 2*10P-2*DB9 22cm	1
5	Power Cable 10cm	1
6	SATA Cable 30cm	1
7	SATA Power Cable	1
8	USB Cable	1
9	Copper Stud and Screws for Heat Sink	4
10	Screws for Mini PCIe Card	2



If any of the above items is damaged or missing, please contact your retailer.

Ordering Information

Model No.	Product Description
CT-PBT01	Pico-ITX SBC with Intel Celeron J1900, HDMI, 1x LAN, 4x USB, 2x COM
CT-PBT02	Pico-ITX SBC with Intel Celeron J1900, VGA, 1x LAN, 4x USB, 2x COM

Revision History

Revision	Revision History	Date
V 1.0	First release version	July, 2019

Chapter 1

Product Introductions

1.1 Hardware Specification

System

- CPU: Intel® Celeron® Processor J1900 (2.0GHz/4C/10W)
- System Chipset: SoC integrated
- LAN Chipset: 1x Intel® I210AT GbE controller
- Audio Codec: Realtek ALC888S
- Memory: 1x 204-Pin DDR3L 1066/1333MHz SODIMM
- Max Size: 8GB
- BIOS: AMI 64Mbit SPI BIOS
- Watchdog Timer: Software Programmable Supports 1~255 sec. System Reset

Display

- Chipset: Intel® SoC Integrated
- Interface:
 - 1x HDMI (2048x1080 @60Hz)
 - 1x LVDS (single channel, 18bit/24bit)
- Multiple Display: Dual Display

Storage

- SATA: 1x SATA 3.0Gb/s
- mSATA: 1x mSATA (shared by 1x Mini PCIe)

Expansion

- Mini PCI Express:
 - 1x Half-size Mini PCIe
 - 1x Half-size Mini PCIe (Full-size as BOM option)

Rear I/O

- Display: 1x HDMI (1x VGA as BOM option)
- USB: 1x USB 3.0, 1x USB 2.0
- LAN: 1x RJ45

Internal I/O

- Display:
 - 1x LVDS
 - 1x LVDS backlight
- COM: 1x RS-232/422/485, 1x RS-232
- USB: 2x USB 2.0
- SATA: 1x SATA 3.0Gb/s
- Audio: 1x Front panel audio
- GPIO: 1x 8-bit GPIO (4-in/4-out)
- Others:
 - 1x Front panel
 - 1x SMBus

Operating System

- Windows: Windows 10, Windows 7, WES7
- Linux: Linux Kernel 3.x

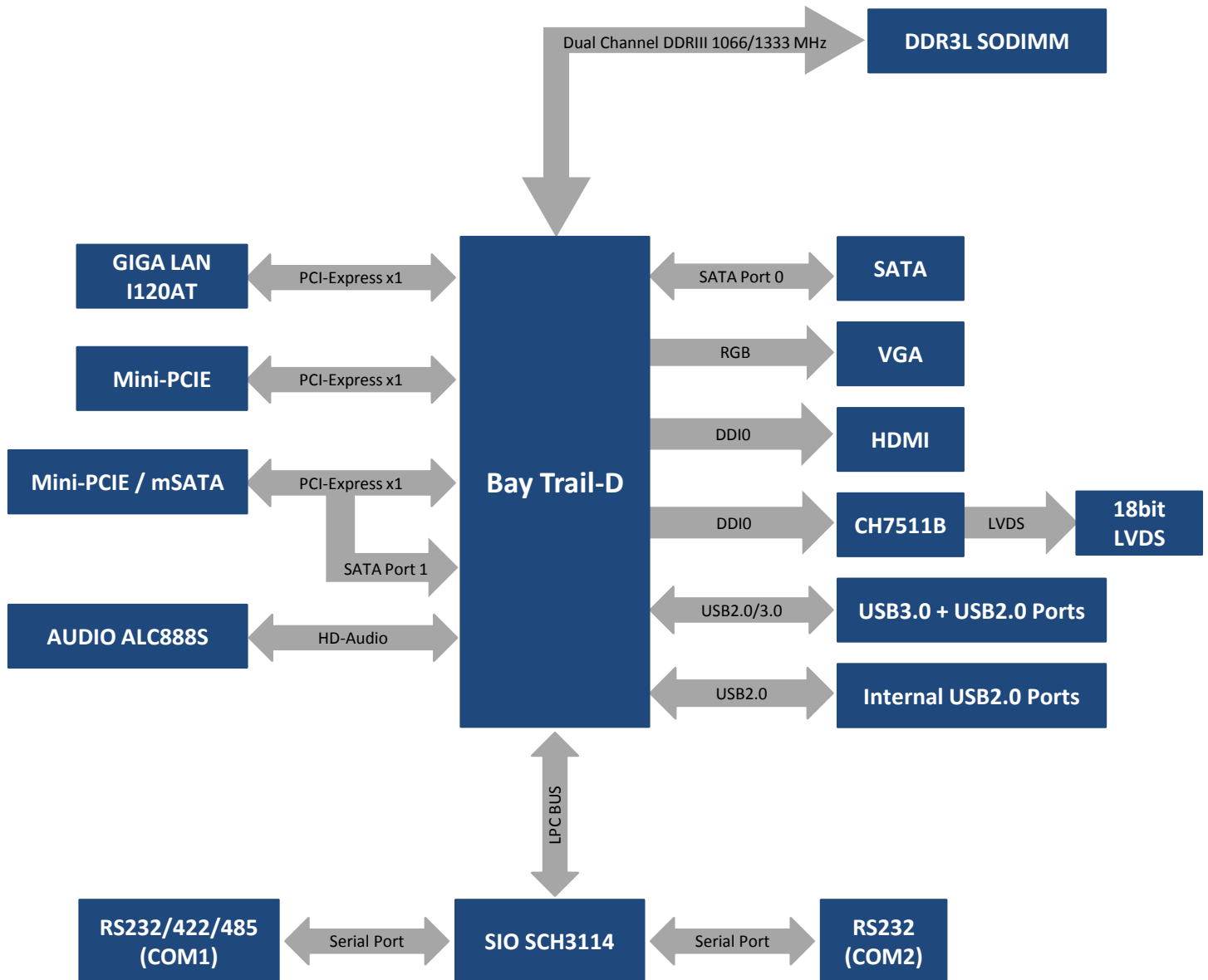
Power

- Power Connector: 2-pin power connector
- Power Input: 12V DC Input
- Management: ACPI

Mechanical & Environment

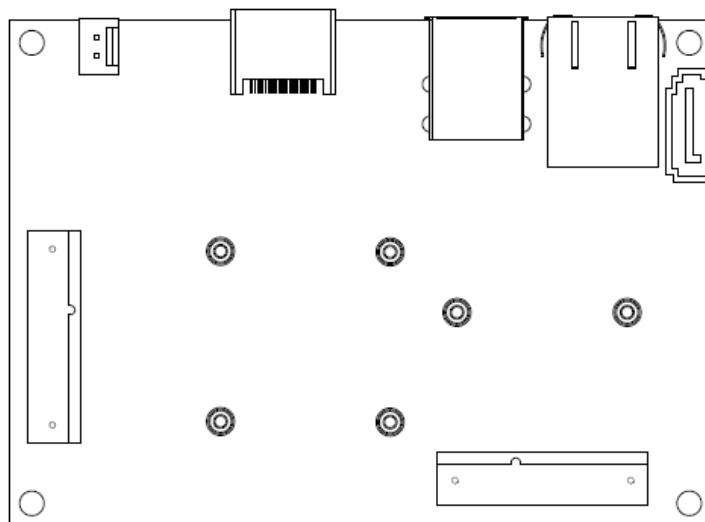
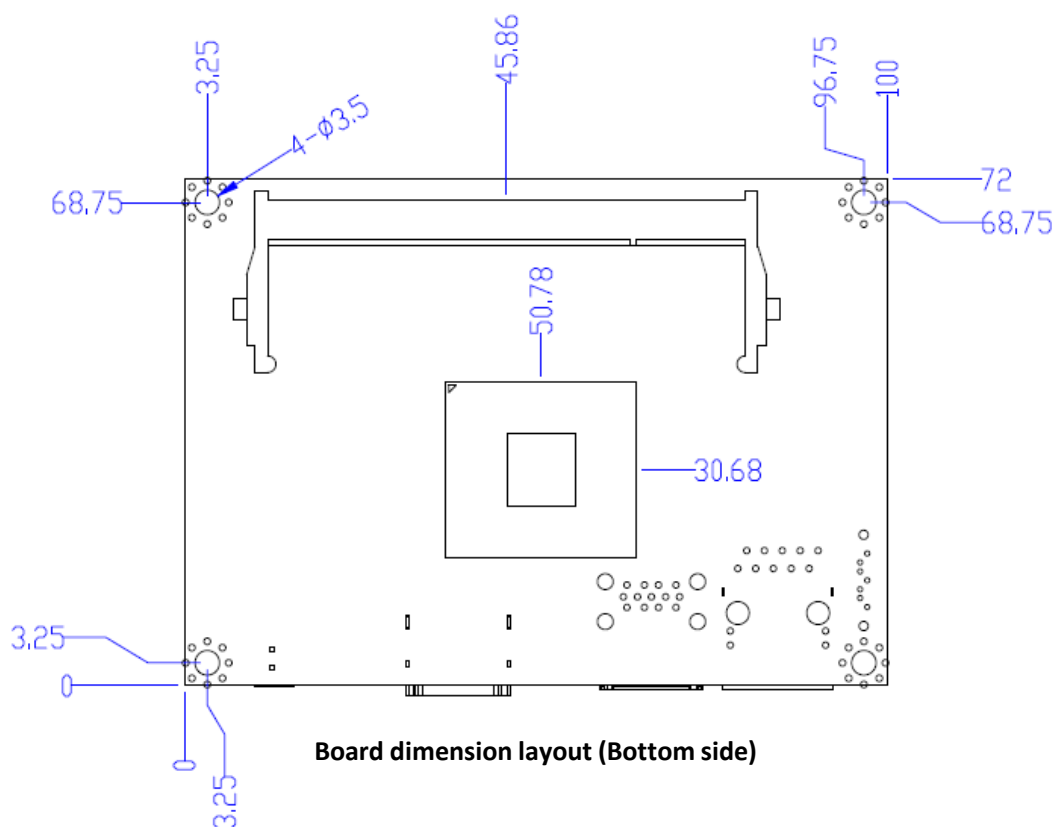
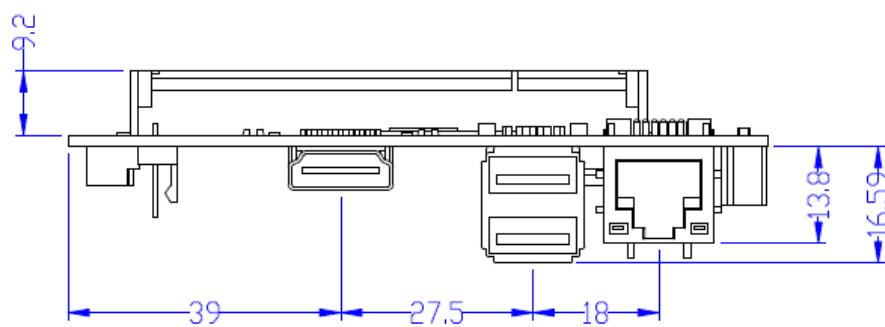
- Form Factor: PICO-ITX
- Dimension: 100mm x 72mm
- Operating Temp.: -10°C ~ 70°C
- Storage Temp.: -40°C ~ 85°C
- Operating Humidity: 10% ~ 90% relative humidity, non-condensing

1.2 Block Diagram

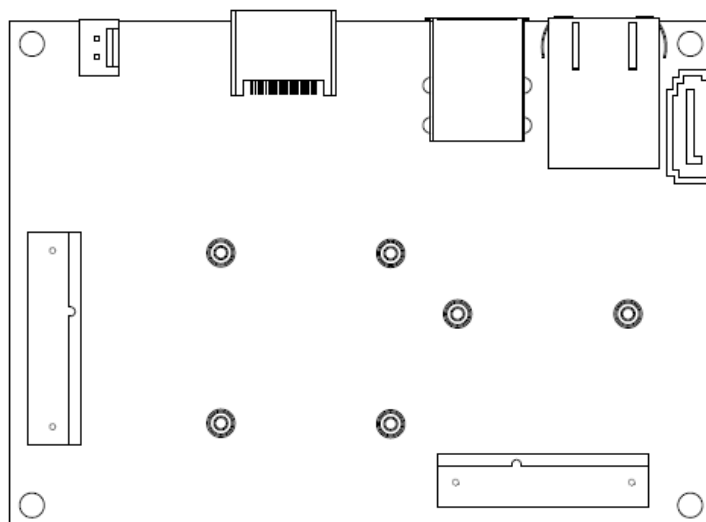
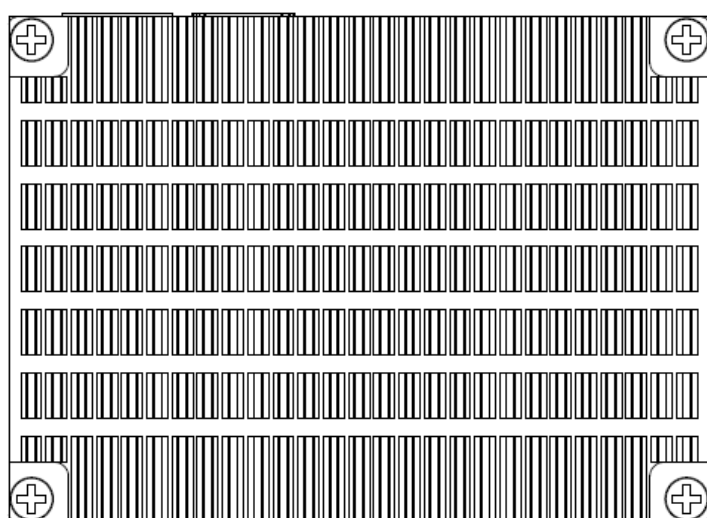
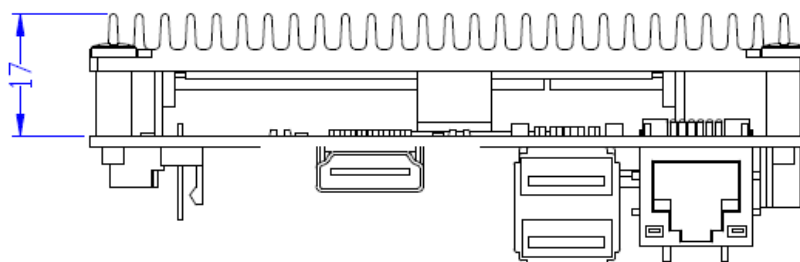


1.3 Board Dimensions

Unit: mm

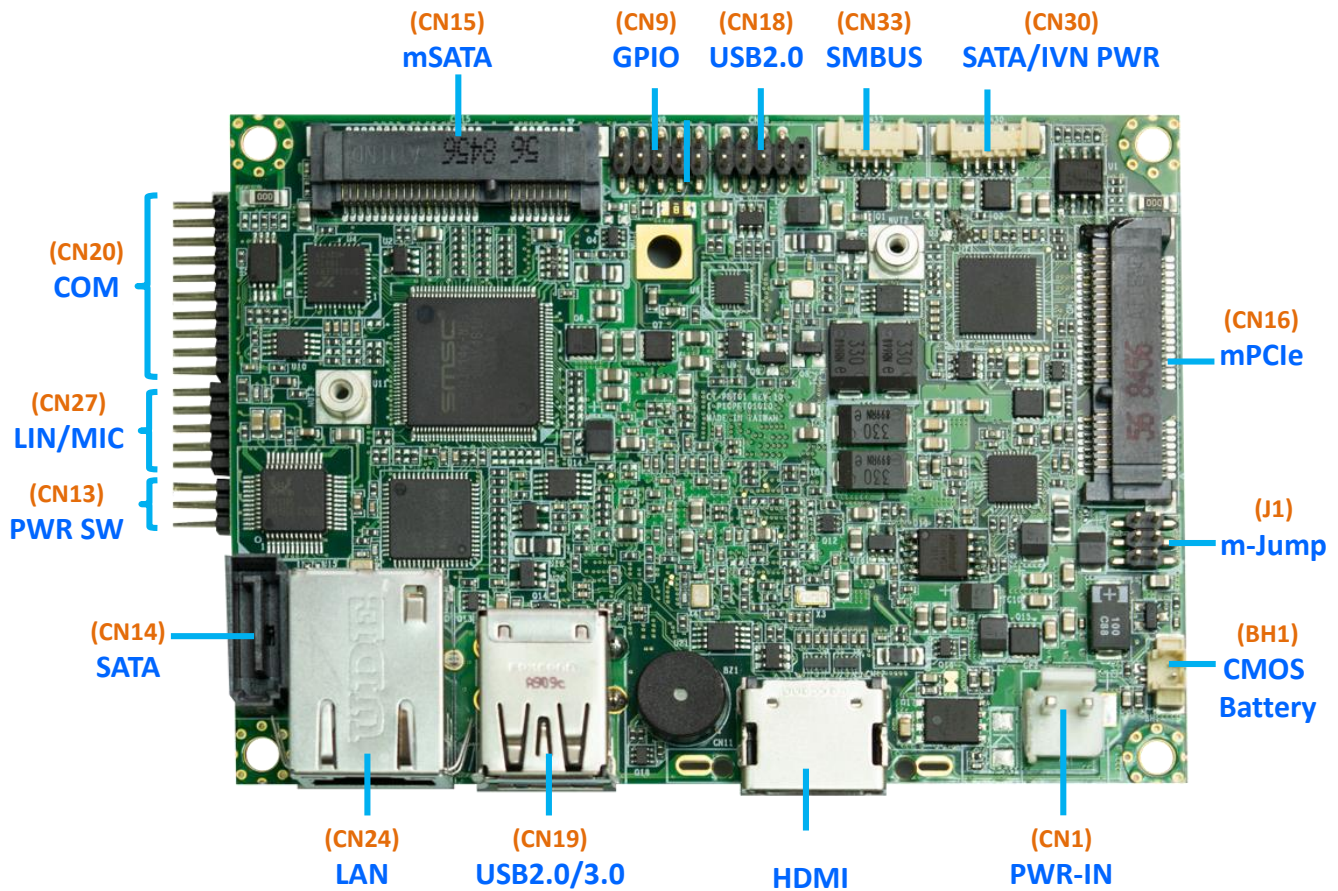
**Board dimension layout (Top side)****Board dimension layout (Bottom side)****Board dimension layout (coastline)**

Unit: mm

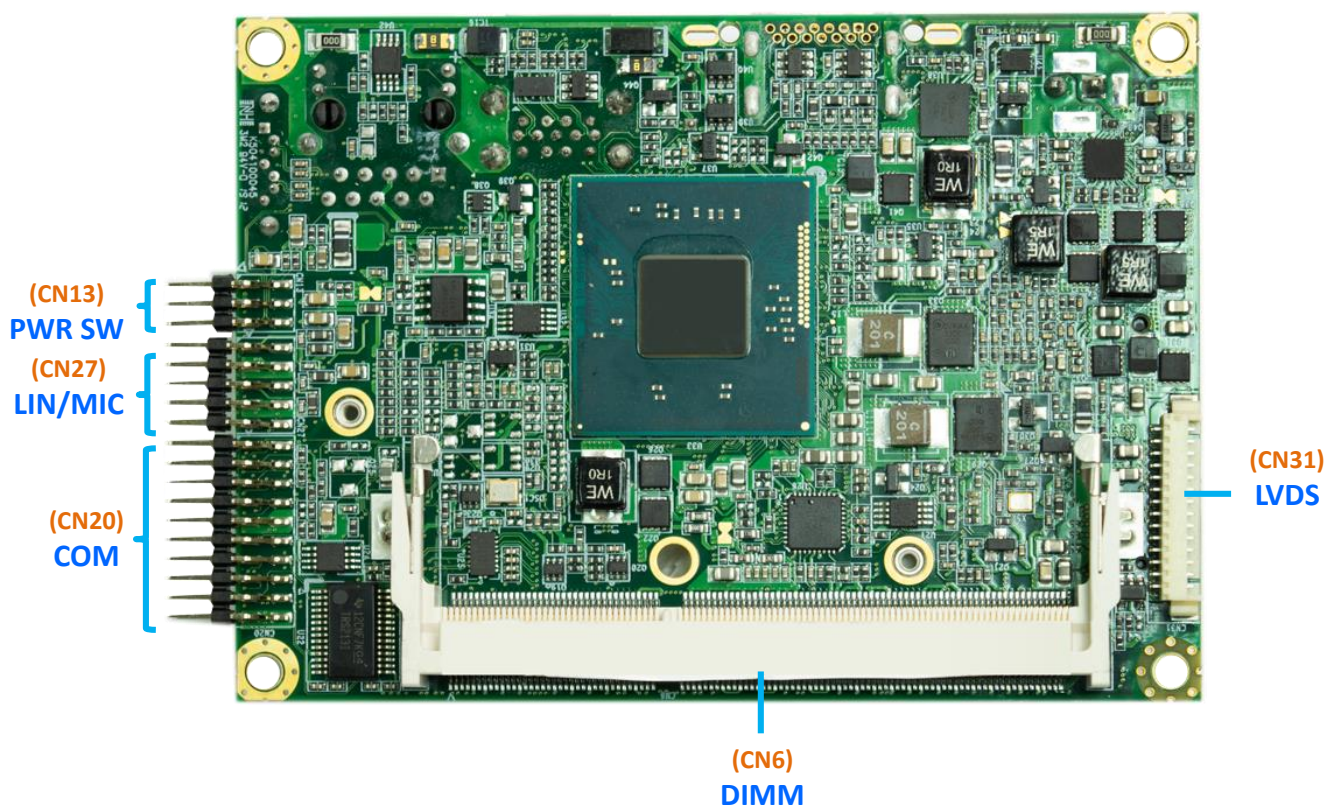
**Board dimension layout (Top side)****Board dimension layout (Bottom side)****Board dimension layout (coastline with heatsink)**

1.4 Connectors

Top View

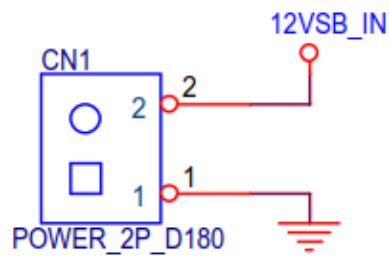


Bottom View

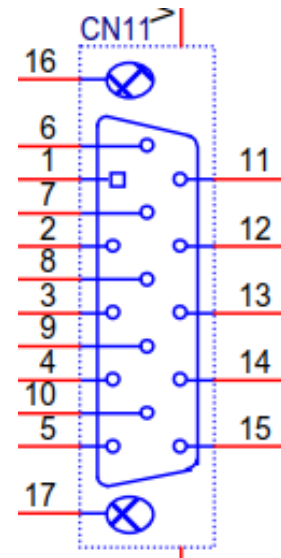


PWR_IN 【CN1】

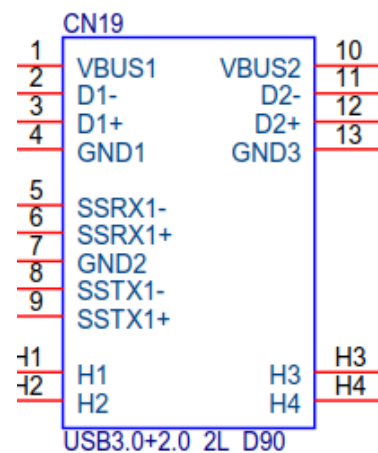
Pin	Definition
1	12V
2	GND

**VGA 【CN11】**

Pin	Definition	Pin	Definition
1	VGA_RED	9	VCC5_DVI1
2	VGA_GREEN	10	GND
3	VGA_BLUE	11	NC.
4	NC.	12	VGA_SDA
5	GND	13	VGA_HSYNC
6	GND	14	VSYNC
7	GND	15	VGA_SCL
8	GND		

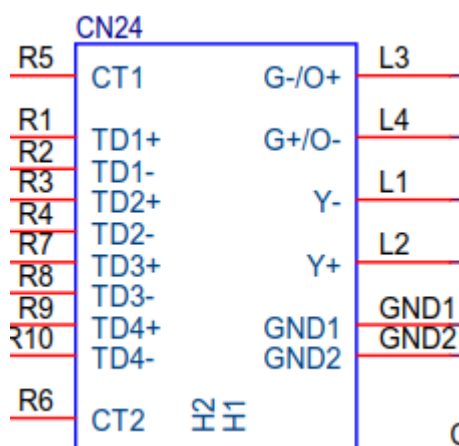
**USB2.0/3.0 【CN19】**

Pin	Definition	Pin	Definition
1	+5V	10	+5V
2	D1-	11	D2-
3	D1+	12	D2+
4	GND	13	GND
5	USB_SSRX-	H1	CND_E
6	USB_SSRX+	H2	CND_E
7	GND	H3	CND_E
8	USB_SSTX-	H4	CND_E
9	USB_SSTX+		

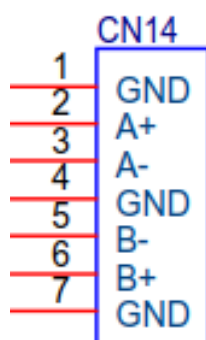


LAN 【CN24】

Pin	Definition
R1	LAN1+
R2	LAN1-
R3	LAN2+
R4	LAN2-
R5	1.5V
R6	1.5V
R7	LAN3+
R8	LAN3-
R9	LAN4+
R10	LAN4-
L1	LANLED1
L2	PULL-H
L3	LANLED2
L4	LANLED3

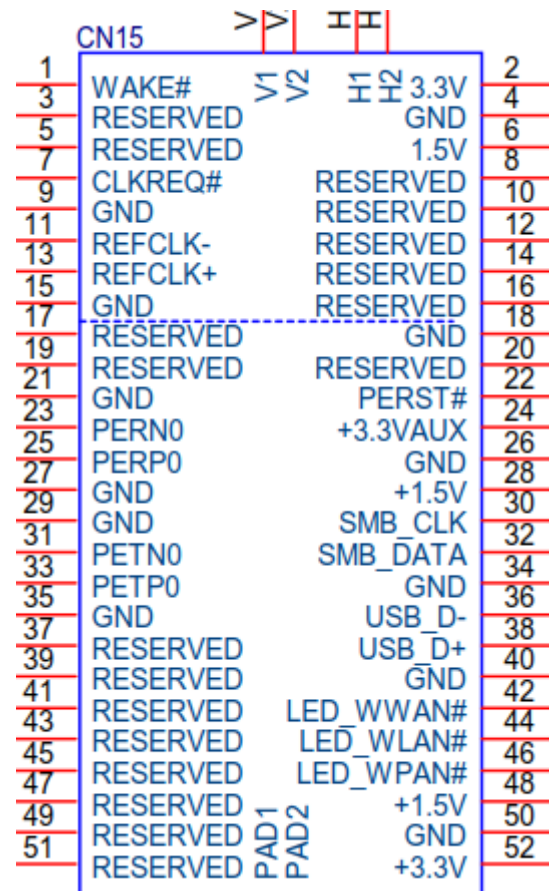
**SATA 【CN14】**

Pin	Definition
1	GND
2	SATA_TX+
3	SATA_TX-
4	GND
5	SATA_RX-
6	SATA_RX+
7	GND

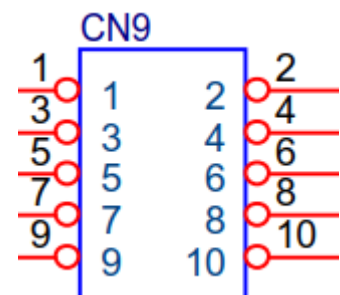


mSATA 【CN15】

Pin	Definition	Pin	Definition	Pin	Definition
1	WAKE#	19	Reserved	37	Reserved
2	+3.3V	20	Reserved	38	USB_D2+
3	Reserved	21	GND	39	Reserved
4	GND	22	PERST#	40	GND
5	Reserved	23	MSATA_RXN0	41	Reserved
6	+1.5V	24	+3.3Vaux	42	Reserved
7	CLKREQ#3	25	MSATA_RXP0	43	Reserved
8	Reserved	27	GND	44	Reserved
9	GND	27	GND	45	Reserved
10	Reserved	28	+1.5V	46	Reserved
11	REFCLK2-	29	GND	47	Reserved
12	Reserved	30	SMB_CLK	48	+1.5V
13	REFCLK2+	31	MSATA_TXN0	49	Reserved
14	Reserved	32	SMB_DATA	50	GND
15	GND	33	MSATA_TXP0	51	Reserved
16	Reserved	34	GND	52	+3.3V
17	Reserved	35	GND	53	GND
18	GND	36	USB_D2-	54	GND

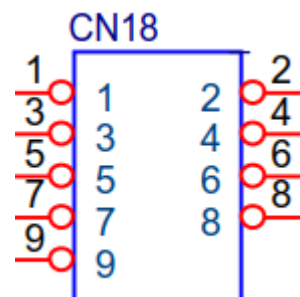
**GPIO 【CN9】**

Pin	Definition	Pin	Definition
1	+5V_SB	6	GPIO6
2	GPIO4	7	GPIO2
3	GPIO0	8	GPIO7
4	GPIO5	9	GPIO3
5	GPIO1	10	GND

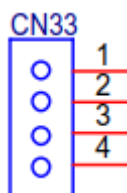


USB2.0 【CN18】

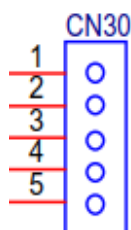
Pin	Definition	Pin	Definition
1	+5V_SB	6	USB3-
2	+5V_SB	7	GND
3	USB2+	8	GND
4	USB3+	9	GND
5	USB2-		

**SMBUS 【CN33】**

Pin	Definition
1	GND
2	SMBDATA
3	SMBCLK
4	+3.3V

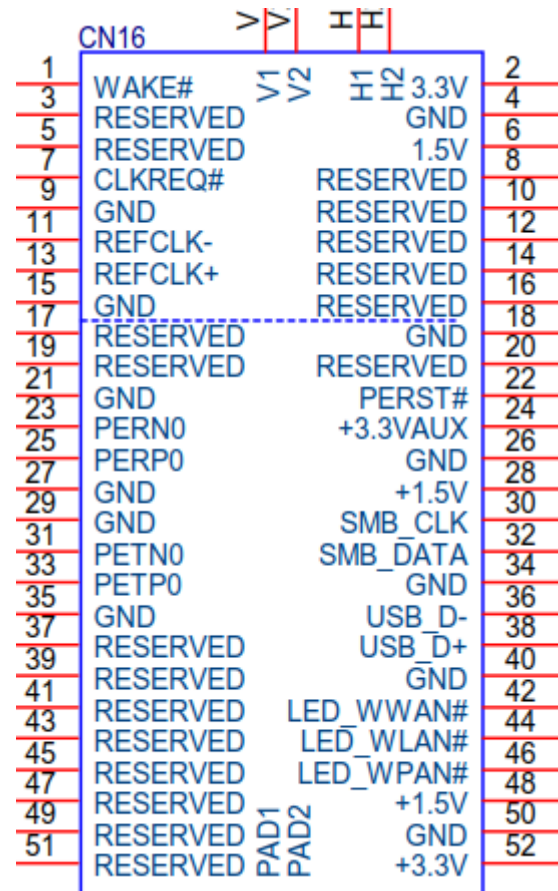
**SATA/INV PWR 【CN30】**

Pin	Definition
1	+12V_LED
2	GND
3	INV_ON
4	L_BKLT_CTRL
5	VCCM5



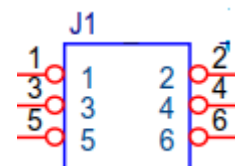
mPCIe 【CN16】

Pin	Definition	Pin	Definition	Pin	Definition
1	WAKE#	19	Reserved	37	Reserved
2	+3.3V	20	Reserved	38	USB_D+
3	Reserved	21	GND	39	Reserved
4	GND	22	PERST#	40	GND
5	Reserved	23	PERn0	41	Reserved
6	+1.5V	24	+3.3Vaux	42	LED_WWAN#
7	CLKREQ#	25	PERp0	43	Reserved
8	UIM_PWR	27	GND	44	LED_WLAN#
9	GND	27	GND	45	Reserved
10	UIM_DATA	28	+1.5V	46	LED_WPAN#
11	REFCLK-	29	GND	47	Reserved
12	UIM_CLK	30	SMB_CLK	48	+1.5V
13	REFCLK+	31	PETn0	49	Reserved
14	UIM_RESET	32	SMB_DATA	50	GND
15	GND	33	PETp0	51	Reserved
16	UIM_VPP	34	GND	52	+3.3V
17	Reserved	35	GND	53	GND
18	GND	36	USB_D-	54	GND



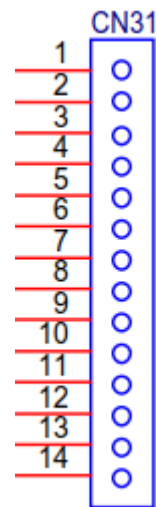
INV PWR by Mini Jump 【J1】

Pin	Definition	Pin	Definition
1	5V	4	VCCM
2	VCCM	5	SIO_PSIN
3	3.3V	6	3.3V_SB

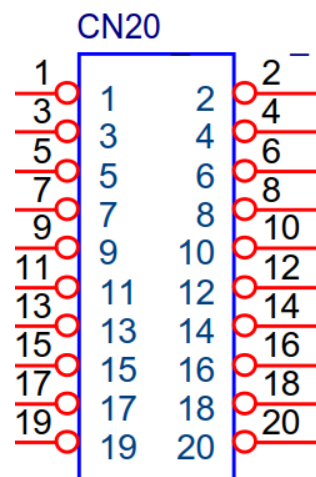


LVDS 【CN31】

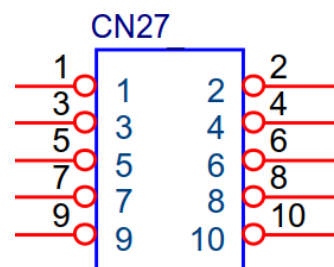
Pin	Definition	Pin	Definition
1	GND	8	LVDS_D2+
2	GND	9	LVDS_D1-
3	LVDS_CLK-	10	LVDS_D1+
4	LVDS_CLK+	11	LVDS_D0-
5	LVDS_D3-	12	LVDS_D0+
6	LVDS_D3+	13	VCCM
7	LVDS_D2-	14	VCCM

**COM1/COM2 【CN20】**

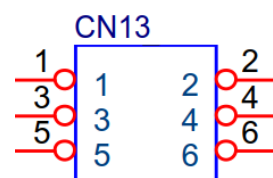
Pin	Definition	Pin	Definition
1	DCD1	11	DCD2
2	DSR1	12	DSR2
3	RXD1	13	RXD2
4	RTS1	14	RTS2
5	TXD1	15	TXD2
6	CTS1	16	CTS2
7	DTR1	17	DTR2
8	RI1	18	RI2
9	GND	19	GND
10	GND	20	GND

**LINE/MIC 【CN27】**

Pin	Definition	Pin	Definition
1	LINE_OUT_R	6	LINE_IN_L
2	LINE_IN_R	7	GND
3	GND	8	GND
4	GND	9	MIC_R
5	LINE_OUT_L	10	MIC_L

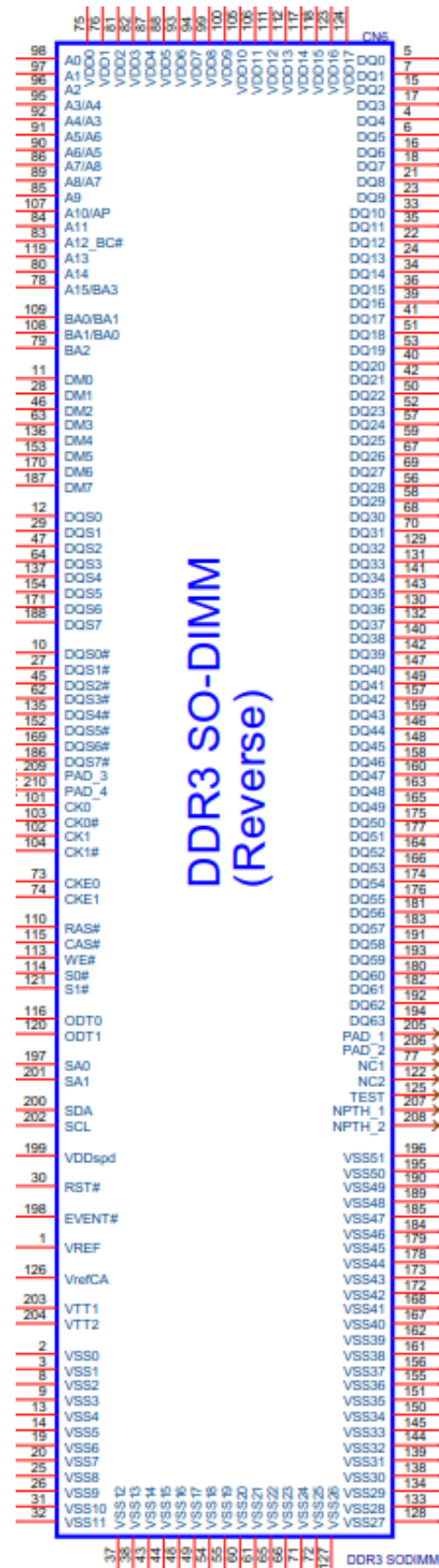
**PWR SW 【CN13】**

Pin	Definition	Pin	Definition
1	SIO_PSIN	4	PULL-H
2	PULL-H	5	RESET
3	GND	6	SATA_LED



DIMM 【CN6】

Pin	Definition	Pin	Definition	Pin	Definition	Pin	Definition
1	V REF DQ	52	DQ23	103	CK0#	154	DQS5
2	VSS	53	DQ19	104	CK1#	155	VSS
3	VSS	54	VSS	105	VDD	156	VSS
4	DQ4	55	VSS	106	VDD	157	DQ42
5	DQ0	56	DQ28	107	A10/AP	158	DQ46
6	DQ5	57	DQ24	108	BA1	159	DQ43
7	DQ1	58	DQ29	109	BA0	160	DQ47
8	VSS	59	DQ25	110	RAS#	161	VSS
9	VSS	60	VSS	111	VDD	162	VSS
10	DQS	61	VSS	112	VDD	163	DQ48
11	DM0	62	DQS3	113	WE#	164	DQ52
12	DQS0	63	DM3	114	SO#	165	DQ49
13	VSS	64	DQS3	115	CAS#	166	DQ53
14	VSS	65	VSS	116	ODT0	167	VSS
15	DQ2	66	VSS	117	VDD	168	VSS
16	DQ6	67	DQ27	118	VDD	169	DQS6#
17	DQ3	68	DQ30	119	A13/NC	170	DM6
18	DQ7	69	DQ27	120	ODT1	171	DQS6
19	VSS	70	DQ31	121	S1#	172	VSS
20	VSS	71	VSS	122	NC	173	VSS
21	DQ8	72	VSS	123	VDD	174	DQ54
22	DQ12	73	CKE0	124	VDD	175	DQ50
23	DQ9	74	CKE1	125	NC	176	DQ55
24	DQ13	75	VDD	127	V REF CA	177	DQ51
25	VSS	76	VDD	127	VSS	178	VSS
27	VSS	77	NC	128	VSS	179	VSS
27	DQS1#	78	NC	129	DQ32	180	DQ60
28	DM1	79	BA2	130	DQ36	181	DQ56
29	DQS1	80	NC	131	DQ33	182	DQ61
30	RESET#	81	VDD	132	DQ37	183	DQ57
31	VSS	82	VDD	133	VSS	184	VSS
32	VSS	83	A12/BC#	134	VSS	185	VSS
33	DQ10	84	A11	135	DQS4#	186	DQS7#
34	DQ14	85	A9	136	DM4	187	DM7
35	DQ11	86	A7	137	DQS4	188	DQS7
36	DQ15	87	VDD	138	VSS	189	VSS
37	VSS	88	VDD	139	VSS	190	VSS
38	VSS	89	A8	140	DQ38	191	DQ58
39	DQ16	90	A6	141	DQ34	192	DQ62
40	DQ20	91	A5	142	DQ39	193	DQ59
41	DQ17	92	A4	143	DQ35	194	DQ63
42	DQ21	93	VDD	144	VSS	195	VSS
43	VSS	94	VDD	145	VSS	196	VSS
44	VSS	95	A3	146	DQ44	197	SA0
45	DQS2#	96	A2	147	DQ40	198	EVENT#
46	DM2	97	A1	148	DQ45	199	VDDSPD
47	DQS2	98	A0	149	DQ41	200	SDA
48	VSS	99	VDD	150	VSS	201	SA1
49	VSS	100	VDD	151	VSS	202	SCL
50	DQ22	101	CK1	152	DQS5#	203	Vtt
51	DQ18	102	CK1#	153	DM5	204	Vtt

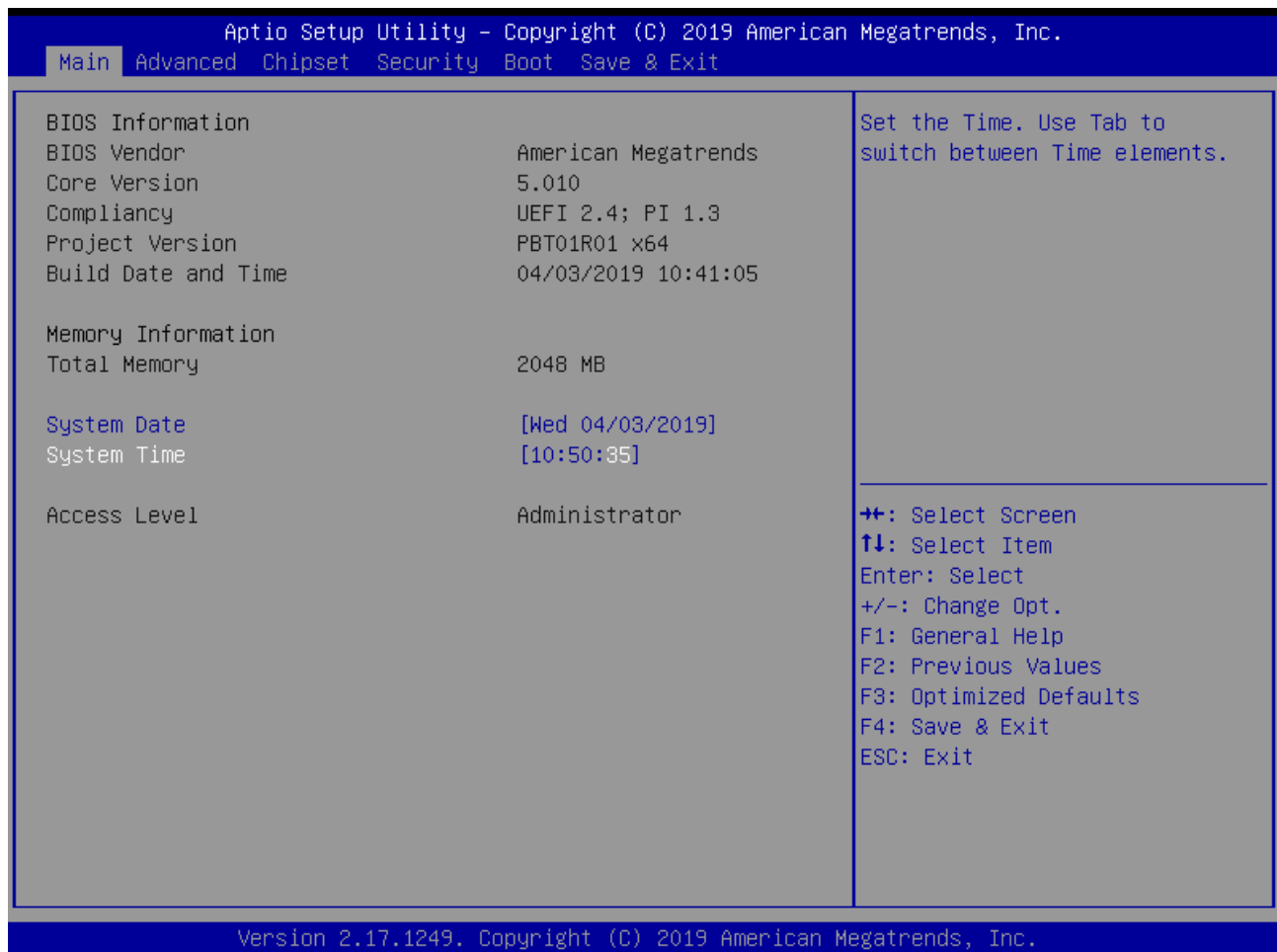


Chapter 2

BIOS Setup

2.1 BIOS Setup

AMIBIOS has been integrated into many motherboards for over a decade. With the AMIBIOS Setup program, users can modify BIOS settings and control various system features. This chapter describes the basic navigation of the CT-PBT01 BIOS setup screens.



AMI's BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This information is stored in flash ROM so it retains the Setup information when the power is turned off.



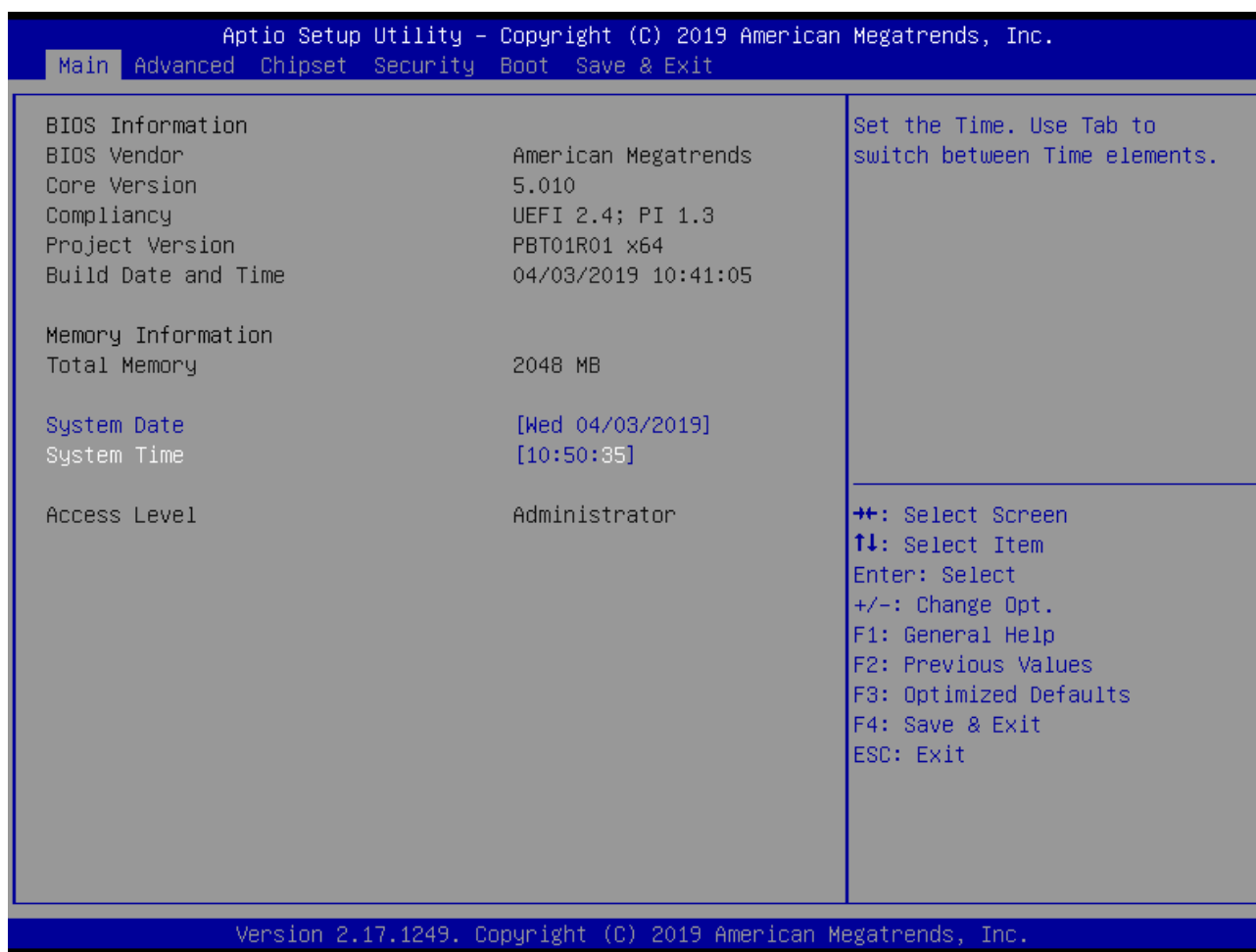
Default BIOS is supported for 64 bit OS installation, BIOS for 32 bit OS is supported by project, please contact with sales representative for details.

2.2 Entering Setup

Turn on the computer and check for the -patch" code. If there is a number assigned to the patch code, it means that the BIOS supports your CPU. If there is no number assigned to the patch code, please contact an Advantech application engineer to obtain an up-to-date patch code file. This will ensure that your CPU's system status is valid. After ensuring that you have a number assigned to the patch code, press and you will immediately be allowed to enter Setup.

2.2.1 Main Setup

When users first enter the BIOS Setup Utility, users will enter the Main setup screen. Users can always return to the Main setup screen by selecting the Main tab. There are two Main Setup options. They are described in this section. The Main BIOS Setup screen is shown below.



The Main BIOS setup screen has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured; options in blue can. The right frame displays the key legend.

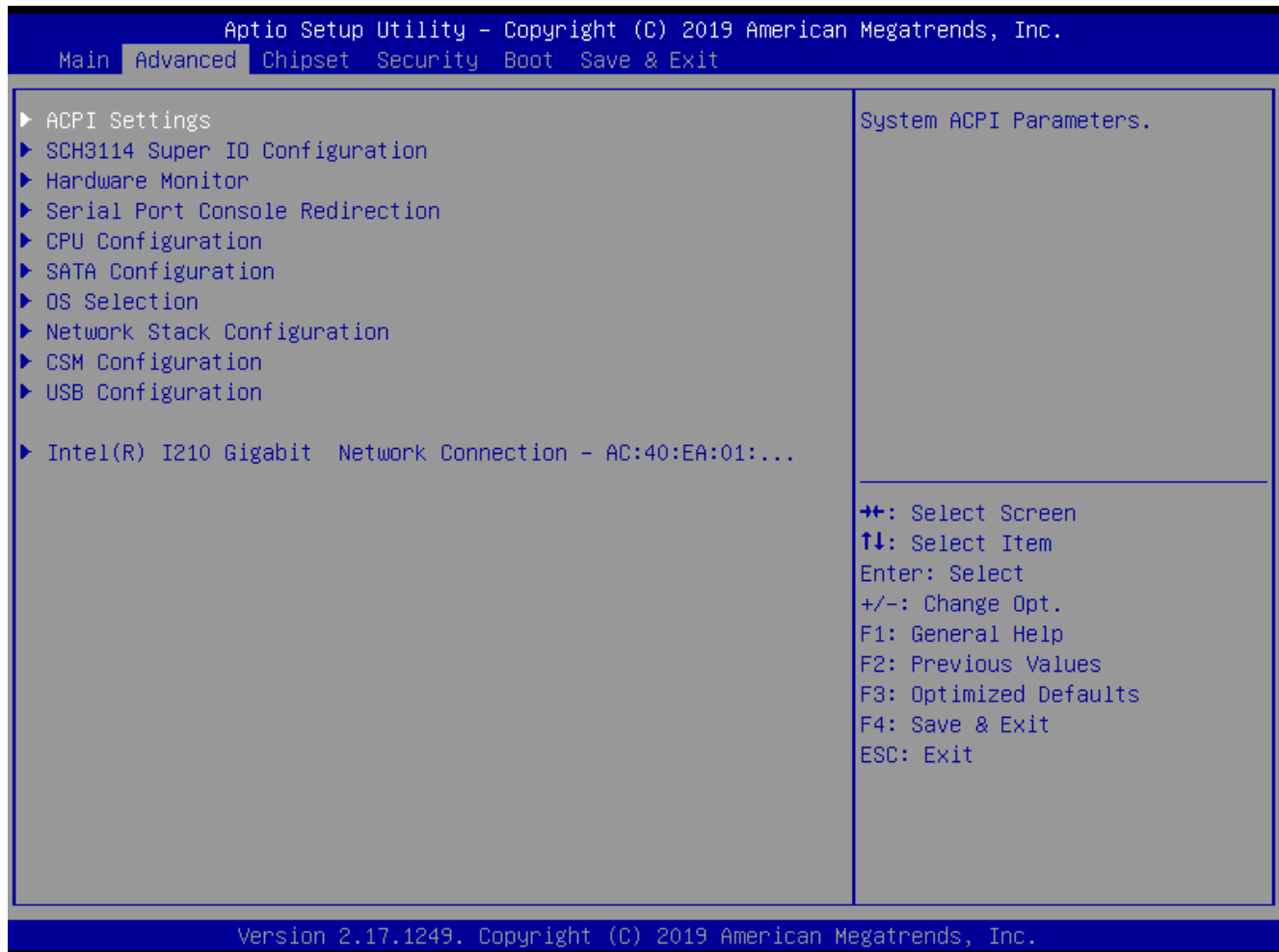
Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it.

■ System time / System date

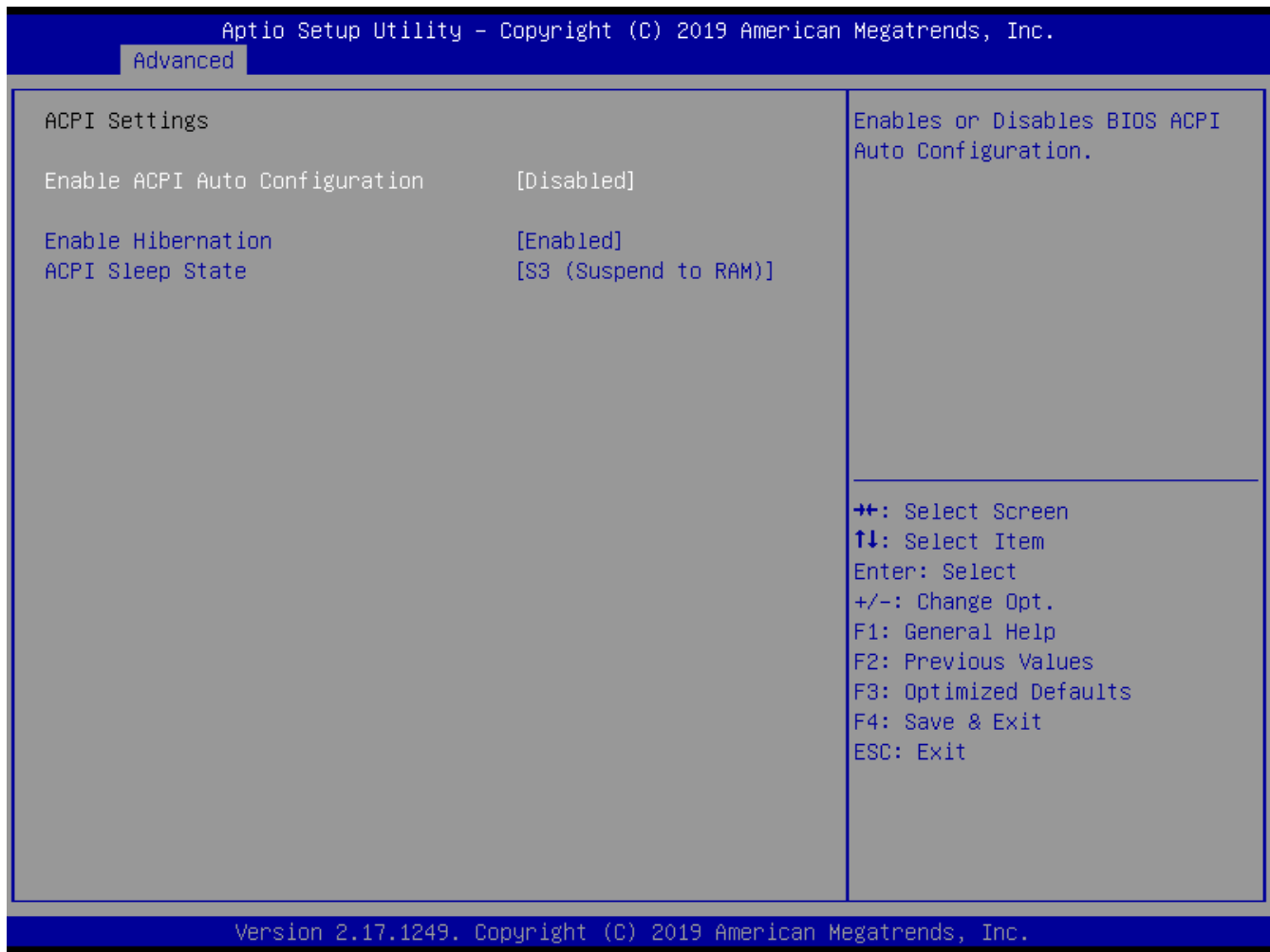
Use this option to change the system time and date. Highlight System Time or System Date using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time must be entered in HH:MM:SS format.

2.2.2 Advanced BIOS Features Setup

Select the Advanced tab from the CT-PBT01 setup screen to enter the Advanced BIOS Setup screen. Users can select any item in the left frame of the screen, such as CPU Configuration, to go to the sub menu for that item. Users can display an Advanced BIOS Setup option by highlighting it using the <Arrow> keys. All Advanced BIOS Setup options are described in this section. The Advanced BIOS Setup screens are shown below. The sub menus are described on the following pages.



2.2.2.1 ACPI Settings Configuration



■ Enable ACPI Auto Configuration

Enable or disable BIOS ACPI auto configuration.

■ Enable Hibernation

Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.

■ ACPI Sleep State

Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.

2.2.2.2 Super I/O Monitor



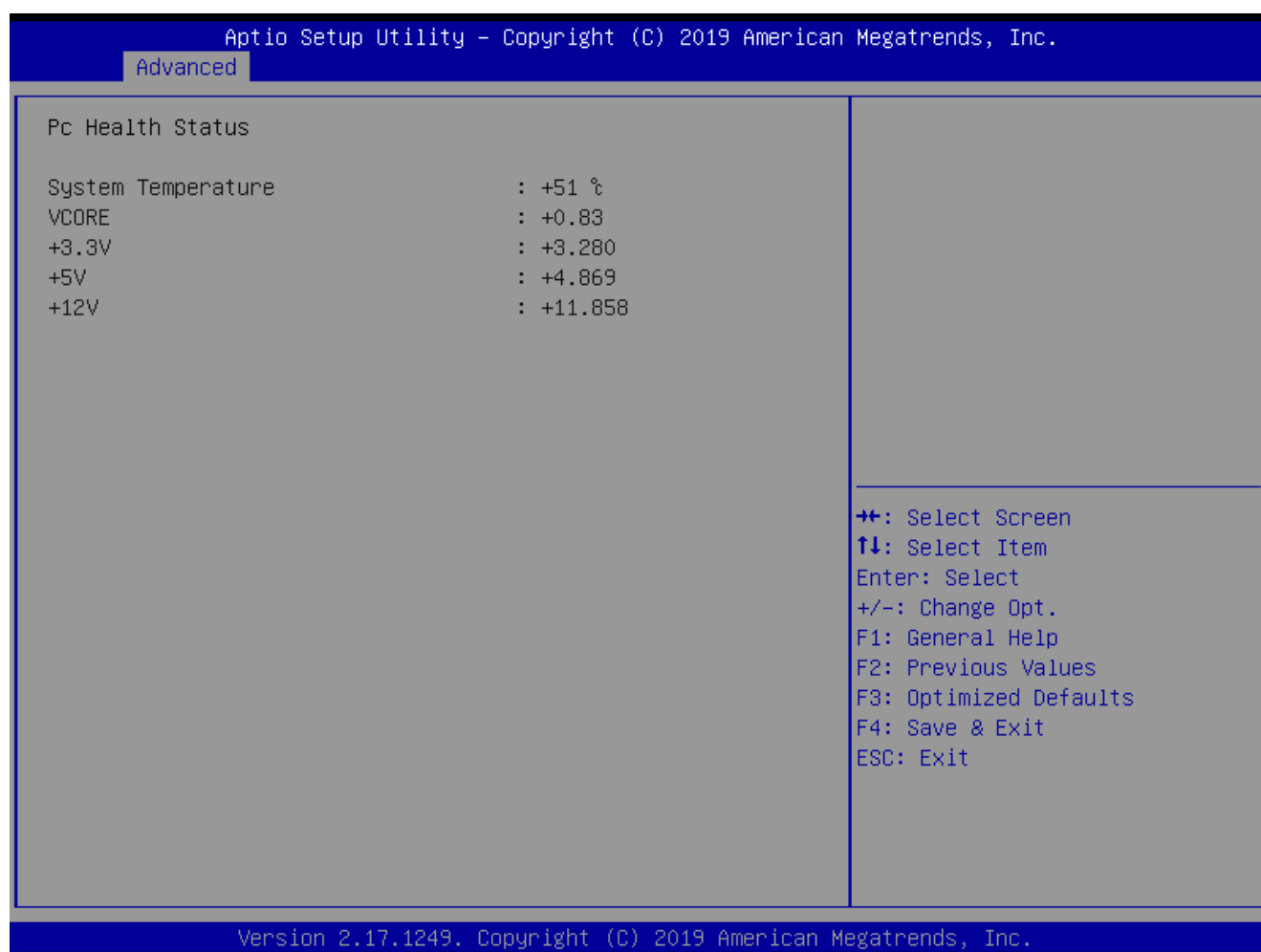
■ Serial Port 1 Configuration

Set Parameters of Serial Port 1 (COMA)

■ Serial Port 2 Configuration

Set Parameters of Serial Port 2 (COMB)

2.2.2.3 H/W Monitor



■ PC Health Status

This page displays all the information about system Temperature/Voltage.

2.2.2.4 Serial Port Console Redirection



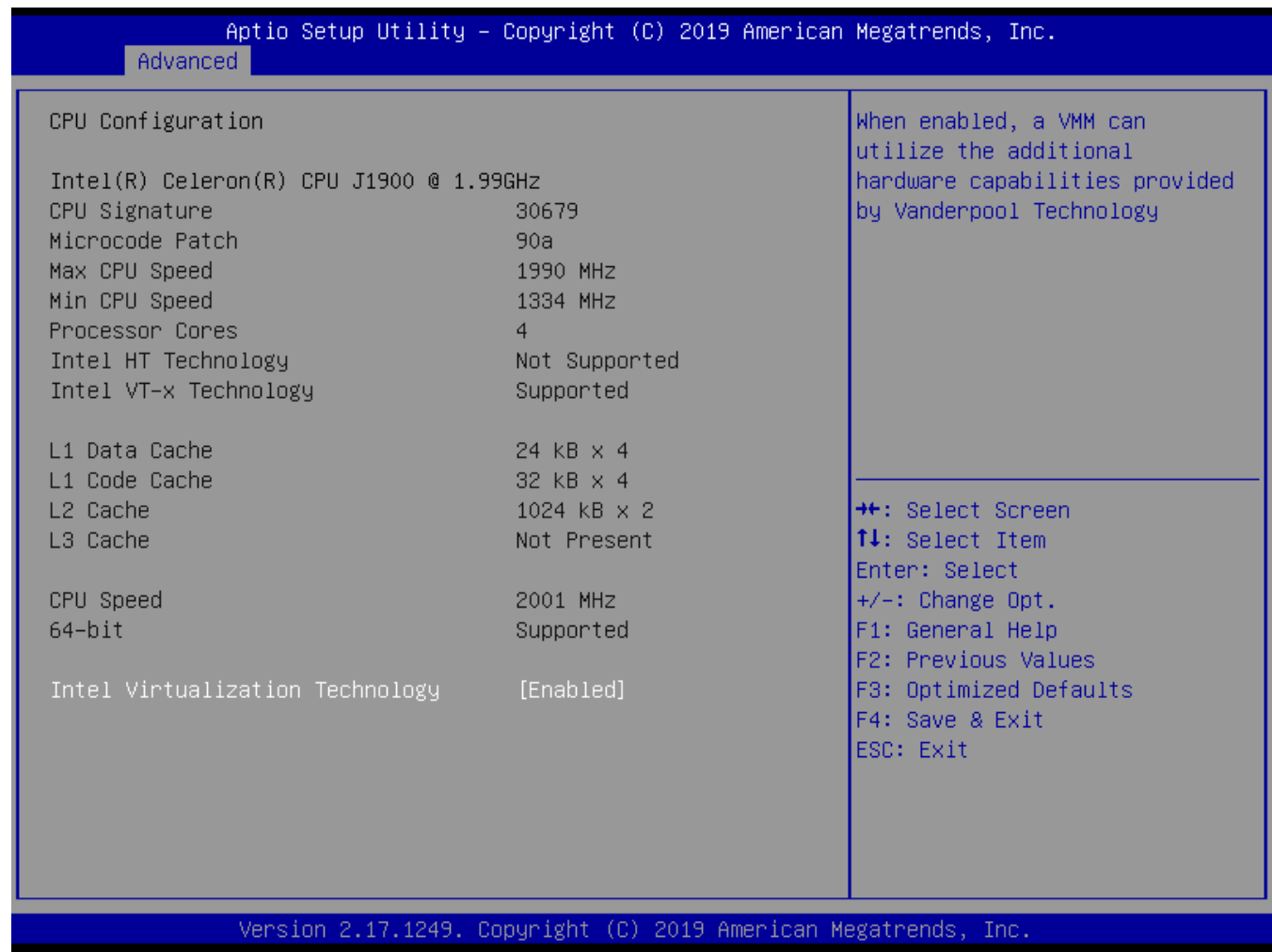
■ Console Redirection

This item allows users to enable or disable console redirection for Microsoft Windows Emergency Management Services (EMS).

■ Console Redirection

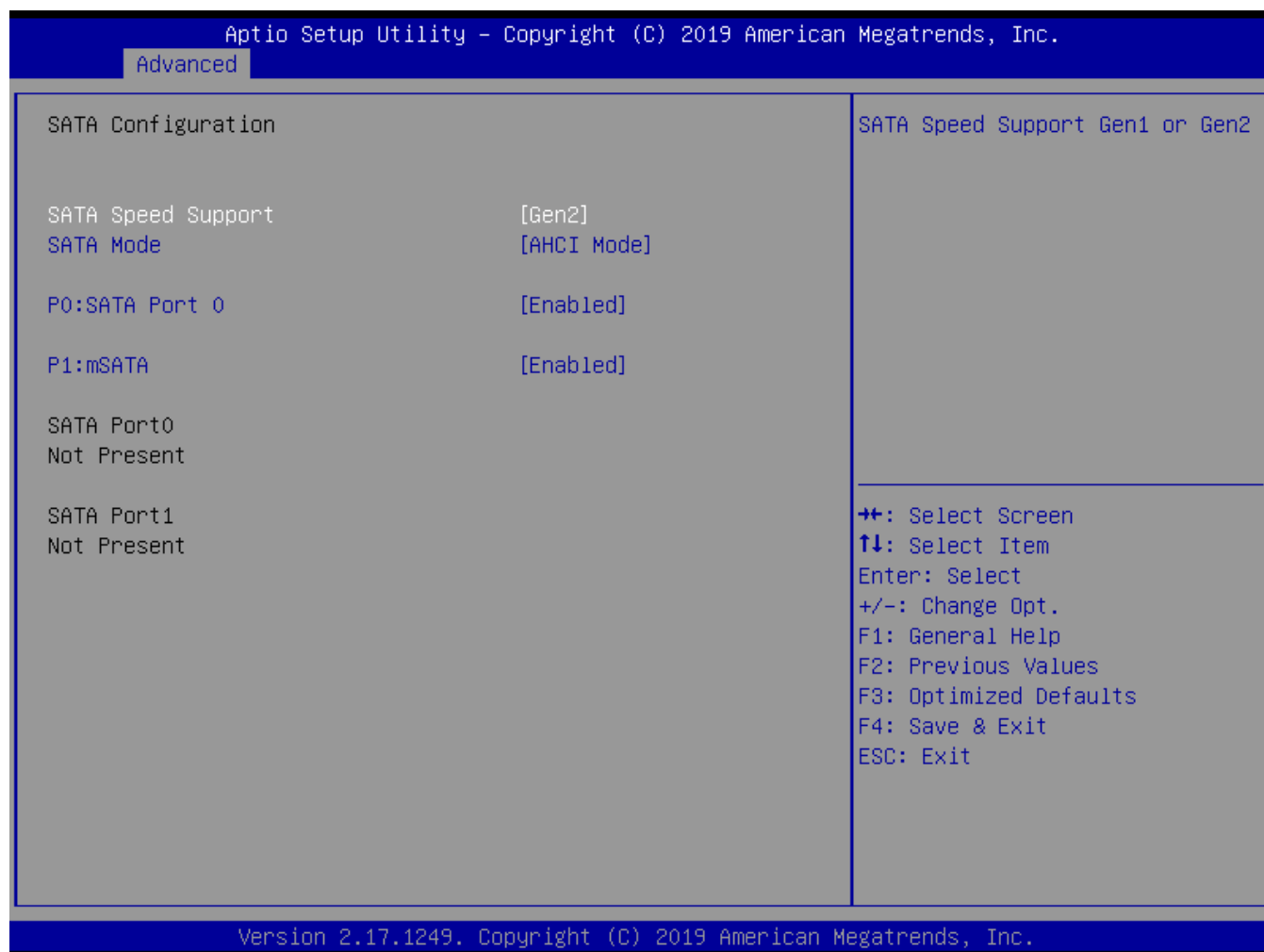
This item allows users to configure console redirection detail settings.

2.2.2.5 CPU Configuration



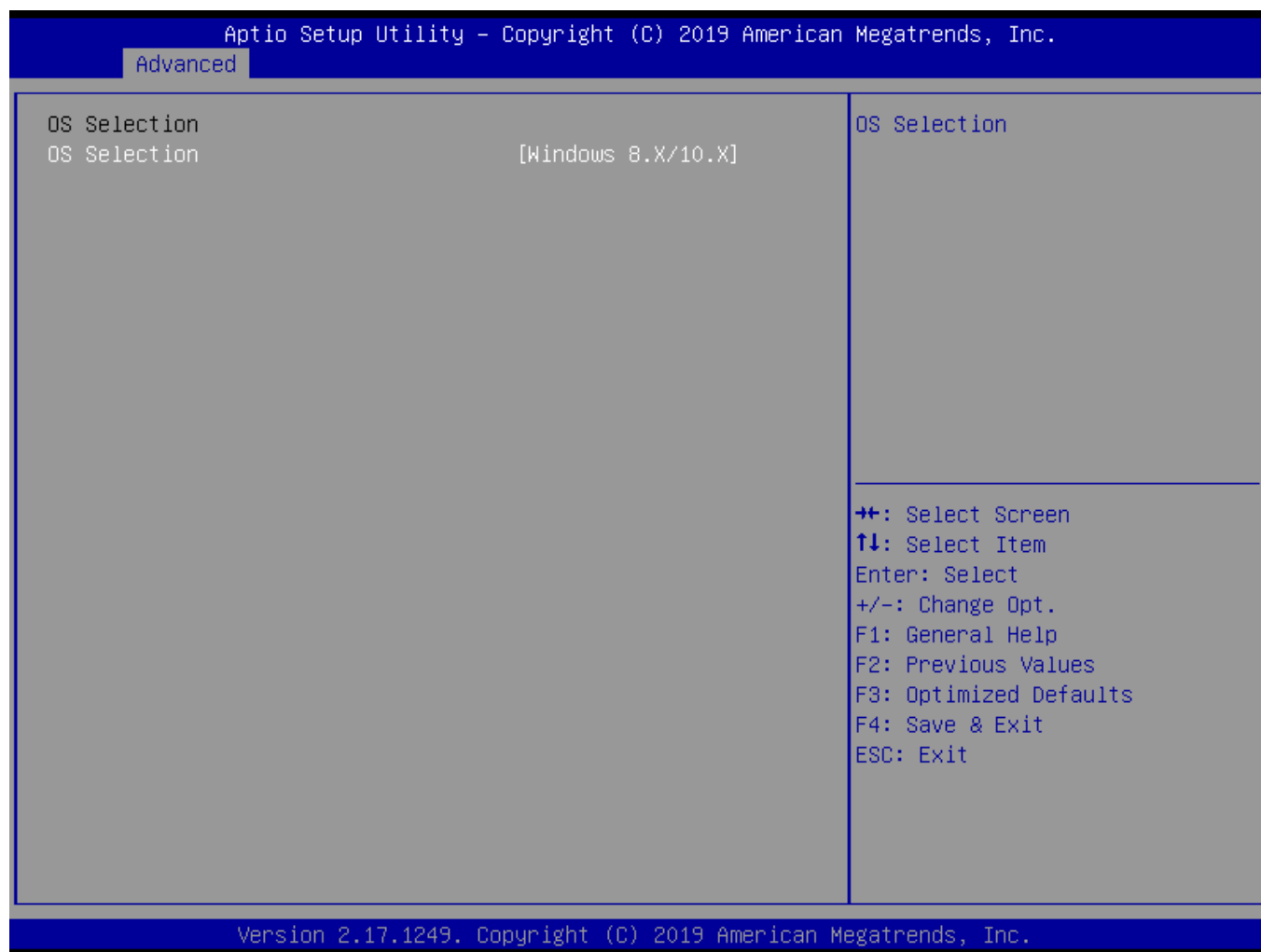
- **Intel Virtualization Technology**
This item allows you to enable or disable the Intel Virtualization Technology.

2.2.2.6 SATA Configuration



- **SATA Speed Support**
SATA Speed Supports Gen1 or Gen2
- **SATA Mode**
Select IDE / AHCI
- **P0: SATA Port 0**
Enable / Disable Serial ATA Port 0
- **P1: mSATA**
Enable / Disable mSATA

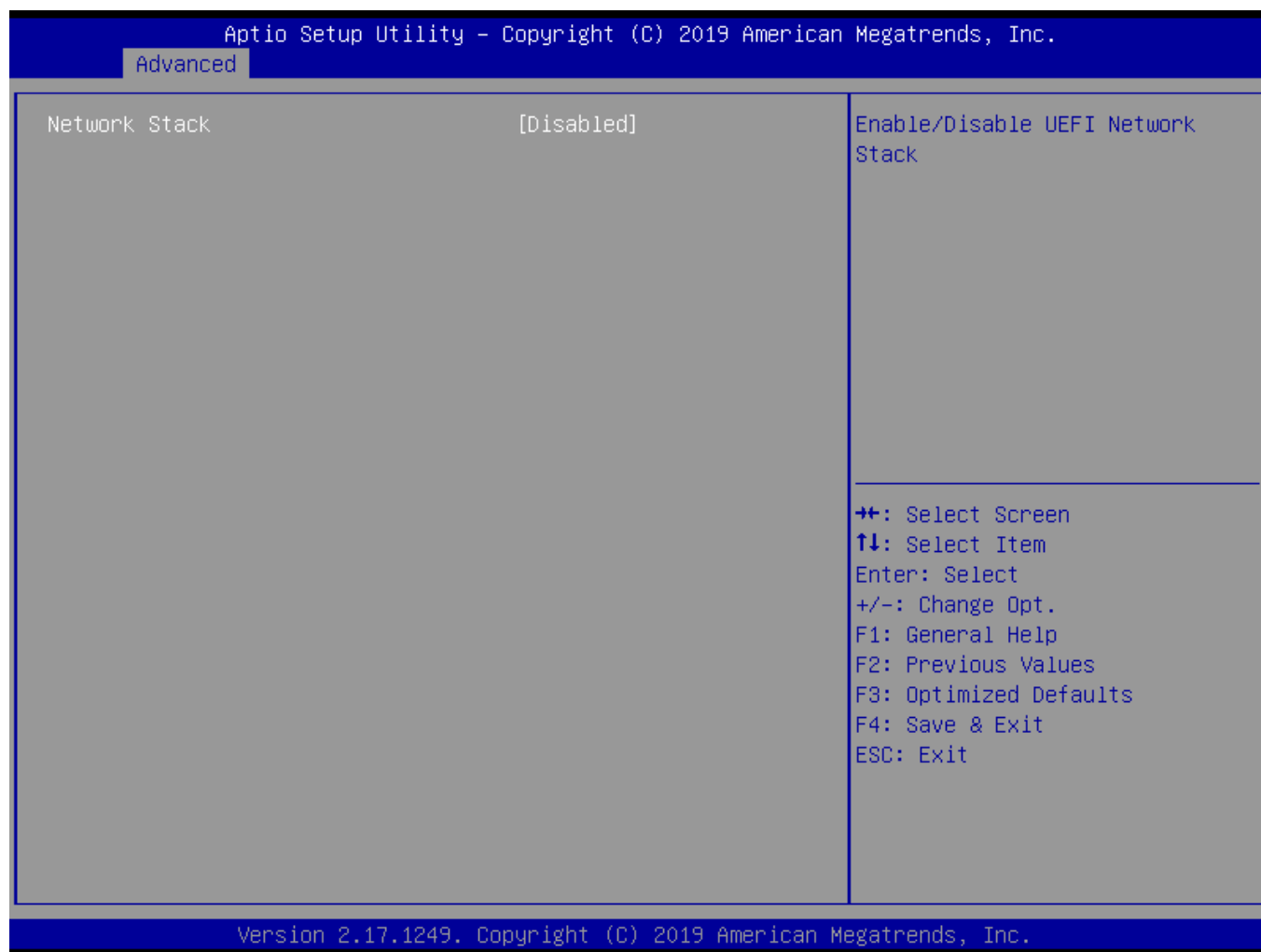
2.2.2.7 OS Selection



■ OS Selection

OS Selection Supports Windows 8.x / 10.x

2.2.2.8 Network Stack Configuration



■ Network Stack

Enable or disable Network Stack Configuration.

2.2.2.9 CSM Configuration



■ CSM Support

Enable or disable CSM Support.

■ Boot option filter

This option controls Legacy / UEFI ROMs priority.

■ PXE Function

Enable or disable PXE Function.

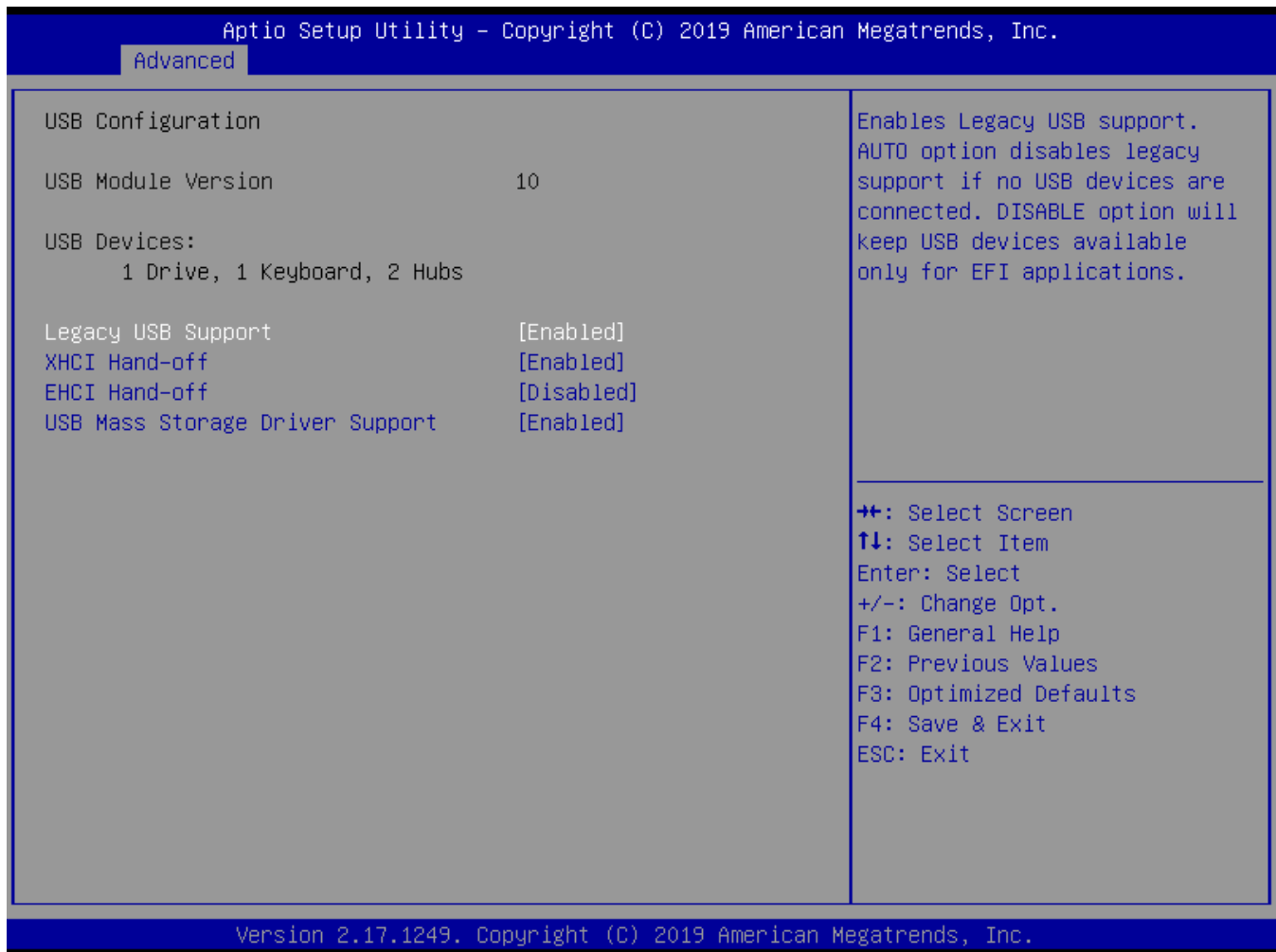
■ Storage

Controls the execution of UEFI and Legacy Storage OpROM

■ Video

Controls the execution of UEFI and Legacy Video OpROM

2.2.2.10 USB Configuration



■ Legacy USB Support

Enables support for legacy USB. Auto option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.

■ XHCI Hand-Off

This is a workaround for OS without XHCI hand-off support. The XHCI ownership change should be claimed by the XHCI driver.

■ EHCI Hand-Off

This is a workaround for OS without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.

■ USB Mass Storage Driver Support

This item allows you to enable or disable the USB mass storage device support.

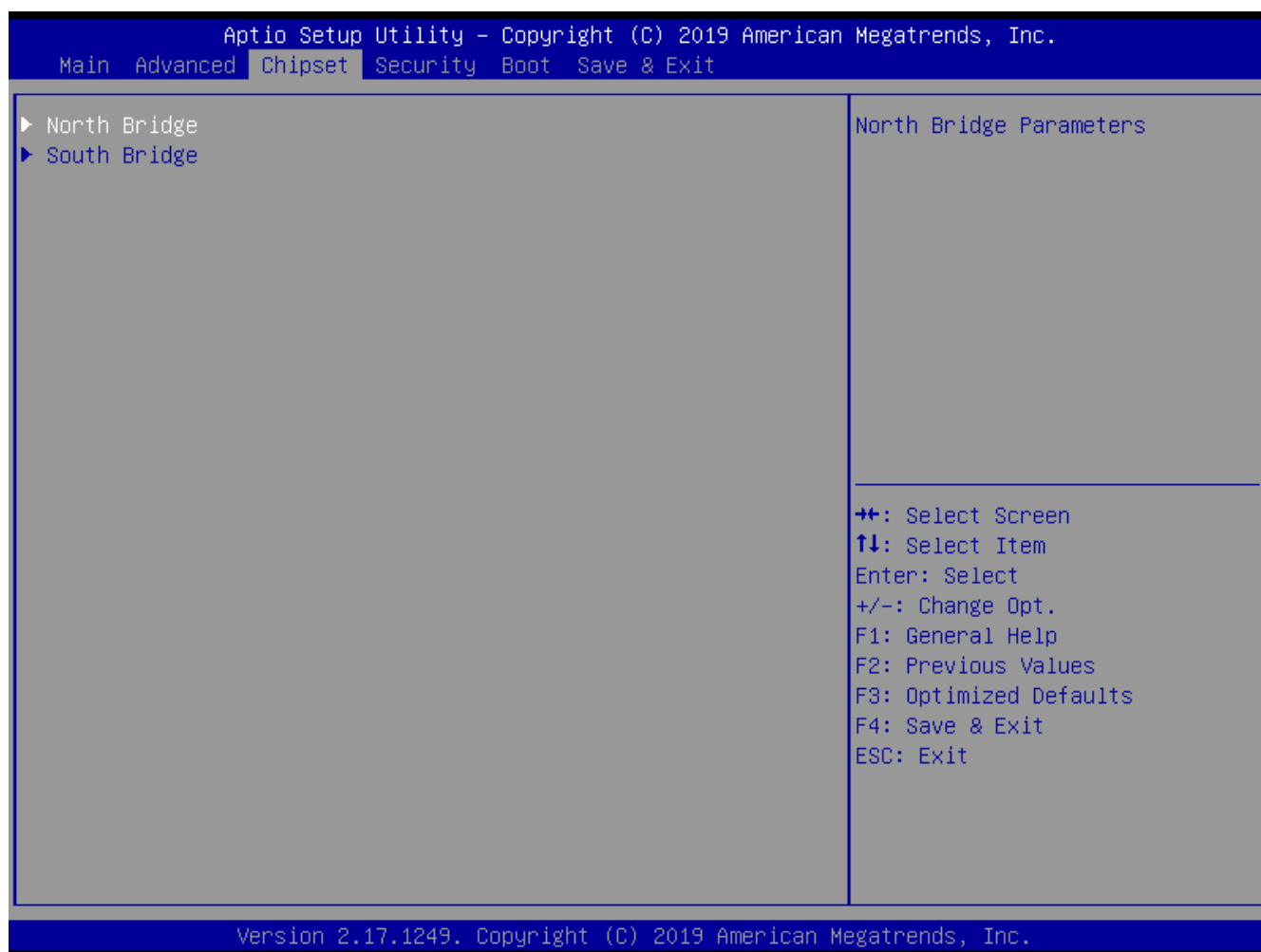
2.2.2.11 Intel I210 Gigabit Network Connection



■ Link Status

Connected or Disconnected the Gigabit Network.

2.2.3 Chipset Configuration



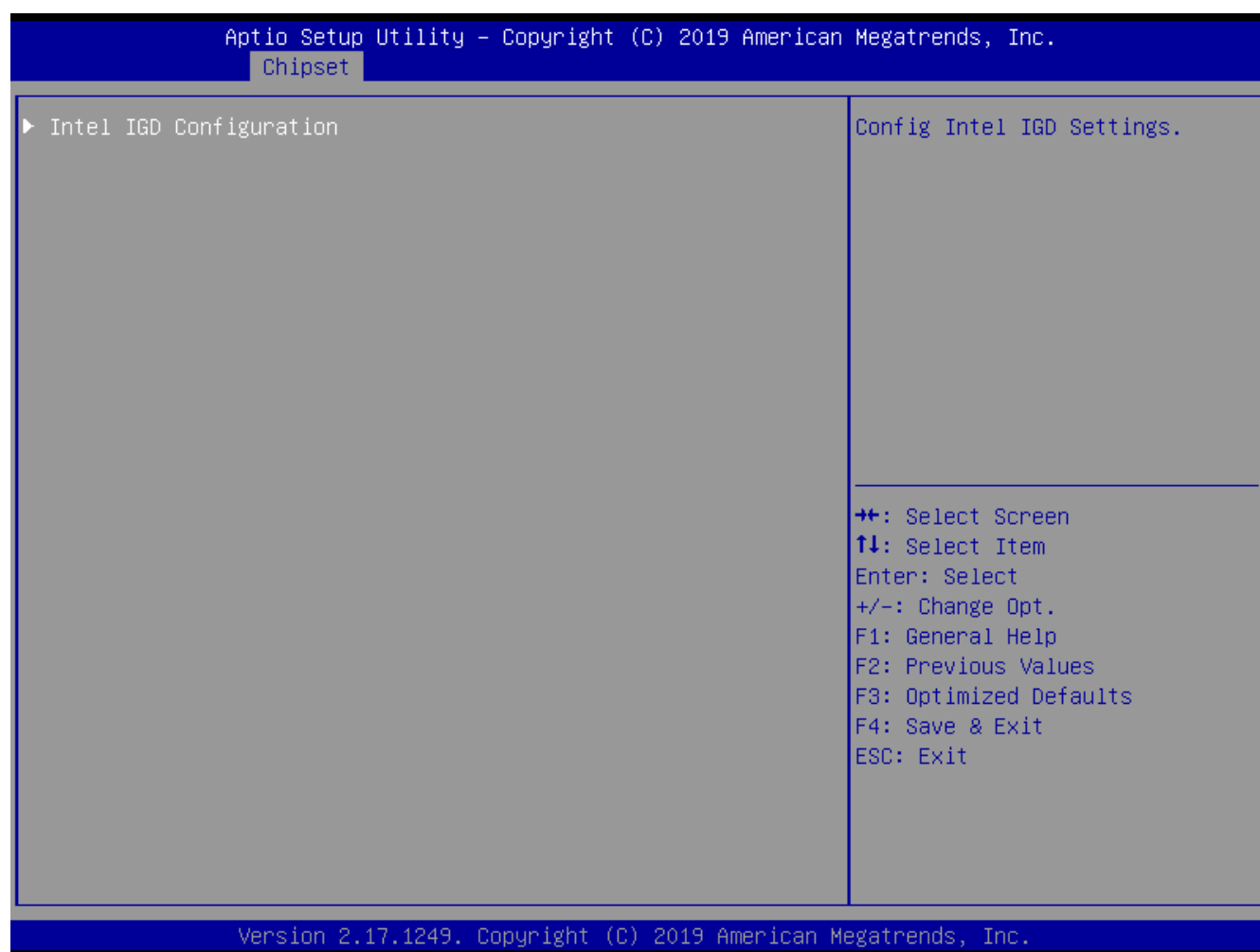
■ North Bridge

Details for North Bridge items

■ South Bridge

Details for South Bridge items

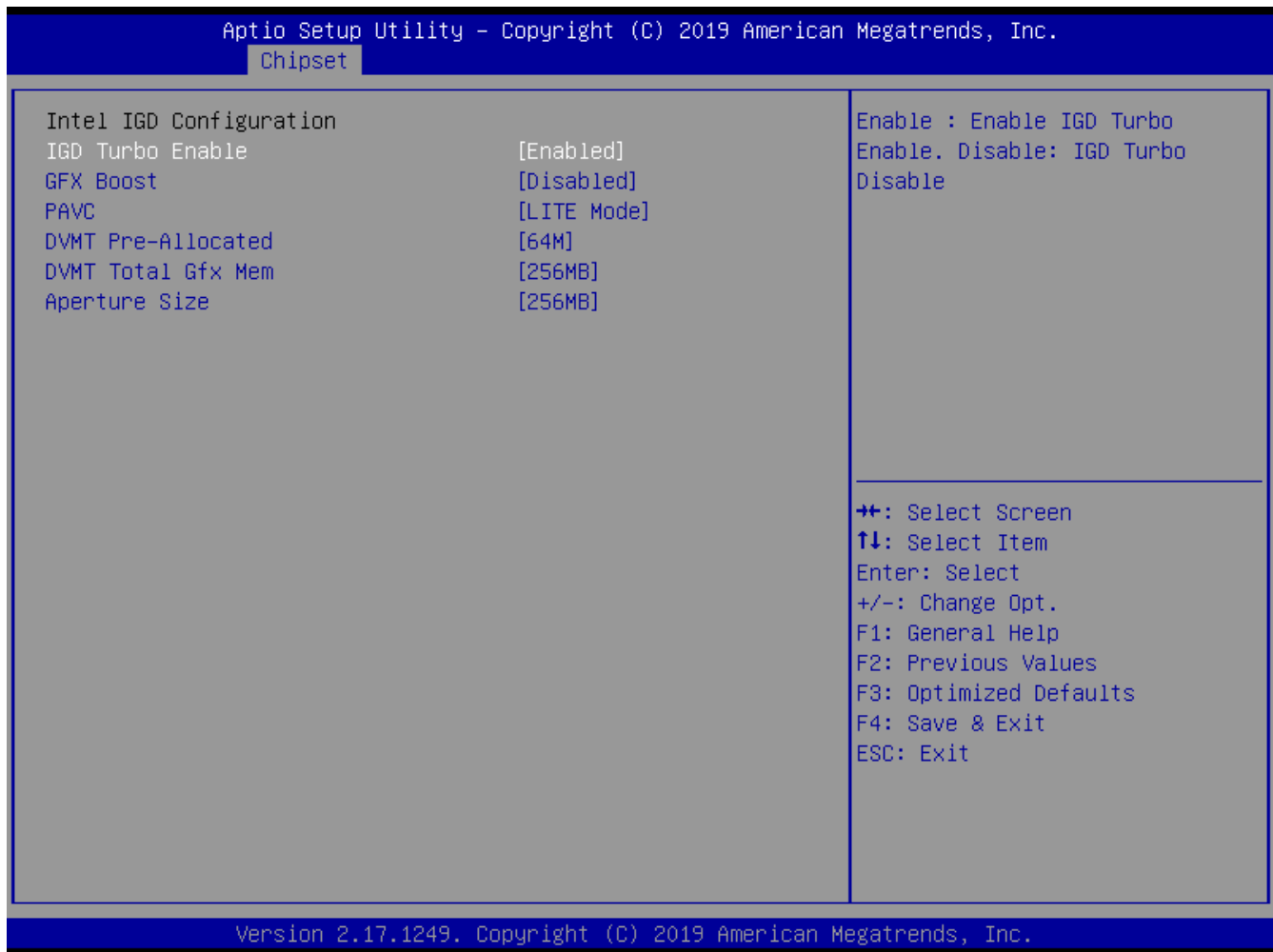
2.2.3.1 North Bridge



■ Intel IGD Configuration

Configure Intel IGD settings.

2.2.3.2 Intel IGD Configuration



■ IGD Turbo Enable

Enable / Disable IGD Turbo.

■ GFX Boost

Enable / Disable GFX boost.

■ PAVC

Select different mode for protected audio video control.

■ DVMT Pre-Allocated

Select DVMT 5.0 Pre-Allocated (Fixed) graphics memory size used by the Internal graphics device.

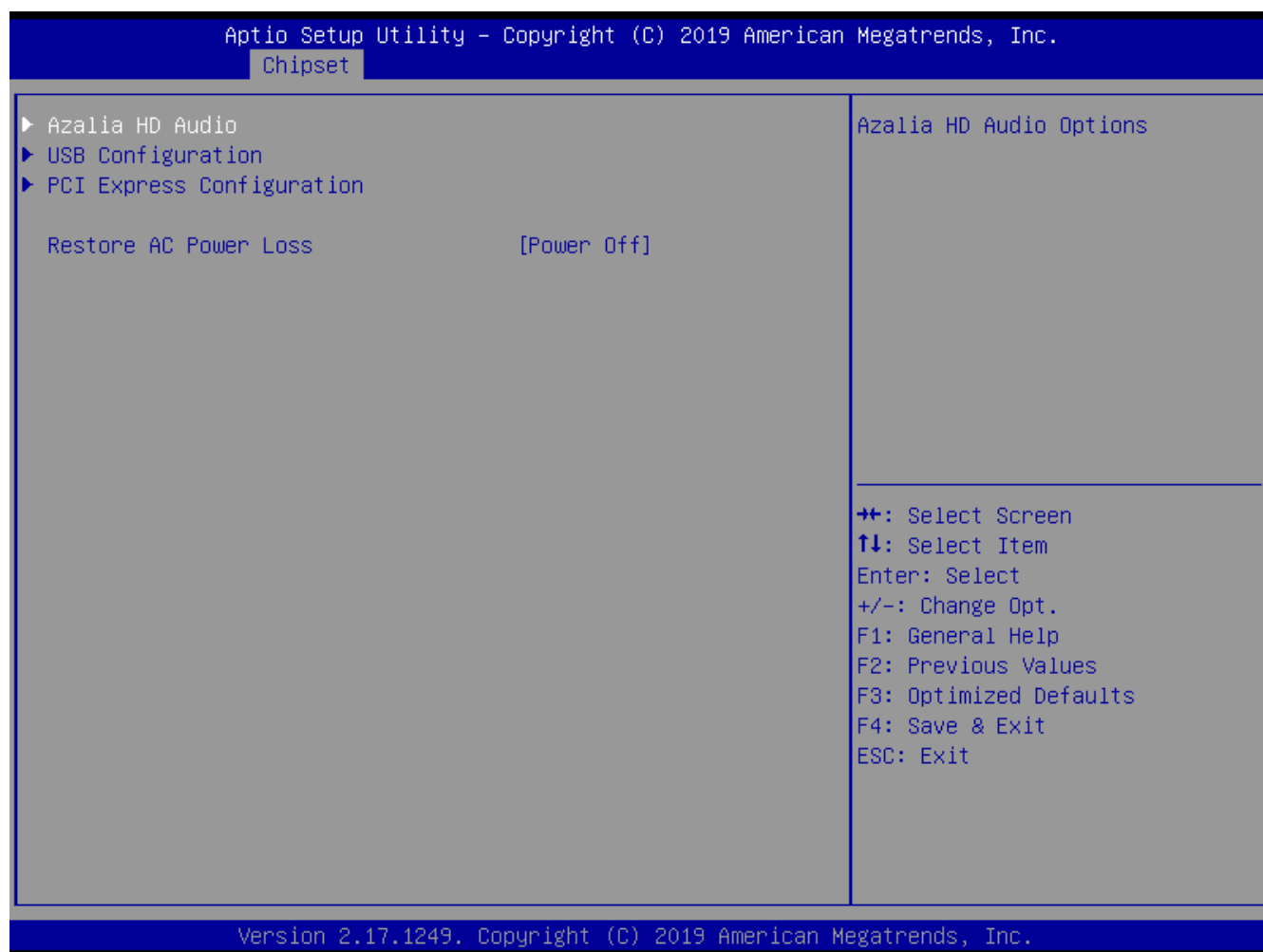
■ DVMT Total Gfx Mem

Select DVMT 5.0 total graphic memory size used by the internal graphics device.

■ Aperture Size

Select the aperture size.

2.2.3.3 South Bridge



■ Azalia HD Audio

Azalia HD audio options

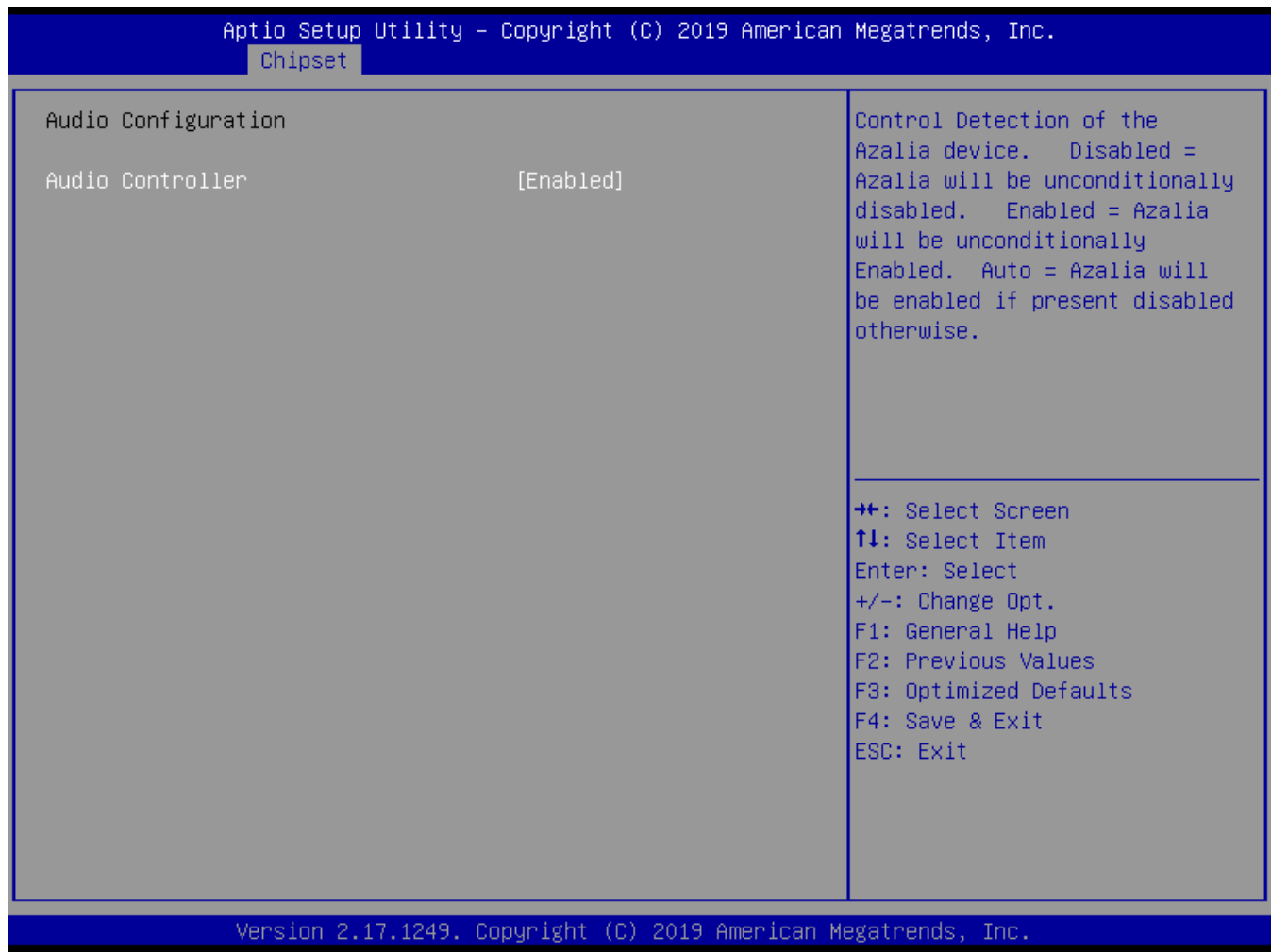
■ USB Configuration

USB configuration settings

■ Restore AC Power Loss

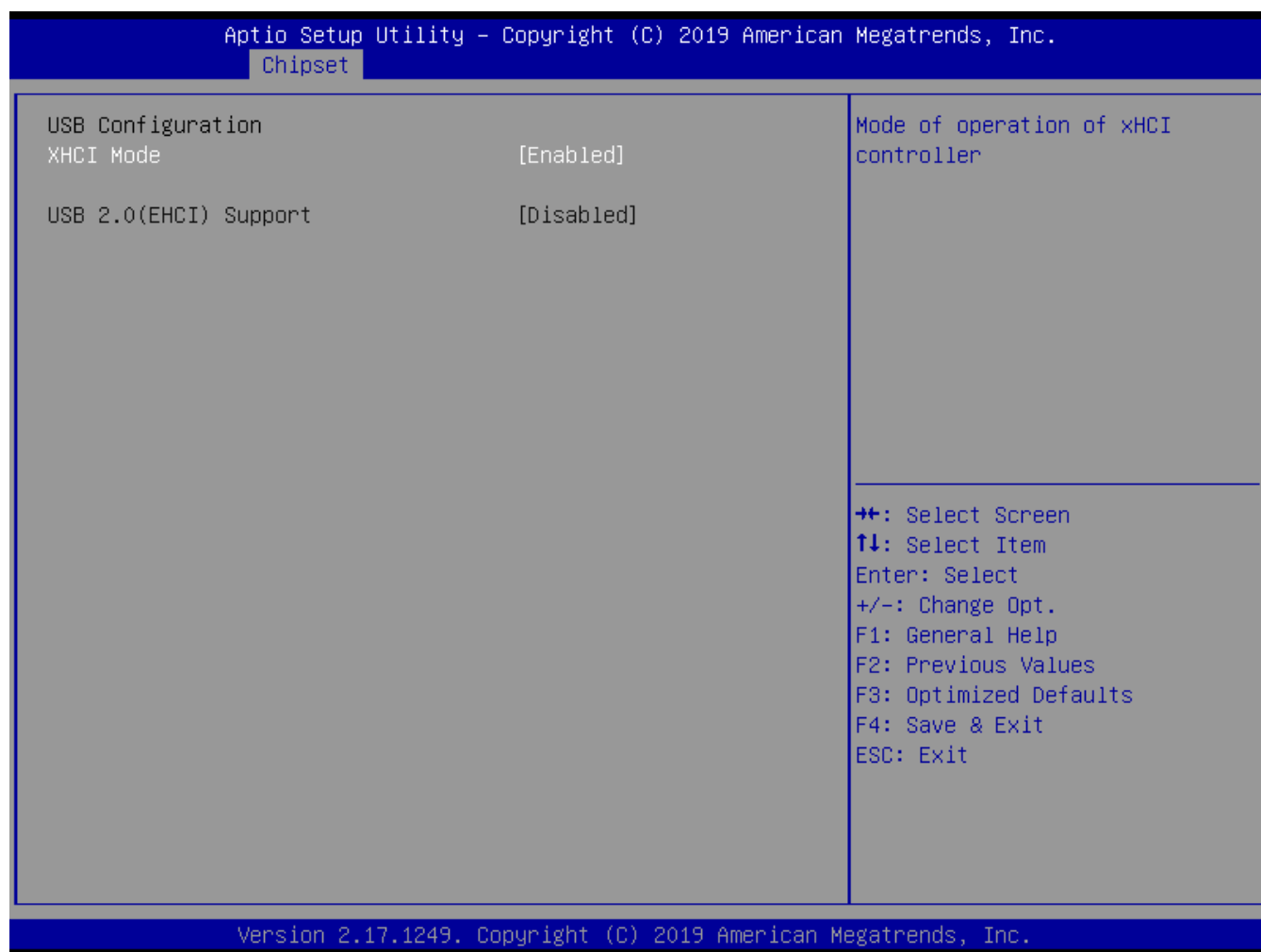
Select AC power state when the power is re-applied after a power failure.

2.2.3.4 Azalia HD Audio



- **Audio Controller**
Control Detection of the Azalia device. Disabled = Azalia will be unconditionally disabled. Enabled = Azalia will be unconditionally Enabled. Auto = Azalia will be enabled if present disabled otherwise.

2.2.3.5 USB Configuration



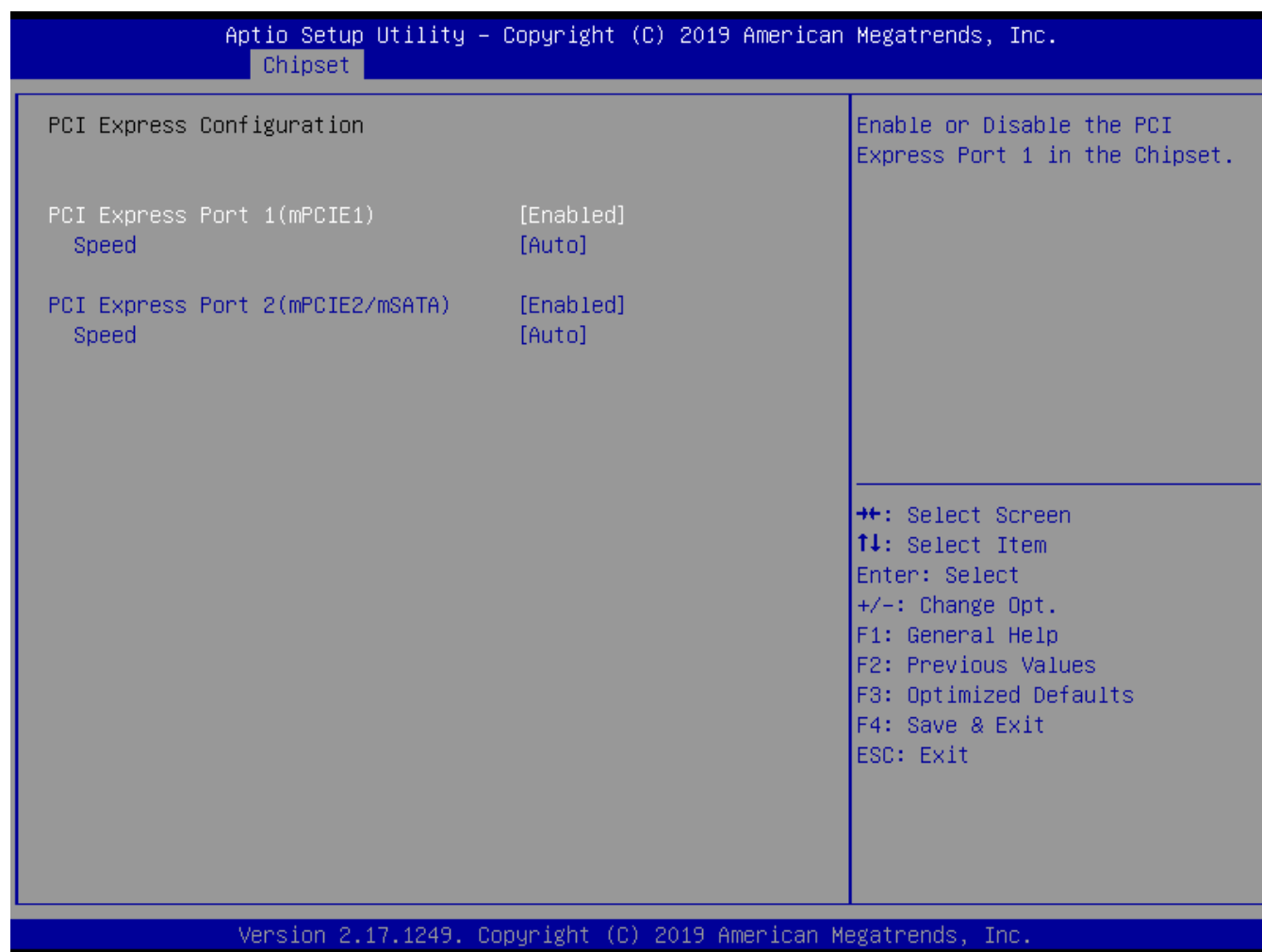
■ XHCI Mode

Mode of operation of xHCI controller.

■ USB 2.0(EHCI) Support

Control the USB EHCI (USB 2.0) functions. One EHCI controller must always be enabled.

2.2.3.6 PCI Express Configuration



■ PCI Express Port 1 (mPCIIE1)

Enable or Disable the PCI Express Port 1 in the chipset.

■ Speed

Configure PCIe port speed.

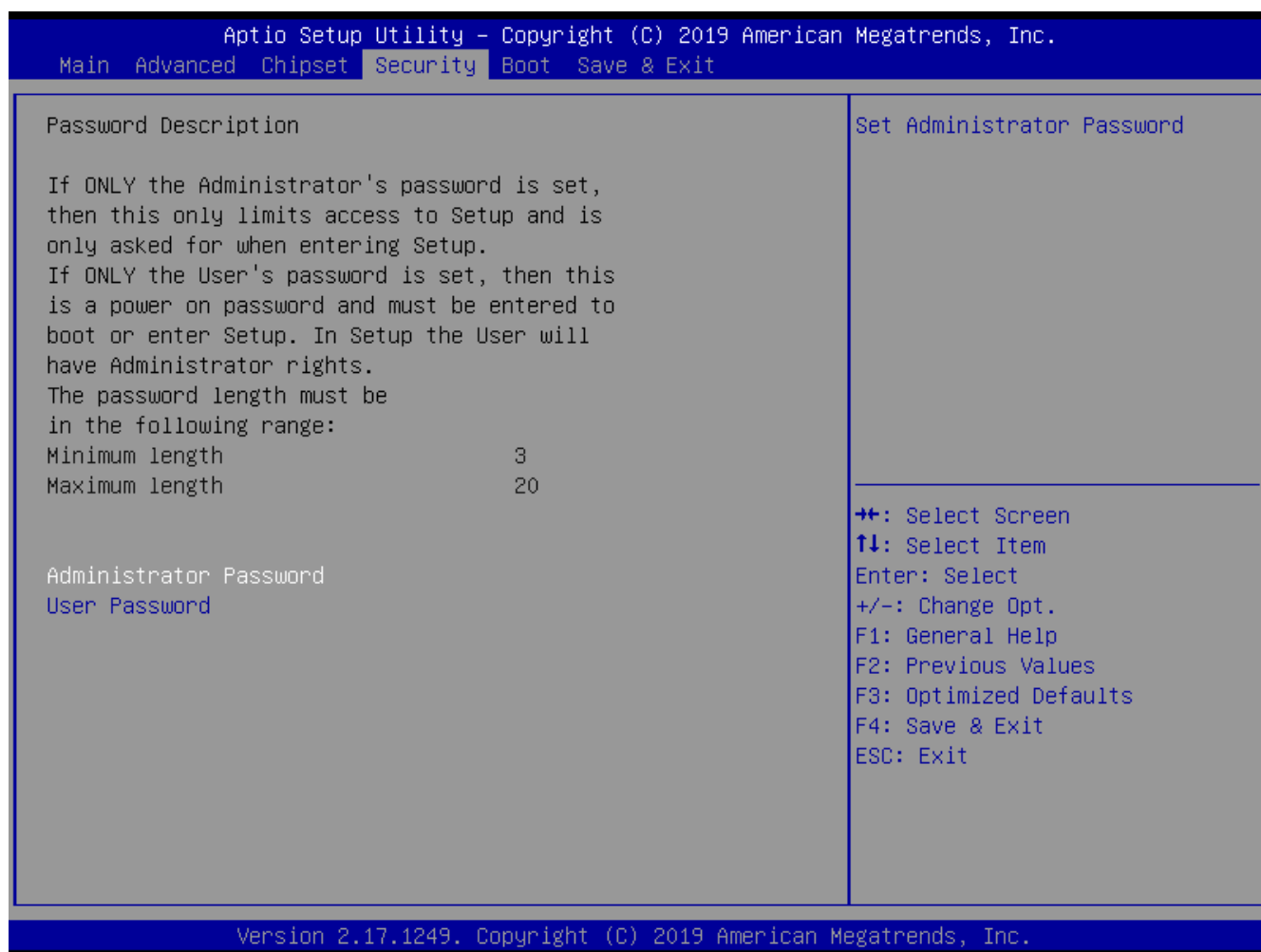
■ PCI Express Port 2 (mPCIIE2/mSATA)

Enable or Disable the PCI Express Port 2 in the chipset.

■ Speed

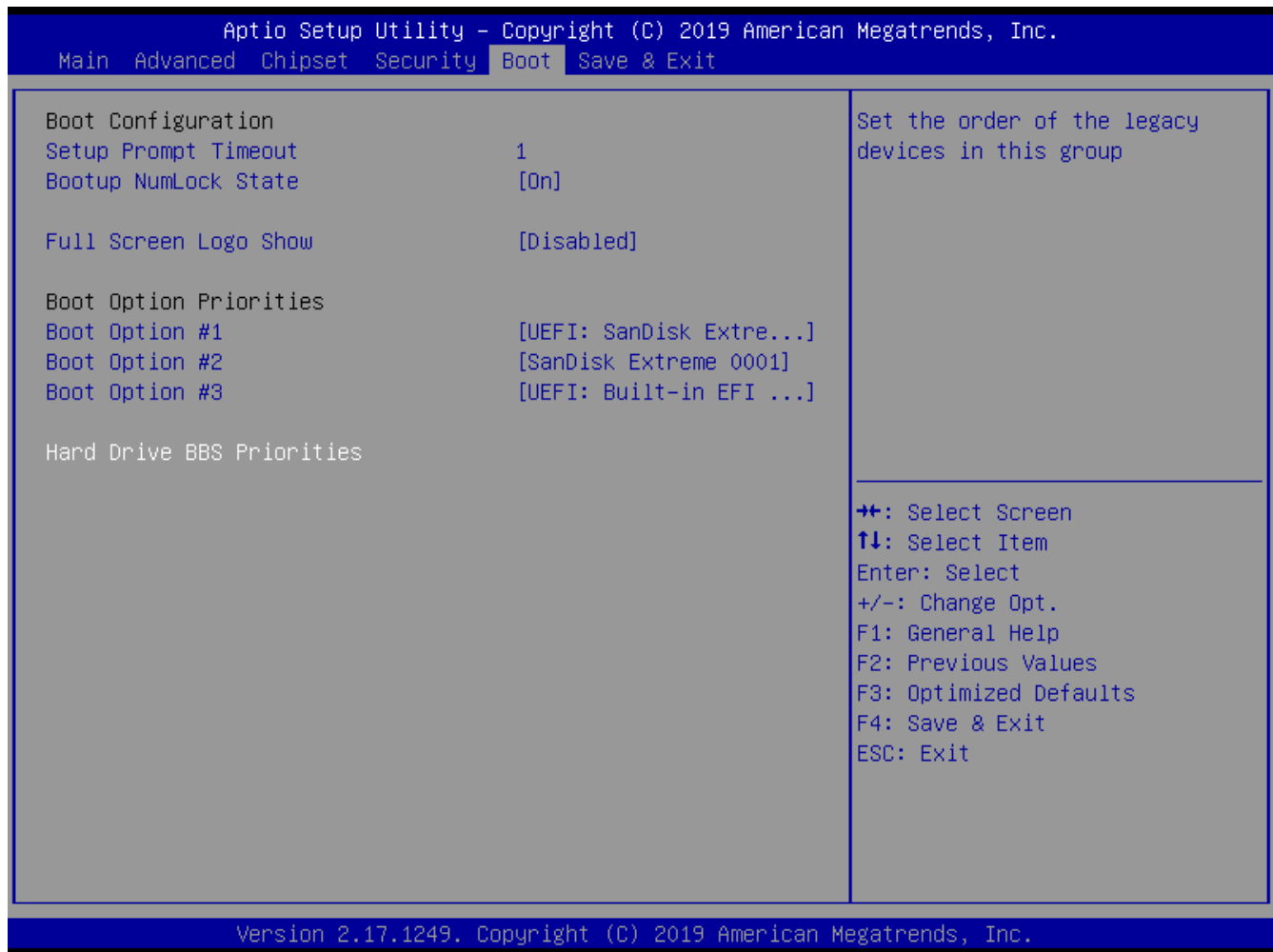
Configure PCIe port speed.

2.2.4 Security



Select Security Setup from the CT-PBT01 Setup main BIOS setup menu. All Security Setup options, such as password protection and virus protection are described in this section. To access the sub menu for the following items, select the item and press <Enter>.

2.2.5 Boot



■ Setup Prompt Timeout

Number of seconds that the firmware will wait before initiating the original default boot selection. A value of 0 indicates that the default boot selection is to be initiated immediately on boot. A value of 65535(0xFFFF) indicates that firmware will wait for user input before booting. This means the default boot selection is not automatically started by the firmware.

■ Bootup NumLock State

Select the keyboard NumLock state.

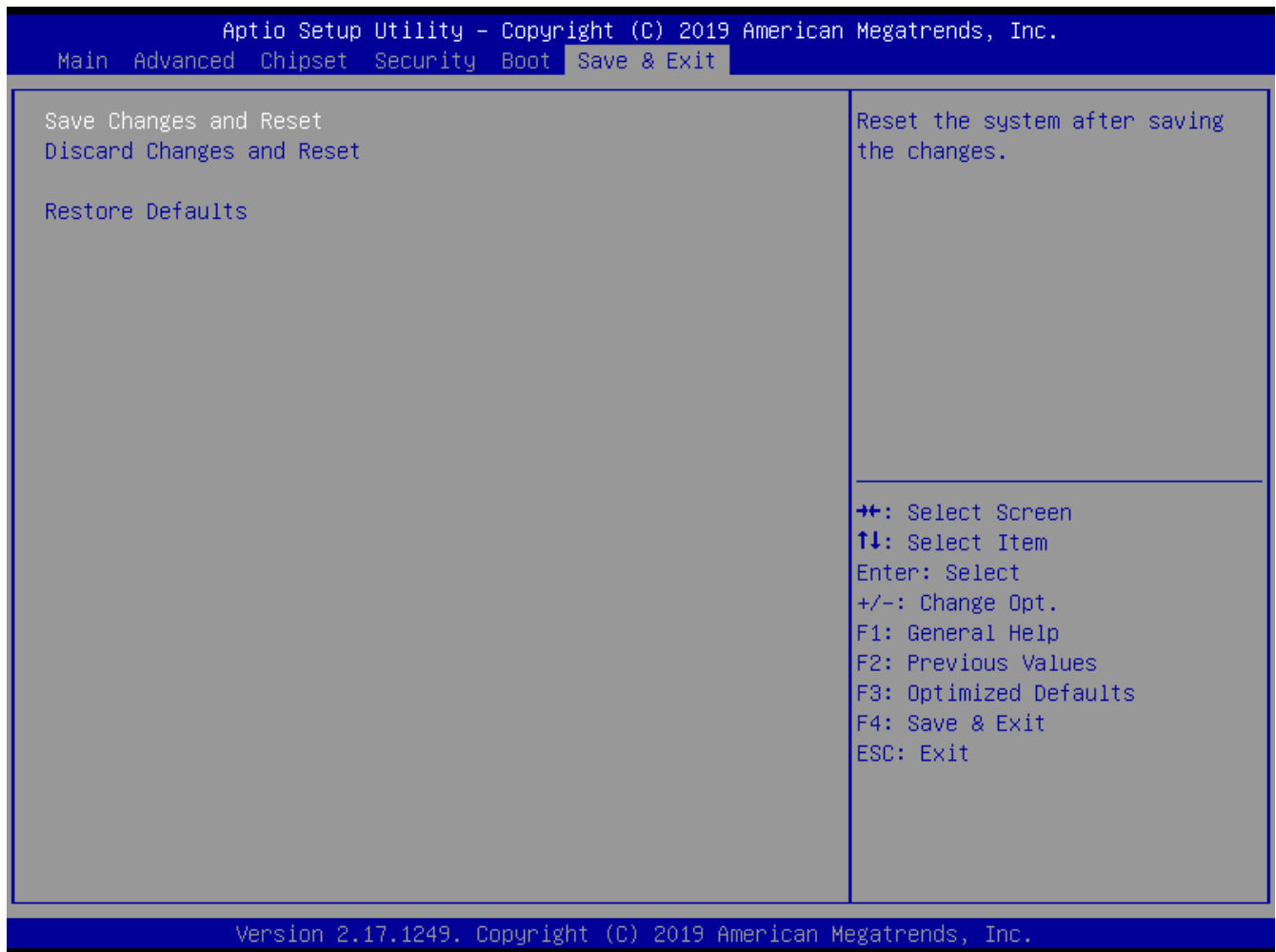
■ Full Screen Logo Show

Enable or Disable the full screen logo show

■ Boot Option #1 ~ #3

Sets the system boot order.

2.2.6 Save & Exit



■ Save Changes and Exit

This item allows you to exit system setup after saving the changes.

■ Discard Changes and Reset

This item allows you to rest system setup without saving any changes.

■ Restore User Defaults

This item allows you to restore the user defaults to all the options.

Appendix

WDT & GPIO

This appendix provides the sample codes of WDT (Watch Dog Timer) and GPIO (General Purpose Input/ Output).

Watchdog Timer

WDT Setting

// IO Address 0xA47 is WDT Enable.

// IO Address 0xA65 is WDT time mode select.

WDT_TIME_OUT Default = 0x00 on VCC POR, VTR POR, and PCI Reset	65 (R/W)	Watch-dog Timeout Bit[0] Reserved Bit[1] Reserved Bits[6:2] Reserved, = 00000 Bit[7] WDT Time-out Value Units Select = 0 Minutes (default) = 1 Seconds
--	-----------------	--

// IO Address 0xA66 is time value.

WDT_VAL Default = 0x00 on VCC POR, VTR POR, and PCI Reset	65 (R/W)	Watch-dog Time Time-out Value Binary coded, units = minutes (default) or seconds, selectable via Bit[7] of WDT_TIME_OUT register (0x52). 0x00 Time out disabled 0x01 Time-out = 1 minutes (second) 0xFF Time-out = 255 minutes (seconds)
---	-----------------	---

//Example1: Start WDT function.

Set 0xA47=0x0E, 0xA65 =0x80, 0xA66 =-0x03, it will reset after 3 seconds

```
#define TimeEnablePort 0xA47
```

```
#define TimeModePort 0xA65
```

```
#define TimeValuePort 0xA66
```

```
//Enable WDT
```

```
WriteByte (TimeEnablePort , 0x0E)
```

```
//Set Time mode
```

```
WriteByte (TimeModePort ,0x80) //Set second mode
```

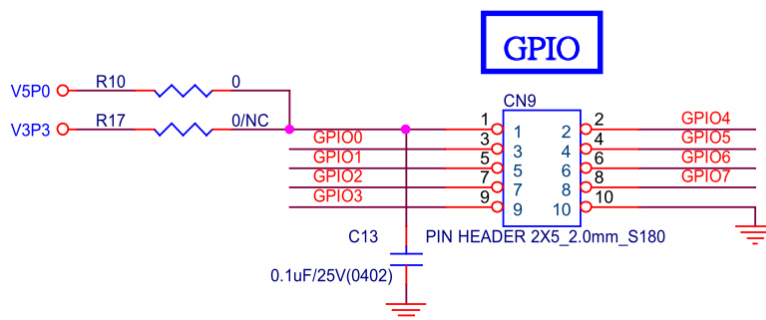
```
//Set Time Value
```

```
WriteByte (TimeValuePort ,0x03) //Set 3 Second
```

//Example2: Stop WDT function.

```
WriteByte (TimeEnablePort , 0x01)
```

GPIO



GPIO Setting

GPIO7	I/O 0xA4Bh Bit7	Default output
GPIO6	I/O 0xA4Bh Bit6	Default output
GPIO5	I/O 0xA4Bh Bit5	Default output
GPIO4	I/O 0xA4Bh Bit4	Default output
GPIO3	I/O 0xA4Bh Bit3	Default input
GPIO2	I/O 0xA4Bh Bit2	Default input
GPIO1	I/O 0xA4Bh Bit1	Default input
GPIO0	I/O 0xA4Bh Bit0	Default input

```
#define GPIO_ADDR 0xA4Bh
//Example1: read input pin
// IO 0xA4Bh is Pin Status(default 0x0F )(at GPIO0~ GPIO3)
ByteData = ReadByte (GPIO_ADDR) //Read current Pin Status
```

```
//Example2 : Write output pin
//IO 0xA4Bh default setting is 0x0F (output pin default is Low) (at GPIO4~ GPIO7)
ByteData = 0xF0 //set GPIO4~ GPIO7 to high
WriteByte (GPIO_ADDR, ByteData)
```

GP10 Default – 0x01 on VTR POR SCH3114, SCH3116 Devices ONLY	23 (R/W)	General Purpose I/O bit 1.0 Bit[0] In/Out : =1 Input, =0 Output Bit[1] Polarity : =1 Invert, =0 No Invert Bit[2] Alternate Function Select 1= RXD3 0= GP10 Bits[6:3] Reserved Bit [7] Output Type Select 1=Open Drain 0=Push Pull
---	-----------------	--

//Example3: Change GIO0 input/output mode

```
#define GPIO0_ADDR 0xA23h
```

```
ByteData = 0x01 //set GPIO0 to input
WriteByte (GPIO0_ADDR, ByteData)
```

```
ByteData = 0x00 //set GPIO0 to output
WriteByte (GPIO0_ADDR, ByteData)
```

//Example4: Change GIO1 input/output mode

```
#define GPIO1_ADDR 0xA24h
```

```
ByteData = 0x01 //set GPIO1 to input
WriteByte (GPIO1_ADDR, ByteData)
```

```
ByteData = 0x00 //set GPIO1 to output
WriteByte (GPIO1_ADDR, ByteData)
```

//Example5: Change GIO2 input/output mode

```
#define GPIO2_ADDR 0xA25h
```

```
ByteData = 0x01 //set GPIO2 to input
WriteByte (GPIO2_ADDR, ByteData)
```

```
ByteData = 0x00 //set GPIO2 to output
WriteByte (GPIO2_ADDR, ByteData)
```

//Example6: Change GIO3 input/output mode

```
#define GPIO3_ADDR 0xA26h
```

```
ByteData = 0x01 //set GPIO3 to input
WriteByte (GPIO3_ADDR, ByteData)
```

```
ByteData = 0x00 //set GPIO3 to output
WriteByte (GPIO3_ADDR, ByteData)
```

//Example7: Change GIO4 input/output mode

```
#define GPIO4_ADDR 0xA27h
```

```
ByteData = 0x01 //set GPIO4 to input
WriteByte (GPIO4_ADDR, ByteData)
```

```
ByteData = 0x00 //set GPIO4 to output
WriteByte (GPIO4_ADDR, ByteData)
```

//Example8: Change GIO5 input/output mode

```
#define GPIO5_ADDR 0xA28h
```

```
ByteData = 0x01 //set GPIO5 to input
WriteByte (GPIO5_ADDR, ByteData)
```

```
ByteData = 0x00 //set GPIO5 to output
WriteByte (GPIO5_ADDR, ByteData)
```

//Example9: Change GIO6 input/output mode

```
#define GPIO6_ADDR 0xA29h
```

```
ByteData = 0x01 //set GPIO6 to input
WriteByte (GPIO6_ADDR, ByteData)
```

```
ByteData = 0x00 //set GPIO6 to output
WriteByte (GPIO6_ADDR, ByteData)
```

//Example10: Change GIO7 input/output mode

```
#define GPIO6_ADDR 0xA2Ah
```

```
ByteData = 0x01 //set GPIO7 to input
WriteByte (GPIO7_ADDR, ByteData)
```

```
ByteData = 0x00 //set GPIO7 to output
WriteByte (GPIO7_ADDR, ByteData)
```

